Before the Fast-track Panel

Under: Fast-track Approvals Act 2024

In the matter of: FTAA-2605-1236 – Remarkables Ski Area Upgrade and Doolans Expansion

Statement of advice: Jane Macleod

Planning Assessment

DOC staff

27 October 2026

Department of Conservation
Te Papa Atawhai

Te Kāwanatanga o Aotearoa
New Zealand Government

1.0 Introduction

1. My full name is Jane Elliot Macleod.

1.1 Instruction

2. I have been requested to provide expert advice to the Director-General of Conservation (DOC/the Department) for the purposes of his comments on the Remarkables Ski Area Upgrade and Doolans Expansion Fast-track application.

3. My advice will be used to inform DOC's s53 comments on the application.

1.2 Qualification and Experience

4. I am employed by the Department of Conservation (DOC) as a Senior Resource Management Planner, based in the Dunedin office. I have worked for DOC in this role since January 2025.

5. I hold the qualifications of Master of Science in Environmental Studies from the University of Strathclyde, United Kingdom (2006) and Bachelor of Arts (Hons) in History from the University of Manchester, United Kingdom (2000).

6. I am an associate member of the New Zealand Planning Institute.

7. Before joining DOC, I had 17 years of experience working in resource management for the Dunedin City Council, including 14 years as a Policy Planner/Senior Policy Planner and three years as a Team Leader – Planning. I have experience in District Plan drafting and section 32 reporting, section 42A reporting for District Plan changes and attendance at Council plan change hearings, District Plan appeals and Environment Court mediation.

8. In my current role, I provide planning advice on resource consents, Council plans, and applications prepared under the Fast-track Approvals Act 2024.

1.3 Code of conduct

9. Although acknowledging that this is not an Environment Court proceeding, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023. I have complied with the Code

of Conduct in the preparation of this advice. Unless I state otherwise, this advice is within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

1.4 Scope of advice and expert opinion

10. My expert advice relates to the following:

    i. Adequacy of the applicant's assessment of the relevant planning provisions relating to effects on a range of ecological values (freshwater, vegetation, lizards, avifauna and invertebrates), on heritage, landscape and recreation values, and on the ability to collect scientific information from a geomorphological feature on the site.

    ii. Comments on conditions.

1.5 Material Considered

11. In preparing this advice, I have reviewed the following documents in the substantive application:

Table 1 Documents read

Part A – Substantive Application, updated 4 September 2026	Abbreviation
A-07 Substantive Application Report Executive Summary	A-07
A-08 Substantive Application Report Section 1 Introduction, updated 03.09.26	A-08
A-09 Substantive Application Report Section 2 Environmental Setting	A-09
A-10 Substantive Application Report Section 3 Project Description, updated 03.09.26	A-10
A-11Substantive Application Report Section 4 Approvals Required, updated 03.09.26	A-11
A-13 Substantive Application Report Section 6 Assessment of Environmental Effects, updated 03.09.26	A-13
A-14 Substantive Application Report Section 7 Management and Monitoring of Actual and Potential Effects, updated 03.09.26	A-14
A-15 Substantive Application Report Section 8 Fast Track Approvals Act 2024 requirements	A-15
A-16 Substantive Application Report Section 9 Approvals Relating to the Resource Management Act 1991 Effects, updated 03.09.26	A-16
A-20 Substantive Application Report Section 13 Conclusion	A-20

A-21 Effects Management and Compensation Overview Addendum	A-21
Part B – Technical Reports, updated 4 September 2026	
B-03 Remarkables Ski Area Upgrade and Doolans Expansion Landscape Effects Assessment (including graphic supplements and simulations)	B-03
B-04 Remarkables Ski Area Upgrade and Doolans Expansion – Carpark & Bus Hub Landscape Effects Assessment (including graphic supplement)	
B-05 Remarkables Ski Area Upgrade and Doolans Expansion – Carpark & Bus Hub Ecological Impact Assessment	B-05
B-06 Remarkables Ski Area Upgrade and Doolans Expansion – Heritage Assessment	B-06
B-07 Remarkables Ski Area Upgrade and Doolans Expansion – Recreation Assessment	B-07
B-08 Doolans Creek Water Take Assessment of Effects 26 Aug 26	B-08
B-09 Freshwater Ecological Impact Assessment 27 Aug 26	FEIA
B-12 Terrestrial Ecology Impact Assessment 26 Aug 26	TEIA
B-13 Lizard Assessment and Management Plan 27 Aug 26	B-13
B-14 Tracks, Crossings, Stormwater Freshwater Ecological and Hydrological Impact Assessment updated 27 Aug 26	B-14
B-27 Erosion and Sediment Control Assessment May 2026	B-27
Part C	
Project Maps and Drawings C-00 – C-11	C-00 to C11
Part F – Management Plans	
F-02 – Remarkables Ski Area Upgrades and Doolans Expansion – Construction Environmental Management Plan (May 2026)	F-02
F-03 - Remarkables Ski Area Upgrade and Doolans Expansion – Terrestrial Ecology Management Plan (May 2026)	TEMP
Part G – Rules Assessment, update 3 September 2026	
G-01 Remarkables Ski Field Expansion – Rules Assessment, updated 03.09.26	G-01
Part H - Proposed Conditions	
H-02 Resource Consent Conditions updated 3 September 2026	RCC

12. In preparing my statement of advice, I have also considered the following statements of advice provided for DOC:

Table 2 DOC statements of advice considered

Title	Author
DOC Expert Statement – Freshwater	Dr Christopher Kavazos
DOC Expert Statement – Vegetation and ecosystems	Dr Susan Walker

DOC Expert Statement – Invertebrates	Dr Corinne Watts
DOC Expert Statement – Avifauna	Dr Kerry Weston
DOC Expert Statement – Lizards	Nicholas Harker
DOC Expert Statement – Effects management including compensation	Dr Fleur Maseyk
DOC Expert Statement – Landscape	Jeremy Head
DOC Expert Statement – Geomorphology	David Barrell
DOC Expert Statement – Heritage	Dr Matt Schmidt
DOC Expert Statement – Visitor experience	Tamzin Moore

1.6 Site Visit

13. I undertook a site visit to the Doolans Basin on 30 April 2026, in the company of e3 Scientific and NZSki representatives, as well as other DOC staff and consultants.

1.7 Presentation

14. I attended the applicant's presentation of their effects management hierarchy and compensation package on 15 September 2026.

2.0 Executive Summary

15. Based on the technical advice provided by DOC, I consider that the proposal is inconsistent with the following provisions in the applicable planning framework:

    - National Environmental Standards for Freshwater (NES-F) Regulation 45(6), and National Policy Statement for Freshwater Management (NPS-FM) Policy 6 and clause 3.22, relating to effects on natural inland wetlands
    - NPS-FM Policy 7 and clause 3.24, relating to effects on river extent and values
    - NPS-FM Appendix 7, which sets out principles for aquatic compensation

- National Policy Statement for Indigenous Biodiversity (NPS-IB) Policies 3,4, 7 and 8, clauses 3.10 and 3.11, and Appendix 4, which sets out principles for biodiversity compensation
- Otago Regional Policy Statement (ORPS) provisions relating to freshwater, soil, and ecosystems and indigenous biodiversity
- Regional Plan: Water for Otago (RPWO) provisions relating to effects on wetlands, rivers and water quality
- Queenstown Lakes District Plan (QLDP) provisions relating to earthworks and effects on biodiversity, and
- Central Otago District Plan (CODP) provisions relating to effects on biodiversity and recreation values.

16. On that basis, I do not consider that the proposal recognises or provides for s6(a) or s6(c) or has particular regard to s7(d) or s7(i) in Part 2 of the RMA. In addition, for reasons discussed at section 4.1 below, I do not consider that the proposal has particular regard to s7(g) in relation to the finite characteristics of natural and physical resources.

17. I consider that there is insufficient information and assessment to determine whether the proposal is consistent with provisions in the RPS and district plans relating to effects on natural features and landscapes, or effects on historic heritage (and therefore whether the proposal appropriately recognises or provides for s6(b) or s6(f) of RMA Part 2).

18. I consider that the proposal is consistent with RPWO provisions relating to water quantity.

19. If the Panel are minded to grant the approval, I recommend a range of changes to proposed consent conditions to better manage effects.

20. However, I consider that the following further information and assessment is required from the applicant in relation to the following matters, to ensure that adverse effects are addressed to the extent practicable:

- Mapping of terrestrial naturally uncommon ecosystems (NUEs), and quantification of the area of each type of NUE that will be lost
- A foot survey of the area of the proposed weir and water intake at Doolans Creek, to search for heritage sites
- Comprehensive data on invertebrate values in the project area – information is currently limited by the absence of sampling during early to mid-summer, and no reporting of abundance data
- A survey of lizards in the proposed Transit Hub area next to SH6
- Alternatives to the proposed option of taking water for snowmaking from Doolans Creek and storing it in a reservoir at the site of Tarn 3 should be more fully assessed, including comparison of the potential ecological and landscape effects of each option
- Assessment of effects on geomorphology
- Assessment of the anticipated trajectory of climate change from a suitably qualified professional, how this will be responded to in regard to the longevity of the ski-field, additional snow making, and where any additional water required for this will be sourced from and stored
- Assessment of operational effects from snow making, snow grooming, skiing, visitor use and road use on freshwater, vegetation and ecosystem, and invertebrate values, taking into account the effects on the ecosystem's ability to adapt to climate change over the life of the project, and
- Assessment of the combined and cumulative effects of all elements of the project, particularly on freshwater and vegetation/ecosystem values.

3.0 Assessment of Effects

21. The proposal's effects on the environment are assessed in the substantive application, and in the statements of advice provided for DOC which are set out in Table 2 above.

22. For a summary of the effects of the proposed activity on public conservation land (PCL), taking into account proposed or potential mitigation measures, please see DOC's Concession Report (pp8-39), lodged with the EPA on 12 October 2026.

23. The effects of the proposed activity outside PCL – i.e. at the Lower Car Park Transit Hub next to SH6 – are discussed at section 4.3.5 below in relation to lizards and at section 4.6.1 in relation to landscape, based on relevant expert statements of advice.

4.0 Relevant Planning Provisions

24. In accordance with FTAA Schedule 5 Clause 17(b), the Panel must take into account any relevant provisions of the statutory instruments listed in RMA s104 (b). These are identified in the applicant's planning assessment in document A-16 of the substantive application.

25. In keeping with DOC's purpose and role, this statement of advice focuses only on the planning instruments and provisions that relate to management of effects on:

    - ecological values (freshwater, vegetation and ecosystems, invertebrates, avifauna and lizards)
    - heritage values
    - landscape and natural character values (including geomorphology)
    - recreation values, and
    - the effects of the proposal on the ability to collect scientific information from a geomorphological feature on the site.

26. Based on the expert statements of advice provided by DOC, I consider whether the proposal is consistent with the planning provisions that relate to these matters. I also highlight areas where further information is required to determine this.

27. I acknowledge that there are numerous provisions in the RPS and district plans that direct the construction and operation of infrastructure, particularly

significant or specified infrastructure, to be enabled and provided for. I note that "ski area infrastructure" is listed as a type of "specified infrastructure" under the definition of this term that applies in the NPS-FM and NPS-IB. I consider that the ski field expansion also meets the Otago RPS 2021's definition of "regionally significant infrastructure, which specifically includes "ski area infrastructure at Remarkables" (see discussion at section 4.4.5 below).

4.1 Resource Management Act 1991 (RMA) Part 2

28. I consider that the key elements of Part 2 of the RMA that are particularly relevant to the effects of this proposal as set out at paragraph 25 above are:

- section 6(a): matters of national importance "the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development"
- section 6(b): matters of national importance "the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development"
- section 6(c): matters of national importance "the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna"
- section 6(e): matters of national importance "the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga"
- section 6(f): matters of national importance "the protection of historic heritage from inappropriate subdivision, use, and development"
- section 7(d): other matters "intrinsic values of ecosystems"
- section 7(g): other matters "any finite characteristics of natural and physical resources", and
- section 7(i): other matters "effects of climate change".

29. I consider that these matters are generally addressed through the relevant provisions of the national policy statements, national environmental standards, regional policy statement and regional and district plans that are discussed below.

30. Based on my assessments of relevant provisions in these documents provided below, I do not consider that the proposal recognises or provides for 6(a) or 6(c) or has particular regard to 7(d) or 7(i). I do not consider that sufficient information or assessment has yet been provided in relation to s6(b) or s6(f) (see discussion at sections 4.4.4 and 4.4.5 below). This differs from the applicant's assessment of the proposed activity against Part 2 of the RMA (A-16, pp303-305), which does not identify any inconsistency with these sections.

31. In relation to section 6(e), I note that the application indicates that engagement has been taking place with Te Rūnanga o Ngāi Tāhu and the Kā Rūnaka for the region, and I defer to the views of mana whenua on this matter.

32. The only Part 2 matter relevant to DOC's interests in the proposal that, in my opinion, is not addressed via lower order planning instruments concerns the potential effects of the proposal on the potential loss of scientific value associated with one of the site's geomorphological features. Expert advice from Mr David Barrell indicates that the feature contains information relating to past geomorphological processes, that, if disturbed or removed, could not be recovered in the future. In my view, this represents an effect on "finite characteristics of natural and physical resources" under s7(g), but I do not consider that this effect is managed by any objective or policy in a national or regional policy statement, or regional or district plan, that applies to the site. However, as the effect will be caused by an activity that is fully discretionary in the Central Otago District Plan (earthworks over a certain threshold in an Outstanding Natural Landscape overlay), I consider that it is appropriate to take it into account. I note that under the "bundling" principle, the overall activity status for consents required under the CODP is non-complying.

33. This effect is not assessed in the application material. Mr Barrell has provided a statement of advice on the matter for DOC. His view is that a late-glacial

moraine sequence in Doolans Creek Right Branch Basin is an exceedingly well-preserved landform feature with significant scientific value. Based on its altitude and setting, Mr Barrell interprets the sequence to be of late-glacial age, or approximately 12,000 to 16,000 years old.

34. The late-glacial moraine sequence is particularly important for scientists seeking to better understand past climates across geological time, due to its location and age. It provides an opportunity to obtain climatic and chronological data for this part of New Zealand, relating to a globally important period when the Earth transitioned from a glacial to interglacial climatic condition. Few such examples of these landforms are preserved in the Southern Alps.

35. With respect to the late-glacial moraine sequence, Mr Barrell comments:

> *The Doolans Creek Right Branch Basin moraine sequence can be regarded as an outstanding natural feature of national scientific relevance. Age-dating and mapping of the sequence, and paleoclimatic interpretation is expected to yield scientific information not available from any other source in the wider region.*
>
> *Moraine age determination by surface exposure dating of boulders on the moraine ridges is critically dependent on having undisturbed boulders and any human activity or modifications may adversely affect their scientific value.*

36. In Mr Barrell's view, the parts of the proposal of relevance to the moraine sequence are:

- the proposed northern 4WD access track and nearby accompanying groomed ski trail, as they appear to involve considerable ground modification and earthworks over the lower 5 ridges of the moraine sequence, and
- the reservoir proposed to replace Tarn 3, which would occupy a large footprint centred on the existing tarn that is ponded between two of the moraine ridges, and would be "likely to considerably disrupt the natural

integrity of that part of those moraines". The purpose of this reservoir is to provide storage for water to be used for snowmaking.

37. The proposed activity would at least compromise the ability to obtain key scientific information in the late-glacial moraine sequence, because it would involve disturbance of the boulders required for the moraine age determination method referred to above. If all suitable boulders are disturbed or removed, the proposed development will permanently prevent future sampling and the obtaining of relevant scientific information.

38. Two potential mitigation measures are identified by Mr Barrell, as follows:

    - Redesign the development to avoid the moraine sequence (noting that that may result in other effects that Mr Barrell is unable to comment on), or
    - Enable the collection and dating of samples from the moraine sequence before the development proceeds. However, this approach would still preclude or compromise the use of any yet-to-be-developed methods of scientific enquiry that may be applicable to the moraine sequence.

39. Based on Mr Barrell's statement of advice, I do not consider that the proposal has particular regard to "finite characteristics of natural and physical resources" as required by RMA Part 2 s7(g).

40. I note that, if an alternative option were available to provide water for snowmaking that did not involve the loss of Tarn 3, effects on the late-glacial moraine sequence could be reduced. See discussion of the application's assessment of alternative water sources at section 4.2.1.1 below.

4.2 National Policy Statement for Freshwater Management 2020 (NPS-FM) and the National Environmental Standards for Freshwater 2020 (NES-F), both updated in 2025

41. The NPS-FM provides direction on how freshwater should be managed under the RMA, and the NES-F sets standards to regulate activities that pose risks to the health of freshwater, and freshwater ecosystems.

42. The application assesses the proposed activity against both the NES-F regulations (A-16, pp307-309) and the objective, policies and implementation clauses of the NPS-FM (A-16, pp311-318). The application finds that the requirements of relevant regulations in the NES-F have been met, and that the proposal is generally consistent with the NPS. I disagree with this assessment, because I consider that the proposal is inconsistent with the following NES-F regulations and NPS provisions:

- NES-F Regulation 45(6) and NPS-FM Policy 6 and associated clause 3.22, relating to effects on natural inland wetlands
- NPS-FM Policy 7 and associated clause 3.24, relating to effects on river extent and values
- NPS-FM Appendix 7, which sets out principles for aquatic compensation.

43. This section of my statement of advice will consider NES and NPS provisions first in relation to effects on wetlands, and then in relation to effects on rivers.

4.2.1 Effects on wetlands

44. DOC's freshwater and vegetation/ecosystems experts, Dr Christopher Kavazos and Dr Susan Walker, disagree with the views expressed in the application's freshwater assessments (FEIA and B-14) regarding the extent of effects on wetlands that would be caused by the proposal. Key areas of disagreement include:

- Whether or not Tarn 3 is a natural inland wetland, and therefore whether or not its loss should be treated as a direct effect on wetlands. Dr Kavazos finds that the tarn meets the "natural inlands wetland" definition in NPS-FM, and Dr Walker considers the tarn to be an ephemeral wetland[1]; the application says that it is not a wetland and does not meet the definition

[1] Dr Walker's statement of advice does not directly address the question of whether Tarn 3 qualifies as an NPS-FM "natural inland wetland", but her assessment of the site as an ephemeral wetland implies that she would assess it as a "natural inland wetland".

- The extent to which the hydrological functioning of wetlands will be maintained
- The extent to which sedimentation of wetlands will be avoided or minimised during the construction and operation of the project
- Overall, DOC's freshwater expert Dr Kavazos considers that effects on wetlands will be "Very High", whereas the application assesses the effects from vegetation loss, fragmentation and sedimentation will be "Moderate" and the effects from weed incursion will be "Low". (These assessments all take into account mitigation measures.)

45. Policy 6 of the NPS-FM is "There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted."

46. "Loss of value", in relation to a natural inland wetland or river, is defined in NPS-FM as meaning:

> *the wetland or river is less able to provide for the following existing or potential values:*
>
> *(a) any value identified for it under the NOF process* [this refers to the National Objectives Framework set out in the NPS-FM]
>
> *(b) any of the following values, whether or not they are identified under the NOF process:*
>
> *i. ecosystem health*
>
> *ii. indigenous biodiversity*
>
> *iii. hydrological functioning*
>
> *iv. Māori freshwater values*
>
> *v. amenity values*

47. To implement this policy, clause 3.22(1) of the NPS-FM requires regional councils to include a specifically worded policy into their regional plans. The Otago Regional Council has added Policy 10.4.8 to its Regional Plan: Water for Otago (RPWO) to achieve this. I will discuss the policy in this section of my

statement of advice, rather than in the section on the RPWO below, because it is stipulated in the NPS-FM.

48. The part of Policy 10.4.8 that is relevant to the proposed ski field expansion is as follows:

> *Policy 10.4.8*
>
> *The loss of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, except where:*
>
> ...
>
> *(b) The regional council is satisfied that:*
>
> *i. The activity is necessary for the construction or upgrade of specified infrastructure; and*
>
> *ii. The specified infrastructure will provide significant national or regional benefits; and*
>
> *iii. There is a functional need for the specified infrastructure in that location; and*
>
> *iv. The effects of the activity are managed through applying the effects management hierarchy.*

49. NPS-FM clauses 3.22(2) and 3.22(3) provide guidance on how clause (b) of Policy 28A is to be interpreted, as follows:

> *(2) Subclause (3) applies to an application for a consent for an activity that:*
>
> *(a) is for a purpose referred to in subclause (1)(a) to (f), other than the purpose referred to in paragraph (1)(a)(i);* [this includes the purpose described at Policy 10.4.8.b]*; and*
>
> *(b) would result (directly or indirectly) in the loss of extent or values of a natural inland wetland.*
>
> *(3) Every regional council must make or change its regional plan to ensure that an application referred to in subclause (2) is not granted unless:*
>
> *(a) the council is satisfied that:*

i. the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the wetland (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity values; and

ii. if aquatic offsetting or aquatic compensation is applied, the applicant has complied with principles 1 to 6 in Appendix 6 and 7, and has had regard to the remaining principles in Appendix 6 and 7, as appropriate; and

iii. there are methods or measures that will ensure that the offsetting or compensation will be maintained and managed over time to achieve the conservation outcomes; and

(b) any consent granted is subject to:

i. conditions that apply the effects management hierarchy; and

ii. conditions that specify how the requirements in (a)iii. will be achieved.

50. The RPWO has not yet been amended to give effect to clauses 3.22(2) and 3.22(3). However, pending a change of this kind, I consider that it is appropriate to take these clauses into account in this process directly from the NPS-FM.

51. The NES-F regulation that is relevant to effects on natural inland wetlands from specified infrastructure is Regulation 45. As set out in the application, the activity triggers the need for consent as a discretionary activity in a number of ways under this regulation, as follows:

- Land use consent as a discretionary activity is required for the clearance of vegetation across the site within 10m of natural inland wetlands (regulation 45(1))

- Land use consents as discretionary activities are required for earthworks across the site within 10m and 100m of natural inland wetlands (regulations 45(2) and 45(3))
- Water permits (diversion) as discretionary activities are required for earthworks, construction of infrastructure and construction of roads across the site within 100m of natural inland wetlands (regulation 45(4))
- A water permit (damming) as a discretionary activity is required for damming of the tarn within 100m of natural inland wetlands (regulation 45(4))
- Discharge permits as discretionary activities are required for discharge of stormwater from earthworks and from the proposed buildings across the Site within 100m of natural inland wetlands (regulation 45(5))
- A discharge permit as a discretionary activity is required for discharge of wastewater into the wastewater dispersal fields within 100m of natural inland wetlands (regulation 45(5))

52. If Dr Kavazos's view that Tarn 3 qualifies as a natural inland wetland is correct, then regulations 45(2) and 45(4) would also be triggered by earthworks and the damming of water occurring within a natural inland wetland. In any case, it is clear that multiple clauses of regulation 45 are triggered, and therefore that regulation 45(6) applies, as follows:

> *A resource consent for a discretionary activity under this regulation must not be granted unless the consent authority has first—*
>
> *(a) satisfied itself that the specified infrastructure will provide significant national or regional benefits; and*
>
> *(b) satisfied itself that there is a functional need for the specified infrastructure in that location; and*
>
> *(c) applied the effects management hierarchy.*

53. Policy 10.4.8 of the RPWO (directed by NPS-FM clause 3.22(1)), and regulation 45(6) of NES-F therefore provide the same direction on the circumstances in which consent for an activity that involves, or may involve, the loss of wetland values should be granted.

54. The position set out in the application is that the ski field expansion will have significant regional and national economic benefits, and that there is a functional need for the expansion in the proposed location. I do not contest this position.

55. However, taking into account the guidance provided in NPS-FM 3.22(2) and (3), I do not agree that the effects management hierarchy (EMH) has been applied appropriately to effects on the values of natural inland wetlands.

56. The key types of effect on wetlands that are of concern, as set out in Dr Kavazos's and Dr Walker's statements of advice, are: wetland loss and fragmentation; hydrological disconnection; sedimentation during construction and operation; and ongoing operational effects including from snowmaking, snow grooming, skiing and snowboarding, maladaptation to climate change, summer visitor use and summer road use. Dr Kavazos, in the table at paragraph 26 of his statement of advice, notes that the ongoing operational effects are not assessed in the application, and that a magnitude of effects can therefore not be assigned with confidence, but that these effects cannot be assumed to be 'low'. He considers that effects from loss and fragmentation, hydrological disconnection, and sedimentation will all remain 'very high' following proposed mitigation.

57. The degree of effect on wetlands is assessed differently by the applicant's and DOC's experts. This is both because DOC's experts consider Tarn 3 to be a wetland, and assign a 'very high' ecological value to it, and because they are less convinced that the proposed mitigations will be successful in reducing the level of effect on wetlands other than the tarn (noting that no mitigation is possible or proposed for the loss of the tarn, though some compensation is proposed as discussed further below).

58. Dr Walker notes that ephemeral wetlands are a type of 'naturally uncommon ecosystem' (para 4) and describes Tarn 3 as the only example of an ephemeral wetland in the project site. She considers that (para 57.a):

> *Tarn 3 is also distinct from the other tarns in Doolans Basin because it is higher in elevation, with a rock-strewn beach, and is part of a rare late-glacial moraine geomorphic sequence. Rather than a tarn of lower ecological value than others in the Doolans Basin, this ephemeral wetland appears to be of a type, ecological character, and geomorphic origin that is unusual in the ED, and therefore of unusually high value.*

59. Dr Kavazos describes Tarn 3 as follows:

> *I consider Tarn 3 to be best described as an intermittently dry tarn basin with wetland characteristics, rather than as a permanently inundated tarn. Its fluctuating water level, seasonal inundation and drawdown, and associated shallow-margin habitats are part of the natural hydrological diversity of the tarn system and contribute to its ecological value and distinctiveness … An intrinsic feature of Tarn 3 is its location on a late glacial moraine sequence, which has created the specific geomorphological and hydrological conditions to enable this system to evolve. Tarn 3 is therefore an important representative of the range of tarn environments present within the ecological district, and possibly nationally.*

60. In contrast, the application assigns a 'high' rather than 'very high' value to Tarn 3 and does not consider it to be a wetland.

61. DOC's and the applicant's experts agree that the values of other wetlands on the site – cushion bog wetlands (containing string mire wetlands), riparian wetlands and seepage wetlands – are 'very high'. The key area of disagreement here is how successful proposed mitigation will be in addressing effects.

62. The application describes how the EMH has been applied in the Effects Management and Compensation Overview Addendum (A-21), and relevant information is also provided in Section 7 Management and Monitoring of

Actual and Potential Effects (A-14), as well as in three of the ecological impact assessments relating to freshwater (FEIA, B-08 and B-14) and the Terrestrial Ecology Management Plan (TEMP). I consider each step in this hierarchy in the paragraphs below, informed by the application and by statements of advice provided for DOC from Dr Kavazos and Dr Walker, as well as from Dr Fleur Maseyk in relation to effects management including compensation.

4.2.1.1 Adverse effects are avoided where practicable

63. The application (A-21, section 2.3) indicates that, during the planning of the proposed layout of ski infrastructure, priority was given to avoiding disturbance to a range of ecologically sensitive areas, including – in the case of wetlands – cushion bogs, seepage wetlands and riparian wetlands. As a result, the application indicates that infrastructure is generally proposed on rockfield or tussock grassland.

64. In addition, it is proposed that roads and utility infrastructure will be located in a single shared corridor, to avoid creating multiple areas of disturbance.

65. I agree that these measures will have avoided adverse effects on wetlands. Dr Kavazos comments as follows (paragraph 130 of his statement of advice):

> *I acknowledge that the applicant has attempted to demonstrate avoidance as far as practicable in routing the track and associated infrastructure through the basin and has sought to minimise effects on hydrological connectivity by routing the track to avoid wetland disturbance so far as possible. That routing reduces the extent of wetland lost and maintains a degree of hydrological connectivity.*

66. However, I am not convinced that alternatives to the loss of Tarn 3 have been adequately explored. As indicated above, there is disagreement over whether the tarn qualifies as a "natural inland wetland" – but if it does, then the NPS-FM and NES-F requirements to apply the EMH are relevant.

67. The site of Tarn 3 is proposed to be used as a reservoir to store water drawn from the Doolans Creek, for the purpose of snowmaking. A brief explanation is provided in the application (B-08, section 6.7 and A-21, section 7.1) of

alternative water sources that were considered for this purpose. These include:

- Groundwater – this option was rejected based on the difficulty of access to drill investigation wells, the low likelihood of success, and the high likelihood of significant adverse effects on wetlands and tarns from groundwater drawdown.
- Taking water from Tarn 1 – this option was rejected due to the tarn's high ecological values, and the tributaries and wetlands sustained by it.
- Taking of additional flow from Lake Alta or the Rastus Burn – this was not considered viable due to an existing water take from that catchment, and the cultural effects from transferring water from one catchment to another.

68. Dr Kavazos's statement of advice questions why the third of these options has not been explored more fully. He considers that:

- effects on cultural values may be less clear cut than is presented in the application – Kā Rūnaka are best placed to comment on this, and
- servicing the proposed snowmaking from the existing Lake Alta water take warrants additional consideration because it would remove the need for the storage reservoir, thus avoiding effects on Tarn 3, and would also remove the need to build an access track and associated water pumping infrastructure down to Doolans Creek, and the ecological effects from those activities.

69. The applicant (cited in paragraph 123 of Dr Kavazos's statement of advice) has responded to this suggestion, noting that:

- the existing Lake Alta take is currently constrained by conditions that require abstraction to cease when Lake Alta falls to or below 1799.4 m a.s.l. and requiring a residual flow of 15 L/s to be maintained in the Rastus Burn at the point of take

- the Rastus Burn catchment above the take is less than half the area of the Doolans Creek catchment above the proposed take, and
- the Otago Regional Council lists the Rastus Burn as an over-allocated catchment.

70. However, as Dr Kavazos points out, this response does not compare the ecological effects of the two options; it does not assess whether the effects of increasing abstraction from an already modified and abstracted catchment would be greater than or less than the total loss of Tarn 3, together with the ecological effects from the establishment of the access take and pumping infrastructure required to take water from Doolans Creek. I agree with Dr Kavazos that until the relative effects of these two options have been assessed, avoidance has not been adequately explored for the adverse effects from the loss of Tarn 3 and the establishment of associated infrastructure (see further discussion of this matter in sections 4.2.2.1, 4.3.2.1, 4.3.3.1, and 4.4.5 below, in relation to effects on other wetlands and tributaries, vegetation and ecosystems, invertebrates, and landscape).

71. Dr Kavazos also considers that avoidance is the appropriate response to the potential effects of the proposal on peat wetlands – i.e. the cushion bog wetlands, which contain string mire – due to their irreplaceability, combined with their greater vulnerability than other wetland types to the effects of the proposal.

4.2.1.2 Minimise effects where practicable, then remedy where practicable

72. Measures to minimise and remediate adverse effects on wetlands are set out in the application at Table 2 of A-21 (p17), Table 7-1 of A-14 (pp276-282), and in Table 6.2 of TEMP (pp 32-33).

73. To mitigate effects from loss of wetland vegetation, the following measures are proposed (these measures are proposed to mitigate loss of all vegetation, including wetland vegetation):

- Delineation of disturbance footprint

- Disturbance footprint surveyed to record the plant species to be translocated
- All At Risk – Declining and Threatened plant species to be translocate
- Clusters of At Risk – Naturally Uncommon and Data Deficient plant species to be translocated (maximum of 500 clusters of each species).
- Monitoring of the above to ensure 60% survival rates.

74. To mitigate effects from hydrological disconnection and sedimentation, a range of different minimisation measures are proposed, including:

- Clearly demarcating wetlands within 10m prior to construction
- Adherence to a Construction Environmental Management Plan (CEMP) and an Erosion and Sediment Control Plan (ESCP), both of which are proposed to be finalised and certified by the councils (QLDC, CODC and ORC) before works commence.
- Pre-construction hydrological assessment of wetland catchments and micro-drainage
- Using tiered sediment controls (settlement bags, silt curtains and geotextile barriers) to maintain natural hydrological pathways during construction
- Using low pressure equipment and avoiding work during saturated conditions
- Using confined access routes for all machinery
- Reinstating and restoring microtopography, shallow pools and vegetated strips promptly
- Maintaining sediment interception and monitoring pathways from ski trails during operation
- Using side water channels to distribute flows as small, dispersed discharges rather than concentrated outlets
- Constructing roading in short sections to reduce erosion risk

- Installing sediment control measures on downslope side of roading
- Using gabion baskets in steep areas to assist with sediment capture
- Avoiding reliance on culverts that may concentrate flows
- Pausing earthworks and undertaking further assessment if significant groundwater is encountered in cuts, and installing permeable road sections as required to maintain connectivity
- Implementing dirty water diversions during construction to direct this runoff to treatment areas outside wetlands
- Contouring roads to promote rapid discharge of stormwater and avoid concentration of flows
- Minimising earthworks for temporary access tracks and using rubber matter in critical source areas
- Using concrete collars/bulkheads in utilities trenches, if water is found and the trench is acting as a conduit; diverting clean water around trenching during construction, to mitigate sediment mobilisation; and limiting trenching length to 150m so it can be completed within one day.
- During instream works, managing impacts on wetland and stream assemblages by: designing splash crossings to maintain natural stream flow and using clean riprap to minimise sediment mobilisation; maintaining culverts to keep clear of debris; limiting construction within wetlands to one day to maintain hydrological connectivity; and assessing wetland flow paths during detailed design, to determine where permeable access roads are required.

75. The key remediation measure proposed is to undertake monitoring as described in the relevant management plans (TEMP, CEMP, ESCP), and undertake remedial work if any issues are identified.

76. Dr Kavazos's statement of advice raises several concerns with the proposed minimisation measures. Permeable track sections are proposed to maintain

seepage flow across the corridor, but Dr Kavazos considers that it is uncertain whether this will be successful. If not, there could be adverse effects on wetland areas including, for peat forming and cushion communities: desiccation; peat oxidation and shrinkage; and a shift towards drier tolerant species. Changes of this kind would be progressive and require detailed monitoring to identify, and adaptive management plans to remediate.

77. There is also a risk that the services trench becomes a preferential drainage path, diverting water from its natural path. Dr Kavazos considers that the proposed use of concrete bulkheads to mitigate this risk is unproven and its likely success is uncertain.

78. In relation to sedimentation of the wetland complex, the application recognises this as a risk mainly during earthworks in the construction stage of the project. Dr Kavazos considers that sedimentation effects on wetlands will also arise during operation, from use of tracks. He notes that this could be managed by finishing bare earth trails with coarse rock and implementing a sediment and erosion control management plan during operation, but does not consider that it would be possible to avoid sediment inputs into the environment; in his view, the tracks would act as a permanent source of sediment as either dust or in surface run-off. Sediment deposition could smother low growing cushion and turf vegetation, alter the substrate and introduce nutrients.

79. Overall, Dr Kavazos's view is that significant adverse effects will remain following the proposed minimisation measures, which will disrupt the functioning and value of the present intact wetland complex.

80. Dr Walker shares these concerns and considers that there is substantial room for improvement in the proposed minimisation and remediation measures. She is concerned that measures proposed to protect wetlands and terrestrial vegetation through erosion and sediment controls and hydrological management are inconsistent with best alpine practice and will allow "avoidable and permanent degradation of terrestrial and wetland ecosystems". She comments on associated consent conditions as follows (paragraph 141):

The generic conditions and management plans do not take account of the sensitivity and high value of the environment and must be replaced by more rigorous, bespoke and tailored instruments. For example:

a. *for sediment, at a minimum there should be a trigger-level framework tied to the natural background variation, backed by a continuous monitoring regime.*

b. *for drainage, at all track crossings there needs to be prior baseline validation of flows, continuous upstream and downstream monitoring, pre-emptive trigger levels, and enforceable structural interventions to ensure and confirm that subsurface hydrology remains unaltered.*

81. Remediation measures rely heavily on proposed management plans, which Dr Walker considers are "insufficiently developed" (para 138). I also consider that proposed conditions relating to the processes for finalisation and certification of the draft management plans (TEMP, CEMP, ESCP) provided with the application[2] are deficient in a number of important ways, including:

- Missing requirements for all plans to be prepared by a suitably qualified and experienced person
- Absence of clear objectives that relate to the outcome that must be achieved in terms of effects management (the objectives that are proposed instead describe the type of content that each plan should include, e.g. "identify how the potential adverse effects… on the terrestrial ecology and biodiversity values… will be appropriately managed")
- Absence of clear performance management requirements (such as those recommended by Dr Walker above).

[2] See Draft Resource Consent Conditions (H-02) – in particular, conditions CON.8 (for CEMP), ESC.12 (for ESCP) and ECO.2 (for TEMP).

82. Further comments on conditions are provided at section 5.0 below, and a tracked changes version of proposed conditions is attached to this statement of advice.

83. As set out above, Dr Kavazos considers that, following avoidance, minimisation and remediation measures, residual adverse effects on wetlands (including the tarn) will remain 'very high'. The application also acknowledges that there will be residual adverse effects, but considers that these will be 'high' for the tarn (which in any case it excludes from its assessment of effects on wetlands) and 'moderate' for other wetlands.

4.2.1.3 Where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible

84. NPS-FM clause 3.22(3) requires that decision-makers must be satisfied that "if aquatic offsetting or aquatic compensation is applied, the applicant has complied with principles 1 to 6 in Appendix 6 and 7, and has had regard to the remaining principles in Appendix 6 and 7, as appropriate."

85. Appendix 6 sets out the principles for aquatic offsetting. These principles are discussed in Dr Maseyk's statement of advice.

86. Both the applicant and DOC's experts agree that offsetting is not possible in this case, for wetland values or any other ecological values affected by the proposal. The application states (B-12, section 7.1):

> *[C]redible opportunities for offsetting within a harsh alpine environment are not possible. This is because neighbouring subalpine and alpine areas contain relatively undisturbed vegetation and habitats that are unlikely to benefit from implementation of offsetting measures, such as habitat protection or restoration measures.*

87. Offsetting of effects on Tarn 3 was discounted because the other tarns in the basin are themselves pristine, leaving no degraded receiving site to improve (B-09, section 6.2.3).

88. For DOC, Dr Maseyk comments on this matter as follows (paragraph 74):

The Applicant states that credible opportunities for offsetting within the alpine environment are not possible and the ability to generate sufficient gain to at least balance (no net loss) or exceed (net gain) losses are limited. The DOC subject experts generally agree, as do I. The limits to offsetting (appropriateness principle) are breached on four fronts:

i. *Impacted values are vulnerable and irreplaceable (e.g., naturally uncommon ecosystems).*
ii. *No feasible techniques to generate gains (e.g. lack of techniques to reverse widespread ecosystem degradation effects such as drainage, sedimentation, nutrient enrichment, pH change, soil compaction and degradation, fragmentation, and pollution).*
iii. *Lack of offset sites or ability to generate sufficient gains (e.g., tarns, other alpine basins)*
iv. *Inability to demonstrate an offset has been achieved (e.g., lizards).*

89. Given the assessment of avoidance, minimisation, remediation and offsetting measures set out above, compensation needs to be considered.

4.2.1.4 If aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided

90. Under the NPS-FM, compensation will only be appropriate if it complies with principles 1 to 6 in Appendix 7, and has regard to principles 7 to 13. If it is not appropriate, then the NPS-FM and EMH direct that "the activity itself is avoided".

91. The Appendix 7 principles for compensation are set out and discussed in Dr Maseyk's statement of advice (paragraphs 40 to 50).

92. The application acknowledges that "the compensation proposed as part of the Project does not adhere to the principles of compensation in the NPS-IB and NPS-FM as an overall 'net gain' has not been confirmed via compensation modelling" (section 1.1, A-21). It does not otherwise assess the compensation proposal against the Appendix 7 principles (and in any case the compensation principles do not require net gain; they require, via principle 3,

that positive outcomes from compensation outweigh the values lost – see Dr Maseyk's statement of advice for an explanation of the difference between these two measures).

93. Even before turning to the nature of the applicant's proposed compensation for effects on wetlands, it is clear in my view that principles 1 and 2 are not complied with. These principles indicate that:

- Compensation should only be contemplated after steps to avoid, minimise, remedy, and offset adverse effects are demonstrated to have been sequentially exhausted (principle 1), and
- Compensation is not appropriate where the loss of extent or values of natural inland wetlands is not able to be compensated for – for example, where the affected wetlands are irreplaceable or vulnerable, and where effects are uncertain but potentially significantly adverse (principle 2).

94. As indicated in the discussion above, I do not consider that earlier steps in the EMH have been exhausted. Most importantly, there may be an opportunity to avoid effects on Tarn 3 that has not been fully explored. In addition, measures to minimise or remedy adverse effects on other wetlands could be strengthened as discussed above – although DOC's statements of advice do not indicate that strengthened measures of this kind could create a situation where residual adverse effects on other wetlands would be minor or less.

95. In addition, I consider that statements of advice from Dr Kavazos and Dr Walker clearly indicate both that the affected wetlands are "irreplaceable or vulnerable". In their statements of advice, the affected wetlands – the tarn as an ephemeral wetland, and cushion bog wetlands (containing string mire wetland), riparian wetlands and seepage wetlands – are all "naturally uncommon ecosystems", with seepage wetlands also classified as "endangered". I note that the Otago RPS 2021, indicates in its own "principles for biodiversity compensation" (Appendix 4), which give effect to the NPS-FM principles, that compensation is not appropriate in the case of "the removal or loss of ecological integrity and resilience of a naturally uncommon ecosystem

type that contains indigenous vegetation or habitat for indigenous fauna". This is discussed further below.

96. DOC's ecological expert advice also indicates that adverse effects on wetlands are uncertain but potentially significantly adverse. In addition to the uncertainties relating to effects relating to hydrological disconnection and sedimentation, discussed above, both Dr Kavazos and Dr Walker note potential effects on wetlands from operational sources that are not assessed in the application. These include effects from snowmaking, snow grooming, skiing and snowboarding, maladaptation to climate change, summer visitor use and summer road use (see Walker paragraphs 78 to 106 and Kavazos paragraphs 180 to 198).

97. Therefore, regardless of the compensation proposal, I consider that the NPS-FM indicates that compensation is not an appropriate option in this case.

98. The compensation proposed by the applicant for effects on wetlands is a payment of $20,000 to DOC, to be utilised for the construction of a boardwalk over the wetland leading to Lake Alta. This is proposed as compensation for loss of Tarn 3. No compensation is proposed for the loss of other wetlands (the other proposed measures of a payment of $75,000 per annum for predator control and planting works, and the payment of $80,000 for lizard research projects, are discussed in relation to effects on terrestrial ecology and fauna, below).

99. I note that the proposal to compensate for loss of Tarn 3 via boardwalk funding differs from the compensation recommended in the Freshwater Ecological Impact Assessment for this loss – "We suggest it would be possible to compensate for the loss of Tarn 3 through the development of a Restoration Plan that for example would include restoration of tarn habitat in a nearby catchment such as on Coronet Peak" (FEIA, page iii).

100. In relation to the boardwalk proposal, Dr Maseyk notes (paragraph 80.viii):

> *The proposed boardwalk appears to have little to do with the current Application and instead addresses impacts of summer visitors connected to existing activities and skifield infrastructure. The proposed level of*

funding ($20,000) does not provide for boardwalk maintenance, potentially creating an unsolicited liability for the Department.

101. Dr Kavazos comments (para 221):

> *In my opinion the compensation proposed is inadequate in ecological terms, and the $20,000 contribution toward a boardwalk to Lake Alta is significantly inadequate to compensate for the permanent loss of Tarn 3*.

102. It is clear, as acknowledged by the applicant, that the positive effects of the proposed compensation would not outweigh the adverse effects on wetlands, and so the proposal would also not comply with Principle 3 in Appendix 7, relating to the scale of compensation.

4.2.1.5 If aquatic compensation is not appropriate, the activity itself is avoided

103. Based on the discussion above, I consider that the policy framework and effects management hierarchy set out in the NPS-FM indicates that the proposed activity should be avoided, because more than minor residual effects on wetlands will remain following avoidance, minimisation and remediation, offsetting is not possible, and compensation is not appropriate.

4.2.2 Effects on rivers

104. The term "river" is not defined in the NPS-FM, but clause 1.4(2) indicates that the RMA definition applies – this is as follows:

> *River: means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)*.

105. Policy 7 of NPS-FM requires that "The loss of river extent and values is avoided to the extent practicable." To implement this policy, clause 3.24(1) requires that regional councils include the following policy in their regional plans:

> *The loss of river extent and values is avoided, unless the council is satisfied that:*

(a) there is a functional need for the activity in that location; and

(b) the effects of the activity are managed by applying the effects management hierarchy.

106. "Loss of value", in relation to a river is defined in the NPS-FM as set out in paragraph 46 above.

107. The Otago Regional Council has added a policy with this wording to the RPWO as Policy 5.4.2.A.

108. NPSFM clauses 3.24(2) and 3.24(3) provide guidance on how clause (b) of Policy 28A is to be interpreted, as follows:

(2) Subclause (3) applies to an application for a consent for an activity:

(a) that falls within the exception to the policy described in subclause (1) [i.e. the exception to Policy 5.4.2A]*; and*

(b) would result (directly or indirectly) in the loss of extent or values of a river.

(3) Every regional council must make or change its regional plan to ensure that an application referred to in subclause (2) is not granted unless:

(a) the council is satisfied that:

i. the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity values; and

ii. if aquatic offsetting or aquatic compensation is applied, the applicant has complied with principles 1 to 6 in Appendix 6 and 7, and has had regard to the remaining principles in Appendix 6 and 7, as appropriate; and

iii. there are methods or measures that will ensure that the offsetting or compensation will be maintained and managed over time to achieve the conservation outcomes; and

(b) any consent granted is subject to:

i. conditions that apply the effects management hierarchy; and

ii. conditions that specify how the requirements in (a)iii. will be achieved.

109. The RPWO has not yet been amended to give effect to clauses 3.24(2) and 3.24(3). However, pending a change of this kind, I consider that it is appropriate to take these clauses into account in this process directly from the NPS-FM.

110. Turning to the two clauses of Policy 5.4.2A that the NPS-FM indicates must be satisfied before consent is granted, as set out in paragraph 105 above, the application's position is that there is a functional need for the expansion in the proposed location, and I do not contest this.

111. However, taking into account the guidance provided in NPS-FM 3.24(2) and (3), I do not agree that the effects management hierarchy (EMH) has been applied appropriately to effects on the loss of river extent and values.

112. Dr Kavazos's view, discussed in Part 2 of this statement of advice, is that the streams and tributaries affected by the proposal have a range of ecological values: he assesses the tributaries to have a 'very high' value, Doolans Creek is assessed to have a 'high' value , and Rastus Burn to have 'moderate' value. The applicant reaches the same conclusion for Doolans Creek and Rastus Burn, but considers the tributaries to have 'high' rather than 'very high' ecological value.

113. Dr Kavazos's statement of advice indicates that the proposal includes the following activities that may affect river extent and values in the site's creek and tributaries:

- Rastus Burn
    - Increased wastewater discharge

- Doolans Creek Right Branch
    - Water-take
    - In-stream bed disturbance from the construction of a Tyrolean weir (c. 20m^2 of stream bed to be removed)
- Tributaries
    - Crossings and culverts (loss of c. 40m of stream length)
    - Reservoir inflow diversion (loss of c. 55m of stream length)
    - Stormwater discharge
    - Potential introduction of Didymo
    - Operational effects from snowmaking and grooming

114. Of these effects, Dr Kavazos considers that effects from the Doolans Creek water take and Tyrolean weir installation, and effects from the wastewater discharge to Rastus Burn, could be 'low', provided that appropriate mitigation measures and conditions (some more stringent than those proposed in the application) are applied.

115. However, in Dr Kavazos's opinion, the level of effect on tributaries from all activities listed above, taken together, will be 'High' after mitigation measures (including his proposed amendments to these) are applied.

116. The application assesses residual impacts following its proposed mitigation as follows:

    - Weir installation and water take at Doolans Creek – Low[3]
    - Crossings and culverts, reservoir diversion and stormwater discharge at tributaries – Low[4]

[3] FEIA/B-09, Table 13, p46.

[4] Tracks, crossings, stormwater assessment, B-14, Table 16, p87.

- Didymo risk in tributaries – Moderate[5]
- Increased wastewater discharge to Rastus Burn – Low[6]

117. The degree of residual effect on tributaries is therefore assessed quite differently by the applicant's experts and by Dr Kavazos.

118. The application describes how the EMH has been applied in relation to the Burn, Creek and tributaries in the Effects Management and Compensation Overview Addendum (A-21), and relevant information is also provided in Section 7 Management and Monitoring of Actual and Potential Effects (A-14), as well as in the ecological impact assessments relating to freshwater (FEIA, B-08, B-19 and B-14) and the Terrestrial Ecology Management Plan (TEMP). I consider each step in this hierarchy in the paragraphs below, informed by the application and by the statement of advice provided for DOC from Dr Kavazos.

4.2.2.1 Adverse effects are avoided where practicable

119. The application (A-21, section 2.3) indicates that, during the planning of the proposed layout of ski infrastructure, priority was given to avoiding disturbance to a range of ecologically sensitive areas, including permanent or intermittent water courses or flow paths.

120. However, in the case of disturbance to waterways associated with the establishment of the access track and pumping infrastructure required to take water from Doolans Creek up to the proposed reservoir at the Tarn 3 site, the discussion in section 4.2.1.1 above, relating to the need for a fuller assessment of potential alternatives to this approach to obtaining water for snowmaking, is relevant. If it were possible to obtain water from a different source (e.g. Lake Alta), then the following activities affecting streams and tributaries would also be avoided:

- Weir installation and water take at Doolans Creek, and the associated risk of didymo being introduced in waterways from the proposed

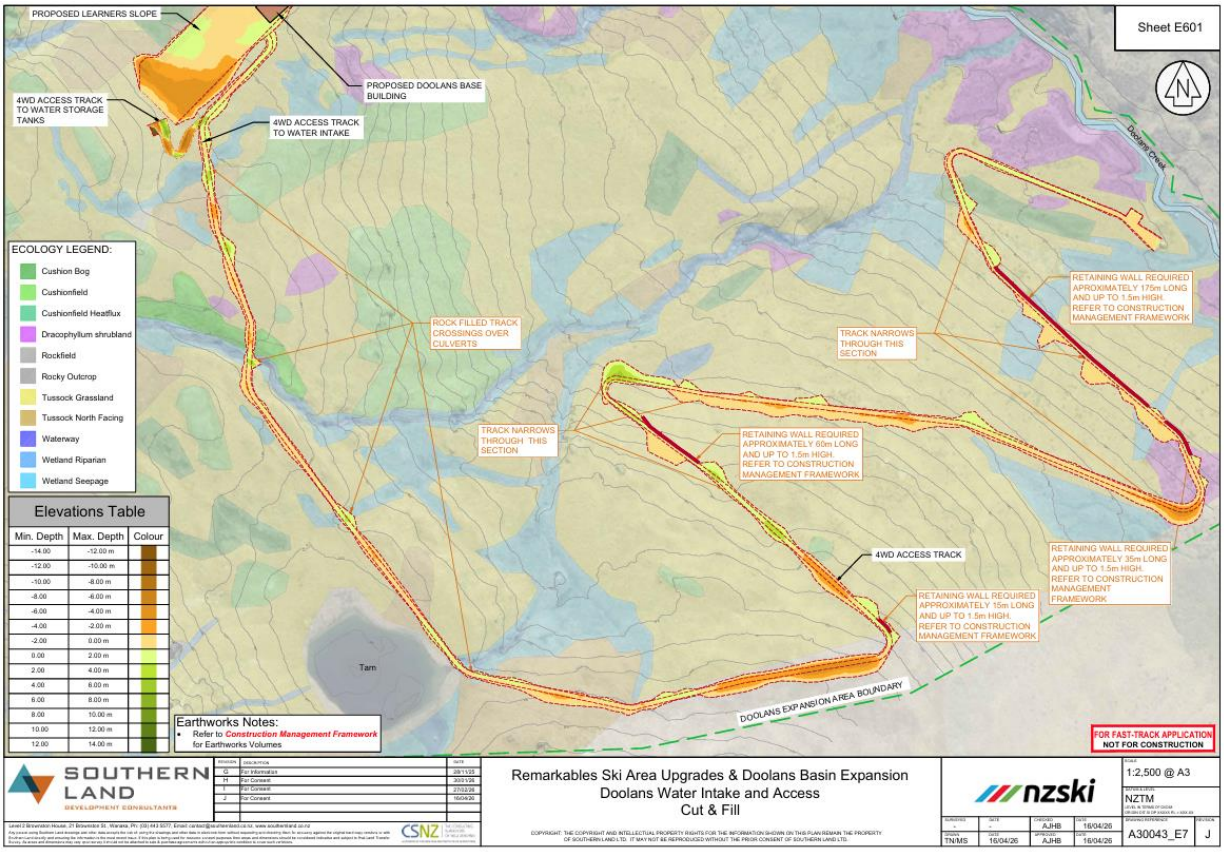
[5] Tracks, crossings, stormwater assessment, B-14, Table 16, p87.

[6] B-10 Rastus Burn Wastewater FEIA, section 7.

reservoir which will be filled with water sourced from Doolans Creek where didymo is present. Dr Kavazos considers that water released from the overflow of the reservoir, or during maintenance or leaks of piping infrastructure, is likely to introduce didymo to downstream waterways, and it is unclear how this risk will be managed (paragraph 172).

- Creation of a corridor from the proposed Doolans Base Building down to the water take, for an access track and water pumping infrastructure. This corridor traverses areas of cushionfield, cushion bog and Dracophyllum shrubland, and crosses tributaries or riparian wetlands in several places, including proposed culverts H and I and proposed splash crossing G (shown as permeable road on Figure 13 in B-14). The route appears – from Figure 13, and from Sheet E601 in the C-10 set of maps, which is copied below – to include a total of four stretches of permeable road and one section of armoured swale. At the location of proposed culvert I, the access track/pumping infrastructure corridor also skirts the edge of a tarn that has not been assigned a number in the application material; it is labelled “Tarn” on Sheet E601.

Image showing extent of access track and water infrastructure from the Doolans Base Building to the Doolans Creek water take (Sheet E601, C-10)



- Creation of a reservoir inflow diversion, to redirect intermittent flow around the proposed reservoir in two armoured swales (see Figure 25 in B-14, copied below). The water would be diverted around the reservoir and discharged into terminal armoured soakage fields, discharging into groundwater. This activity involves the loss of c. 55m of intermittent stream length.

Image showing reservoir inflow diversion around reservoir at Tarn 3 location (Figure 25, B-14)

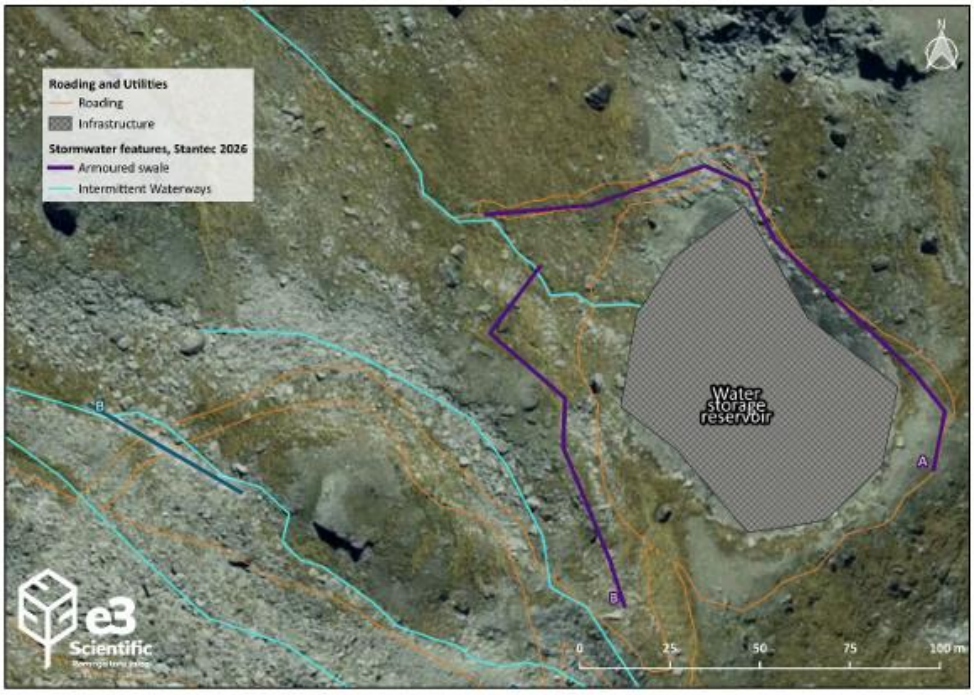


Figure 25: Armoured swale locations with terminal soakage areas (A & B).

121. Therefore, it appears that multiple types of effect on river extent and values could be avoided if an alternative approach were taken to obtaining water for snowmaking. It is acknowledged that the alternative approach could itself result in adverse effects on river extent and values, which need to be taken into account.

4.2.2.2 Minimise effects where practicable, then remedy where practicable

122. Measures to minimise and remediate adverse effects on streams are set out in the application at Tables 3 and 4 of A-21 (pp20-25), which are duplications of Table 13 of B-09, and Table 16 of B-14, respectively. These tables contain minimisation measures for weir installation and water abstraction (Doolans Creek), tributary crossings, the reservoir inflow diversion, stormwater run-off and sedimentation during construction, stormwater discharge from the roofs of buildings, and potential for Didymo spread.

123. The management approach to the increased discharge of wastewater to Rastus Burn is described in the Rastus Burn Wastewater Freshwater Ecological Impact Assessment (B-10).

124. Dr Kavazos agrees with the applicant's position that effects from weir installation and water abstraction (Doolans Creek) and effects from the wastewater discharge to Rastus Burn, could be 'low', but only provided that more stringent effects minimisation measures are applied, as follows:

    - For weir installation and water abstraction:
        - no concrete or cement washings entering the creek
        - suitable erosion and sediment control and dewatering measures, with construction limited to naturally low flow periods with supervision by a suitably qualified ecologist during in-water works
        - backflushing timed to coincide with elevated flows so far as practicable and avoided during the abstraction period other than at season start-up
        - the 33.5 L/s residual flow is secured as a firm condition set by reference to riffle habitat (I note that this is achieved via proposed conditions WAT.12 and WAT.13), and
        - there is reliable, telemetered verification of the residual flow, including under snow and ice[7].
    - For wastewater discharge:
        - conditions that set annual nitrogen and phosphorus load limits for the discharge to the Rastus Burn at or below the loads associated with good–excellent macroinvertebrate condition, rather than at the proposed 750 kg N/year and 100 kg P/year.

125. However, in relation to water abstraction from Doolans Creek, Dr Kavazos has an outstanding concern in relation to the potential for climate change to alter

[7] I note that proposed conditions WAT.14 to WAT.18 relate to monitoring of residual flow. They refer to use of a "water meter/datalogger/telemetry unit" (WAT.16) and require water take data to be provided to the ORC once yearly (WAT.15). Dr Kavazos considers that the key concern is that the applicant's flow monitoring should be sufficient to ensure that the residual flow is being maintained during periods of abstraction. He notes that ORC may have guidance around how this can be managed (pers. comm., 23/10/26).

flows in Doolans Creek, and what the consequences of that may be on the ability to abstract sufficient water for snow making while maintaining the residual flow. This is not explored in the application material.

126. In relation to stormwater (including stormwater run-off and sedimentation during construction and stormwater discharge from the roofs of buildings including the Doolans Base Building, Gondola Return Station, and snowmaking, raw water and wastewater pump stations), reservoir inflow diversion and crossings of tributaries, Dr Kavazos recommends a range of improvements to minimisation and remediation measures, as set out in paragraphs 164 and 167 of his statement of advice. These include:

    - confirmation of final roofing, flashing, gutter and fixing materials before construction
    - maintenance of roofing materials over the life of the consent to ensure the roofing material doesn't deteriorate and increase contaminant loadings over time
    - installation of first flush diversion or treatment at commissioning
    - monitoring extended across the life of the consent at a reducing frequency rather than ceasing at two years
    - periodic assessment of roof condition with a defined replacement or treatment trigger
    - monitoring of metals in deposited fine sediment, which integrates exposure over time and is a better indicator of chronic accumulation than event based water sampling
    - site specific designs for every culvert, splash crossing, ford, permeable track section and drainage structure certified before works commence measurable hydrological performance outcomes that maintain existing surface and shallow subsurface flow along with long-term performance monitoring established from pre-construction baseline states, and
    - water quality discharge criteria in the erosion and sediment control plan that reflect the very high ecological value and sensitivity of

receiving environments to sediment inputs, with supervision during all in water works.

127. To minimise risk of Didymo spread, Dr Kavazos indicates (para 174) that he supports the Check Clean Dry protocols the applicant has agreed to include in the EMP for construction and operational plant, and considers they should be secured by condition rather than left to a management plan. They should apply to all plant, vehicles and equipment moving between the Rastus Burn and Doolans Basins and between waterbodies within the Doolans Basin both during construction and operation phases. With these measures, the level of residual effect would be reduced to 'moderate'.

128. Dr Kavazos considers that the operational activities that are mentioned above as a risk factor for wetlands – i.e. snowmaking and snow grooming – could also affect ecological values in tributaries (para 197):

The wetland complex, tributaries and tarns have Very High ecological value, and it is my opinion that the operational effects described above are cumulative and have the potential to induce permanent changes to them over the 35-year life of the proposed consent.

129. Dr Kavazos is concerned that effects from these activities are not assessed in the application, and so no mitigation is proposed. He recommends a range of potential measures to minimise and remediate effects (para 198), but considers that the effects should be assessed by the applicant to determine their magnitude and the appropriate management approach.

130. Taken together, Dr Kavazos considers that the combined level of residual effect on tributaries, even with the additional minimisation and remediation measures he recommends, will be 'high' – this assessment is arrived at taking into account the 'very high' values of the tributaries, and the 'moderate' (following mitigation) magnitude of effects on those values from stormwater, crossings and Didymo risk. He comments (para 166):

In my opinion, it will be very difficult to provide mitigation steps that will lower this magnitude of effect given the sensitivity of the wetland environments to

sediment inputs and the difficulty in preventing didymo spread throughout the basin.

131. The residual effects on tributaries include the loss of approximately 55 m of intermittent stream length from the reservoir inflow diversion, with the natural channel replaced by armoured swales conveying flow around the reservoir. Dr Kavazos considers that this should be treated as a permanent loss of 55 m of natural stream and not as a realignment of the channel. This is additional to the 40 m being proposed to be lost through culverting and crossing activities.

4.2.1.3 Where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided

132. As set out above, the application assesses residual effects on tributaries and streams to be 'low' in all cases except for potential effects from Didymo which are assessed as 'moderate'. No aquatic offsetting or compensation for residual effects is offered by the applicant. (I note that the application states that the Lake Alta boardwalk funding is proposed as compensation for the loss of Tarn 3[8], discussed in section 4.2.1.4 above, rather than for effects on tributaries).

133. DOC's freshwater advice agrees that effects on Doolans Creek and Rastus Burn can be made 'low' with appropriate mitigation, but considers that residual effects on tributaries will be 'high', and very difficult to mitigate further.

134. Based on this advice, I consider that, following avoidance, minimisation and remediation measures, the activity would result in more than minor residual effects on river extent and values that are not proposed to be addressed via offsetting or compensation. Therefore, in my view, the policy framework and effects management hierarchy set out in the NPS-FM indicates that the proposed activity should be avoided.

[8] See A-13, section 6.6.5.

4.3 National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB)

135. The NPS-IB provides direction on the protection, maintenance and restoration of indigenous biodiversity, requiring at least no further reduction in indigenous biodiversity nationally.

136. The NPS-IB applies to indigenous biodiversity in the terrestrial environment, and also to certain other types of indigenous biodiversity specified in clause 1.3(2). Relevant to the current proposal, these include any natural inland wetland that is part of an SNA. The whole of the Doolans Basin project area is located within 3 SNAs identified in the Central Otago District Plan (SN18 Cone Peak, SN26 Glenroy and SN28 Wentworth); therefore, all natural inland wetlands in the area – which as, discussed above, DOC's freshwater and vegetation experts consider to include Tarn 3 – are subject to the NPS-IB.

137. The application assesses the proposed activity against the NPS (A-16, pp319-325) and finds that the proposal is generally consistent with it. I disagree with this assessment, because I consider that the proposal is inconsistent with the following NPS policies and their associated implementation clauses (3.10, 3.11 and 3.16):

    Policy 3: A precautionary approach is adopted when considering adverse effects on indigenous biodiversity.

    Policy 4: Indigenous biodiversity is managed to promote resilience to the effects of climate change.

    Policy 7: SNAs are protected by avoiding or managing adverse effects from new subdivision, use and development.

    Policy 8: The importance of maintaining indigenous biodiversity outside SNAs is recognised and provided for.

138. Although the Doolans Basin project area is fully covered by SNAs, the Rastus Burn project area, and the car park and bus hub area at the bottom of the mountain next to SH6, do not contain any identified SNAs.

139. Within SNAs, clause 3.11 of the NPS applies to the construction or upgrade of "specified infrastructure", which includes the proposed ski field expansion, provided that:

- the specified infrastructure provides significant national or regional public benefit
- there is a functional need or operational need for the specified infrastructure to be in that particular location, and
- there are no practicable alternative locations for the specified infrastructure.

140. As discussed above in relation to the NPS-FM, the application's position is that the ski field expansion will have significant regional and national economic benefits, and that there is a functional need for the expansion in the proposed location. It also makes the case that there are no practicable alternative locations for the expansion (Attachment A, A-21). I do not contest this position.

141. If the criteria are met, then, under clause 3.10(2) and 3.10(3):

- any adverse effects of the specified infrastructure on an SNA must be managed by applying the effects management hierarchy; and
- the applicant must demonstrate:
    - how each step of the effects management hierarchy will be applied; and
    - if biodiversity offsetting or biodiversity compensation is applied, the applicant has complied with principles 1 to 6 in Appendix 3 and 4 and has had regard to the remaining principles in Appendix 3 and 4, as appropriate.

142. Outside SNAs, a similar but more lenient management approach applies to all activities, including specified infrastructure. Under NPS-IB clause 3.16 any <u>significant</u> adverse effects of activities on indigenous biodiversity outside SNAs must be managed by applying the effects management hierarchy. All

other adverse effects must be managed in a way that gives effect to the objective and policies of the NPS-IB.

143. The majority of effects on indigenous biodiversity will occur in the Doolans Basin or in the upper Rastus Burn Basin, around Helicopter Ridge – these areas are within CODC boundaries and fully covered by SNAs. However, there will also be some effects at lower levels in the Rastus Burn Basin, in areas within QLDC boundaries and not covered by SNAs.

144. Sections 4.3.1 to 4.3.5 of my statement of advice discuss effects in SNAs, and section 4.3.6 discusses effects outside SNAs. These sections are informed by relevant expert advice obtained by DOC in relation to: vegetation and ecosystems (Dr Walker); terrestrial invertebrates (Dr Corrine Watts); avifauna (Dr Kerry Weston); and lizards (Mr Nicholas Harker).

145. For effects in SNAs, I will assess the application against the NPS-IB for each of these different topic areas in turn, in each case also taking into account relevant advice from Dr Maseyk on effects management including compensation.

4.3.1 Wetlands (SNAs)

146. The effects management hierarchy in the NPS-IB is worded in the same way as the EMH in the NPS-FM, except that it applies to effects on indigenous biodiversity rather than effects on wetlands and rivers, and it refers to biodiversity offsetting and compensation rather than aquatic offsetting and compensation. The offsetting and compensation principles set out in NPS-IB are also very similar to the equivalent principles in the NPS-FM, as discussed in Part A of Dr Maseyk's statement of advice.

147. Therefore, the analysis provided in relation to effects on wetlands, in section 4.2.1 above, is also relevant to consistency of the application with the NPS-IB, and my conclusion for this type of effect is the same; I consider that the policy framework and effects management hierarchy set out in the NPS-IB indicate that the proposed activity should be avoided, because more than minor residual effects on wetlands will remain following avoidance, minimisation

and remediation, offsetting is not possible, and compensation is not appropriate.

4.3.2 Vegetation and ecosystems, not including wetlands (SNAs)

148. Dr Walker considers that the ecological significance of Doolans Basin is "exceptionally high". In her view it has extremely high ecological integrity and outstanding ecological diversity. Much of the area is comprised of indigenous vegetation and habitat on naturally uncommon ecosystems, rare At-risk vascular flora are present, and the Basin has unequalled value for the adaptation of the flora and fauna of the ecological district to maintain indigenous biodiversity through climate change.

149. Key effects of concern to Dr Walker are as follows.

- The proposal will result in loss of terrestrial naturally uncommon ecosystems (NUEs) in both the Doolans Basin and the Rastus Burn Basin. The extent of this loss is not documented because the NUEs themselves are neither identified nor mapped, and areas of direct disturbance are estimated for vegetation communities only, which do not correspond to NUEs (the application estimates a permanent loss of 13.8ha of indigenous vegetation).
- Operational effects of the proposal, including effects from snowmaking, grooming, skiing, summer visitors and road use, are considered likely to adversely affect vegetation and ecosystems, but these are not described or assessed in the application.
- Dr Walker considers that the application underestimates likely edge effects beside proposed earthworks, including (among others) erosion and sedimentation.
- Effects from weeds on Doolans Basin vegetation are likely to be 'very high', and the application's expectation that management measures could fully control this risk is, in Dr Walker's view, unrealistic and has not been achieved in the Rastus Burn Basin.

- In Dr Walker's view, the application has underestimated the likely adverse effects on vegetation and ecosystems from fragmentation – i.e. the dividing up of the Doolans Basin ecosystem and vegetation into smaller fragments, separated by human-transformed communities or cover.

- Overall, Dr Walker considers that the proposed activities in the Doolans Basin, taken together, would result in cumulative and irreversible ecological effects that could reduce population sizes, and thus the likelihood of persistence, of all plant species occurring in the project site that are listed in the NZ Threat Classification System as Threatened, At-Risk or Data Deficient.

4.3.2.1 Adverse effects are avoided where practicable

150. The application (A-21, section 2.3) indicates that, during the planning of the proposed layout of ski infrastructure, priority was given to avoiding disturbance to a range of ecologically sensitive areas, including – in the case of terrestrial vegetation – high-value snowbank habitats of limited extent, high-value cushionfield areas, Dracophyllum shrubland, and known locations of abundant or highly isolated rare or threatened species where disturbance may result in a proportionally large number of species being affected. As a result, the application indicates that infrastructure is generally proposed on rockfield, where it states that no vegetation is present, or tussock grassland.

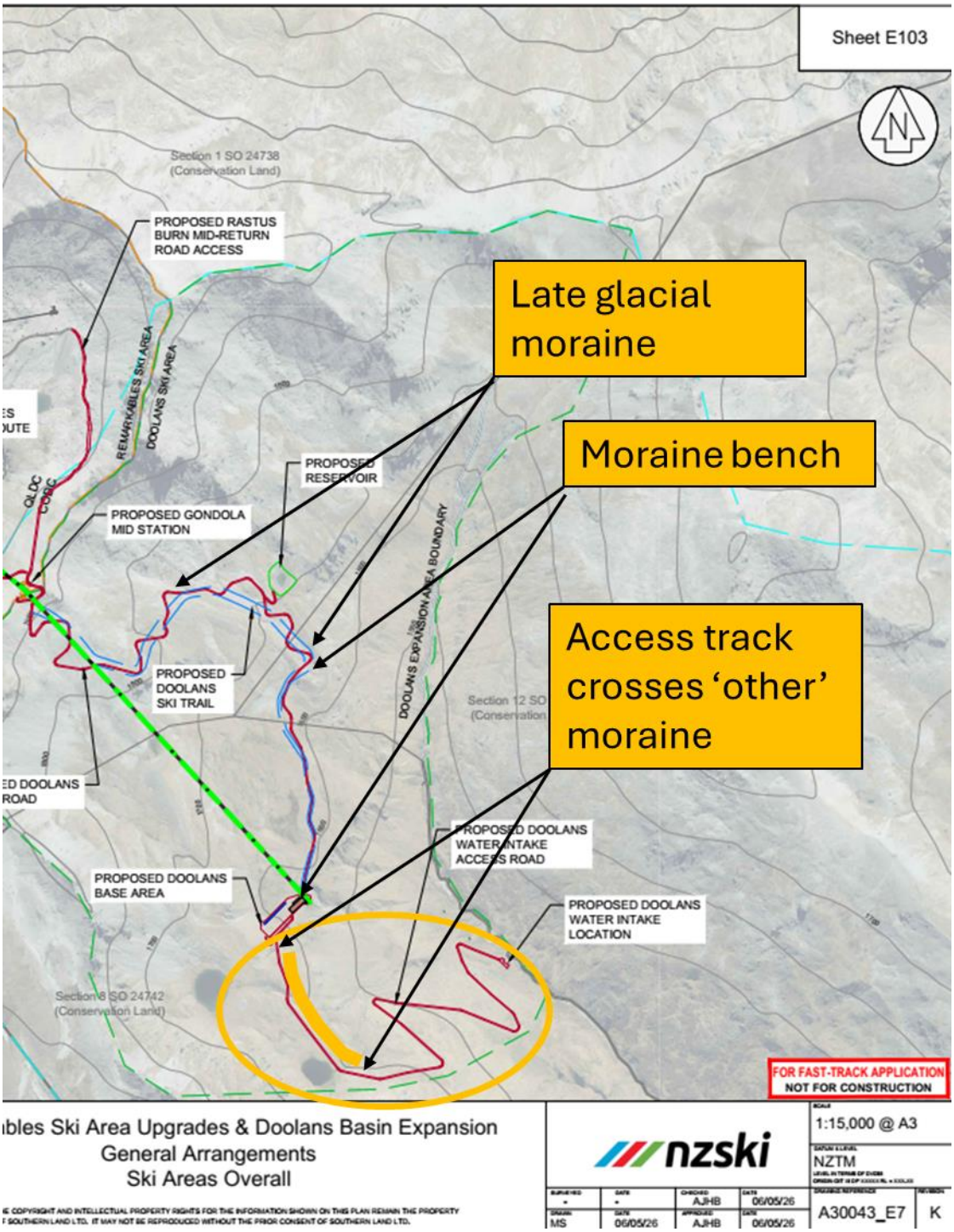
151. However, Dr Walker's statement of advice indicates that, because of the failure to map and take into consideration terrestrial NUEs such as moraine, alpine deflation surfaces, and screes of acidic rock, areas of irreplaceable ecological values have not been avoided. Dr Walker notes that the application relies on maps of vegetation communities, but these do not correspond to NUEs – the defining features of NUEs are physical character and process. Thus (para 56) "NUE identification in this context requires consideration of geomorphology and physical character, and separate mapping, neither of which is provided" in the application. This is a significant omission. In Dr Walker's view, the affected naturally uncommon ecosystems are irreplaceable, both because they are naturally uncommon and because

they are of a particular and extreme character that cannot be recreated[9]. The NPS and ORPS state that offsetting and compensation are not appropriate for some kinds of indigenous biodiversity, including indigenous biodiversity that is "irreplaceable or vulnerable". The ORPS also specifically states that offsetting and compensation are not appropriate in the case of "the removal or loss of ecological integrity and resilience of a naturally uncommon ecosystem type that contains indigenous vegetation or habitat for indigenous fauna". See further discussion at sections 4.3.2.4 and 4.4.3 below.

152. If an alternative option were available to provide water for snowmaking, then effects on vegetation and ecosystems could be reduced. As discussed in section 4.2.1.1, the applicant proposes to take water from Doolans Creek, and pump it to a reservoir at the location of Tarn 3. This proposal involves the creation of a long zigzagging corridor from Doolans Creek to the proposed Doolans Base building, for an access track and water pumping infrastructure, traversing a naturally uncommon ecosystem (moraine), as well as indigenous vegetation and some areas of wetland. Therefore, if the corridor were no longer required, less moraine and less indigenous vegetation would be lost. An approximation of the stretch of proposed corridor that traverses moraine is shown (circled) below[10]:

[9] Paragraph 23, Dr Walker's Addendum to Statement of Advice, 27 October 2026.

[10] Figure 1, Dr Walker's Addendum to Statement of Advice, 27 October 2026.



153. It is acknowledged that the alternative approach could itself result in adverse effects on vegetation and ecosystems, which need to be taken into account.

4.3.2.2 Minimise effects where practicable, then remedy where practicable

154. Key measures proposed in the application to minimise or remedy effects are as follows (A-21, Table 1):

- To minimise vegetation loss and fragmentation:
    - Delineation of disturbance footprint
    - Disturbance footprint surveyed to record the plant species to be translocated
    - All At Risk – Declining and Threatened plant species to be translocated
    - Clusters of At Risk – Naturally Uncommon and Data Deficient plant species to be translocated (maximum of 500 clusters of each species).
    - Monitoring of the above to ensure 60% survival rates.
    - Appropriate erosion and sediment controls implemented during earthwork activities.
- To remediate vegetation loss:
    - All batter slopes/exposed surfaces, temporary access routes, laydown areas and surplus disturbed areas will be re vegetated in accordance with the DOC/NZSki re vegetation protocols.
- To minimise weed introduction and mobilisation:
    - No soil from outside the study area is to be brought onto the site.
    - Prior to any machinery or equipment entering the study area it must be cleaned and checked for soil that could potentially contain seeds or exotic plants.
    - A quarantine area will be established near the Remarkables ski field base to enable checks and cleaning of machinery before moving onto the ski field.

- No soil is to be moved upslope more than 100 vertical metres, or between catchments.
- No disturbance is to occur outside the proposed earthworks footprint unless this could result in a reduced footprint.
- Any changes shall be checked by an ecologist prior to proceeding with the works.

- To remediate weed introduction and mobilisation
  - Existing weed infestations are to be controlled to ensure no increase in current population/distribution.
- To minimise sedimentation
  - All unvegetated trail surfaces are to be finished with large coarse rock rather than fine gravels.
  - Implementation of appropriate erosion and sediment controls.
  - All stockpiled material is to be contained within the disturbance footprint and not to be deposited atop any indigenous vegetation.
- To minimise effects on threatened plant species from increased human presence and ski-field operation
  - Staff training
  - No rubbish bins outside
  - Annual rubbish collections will be undertaken within and adjacent all tracks and ski area infrastructure.

155. The application estimates that, following this mitigation, the level of residual effects will be 'moderate' for vegetation loss, 'moderate' to 'high' for fragmentation, 'low' for weed introduction/mobilisation, 'low' to 'moderate' for sedimentation, and 'low' for increased human presence and ski field operation.

156. As discussed above, Dr Walker does not agree with this assessment of residual effect. In her statement of advice, she has suggested measures that

she considers may reduce effects from snowmaking, snow grooming, skiing, visitor impacts, roading impacts and weed invasion. However, she comments (para 15):

> *I expect residual effects would remain very high even after all possible measures are taken*.

4.3.2.3 Where more than minor residual adverse effects cannot be avoided, minimised, or remedied, biodiversity offsetting is provided where possible

157. In the applicant's assessment, there will be some residual adverse effects on terrestrial vegetation that are 'moderate' or 'high', and therefore offsetting or compensation is required. The application indicates that "offsetting would be very challenging in this alpine environment" and Dr Maseyk agrees that offsetting is not possible – see discussion in section 4.2.1.3 above.

158. Therefore, compensation needs to be considered.

4.3.2.4 Where biodiversity offsetting of more than minor residual adverse effects is not possible, biodiversity compensation is provided

159. Under clause 3.10(4)(b) of the NPS-IB, compensation will only be appropriate if it complies with principles 1 to 6 in Appendix 4, and has regard to principles 7 to 13. If it is not appropriate, then the NPS-IB and EMH direct that "the activity itself is avoided".

160. I consider that principle 2 cannot be not complied with, because it directs that compensation is not appropriate where indigenous biodiversity values are not able to be compensated for – for example, where the affected indigenous biodiversity is irreplaceable or vulnerable, and where effects are uncertain but potentially significantly adverse.

161. As discussed at section 4.3.2.1 above, Dr Walker's view is that the affected naturally uncommon ecosystems are irreplaceable.

162. Dr Walker's statement of advice (paragraphs 78 to 106) also indicates that adverse effects on terrestrial vegetation and ecosystems from a range of operational factors are uncertain but potentially significantly adverse. This

includes effects from snowmaking, snow grooming, skiing and snowboarding, maladaptation to climate change, summer visitor use and summer road use.

163. Therefore (as in the case of compensation for wetlands), regardless of the compensation proposal, I consider that the NPS-IB indicates that compensation is not an appropriate option in this case.

164. The compensation proposed by the applicant for effects on terrestrial vegetation is a payment of $75,000 per annum for predator control and planting works, for the requested 40-year duration of the concession. The application also indicates that "Consideration will be given to other projects or initiatives identified by DOC, the Mana Whenua Advisory Group or Councils".

165. Dr Maseyk comments (para 80.v) "The small, arbitrary budget of $75K per annum offered by the Applicant is insufficient to fund anything more than very localised and short-term direct efforts at predator management or revegetation."

166. The applicant also acknowledges (A-21, section 1.1) that the proposed compensation would not result in a net gain for biodiversity values. Therefore, it is clear that the proposal would also not comply with Principle 3 in Appendix 4, relating to the scale of compensation.

4.3.2.5 If biodiversity compensation is not appropriate, the activity itself is avoided

167. Overall, I consider that the policy framework and effects management hierarchy set out in the NPS-IB indicate that the proposed activity should be avoided, because more than minor residual effects on vegetation and ecosystems other than wetlands will remain following avoidance, minimisation and remediation, offsetting is not possible, and compensation is not appropriate.

4.3.3 Terrestrial invertebrates (SNAs)

168. Dr Watts comments on the invertebrate fauna values of the project area as follows:

The Remarkables Ecological District (ED) supports a diverse and distinctive alpine invertebrate fauna, although it remains incompletely documented. … Overall, evidence indicates high alpine invertebrate diversity, specialised habitat associations, and a significant component of rare, poorly known, and potentially undescribed fauna. The fauna is particularly associated with specialised alpine habitats such as cushionfields, snowbanks, fellfield, wetlands, and alpine soils.

The Doolans Basin warrants specific consideration because, unlike the already modified Rastus Burn ski-field environment, it is described in the application as "almost entirely unmodified and natural." This provides a more intact invertebrate baseline, with comparatively continuous alpine habitats and specialised microhabitats that support potentially diverse and poorly known fauna. The effects of the proposed expansion should therefore be distinguished from those occurring within the existing ski-field footprint, particularly given the acknowledged limitations of the invertebrate survey and the potential for direct habitat loss, fragmentation, microclimate change and loss of refugia in Doolans. The comparatively intact condition of Doolans is a crucial factor when assessing the magnitude and significance of these effects.

169. Key effects of concern include habitat loss and construction/operational effects.

170. The loss of habitat will result in a 'Moderate to High' level of effect on invertebrates, with the level of effect varying for different species.

171. Construction and operational effects have the potential to affect invertebrates both via direct mortality or disturbance and via modification of soil, litter, vegetation and aquatic habitats. Effects include construction noise (acknowledged in the application), but also a range of unassessed effects including from snowmaking and grooming, skiing and increased on-mountain activity, visitor use in summer, and roading and associated infrastructure.

4.3.3.1 Adverse effects are avoided where practicable

172. The application (A-21, section 2.3) indicates that, during the planning of the proposed layout of ski infrastructure, priority was given to avoiding disturbance to a range of ecologically sensitive areas, including known locations of abundant or highly isolated rare or threatened species where disturbance may result in a proportionally large number of species being affected (it is not indicated whether this includes areas avoided due to presence of invertebrate species).

173. If an alternative option were available to provide water for snowmaking, then some effects on vegetation and ecosystems could be avoided, as discussed at section 4.3.2.1 above. Dr Watts indicates that this would also avoid some effects on invertebrates, including via a reduction in: direct habitat loss; disturbance from vegetation clearance, earthworks and associated vehicle activity; and indirect effects from dust, sedimentation and changes to drainage affecting adjacent habitats. Given the high diversity of alpine invertebrates in Doolans Basin, including numerous At Risk, Data Deficient and poorly known taxa, avoiding these additional disturbances would be beneficial. The extent of the benefit would depend on the precise footprint and habitats avoided.[11] It is acknowledged that the alternative approach could itself result in adverse effects on invertebrates, which need to be taken into account.

4.3.3.2 Minimise effects where practicable, then remedy where practicable

174. Key measures proposed in the application to minimise effects on invertebrates are as follows (A-21, Table 1) – no measures are proposed in this table to remedy effects:

- To minimise effects from habitat loss:
    - The methods proposed to minimise effects from vegetation loss, set out in section 4.3.2.2 above

[11] Pers. comm., 19 October 2026.

- All invertebrate host specific plant species are to be translocated. This relates to all species within the *Cardamine* genus, *Aciphylla aurea* and *Aciphylla latipinna*.
- All vegetation community remediation is to be undertaken in proximity as close as possible to the donor site to retain invertebrate biodiversity in remediated and adjacent habitat and species genetic diversity across spatially differentiable locations.
- All plants must be translocated in tracts of vegetation material as large as possible to ensure as much of the habitat and ground dwelling terrestrial invertebrates are preserved and are to recolonise or dispersal into comparable habitat post-movement.

- To minimise effects from construction noise
  - No measures proposed on the basis that "construction noise is temporary in nature"

175. The application estimates that, following mitigation, the level of residual effects from habitat loss will be variously 'high', 'moderate' or 'low' depending on the invertebrate species, and effects from construction noise will be either 'high' or 'moderate' depending on species.

176. Dr Watts is concerned that these minimisation measures may not be successful. She comments (paragraphs 64 and 67):

The proposed reliance on salvage and reinstatement of microhabitats requires greater justification. Avoidance of important habitat should be prioritised and the TEMP does not adequately demonstrate that relocated or reinstated cushionfield, turf, moss, rock refugia and associated soil/litter complexes will retain their ecological function for invertebrates.

The provisions relating to host plants require further consideration. Translocation of host plants, including Cardamine and Aciphylla species, should not be assumed to maintain associated invertebrate populations without consideration of their life stages and the wider plant, soil, litter and microhabitat requirements.

177. Dr Watts recommends that consideration be given to vegetation direct transfer methods for invertebrate communities or notable TAR species: "Transfer of topsoil, litter, schist debris or intact habitat blocks may improve salvage of eggs, larvae, pupae and less mobile species that are unlikely to be detected using conventional salvage methods."

178. Finally, she considers that greater justification should be provided for the selection of sites for relocation, including how recipient sites will maintain long-term habitat quality, host plants and ecological processes.

4.3.3.3 Where more than minor residual adverse effects cannot be avoided, minimised, or remedied, biodiversity offsetting is provided where possible; if biodiversity offsetting of more than minor residual adverse effects is not possible, biodiversity compensation is provided

179. For reasons discussed above, the applicant and DOC agree that biodiversity offsetting would not be possible.

180. No compensation has been proposed to address residual adverse effects on invertebrates.

181. The discussion above indicates that, following avoidance, minimisation and remediation measures, the activity would result in more than minor residual effects on invertebrates that are not proposed to be addressed via offsetting or compensation. Therefore, in my view, the policy framework and effects management hierarchy set out in the NPS-IB indicates that the proposed activity should be avoided.

4.3.4 Avifauna (SNAs)

182. Dr Weston's statement of advice indicates that six indigenous bird species are known to be present in the alpine grassland habitats of the Remarkables Ecological District, of which three – New Zealand pipit/pihoihoi (At Risk – Declining), eastern falcon/karearea (Threatened – Nationally Vulnerable), and kea (Threatened – Nationally Endangered) – are of high to very high ecological value.

183. Dr Weston agrees with the applicant's assessment that effects on these species from the proposal without mitigation would be as follows:

- Moderate to high levels of direct ongoing effects on eastern falcon and NZ pipit through loss of high-quality foraging and nesting habitat, and infrastructure impediment (bird strike).
- Indirect effects from construction noise and ongoing light, operational noise and increased human presence, which will be highest for kea – and will reach high to very high levels for that species given that they are inquisitive and attracted to human activity.

4.3.4.1 Adverse effects are avoided where practicable

184. As discussed above, the application indicates that, during the design stage, priority was given to avoiding disturbance to known locations of abundant or highly isolated rare or threatened species where disturbance may result in a proportionally large number of species being affected. However, it is not stated whether this includes locations avoided due to the known presence of avifauna.

4.3.4.2 Minimise effects where practicable, then remedy where practicable

185. Key measures proposed in the application to minimise effects on avifauna are as follows (A-21, Table 1) – no measures are proposed to remedy effects:

- To minimise effects from habitat loss:
    - The methods proposed to minimise effects from vegetation loss, set out in section 4.3.2.2 above.
    - Where works take place in the breeding season, nesting habitat within the disturbance footprint will be surveyed.
    - Where construction works could cause direct disturbance to a nesting individual specific measures are to be undertaken (including, where appropriate, the establishment of exclusion

zones, moving of nests if appropriate, moving of chicks to rehabilitation centres,[12] destruction of nests).

- All staff to be trained in appropriate falcon interaction etiquette.

- To minimise effects from infrastructure impediment:
  - External window finishes will be designed to break up the line of sight, therefore, reducing bird strike (including monitoring).
  - If any bird strike of Threatened or At Risk bird species is recorded, further deterrent measures must be implemented.
- To minimise effects on kea from construction material and design:
  - No lead-based materials or finishes will be used in construction or maintenance of any infrastructure.
- No measures are proposed to minimise effects from construction noise, on the basis that it is temporary in nature.
- To minimise effects on kea from operational noise:
  - All tools, consumable items, and loose or soft constructions material will be secured in a way that is inaccessible to kea.
  - Interactions are minimised where possible to reduce potential habituation.
  - Kea safe 'playgrounds' can be installed to distract kea during work hours, if needed.
  - All measures will remain in place until risks are removed from potential kea interaction.
- To minimise effects on kea from increased human presence and ski field operation:
  - Kea interaction and etiquette signage

[12] Note that the references to moving of nests and chicks appear to have been left in the application material in error. I understand that these actions are no longer proposed.

- Staff training
- No rubbish bins are to be stored externally
- Annual rubbish collections will be undertaken within and adjacent all tracks and ski area infrastructure.

186. Dr Weston is satisfied with proposed measures to address effects on falcon, but recommends improvements to mitigation measures for pipit and kea, as follows:

- during construction works, if a nest is found that contains pipit chicks, all attempts should be made to avoid the area and allow the nest to continue fledging – noting that chicks will remain in the nest for approximately two weeks after hatching, and
- the applicant should commit to ongoing advocacy and education for staff and customers on not feeding kea, and on how to keep kea safe around ski field operations.

187. In Dr Weston's view, the proposal will not affect the long-term persistence of falcon, pipit or kea throughout their natural range, at the population level.

188. In Appendix F to the TEIA (B-12), the application states, in relation to pipit that "All losses of eggs will be recorded and should be retrospectively compensated for". However, no details of this potential compensation are given. The application does not otherwise propose offsetting or compensation for residual adverse effects, and the advice for DOC also indicates that the effects management hierarchy does not require offsetting or compensation for effects on avifauna[13].

189. On that basis, I consider that in relation to effects on avifauna, the proposal meets the policy framework and effects management hierarchy set out in the NPS-IB.

[13] Statement of evidence of Dr Maseyk, page 27.

4.3.5 Lizards (SNAs)

190. McCann's skink (Not Threatened) was the only lizard species found during the applicant's survey. According to this survey, the area of lizard habitat that intersects with the project footprint in the Doolans Basin is approximately 3.46 ha, and the number of McCann's skinks impacted within this footprint is estimated to be approximately 300 - 600 individuals. Mr Harker considers that the applicant's assessment has adequately captured the species present on the site but may have underestimated the number and density of McCann's skink present.

191. Mr Harker notes several other lizard species that are known to be present in alpine areas in the wider landscape but considers the only species other than McCann's skink that is "moderately likely" to be present is the Central-southern cryptic skink (At risk - declining). He considers that, based on the applicant's surveys, if any other species are present then this will likely only be in low numbers.

192. In Mr Harker's view, the construction stage of the proposed activity in the Doolans Basin will likely result in the injury and death of hundreds, and possibly the low thousands, of McCann's skink. There are large numbers present in nearby areas within the Remarkables ecological district, and large and secure populations elsewhere in the South Island, so the proposal is "unlikely to threaten the persistence of McCann's skinks locally or nationally". However, the impact within the site will be significant.

4.3.5.1 Adverse effects are avoided where practicable

193. As for avifauna, although the application indicates that during the design of the ski field expansion priority was given to avoiding disturbance to areas where this may result in a proportionally large number of species being affected, it is not stated whether this includes locations avoided due to the known presence of lizards in the Doolans Basin.

4.3.5.2 Minimise effects where practicable, then remedy where practicable

194. Key measures proposed in the application to minimise effects on lizards in Doolans Basin are as follows (A-21, Table 1 and B-13, section 4.4.5) – no measures are proposed to remedy effects:

    - To minimise effects from habitat loss:
        - Lizard habitat reduction (removing suitable lizard habitat slowly to encourage lizard relocation).
        - Construction / clearance activity within lizard habitat to occur when temperatures are greater than 14°C.
        - Creation of habitat (rock piles and associated planting) in 14 sites within the footprint.
        - Application of lizard incidental discovery protocol.

195. The proposed lizard incidental discovery protocol is intended to manage potential effects on other species that may be present in the Doolans Basin, such as the At-risk Central-southern cryptic skink. The protocol indicates that if any threatened or at-risk lizard species is found, any work encroaching on possible habitat must stop immediately, and DOC and the project herpetologist must be advised as soon as possible. If works are unable to avoid the habitat of the species, then an additional wildlife authority will likely be required.

196. Mr Harker is concerned that the incidental discovery protocol may not provide appropriate protection for threatened or at-risk lizard species, given the challenges around observing and locating any lizards that are displaced or disturbed during earthworks in an alpine environment. Therefore, he recommends that a herpetologist should be present on site when vegetation is being cleared.

197. Salvage of McCann's skink is not proposed in the Doolans Basin. The application states that there will be "significant" residual effects following mitigation in the Doolans Basin, "due to the lack of any salvage effort, or other management (such as predator control)" (B-13, section 4.7).

4.3.5.3 Where more than minor residual adverse effects cannot be avoided, minimised, or remedied, biodiversity offsetting is provided where possible; if biodiversity offsetting of more than minor residual adverse effects is not possible, biodiversity compensation is provided

198. For reasons discussed above, the applicant and DOC agree that biodiversity offsetting would not be possible in the Doolans Basin.

199. The application proposes two compensation projects relating to lizards:

- a research project using eDNA to detect threatened and at-risk lizards in the Remarkable Ecological District and surrounding alpine areas, and
- translocation of Lakes skink (Threatened – Nationally Vulnerable) from four Otago sites to the new Whakatipu Lizard Sanctuary at Kelvin Heights.

200. Mr Harker considers that these two projects would adequately compensate for the impact on McCann's skinks, and would result in benefits for lizard conservation. However, there is uncertainty over whether the $80,000 funding proposed by the applicants will be enough to cover both projects.

201. In addition, Dr Maseyk notes that both projects are existing initiatives by other parties, which calls into question whether the proposed compensation will actually result in additional gains for lizards. The proposed compensation may therefore not comply with principle 4, "additionality", in the NPS-IB compensation principles – further information is required to establish this.

202. Overall, I consider that it is not yet clear whether the activity meets the NPS-IB policy framework and effects management hierarchy in relation to effects on lizards in SNAs. Compensation is proposed to address residual adverse effects, but further information is required to establish whether the additionality principle is met.

<u>4.3.6 Effects on indigenous biodiversity outside SNAs</u>

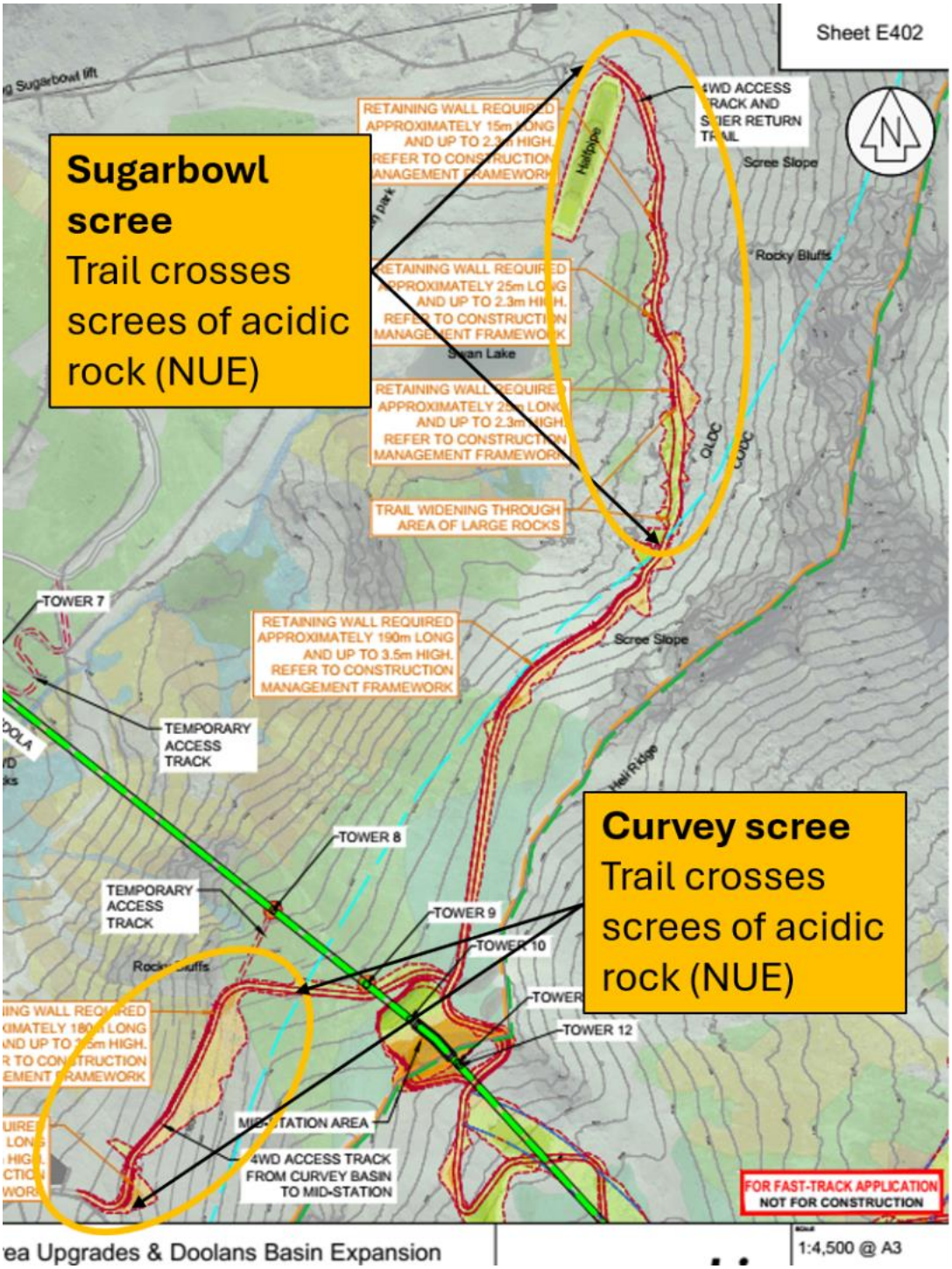
203. This section assesses effects on indigenous biodiversity outside SNAs against clause 3.16 of NPSIB, which requires that "any significant adverse effects of

the new subdivision, use, or development on indigenous biodiversity outside the SNA must be managed by applying the effects management hierarchy" and all other adverse effects must be managed to give effect to the NPS-IB objective and policies.

204. The area of the project site that is not covered by SNAs is the same area that is contained within QLDC boundaries, i.e. the area within the Rastus Burn Basin, excluding the higher reaches next to Helicopter Ridge. Proposed development in this part of the project site is at a smaller scale than in the Doolans Basin or upper Rastus Burn, and the area is also already partially modified by existing ski field infrastructure. However, there are activities proposed here include the significant earthworks required to create access tracks and skier return trails.

205. Dr Walker's statement of advice (para 73) indicates that these earthworks will result in the loss of naturally uncommon ecosystems (screes of acidic rock).

206. The affected areas are shown in Figure 2 from the addendum to Dr Walker's statement of advice, copied below.



207. Dr Walker's advice indicates that the effects on indigenous biodiversity from the loss and modification of the screes of acidic rock in those areas would be significant, and would include:

- removal of the functioning of the ecosystems in these areas, and
- sedimentation effects on the tarn ('Swan Lake') and the seepage and cushion bog wetlands below the track at the Sugarbowl (northern)

section, both during and after construction – noting that the tarn and the wetlands are also naturally uncommon ecosystems.[14]

208. Dr Watts considers that the affected acidic rock scree ecosystems are specialised habitats that are likely to support distinct alpine invertebrate assemblages, including poorly known and potentially range-restricted taxa. In her view, where tracks and retaining walls result in the loss or substantial modification of these habitats, the effects on invertebrate values could be significant and may not be readily reversible.[15]

209. Under clause 3.16, significant effects must be managed using the effects management hierarchy.

210. Some effects from loss of an NUE may have been avoided or minimised via route selection, and/or the design of the track, but Dr Walker's advice indicates that significant effects remain. It is not possible to remedy that loss. Biodiversity offsetting is not possible, for reasons explained in section 4.2.1.3. No compensation for this loss has been proposed.

211. Therefore, I consider that, in relation to effects on vegetation and ecosystems, NPS-IB provisions for the management of effects on indigenous biodiversity outside SNAs indicate that the activity should be avoided.

212. On a separate matter, the construction works associated with the Lower Car Park Transit Hub adjacent to SH6 have the potential to impact lizards outside SNAs. The works involve the clearance of c. 0.5 ha of shrubland. The applicant's ecological impact assessment for this area (B-05) indicates the likely presence of low numbers of McCann's skink in the area to be cleared. However, Mr Harker notes that there is no evidence that a site-specific survey was undertaken in this area; it appears to have been mostly based on a desktop assessment. Without a survey, Mr Harker has less confidence in the presumed species-assemblage and density of lizards for this area.

---

[14] See discussion of effects on naturally uncommon ecosystems within QLDC boundaries, in Dr Walker's Addendum to Statement of Evidence, 27 October 2026.

[15] Pers. comm., 19 October 2026.

213. Mr Harker is aware of three At-risk lizard species that are known to be present within 5 km of the Transit Hub area – these are central-southern cryptic skinks, Mountain beech geckos (*Woodworthia* "south-western"), and southern grass skinks (*Oligosoma* aff. *polychroma* "Clade 5").

214. The applicant's ecological impact assessment (section 11.3) states that "the small number of McCann's skink that Southern Scales consider are resident in the site will be salvaged and transferred to a suitable release site in accordance with an existing Lizard Management Plan, prepared by NZSki". On that basis, the effect on lizards is considered to be 'negligible' – no other mitigation measures are described. Mr Harker notes that the LMP referred to has not been made available.

215. I consider that it is not yet clear whether the activity meets NPS-IB provisions for indigenous biodiversity outside SNAs, in relation to effects on lizards. A site survey is required both to establish the level of effect and to determine whether additional mitigation measures are warranted.

4.3.7 Resilience to the effects of climate change

216. As noted above, NPS-IB Policy 4 reads "Indigenous biodiversity is managed to promote resilience to the effects of climate change."

217. Associated implementation clause 3.6(1) states:

> *Local authorities must promote the resilience of indigenous biodiversity to climate change, including at least by:*
>
> *(a) allowing and supporting the natural adjustment of habitats and ecosystems to the changing climate; and*
>
> *(b) considering the effects of climate change when making decisions on:*
>
> *(i) restoration proposals; and*
>
> *(ii) managing and reducing new and existing biosecurity risks; and*
>
> *(c) maintaining and promoting the enhancement of the connectivity between ecosystems, and between existing and potential habitats, to enable migrations so that species can continue to find viable niches as the climate changes.*

218. Based on the statement of advice of Dr Walker in relation to vegetation and ecosystems, and Dr Watts in relation to invertebrates, I do not consider that the proposal is consistent with these provisions of the NPS-IB, because it does not promote the resilience of Doolans Basin's flora and fauna to the effects of climate change, and does not allow or support the natural adjustment of habitats and ecosystems to the changing climate.

219. In her assessment of the ecological values of the Doolans Basin, Dr Walker comments (para 6d) that the area has "unequalled value for the adaptation of the flora and fauna of the [Ecological District] to maintain indigenous biodiversity through climate change". She is concerned that the proposal, particularly the snowmaking and snow grooming element of it, will critically hinder that adaptation.

220. Dr Walker notes (paragraphs 92 to 93) that changing temperatures and precipitation as a result of climate change is predicted to decrease natural snow cover and reduce snow seasons in NZ mountains. Groomed and artificial snow on ski slopes will create an environment in which ecosystems are "effectively blocked" from adapting to match the shift in the climate. When climate change increases temperatures to the point that ski-fields are not viable, "the remaining ecosystems will be unequipped to survive the sudden stresses of a warmer, drier alpine environment". This effect will not be able to be remedied.

221. Dr Watts also expresses concern about the potential interactions of snowmaking with climate change in relation to effects on invertebrates. She notes that the changing temperatures and changes to the time and duration of snow cover may result in greater reliance on artificial snow in the future, to maintain the ski field. This could exacerbate the adverse impacts from snowmaking on invertebrates that are set out in her statement of advice.

222. Dr Watts comments (para 60):

> *Increased artificial snow production could result in longer periods of artificial snow cover, greater snow accumulation and compaction, altered timing of snowmelt and soil warming, and greater volumes of meltwater*

entering the receiving environment. Changes in snow duration can compress the short growing season and create mismatches with food resources or other species, while limited dispersal may constrain the ability of specialised alpine taxa to track suitable conditions. Where snowmaking overlaps with sensitive alpine soils, cushionfield, fellfield, snowbank or other specialised invertebrate habitat, these effects could become more significant over time.

4.3.8 Precautionary principle

223. NPS-IB Policy 3 requires that "A precautionary approach is adopted when considering adverse effects on indigenous biodiversity."

224. Associated implementation clause 3.7 states:

Local authorities must adopt a precautionary approach toward proposed activities where:

(a) the effects on indigenous biodiversity are uncertain, unknown, or little understood; but

(b) those effects could cause significant or irreversible damage to indigenous biodiversity.

225. The ecological advice provided for DOC highlights a wide range of both areas of uncertainty and information gaps, in terms of potential effects on indigenous biodiversity and related effects on freshwater values, where those effects could cause significant or irreversible damage. These include:

- Uncertainty regarding the extent to which proposed mitigation measures will maintain hydrological connections and thus the hydrological functioning of wetlands
- Uncertainty regarding the extent to which proposed mitigation measures will sufficiently reduce sedimentation of wetlands and other water bodies
- Absence of assessment of effects on naturally uncommon ecosystems, including no provision of data on the area of each type of NUE that will be lost

- Incomplete data on invertebrate values in the project area
- Uncertainty regarding key operational effects of the activity, from snowmaking, grooming, skiing, summer visitors and road use on vegetation and ecosystems, freshwater and invertebrates, because these effects have not been adequately assessed in the application
- Uncertainty regarding the extent to which climate change could exacerbate the effects of the proposal, including on Doolans Creek (due to uncertainty regarding the ability to abstract sufficient water for snowmaking while maintaining the residual flow), and on vegetation/ecosystems and invertebrates (due to uncertainty regarding the extent to which climate change may require additional snowmaking with associated adverse effects on these values) – these effects have not been adequately assessed in the application
- Uncertainty regarding the combined effects of all elements of the project, particularly on freshwater and vegetation/ecosystem values – again, the view of DOC's subject experts is that these effects have not been adequately assessed in application material.

226. These considerations reinforce my view that:

- the proposal is not consistent with NPS-IB Policy 7 or 8 or associated implementation clauses, relating to effects on indigenous biodiversity within and outside SNAs, and
- the NPS-IB therefore indicates that the activity should be avoided.

4.4 Otago Regional Policy Statement 2021 (ORPS)

227. The ORPS 2021 became fully operative on 9 July 2026. As a result, the previously operative regional policy statement (the ORPS 2019) no longer has effect, and I do not consider it in this assessment. The ORPS 2021 gives effect to NPS-FM and NPS-IB.

228. The application assesses the proposed activity against the ORPS (A-16, pp327-352) and finds that the proposal "generally aligns with the relevant objectives and policies" in the RPS. It comments (p352):

While there are some tensions between the Project and provisions, this is due to the functional and operational needs of the Project to be located in an alpine environment, where sensitive ecological and landscape values are present.

229. As discussed below, I consider that the proposal is inconsistent with RPS provisions relating to freshwater and ecosystems, and indigenous biodiversity. I consider that further information is required to indicate whether the proposal is consistent with provisions for historic heritage and provisions for landscape values.

230. The RPS sections that are relevant to effects on ecological values (freshwater, vegetation, lizards, avifauna and invertebrates), heritage and landscape are as follows (in the order that they appear in the RPS):

- Land and Freshwater (LF) domain – objectives and policies on freshwater
- Land and Freshwater (LF) domain – objectives and policies on land and soil
- Ecosystems and Indigenous Biodiversity topic
- Historical and cultural values topic
- Natural features and landscapes topic

231. There are no objectives and policies that relate to recreation in the project area; recreation-related provisions in the RPS apply only in the coastal environment, and in relation to managing the effects of the National Grid. (See section 4.7.3 below for consideration of CODP provisions regarding effects on recreation values.)

232. I discuss each RPS section that is relevant to DOC's interests in the application in turn below.

233. I note that some RPS provision numbers that I refer to here do not align with those referred to in the application – this appears to be because the RPS has been reformatted, with some renumbering of provisions, since the relevant

part of the application (A-16) was written. Where this occurs, I have used a footnote to indicate the provision number referred to in the application.

4.4.1 Land and Freshwater domain (provisions on freshwater)

234. RPS objective LF-FW-O9 and policy LF-FW-P11[16] relate to wetlands and how to manage activities that affect them. They indicate that Otago's wetlands should be managed by applying clause 3.22(1) to (3) of the NPS-FM to natural inland wetlands. See discussion in section 4.2.1 above.

235. RPS objective LF-FW-O8 and policy LF-FW-P14 relate to rivers and how to manage activities that affect them. Policy LF-FW-P14 does not directly refer to, but does use the same wording as, clause 3.24(1) to (3) of the NPS-FM, in relation to managing effects on rivers. See discussion in section 4.2.2 above.

236. Based on my assessment of the application in relation to NPS-FM provisions, in section 4.2 above, I do not consider that the application is consistent with RPS policies on freshwater.

4.4.2 Land and Freshwater domain (provisions on land and soil)

237. The following RPS objective and policies relate to managing the effects of activity on soil:

> ***Objective LF-LS-O12***
>
> *The use, development, and protection of land and soil:*
>
> *1) safeguards the life-supporting capacity of soil,*
>
> *2) sustains the potential of land and soil to meet the reasonably foreseeable needs of future generations while recognising the extractive nature of mining,*
>
> *3) contributes to achieving environmental outcomes for fresh water, and*
>
> *4) recognises the role of these resources in providing for the social, economic, and cultural well-being of Otago's people and communities.*

[16] LF-FW-P11 is referred to as LF-FW-P10A in the applicant's assessment

Policy LF-LS-P19

Maintain soil quality by managing both land and freshwater resources, including the interconnections between soil health, vegetative cover and water quality and quantity.

Policy LF-LS-20

Maintain the health and productive potential of soils, to the extent reasonably practicable, by managing the use and development of land in a way that is suited to the soil characteristics and that sustains mauri through healthy:

1) *soil biological activity and biodiversity,*
2) *soil structure, and*
3) *soil fertility.*

Policy LF-LS-21

Minimise soil erosion, and the associated risk of sedimentation in water bodies, resulting from land use activities by:

1) *maintaining vegetative cover on erosion-prone land, to the extent practicable,*
2) *implementing management practices to minimise the potential for soil to be discharged to water bodies, including by controlling the timing, duration, scale and location of soil exposure, and*
3) *promoting activities that enhance soil retention.*

238. Dr Walker's statement of advice indicates that operational effects from the proposal, including effects from snow making, snow grooming, skiing and snowboarding, visitor use and road use would have a range of adverse effects on soil quality, including soil compaction and saturation, insulation loss causing deep soil freezing, altered soil subsurface melt patterns, surface soil over-wetting, and introduction of pollution to alpine soils from ski wax and clothing microplastics. These effects would alter, and harm, soil ecology.

239. Advice from Dr Watts also raises concerns about snowmaking and snow grooming; "changes in snow density, persistence and insulation can alter soil temperature, moisture, aeration and biological processes, affecting soil and litter habitat and associated invertebrates" (para 16).

240. Both Dr Walker and Dr Watts are also concerned that these operational activities will lead to erosion and sedimentation via altered runoff, erosion, loss or redistribution of organic soil and litter, and sediment entering terrestrial, wetland and stream habitats.

241. As discussed above, these effects are not assessed in the application material, and no mitigation measures are proposed to manage them.

242. The application does assess effects from erosion and sedimentation, focussing mainly on the construction stage, and proposes to manage this via a range of measures discussed in sections 4.2 and 4.3 above. However, as discussed above, Dr Walker and Dr Kavazos consider that significant residual effects from erosion and sedimentation will remain following proposed mitigation.

243. Based on this advice, I do not consider that the proposal is consistent with RPS provisions for land and soil.

4.4.3 Ecosystems and Indigenous Biodiversity topic

244. RPS provisions ECO-O1 and ECO-P5[17] relate to Otago's indigenous biodiversity and how effects on these from specified infrastructure should be managed. Policy ECO-P5 uses the same language as and has the same effect as NPS-IB implementation clauses 3.10(2), 3.10(3) and 3.11.

245. The RPS also contains appendices APP3 and APP4, which set out principles for biodiversity offsetting and compensation. In each appendix, Principle 2 indicates that neither biodiversity offsetting nor biodiversity compensation is appropriate where an activity would result in "the removal or loss of ecological

[17] ECO-P5 is referred to as ECO-P4 in the applicant's assessment

integrity and resilience of a naturally uncommon ecosystem type that contains indigenous vegetation or habitat for indigenous fauna".

246. As set out above, the proposal would result in the loss of an unquantified area of naturally uncommon ecosystems, including moraine, alpine deflation surfaces and screes of acidic rock. Dr Walker advises that affected naturally uncommon ecosystems in both the Rastus Burn and the Doolans basins contain indigenous vegetation or habitat for indigenous fauna.[18]

247. Based on my assessment of the application in relation to NPS-IB provisions, in section 4.3 above, and in relation to the biodiversity compensation principles contained in APP4 of the RPS, I do not consider that the application is consistent with RPS provisions on ecosystems and indigenous biodiversity.

4.4.4 Historical and Cultural Values topic

248. RPS Objective HCV-HH-O3 reads as follows:

> *Otago's unique historic heritage contributes to the region's character, sense of identity, and social, cultural and economic well-being, people's understanding and appreciation of it is enhanced, and it is protected for future generations against inappropriate subdivision, use and development*.

249. Policy HCV-HH-P4[19] under this objective relates to "Recognising heritage" and sets out the types of historic heritage present in Otago. These include "gold, limestone and other mining systems and settlements", among many others.

250. The RPS manages the effects of regionally significant infrastructure – which includes the proposed ski field expansion – on heritage via Policy EIT-INF-P4[20] in the Energy, Infrastructure and Transport section. Policy EIT-INF-P4 requires, as a first priority, avoidance of the location of regionally significant infrastructure in areas or places of significant or outstanding historic heritage, and if this is not reasonably practicable due to the functional or operational

[18] See paragraphs 18 and 21 of Dr Walker's Addendum to Statement of Advice, 27 October 2026.

[19] HCV-HH-P4 is referred to as HCV-HH-P3 in the applicant's assessment.

[20] EIT-INF-P4 is referred to as EIT-INF-P13 in the applicant's assessment.

needs of the infrastructure, it requires avoidance of adverse effects on the values that contribute to the area's outstanding nature or significance.

251. In the case of historic heritage that is not significant or outstanding, Policy HCV-HH-P6[21] applies. Under this policy, historic heritage is to be protected from inappropriate development by avoiding, remedying or mitigating adverse effects on areas or places with historic heritage values or qualities.

252. Dr Matt Schmidt's heritage statement of advice for DOC highlights the fact that no foot survey has been undertaken for heritage sites in the area of the proposed Tyrolean weir and water intake at the Doolans Creek Right Branch, which, in his view, is the part of the site where heritage values – associated with gold mining – are most likely to be present.

253. Without a full survey, including the Doolans Creek area, it is not possible to know if any historic heritage sites are present, and if so what their values are.

254. Therefore, in my view, it is not currently possible to determine whether or not the proposal is consistent with RPS Objective HCV-HH-O3, Policy EIT-INF-P4 (as it relates to heritage values), or Policy HCV-HH-P6. This is a gap that should be addressed in the application.

4.4.5 Natural Features and Landscapes topic

255. The project site is identified as having Outstanding Natural Landscape values in both the Queenstown Lakes Proposed District Plan (in the case of most of the Rastus Burn Basin) and the Central Otago District Plan (the Doolans Basin and an area on the Rastus Burn side of the ridgeline). The site is fully covered by contiguous ONL overlays across the two district plans.

256. RPS Objective NFL-O1 reads as follows:

> *The areas and values of Otago's outstanding natural features and landscapes are identified, and the use and development of Otago's natural and physical resources results in the protection of them from inappropriate subdivision, use and development.*

[21] HCV-HH-P6 is referred to as HCV-HH-P5 in the applicant's assessment.

257. The RPS policy applying to landscape effects from the proposal differs depending on whether or not the definition of "regionally significant infrastructure" in the RPS is met. This definition includes "ski area infrastructure at Remarkables, Cardrona, Treble Cone and Coronet Peak".

258. The application's planning assessment (e.g. p345) indicates that its position is that the proposal does fall within the "regionally significant infrastructure" definition. In my view, the definition does not make it clear whether it is intended to cover existing ski area infrastructure only, or ski area infrastructure in general, at these locations. In the absence of this clarity, I consider it more likely that the definition is not intended to be limited to "existing" ski area infrastructure only, because that term is not used, and so I agree with the applicant's interpretation on this. I note that the same definition refers specifically to "established" (and therefore, by implication, not new) community-scale irrigation and stockwater infrastructure – but it has not taken the same approach in this case.

259. In addition, Policy EIT-INF-P3 provides for "upgrades to existing, and development of new" regionally significant infrastructure.

260. Policy NFL-P2 indicates that the adverse effects of regionally significant infrastructure on the values of outstanding natural features and landscapes are to be managed in accordance with Policy EIT-INF-P4[22] in the Energy, Infrastructure and Transport topic.

261. Policy EIT-INF-P4 requires, as a first priority, avoidance of the location of new regionally significant infrastructure in outstanding natural features and landscapes, but this is if not reasonably practicable due to functional or operational needs, then under clause (2)(a)(v) of the policy:

> *the adverse effects of the infrastructure on the values that contribute to the area's importance shall be:*
>
> *(l) remedied or mitigated to the extent practicable, and*

[22] HCV-HH-P4 is referred to as HCV-HH-P3 in the applicant's assessment.

(II) where they cannot be practicably remedied or mitigated, regard shall be had to offsetting and/or compensation of more than minor residual adverse effects.

262. Mr Jeremy Head's statement of advice for DOC addresses the landscape effects of the proposal and indicates that he generally agrees with the applicant's assessment of effects on landscape values. This assessment (B-03) finds that landscape effects of the proposal would be as follows:

- In the lower part of the Rastus Burn catchment, which already has a modified landscape character due to the existing ski field development, landscape effects are assessed as 'low' overall. These effects would arise from the expansion of the gondola base station and lower gondola alignment.
- In the higher, less modified part of the Rastus Burn catchment, including Helicopter Ridge, landscape effects are assessed as 'moderate'. These effects would be caused by the proposed new infrastructure in this area, particularly around the gondola mid-station on Helicopter Ridge and along the associated ski return trails. Earthworks and retaining structures are proposed along a currently intact rocky ridgeline, which would reduce landform legibility and naturalness. However, these effects are relatively localised and would be experienced in the context of the existing ski field.
- Within the Doolans Basin, landscape effects from the proposal would be 'high', caused by the introduction of buildings, gondola infrastructure, ski trails and associated activity into a previously undeveloped alpine basin. This would noticeably reduce landscape naturalness, intactness and sense of remoteness. The effects are assessed as high during construction and likely remaining high in the long term. However, the assessment observes that area affected by the landscape change is spatially and visually confined within a small part of the wider Remarkables Conservation Area and ONL.

263. The assessment indicates that landscape effects in the Doolans Basin are proposed to be limited via “careful siting, consolidation of infrastructure, recessive design and colour treatment, and minimisation of earthworks” (B-03, pii).

264. With respect to effects on the higher, less modified part of the Rastus Burn Basin, Mr Head seeks greater commitment from the applicant to appropriate mitigation of effects. He notes that the proposed gondola mid-station building on Helicopter Ridge will include a retaining wall up to 8.5 m high and 70 m long, and a lower wall 3.5 m high and 180 to 190 m long, both very large structures which could stand out when viewed from a distance, particularly when the mountain is covered with snow.

265. Mr Head advises that use of gabion baskets, or facing the walls with local rock, would help them to blend in with surrounding natural rock in summer, and any rock texture or stepping of the walls would help retain some snow cover in winter. He notes that the applicant’s position is that gabion basket walls are their “preferred approach”, and that if this is not viable then underlying alternative walling structures “may” be faced with local rock, and that any retaining structures minimise visual effects “where practicable”. In Mr Head’s view, the applicant should provide more certainty on how the retaining walls would be built, to ensure effects are appropriately managed.

266. Mr Head considers that the applicant’s assessment of landscape effects in the Doolans Basin area has not appropriately considered effects on geomorphology. Geomorphological processes are the physical, chemical, and biological mechanisms that build, wear down, and reshape landforms on the Earth's surface over time, and in Mr Head’s view are a core part of the physical landscape. Mr Head refers to advice provided by Mr Barrell on the geomorphology of the project area and the associated effects of the proposal (discussed in section 4.1 above), and notes Mr Barrell’s assessment that the late-glacial moraine sequence in the Doolans Creek Right Branch Basin is an exceedingly well-preserved landform feature – the best-preserved of its type and age in the wider region. Mr Head considers that the landscape effects on these geomorphological values from the proposal would be as follows:

- Parts of the earthworked and non-earthworked groomed trails, and the earthworked Doolans access road traverse the lower five ridges of the late-glacial moraine sequence in places.
- This would result in landform modification that would physically and permanently alter parts of the nationally relevant late-glacial moraine sequence, although the overall form of the moraine sequence will not be fully modified
- From an aesthetic perspective, during summer when the moraine landforms are most visible, the gentle hummocky terrain will include earthworks scarring associated with the formation of trails along with the presence of a ski lift.

267. Mr Head considers that any earthworks modifications would have a 'Very high' adverse effect on the late-glacial moraine sequence. These adverse effects would arise not only from physical disturbance, but also from a reduction in the geomorphological legibility of the glacial sequence and in how the glacial extent, processes and landscape evolution may be interpreted. Mr Head does not consider that these effects could be mitigated or remediated.

268. However, if an alternative option were available to provide water for snowmaking, then landscape effects could be reduced to an extent. As discussed in section 4.2.1.1, the applicant proposes to take water from Doolans Creek, and pump it to a reservoir at the location of Tarn 3. This proposal involves the creation of a long zigzagging corridor from Doolans Creek to the proposed Doolans Base building, for an access track and water pumping infrastructure, traversing a naturally uncommon ecosystem (moraine), as well as indigenous vegetation and some areas of wetland. Mr Head advises that if this track were no longer required, "levels of adverse effects on landscape character (partly informed by changes to natural character) at the Doolans Basin-wide scale would, in my opinion, reduce slightly to 'Moderate-high' ('More than minor') overall, but no lower than this. The moraine sequence would still be compromised by other ski field infrastructure and earthworks, with a 'Very high' localised adverse effect on

this natural feature."[23] It is acknowledged that the alternative approach could itself result in adverse effects on landscape and natural character values, which need to be taken into account.

269. Based on the advice discussed above, I consider that the proposal could be consistent with the requirement at RPS Policy EIT-INF-P4(2)(a)(v)(I) that the "adverse effects of the infrastructure on the values that contribute to the area's importance shall be remedied or mitigated to the extent practicable", provided the following actions were taken:

    - provision of more certainty (via conditions) that appropriate mitigation for retaining walls will be used; and
    - a full assessment of the relative (landscape and other) effects of options to obtain water for snowmaking (as discussed in section 4.2.1.1).

270. I note that Policy EIT-INF-P4 does not indicate that a proposal for regionally significant infrastructure should be avoided if it will have significant residual effects on ONL values – it requires only that "regard shall be had to offsetting and/or compensation of more than minor residual adverse effects". My understanding is that offsetting and compensation measures are not feasible options for effects on landscape values. No measures of this kind are discussed by the landscape experts.

4.5 Regional Plan: Water for Otago 2004 (RPWO)

271. The application assesses the proposed activity against the RPWO (A-16, pp353-365) and finds that the proposal "aligns with the relevant objectives and policies" in the RPWO. I disagree with this assessment, in relation to various RPWO provisions discussed below.

[23] See Mr Head's Addendum to Statement of Advice, 27 October 2026.

4.5.1 Effects on water bodies including wetlands and rivers (RPWO sections 5 and 10)

272. Sections of the RPWO that are particularly relevant to the proposal's effects on the values of water bodies include Section 5: Natural and Human Use Values of Lakes and Section 10: Wetlands.

273. The RPWO was amended in June 2021 to ensure consistency with the NPS-FM 2020 by adding new policies relating to natural inland wetlands (Policy 10.4.8) and rivers (Policy 5.24A) as required by NPS-FM clauses 3.22 and 3.24 respectively. Policy 10.4.8 was then amended in September 2026, to give effect to amendments to clause 3.22 of the NPS-FM.

274. Based on my assessment of the application in relation to these NPS-FM provisions, in section 4.2 above, I do not consider that the proposal is consistent with RPWO policies 5.24A on rivers or 10.4.8 on wetlands.

275. Other particularly relevant provisions in sections 5 and 10 include: provisions relating to heritage values associated with water bodies; and provisions relating to regionally significant wetlands.

276. RPWO provisions for the management of effects on heritage values associated with water bodies are as follows:

> *Objective 5.3.7*
>
> *To maintain the heritage values associated with Otago's lakes and rivers, and their margins*.
>
> *Policy 5.4.10*
>
> *In the management of any activity involving surface water or the bed or margin of any lake or river, particular regard will be given to the heritage value of any site, building, place or area*.

277. For reasons discussed in section 4.4.4 above, I do not consider that the application has provided sufficient information to determine whether these RPWO provisions are met.

278. RPWO provisions relating to regionally significant wetlands include Objective 10.3.2, and policies 10.4.1, 10.4.1A, 10.4.2, and 10.4.2A.

279. Objectives 10.3.2 is "Otago's Regionally Significant Wetlands and their values and uses are recognised and sustained."

280. Policy 10.4.1 lists Otago's regionally significant wetland values, and Policy 10.4.1A indicates that all wetlands higher than 800m above sea level are "regionally significant wetlands". Therefore, this designation applies to all wetlands in the project area – which include, in Dr Kavazos and Dr Walker's views, Tarn 3 (as discussed above, the applicant does not consider Tarn 3 to be a wetland).

281. Policies 10.4.2 and 10.4.2A concern the management of effects on regionally significant wetlands, and read as follows:

> *Policy 10.4.2*
>
> *Avoid the adverse effects of an activity on a Regionally Significant Wetland or a regionally significant wetland value, but allow remediation or mitigation of an adverse effect only when the activity:*
>
> *(a) Is lawfully established; or*
>
> *(b) Is nationally or regionally significant infrastructure, and has specific locational constraints; or*
>
> *(c) Has the purpose of maintaining or enhancing a Regionally Significant Wetland or a regionally significant wetland value.*
>
> *Policy 10.4.2A*
>
> *Where the avoidance, remediation or mitigation of adverse effects on any Regionally Significant Wetland or any regionally significant wetland value is not adequate, financial contributions, determined in accordance with Chapter 17, may be required.*

282. I consider that these policies are less stringent than NPS-FM clause 3.22 and its pathway to consideration of effects from construction of specified

infrastructure via the effects management hierarchy, including the requirements that:

- each step of the hierarchy is sequentially exhausted, and
- compensation must comply with the principles set out in NPS-FM Appendix 7.

283. Given the RPWO has not yet been fully reviewed to give effect to the NPS-FM, I consider that more weight should be given to the relevant NPS-FM provisions (given effect to via new RPWO Policy 10.4.8), discussed in section 4.3.1 above.

4.5.2 Effects on water quantity (RPWO section 6)

284. Section 6 of the RPWO contains provisions relating to water quantity. Provisions that are particularly relevant to the application are as follows:

Objective 6.3.1

To retain flows in rivers sufficient to maintain their life-supporting capacity for aquatic ecosystems, and their natural character.

Policy 6.4.1

To enable the taking of surface water, by:

(a) Defined allocation quantities; and

(b) Provision for water body levels and flows

except when ... [exceptions are not relevant to the proposal]

Policy 6.4.7

The need to maintain a residual flow at the point of take will be considered with respect to any take of water, in order to provide for the aquatic ecosystem and natural character of the source water body.

Policy 6.4.16

In granting resource consents to take water, or in any review of the conditions of a resource consent to take water, to require the volume and

rate of take to be measured in a manner satisfactory to the Council unless it is impractical or unnecessary to do so.

285. As discussed above, the application includes a proposal to take water from Doolans Creek for the purposes of snowmaking. Dr Kavazos considers that the residual flow for Doolans Creek that is proposed in the application (33.5 L/s) is adequate to manage instream habitat effects in the affected reach; he agrees with the applicant's assessment that maintenance of this residual flow will ensure that the magnitude of effects is reduced to Low. However, in his view, more robust conditions of consent are required to ensure that this residual flow is maintained. He recommends that:

    - the 33.5 L/s residual flow is secured as a firm condition, set by reference to riffle habitat (I note that this is achieved via proposed conditions WAT.12 and WAT.13), and
    - reliable, telemetered verification of the residual flow is required, including under snow and ice (see discussion of relevant proposed conditions in section 4.2.2.2 above, paragraph 124, footnote 7).

286. However, Dr Kavazos does also express concern that the application does not explore the potential for climate change to alter flows in Doolans Creek. If flows decline, this may have consequences for the ability to abstract sufficient water for snow making while maintaining the residual flow.

287. Overall, based on Dr Kavazos's statement of advice, I consider that water take element of the proposal is likely consistent with the relevant policies in the RPWO, but that confidence in that assessment would be increased if an assessment were provided by the applicant of the potential effects of climate change on Doolans Creek flows.

4.5.3 Effects on water quality (RPWO section 7)

288. Section 7 of the RPWO contains objectives and policies relating to water quality. Provisions that are particularly relevant to the application include:

    Objective 7.A.1

To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.

Policy 7.B.4

When considering any discharge of water or contaminants to land, have regard to:

(a) The ability of the land to assimilate the water or contaminants; and

(b) Any potential soil contamination; and

(c) Any potential land instability; and

(d) Any potential adverse effects on water quality; and

(e) Any potential adverse effects on use of any proximate coastal marine area for contact recreation and seafood gathering.

Policy 7.B.7

Encourage land management practices that reduce the adverse effects of water or contaminants discharged into water.

Policy 7.B.8

Encourage adaptive management and innovation that reduces the level of contaminants in discharges.

Policy 7.C.2

When considering applications for resource consents to discharge contaminants to water, or onto or into land in circumstances which may result in any contaminant entering water, to have regard to:

(a) The nature of the discharge and the sensitivity of the receiving environment to adverse effects;

(b) The financial implications, and the effects on the environment of the proposed method of discharge when compared with alternative means; and

(c) The current state of technical knowledge and the likelihood that the proposed method of discharge can be successfully applied.

Policy 7.D.5

When considering any discharge under section 12.C [i.e. any discharge other than human sewage, stormwater, and discharges caused by the disturbance of wetlands and beds of lakes and rivers]*, have regard to:*

(a) The effects, including cumulative effects, of the discharge on water quality, ecosystem health and natural and human use values, including Kāi Tahu cultural and spiritual beliefs, values and uses; and

(b) The physical characteristics of the land and the sensitivity of the receiving water; and

(c) The quality and performance of the discharge management system to be used, and in particular:

(i) Options to be employed to reduce any adverse environmental effects of the discharge; and

(ii) Monitoring of the performance of the discharge management system; and

(d) Any staged timeframe and any environmental management plan to achieve:

(i) Compliance with the permitted activity rules for the duration of the consent; or

(ii) The demonstrable reduction of adverse environmental effects of the discharge over the duration of the consent; and

(e) Trends in the quality of the receiving water relative to the Schedule 15 freshwater characteristics, limits, and targets and relative to any national bottom lines specified in Appendices 2A and 2B of the NPS FM 2020; and

(f) The extent to which potentially significant adverse effects arising from the discharge are avoided; and

(g)The value of the existing investment in infrastructure; and

(h) The current state of technical knowledge and the use of industry best practice for managing environmental effects; and

(i) The extent to which co-ordinating the discharges across multiple landholdings enables water quality objectives to be more effectively met; and

(j) The social, cultural and economic value of the use of land and water that gives rise to the discharge.

Policy 7.D.10

The loss or discharge of sediment from earthworks is avoided or, where avoidance is not achievable, best practice guidelines for minimising sediment loss are implemented to maintain water quality.

289. The RPWO policies for water quality set out above provide guidance on matters that should be taken into account when preparing or assessing consent applications; they do not provide direction on the level of effect that is or is not acceptable for different activities in different contexts. I consider that the application is consistent with these policies.

290. However, I do not agree that the application is consistent with Objective 7.A.1 ("maintain water quality in Otago lakes, rivers, wetlands, and groundwater"). This assessment is based on Dr Kavazos's statement of advice that:

- Even with mitigation controls in place, sediment inputs will be unavoidable and will likely alter the sensitive wetland communities for at least the life of the consent, and
- Snowmaking will introduce water taken from Doolans Creek into tributaries and wetlands in the upper basin that are presently fed only by rainfall, snowmelt and shallow groundwater. This water will be chemically different, with greater alkalinity and higher concentrations of calcium. This could result in the receiving environment, including sensitive peat wetlands, being altered from its natural state in response to long term chemical changes.

4.6 Proposed Queenstown Lakes District Plan (QLDP) 2015

291. For context, I note that the majority of the proposed works will be located within Central Otago District Council boundaries. However, works within Queenstown Lakes District Council boundaries will include:

- Upgrades to existing infrastructure services and associated structures including upgrades to mains power supply, infield power distribution, water, wastewater, stormwater, communication and snowmaking.
- Expansion of the existing Rastus Burn Base Building and reconfiguration of the arrival surrounds.
- Construction and use of the new Doolans Gondola providing access into the Doolans Basin, including construction of the new Base Station adjacent to the Rastus Burn Base Building and construction of gondola towers, cables and associated infrastructure up to the new Helicopter Ridge Mid station (the Helicopter Ridge Mid station itself would be within CODC boundaries).
- Upgrades to existing and establishment of new access roads and ski trails to provide vehicular access and ski return trails to and from the Doolans Basin – this will include portions of two long retaining walls of substantial height, to support roads and trails (see details of the scale of these walls in section 4.4.5 above).
- Installation of new operational controls, e.g. wayfinding signage, barriers/gates, permanent safety fencing/netting, snow fences, avalanche control, boundary markers.

292. The application assesses the proposed activity against the proposed QLDP (A-16, pp368-397) and finds that the proposal "aligns with the relevant objectives and policies" in the plan, although "there is some tension with the indigenous biodiversity provisions".

293. I consider that the proposal could be consistent with QLDP landscape provisions, if more certainty were provided around proposed mitigation

measures for landscape effects, but that it is inconsistent with the Plan's biodiversity and earthworks provisions.

294. As discussed in the application, the proposed QLDP will supersede the operative QLDP 2005. Almost all appeals on the proposed plan have been settled via consent order, including all appeals on objectives and policies discussed in the substantive application. Therefore, I do not consider the operative plan in my advice.

4.6.1 Effects on landscape values (chapter 6 and chapter 21)

295. Proposed QLDP Chapter 6 Landscapes – Rural Character and Chapter 21 Rural Zone contain policies and an objective relevant to the management of the effects of the proposal on landscape values, as follows:

Policy 6.3.3.1

Recognise that subdivision and development is inappropriate on Outstanding Natural Features or in Outstanding Natural Landscapes unless:

a. landscape values are protected; and

b. in the case of any subdivision or development, all buildings and other structures and all changes to landform or other physical changes to the appearance of land will be reasonably difficult to see from beyond the boundary of the site in question.

Policy 6.3.3.7

In cases where it is demonstrated that regionally significant infrastructure cannot avoid adverse effects on Outstanding Natural Landscapes and Outstanding Natural Features, avoid significant adverse effects and minimise other adverse effects on those landscapes and features.

Objective 21.2.1

A range of land uses, including farming are enabled while:

a. Protecting the landscape values of Outstanding Natural Features and Outstanding Natural Landscapes;

b. *Maintaining the landscape character of Rural Character Landscapes and maintaining or enhancing their visual amenity values;*

c. *Maintaining or enhancing amenity values within the rural environment; and*

d. *Maintaining or enhancing nature conservation values.*

296. I note that the proposed QLDP definition of "regionally significant infrastructure" has not yet been amended to give effect to the ORPS 2021, and so does not include ski field infrastructure at the Remarkables. However, I think it is reasonable to assume – as the application does – that Policy 6.3.3.7 (rather than the more restrictive Policy 6.3.3.1) should be applied to the proposal, given that the definition of "regionally significant infrastructure" in the more recently reviewed, higher order document would include it.

297. I consider that the proposal could meet Policy 6.3.3.7, because both the application's landscape assessment and the advice of Mr Head for DOC agree that landscape effects within the Rastus Burn Basin will be 'low' or 'moderate', following mitigation. As set out in section 4.4.5, Mr Head seeks greater commitment from the applicant to appropriate mitigation, which in his view should include the use of gabion baskets, or the facing the walls with local rock.

298. I note that the application also includes an assessment of the landscape effects of development in the Lower Car Park Transit Hub adjacent to SH6 (B-04). This development will include:

- Upgrades to the existing car park at the bottom of the Remarkables Ski Field Access Road (Car Park A)
- Construction of a new car parking area (Car Park B) approximately 500m east of the existing Car Park A, involving vegetation clearance and earthworks, and
- Conversion of an existing temporary storage yard into a new car park (the Boneyard Car Park).

299. The Boneyard Car Park will be located within ONL boundaries, but Car Parks A and B will not. The most significant physical change will be the formation of Car Park B.

300. Mr Head's statement of advice comments on a peer review of the applicant's landscape assessment for the Transit Hub that was undertaken by Mr Ben Espie on behalf of QLDC and CODC.

301. Mr Head agrees with both Mr Espie and the applicant's landscape assessment that Carpark A and the Boneyard Car Park will have a very low degree of adverse effect on landscape character (despite the Boneyard being within the ONL). He also agrees with Mr Espie that Carpark B will have a low-moderate degree of adverse landscape effect, but only if strong, enforceable mitigation planting requirements are added to the consent conditions (see further discussion in section 5.0 below).

302. Therefore, I consider that the proposed development in the Transit Hub area could be consistent with Objective 21.2.1 (noting that the Plan does not contain any policies to implement this objective), if mitigation planting requirements were improved as recommended by Mr Espie and Mr Head.

4.6.2 Effects on indigenous vegetation biodiversity (chapter 33)

303. Chapter 33 Indigenous Vegetation Biodiversity contain the following objective and policy that are particularly relevant to the management of the ecological effects of the proposal, as follows:

> ***Objective 33.2.1***
>
> *The District's indigenous biodiversity is protected, maintained or enhanced.*
>
> ***Policy 33.2.1.6***
>
> *Manage the adverse effects of activities on indigenous biodiversity by:*
> *avoiding adverse effects as far as practicable;*
> *i. requiring remediation where adverse effects cannot be avoided;*
> *ii. requiring mitigation where adverse effects on the areas identified above cannot be avoided or remediated;*

iii. requiring any residual adverse effects on significant indigenous vegetation or indigenous fauna to be offset through protection, restoration and enhancement actions that achieve no net loss and preferably have a net gain in indigenous biodiversity values, having particular regard to:

A. limits to biodiversity offsetting due to the affected biodiversity being irreplaceable or vulnerable;

B. the ability of a proposed offset to demonstrate it can achieve no net loss or preferably a net gain;

C. Schedule 33.10 – Framework for the use of Biodiversity Offsets;

iv. enabling any residual adverse effects on other indigenous vegetation or indigenous fauna to be offset through protection, restoration and enhancement actions that achieve no net loss and preferably a net gain in indigenous biodiversity values having particular regard to:

A. the ability of a proposed offset to demonstrate it can achieve no net loss or preferably a net gain;

B. Schedule 33.10 – Framework for the use of Biodiversity Offsets.

304. I note that the QLDP has not been reviewed to give effect to the NPS-IB 2023 or the ORPS 2021, and I consider that more weight should be given to the NPS and RPS as the higher order, more recently updated instruments. See discussion of the NPS in section 4.3.6 and RPS biodiversity provisions in section 4.4.3.

305. Policy 33.2.1.6 takes a similar approach to NPS and RPS provisions for specified infrastructure, in that it requires that a version of the effects management hierarchy be applied to proposals that involve adverse effects on indigenous biodiversity. I consider that the proposal is inconsistent with this policy, for the same reasons given in my discussion of NPS provisions outside SNAs, in section 4.3.6. That is:

- effects on biodiversity values within QLDC boundaries will be caused by the establishment of access tracks and trails, which requires significant earthworks
- these works will lead to the loss and modification of screes of acidic rock, which is a naturally uncommon ecosystem
- this will result in significant adverse effects from the loss of ecosystem functioning in these areas, as well as from sedimentation effects on the significant tarn and associated wetlands below the track at the Sugarbowl (northern) section, both during and after construction
- effects from loss of ecosystem functioning cannot be remedied or mitigated, and offsetting is not possible.

4.6.3 Earthworks provisions (chapter 25)

306. I consider that the following QLDP earthworks policy is particularly relevant to the proposal:

> ***Policy 25.2.1.1***
>
> *Ensure earthworks minimise erosion, land instability, and sediment generation and off-site discharge during construction activities associated with subdivision and development*.

307. The application's planning assessment (A-16, p385) refers to Policy 25.2.1.1 but does not give a view on whether the proposal is consistent with it.

308. Given the concerns raised by Dr Walker, discussed in section 4.3.6 above, regarding the likelihood that earthworks required for the construction of access tracks within QLDC boundaries to result in sedimentation effects on the 'Swan Lake' tarn and seepage and cushion bog wetlands, I do not consider that the proposal is consistent with this policy.

4.7 Central Otago District Plan (CODP) 2008

309. The application assesses the proposed activity against the CODP (A-16, pp398-409) and finds that the proposal "aligns with the relevant objectives

and policies" in the plan. I disagree with this assessment, for the reasons set out below.

4.7.1 Effects on landscape values (Section 4)

310. CODP Section 4 Rural Resource Area contain the following objective and policy that are relevant to the management of the effects of the proposal on landscape values:

> ***Objective 4.3.2***
>
> *To protect the District's outstanding natural landscapes and outstanding natural features, and land in the Upper Manorburn/Lake Onslow Landscape Management Area (including landforms) from the adverse effects of inappropriate subdivision, use and development.*
>
> ***Policy 4.4.1***
>
> *To recognise the District's outstanding natural landscapes and outstanding natural features and land in the Upper Manorburn/Lake Onslow Landscape Management Area which:*
>
> *a. Are unique to the district, region or New Zealand; or*
> *b. Are representative of a particular landform or land cover occurring in the Central Otago District or of the collective characteristics and features which give the District it's particular character; or*
> *c. Represent areas of cultural or historic significance in the district, region or New Zealand; or*
> *d. Contain visually or scientifically outstanding geological features; or*
> *e. Have characteristics of cultural, historical and spiritual value that are significant to Kai Tahu ki Otago;*
> *f. Have high natural character values and high landscape quality that can be distinguished from the general landscapes of the Central Otago District*
>
> *and provide protection for them from inappropriate subdivision, use and development.*

311. As discussed above, the applicant's and DOC's landscape experts agree that the proposal will result in 'low' landscape effects in the lower Rastus Burn Basin, 'moderate' effects in the higher Rastus Burn Basin, and 'high' effects in the Doolans Basin. Therefore, the outstanding landscape values will not be "protected" from development as per the provisions above. However, the Plan does not give any guidance on what types of development are appropriate or inappropriate in ONLs.

312. I note that the CODP has not been reviewed to give effect to the ORPS 2021, and I consider that more weight should be given to the RPS as the higher order, more recently updated instrument. See discussion of RPS landscape provisions in section 4.4.5.

4.7.2 Effects on biodiversity (Section 4)

313. CODP Section 4 Rural Resource Area contain the following objective and policy that are relevant to the management of the effects of the proposal on biodiversity:

> ***Objective 4.3.8***
>
> *To recognise and provide for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.*
>
> ***Policy 4.4.7***
>
> *To protect areas of:*
>
> *a. Significant indigenous vegetation,*
> *b. Significant habitats of indigenous fauna,*
> *c. Significant wetlands,*
> *d. Indigenous vegetation or habitats that support a significant indigenous fresh water fishery, and*
> *e. Habitats of statutorily managed sports fish and game.*
>
> *from the adverse effects of land use activities and subdivision and to promote and encourage, where practicable, the retention, enhancement and reinstatement of indigenous ecosystems within the District.*

314. As discussed in section 4.3 above, the proposal will result in more than minor residual adverse effects on SNAs, including on indigenous vegetation, wetlands, invertebrates and lizards. Therefore, I do not consider that it aligns with the provisions above.

315. I note that the CODP has not been reviewed to give effect to the NPS-IB 2023 or the ORPS 2021, and I consider that more weight should be given to the NPS and RPS as the higher order, more recently updated instruments. See discussion of the NPS in section 4.3 and RPS biodiversity provisions in section 4.4.3.

4.7.3 Effects on recreation values (Section 4)

316. CODP Section 4 Rural Resource Area contain the following objective and policies that are relevant to the management of the effects of the proposal on recreation values:

> *Objective 4.3.4*
>
> *To maintain and enhance the quality of the District's recreation resources and public access to those resources.*
>
> *Policy 4.4.13*
>
> *To promote the provision of public access opportunities to the District's significant natural and physical land features including areas of value for recreational purposes.*
>
> *Policy 4.4.14*
>
> *To ensure that activities avoid, remedy or mitigate adverse effects on the open space, landscape, historic, natural character, natural quiet and amenity values of the quality and range of recreational opportunities available in, the District's back country and/or remote areas.*
>
> *Policy 4.4.15*
>
> *To recognise and avoid, remedy or mitigate the potential conflict between different types of recreation activities that occur within the District, whilst*

encouraging multiple use of public open space and recreation areas wherever this is possible and practicable.

317. Advice provided for DOC by Ms Tamzin Moore discusses the effects of the proposal on recreation values. In Ms Moore's view, the primary recreation effects would be the substantial modification of existing backcountry recreation values in the Doolans Basin, which will change the character of the recreation setting. This would involve a substantial increase in the intensity and managed nature of recreation use compared with the existing back country setting. Ms Moore comments:

> *Visitors would continue to be able to undertake skiing, ski touring, mountaineering, tramping, hunting and other recreation activities within the wider area. However, the quality and character of those experiences within Doolans Basin would change substantially as a result of the introduction of gondola and other ski-area infrastructure, groomed ski trails, avalanche management infrastructure, increased visitor numbers and encounters, and greater levels of management intervention*.

318. Ms Moore agrees with the applicant's assessment that the adverse effects on backcountry winter recreation values would be 'high' or 'very high': "The experiential values most affected include solitude, remoteness, natural quiet, an unmodified alpine setting and opportunities for self-reliant recreation". She also agrees that there are limited means to mitigate this effect.

319. Measures proposed by the applicant as mitigation – which include maintenance of public access where safe, continuation of "one-up" lift passes for backcountry users, establishment of a recreation users group, ongoing engagement with recreation interests, and rehabilitation measures associated with eventual closure of infrastructure – are, in Ms Moore's opinion, better viewed as means of maintaining access and managing interactions with recreation users, rather than as mitigation of the principal recreation effect itself.

320. I consider that the proposal will align, overall, with CODP Objective 4.3.4 – because recreation resources and public access to those resources at the

Remarkables ski field will be significantly enhanced – and will also align with Policy 4.4.13 in relation to public access to "the District's significant natural and physical land features, including areas of value for recreational purposes".

321. However, based on Ms Moore's statement of advice, I do not consider that the ski field expansion aligns with Policy 4.4.14 in relation to effects on back country recreational opportunities, or Policy 4.4.15 in relation to conflicts between different types of recreational activity. The proposal will result in adverse effects on back country recreational values, arising from conflicts with the recreational opportunities in the expanded ski field, that are not proposed to be – and perhaps cannot be – meaningfully avoided, remedied or mitigated.

4.7.4 Effects on heritage (Section 14)

322. CODP Section 14 Heritage contain the following objectives and policies that are relevant to the management of the effects of the proposal on heritage values:

> *Objective 14.3.2*
>
> *To recognise and provide for the protection of those sites that contribute to the District's historic character.*
>
> *Objective 14.3.4*
>
> *To recognise and provide appropriate protection for the values associated with the District's archaeological sites.*
>
> *Policy 14.4.6*
>
> *To provide for the conservation of values associated with the District's archaeological sites by:*
>
> *a. Identifying such registered sites, on the planning maps.*
>
> *b. Ensuring that works carried out within or near such sites recognise and provide for their values where appropriate.*

c. *Requiring an assessment of the values associated with any such sites as part of any subdivision or land use consent in circumstances where a significant adverse effect may result, and requiring protection where such values are considered to be significant.*

Policy 14.4.7

To provide for the conservation of the values associated with the District's historic sites by:

a. *Identifying significant sites on the register at Schedule 19.4, the list of Historic Reserves and Protected Private Land for Historic Purposes at Schedule 19.10 and on the planning maps.*

b. *Ensuring that works carried out within such sites are consistent with cultural and historical values.*

c. *Requiring the protection of such sites as a condition of subdivision or land use consent where appropriate.*

323. Based on the advice provided for DOC by Dr Schmidt, discussed in section 4.4.4 above, in my view it is not currently possible to determine whether or not the proposal is consistent with these provisions, because the application does not provide comprehensive information about the presence or absence of heritage or archaeological sites in the project area.

5.0 Comments on conditions and management plans

5.1 Conditions

324. I note that there will be an opportunity for DOC to comment on a draft condition set, prior to approval being granted, as set out in section 70 of the Act.

325. However, I provide initial recommendations for changes to conditions and management plans in this section, and a version of the proposed resource consent conditions (H-02) with tracked changes and comments is attached to this statement of advice.

326. I note that a fuller understanding of the views of Kā Rūnaka will be available after all comments under s53 of the Fast-track Approvals Act 2024 have been made. Their views will be important to a consideration of appropriate conditions of consent, should the application be approved.

327. Broadly, I consider that changes are required to ensure that, if the application is approved, conditions:

- secure all measures in the effects management hierarchy, and ensure that all mitigation measures are implemented to be as effective as possible
- are specific, enforceable, and where appropriate include quantitative and time bound targets and triggers and specify remedial actions when targets and triggers are not met
- provide greater clarity and certainty, removing room for discretion, and
- address the issues raised by DOC's subject experts in their statements of advice, regarding changes needed to conditions to improve management of effects on different values – to the extent that this is possible given the information and effects assessments provided by the applicant, noting that these include significant gaps, as summarised in section 6. In the attached tracked change version of the proposed conditions, I have added comments boxes to highlight the subject experts' recommended changes at the relevant condition or section.

328. In addition, I consider that conditions relating to management plans should be amended to require all plans to be prepared by a suitably qualified and experienced person, to set out clear objectives that relate to the outcome that must be achieved in terms of effects management, and to include specific performance management requirements.

5.2 Management plans

329. The subject experts' statements of advice have also highlighted issues to address in relation to management plans, as follows.

330. Additional management plans are recommended for:

- the management of operational effects, including snowmaking and grooming (Dr Kavazos, para 198) – see also comments from both Dr Kavazos and Dr Walker in relation to related conditions and monitoring requirements, referred to on p34 of Appendix A to this advice
- the management or monitoring of landscape effects (Mr Head, para 44).

331. In relation to the draft construction environmental management plan and the draft erosion and sediment plan (which is a chapter of the draft CEMP):

- proposed erosion and sediment controls are inconsistent with alpine best practice and will result in avoidable and permanent degradation of terrestrial and wetland ecosystems (Dr Walker, para 140)
- the high turbidity limit in Table 7 of the CEMP is of particular concern (Dr Walker, para 108a; Dr Kavazos, paras 143 to 147) – see comments on draft conditions in Appendix A.

332. In relation to the draft terrestrial ecology management plan:

- The process proposed in the TEMP to identify and avoid 'ecologically sensitive areas' and 'high-value' vegetation is inadequate, because it is clear that key infrastructure will not avoid these values (Dr Walker, para 139)
- Proposed biosecurity measures insufficiently recognise the sensitivity and value of the environment and will be inadequate to prevent basin-wide incursions and spread (Dr Walker, para 142)
- The proposed management framework is not specific enough to provide confidence that effects on conservation-significant and poorly known invertebrate taxa will be adequately avoided or detected (Dr Watts, paragraphs 62 to 70). There are data gaps in relation to TAR and Data Deficient species, and the current "significant/threatened invertebrates" provisions (Table 6.3) are largely generic. Dr Watts also has concerns in relation to: proposed reliance on salvage and

reinstatement of microhabitats; the level of detail provided regarding proposed monitoring; proposed decline thresholds; and provisions relating to host plants.

- There are a number of discrepancies between the contents of Table 6.4 and the contents of proposed resource consent conditions in relation to falcon and pipit, including a reference to relocation of falcon nests at Table 6.4, which should be removed (Dr Weston, paragraphs 24 and 26). The TEMP should be amended to state that when pipit nests with chicks are found, they will be avoided until the chicks have fledged (para 28; see also comment at ECO.22B in the draft consent conditions, Appendix A to this advice); and Table 6.4 should be amended to require nest surveys for pipit and falcon no more than 5 days prior to works beginning, rather than no more than 8 days prior (para 31; see similar comment at draft consent condition ECO.21).

6.0 Conclusions

333. This statement of advice has considered the RMA planning framework that relates to management of effects on:

    - ecological values (freshwater, vegetation and ecosystems, invertebrates, avifauna and lizards)
    - heritage values
    - landscape and natural character values (including geomorphology)
    - recreation values, and
    - the effects of the proposal on the ability to collect scientific information from a geomorphological feature on the site.

334. Based on my assessment of the planning framework in relation to these effects, in the light of the application material and the advice provided to DOC, I consider that the proposal is inconsistent with:

    - relevant provisions in the NES-F, NPS-FM and NPS-IB, and

- provisions relating to the management of effects on ecological and recreation values in the ORPS, RPWO, QLDP and CODP.

335. I consider that relevant provisions in the NES-F, the NPS-FM and the NPS-IB direct that the proposed activity should be avoided.

336. In my view, based on this assessment of lower order planning documents, the proposal does not recognise or provide for RMA Part 2 s6(a) or s6(c), and does not have particular regard to s7(d) or s7(i).

337. I consider that further information and assessment is required to determine whether the proposal is consistent with provisions for the management of effects on heritage and landscape values. Therefore, I do not consider that it is currently clear whether the proposal appropriately recognises or provides for RMA Part 2 s6(b) or s6(f).

338. I consider that the proposal is consistent with RPWO provisions relating to water quantity.

339. In relation to effects on the ability to collect scientific information from a geomorphological feature on the site, I consider that the proposal does not have particular regard to RMA Part 2 s7(g).

340. I note that there are significant gaps in the information and assessment provided with the application material, as follows:

- Mapping of terrestrial naturally uncommon ecosystems (NUEs), and quantification of the area of each type of NUE that will be lost
- A foot survey of the area of the proposed weir and water intake at Doolans Creek, to search for heritage sites
- Comprehensive data on invertebrate values in the project area – information is currently limited by the absence of sampling during early to mid-summer, and no reporting of abundance data
- A survey of lizards in the proposed Transit Hub area next to SH6
- Alternatives to the proposed option of taking water for snowmaking from Doolans Creek and storing it in a reservoir at the site of Tarn 3

should be more fully assessed, including comparison of the potential ecological and landscape effects of each option; discussion in sections 4.2.1.1, 4.2.2.1, 4.2.3.1, 4.3.3.1 and 4.4.5 above explores the effects on wetlands, rivers, vegetation and ecosystems, invertebrates and landscape values that could be avoided or reduced if the Tarn 3 option were not pursued

- Assessment of effects on geomorphology
- Assessment of the anticipated trajectory of climate change from a suitably qualified professional, how this will be responded to in regard to the longevity of the ski-field, additional snow making, and where any additional water required for this will be sourced from and stored
- Assessment of operational effects from snow making, snow grooming, skiing, visitor use and road use on freshwater, vegetation and ecosystem, and invertebrate values, taking into account the effects of climate change over the life of the project, and
- Assessment of the combined and cumulative effects of all elements of the project, particularly on freshwater and vegetation/ecosystem values.

341. If the Panel is minded to grant the approval, I have recommended amendments to the proposed conditions in the attached document. However, I also consider that, if the Panel accept the Department's expert advice, further conditions would be required to avoid impacts to significant areas.

Appendix A: Track changes and comments on applicant's proposed consent conditions