

Central Otago District Council
P O Box 122
ALEXANDRA 9340

Dear Sir/Madam

Re : RC230179 TKO Properties Limited application for Application for Subdivision and Development at Lakefront Terrace, Bendigo. Rocky Point

Background

I am making this submission on a personal basis. However, I am a private botanical consultant based near Alexandra, and have worked in the drylands and high country of Central Otago and Mackenzie Basin in both the public and private sector over the last 30 years.

I am familiar with the biodiversity and flora of the Upper Clutha Valley and the Bendigo Area and have conducted Spring Annual Flora Surveys in the Clutha Catchment from Wanaka to Roxburgh; the Manuherikia catchment from Idaburn to Alexandra and the Mackenzie Basin. I have worked on the few remaining Saline Ecosystems in Central Otago. This gives me the relevant experience to comment on the biodiversity of this Proposal.

I oppose the application and submit that it should be declined in its present form.

The Specific Parts of the Application that my submission relates to are:

- A. The Proposal is contrary to the Koinga Conservation Covenant (Reserves Act) and Rocky Point Recreation Conservation Zone (Schedule 19.16 District Plan) which recognise and specifically protect/set aside this area for its biodiversity and landscape values.
- B. Lack of relevant information in terms of threatened spring annual flora and presence of threatened saline ecosystems that are extremely likely to be present and are vulnerable to the effects of the Proposal.
- C. Insufficient recognition is given to threatened plant species, threatened and regionally rare and representative ecosystems when applying the Ecological Effect Criteria thereby minimizing the stated effect of the Proposal.
- D. Indigenous vegetation, including many threatened/at risk species are going to be lost. The application therefore does not meet Criteria and Policies for Biodiversity Compensation of the Otago Regional Policy Statement; which means the following are not met: Regional Policy Statement Objectives: 1.2, 3.1, 3.1.7, 3.1.9a and b; Policy 5.4.6A Biological Diversity Compensation. District Plan Policies: 16.3.7 and 16.3.8 are not met.

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- E. Compensation Package offered is based around planting trees and shrubs and does not address loss of cushionfield, possible saline ecosystems, rocklands or seepages. It is inadequate and does not reflect the very high ecological values that the Proposal is going to permanently remove. The effects on significant ecological values should be avoided.
- F. Lack of a well-designed off-set analysis and Ecological Enhancement and Monitoring Plan that provides evidence of how a net-gain off-set will be achieved with Like for Like off-set/compensation of highly threatened plant species and ecosystems.
- G. No provision of public benefit in terms of providing public access to an area of significant value for recreation and open space enjoyment to the Cromwell and Bendigo communities.
- H. Globally, the leading cause of plant extinction is habitat loss.

This submission is: (*attach on separate page if necessary*)

Include:

- *whether you support or oppose the specific parts of the application or wish to have them amended; and*
- *The reasons for your views.*

A. The Proposal is contrary to the Koinga Conservation Covenant (Reserves Act) and Rocky Point Recreation Zone (Schedule 19.16 District Plan) which recognise and specifically protect/set aside this area for its biodiversity and landscape values.

I do not support the inclusion of the CODC Rocky Point Recreation Zone (Schedule 19.16) within this Proposal because this zone is designated Outstanding Natural Landscape due to its biodiversity and landform values. The biodiversity values include regionally significant kanuka woodland, and *Raoulia* cushionfields, rocklands, and likely nationally threatened saline ecosystems. The CODC Plan states that "These areas, because of their conservation value, have been **set aside** and act as a natural extension of the adjacent Bendigo Scenic Reserve. Tracks and tracks, interpretation signs, and structure would be permitted".

This Proposal will result in a net-loss of biodiversity values, fragmentation of ecosystems and there is no provision for **public** enjoyment of the Rocky Point Recreation Zone.

The southern part of the Proposal includes part of the Conservation Covenant (Reserves Act), which is to be managed to protect or enhance the natural character of the land in terms of biodiversity, landscape and heritage value (see covenant document in Appendix 1.)

This Application is contrary to the objectives of the covenant as it results in the fragmentation of the ecosystem; and loss native flora and fauna, including threatened ecosystems and species.

I do not support the Proposal's inclusion of the Rocky Point Recreation Zone nor the Koinga Conservation Covenant.

B. Lack of relevant information in terms of threatened spring annual species; other threatened plant species present/likely to be present; and presence of threatened saline ecosystems that are extremely likely to be present and are vulnerable to the effects of the Proposal.

This information has a significant bearing on this Application and should have been provided prior to Notification.

The threatened species and ecosystems outlined below are exceptionally vulnerable to loss. The Proposal either needs to be declined, or a robust off-set analysis and Vegetation Enhancement and Monitoring Plan that provides a generous level of net gain off-set of like-for-like biodiversity.

The following information must be provided by the Applicant prior to going to the Hearing Panel.

(i) Threatened Spring Annual Herbs

- a) Threatened Spring Annuals are highly likely to be present within the Development Zone, associated with cushionfield, ephemeral seepages, and any Saline Sites present.
- b) Spring Annuals are tiny threatened herbs found in Central Otago and Mackenzie Basin. The species highly likely to be present at the Proposal comprise New Zealand mousetail (*Myosurus minimus* subsp. *novae zelandiae*- ranked *Nationally Vulnerable*); small flowered forget-me-not (*Myosotis brevis* – ranked *Nationally Vulnerable*). Their habitat has been under extreme pressure from land development.
- c) NZ mousetail and small-flowered forget-me-not grow in damp and slightly salty depressions of gravel, alluvial flats; on slightly saline hillslopes; in saline ecosystems; and on silty soils associated with ephemeral wetlands and seepages. Spring annuals are often associated with exotic herbs and can be the only native species present, so are often overlooked and under-valued.
- d) These short-lived herbs usually germinate in the Spring (August-October depending on the season) in response to favourable rainfall, then dry up and disappear a month or so afterwards in response to summer soil moisture deficits. They are often succeeded by exotic weed species like stonecrop and hemlock.
- e) It is good practice to conduct a Spring Annual Survey in Spring to ensure that these highly threatened species, if present, are found and reported on. This is essential so that the implications of any development proposal can be assessed prior to consent being considered. This has not been done.

Context:

- f) Spring annual herbs are extremely likely to be present at the Application Site. A brief survey along the public Mt Koinga Track that crosses Bendigo Hills Estate, approximately 600m south from the edge of the Application Site revealed two Spring Annual herbs (NZ mousetail and small-flowered forget-me-not) growing extensively within cushionfield; at the edge of kanuka shrubland; on a saline site; and on silty soils located in an ephemeral seepage See Appendix 2 for photographs of species and habitats.

- g) Spring annuals are also known from the nearby Bendigo Scenic Reserve.
- h) Many spring annual sites have already been lost in Central Otago because subdivision resource consents allocate their habitat for house lots and curtilage e.g. Conroys Road subdivisions.**

(ii) Inland Saline Ecosystems

- a) Inland saline ecosystems are a threatened ecosystem with a threat status of Critically Endangered (¹Holdaway 2012).
- b) Saline ecosystems are areas of soil where in the absence of leaching, soluble salts have accumulated to such an extent that they are moderately to highly alkaline (pH > 7). As such, they are a significant soil. Saline soils accumulate from the weathering of several geological substrates: basement schist, ancient marine or lake sediments, and old alluvial gravels. Because saline soils occur in semi-arid climates where evaporation of soil moisture leads to surface accumulation of salts, they occur patchily across this zone from the mid altitudes of Otago's block mountains down to basin and valley floors. Surface salts are predominantly a grey-white colour but yellow and pink tinges are frequent. Because the accumulated salts are toxic to most plants, saline soils generally support sparse, mostly herbaceous, vegetation.
- c) Approximately 40,000 ha of saline soils were originally surveyed in the 1960 and 70's (e.g. [2]McCraw 1964). In 2000, it was estimated that less than 100ha of this original cover remained (representing <0.025%) ([3]Rogers et al 2000). Given the high level of land use intensification since 2000, the extent of saline soils have undergone further contraction to an estimated 40ha or 0.01% (Geoff Rogers pers comm.) of the original cover remaining, making it one of the most threatened ecosystems.
- d) A brief survey along the public Mt Koinga Track that crosses Bendigo Hills, approximately 600m south from the edge of the Application Site, revealed the presence of a saline ecosystem. The open white salty zone has threatened NZ mousetail at its margins. This species, while not an obligate halophyte, grows in mildly salty habitats. At Risk *Raoulia australis* cushions are present slightly further away. Threatened ecosystems that support

¹ Holdaway RJ, Wiser SK, Williams PA 2012. [Status assessment of New Zealand's naturally uncommon ecosystems](#). Conservation Biology 26: 619–629.

² McGraw, J. D., 1964: Soils of Alexandra district. N.Z. Soil Bur. Bull. 24.

³ Rogers G, Hewitt A, Wilson JB 2000. [Ecosystem-based conservation strategy for Central Otago's saline patches](#). Science for Conservation 166. Wellington, Department of Conservation.

⁴ Gibson, R. 2021. Bendigo Hills Estate Subdivision. Ecological Assessment, 27th May 2021. Cited in Application.

indigenous vegetation are of **very high significance** and are highly likely to be present at the Rocky Point Development Site.

See Appendix 3 for photos.

- e) The Application notes that areas of saline soil were found by [4]Gibson (2021) at their adjacent property Bendigo Hills Estate, however no saline site survey and assessment has been presented for Rocky Point.
- f) Given that saline ecosystems at this locality occupy flat sites, they are likely to be the focus of house sites, and therefore if present, will be permanently lost.

(iii) Other Threatened and Rare Species that are present/expected to be present

The Application does not take into consideration the cumulative effect of the proposal on the additional threatened and at risk species that were either noted as being present in the Ecological Assessment or present nearby at Koinga Track (See Table below). These add weight to the very high significance of ecological values present at the site.

Where Noted	Threat Category	Species	Common Name	Habitat
In Application	Nationally Vulnerable	<i>Carex inopinata</i>	Sedge	Under kanuka; at base of rock outcrops
At Koinga Track nearby	Nationally Vulnerable	<i>Raoulia monroi</i>	Fan mat daisy	Raoulia cushionfield
		<i>Myosurus minimus subsp. novaezealandiae</i>	NZ mousetail	Widespread in <i>Raoulia</i> cushionfield, saline ecosystem, at edge of kanuka wetland; seepages
		<i>Myosotis brevis</i>	Small-flowered forget-me-not	Scattered in <i>Raoulia</i> cushionfield
	At Risk - Declining	<i>Colobanthus brevisepalus</i>	Desert pin cushion	<i>Raoulia</i> cushionfield
		<i>Raoulia beauverdii</i>	Beauverd's mat daisy	<i>Raoulia</i> cushionfield
		<i>Xanthoparmelia semiviridis</i>	Vagrant lichen	<i>Raoulia</i> Cushionfield, kanuka woodland, seepages

(iv) Other Ecosystems - Ephemeral Seepages/Waterways

No seepages or waterways were identified on the Site by the Applicant. However, ephemeral seepages and waterways are a feature of Central Otago, including this locality. These may seasonally flow, or have a high water table after rain events at any time of the year, but for the most part, appear to be dry.

At Koinga Track an ephemeral seepage provides habitat for threatened NZ mousetail and At Risk-declining *Olearia lineata*. Ephemeral seepages/waterways will also be present at the Site, and very likely be Spring Annual habitat

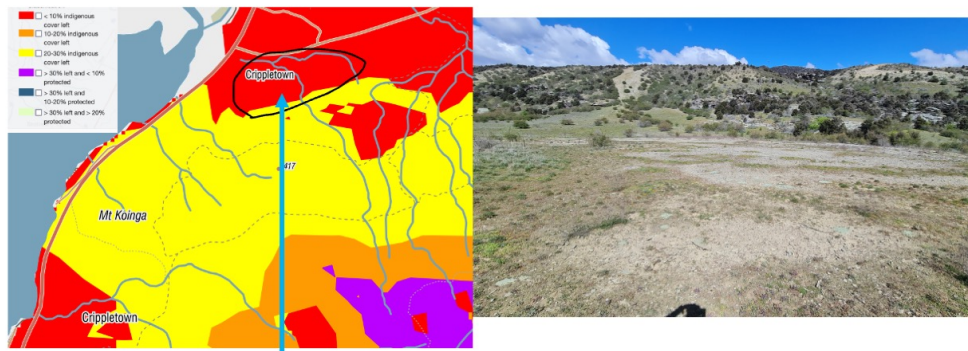
C. Insufficient recognition given to threatened species and ecosystems when applying the Ecological Effect Criteria thereby minimising the stated effect of the Proposal.

The Assessment lacks information on the presence and extent of threatened species and ecosystems that are in fact highly likely to be present (i.e.see Table above, saline ecosystems) or are present (Nationally Critical pygmy mistletoe and Nationally Vulnerable *Carex inopinata*), and do

es not assign sufficient significance to the presence of a critically threatened Land Environment of New Zealand (LENZ) Unit, nor the largest extent of a pre-Human kanuka-*Olearia* scrub/treeland ecosystem in Otago.

(i) Threatened Land Environment of New Zealand Unit

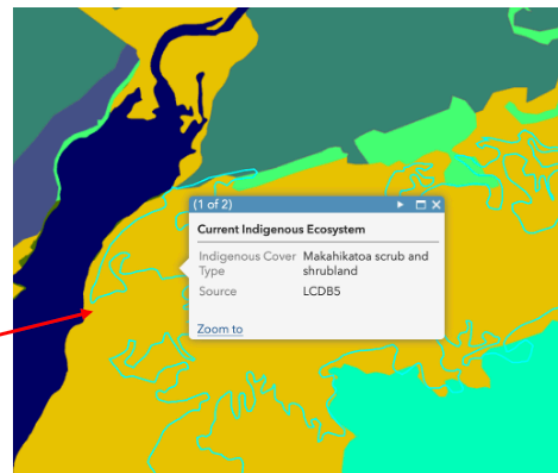
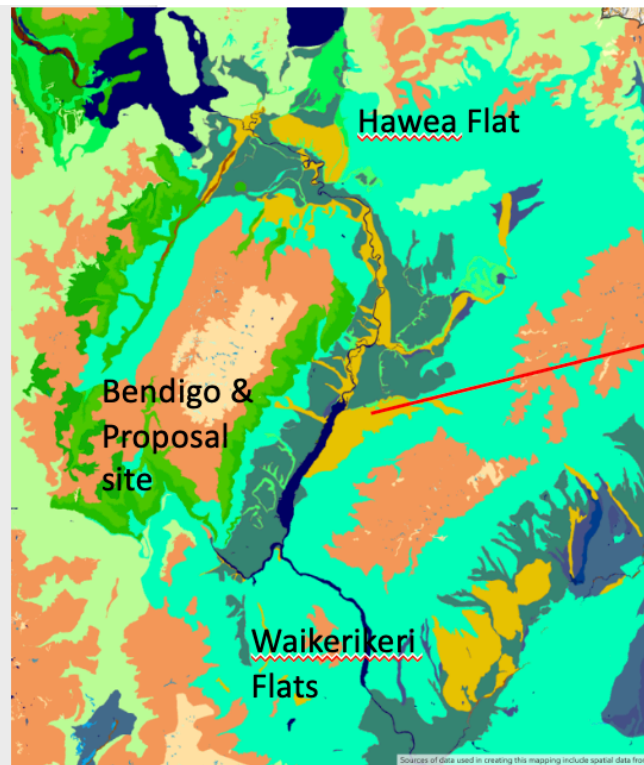
- a) The assessment notes the presence of a critically threatened Land Environment of New Zealand (LENZ Unit N8.1b) where nationally <10% of indigenous vegetation cover remains but does not provide any relevant offset/compensation for it.
- b) This threatened LENZ unit is beside Bendigo Loop Road, and supports At Risk *Raoulia* cushionfield. This LENZ has been replaced by vineyards on adjacent properties. This site is of very high significance.



Critically Threatened LENZ Unit (i.e. <10% indigenous vegetation remaining), off Bendigo Loop Road supports At Risk- *Raoulia* cushionfield on flats, and threatened kanuka on lower slopes

(ii) Regionally Significant Kanuka-Olearia Scrub/Treeland Pre Human Ecosystem

- a) The Proposal is dominated by kanuka-*Olearia* scrub/treeland ecosystem that is considered to be the original pre-Human vegetation cover (see Map Below). The grey shrubland species associated with this ecosystem are confined to scrub-filled gullies, but includes the expected species in this Ecosystem.
- b) The early successional derivative of this ecosystem are also present that include short tussock grasslands with inter-tussock prostrate herbfield species such as the *Raoulia* mat daisy cushionfields found at the Proposal Site.
- c) This ecosystem is representative of the pre-human vegetation cover that was naturally uncommon in pre-Human Otago, the other non-riparian localities being Waikerikeri flats near Alexandra, and Hawea Flat, where it is no longer found (see Diagram below). This gives very high significance to this example of kanuka scrub/treeland ecosystem at Rocky Point in terms of rarity/Distinctiveness and Representativeness.



Inset: Proposal Locality

Map of Potential Pre Human Ecosystems. Yellow at the Proposal indicated that Kanuka-Olearia Scrub/Woodland would be present. The inset shows the current vegetation cover to be similar i.e. makahikatoa/kanuka scrub and shrubland. This ecosystem type has been lost from Hawea Flat and Waikerikeri Flats, but persists along the Clutha River in places.

See ORC Potential Ecosystems Mapping

<https://maps.orc.govt.nz/portal/home/webmap/viewer.html?webmap=7d0ef0d7ba724378a0ba22ecd88f3180>

The magnitude of effect score for Rarity/Distinctiveness (Table 8-4 and 9-1 on p21) and Representativeness should be **Very High** rather than just High.

D. Indigenous vegetation, including many threatened/at risk species are going to be lost. The application therefore does not meet Criteria and Policies for Biodiversity Compensation of the Otago Regional Policy Statement; which means the following are not met: Regional Policy Statement Objectives: 1.2, 3.1, 3.1.7, 3.1.9a and b; Policy 5.4.6A Biological Diversity Compensation. District Plan Policies: 16.3.7 and 16.3.8 are not met.

- a) When applying Policy 5.4.6A Biological Diversity Compensation (Table 11-1, p26), compensation can only be considered to address residual adverse effects of the development on indigenous vegetation that cannot be avoided, remediated, mitigated or off-set (in that order), which includes a large area of cushionfield under the footprint of buildings, driveways, tracks, roads etc.
- b) Compensation is therefore not appropriate because:
 - Off-setting has not been considered.
 - The residual adverse effects of the project will result in the loss of vulnerable values:
 - The loss of a chronically threatened LENZ unit, and potentially a critically endangered saline ecosystem that is associated with indigenous plant species;
 - The Proposal will result in the significant loss of cushionfield that has become regionally threatened by ongoing land development and land use change.
- c) I agree that the biodiversity values outlined within the Proposal are very high, and meet the criteria to be considered a Significant Natural Area. However, I disagree with the way that Policies and Objectives within the Regional Policy Statement have been applied as they do not give sufficient weight to these values.
- d) The Proposal will result in a net-loss of biodiversity values due to the very high values present. The rarity and distinctiveness of ecological values has not been adequately recognised.
- e) As a result, it is not appropriate to offer compensation rather than off-set. The compensation package offered fails to compensate for the loss of threatened cushionfield, threatened and at risk species associated with it; Nationally Critical Pygmy mistletoe, Nationally Vulnerable *Carex inopinata*; probably present threatened and at risk plant species, or critically endangered saline ecosystems, nor the threatened LENZ unit.
- f) The proposal fails to meet Objectives and Policies set out in the Otago Regional Policy Statement that relate to Biodiversity and soils.
 - **Chapter 3: Objective 3.1** The Ecological Assessment does not adequately recognise these very high ecological values nor compensated for the high degree of loss.

- **Policy 3.1.7 Soil values:** The proposal likely prioritises saline ecosystems as house sites due to their flat/gently sloping and open characteristics. This results in loss of saline soil function.
- **Policy 3.1.9 Ecosystems and indigenous biological diversity**
The proposal will result in loss of diversity of ecosystems present, including threatened ecosystems. No net-gain of equivalent values has been offered as compensation for the cushionfield, spring annuals, saline ecosystems and threatened plant species.
- **Policy 3.1.9 (a) and (b)** The Applicant states “*the proposal maintains and enhances ecosystem health and indigenous biological diversity across the site through avoidance of vegetation removal where possible and proposed compensation planting of a range of native species. The proposal achieves this policy*”. However, the proposal will result in the loss of significant areas of threatened ecosystems, communities (other than kanuka) and plant species for which the proposed compensation package does not compensate for.

E. Compensation Package offered is based around planting trees and shrubs and does not address loss of cushionfield, possible saline ecosystems, rocklands or seepages. It is inadequate and does not reflect the very high ecological values that the Proposal is going to permanently remove. The effects on significant ecological values should be avoided.

- a) The ecological values that will be lost as a result of the Proposal are very high. The extent of impact could have been reduced if the development had been restricted to the Development Zone (CODC) and excluded from the Mt Koinga Conservation Covenant and Rocky Point Recreation Zone. However, residual adverse effects on the values that dominate the Development Zone associated with threatened cushionfield, and likely presence of threatened spring annuals herbs and other threatened and at risk plant species; and threatened saline habitats have to be off-set rather than using compensation
- b) The Application notes the presence of a Nationally Critical parasitic pygmy mistletoe that grows on kanuka. However there is no evidence that the Applicant has attempted to avoid, mitigate, offset or compensate for the loss of this threatened plant where it occurs on the development’s footprint.
- c) Pygmy mistletoe is a naturally biologically sparse species where it may be known by only a few scattered occurrences within large parts of its range. The fact that its host species are also under threat from both land development and the invasive Myrtle rust, and that propagation is very difficult, make avoidance from adverse effects the best approach. Any off-set for this Nationally Critical species would have to be significant.
- d) *Raoulia* Cushionfield is the main ecosystem that will be cleared in the Development Zone for this Proposal to proceed. At this site, *Raoulia* Cushionfields represent an early successional derivative of the pre-human kanuka-Olearia scrub/woodland ecosystem. From a Central Otago perspective, *Raoulia* cushionfields were once widespread but have come under great pressure from land use change (conversion to vineyards and lifestyle

blocks; irrigation of drylands; and subdivision with its associated housing, roading developments and domestication of immediate surroundings).

- e) Cushionfields have become a secondary threatened ecosystem and the majority of plant species found growing in it that were once common, are now ranked Threatened or At Risk of extinction (including *Raoulia australis*, *R. beauverdii*, *R. monroi*, *Colobanthus brevisepalus*, *Xanthoparmelia semiviridis*, *Leptinella* spp.).
- f) The loss of cushionfield and its associated flora through vegetation clearance has to stop as they risk extinction.
- g) The Applicant has not provided evidence that any attempt has been to avoid cushionfield, nor offered like-for-like offset even though there may be opportunities for genuine offset to be made on Bendigo Hills Estate within the Rocky Point Recreation Zone.

F. Lack of a well-designed off-set analysis and Ecological Enhancement and Monitoring Plan that provides evidence of how a net-gain off-set will be achieved with Like for Like off-set/compensation of highly threatened plant species and ecosystems.

- a) Instead of compensating for the loss of cushionfield, the Compensation Package proposes planting a range of shrub and tree species into the margins of existing kanuka shrubland on Bendigo Hills Estate. There is no biodiversity equivalence, or 'like for like' (see Diagram 5 below), presented in this compensation for values other than kanuka. The proposal and proposed compensation package will result in a net-loss in these highly significant values.

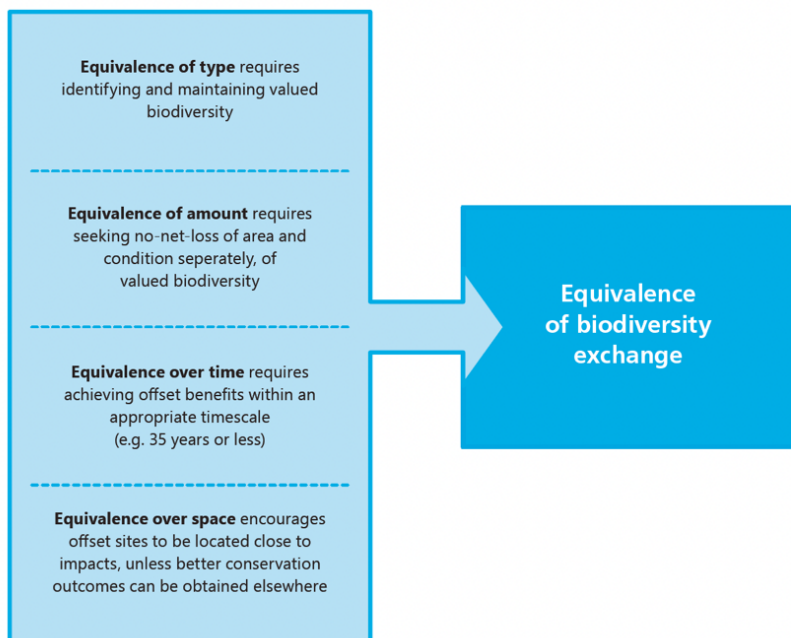


Figure 5: Factors contributing to equivalence of biodiversity exchange.

From: Fleur Maseyk
· Graham Ussher ·
Gerry Kessels
Mark Christensen ·
Marie Brown: Sept
2018: Biodiversity
offsetting under the
Resource
Management Act – A
guidance document.

- b) The Application lacks the detailed evidence that this proposal has followed the best procedure for applying the mitigation hierarchy, or that it has been assessed in terms of whether residual adverse effects can be offset or compensated for (see Figure 6). Given the very high values of biodiversity effected, it is crucial that the Applicant provides the necessary details required to follow Steps 4-7 set out in Figure 6 and presented as part of the Resource Consent Application. A detailed offset proposal and monitoring plan should have been presented for the public to be able to consider and submit on, and for the Hearing Panel to be able to make an informed decision.

The generic process is shown in Figure 6 with reference to the information requirements and key considerations that should be applied at each step, and reference to relevant parts of the RMA process, including outputs that an auditor, reviewer or consent officer could expect.

STEP	INFORMATION NEEDED	OUTPUTS	RMA
1. Identify actual or potential adverse effects	Assess ecological effects Identify key effects and biodiversity values Engage and consult with stakeholders	Schedule of biodiversity values directly or indirectly affected	Pre-application discussions s.88 Schedule 4 effects assessment Non-statutory offset guidance
2. Apply the mitigation hierarchy	Explore and document ideas to avoid, remedy and mitigate adverse effects	Proposed avoidance, remediation and mitigation	Pre-application discussions Non-statutory offset guidance
3. Identify residual adverse effects	Determine the need for an offset based on residual adverse effects Relate the ecological significance of effects to RMA requirements	Assessment of residual effects against ecological significance criteria and need for offsetting or compensation	Pre-application discussions Part 2 s.6(c) Non-statutory offset guidance
4. Assess offset appropriateness	Confirm if adverse effects can be offset Demonstrate how offsets principles have been addressed Identify effects where re-design or compensation will be proposed	Schedule biodiversity that can and cannot be offset	Pre-application discussions Non-statutory offset guidance
5. Feasibility analysis	Confirm when effects are needed to be offset Confirm feasibility and appropriateness of offsets proposed	Describe management actions and how outcomes can be assured	
6. Calculate losses and gains and offset prescription	Confirm methods for calculating no-net-loss/net-gain Select appropriate offset locations and management actions Calculate offset gains and losses	No-net-loss calculations and description of the offset and location(s)	

STEP	INFORMATION NEEDED	OUTPUTS	RMA
7. Record the offset design	Record the detailed offset specification Ensure compliance with plan/consent conditions	Offset proposal and monitoring plan	
8. Resource consent	Resource consent application	Ecological enhancement and monitoring plan Any measure proposed or agreed by the applicant to ensure positive effects to offset or compensate adverse effects. Resource consent decision	s.104 Note: The new RMA amendment includes s.104(1)(ab) s.108
9. Implementation and monitoring	Putting the offsetting plan into effect Monitor to confirm targets and thresholds are met and any adaptive management plan triggers Reporting results to council	Meeting resource consent conditions Adaptive management	Part 12 Enforcement provisions

Figure 6: Key steps and information needs as part of the offset design process. These steps will likely be iterative, particularly where the project footprint is refined or re-designed in response to ecological risks or ongoing stakeholder engagement.

From: Fleur Maseyk · Graham Ussher · Gerry Kessels
Mark Christensen · Marie Brown: Sept 2018: Biodiversity offsetting under the Resource Management Act – A guidance document.

- h) The other aspects to the compensation package relate to weed and pest control, a sufficient bond for which will be necessary upfront, to ensure that these activities proceed for at least 10 years.

G. No provision of public benefit in terms of providing public access to an area of significant value for recreation and open space enjoyment to the Cromwell and Bendigo communities.

- a) This Locality is exceptionally important to the Upper Clutha community. The biodiversity values give the area high natural character as a backdrop to Lake Dunstan and have been recognised in the District Plan Schedule and by the Reserves Act Conservation

Covenant. The Proposal is located beside Lake Dunstan, and there is community interest in developing cycle trails that link Bendigo to Cromwell.

- b) The Proposal however does not “*contribute to open space, recreational and reserve needs of the community*” (Policy 16.3.7 District Plan), nor does it “*ensure, where appropriate, that subdivision maintains and where appropriate enhances public access to the District’s reserves and areas of public open spaces*” (Policy 16.3.8 District Plan) as it does not provide public access to Bendigo Scenic Reserve, nor allow public access to and on the Rocky Point Recreation Zone or Conservation Covenant.
- c) An outcome of this Proposal, if granted, should be the provision of public foot and biking access to and within the Rocky Point Recreation Zone, as was the intention of the District Plan.

H. Globally, the leading cause of plant extinction is loss of habitat.

- a) Kew Gardens, London, has just released their latest assessment of the ²State of the World’s Plants and Fungi, providing assessments of our current knowledge of the diversity of plants and fungi on Earth, the global threats that they face, and the policies to safeguard them.
- b) Drawing upon the expertise of 200 contributors from more than 100 institutions across 30 countries, the report is a global collaborative effort which takes an in-depth look at the worldwide drivers and patterns of biodiversity, provides new insights into extinction risk, and identifies critical knowledge gaps and how to address them. Habitat loss is a key driver for plant extinction.
- c) Most of the indigenous plants present within the Proposal are At Risk or Threatened with extinction, in particular from habitat loss through land developments such as this.

I/We seek the following decision from the consent authority:

That the Proposal be declined in its current form.

If the Proposal is redesigned, it must :

- avoid the Rocky Point and Koinga Conservation Covenant from any subdivision or development so as to protect its landscape and biodiversity values for which this Zone/Covenant was set aside for.
- Avoid effects on significant ecological values and adequately offset them. This will require further information to be provided that includes:

- Assessments from Ecological surveys across Rocky Point (and Bendigo Hills if that was to provide areas for off-setting) for Spring Annuals, Saline Ecosystems and Threatened and At Risk Plants (including pygmy mistletoe and including those listed in Section B(iii) of this submission.
- A detailed offset proposal and Ecological Enhancement and Monitoring Plan that shows evidence that a net-biodiversity gain with like-for-like biodiversity gain achieved.

Given that the threatened species and ecosystems present or likely present are exceptionally vulnerable to loss, if this additional information is not provided, a precautionary approach should be taken and the Application declined.

If the Proposal proceeds, the following should be addressed:

- That the part of the Proposal located within the Rocky Point Recreation Zone or Koinga Conservation Covenant be declined, and that the residual effects on ecological values within the Development Zone be offset with net-biodiversity gain as outlined in a detailed Ecological Enhancement and Monitoring Plan IF these can be offset.
- That a sufficiently large bond is required from the Applicant prior to works commencing to ensure that all ecological requirements (including weed and pest control;) in the Ecological Enhancement and Monitoring Plan can proceed for a period of at least 10 years.
- That any area for biodiversity offset be protected in perpetuity under a protective covenant with unambiguous terms where no vegetation clearance or further subdivision is permitted. (This is important as further subdivision has been consented at other Subdivisions (e.g. Queensberry) despite the original consent conditions stating no further subdivision.)
- That community benefit from the Proposal is delivered by way of public access for public enjoyment to and within Open Space/Conservation Covenants (Mt Koinga and the Rocky Point Recreation Zone) in perpetuity.
- Further subdivision of all Lots be prohibited in perpetuity because the constant intensification of activity has a cumulative adverse effect on biodiversity and landscape values.
- No cats allowed so as to protect lizard fauna.

**I support/oppose the application ~~OR neither support or oppose (select one)~~
I wish / ~~do not wish~~ to be heard in support of this submission (select one)**

Appendix 1: Koinga Conservation Covenant

CONSERVATION COVENANT (Section 77 Reserves Act 1977)

COU 5009824.9 COVENANT (ALL TYPE)
CPY-01/02.PGS-007.02/10/00.16:51



DocID: 110111430

BETWEEN JOHN CHARLES PERRIAM of Lowburn Farmer and HEATHER LORNA PERRIAM his wife ("the Landholders")
AND MINISTER OF CONSERVATION ("the Minister")

WHEREAS

A Section 77 of the Reserves Act 1977 provides that:

- i The Minister may agree with any owner or lessee of land that all or part of the land should be managed so as to preserve the natural environment or landscape amenity or wildlife or freshwater life or marine life habitat or historical value of the land.
- ii The terms of such agreement may be recorded in a Conservation Covenant which is registered against the title to the land or the lease so as to bind the land or the lease and its owner or lessee to the performance of the terms of the agreement, in perpetuity or for such other period as the parties may agree.

B The Landholders are registered as proprietors of the land firstly described in the schedule ("the land") in the shares of 2/3 to the said John Charles Perriam and 1/3 to the said Heather Lorna Perriam.

C The Landholders and the Minister have agreed that the land be managed with the following conservation objectives:

- i Protecting and enhancing the natural character of the land with particular regard to the natural functioning of ecosystems and to the native flora and fauna in their diverse communities and dynamic inter-relationships with their earth substrate and water courses and the atmosphere.
- ii Protecting the land as an area representative of a significant part of the ecological character of the Dunstan Ecological District as referred to in the draft survey report for the Protected Natural Areas Programme for the Lindis Pisa and Dunstan Ecological Districts dated February 1987.
- iii Maintaining the landscape values of the land as referred to in the "Application for exchange of property rights" submitted to the Commissioner of Crown Lands.
- iv Maintaining the historic values of the land as referred to in "The rich fields of

LEG/PERRIAM

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Appendix 2: Threatened and At Risk Plant Species Likely to be present at Proposal (recorded here at Koinga Walking Track)



Raoulia cushionfield with threatened spring annuals widespread- Saline Koinga Walking Track



While exotic hemlock (bright green) appears to be the only plant growing on an Ephemeral seepage at Koinga Walk Track, both species of Spring Annual grow on the dark soils. At Risk tree daisy form groves.



Raoulia cushionfields at Koinga walking Track comprise three species of *Raoulia*. *R. monroi* (Nationally Vulnerable), *R. australis* and *R. beauverdii* (At Risk-declining).



Desert pin cushion (*Coobanthus brevisepalus*- At Risk-declining) grows in scabweed (*Raoulia australis*) cushions. Koinga walking Track

Appendix 3: Saline Ecosystem with Spring Annual herbs at Koinga Walking Track



Saline Ecosystem on Koinga Walking Track



Nationally Vulnerable small flowered forget-me-not *Myosotis brevis* Spring Annual growing in moss at margin of saline ecosystem on Koinga Walking Track



Nationally Vulnerable NZ mousetail (*Mvosurus minimus subsp. novae zelandiae*) growing in salty margins of Saline Ecosystem on Koinga Walking Track