

Ecological constraints analysis for Kaikōura Business Park proposed rezoning

Contract Report No. 7083

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March 2024

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Cite this report as follows:

Wildland Consultants (2024). *Ecological constraints analysis for Kaikōura Business Park proposed rezoning*. Wildland Consultants Contract Report No. 7083. Prepared for Kaikōura Business Park 2021 Limited. 27 pp.

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1.0 Introduction

Baseline Group Limited, on behalf of their client Kaikōura Business Park (KBP), have submitted an application to Kaikōura District Council concerning the rezoning of approximately 21.6 hectares of land, located at 69 Inland Kaikōura Road. The land is currently zoned rural, largely comprises paddocks, and is being used for pastoral farming. The application is to rezone the land from rural to light industrial.

KBP have engaged Wildland Consultants Ltd (Wildlands) to undertake an ecological constraints assessment for the proposed rezoning of the property.

2.0 Objectives and project scope

The objective of this project is to provide an ecological constraints assessment of the proposed rezoning site. The ecological constraints assessment included desktop and field investigations to identify any significant terrestrial biodiversity within the proposed rezoning site, that may be affected by the proposed rezoning.

The scope of the ecological assessment includes:

- Determining the presence and extent of any wetland habitat and assessing it using standard definitions and methods as required by the National Policy Statement for Freshwater Management (NPS-FM; 2020). Note that to ensure the requirements of the NPS-FM are met, wetlands were surveyed for within a 100 metre buffer of the site.
- Determining the presence of indigenous vegetation and habitat of indigenous fauna, as well as outlining any requirements for further work.
- Assessing the potential impacts of the proposed rezoning against National Policy Statement for Indigenous Biodiversity (NPS-IB). This includes discussion around the flight path of Hutton's shearwater (*Puffinus huttoni*) over the site.
- Assessing the ecological significance of the site against both the NPS-IB (Appendix 1 criteria) and Canterbury Regional Policy Statement (Appendix 3 criteria).

This assessment includes providing an ecological constraints analysis to inform the rezoning and subsequent development of the site.

3.0 Ecological context

3.1 General overview

The proposed rezoning site is located approximately six kilometres west of Kaikōura, adjacent to the Kowhai River to the west. The site is primarily pasture and farmland, with shelterbelts along the paddock and property margins.

The entire property (21.6 hectares) is proposed for rezoning (Figure 1).

3.2 Ecological district

This property is within the Kowhai Ecological District, which is characterised by plains, rivers, and the Seaward Kaikōura Range. It borders the Pacific Ocean on the eastern boundary, and includes the



Kaikōura Peninsula and limestone reefs. The geology is dominated by glacial outwash gravels and silts, with post-glacial alluvium in the lowlands. The peninsula is Cretaceous sandstone, mudstone, and Tertiary limestone.

This ecological district was formerly dominated by podocarp and podocarp/hardwood forests with kahikatea, mataī, and tōtara. Fire-induced scrub and flood plain scrub were also common. Currently, there are limited forest remnants and small areas with scrub, but most of the ecological district is farmed (McEwen 1987).

3.3 Threatened Environment Classification

The Threatened Environment Classification (TEC) categorizes land areas by the amount of indigenous cover present in the environment, the amount of land legally protected, and historical indigenous vegetation loss (Walker *et al.*, 2015). There are six threat categories, listed below:

TEC1: <10% indigenous cover left.

TEC2: 10-20% indigenous cover left.

TEC3: 20-30% indigenous cover left.

TEC4: >30% indigenous cover left and <10% legally protected.

TEC5: >30% indigenous cover left and 10-20% legally protected.

TEC6: >30% indigenous cover left and >20% legally protected.

The proposed rezoning site is entirely within TEC2.

3.4 Nearby protected areas

There are several protected areas near the site, including wetlands around Lake Rotorua, the margins of the Kahutara River, and wetlands surrounding Stoney Creek. These protected areas are all managed by the Department of Conservation (DOC). There is also one QEII covenant on the wetlands surrounding Lake Rotoiti.

4.0 Methods

4.1 Desktop assessments

Desktop assessments were undertaken to determine the known ecological values of the site, including assessing recent and historical aerial imagery, historical survey records (Canterbury black maps) and reviewing database records. Online databases (iNaturalist, the Global Biodiversity Information Facility (GBIF 2024), eBird, New Zealand Freshwater Fish database and DOC Bioweb) were searched for information on terrestrial invertebrate, lizard, bird, fish, and vegetation values within and around the site.

Aerial imagery was examined for any evidence of wetlands, such as depressions, standing water (historical and present), and dark/wet looking areas on the site.



Legend

- Property boundary
- Vegetation and habitat types**
 - 1. Mixed shelterbelt treeland
 - 2. Indigenous garden
 - 3. Perennial ryegrass – white clover pasture grassland
 - 4. Haresfoot trefoil – rock grassland
 - 5. Exotic grassland
 - 6. Buildings and inorganic debris

Data Acknowledgment
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Report: 7083
 Ref: 11194
 Client: Kaikōura Business Park 2021 Limited
 Name: Habitats.aprx
 Path: E:\gis\Kaikōura Business Park\mxd\

Figure 1. Habitats present at Kaikōura Business Park rezoning site

0 75 150 m

Wildlands
 www.wildlands.co.nz, 0508 WILDNZ

Scale: 1:3,000
 Date: 13/02/2024
 Cartographer: BL
 Format: A4



Lizard records within a 15 kilometre radius of the site were searched for on the DOC Bloweb. Bird records were obtained from eBird, with data restricted to those within a one kilometre radius of the site and recorded between 1 January 2019 and 31 October 2023.

The terrestrial invertebrate desktop survey involved searching GBIF.org¹ for species records. To filter the data, a polygon was drawn encompassing the site plus the area surrounding the site within five kilometres from the site perimeter (not including the ocean). The Scientific Name filter was also applied, using the terms Arachnida, Athoracophoridae, Rhytididae, Insecta, and Onychophora to represent spiders, leaf-veined slugs, indigenous giant land snails, insects, and velvet worms respectively. Only species which had been identified to species level were assessed.

From the records retrieved by the GBIF search, freshwater invertebrates (including mayflies, stoneflies, and others terrestrial adult stages) were removed. The remaining records were scanned for notable species (those listed as Threatened, At Risk, locally endemic, known or suspected to be declining, or particularly sensitive to habitat loss or predation by introduced mammals). These were compared with vegetation and habitat on-site to judge the likelihood of each notable species occurring within the project area.

4.2 Field surveys

On 14 December 2023, a Wildlands vegetation ecologist conducted a vegetation assessment at the site. All vegetation and associated habitat types were mapped and described following the structural classes in Atkinson (1985) (Figure 1). Field mapping was digitised onto aerial imagery using ArcGIS. All vascular plant species observed are listed in Appendix 1.

A walk over of the entire site was undertaken to identify and (if necessary) delineate any natural inland wetlands. The vegetation and habitats on the site were evaluated for wetland status according to the Resource Management Act (RMA; 1991), which defines wetlands as “permanently or intermittently wet areas, shallow water, and land/water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions”, and the National Policy Statement for Freshwater Management (NPS-FM; 2020). A natural inland wetland is defined in the operative NPS-FM as a wetland (as defined in the RMA) that is not:

- a) In the coastal marine area; or
- b) A deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or
- c) A wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or
- d) A geothermal wetland; or
- e) A wetland that:
 - I. Is within an area of pasture used for grazing; and
 - II. Has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology); unless
 - III. The wetland is a location of a habitat of a threatened species identified under clause 3.8 of the NPS-FM, in which case the exclusion in (e) does not apply.

The NPS-FM refers to the Ministry for the Environment (MfE) wetland delineation protocols (December 2022) in order to determine the status of wetlands. The hydrophytic vegetation test relies

¹ GBIF.org (10 February 2024) GBIF Occurrence Download <https://doi.org/10.15468/dl.x6c58s>



on the presence of hydrophytes. Hydrophytes are plant species capable of growing in soils that are often or constantly saturated with water during the growing season. The hydrophyte categories (wetland indicator status ratings: Clarkson 2013 and subsequent updates) are:

- Obligate (OBL): occurs almost always in wetlands (estimated probability >99% in wetlands).
- Facultative Wetland (FACW): occurs usually in wetlands (67-99%).
- Facultative (FAC): equally likely to occur in wetlands or non-wetlands (34-66%).
- Facultative Upland (FACU): occurs occasionally in wetlands (1-33%).
- Upland (UPL): rarely occurs in wetlands (<1%).

On 4 January 2024, a Wildlands principal ecologist conducted a walkthrough avifauna survey at the site. All avifauna observed or heard were recorded.

The vegetation assessment was used to inform the desktop assessment for indigenous lizards. Targeted surveys for indigenous lizards were beyond the scope of this assessment.

5.0 Vegetation and habitats

Terrestrial Habitats

1. Mixed shelterbelt treeland

Narrow mixed indigenous/exotic shelterbelts are present through the middle of the site, dividing paddocks. These shelterbelts are mostly formed by dense rows of the exotic tree lupin (*Lupinus arboreus*), and the indigenous akeake (*Dodonaea viscosa*), and poroporo (*Solanum aviculare*). There were also planted juveniles of mānuka (*Leptospermum scoparium*), kōwhai (*Sophora microphylla*), tarata (*Pittosporum eugenioides*), and kāpuka (*Griselinia littoralis*). The understory comprises harakeke/New Zealand flax (*Phormium tenax*), toetoe (*Austroderia richardii*), common mallow (*Malva sylvestris*), cocksfoot (*Dactylis glomerata*), blackberry (*Rubus fruticosus*), nightshade (*Solanum* sp.), and hawksbeard (*Crepis capillaris*). Small gaps, which used to be access tracks between paddocks, lack tree species but ground cover species persist in these areas.

2. Indigenous garden

A strip of land along the edge of the property which borders State Highway 1 was planted with indigenous shrubs and trees in 2022. Planted species include indigenous juvenile toetoe, tī kōuka (*Cordyline australis*), tarata, New Zealand flax, akeake, mānuka, and kōwhai. Small exotic species such as twiggy mullein (*Verbascum virgatum*), allseed (*Polycarpon tetraphyllum*), and fringed willowherb (*Epilobium ciliatum*) were observed growing between the indigenous species.

3. Perennial ryegrass – white clover grassland

Grazed pasture covers most of the site, with exotic perennial ryegrass (*Lolium perenne*) and white clover (*Trifolium repens*), dominant in most places. Several other exotic pasture species are present here, including plantains (*Plantago major* and *P. lanceolata*), dandelion (*Taraxacum officinale*), browntop (*Agrostis capillaris*), dock (*Rumex obtusifolius*), hawksbeard, geranium (*Geranium brevicale*), red clover (*Trifolium pratense*), haresfoot trefoil (*Trifolium arvense*), shepherds purse (*Capsella bursa-pastoris*), Californian thistle (*Cirsium arvense*), hedge mustard (*Sisymbrium officinale*), curly dock (*Rumex crispus*), and creeping buttercup (*Ranunculus repens*).

4. Haresfoot trefoil-rock grassland



A patch of land in the eastern corner of the site appeared on aerial imagery to have been recently cultivated. It was dominated by exotic species, including haresfoot trefoil, lupins (*Lupinus polyphyllus*), cocksfoot, sweet vernal (*Anthoxanthum odoratum*), plantains, red clover, white clover, catchflies (*Silene gallica*) and hawksbeard. There are several rocky patches scattered throughout this habitat.

5. Exotic grassland

This habitat bordered a pasture and the haresfoot trefoil-rock grassland. It was likely previously vegetated in pasture as well, but has since been cultivated and recolonised by exotic grasses and herbs. This habitat was dominated by sweet vernal, meadow grass (*Poa annua*) and cocksfoot (*Dactylis glomerata*), with juvenile tree lupin, vipers bugloss, and hemlock scattered throughout. There were also scattered individuals of blackberry (*Rubus fruticosus*).

Wetlands

No wetlands were identified on or within 100-metres of the site.

6.0 Flora

6.1 Overview

Twelve indigenous and 38 exotic vascular plant species were recorded during the survey (Appendix 1). However, six of the indigenous species were planted.

6.2 Threatened or At-Risk species

Mānuka was the only species that is nationally classified as At Risk – Declining (de Lange *et al.* 2017) observed on the property, within the mixed shelterbelt treeland and indigenous garden. All individuals were juveniles that had been planted by the property owner, and they did not appear to be naturalised. No other Threatened or At-Risk species were recorded.

6.3 Pest plants

Four plant species recorded on the site are identified as Organisms of Interest (Ooi) under the Environment Canterbury Regional Pest Management Plan (RPMP) (2018-2038), (Table 1). No species identified on the site are considered Pests under the Environment Canterbury RPMP.

Table 1: Environment Canterbury RPMP Organisms of Interest (Ooi) found on the site.

| Species | Common Name | Pest Status |
|-------------------------|----------------|----------------------|
| <i>Conium maculatum</i> | Hemlock | Organism of Interest |
| <i>Echium vulgare</i> | Vipers bugloss | Organism of Interest |
| <i>Lupinus arboreus</i> | Tree lupin | Organism of Interest |
| <i>Rubus fruticosus</i> | Blackberry | Organism of Interest |



7.0 Lizards

The Department of Conservation Bioweb Herpetofauna Database contains records of two At Risk reptiles within 20 kilometres of the site (Table 2). Only one of these species, Waiharakeke grass skinks (*Oligosoma* aff. *polychroma* Clade 2; At Risk – Declining; Hitchmough *et al.* 2021) are likely to occur at the property. Waiharakeke skinks are relatively abundant throughout their range from the eastern Marlborough Sounds to Kaikōura, and can be found in highly modified sites, including exotic pasture and gardens. Minimac geckos (*Woodworthia* “Marlborough mini”; At Risk – Declining) and Raukawa geckos (*Woodworthia maculata*; Not Threatened) have been recorded nearby, and could be present in haresfoot trefoil-rock grassland. However, the rocky or coastal habitats preferred by these species may not be connected enough for them to be present on the rezoning site.

Table 2 – Herpetofauna species that may occur within the proposed rezoning site, based on records within 15 kilometres of the site within the last 20 years in the Department of Conservation BioWeb Herpetofauna Database (assessed October 2023) Conservation status as per Hitchmough *et al.* (2021). The likelihood of occurrence for each species is based on their known habitat preferences and distribution.

| Species | Common Name | Conservation Status | Record Distance (km) | Preferred Habitats | Likelihood of Occurrence |
|---|-------------------------|------------------------------------|----------------------|---|--------------------------|
| Indigenous | | | | | |
| <i>Woodworthia</i> “Marlborough mini” | Minimac gecko | At Risk-Declining | 4.4 | Crevised rock outcrops, boulder beaches, rocky scrubland, scree and stony river terraces (from the coast to subalpine areas). | Unlikely |
| <i>Oligosoma</i> aff. <i>polychroma</i> Clade 2 | Waiharakeke grass skink | At Risk-Declining | 4.7 | Range of coastal and lowland grassy and rocky environments. | Likely |
| <i>Naultinus rudis</i> | Rough gecko | Threatened – Nationally Endangered | 8.0 | Forest and scrubland (from the coast to subalpine areas). Often found in trees or shrubs like mānuka, kānuka, mingimingi, matagouri and other dense vegetation. | Highly unlikely |
| <i>Woodworthia maculata</i> | Raukawa gecko | Not threatened | 12.4 | Range of lowland and coastal environments. | Unlikely |

Rough gecko (*Naultinus rudis*; Threatened – Nationally Endangered) are typically found in dense forested habitats including coastal and lowland forest and scrubland. It is very unlikely that the mixed shelterbelt treeland or indigenous garden on the site will provide suitable habitat for this species due to:



- Historic vegetation clearance.
- Intensive land use.
- Highly modified wider landscape, which reduces connectivity for the species.

The site assessment found that the species most likely to be present is Waiharakeke grass skink. This species is likely to be present within the following vegetation types:

- Indigenous garden,
- Mixed shelterbelt treeland
- Haresfoot trefoil-rock grassland

Targeted surveys for indigenous lizards were not undertaken, and therefore the presence of lizards has not been confirmed.

8.0 Avifauna

The walkthrough survey undertaken in January 2024 identified three indigenous and five exotic species on or near the site. These are provided in Table 3.

Table 3: Avifauna observed or heard on and near the Kaikōura Business Park site.

| Common Name(s) | Scientific Name | Threat Classification |
|--------------------------------|---|----------------------------|
| Indigenous | | |
| Bellbird/korimako ² | <i>Anthornis melanura melanura</i> | Not Threatened |
| Red-billed gull/tarāpunga | <i>Chroicocephalus novaehollandiae scopulinus</i> | At Risk-Declining |
| Welcome swallow | <i>Hirundo neoxena neoxena</i> | Not Threatened |
| Exotic | | |
| Chaffinch | <i>Fringilla coelebs</i> | Introduced and naturalised |
| Eurasian blackbird | <i>Turdus merula</i> | Introduced and naturalised |
| Goldfinch | <i>Carduelis carduelis</i> | Introduced and naturalised |
| Greenfinch | <i>Chloris chloris</i> | Introduced and naturalised |
| Yellowhammer | <i>Emberiza citronella</i> | Introduced and naturalised |

The eBird desktop assessment identified 27 indigenous and 12 exotic species between 1 January 2019 and 31 October 2023 and within one kilometre of the site. Records of five Threatened species were found in the assessment, including one Endangered species, three Vulnerable, and one classified as Nationally Increasing (Table 4; threat classifications as per Robertson *et al.* 2021). Seven At Risk species were also recorded, including four Declining, two Recovering and one Relict species. All other observed bird species were either Not Threatened or Introduced and Naturalised (summarised in Appendix 2).

² The bellbird was heard during the site visit, but the call was coming from the nearby Kowhai River.



Table 4: Indigenous bird species with Threatened or At Risk conservation status (Robertson *et al.* 2021) recorded in eBird between 1 January 2019 and 31 October 2023 and within one kilometre of the site. The likelihood of occurrence for each species is based on their known habitat preferences and distribution; * are specified highly mobile fauna under the National Policy Statement for Indigenous Biodiversity (2023).

| Common Name(s) | Scientific Name | Threat Classification | Preferred Habitats | Likelihood of Occurrence |
|--|---|------------------------------------|---|--------------------------|
| Black-fronted tern/tarapirohe* | <i>Chlidonias albobriatus</i> | Threatened – Nationally Endangered | Riverbeds, waterways, riverflats and farmlands by rivers during breeding. More coastal habitats, including coastal pasture, during autumn and winter. | Possible |
| Caspian tern/taranui* | <i>Hydroprogne caspia</i> | Threatened – Nationally Vulnerable | Usually breed on the coast, but a small number may breed inland, especially near Rotorua and on Canterbury rivers. | Unlikely |
| Spotted shag/kawau tikitiki | <i>Phalacrocorax punctatus</i> | Threatened – Nationally Vulnerable | Rocky coasts/marine. Rarely enclosed estuaries, freshwater habitats or sandy coasts. | Possible |
| Hutton's shearwater/Kaikōura tītī | <i>Puffinus huttoni</i> | Threatened – Nationally Vulnerable | Breed on soil covered slopes high on mountains late August to mid-September - the two colonies in NZ are restricted to the alpine zone of the Seaward Kaikōura mountains behind Kaikōura. | Highly likely |
| Bush falcon/kārearea* | <i>Falco novaeseelandiae ferox</i> | Threatened – Nationally Increasing | Hilly dry tussockland, farmland, open country, native and exotic forest edges. | Unlikely |
| Black-billed gull/tarāpuka* | <i>Chroicocephalus bulleri</i> | At Risk – Declining | Breed on braided riverbeds and inland lakes. Arable farmland. During winter, coastal estuaries, harbours, open coastlines and urban centres. | Possible |
| Red-billed gull/tarāpunga* | <i>Chroicocephalus novaehollandiae scopulinus</i> | At Risk – Declining | Breeds on coastal and offshore islands. Individuals may venture inland onto wet paddocks, sportsfields and freshly ploughed farmland. Individuals may temporarily be observed along braided rivers. | Likely |
| South Island pied oystercatcher/tōrea* | <i>Haematopus finschi</i> | At Risk – Declining | Breed on braided riverbeds, farmland, fringes of lakes, subalpine bogs. Estuaries and sandy beaches outside of breeding. | Likely |



| Common Name(s) | Scientific Name | Threat Classification | Preferred Habitats | Likelihood of Occurrence |
|-------------------------------------|--|-----------------------|---|--------------------------|
| White-fronted tern/tara* | <i>Sterna striata striata</i> | At Risk – Declining | Breed from Northland to Southland, especially on the eastern coast and offshore islands. | Unlikely |
| Variable oystercatcher/tōrea pango* | <i>Haematopus unicolor</i> | At Risk – Recovering | Breed mainly on sandy beaches just above spring-tide, but also on shingle beaches, rock platforms and rarely on lake shores up to 30 kilometres inland. Foraging can occur inland on the lower reaches of braided rivers. | Possible |
| Pied shag/kāruhiruhi* | <i>Phalacrocorax varius varius</i> | At Risk – Recovering | Coastal breeder on sheltered coasts, harbours and offshore islands | Unlikely |
| Black shag/māpunga | <i>Phalacrocorax carbo novaehollandiae</i> | At Risk – Relict | Sheltered coastal waters, estuaries, harbours, rivers, streams, dams, and lakes up to subalpine zone. | Unlikely |

The proposed site is within a known flight path of Kaikōura tītī/Hutton’s shearwater (*Puffinus huttoni*; Threatened – Nationally Vulnerable). This species breeds only in New Zealand at three breeding colonies: two sites on the Seaward Kaikōura Range (Shearwater colony and Puhi Puhi colony), and within the Te Rae o Atiu colony on the Kaikōura Peninsula which is managed as a predator proof area. This species is highly likely to fly over the site when heading to sea to forage and return to the Shearwater colony during the breeding season.

The proposed site may provide suitable foraging habitat within the pasture grassland, particularly after rainfall or cultivation, for tarapirohe/black-fronted terns (*Chlidonias albostratus*, Threatened – Nationally Endangered), tarāpuka/black-billed gulls (*Chroicocephalus bulleri*, At Risk – Declining), tarāpunga/red-billed gulls (*Chroicocephalus novaehollandiae scopulinus*, At Risk – Declining and tōrea/South Island pied oystercatcher (*Haematopus finschi*, At Risk – Declining). Karearea/bush falcon (*Falco novaeseelandiae ferox*, Threatened – Nationally Increasing) may also forage within the farmland, and native and exotic forest edges.

9.0 Invertebrates

Eighty-six records were found of terrestrial invertebrates that met the search terms. Of these, 54 had been identified to species level and could therefore be assessed. The invertebrate fauna was diverse and characterised mainly by flies, wasps, ants and bees, true bugs, and moths and butterflies. Most species were indigenous, but many were introduced. The threat classifications, preferred habitats, and likelihood of occurrence on site of notable species³ are presented in Table 5. A full species list can be found in Appendix 3.

³ Invertebrate species are considered notable if they are considered Threatened or At Risk after evaluation under the NZTCS (Townsend et al. 2008; Michel 2021); protected under the Wildlife Act (1958); endemic to a small area; or believed by experts to be declining.



Table 5: Indigenous invertebrate species with Threatened or At Risk conservation status (Robertson *et al.* 2021) recorded on GBIF.org. The likelihood of occurrence for each species is based on their known habitat preferences and distribution.

| Common Name(s) | Scientific Name | Threat Classification | Preferred Habitats | Likelihood of Occurrence |
|--------------------------------------|----------------------------------|---|---|--------------------------|
| Canterbury tree wēta/Putangatanga | <i>Hemideina femorata</i> | Not threatened, but believed to be declining | Lowland canterbury forests, below 320m, particularly in kānuka trunks and branches. Range extends from Kaikōura to Geraldine. | Unlikely |
| Looper moth | <i>Gingidiobora nebulosa</i> | Threatened – Nationally Vulnerable | Along riverbeds and ponds, especially in Kaikōura, down to Waitaki Basin. | Unlikely |
| New Zealand mantis | <i>Orthodera novaezealandiae</i> | At Risk – Declining | Shrubby grasslands, particularly with small mānuka and kānuka. | Possible |
| Ground beetle | <i>Megadromus rectalis</i> | Not assessed, but locally endemic to northern parts of the South Island (Nelson to North Canterbury). | Indigenous forest, pine forest, shrubland, tussock grassland, scree (Larochelle & Lariviere, 2001) | Unlikely |

10.0 Summary of ecological values

10.1 Vegetation and flora

Indigenous vegetation and flora values across the site are low, except where planted. The recently planted strip along the front of the property and the planted indigenous species within the shelterbelts comprise several indigenous species. The extensive planting effort across the property should allow for native regeneration in subsequent seasons, in undeveloped areas not used for agriculture. The perennial ryegrass – white clover grassland, haresfoot trefoil – rock grassland, and the exotic grassland contain no vegetation values.

10.2 Lizards

All terrestrial habitats on the site contain areas with potential habitat for Threatened or At Risk lizards. The indigenous garden, mixed shelterbelt treeland and haresfoot trefoil-rock grassland would provide higher value habitat for lizards than the perennial ryegrass – white clover grassland and exotic grassland habitats.

10.3 Avifauna

The site contains areas for avifauna to forage and possibly breed (e.g. tōrea/South Island pied oystercatcher within the exotic grassland). However, the site is of low ecological value for Threatened and At Risk species compared to more suitable habitats within the surrounding area.



10.4 Invertebrates

The site may contain habitat for New Zealand mantis, which is an At Risk invertebrate species. However, plenty of habitat for mantises is available in the surrounding area and the species is not threatened due to lack of habitat. The site is of low ecological value to mantises and other notable invertebrates.

11.0 Ecological significance

The site was evaluated for ecological significance against the NPS-IB (Appendix 4) and the Canterbury Regional Policy Statement (CRPS) (Appendix 5). A site only needs to meet one criterion to count as ecologically significant. Based on these criteria, the site may meet the requirements for ecological significance under both the NPS-IB and the CRPS.

All of the terrestrial habitats on the site contain areas with potential habitat for Threatened or At Risk lizards. These habitats could potentially meet the ecological significance criteria for Rarity/Distinctiveness in the CRPS and the National Policy Statement for Indigenous Biodiversity (NPSIB). This is due to the likely presence of Waiharakeke grass skink within the site, which are At Risk – Declining and found in less than three regions (Marlborough and Canterbury). However, further targeted surveys are required to accurately determine whether lizards are present at this site.

The site provides suitable habitat foraging habitat for several highly mobile Threatened or At Risk avifauna species under the National Policy Statement for Indigenous Biodiversity (NPS-IB; Appendix 2). However, there are more suitable habitat areas outside of the site for these species and, therefore, this site not considered significant in this context.

Although the Kaikōura tītī/Hutton's shearwater will fly over, the site is not of ecological significance under the National Policy Statement for Indigenous Biodiversity (NPS-IB) for this species. However, Policy 3 states 'A precautionary approach is adopted when considering adverse effects on indigenous biodiversity'. This must be considered when implementing outside lighting within the Kaikōura Business Park.

The mixed shelterbelt treeland and indigenous garden habitats contain mānuka (At Risk – Declining). However this species was planted in this habitat and does not appear to have naturalised. Based on this, the presence of mānuka is not considered significant in this context.

11.1 Overview

Legislation and policy statement guidance that should be considered in relation to the proposed rezoning includes:

- National Policy Statement for Indigenous Biodiversity
- Wildlife Act (1953)

11.2 National Policy Statement for Indigenous Biodiversity

The objective of the NPS-IB is to maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity. For subdivisions or developments outside of a Significant Natural Area (SNA), any significant adverse effects on indigenous biodiversity must be managed by applying the effects management hierarchy (Clause 3.16(1)).



A full Assessment of Ecological Effects (AEE) for the proposed rezoning site has not been undertaken. At this stage, it is not considered that the rezoning for the site would result in significant adverse effects on indigenous biodiversity. However, further surveys are recommended to determine the full impact of rezoning on indigenous fauna (such as lizards).

11.3 Wildlife Act

Most indigenous terrestrial vertebrate animal species are protected under the Wildlife Act (1953, s63 (1) (c)). In cases where proposed activities affect indigenous fauna and their habitats, a Wildlife Act Authority (WAA) must be applied for and approved by DOC. A permit under the Wildlife Act must also be obtained from DOC before any indigenous fauna (and/or their habitats) can be disturbed, handled, translocated or killed. This includes clearance of exotic vegetation that provides habitat for indigenous fauna. Additionally, the submission of a species-specific management plan (for example, a Lizard Management Plan) would be required if indigenous fauna were found within vegetation on the site that was proposed for clearance.

12.0 Potential ecological considerations and rezoning recommendations

12.1 Overview

As discussed in Sections 7-9, indigenous fauna habitats are likely to occur within the site. Many habitats largely comprise exotic vegetation types that are widespread throughout Canterbury. Irrespective of the current zoning, any new activities are likely to trigger statutory requirements of the Wildlife Act if protected indigenous fauna is present. Therefore, these ecological considerations would likely need to be addressed in the consenting process. A summary of these potential ecological considerations is provided in Table 6.

Table 6: Considerations for rezoning of the Kaikoura Business Park.

| Considerations | Explanation | Recommendations |
|--|---|--|
| Potential lizard habitat | Vegetation habitats on the site may provide habitat for indigenous lizards, which are protected under the Wildlife Act. If indigenous lizards are affected by any proposed developments following rezoning, and this cannot be avoided, a Wildlife Act Authority (WAA) may be required, and this would involve preparation of a lizard management plan. | Under the Wildlife Act, further surveys are likely to be recommended as a result of the consenting process to assess impacts on lizards. Preserve and enhance and area of lizard habitat on the site. Incorporate lizard reserves and amenity planting within the master plan for development. |
| Terrestrial indigenous biodiversity | The objective of the NPS-IB is to maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity. For subdivisions or developments outside of a Significant Natural Area (SNA), any significant adverse effects on indigenous biodiversity | A full Assessment of Ecological Effects will be required, for proposed developments, to determine indigenous species presence and values, and how to |



| Considerations | Explanation | Recommendations |
|----------------------------|--|--|
| | must be managed by applying the effects management hierarchy (Clause 3.16(1)). | reduce adverse effects through applying the effects management hierarchy. |
| Hutton’s shearwater | The NPS-IP Policy 3 states ‘A precautionary approach is adopted when considering adverse effects on indigenous biodiversity’ | Lighting design and management will need to be undertaken by appropriately qualified personnel. By using light information, avian biological and ecological information, the risk of impact of artificial light on Hutton’s shearwater can be addressed and an appropriate number, type and layout of outdoor lighting fixtures can be designed. |

Most of the property comprises exotic pasture species, with the vegetation providing little ecological value. The indigenous planted garden and the planted indigenous species within the mixed shelterbelt treeland should be subject to the mitigation hierarchy during vegetation clearance and development following rezoning. Several exotic species within the mixed shelterbelt treeland, such as tree lupin, should be removed and controlled.

The proposed rezoning to a Business Park will likely introduce a new lighting source under the flight path of the Hutton’s shearwater, and this could be a significant attraction for ‘fallout’ events when adults return to the Shearwater breeding colony and possibly the Te Rae o Atiu colony, and especially for fledglings on their maiden flight after leaving their burrow for the first time (Deppe *et al.* 2017). Constraints on artificial outdoor lighting would need to be implemented to control the intensity, location (e.g. avoid reflection), and colour temperature and minimise sky glow and light spill (Commonwealth of Australia 2020).

While the vegetation types within the site are predominantly exotic, these provide habitat for indigenous lizards. Therefore, targeted lizard surveys are recommended to determine whether lizards are present at the site. If indigenous lizards are present and are likely to be affected by any proposed developments, and this cannot be avoided, a Wildlife Act Authority (WAA) may be required, and this would involve preparation of a lizard management plan. This may include recommendations to incorporate lizard reserves or lizard friendly planting within the master plan for the site.

Indigenous invertebrates are likely to be most prevalent in the indigenous vegetation patches, although New Zealand mantises may be found on exotic shrubs or in low-hanging parts of upright vegetation, such as low tree branches. Avoiding clearance of indigenous vegetation will prevent harm to indigenous invertebrates. Prior to clearance, upright vegetation with low branches (head-height or lower) should be checked for mantises and any mantises found moved onto upright vegetation habitat on-site that will not be cleared.

13.0 Conclusions

The proposed rezoning site covers approximately 21.6 hectares of actively grazed farmland, with planted indigenous species within the shelterbelts and road margins. The desktop assessments found that most of the site may provide suitable habitat for indigenous fauna, including At Risk indigenous lizards. The property is also within the flight path of Hutton’s Shearwater.



If lizards are present, some habitats on the site would be considered ecologically significant under both CRPS and NPS-IB criteria. However, further surveys would be required to determine the presence of the lizards identified as being possibly present in the desktop survey. In general, the habitat values identified have low ecological value due to the highly modified nature of the site, and the prevalence of exotic vegetation outside of planted areas.

Therefore, rezoning and subsequently developing the site could potentially lead to loss of habitats used by indigenous terrestrial fauna. If lizards are present, the loss of lizard habitat and opportunities to mitigate this should be considered during the development design, and could include restoration of lizard habitat in other areas of the property within the master plan for the site.

Prior to any development works, additional surveys would be required to better understand the size and extent of indigenous fauna populations on the site, and potential mitigation required.

The rezoning will not have any significant effects on indigenous biodiversity, providing the recommendations made in this report are followed and implemented with guidance from suitably qualified ecologists during both the planning and development stages. The potential effect of lighting on Hutton's shearwater is the most serious potential adverse effect.

Acknowledgments

We would like to thank Dennis Thompson for commissioning Wildland Consultants Ltd for this work, and Richard Watherston for providing site access.

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Appendix 1

Vegetation species list

| Species | Common Name | Status |
|------------------------------------|-----------------------------|------------------------|
| <i>Achillea millefolium</i> | Yarrow | Exotic |
| <i>Agrostis capillaris</i> | Browntop | Exotic |
| <i>Anthoxanthum odoratum</i> | Sweet vernal | Exotic |
| <i>Arrhenatherum elatius</i> | Tall oat grass | Exotic |
| <i>Austroderia richardii</i> | Toetoe | Indigenous Endemic |
| <i>Bromus diandrus</i> | Ripgut brome | Exotic |
| <i>Capsella bursa-pastoris</i> | Shepherds purse | Exotic |
| <i>Carex</i> sp. | Sedge | Indigenous |
| <i>Cirsium arvense</i> | Californian thistle | Exotic |
| <i>Conium maculatum</i> | Hemlock | Exotic |
| <i>Crepis capillaris</i> | Hawksbeard | Exotic |
| <i>Dactylis glomerata</i> | Cocksfoot | Exotic |
| <i>Digitalis purpurea</i> | Foxglove | Exotic |
| <i>Dodonaea viscosa</i> | Akeake | Indigenous Non-Endemic |
| <i>Echium vulgare</i> | Vipers bugloss | Exotic |
| <i>Epilobium ciliatum</i> | Tall willowherb | Exotic |
| <i>Eucalyptus</i> sp. | Eucalyptus | Exotic |
| <i>Geranium brevicaule</i> | Short-flowered cranesbill | Indigenous Non-Endemic |
| <i>Griselinia littoralis</i> | Kāpuka | Indigenous Endemic |
| <i>Leptospermum scoparium</i> | Mānuka | At Risk - Declining |
| <i>Linum usitatissimum</i> | Linseed | Exotic |
| <i>Lolium perenne</i> | Ryegrass | Exotic |
| <i>Lupinus arboreus</i> | Tree lupin | Exotic |
| <i>Lupinus polyphyllus</i> | Russell lupin | Exotic |
| <i>Malva species</i> | Mallow | Exotic |
| <i>Phormium tenax</i> | Harakeke | Indigenous Endemic |
| <i>Pittosporum eugenioides</i> | Tarata, lemonwood | Indigenous Endemic |
| <i>Plantago lanceolata</i> | Narrow-leaved plantain | Exotic |
| <i>Plantago major</i> | Broad-leaved plantain | Exotic |
| <i>Poa annua</i> | Annual poa | Exotic |
| <i>Polycarpon tetraphyllum</i> | Allseed | Exotic |
| <i>Populus nigra</i> | Lombardy poplar | Exotic |
| <i>Pseudognaphalium luteoalbum</i> | Pukatea, jersey cudweed | Indigenous Non-Endemic |
| <i>Ranunculus repens</i> | Creeping buttercup | Exotic |
| <i>Reseda luteola</i> | Wild mignonette | Exotic |
| <i>Rubus fruticosus</i> | Blackberry | Exotic |
| <i>Rumex crispus</i> | Curled dock | Exotic |
| <i>Rumex obtusifolius</i> | Broad-leaved dock | Exotic |
| <i>Silene gallica</i> | Catchfly | Exotic |
| <i>Sisymbrium officinale</i> | Wild mustard, hedge mustard | Exotic |
| <i>Solanum laciniatum</i> | Poroporo | Indigenous Non-Endemic |
| <i>Sophora microphylla</i> | Kōwhai | Indigenous Endemic |
| <i>Taraxacum officinale</i> | Dandelion | Exotic |



| Species | Common Name | Status |
|---------------------------|-------------------|--------|
| <i>Trifolium arvense</i> | Haresfoot trefoil | Exotic |
| <i>Trifolium pratense</i> | Red clover | Exotic |
| <i>Trifolium repens</i> | White clover | Exotic |
| <i>Verbascum thapsus</i> | Woolly mullein | Exotic |
| <i>Verbascum virgatum</i> | Moth mullein | Exotic |
| <i>Veronica</i> sp. | Speedwell | Exotic |



Appendix 2

Avifauna species list

Bird species records found in the desktop assessment between 1 January 2019 and 31 October 2023.

* Specifies highly mobile fauna from the National Policy Statement for Indigenous Biodiversity (2023). Common names, scientific names, and threat classification are from Robertson *et al.* 2021

| Common Name(s) | Scientific Name | Threat Classification |
|---|---|------------------------------------|
| Indigenous | | |
| Black-fronted tern/tarapirohe* | <i>Chlidonias albostratus</i> | Threatened – Nationally Endangered |
| Caspian tern/taranui* | <i>Hydroprogne caspia</i> | Threatened – Nationally Vulnerable |
| Spotted shag/kawau tikitiki | <i>Phalacrocorax punctatus</i> | Threatened – Nationally Vulnerable |
| Hutton's shearwater/kaikōura tītī | <i>Puffinus huttoni</i> | Threatened – Nationally Vulnerable |
| Bush falcon/kārearea* | <i>Falco novaeseelandiae ferox</i> | Threatened – Nationally Increasing |
| Black-billed gull/tarāpuka* | <i>Chroicocephalus bulleri</i> | At Risk – Declining |
| Red-billed gull/tarāpunga* | <i>Chroicocephalus novaehollandiae scopulinus</i> | At Risk – Declining |
| South Island pied oystercatcher/ tōrea* | <i>Haematopus finschi</i> | At Risk – Declining |
| White-fronted tern/tara* | <i>Sterna striata striata</i> | At Risk – Declining |
| Variable oystercatcher/tōrea pango* | <i>Haematopus unicolor</i> | At Risk – Recovering |
| Pied shag/kāruhiruhi* | <i>Phalacrocorax varius varius</i> | At Risk – Recovering |
| Black shag/māpunga | <i>Phalacrocorax carbo novaehollandiae</i> | At Risk – Relict |
| Bellbird/korimako | <i>Anthornis melanura melanura</i> | Not Threatened |
| Grey duck – mallard hybrid | <i>Anas superciliosa × platyrhynchos</i> | Not Threatened |
| Swamp harrier/kāhu | <i>Circus approximans</i> | Not Threatened |
| White-faced heron/matuku moana | <i>Egretta novaehollandiae</i> | Not Threatened |
| Grey warbler/riroriro | <i>Gerygone igata</i> | Not Threatened |
| Pied Stilt/poaka | <i>Himantopus himantopus leucocephalus</i> | Not Threatened |
| Welcome swallow/warou | <i>Hirundo neoxena neoxena</i> | Not Threatened |
| Southern black-backed gull/karoro | <i>Larus dominicanus dominicanus</i> | Not Threatened |
| Australasian gannet/tākapu | <i>Morus serrator</i> | Not Threatened |
| South Island fantail/pīwakawaka | <i>Rhipidura fuliginosa fuliginosa</i> | Not Threatened |
| Paradise shelduck/pūtangitangi | <i>Tadorna variegata</i> | Not Threatened |
| Spur-winged plover | <i>Vanellus miles novaehollandiae</i> | Not Threatened |
| Silvereye/tauhou | <i>Zosterops lateralis lateralis</i> | Not Threatened |
| Arctic skua | <i>Stercorarius parasiticus</i> | Non-resident Native – Migrant |
| Little pied shag/kawaupaka | <i>Microcarbo melanoleucos melanoleucos</i> | Non-resident Native – Vagrant |
| Exotic | | |
| Skylark | <i>Alauda arvensis</i> | Introduced and Naturalised |
| Canada goose | <i>Branta canadensis</i> | Introduced and Naturalised |
| California quail | <i>Callipepla californica</i> | Introduced and Naturalised |
| Goldfinch | <i>Carduelis carduelis</i> | Introduced and Naturalised |
| Rock pigeon | <i>Columba livia</i> | Introduced and Naturalised |
| Yellowhammer | <i>Emberiza citrinella</i> | Introduced and Naturalised |
| Chaffinch | <i>Fringilla coelebs</i> | Introduced and Naturalised |
| House sparrow | <i>Passer domesticus</i> | Introduced and Naturalised |
| Dunnock | <i>Prunella modularis</i> | Introduced and Naturalised |
| Starling | <i>Sturnus vulgaris</i> | Introduced and Naturalised |
| Eurasian blackbird | <i>Turdus merula</i> | Introduced and Naturalised |
| Song thrush | <i>Turdus philomelos</i> | Introduced and Naturalised |



Appendix 3

Invertebrate species list

| Species | Common name |
|-------------------------------------|-----------------------------------|
| <i>Amphipsalta zelandica</i> | Chorus cicada |
| <i>Anthidium manicatum</i> | European wool carder bee |
| <i>Apis mellifera</i> | Honeybee |
| <i>Argosarchus horridus</i> | NZ Giant Stick Insect |
| <i>Arhopalus fesus</i> | Burnt Pine Longhorn Beetle |
| <i>Arocatus rusticus</i> | Swan plant seed bug |
| <i>Austrolimnophila argus</i> | Crane fly |
| <i>Austrosimulium tillyardianum</i> | Sandfly |
| <i>Bembidion anchonoderus</i> | Ground beetle |
| <i>Bembidion chalconipes</i> | Ground beetle |
| <i>Bembidion rotundicolle</i> | Ground beetle |
| <i>Bembidion wanakense</i> | Ground beetle |
| <i>Bombus terrestris</i> | Buff-tailed bumblebee |
| <i>Caedicia simplex</i> | Katydid |
| <i>Carria fortipes</i> | Ichneumon wasp |
| <i>Clitarchus hookeri</i> | Stick insect |
| <i>Conocephalus bilineatus</i> | Field grasshopper |
| <i>Danaus plexippus</i> | Monarch butterfly |
| <i>Dolomedes aquaticus</i> | Water spider |
| <i>Epyaxa rosearia</i> | Plantain moth |
| <i>Socca pustulosa</i> | Garden orbweb spider |
| <i>Eristalis tenax</i> | Drone fly |
| <i>Gingidiobora nebulosa</i> | Gingidium looper moth |
| <i>Hemideina femorata</i> | Putangatanga/Canterbury tree wētā |
| <i>Icerya purchasi</i> | Cottony cushion scale |
| <i>Ichneutica mutans</i> | New Zealand cutworm |
| <i>Ixodes auritulus</i> | Tick |
| <i>Ixodes eudyptidis</i> | Tick |
| <i>Kikihia paxillulæ</i> | Peg's cicada |
| <i>Kiwisaldula butleri</i> | Shore bug |
| <i>Leioproctus imitatus</i> | Native bee |
| <i>Leucauge dromedaria</i> | Humped silver orb spider |
| <i>Megadromus rectalis</i> | Ground beetle |
| <i>Nezara viridula</i> | Southern green stink bug |
| <i>Nyctemera annulatum</i> | Magpie moth |
| <i>Nyssus coloripes</i> | Orange-legged swift spider |
| <i>Orthodera novaezealandiae</i> | New Zealand mantis |
| <i>Pauesia nigrovaria</i> | Parasitoid wasp |
| <i>Pieris rapae</i> | White butterfly |
| <i>Plocamostethus planiusculus</i> | Stinking ground beetle |
| <i>Polistes dominula</i> | European paper wasp |
| <i>Porrhothele antipodiana</i> | Black tunnelweb spider |



| Species | Common name |
|----------------------------------|-----------------------------|
| <i>Rhapsa scotosialis</i> | Slender owlet moth |
| <i>Scolypopa australis</i> | Passionvine hopper |
| <i>Sphictostethus fugax</i> | Golden spider-hunting wasp |
| <i>Sphictostethus nitidus</i> | Red spider wasp |
| <i>Synanthedon tipuliformis</i> | Currant clearwing |
| <i>Trite planiceps</i> | Black-headed jumping spider |
| <i>Tyria jacobaeae</i> | Cinnabar moth |
| <i>Xyridacma ustaria</i> | Tarata Looper moth |
| <i>Zelostemma oleariae</i> | Parasitoid wasp |
| <i>Zemacrosaldula whakarunga</i> | Shore bug |
| <i>Zizina otis</i> | Common blue butterfly |
| <i>Zorion guttigerum</i> | Flower longhorn beetle |



Appendix 4

National Policy Statement for Indigenous Biodiversity Significant Natural Area Criteria (Appendix 1)

Representativeness criterion

- (1) Representativeness is the extent to which the indigenous vegetation or habitat of indigenous fauna in an area is typical or characteristic of the indigenous biodiversity of the relevant ecological district.
- (2) Significant indigenous vegetation has ecological integrity typical of the indigenous vegetation of the ecological district in the present-day environment. It includes seral (regenerating) indigenous vegetation that is recovering following natural or induced disturbance, provided species composition is typical of that type of indigenous vegetation.
- (3) Significant indigenous fauna habitat is that which supports the typical suite of indigenous animals that would occur in the present-day environment. Habitat of indigenous fauna may be indigenous or exotic.
- (4) Representativeness may include commonplace indigenous vegetation and the habitats of indigenous fauna, which is where most indigenous biodiversity is present. It may also include degraded indigenous vegetation, ecosystems and habitats that are typical of what remains in depleted ecological districts. It is not restricted to the best or most representative examples, and it is not a measure of how well that indigenous vegetation or habitat is protected elsewhere in the ecological district.
- (5) When considering the typical character of an ecological district, any highly developed land or built-up areas should be excluded.
- (6) The application of this criterion should result in identification of indigenous vegetation and habitats that are representative of the full range and extent of ecological diversity across all environmental gradients in an ecological district, such as climate, altitude, landform, and soil sequences. The ecological character and pattern of the indigenous vegetation in the ecological district should be described by reference to the types of indigenous vegetation and the landforms on which it occurs.
- (7) An area that qualifies as an SNA under this criterion has at least one of the following attributes:
 - a. indigenous vegetation that has ecological integrity that is typical of the character of the ecological district:
 - b. habitat that supports a typical suite of indigenous fauna that is characteristic of the habitat type in the ecological district and retains at least a moderate range of species expected for that habitat type in the ecological district.

Diversity and pattern criterion

- (1) Diversity and pattern is the extent to which the expected range of diversity and pattern of biological and physical components within the relevant ecological district is present in an area.
- (2) Diversity of biological components is expressed in the variation of species, communities, and ecosystems. Biological diversity is associated with variation in physical components, such as geology, soils/substrate, aspect/exposure, altitude/depth, temperature, and salinity.
- (3) Pattern includes changes along environmental and landform gradients, such as ecotones and sequences.
- (4) Natural areas that have a wider range of species, habitats or communities or wider environmental variation due to ecotones, gradients, and sequences in the context of the ecological district, rate more highly under this criterion.
- (5) An area that qualifies as a significant natural area under this criterion has at least one of the following attributes:
 - a. at least a moderate diversity of indigenous species, vegetation, habitats of indigenous fauna or communities in the context of the ecological district:
 - b. presence of indigenous ecotones, complete or partial gradients or sequences.



Rarity and distinctiveness criterion

- (1) Rarity and distinctiveness is the presence of rare or distinctive indigenous taxa, habitats of indigenous fauna, indigenous vegetation or ecosystems.
- (2) Rarity is the scarcity (natural or induced) of indigenous elements: species, habitats, vegetation, or ecosystems. Rarity includes elements that are uncommon or threatened.
- (3) The list of Threatened and At Risk species is regularly updated by the Department of Conservation. Rarity at a regional or ecological district scale is defined by regional or district lists or determined by expert ecological advice. The significance of nationally listed Threatened and At Risk species should not be downgraded just because they are common within a region or ecological district.
- (4) Depletion of indigenous vegetation or ecosystems is assessed using ecological districts and land environments.
- (5) Distinctiveness includes distribution limits, type localities, local endemism, relict distributions, and special ecological or scientific features. Attributes of rarity and distinctiveness.
- (6) An area that qualifies as an SNA under this criterion has at least one of the following attributes:
 - a. provides habitat for an indigenous species that is listed as Threatened or At Risk (declining) in the New Zealand Threat Classification System lists:
 - b. an indigenous vegetation type or an indigenous species that is uncommon within the region or ecological district:
 - c. an indigenous species or plant community at or near its natural distributional limit:
 - d. indigenous vegetation that has been reduced to less than 20 per cent of its prehuman extent in the ecological district, region, or land environment:
 - e. indigenous vegetation or habitat of indigenous fauna occurring on naturally uncommon ecosystems:
 - f. the type locality of an indigenous species:
 - g. the presence of a distinctive assemblage or community of indigenous species:
 - h. the presence of a special ecological or scientific feature.

Ecological context criterion

- (1) Ecological context is the extent to which the size, shape, and configuration of an area within the wider surrounding landscape contributes to its ability to maintain indigenous biodiversity or affects the ability of the surrounding landscape to maintain its indigenous biodiversity.
- (2) Ecological context has two main assessment principles:
 - a. the characteristics that help maintain indigenous biodiversity (such as size, shape, and configuration) in the area; and
 - b. the contribution the area makes to protecting indigenous biodiversity in the wider landscape (such as by linking, connecting to or buffering other natural areas, providing 'stepping stones' of habitat or maintaining ecological integrity).
- (3) An area that qualifies as an SNA under this criterion has at least one of the following attributes:
 - a. at least moderate size and a compact shape, in the context of the relevant ecological district:
 - b. well-buffered relative to remaining habitats in the relevant ecological district:
 - c. provides an important full or partial buffer to, or link between, one or more important habitats of indigenous fauna or significant natural areas:
 - d. important for the natural functioning of an ecosystem relative to remaining habitats in the ecological district



Appendix 5

Canterbury Regional Policy Statement Significance Criteria

| Criteria | Mixed shelterbelt treeland | Indigenous garden | Perennial ryegrass – white clover pasture grassland | Haresfoot trefoil – rock grassland | Exotic grassland |
|--|--|--|---|---|---|
| Representativeness | | | | | |
| 1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |
| 2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |
| Rarity/Distinctiveness | | | | | |
| 3. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the region, or relevant land environment, ecological district, or freshwater environment. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |
| 4. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district. | Criterion potentially met This habitat could potentially support Threatened and At Risk lizards. | Criterion potentially met This habitat could potentially support Threatened and At Risk lizards. | Criterion potentially met: This habitat could potentially support Threatened and At Risk lizards. | Criterion potentially met: This habitat could potentially support Threatened and At Risk lizards and invertebrates. | Criterion potentially met: This habitat could potentially support Threatened and At Risk lizards and invertebrates. |
| 5. The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally. | Criterion met if Waiharakeke grass skinks are present. | Criterion met if Waiharakeke grass skinks are present. | Criterion met if Waiharakeke grass skinks are present. | Criterion met if Waiharakeke grass skinks are present. | Criterion met if Waiharakeke grass skinks are present. |
| 6. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |



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|---|----------------------------|-------------------|---|------------------------------------|--------------------|
| Diversity/Pattern | | | | | |
| 7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |
| Ecological Context | | | | | |
| 8. Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |
| 9. A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system. | Criterion not met | Criterion not met | Criterion not met | Criterion not met | Criterion not met |
| 10. Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently. | Criterion not met. | Criterion not met | Criterion not met. | Criterion not met. | Criterion not met. |

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