Punakaiki Wild, West Coast

Ecological Effects Assessment

Report prepared for

ACG Properties Limited

Prepared by

RMA Ecology Ltd

Report number

2431.1

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BETTER ECOLOGICAL OUTCOMES

Prepared for:

ACG Properties Limited

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Contents

1.0 Introduction

1.1 Background

This report provides an assessment of the ecological values of the property at 4663 State Highway 6, Te Miko, West Coast, legal description Part Section 1 Block IX Brighton SD, hereafter 'the site' (Figure 1), and an assessment of the ecological effects of a proposal to develop the site for luxury eco accommodation.

ACG Properties Ltd ('the applicant') is applying for resource consents under the RMA 1991 to develop the site for luxury accommodation, consisting of a lodge, 15 smaller guest cabins, and staff accommodation. The development will also include associated accessways and pedestrian paths. This report identifies the ecological values present in the site, and assesses the level of actual and potential effects the proposed development may have on these values. The report makes recommendations to address these effects to ensure the overall level of ecological adverse effect is less than minor.

Figure 1: Site boundary as outlined in red. This is the investigation area that is the subject of this report.

1.2 Purpose and scope

Town Planning Group Ltd has engaged RMA Ecology Ltd on behalf of ACG Properties Ltd to undertake an assessment of the values of the site in terms of terrestrial and aquatic ecology to inform the design of the proposed development[1].

[1] This report has been prepared in accordance with our letter of engagement with Town Planning Group Ltd, dated 14 August 2024.

The approach includes survey and assessment of terrestrial and freshwater values and provides the following:

- Review of national databases to identify the likelihood of species of conservation significance being present, with an emphasis on native fish, lizards, birds, bats, and plants.
- Walkover survey to identify or validate the presence of:
    - Indigenous terrestrial vegetation, and assessment against the criteria for ecological significance as detailed in the West Coast Regional Policy Statement; and
    - Natural inland wetlands, as defined by the National Policy Statement for Freshwater Management; and
    - Watercourses, as defined by the West Coast Regional Council.
- Mapping of indigenous vegetation communities, natural inland wetlands, watercourses, and habitats suitable for native fauna.
- Survey for native lizards using the following methods:
    - Deployment of lizard survey devices (ACOs, pitfall traps, and Gee's minnow traps);
    - Night arboreal spotlighting;
    - Visual search; and
    - Manual search.
- Survey for native fish using the following methods:
    - Spotlighting
- Survey for native birds using the following methods:
    - Playback calls for wetland species;
    - Observations of birds seen and/ or heard; and
    - Deployment of automatic bird recorders (ABMs).

This report contains the following:

- An overview of the methods used to assess the ecological values of the area potentially affected by the development;
- A description of ecological values within the development footprint and immediate surrounds;
- Discussion of the potential constraints that the ecological values may impose on the design of the proposed development, and recommendations for the management of these constraints;
- Assessment of the actual and potential adverse effects the proposed development will have the ecological values of the site; and
- The identification of opportunities for ecological enhancement and restoration, beyond those that may be required to manage residual adverse ecological effects.

The report has been prepared with regard to the ecological provisions of the Resource Management Act 1991 (RMA), the West Coast Regional Policy Statement (WCRPS), the National Policy Statement for Freshwater Management (NPS-FM), and the National Policy Statement for Indigenous Biodiversity (NPS-IB).

2.0 Methods

Desktop analysis and two site visits were undertaken to assess the ecological values of aquatic and terrestrial areas within and surrounding the development footprint, as well as the significance of those values. This section describes the methods used for desktop and field investigation locations.

2.1 Desktop assessment

A desktop assessment of the site development footprint and surrounding area was undertaken to identify areas that had potential for supporting ecological values. The following databases and documents were reviewed:

- Land Environments New Zealand (LENZ) and the Threatened Environment Classification (TEC)
- Historic aerial photographs (Retrolens)
- Drone imagery (supplied by client)
- WestMaps
- NIWA New Zealand Freshwater Fish database
- Department of Conservation National Amphibian and Reptile Database (Herpetofauna)
- Department of Conservation bat records database
- New Zealand Bird Atlas
- iNaturalist for records of native plant and animal species

The maps and aerial photographs (sourced from Google Earth, Retrolens, and recent drone imagery (provided by the client) were reviewed to identify existing vegetation, wetlands, and streams present on the site, and to establish an understanding of these features' ecological status. Preliminary mapping of streams, wetlands, and terrestrial vegetation was undertaken from aerial and drone photography to provide a basis for ground-truthing and for identifying focal investigation areas.

Data from national fauna reviewed to assess the likelihood of their presence on site, or nearby, and their threat status checked against the relevant national threatened species classification lists (Hitchmough *et al.* 2021, Robertson *et al.* 2021 and Dunn *et al.* 2017).

Site-specific surveys for bats and fish were not undertaken because the preliminary development footprint indicated that streams and forested areas were priorities to avoid for the development footprint; instead, assessments of habitat quality were recorded and the likelihood of species being present discussed as part of the assessment of potential values at the site.

2.2 Field assessment

Site visits were undertaken on 9 and 10 September 2024, and from 13 to 17 October 2025, to identify ecological values at the site. Surveys of terrestrial vegetation, the potential areas of wetland, and streams on the site were undertaken, as were assessments of fauna at the site, including potential fauna habitat. Areas of vegetation communities and terrestrial fauna habitat recorded were mapped using hand held GPS (accurate to +/ - 5 m). Methods for assessing the ecological features present are described in the following sections.

2.3 Watercourses

All waterways and flow paths were assessed against the Resource Management Act (RMA) definition for a 'river'.

Under the RMA a river is defined as:

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

This is similar to the definition provided in the West Coast Regional Plan, which includes:

> *River means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include an artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal) or ephemeral water bodies. A storm flowpath that carries flow only for a short period after heavy rain is not considered to be a river.*

During the site walkover in September 2024, all streams at the site were assessed and mapped.

All waterways and flow paths were assessed as being either permanent, intermittent or ephemeral. Photographs were taken and a general description of the waterway was undertaken to note characteristics including riparian species and cover, and connectivity to other waterways.

2.4 Wetlands

Areas of potential wetland were assessed using the following methods:

1. Assessment according to the definition Resource Management Act 1991 (RMA):

   "Wetland: 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, including within the coastal marine area".

2. Areas that met the definition of a wetland under the RMA were then assessed according to the definition within the National Policy Statement for Freshwater Management 2020 (NPS-FM):

   Natural inland wetland means a wetland (as defined in the Act) 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 (see clause 1.8)); unless*

   iii. *the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply*

The NPS-FM technical support documents updated by MfE in January 2024 regarding wetland classification and delineation require that a step-wise assessment is undertaken based on vegetation, soils, and hydrology.

Exclusions are then applied based on factors that include the percentage abundance of pasture species, whether the wetland has developed in or around a deliberately constructed water body, an assessment of threatened species habitat use, and then application of three separate vegetation tests (Rapid Test, Dominance Test, and Prevalence Index). Wetland soils and hydrology information can be applied if the results of vegetation community and exotic pasture grass exclusion are inconclusive. Key for the identification of natural inland wetlands at this site is whether any wet areas have developed in or around a deliberately constructed water body, or are dominated by pasture grasses.

We understand that the National Environmental Standards for Freshwater 2020 (NES-F) and NPS-FM require Councils to ensure that the loss of values and extent of 'natural inland wetlands' is avoided in most instances (excluding some activities, including urban development). The NPS-FM and NES-F also restrict activities within a 10 m buffer around 'natural inland wetlands', and places controls on the level of potential adverse effects (from, for example, discharge of water or diversion of water) within 100 m from a 'natural inland wetland'.

A site assessment is required to accurately classify and delineate any potential wetlands identified through desktop mapping. During the site walkover in September 2024, all wetlands at the site were assessed and mapped.

A summary flow-chart of the methodology applied for the identification of wetlands at this site is set out in Appendix A.

2.5 Fish

The NIWA New Zealand Freshwater Fish Database was reviewed to determine the species of freshwater fish that inhabit stream systems near the site.

A spotlight survey was undertaken at the site on the night of 9 September 2024 to assess the likelihood of native freshwater fish being present in streams on site.

2.6 Terrestrial vegetation

Vegetation was assessed across the site with a focus on indigenous species. Vegetation communities were recorded and mapped, along with habitats assessed as suitable for indigenous fauna, particularly lizards, birds, and bats.

Vegetation communities were assessed against the criteria for significance in the West Coast Regional Policy Statement and the National Policy Statement for Indigenous Biodiversity.

The NPS-IB requires that any significant adverse effects on indigenous biodiversity outside of Significant Natural Areas (SNA) (Clause 3.16) must be managed by applying the effects management hierarchy (Avoid, Minimise, Remedy, Offset, Compensate).

2.7 Lizards

During the site walkover surveys in September 2024, habitat assessed as being suitable for native lizards was recorded and mapped. Suitable habitat was visually searched for lizards and signs of lizards (scat or skin slough).

Manual searches of these suitable habitat areas were also undertaken – which involved turning over logs, rocks and undertaking opportunistic searching though leaf litter packs and looking carefully for basking lizards in sunlit spots amongst dense vegetation.

A night spotlight survey for arboreal lizard species was undertaken on 9 September 2024, and repeated during the October 2025 visits, on nights of suitable weather conditions (14, 15 and 16 October). Night spotlighting targets habitat suitable for arboreal geckos with the aid of high-powered head-mounted spotlights and binoculars used at 10 x 40 magnification, while slowly and systematically visually searching tree foliage. Dense foliage of native kānuka-mānuka scrub and other tight-leaved native vegetation on the site provide suitable refugia for geckos.

Following receipt of a Request for Further Information from Buller District Council, additional surveys for native lizards were undertaken between 13-17 October 2025. The lizard survey was designed and implemented under the direction of Dr Graham Ussher, an expert herpetologist with over 32 years of experience with lizard survey and salvage at sites throughout New Zealand. October is the first month of the lizard survey season, as advised by DOC. The lizard survey was undertaken under RMA Ecology Ltd's permit for the West Coast, number 117742-FAU.

The additional lizard surveys included the deployment of lizard survey devices, as well as repeat visual surveys and manual search surveys. The following lizard survey devices were installed:

- 20 x ACOs;
- 20 x baited pitfall traps; and
- 17 x baited Gee's minnow traps.

The devices were installed on 13 October 2025, in areas of potential lizard habitat, including long grass, native and exotic scrub and forest edges, and coastal scrub, in areas both within the proposed development footprint, and within the wider site (Figure 2).

The devices were checked for lizards, or lizard sign (scat, slough), for four consecutive days (14-17 October). Traps were re-set at each visit, as required (e.g., replacement of bait, removal of pooled water/ debris/ non-target fauna).

2.8 Birds

Incidental bird observations identified visually and audibly at the site during the site visits, including native and introduced species were recorded. Potential food sources and nesting habitat were noted for the purpose of estimating the potential loss of resources associated with the planned development.

During the October 2025 site visits, the following additional survey techniques were deployed:

- Installation of 7 x Automatic Bird Recorders (ABMs); and
- Drone survey of cliff habitat.

The ABMs were installed in a range of locations across the site, to target different habitats, including open grassland, scrub and forest, and scrub and forest edges, wetlands, and coastal areas (Figure 2). ABMs were not placed directly at the cliff edges as the noise of the surf would be likely to mask any bird calls made in the area. The ABMs were not installed on the first day of the October 2025 site surveys as the weather conditions (strong wind and heavy rain) would have resulted in noise levels that would mask any bird calls.

2.9 Bats

The existence of any potential bat roosting and foraging habitat was noted and mapped during the site visit.

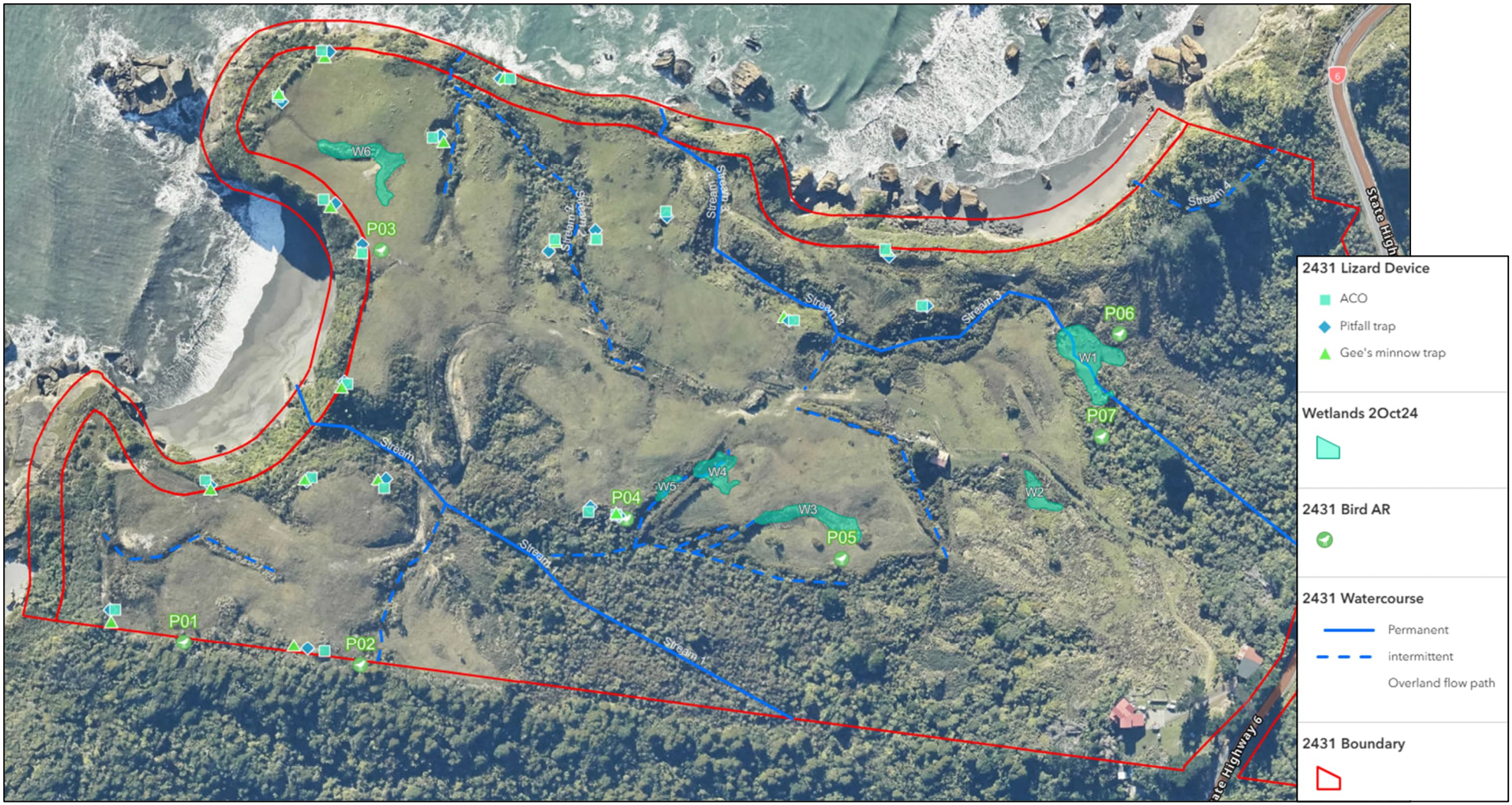

Figure 2: Location of lizard devices (ACOs, pitfall traps and Gee's minnow traps) installed on 13 October 2025, and Automatic Bird Recorders labelled P01 to P07, installed on 14 October 2025.

3.0 Results

3.1 Ecological context

The site is approximately 23 ha in area and is located along the coastline at Perpendicular Point above karst cliffs that bound the Tasman Sea, to the west of Paparoa National Park. A mapped sea cave is located at the south western corner of the site. Mature coastal forest spans the southern boundary of the site. State Highway 6 is adjacent to the site and provides access.

The original natural ecology has been heavily modified or removed through vegetation clearance. Historic aerial photographs indicate that the land has been cleared of the majority of its native vegetation since at least the 1950s, for farming activities (Figure 3). As a result, exotic grassland dominates parts of the site, and gorse has established in many areas (and has recently been controlled). Some portions of the site that are not grazed are slowly regenerating into native coastal forest, particularly in areas adjacent to established forest on neighbouring Department of Conservation (DOC) reserve to the south (Plate 1).

The site is located within the Punakaiki Ecological District and is a 'Paparoa Character Area'. The original vegetation of the Ecological District comprised hardwood forest with a few podocarps inland from the coast. The coastline had a vegetation community that comprised high diversity broadleaved forest species and northern rata. The Punakaiki Ecological District has remained largely unmodified throughout, with the coastline of the district succumbing to the highest degree of modification.

The Threatened Environments Classification (Walker *et al*. 2015) shows how much native (indigenous) vegetation remains within land environments, and how past vegetation loss and legal protection are distributed across New Zealand's landscape. The site lies within the Threatened Environment class categorised as having 30 % of indigenous cover left and 20 % of that cover legally protected from clearance. In these environments, the indigenous vegetation cover is still vulnerable to threats such as weeds, pests, logging, and other extractive land uses.

Land Environments of New Zealand (LENZ) is a quantitatively-based classification of New Zealand's terrestrial environment developed by Landcare Research[2], which has resulted in a number of datasets including the Land Cover Database (LCDB). LCDB v5.0 provides an indication of current land use, and land use change since its inception in 1996. The LCDB shows that the site has been used as 'high producing exotic grassland', 'indigenous forest', and 'broadleaved indigenous hardwoods' since at least 1996.

[2] https://www.landcareresearch.co.nz/tools-and-resources/mapping/lenz/

Figure 3: Historic aerial photograph depicting the vegetation cover from 1988 across the site, with the DOC forested land to the south (right of the lighter green grazed pasture on the site). Sourced from Retrolens.

Plate 1: Aerial photograph depicting the current vegetation cover across the site as of July 2024, with the existing farm access track that was recently resurfaced / maintained (white line) that bisects the site through its length from the main highway. The areas of recent gorse clearance along the length of the track can be clearly seen.

3.2 Watercourses

There are no recorded streams on the site on NZ Topo Maps or WestMaps. The NIWA River Environment Classification (REC) database shows one REC segment on the site, REC 12055730, which has been mapped as Stream 1. Three additional intermittent streams have been mapped after reviews of drone imagery, vegetation changes, and topography at the site, together with ground truthing during the September 2024 site visit (Figure 4).

Drone video footage recorded running water discharging over the cliffs at the northern boundary of the site into the Tasman Sea. Four streams and their tributaries were mapped on site (Figure 4). The discharge point of all four potential streams on site is the Tasman Sea.

The site was inundated with water at the time of both site visits (September 2024 and October 2025) and all streams had flowing water. Steep cliffs, dense vegetation, and slippery rock made many areas of the site inaccessible during the site walkover. Aerial imagery, drone footage, and observations from the site visit were used to classify and map the streams across the site.

All streams at the site are in good condition with a mix of good quality instream habitat and riparian cover.

3.2.1 Stream 1

Stream 1 is a permanent stream which flows beneath dense regenerating mixed shrubland vegetation from the DOC Scenic Reserve on the southern boundary of the site and discharges to the sea at the western boundary of the site.

Stream 1 is largely in its original condition apart from a culvert at the intersection of an accessway towards the western extent.

The stream flows through the understory of the dense regenerating mixed native and exotic shrub and is well shaded throughout. The stream supports habitat for fish and aquatic invertebrates through various sized rocks and cobbles, woody debris, and undercut banks. The stream contains meanders, pools, riffles and runs.

The dense riparian vegetation made the area difficult to navigate on foot at the time of the site visit, meaning that it is likely not all small tributaries of Stream 1 have been recorded on Figure 4. The dense vegetation also made it difficult to ascertain the presence of fish barriers across the extent of the stream, although the tall cliff at the seaward end is undoubtedly a significant barrier to fish colonisation of this stream, irrespective of internal barriers within the stream.

The stream is in good ecological condition, with an array of hydrological heterogeneity, instream refugia from organic debris, and dense riparian vegetation cover.

3.2.2 Stream 2

Stream 2 is an intermittent stream located at the base of a moderate depression in the landform. The stream discharge point to the sea is over the edge of the cliffs at the northern boundary of the site, which is a barrier to fish migration.

The stream is unmodified with a natural channel and form, and it margins are well vegetated with flaxes, grasses, and small shrubs, which provide good shading of the stream channel. Aquatic invertebrate communities are expected to be of high quality.

The stream is in good ecological condition, although it is very unlikely that there are any native freshwater fish inhabiting this stream.

3.2.3 Stream 3

Stream 3 is a permanent watercourse that enters the site from the east and flows north west across the site and discharges over the cliffs at the northern boundary of the site, which is a barrier to fish migration.

The stream is moderately vegetated with a mix of exotic grasses, native and exotic shrub/scrub, and regenerating coastal forest. Gorse control across the site has resulted in small sections of the stream banks bare/or with limited riparian vegetation cover, until underlying grasses and other shrubs species regenerate (which we expect will naturally happen quite quickly).

The stream is in good ecological condition, with an array of hydrological heterogeneity, instream refugia from organic debris, and dense riparian vegetation cover. Aquatic invertebrate communities are expected to be of high quality; however, it is unlikely freshwater fish are present in the stream due to the stream discharging over the cliff and being a barrier to fish migration.

3.2.4 Stream 4

Stream 4 is located beneath the mature coastal forest, and mature exotic trees. The stream discharges over the cliff into the sea.

Due to the steep topography and wet conditions at the time of the site visit this area was not searched on foot to accurately map the extent of the stream. The vegetated margins of the stream indicate that the stream is likely to also be in a natural state, and that instream habitat is likely to be of high quality given the lack of apparent modification of the stream reach.

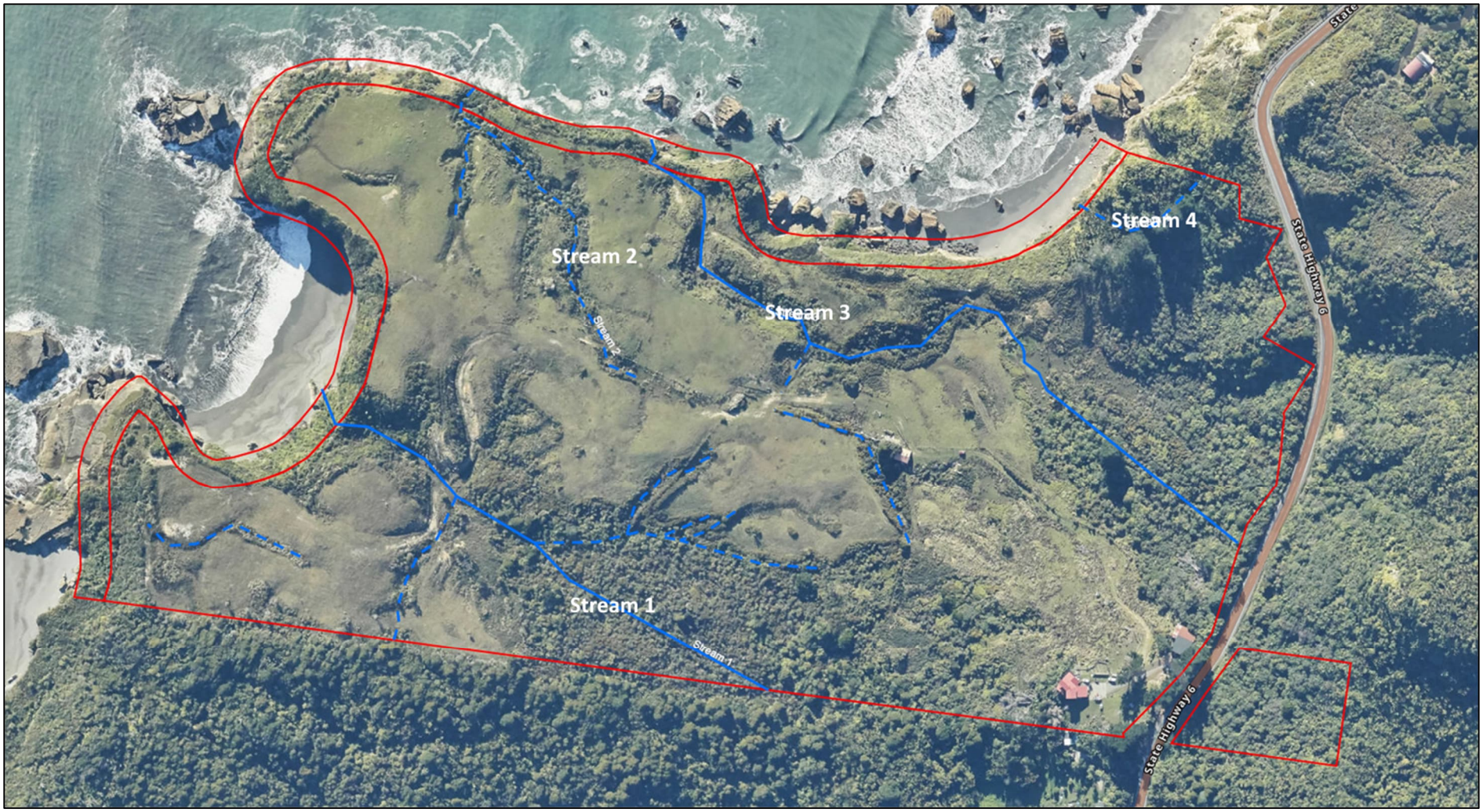

Figure 4: Mapped streams at the site and their approximate extents. Permanent watercourses are shown as solid blue lines, intermittent watercourses are shown as dashed blue lines. Site boundary is outlined in red.

3.3 Fish

No native fish species were observed during the night spotlighting survey of the streams on site. Rain during the survey and heavy rainfall in the week prior to the survey resulted in fast flowing and turbid water, which made spotlighting for fish difficult.

Fish survey through trapping and eDNA methods were not undertaken at the site due to the limited impact this development proposes to have on streams.

There are no records of freshwater fish from the site. NIWA New Zealand Freshwater Fish Database (NZFFD) records from the nearest watercourses, Bullock Creek, Pororari River, and Punakaiki River were reviewed to create a list of species most likely to be present in the area wider area.

Bullock Creek is 1.5 km south of the site, Pororari River is 2.2km south of the site, and Punakaiki River is 4.3 km south of the site. Records of two freshwater species were found for Bullock Creek. Pororari River provided no records of freshwater fish species. Ten species are recorded as being present in Punakaiki River.

It is likely that only kōura is present in the streams on site. It is unlikely that other fish species are present due to the streams discharging from the site at height into the sea which poses a barrier to the movement of fish into streams on the site.

The native fish species records held by NZFFD are summarised in Table 1, with the most recent record of the species displayed. Most of these species require unobstructed access to other waterbodies or the sea in order to colonise and sustain populations. The cliff bound streams at the site most probably pose insurmountable barriers to most, if not all, of the species listed in Table 1.

Table 1: NIWA New Zealand Freshwater Fish Database (NZFFD) records for Bullock Creek, and Punakaiki River.

Species	Common name	Waterbody name	Status	Date of record
Paranephrops	Koura	Bullock Creek	Not Threatened	1987
Anguilla dieffenbachii	Longfin eel	Bullock Creek	At Risk – Declining	1987
Rhombosolea retiarii	Black flounder	Punakaiki River	Not Threatened	1987
Gobiomorphus hubbsi	Bluegill bully	Punakaiki River	At Risk – Declining	1987
Gobiomorphus cotidianus	Common bully	Punakaiki River	Not Threatened	1987
Gobiomorphus gobioides	Giant bully	Punakaiki River	Naturally Uncommon	1878
Galaxias maculatus	Inanga	Punakaiki River	At Risk – Declining	1987
Anguilla dieffenbachii	Longfin eel	Punakaiki River	At Risk – Declining	1987
Gobiomorphus huttoni	Redfin bully	Punakaiki River	Not Threatened	1987
Anguilla australis	Shortfin eel	Punakaiki River	Not Threatened	1963
Cheimarrichthys fosterae	Torrentfish	Punakaiki River	At Risk – Declining	2012

3.4 Wetlands

There are six natural inland wetlands on the site, covering a total area of 2,650 m^2 (Figure 5).

The six wetlands were delineated using the methods described in the Wetland Delineation Protocol (MfE, 2022). Wetland vegetation plots were taken to determine the extent of the wetland boundary. Soil cores were unable to be taken due to the saturation of the ground at the time of the site visit. Soils were fluid and the core was unable to be extracted intact.

The primary indicators of the presence of wetlands include characteristic vegetation colours and patterns or signs of water pooling in depressions in the landscape. Although less common, wetlands can also exist on flat or sloping land where there is seepage from groundwater, or overland flow paths. Land contour was also assessed to determine whether a hydrological connection exists between the parts of the site proposed for development and potential wetlands.

The wetlands at the site have all historically been grazed for a prolonged period of time and currently support wet-adapted vegetation. The wetlands are pugged and degraded and are in the process of recovering now that stock have been removed from the site.

All six wetlands on site met the Dominance Test for hydrophytic vegetation and were saturated underfoot, indicating that water regularly pools at the surface creating conditions suitable for wetland development. All wetlands at the site are characterised by short stature vegetation.

- Wetland W1 is approx. 863 m^2 in area, dominated by herbaceous native vegetation species; *Juncus lomatophyllus*, *Isolepis prolifera, Carex secta*, and *Cyperus ustulatus*. The wetland is bordered by gorse, exotic pasture grasses and bare ground (from recent gorse clearance). The wetland has limited shading across its extent.
- Wetland W2 is approx. 224 m^2 in area. The wetland is dominated by native *Isolepis prolifera* and *Cyperus ustulatus.* The wetland has a buffer that consists of only pasture grass and recently cleared gorse.
- Wetland W3 is approx. 534 m^2 in area and is dominated by the exotic rush species *Juncus lomatophyllus,* as well as the native sedge *Isolepis prolifera,* and native rush *Juncus sarophorus.* All vegetation surrounding the wetland has recently been cleared of gorse.
- Wetland W4 is approx. 352 m^2 in area and is dominated by the native rushes *Juncus sarophorus* and *Juncus bufonius,* and the exotic rush *Juncus lomatophyllus.*
- Wetland W5 is approx. 111 m^2 in area and is located at the bottom of a gully. The wetland is dominated by *Juncus lomatophyllus*, *Isolepis prolifera,* and *Carex secta.*
- Wetland W6 is approx. 566 m^2 in area and is located within the depression in the landform. The wetland is dominated by harakeke *Phormium tenax* and herbaceous vegetation species including *Juncus lomatophyllus*, *Isolepis prolifera, Carex secta*, *Cyperus ustulatus*, and *Juncus sarophorus.*

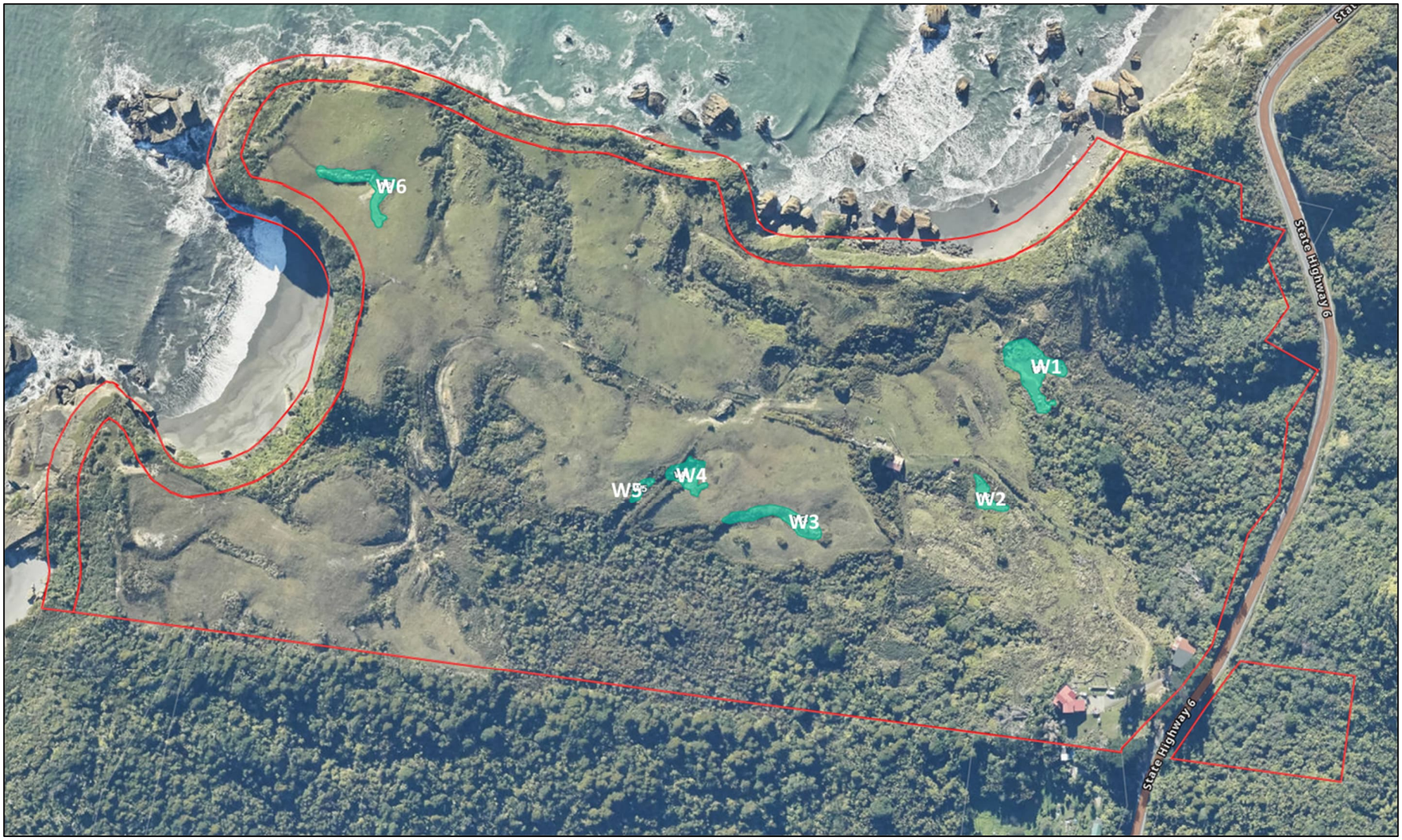

Figure 5: Six natural inland wetlands mapped across the site are labelled W1 – W6 and are marked with cyan polygons. The site boundary is shown in red.

The wetlands are perched over hard underlying impervious rock (iron pans or similar) with the combination of location in the landform and underlying soils creating poor drainage and retention of water. The wetlands are degraded as a result of past and recent land uses, and have only low ecological value in their current state. Despite the degraded condition, the value of the wetlands is enhanced by its rarity as a habitat, as a result of the significant overall loss (90 %) of wetlands across the region and nationally. In addition, the wetlands at the site will continue to provide ecosystem services such as stormwater attenuation and filtering.

3.5 Terrestrial vegetation

Land use at the site for farming purposes, resulting in open pasture-dominated vegetation communities, has been ongoing for many decades after indigenous vegetation cover was cleared prior to the 1950s. In recent years, some areas of the site have not been maintained for grazing, and mixed native and exotic shrub species are now regenerating. The thick stands of gorse that dominated in parts of the site have been subject to recent control and clearance.

Desktop analysis of aerial imagery, drone footage and databases, and on-site survey has determined that there are a range of terrestrial vegetation communities present on the site (Figure 6). A brief description along with the approximate total area of each vegetation community across the site is presented in Table 2.

There is a diverse suite of species that make up the vegetation types on site. No At Risk or Threatened plant species were detected at the site, or are expected to be present. An assessment of the significance of the vegetation and habitats on the site within the proposed vegetation clearance and earthworks/ construction footprint under the RPS significance criteria is presented in Table 3.

An inventory of plant species recorded during the October 2025 site visit is presented in Appendix B, along with the threat classification status of each species.

Table 2: Summary description and approximate areas of the vegetation communities present on the site.

Vegetation community	Brief description	Approximate total area across the site (ha)
Native coastal forest	Coastal species that escaped clearance when the majority of the site was cleared pre-1950. Dominated by mature nikau *Rhopalostylis sapida*.	0.3
Native shrubland	Low growing species that are growing along the exposed cliff faces in the north and west boundaries of the site. Dominated by harakeke.	1.8
Regenerating mixed native-exotic shrubland	Dominated by māhoe *Melicytus ramiflorus*, cabbage tree *Cordyline australis*, harakeke *Phormium tenax*, kamahi *Pterophylla racemosa*.	6.9

Vegetation community	Brief description	Approximate total area across the site (ha)
Mixed scrub	Native and exotic species growing together, often on the edges of exotic weedland and regenerating shrubland.	1.2
Exotic forest	Primarily macrocarpa pines	0.3
Exotic weedland/ scrub	Primarily gorse *Ulex europaeus*	1.7
Exotic grassland and bare ground	Pasture species	11.0
Saline turf	On the flat rock surfaces of the cliff edges where the salt water from wave action splashes and collects	0.05
	Total area	*23.2*

3.5.1 NPS-IB significance assessment

The operative Buller District Plan does not identify the site as a Significant Natural Area (SNA); however, it does identify the site as a Paparoa Character Area. The process of identifying SNAs on private land in the West Coast region is relatively recent, and has not yet been applied to the vegetation communities at this site. The vegetation and habitats at the site which could be impacted by the proposed development were, therefore, assessed against the ecological significance criteria in Appendix 1 of the West Coast RPS (Table 3).

Our preliminary assessment below indicates that the native vegetation units on the site could qualify as significant indigenous vegetation, which means that any development proposal should aim to minimise or avoid clearance of these vegetation types. Qualification as 'significant' in an ecological sense does not confer SNA status on a site, so the provisions of the NSP-IB relating to SNA sites do not apply to this site.

Continuous habitats at the site comprising forest and scrub areas have been assessed as a whole, regardless of the individual vegetation types. Areas of exotic grassland and exotic scrub are not ecologically significant and have not been combined or considered with the continuous habitats.

Table 3: Assessment of the site against the RPS Ecological Significance criteria.

Criterion (factor)	Assessment	Conclusion
Representativeness	Most of the vegetation on this site is mixed exotic and indigenous plant species. The parts that are dominated by native vegetation comprise the cliff edges, the mature forest, and parts of the regenerating scrub/shrub. The vegetation community present is not a typical example of a West Coast region indigenous ecosystem, as native vegetation within it is less dense and younger than vegetation that is commonly seen across the coastline of the region. LENZ/ TEC classifies the site as a regional example where 20-30 % indigenous cover is left, and therefore does not comprise a Threatened ecosystem.	The proposed development aims to avoid impacts on native regenerating vegetation. The vegetation does not meet this criterion for significance.
Rarity of ecosystems or species	The site does offer habitat for fernbird – At Risk (Declining), and eight threatened or at-risk bird species recorded, including an important colony of threatened species on the cliffs. The site has habitat that could potentially support At Risk listed native lizards, although none have been found through extensive surveys.	The site provides habitat for At Risk species and does meet this criterion
Diversity and pattern; natural diversity within the area	The vegetation on the site supports a suite of native plant species that is typical in a naturally regenerating shrubland site. As the community is regenerating following disturbance, the overall diversity of native plants across the site is lower than the diversity expected in less disturbed/ undisturbed vegetation communities in the wider region. The site is not representative of the natural diversity of the region.	The vegetation community does not meet this criterion for significance (cont.)
Ecological context, connectivity, buffering and core habitat	The area which contains regenerating shrub/forest provides some ecological connectivity and buffering to neighbouring expansive forests. The mature coastal forest and the indigenous vegetation that borders the cliffs provides habitat for native birds.	The vegetation does meet this criterion for significance.

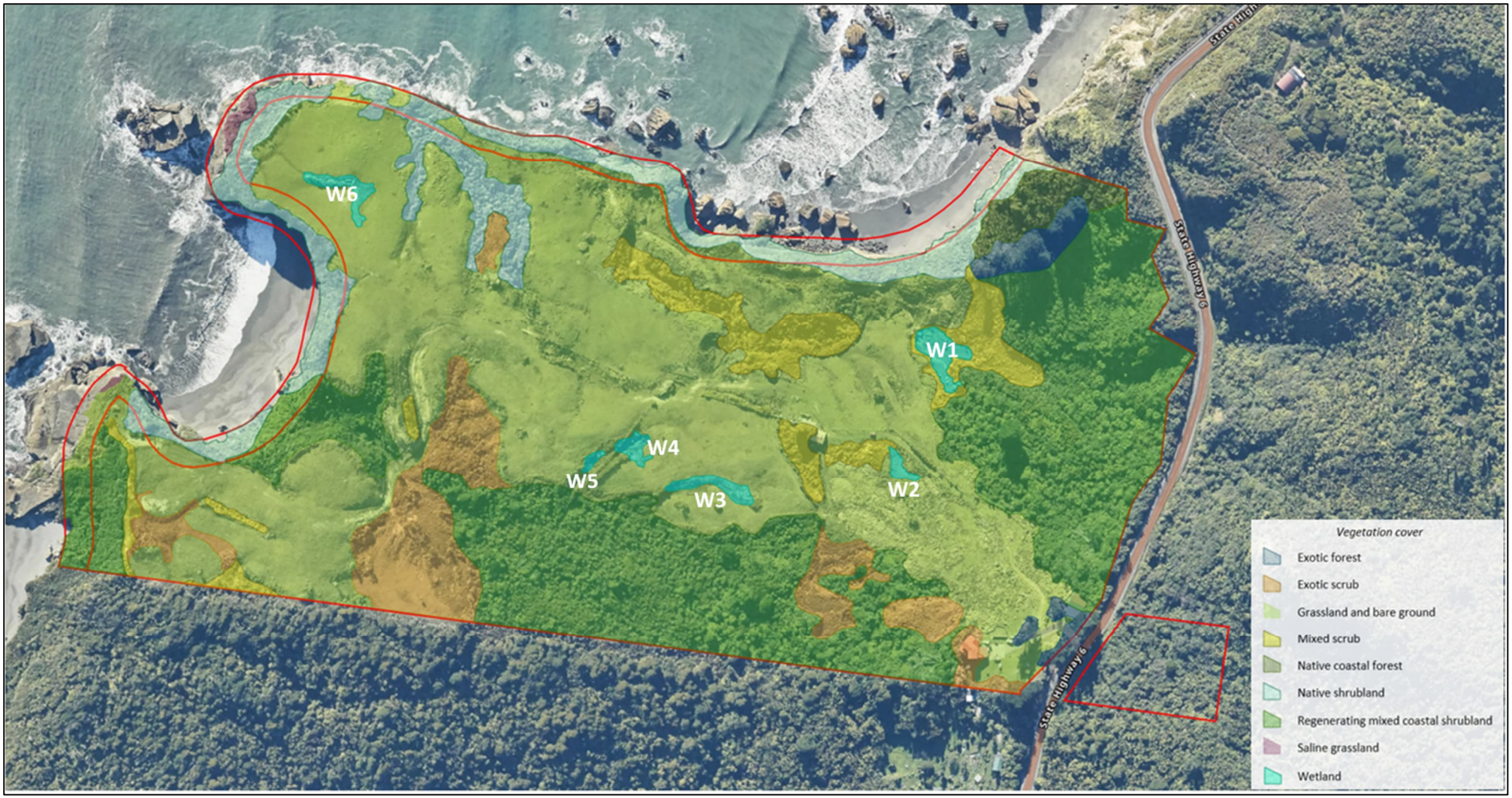

Figure 6: Vegetation communities on the site. The natural inland wetlands are labelled W1 to W6.

3.6 Lizards

Habitat quality for native lizard species is variable across the site. The site has been historically extensively cleared of indigenous vegetation. Lizards could be present on the site if populations have persisted through habitat loss by surviving in small remnants of habitat that remain at the site. It is also possible that populations on neighbouring properties have recolonised the regenerating vegetation that has developed with more recent less-intensive use of the site.

Vegetation communities and habitat types on the site that offer habitat for native lizards include:

- Native and exotic regenerating scrub/forest;
- Mature native coastal forest;
- Native shrubland;
- Exotic weedy scrubland;
- Farm debris;
- Exposed limestone cliff faces, including the rock stacks within the site; and
- Rank grassland.

There are no records of native lizards from the site. Records from the DOC herpetofauna database show that the native lizard species most likely to be encountered at the site are Newman's speckled skink (*Oligosoma newmani,* recorded 4 km from the site), forest gecko (*Mokopirirakau granulatus,* recorded 800 m from the site), and West Coast green gecko (*Naultinus tuberculatus,* recorded 4 km from the site. The native lizards that are known to occupy the wider region and their likelihood of being present at the site based on distribution and habitat preference are summarised in Table 4.

Records for the wider West Coast area in the DOC database are minimal; however, this could be due to lack of observations rather than lack of lizards present. The region is under-surveyed and as a result information on lizard species populations and distributions is sparse.

During the site visits, habitats suitable for native skinks, including areas of long grass, scrub edges, and garden debris piles, were manually searched for lizards or signs of their presence i.e. scat or skin slough.

Native vegetation with dense foliage suitable for geckos was visually searched for gecko and sign of gecko during the day.

Appropriate vegetation was also spotlighted after sunset for arboreal geckos during both the September 2024 and the October 2025 site surveys. A summary of spotlighting effort is presented in Table 5.

During the October 2025 site surveys, lizard devices were installed in suitable habitat across the site, in areas that are within the proposed development footprint, and within the wider site (Figure 2). A summary of the lizard devices installed and checks made are presented in Table 6.

No lizards, or sign of lizards (scat or skin slough), were found during the site visits in September 2024 or in October 2025, from any of the methods employed. Whilst this does not mean that lizards are definitely not present on the site, it indicates that the quality of habitat is low, and that if present, native lizards are present in low numbers and at a low density.

Table 4: Native lizards known to inhabit the wider region around the site and the likelihood of the species being present at the site based on records and available habitat. Source: New Zealand Herpetological Society Website.

Species	Common Name	Threat Classification	Preferred Habitat Type	Likelihood of presence
Mokopirirakau granulatus	Forest gecko	At Risk - Declining	Arboreal and terrestrial. Occupy a range of habitats such as swamps, scrubland, mature forests, rock fields, and scrubby regenerating habitats.	Low
Naultinus tuberculatus	West Coast green gecko	Threatened – Nationally Vulnerable	Primarily arboreal. Occupy forested habitats, swamps, scrubland, low scrub, regenerating scrubby habitats, and mature forests.	Low
Oligosoma newmani	Newman's speckled skink	At Risk - Declining	Occupy wide range of habitats; pebble banks, dense vegetation in coastal areas, grassland, rock piles, open areas in forest and scrub. Will climb onto low vegetation or debris to bask, retreat quickly when approached. Take refuge under rocks, logs, dense vegetation, and leaf litter.	Low
Oligosoma polychroma	Northern grass skink	Not Threatened	Wide range of habitats, including gardens, coastal vegetation, rock piles, grassland, flaxes, shrubland, scree, forest margins, tussocks, and modified suburban areas.	Low
Oligosoma zelandicum	Glossy brown skink	At Risk - Declining	Coastal areas, pebble banks, grassland, wetland, scrubland, forest, and prefer to inhabit areas with dense ground cover.	Nil
Oligosoma albornense	Alborn skink	Threatened – Nationally Critical	Tolerant of damp habitat. Occur in beech forest clearings, regenerating scrub, and wetlands. Take refuge under logs and anthropogenic debris.	Nil

Table 5: Summary of gecko spotlighting effort.

Date	Weather conditions	Effort (person hours)	Results
9 September 2024	Poor – rain	1.5 hours	No lizards observed
14 October 2025	Good – 10°C, mostly clear sky, no wind	3 hours	No lizards observed. Lots of moths observed.
15 October 2025	Good – 11°C, light drizzle for first 20 minutes then clear, cloudy, light breeze	1 hour	No lizards observed
16 October 2025	Good – 12°C, partial cloud cover, no wind	1.5 hours	No lizards observed. Lots of insects observed.
	Total effort	*7.5 hours*	

Table 6: Summary of lizard devices installed and results of daily checks.

Date	Device type and number	Results of daily checks	Comment
13 October 2025	20 x triple-stack ACO installed	-	Rain all day until evening.
	20 x baited pitfall traps installed	-	
	17 x baited Gee's minnow traps installed	-	
14 October 2025		No lizards or lizard sign observed.	3 x pitfall traps removed as they were full of water – water table too high. Weather dry and warm, windy.
15 October 2025		No lizards or lizard sign observed.	Weather dry, warm, calm.
16 October 2025		No lizards or lizard sign observed.	Weather mostly dry, mild, overcast.
17 October 2025		No lizards or lizard sign observed. Devices removed from site following checks.	Weather mild, dry, some cloud.

3.7 Birds

An avifauna desktop investigation was undertaken to compile a list of bird species that are potentially present at the site. Data from the ornithological society of New Zealand Bird Atlas was collated from the 10 x 10 km grid square (CH38) which encompassed the project area. The data available for this grid square provided a list of 56 species of birds (both native and exotic species).

The habitats available for birds at this site limit the likelihood of many of the 56 species recorded in the database being present on the site. Habitat for native birds at the site includes native forest, exotic scrub, grassland, cliff faces, native shrubland, and vegetated cliff margins. Some species recorded in the Bird Atlas are also likely to be only occasional visitors to the site.

Table 7 provides a list of the Threatened and At-Risk bird species from the Bird Atlas database that have been recorded within 10 km of the site. Many of these species are unlikely to be encountered at the site due to the lack of suitable habitat. Of these species, those that have been recorded at the site, either visually, audibly, or via the results of the ABM survey, are indicated in Table 7. All other (Not Threatened) species recorded during the site surveys are listed in Table 8.

During the October 2025 site surveys, seven Automatic Bird Monitors (ABMs) were installed across the site in a variety of habitats (Figure 2). They were installed on 14 October, and set to record continuously from the morning of 14 October to late afternoon on 17 October. Weather conditions were too poor on the first day of surveys (13 October) to install the ABMs – the noise of the rain and wind would have masked any bird calls.

A drone survey of the coastal cliffs was also undertaken during the October 2025 surveys, to determine the location of the reported spotted shag colony and the approximate number of birds and presence/ number of nests.

A number of bird species of conservation interest have been recorded using these various methods of survey (Table 7):

- Fernbird (At Risk – Declining): During the September 2024 site visit, two fernbirds were recorded as incidental observations near wetland W3. Both individuals were observed in umbrella sedge (*Cyperus ustulatus*) in the wetland. Playback was used to determine if there were other fernbirds nearby. No further fernbirds were observed. Fernbird is classified as At Risk – Declining and are vulnerable to loss of habitat. They prefer to inhabit low wetland vegetation which makes them easily predated by introduced predators.
- Spotted shag (Threatened – Nationally Vulnerable): The October 2025 drone survey confirmed the location of the spotted shag colony on the northern cliffs, as well as evidence of possible nesting by a much smaller group of spotted shags on the south facing cliffs of the horseshoe-shaped bay at the western side of the site (Plates 2 and 3). Approximately 30 adult birds and thirteen nests were counted at the main colony, and three birds and one nest were observed at the horseshoe bay roost site.
- Westland petrel (At Risk – Naturally Uncommon): Westland petrel calls were recorded by ABM P06 on two occasions during the night of 14 October 2025, indicating that Westland petrels do, at least on occasion, fly over the site.

  The cliffs at the northern and western boundaries, the understory of accessible areas of regenerating shrubland, and the small area of mature coastal forest in the north eastern corner of the site were searched for burrows of Westland petrels. No burrows were located.

The Westland petrel maintains breeding colonies in the forest-covered foothills between Barrytown to the south and Punakaiki, with breeding colonies scattered over an 8 km area south of the Punakaiki River. Although the known breeding colonies are 5 km to the south of the site, there is a risk that indiscriminate artificial lighting could result in young birds becoming negatively affected and being grounded (where they are vulnerable to introduced predators or injury). A study by NZTA in 2020, in which street lights in Punakaiki were turned off between November and January (when young Westland petrels leave their burrows and take their first flight) found that significantly fewer petrels crash-landed around the village.

- Sooty shearwater (At Risk – Declining): Calls were recorded by ABM P02 during the nights of 14 October and 16 October 2025, indicating that sooty shearwater do, at least on occasion, fly over the site.
- Long-tailed cuckoo (Threatened – Nationally Vulnerable): Calls were recorded by ABMs P02 and P04, during the night of 16 October 2025. Long-tailed cuckoo is parasitic and lays its eggs in the nests of whitehead (North Island only), yellowhead, and brown creeper. Brown creeper is present along the West Coast, and is the likely host for breeding long-tailed cuckoos in this region. Yellowhead are mostly found in the southern half of the South Island.

  The long-tailed cuckoo calls recorded at the site are likely from birds that were still on migration to breeding sites, rather than already in residence and breeding at the site, or nearby. Long-tailed cuckoos are usually first seen or heard in September and October as they spread throughout the country, and eggs are laid later, mostly in November and December[3].

Overall, the site has a has high ecological value for birds, as shown by the additional survey work (with nine threatened or at-risk bird species recorded, and an important colony of threatened species on the cliffs).

Table 7: At Risk and Threatened birds recorded near the site, according to the NZ bird Atlas, and results of on-site surveys. Lack of appropriate habitat and difficulty of access to the site via cliffs means that many species listed are unlikely to be present.

Scientific name	Common name	Threat Status (Robertson *et al.* 2016)	Results of on-site surveys
Anarhynchus bicinctus	Banded dotterel	At Risk – Declining	Not recorded
Anas superciliosa	Grey duck	Threatened – Nationally Vulnerable	Not recorded
Anthus novaeseelandiae	New Zealand pipit	At Risk – Naturally Uncommon	Not recorded
Apteryx haastii	Great spotted kiwi	Threatened – Nationally Vulnerable	Not recorded
Ardenna bulleri	Buller's shearwater	At Risk – Declining	Not recorded
Ardenna grisea	Sooty shearwater	At Risk – Declining	✓ Recorded by ABM P02 on 14 and 16 October 2025

[3] https://www.nzbirdsonline.org.nz/species/long-tailed-cuckoo

Scientific name	Common name	Threat Status (Robertson *et al.* 2016)	Results of on-site surveys
Bowdleria punctata punctata	South Island fernbird	At Risk – Declining	✓ 2 x adults seen and heard during September 2024 site visit ✓ Recorded by ABM P03
Chroicocephalus bulleri	Black-billed gull	At Risk – Declining	Not recorded
Chroicocephalus novaehollandiae	Red-billed gull	At Risk – Declining	✓ 1-5 individuals seen during October 2025 site surveys, flying above the cliffs and on beach/ rocks below northern cliff ✓ Recorded by ABM P01
Cyanoramphus auriceps	Yellow-crowned parakeet	At Risk – Declining	Not recorded
Eudyptula minor	Little penguin	At Risk – Declining	Not recorded
Falco novaeseelandiae	New Zealand falcon	At Risk – Recovering	Not recorded
Haematopus finschi	South Island pied oystercatcher	At Risk – Declining	✓ Recorded by ABMs P01, P03 and P05
Haematopus unicolor	Variable oystercatcher	At Risk – Recovering	✓ 2 x individuals seen foraging on the site. Also seen on northern beach/ coastal boulders.
Hydroprogne caspia	Caspian Tern	Threatened – Nationally Vulnerable	Not recorded
Microcarbo melanoleucos	Little shag	At Risk – Relict	Not recorded
Petroica australis	South Island robin	At Risk – Declining	Not recorded
Phalacrocorax carbo	Black shag	At Risk – Relict	Not recorded
Phalacrocorax punctatus	Spotted Shag	Threatened – nationally vulnerable	✓ Seen via drone footage. Ca. 30 adults observed on the northern cliff ledge or flying in/ out of cliff colony. Thirteen nests were visible and had birds sitting on them (Plate 2). ✓ 3 x adults and one possible nest seen through binoculars on cliff at northern end of the western horseshoe beach. Also captured on drone footage (Plate 3). ✓ Recorded by ABM P03
Phalacrocorax varius	Pied shag	At Risk – Recovering	Not recorded
Procellaria westlandica	Westland petrel	At Risk – Naturally Uncommon	✓ Recorded by ABM P06 on 14 Oct 2025
Sterna striata	White-fronted tern	At Risk – Declining	✓ Recorded by ABM P01 and P03
Urodynamis taitensis	Long-tailed cuckoo	Threatened – nationally vulnerable	✓ Recorded by ABMs P02 and P04, both on 16 Oct 2025

Table 8: Bird species classified as Not Threatened recorded at the site during the September 2024 and October 2025 surveys.

Scientific name	Common name	Seen/ heard	Recorded on ABM
Native species			
Circus approximans	Australasian harrier	✓	✓
Gallirallus australis	Weka	✓	✓
Gerygone igata	Grey warbler	✓	✓
Hemiphaga novaeseelandiae	Kereru	✓	
Hirundo neoxena	Welcome swallow	✓	✓
Larus dominicanus	Black-backed gull	✓	✓
Petroica macrocephala	Tomtit	✓	✓
Porphyrio melanotus	Pukeko	✓	✓
Rhipidura fuliginosa	Fantail	✓	✓
Prosthemadera novaeseelandiae	Tuī	✓	✓
Tadorna variegata	Paradise shelduck	✓	✓
Todiramphus sanctus	Kingfisher	✓	✓
Vanellus miles	Spur-winged plover	✓	✓
Zosterops lateralis	Silvereye	✓	✓
Introduced species			
Acanthis flammea	Redpoll		✓
Carduelis carduelis	Goldfinch		✓
Fringilla coelebs	Chaffinch	✓	✓
Passer domesticus	House sparrow		✓
Prunella modularis	Dunnock		✓
Sturnus vulgaris	Starling	✓	✓
Turdus merula	Blackbird		✓

Plate 2: Drone imagery from October 2025 of the spotted shag colony on a ledge beneath an overhang of the northern cliffs. Thirteen nests are visible and have birds in residence.

Plate 3: Drone imagery of the spotted shag roost and possible nest at the northern end of the horseshoe-shaped bay at the western edge of the site. Three adult birds were resting here when observed through binoculars, prior to capturing the drone imagery.

3.8 Bats

There are two species of native bats that remain extant in New Zealand; long-tailed bat/ pekapeka (*Chalinolobus tuberculatus*), which is currently classified 'Threatened – Nationally Critical' (O'Donnell *et al.*, 2023), and the lesser short-tailed bat/ pekepeka-tou-poto (*Mystacina tuberculata*). There are three subspecies of the lesser short-tailed bat: the subspecies relevant to this area is the southern lesser short-tailed bat which is classified as 'At Risk – Recovering' (O'Donnell *et al.*, 2023).

The national bat database held by DOC records the closest detection of lesser short-tailed bats to be within approx. 3 km of the site (records from 1997 and 1998) (Figure 7). These bat detections occurred in the lower reaches of Bullock Creek and Pororari River. Later surveys for lesser short-tailed bats were conducted in similar locations in 2000, 2018, and 2020 which all yielded no detection of bat activity. The nearest detection of long-tailed bats to the site is from 1998, approximately 28 km from site in the Rough River catchment. One more recent record of long-tailed bat (2017) is approximately 33 km from site in the Stony River catchment.

Bats require large trees (including standing dead trees) with cavities (e.g. deep knot holes), epiphytes, or loose bark for roosting. They typically use linear landscape features such as bush edges, gullies, water courses, and roadways to transit between roosting and feeding sites (Borkin and Parsons, 2009). Bat activity is influenced by overnight weather conditions such as temperature, rainfall, humidity, wind speed, and moonlight.

There is low- to moderate-quality bat habitat at the site, provided by the mature exotic trees and the small area of mature coastal forest in the north east corner of the site. Aerial imagery shows that the trees are tightly compacted and windswept, with no linear pattern. These features make them less likely to be suitable for bats.

Although there are historic bat records from locations close to the site, it is unlikely that bats occur on the site or transit through the site due to lack of viable habitat for roosting and lack of linear features for transiting along.

Figure 7: Historic records from 1997 and 1998 of lesser short-tailed bats (orange dots) in relation to the project site (red rectangle).

3.9 Summary of ecological values

The site, of approximately 21.86 ha in area, has been historically cleared of indigenous forest cover since at least the 1950s. A small remnant of coastal forest remains in the north eastern corner of the site, and areas of the site are regenerating in mixed native and exotic shrubland (mainly native species establishing through older gorse cover).

The following ecological features have been recorded:

- Watercourses: Four streams have been mapped on site (along with associated tributaries), including two permanent streams (Stream 1 and Stream 3), and two intermittent streams (Stream 2 and Stream 4), all of which are in excellent condition with good quality habitat and good quality riparian cover.
- Aquatic fauna: No native fish species were detected at the site. Native fish may be present in Stream 1; however, it is likely that only kōura are present in streams due to the barriers limiting fish migration and movement to other waterbodies.
- Wetlands: Six natural inland wetlands, Wetlands W1 to W6, are present on the site. Most are perched over an impervious ground layer (pan) with underlying soils creating poor drainage. Some are gully wetlands, which include stream margin vegetation as well as being the result, at least in part, of historic farming activity. All comprise low stature vegetation. All wetlands have been grazed historically for a long time, and although impacted will recover quickly.
- Indigenous vegetation: The site supports indigenous vegetation located in patches across the site, with the largest area being contiguous with the forest on neighbouring land to the south. A small area of indigenous coastal forest remains in the north east corner of the site. Much of the vegetation on the site comprises exotic pasture and pasture weeds, as well as extensive patches of gorse. Much of the gorse has recently been controlled or cleared. Mixed gorse/ native shrubland, and regenerating coastal forest cover approximately half of the site, and form an excellent basis for ecological enhancement. No At Risk or Threatened plant species were found during the site visits, or are expected to be present.
- Native lizards: Native lizards were not detected during the two site visits, despite surveys deploying lizard devices and several nights of spotlighting; however, parts of the site contain habitat for grass skink (open grassland areas at the edges of native and exotic scrub) and West Coast green gecko (taller shrubland and forest). The lack of lizard detections indicates that while the presence of lizards cannot be ruled out entirely, if present, the number and density of lizards will be very low.
- Native birds: A number of native birds of conservation interest have been recorded via direct observation, drone imagery, and/ or ABM recordings:
    - Fernbirds (At Risk – Declining) were observed on the southern part of the site near W3 in low stature wetland vegetation;
    - Spotted shag (Threatened – Nationally Vulnerable) are present in a breeding colony of at least 30 birds, on ledges along the northern cliffs. A much smaller roost or nesting site was also observed on the south-facing cliff of the horseshoe-shaped bay to the west of the site (three adults and one nest).

- Westland petrel (Threatened – Naturally Uncommon) burrows were not detected on the site, however; Westland petrel calls were recorded on one ABM. It is likely that Westland petrel fly over the site, at least occasionally. Punakaiki is known to be an area over which young fledging Westland petrels fly when leaving/ returning to their burrows.
- Sooty shearwater (At Risk – Declining) calls have been recorded on an ABM on two different nights, indicating that this species flies over the site at least occasionally.
- Long-tailed cuckoo (Threatened – Nationally Vulnerable) calls have been recorded on two ABMs during the same night. Due to the time of year that the calls were recorded, this species was likely to be on migration over the site, rather than in residence for breeding.
- Other coastal birds that are At Risk – Declining/ Recovering – red billed gull, South Island pied oystercatcher, variable oystercatcher, and white fronted tern.

4.0 Development proposal

The proposed development is for the establishment of a luxury lodge and visitor accommodation, along with associated access, car parking, a lodge support building, and staff accommodation. The lodge will contain a restaurant, bar, and spa facility. The development aims to complement the surrounding landscape and become a tourist attraction.

Access to facilities will be provided by a main access road off the State Highway – this is the existing farm road which will be improved with a top layer of gravel. An accessway for foot traffic will also be created (width up to 2.8 m wide) to provide a link between the proposed lodge and the main car parking area, following a route along the line of the coast.

Artificial lighting proposed for the site will follow good practice guidelines for the minimisation of light spill and seek to avoid adverse effects on native wildlife, in particular little penguins and Westland petrels (fledging birds especially). A Lighting Management Plan will be prepared that takes into account minimisation of light spill that may affect wildlife through the use of downward facing shielded lights, motion sensors, and amber LEDs across the site to minimise attractance to wildlife.

Following the ecological survey on 9 and 10 September 2024, which identified six natural inland wetlands, the preliminary development plans were modified by the applicant to avoid works within any wetlands and a 10 m setback from the wetland – including for roading, cabins and other structures, pathways, and associated infrastructure and support works.

All existing vegetation will be removed from the footprint of the development, and the site earth-worked to create appropriately graded ground for construction. The earthwork footprint has been carefully designed in order to avoid works within native shrubland, forest, or wetlands. The proposed walkway through the western part of the site will avoid wetland areas and the removal of regenerating native shrubland will be minimised; any vegetation clearance required for walkway formation will preferentially lead through areas of exotic gorse rather than native vegetation.

Since lodgement of the application and subsequent receipt of submissions, the development design has been refined to further avoid ecological features and reduce the overall level of potential ecological effect. The number of cabins has been reduced from 15 to 12 (cabin SC3, located near the northern cliff edge, and cabins FC5 and FC6, located near to the boundary with the adjoining native forest to the south, as labelled in the January 2025 plan, have been taken out of the plan). The lodge has been reduced in size so as to reduce the overall footprint and height of the building (Figure 8).

The natural inland wetlands W1 – W6, along with a 10 m setback from the wetland edge, are outside of the earthworks and construction area. The proposed development is downstream of the catchment for wetlands W1 – W5 and the accessway from the state highway to the lodge will remain in its current position, meaning that there is no risk that the site works will intercept catchment flow that may lead to diversion or dewatering of wetlands. Wetland W6 will have an accessway installed to the east (outside) of the 10 m wetland setback, and will similarly not affect that wetland.

Earthworks and construction will take place outside of Streams 1 – 4, and outside of a 5 m setback from each stream.

Two culverts are currently present at the site and will be retained for access to accommodation cabins. One of those existing culverts will be retained in the current state over Stream 1 (Figure 8). The second culvert is damaged and will be removed and replaced with a new culvert in a different location on Stream 3. The culverts over these two streams will be designed in accordance with good practice fish passage design requirements to allow for passage of native fish as a precautionary measure (as no fish were detected in streams and natural barriers to migration or colonisation may mean that fish are naturally absent from these streams). The culverts will be designed according to the specifications detailed in Clause 70 of the National Environmental Standards for Freshwater (NES-F), to allow for fish passage. Two further culverts will be installed within ephemeral watercourses to allow for trial access; however, we understand that because these watercourses are ephemeral (i.e. not streams), there are no requirements to allow for fish passage (as there is no fish habitat or aquatic habitat in these watercourses).

Plans for the management of stormwater arising from the development will involve the careful, buffered discharge of stormwater into the drainage ditches (not streams) across the site, with appropriate scour protection installed. The proposal seeks to minimise the extent of non-permeable surfaces across the site to allow stormwater to continue to discharge into the ground and along existing overland flow paths.

Good practice erosion and sediment controls will be implemented for the duration of the earthworks.

Details of the earthwork extents, volumes and cut/fill on site, as well as the generic controls that will be put in place are laid out in the Assessment of Environmental Effects report. For the purposes of this assessment, we assume that good practice controls will be put in place and that the risk of sediment mobilisation and discharge to wetlands and watercourses is low.

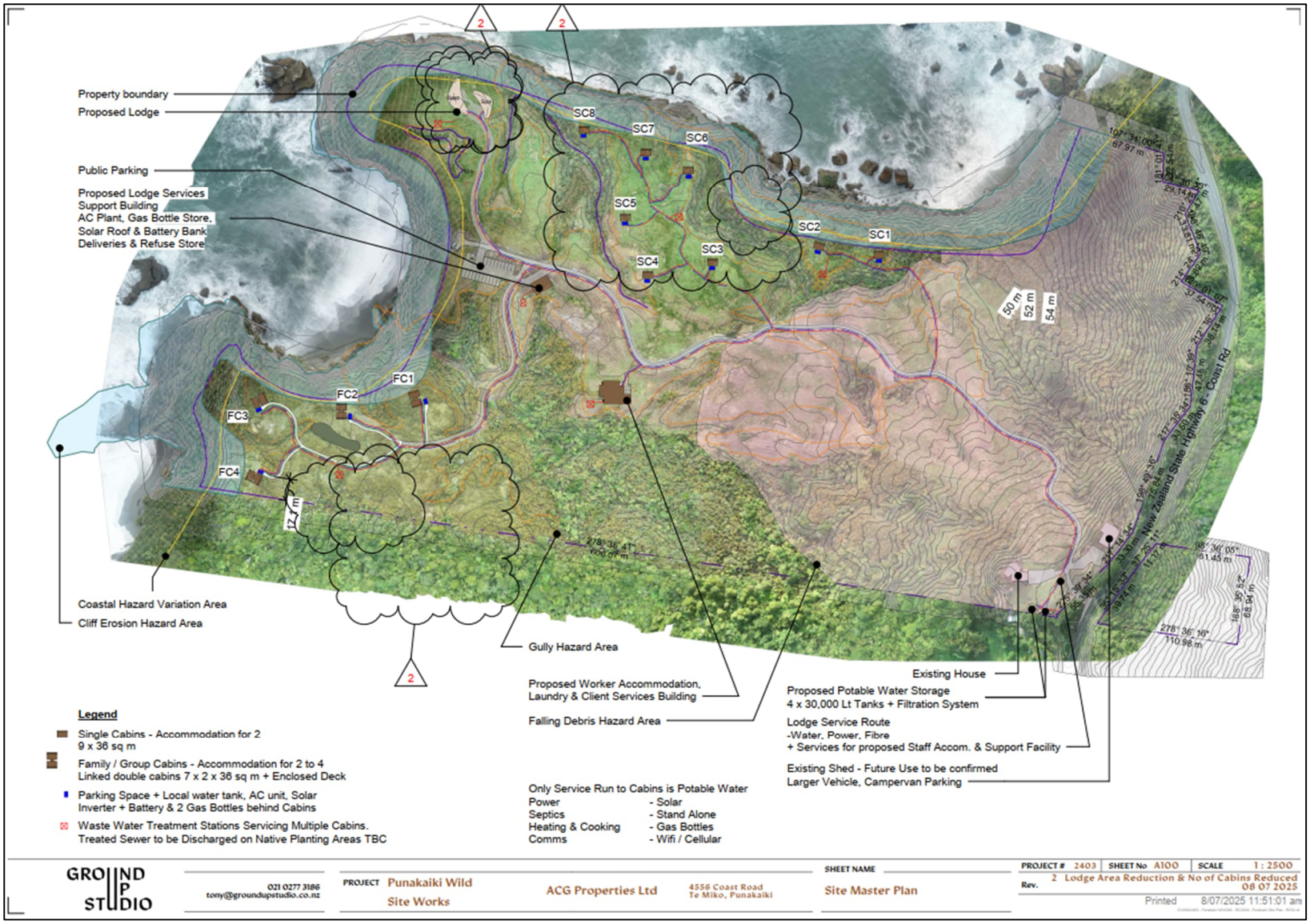

Figure 8: Revised plan of proposed development at the site – the number of cabins has been reduced by three, and the footprint of the lodge has been reduced.

5.0 Actual and potential adverse effects on ecology values

Actual and potential adverse effects on the ecological values of the site are summarised in the table below (Table 9).

A description of the construction methods, magnitude of potential ecological loss, and overall level of effects is provided in Section 6.0 along with proposals for the management of these effects following the Effects Management Hierarchy[4].

5.1 Wetland

The footprint of the proposed development lies outside of the six wetlands at the site and beyond a 10 m setback from the wetlands. The earthworks footprint is also outside of the wetlands and beyond a 10 m setback from the wetlands.

Stormwater arising from the site during and after construction will not be discharged into wetlands. Further details regarding the management of stormwater are to be provided for a later application to West Coast Regional Council.

There will be no direct adverse effects on wetlands. The level of effect on Wetland W6 will be negligible and temporary, and related only to works in the buffer of the wetland (not the wetland itself).

Overall, the level of potential ecological effect on wetlands will be nil.

5.2 Streams

The footprint of the proposed development lies outside of all streams at the site and beyond a 5 m setback from the streams, along both banks, with the exception of:

- Construction/ upgrade of existing culvert over Stream 3 for the access to two guest cabins. The culvert constructed will comply with the permitted allowances for culverts in terms of length of watercourse bed disturbance.
- The culvert that currently exists and allows vehicle access over Stream 1 will be retained in its current state with no changes required.

Stormwater arising from the development (roads, buildings) will be discharged into the streams. The discharge system seeks to utilise the existing drainage channels across the site, with appropriate design solutions to avoid scouring. This is currently under design.

As the streams on site are largely being avoided by the proposed development at the site, the level of adverse effect of the development works is assessed to be low.

[4] *Managing adverse effects on indigenous biodiversity in the Wellington Region: A guide to implementing the effects management hierarchy in the Natural Resources Plan*. Wellington Regional Council. May 2022.

The level of adverse effect of the construction of culverts on Stream 3 is assessed to be low, as this will be upgrading an old farm culvert in an area with low riparian vegetation cover.

5.3 Fish

Native fish and kōura have not been recorded in any streams at the site/ or their upstream catchments. The proposed construction of culvert crossing in Stream 3 is unlikely to cause harm or death to native fish during the construction process due to a large fish migration barrier in Stream 3 restricting the possibility of native fish inhabiting the stream; however, it is conceivable that koura and native fish (if present in the streams) could be within the very small footprint of this culvert upgrade.

For the culvert upgrade at Stream 3, the culvert works will be undertaken in the dry where possible and appropriate sediment controls put in place to prevent uncontrolled discharge of sediment further downstream. Bed materials will be carefully excavated and material spread over the adjoining bank. Any native fish, eels or koura will be returned to the stream, downstream from the works area.

The two new culverts proposed within the Stream 1 catchment will both be within ephemeral watercourses (not stream sections).

The level of potential adverse effect on native fish and kōura, and their passage through the streams, is assessed to be low, as the length of stream works is a very small portion of the overall length of Stream 3. The loss of fish and kōura habitat is assessed as having a low level of adverse effect, and should be temporary given the culvert will be embedded as per the NES-F requirements for culvert installation, which will mean that the culvert invert is below bed level and the culvert will fill with natural stream bed gravels and ultimately provide habitat for koura and fish (if any).

5.4 Terrestrial vegetation

The proposed development will result in the clearance of the following small areas of vegetation:

- Native shrubland from the footprint of Cabin SC8 (the amenity area) – approximately 104 m² or 0.6 % of the total area of native shrubland.
- Mixed native-exotic scrub from the footprint of the track and part of the amenity area for Cabin SC1 – approximately 290 m² or 2.4 % of the total area of mixed scrub.
- Exotic weedland/ scrub from the footprint of the amenity area of Cabin FC4 – approximately 26 m² or 0.2 % of the total area of exotic scrub.

There is no terrestrial vegetation on the site within the proposed clearance areas that meets the definition of significant indigenous vegetation.

The level of adverse effect of the clearance of this small area of predominantly exotic vegetation is assessed as nil.

5.5 Lizards

Areas of potential lizard habitat will be cleared for the proposed development at the site. Much of this habitat is the rank grassland (former pasture) that is being regularly mown to maintain a short sward that is less suitable for skinks.

A small area of native shrubland along Stream 2 within the footprint of the amenity area of Cabin SC8 is proposed for clearance, which provides potential habitat for geckos and skinks (around the edges). However, this area is rather isolated from other areas of much better quality gecko habitat, and is a very small proportion of the overall area of native shrubland on this site (approximately 0.6 % of the total).

Small areas of mixed scrub (290 m²) and exotic scrub (26 m²) are also proposed for clearance within the footprint of access tracks and amenity areas of Cabins SC1 and FC4. These areas are very small compared to the overall areas of these habitats (approximately 2.4 % of the total area of mixed scrub, and 0.2 % of the total area of exotic scrub).

The areas proposed for clearance are low quality lizard habitat and there is a low likelihood that native lizards are present.

No lizards were detected on site at the time of the site surveys in September 2024 and October 2025; however, this does not mean that lizards are definitely not present. The surveys were undertaken at the beginning of the survey season (October) and were not comprehensive, in that the lizard devices were not left *in situ* for a number of weeks to give time for lizards to find them and use them. The use of baited pitfall traps and baited Gee's minnow traps as well as ACOs will have helped offset the reduced 'bedding-in' time for the ACOs. It is therefore possible that native lizards are occupying the site, but if present, they are likely to be present in low numbers and at a low density.

Prior to the removal of grassland and rank weedy vegetation from the site, grassland within the clearance footprint will be mown progressively to a shorter and shorter height, with the ultimate aim of creating a very short sward that cannot support lizards (if any are present). From similar projects elsewhere it is known that mowing grass progressively lower results in an environment that lizards will move out from and no longer inhabit. Ensuring grass areas are mown immediately prior to works to remove turf will ensure that ground-dwelling skinks on the site (if any) are not in harm's way and will not be impacted.

Prior to the removal of the very small areas of shrubland, the shrubland will be hand cut and inspected by a suitably qualified ecologist, prior to being taken to an adjoining area of shrubland. The cuttings will be left there for a minimum of 2 weeks (or preferably, permanently), to ensure any geckos present, that have not been seen, can disperse into similar habitat. Hand cutting (not mulching) will ensure that any geckos within the shrubland (if any) will be unharmed. Any geckos found by the ecologist will be assessed before being relocated to similar habitat outside of the works footprint.

In case of discovery of natively lizards during vegetation clearance, the Applicant has proposed a Lizard Accidental Discovery Response Protocol (see below), which will be implemented at the site of clearance activities.

Lizard Accidental Discovery Response Protocol

This protocol will form a condition of the resource consent, and will be implemented at the time of vegetation clearance across potential lizard habitat at the site.

1. If any lizards are discovered accidentally during construction works, work will stop immediately in the affected area. Do not handle or disturb the species. Maintain a safe distance to avoid causing further stress.
2. Notify the Project Ecologist: Contact the Project Ecologist immediately to report the discovery and to confirm the taxonomy (native/exotic). Provide an accurate location and any species information.
3. Notify the Department of Conservation.
4. Temporary Habitat Relocation: Work with the Project Ecologist and the Department of Conservation to determine if it is possible to temporarily relocate the affected species to a safe area nearby.
5. Halt Construction in Affected Area: Construction can continue in areas not affected by the discovery while awaiting guidance from the Project Ecologist and the Department of Conservation regarding the affected area.
6. Mitigation and Compliance: Follow all mitigation measures or guidance provided by the Project Ecologist to ensure compliance. This will include salvage and reporting.
7. Documentation: Maintain detailed records of all actions taken, including notifications, expert consultations and mitigation efforts. This documentation will be important for compliance and reporting purposes.

The proposed vegetation clearance and removal of potential lizard habitat is assessed as having a very low adverse effect on native lizards. The potential to cause native lizards harm or death during the vegetation removal process is assessed as low.

5.6 Birds

The site has high ecological value for birds, as shown by the additional survey work (with nine threatened or at-risk bird species recorded, and an important colony of threatened species on the cliffs).

Other than the areas of grassland that will be cleared, only small areas of predominantly exotic woody vegetation will be cleared for the development (as described in Section 5.4 above). This will result in only very limited loss of potential native bird roosting, nesting and foraging habitat. The majority of the native bird habitat available on the site will be avoided.

No earthworks, roads, or buildings will be placed through the area where fernbirds were observed.

All native birds and their nests are protected under the Wildlife Act 1953.

The proposed vegetation clearance is assessed as having a very low adverse effect on any native birds that may be nesting at the time of the clearance, and a very low adverse effect on the loss of roosting, nesting, and foraging habitat.

Introducing lighting, both external and un-shuttered internal lighting, is likely to adversely affect nocturnal birds, particularly coastal birds such as Westland petrel, little penguin and sooty shearwater. Nocturnal forest birds, including long-tailed cuckoo and great spotted kiwi, may also be adversely affected if lighting spills into areas of habitat. The breeding colony of cliff-dwelling shags is regarded as not at risk of lighting, as the colony is below the level of the proposed development, and birds will not be exposed to artificial lighting.

Whilst great spotted kiwi and little penguin have not been recorded on the site, they are known to be present in the local area, and their presence, at least occasionally, on the site cannot be ruled out. The potential effect of lighting on native birds is assessed as being high.

Table 9: Summary of actual and potential adverse effects of the proposed development on the ecological values of the site.

Ecology value	Development impact	Potential adverse effect
Streams and wetlands	Discharge of stormwater into streams and wetlands	Potential effect: Inputs of sediment and pollutants; erosion of stream and wetland bed and/ banks at point of discharge. *To be assessed fully for the consent application to West Coast Regional Council.*
Native fauna	Construction of culvert on Streams 3	Potential effect: Damage to, or death of kōura (and fish, if any are present) during the construction process Potential effect: Loss of fish passage on Stream 3 Actual effect: Loss of small area of stream bed and bank habitat
Native birds	Vegetation clearance	Potential effect: Damage to, or death of, native birds/ eggs/ nestlings.
	Artificial lighting	Potential effect: Disorientation of fledging Westland petrel, also of other nocturnal flying coastal birds – injury/ mortality from crash-landings. Possible disturbance of nocturnal forest birds if lighting spills into areas of scrub or forest.
Native lizards	Vegetation clearance	Actual effect: Permanent loss of habitat for native ground dwelling lizard species. Potential effect: Damage to, or death of, native lizards

6.0 Management of adverse effects

A number of actual and potential adverse effects on the ecological values of the site have been identified. These have been analysed following the EIANZ methods[5] to determine the magnitude and overall level of the effects. Table 10 summarises the results of the EIANZ effects matrix analysis. Mitigation proposals follow the Effects Management Hierarchy of mitigation (avoid, minimise, remedy), biodiversity offset, and biodiversity compensation.

Sections 6.1 to 6.4 that follow, provide further detail and discussion for the effects assessment.

The values considered in the significance assessment are those that are indigenous in nature, or which provide habitat and resources to support indigenous species.

In relation to the Table 10 scoring:

- Stream 3 has been scored as having excellent condition as it is only slightly modified from stock access during past land uses causing pugged stream banks. Most of the length of the stream channel has riparian vegetation cover and hydrological variation, which provides ample habitat for aquatic invertebrates. Native fish are less likely to be present despite the good quality habitat, due to the barrier presented by the sea cliff at the downstream end.

- The value of native fish and kōura has been scored low, to reflect the unlikely presence of native freshwater fish or kōura bring present in the portion of Stream 3 that will be affected by the culvert works.

[5] As contained within the EIANZ EciA guidelines (Roper-Lindsay *et al* 2018.)

Table 10: Assessment of significance of ecological effects using the EIANZ matrix method.

Ecological value and adverse effect	Value of resource[a]	Magnitude of effect[b]	Level of effect[c] (without mitigation)	Mitigation that will be applied	Magnitude of effect (after mitigation)	Level of effect (after mitigation)
Streams – culvert upgrade to allow vehicle crossing of Stream 3 – sediment mobilisation and discharge to watercourse affecting instream habitat and water quality	High	Moderate	High	Avoid Implementation of best practice erosion and sediment controls Remedy Planting the 5 m setback on both banks of Stream 3 with native species, to improve sediment filtering capacity, and enhance the ecological value of the streams.	Negligible	Very low
Damage to, or death of, native fish or kōura during construction of culvert in Stream 3.	Low	Low	Very low	Avoid Undertake stream bed works in the dry. If bed excavation is required whilst the stream is flowing, excavated material is to be spread on the stream bank and any fish or kōura seen will be removed by hand and replaced in the stream, downstream of the works area.	Negligible	Very low
Loss of fish passage in Stream 3 construction of culverts.	Low	Low	Very low	Avoid Construction of culvert will be in accordance with NES-F Clause 70 design criteria so that there is no impediment to fish passage through the culvert.	No effect	Nil
Loss of small area (ca. 10 m stream length) of fish and kōura habitat (area of the culvert) following construction of culvert.	Low	Low	Very low	Mitigate Install culvert to be embedded 25 % of diameter into stream bed, so that natural bed materials coat inner culvert, restoring habitat. Riparian planting of a 5 m buffer along both banks of Streams to improve stormwater and pollution filtering, increase shading, and become a source of woody debris (habitat).	Positive	Net gain

Ecological value and adverse effect	Value of resource[a]	Magnitude of effect[b]	Level of effect[c] (without mitigation)	Mitigation that will be applied	Magnitude of effect (after mitigation)	Level of effect (after mitigation)
Damage to, or death of, native birds/ eggs/ nestlings during vegetation clearance	Low	Low	Very low	Avoid Carry out vegetation clearance of potential nesting bird habitat outside of the bird breeding season	Negligible	Very low
Loss of native bird habitat – scrub habitat	Low	Low	Very low	Mitigate Riparian planting of minimum average 5 m buffers along both banks of Streams 1 and 3 will create new foraging, refuge, and nesting habitat for native birds.	Positive	Net gain
Injury or death to fledging Westland petrel caused by lighting	High	Moderate	High	Avoid and mitigate Preparation of a Lighting Management Plan in accordance with recommended guidelines[6] to ensure the minimisation of light spill that may affect wildlife, including Westland petrel. Measures to maintain lighting to a level that will not disturb Westland petrels will include limiting lighting to essential areas, avoiding the use of up-lights or using down-facing shielded lights, use of motion sensors on all roads and accessways, and use of amber LEDs across the site.	Negligible	Very low

[6] DCCEEW 2023. *National Light Pollution Guidelines for Wildlife*, Department of Climate Change, Energy, the Environment and Water. Canberra. May 2023. Version 2.0. CC BY 4.0

Ecological value and adverse effect	Value of resource[a]	Magnitude of effect[b]	Level of effect[c] (without mitigation)	Mitigation that will be applied	Magnitude of effect (after mitigation)	Level of effect (after mitigation)
Disturbance of nocturnal birds from lighting – including long-tailed cuckoo and sooty shearwater, great spotted kiwi, and little penguin	High	Moderate	High	Avoid and mitigate Preparation of a Lighting Management Plan in accordance with recommended guidelines[7] to ensure the minimisation of light spill that may affect wildlife, including Westland petrel. Measures to maintain lighting to a level that will not disturb Westland petrels will include limiting lighting to essential areas, avoiding the use of up-lights or using down-facing shielded lights, use of motion sensors on all roads and accessways, use of amber LEDs across the site, and use of window tints to prevent spill of internal light.	Negligible	Very low
Spotted shag colony – disturbance from noise of construction and operation of proposed development	High	Negligible	Very low	No mitigation required The shag colony is protected from noise arising from the site by the cliff overhang, and background environmental noise including the surf.	n/a	n/a
Coastal and forest birds – disturbance by drone flight	High	Moderate	High	Avoid Drone use will not be permitted by guests. Use of drones by staff or contracted professionals is recommended to be limited over the course of a year, to avoid bird breeding season, and for drones to maintain a distance of at least 100 m from any bird.	Negligible	Very low
Loss of native lizard habitat	Low	Low	Very low	Mitigate Creation of lizard habitat through extensive planned native planting and native shrubland/ forest regeneration programme	Positive	Net gain

[7] DCCEEW 2023. *National Light Pollution Guidelines for Wildlife*, Department of Climate Change, Energy, the Environment and Water. Canberra. May 2023. Version 2.0. CC BY 4.0

Ecological value and adverse effect	Value of resource[a]	Magnitude of effect[b]	Level of effect[c] (without mitigation)	Mitigation that will be applied	Magnitude of effect (after mitigation)	Level of effect (after mitigation)
Damage to, or death of, native lizards during vegetation clearance	Moderate	Low	Low	Avoid Maintain mowing regime of grassland areas to reduce habitat prior to earthworks. For shrub clearance, hand cut shrubs and place within areas of retained shrubland areas for any geckos to naturally disperse. A suitably qualified ecologist to be present on site to visually check cut vegetation. Implement the Lizard Accidental Discovery Response Protocol in Section 5.5 of this report to ensure adequate measures are implemented if native lizards are discovered during vegetation clearance.	Negligible	Very low
Injury or death to kiwi, from domestic pests, if present on or near the site	High	Moderate	High	Avoid Ban domestic cats from the site. Ban guests from bringing cats or dogs to the site Mitigate Any dogs that belong to staff on the site must be certified as kiwi aversion trained	Negligible	Low

[a] *EIANZ matrix tables 5 and 6.*

[b] *EIANZ matrix table 8; measured in the context of the catchment (streams) or District (terrestrial values).*

[c] *EIANZ matrix table10.*

6.1 Streams

The level of potential adverse effect of the culvert upgrade works on Stream 3 is assessed as high. To reduce the level of effect to very low, good practice erosion and sediment controls should be implemented. The applicant's planner has advised that best practice erosion and sediment controls will be implemented for the duration of the earthworks. Further details regarding ESC will be provided as part of a later consent application to West Coast Regional Council.

In addition, we recommend that the effect of culvert works is mitigated by ensuring that the culvert is installed in accordance with the design criteria in the NES-F, which will result in embedment and provision of fish and kōura habitat through the culvert. Further, potential effects can be remedied through the planting of a buffer of native species within the 5 m setback on both banks of Stream 3. A buffer of dense, quick-growing native sedges and grasses, plus woody shrubs and trees, will help filter sediment and pollutants from stormwater, benefitting the health of the stream and its downstream catchment.

A planted native buffer will have the added value of enhancing the ecological value of Stream 3 by providing habitat for native birds, shade over the streams (important for fish and aquatic invertebrates), and in time, a source of woody debris to create in-stream habitat for fish and aquatic invertebrates.

Provided these mitigation measures are implemented, the adverse effects of the proposed development on Stream 3 are considered to be very low.

6.2 Fish

The construction of a culvert on Stream 3 has the potential to result in the damage to, or death of, native fish or kōura, and the loss of fish passage, as well as the actual loss of a small area of bank and stream bed habitat.

In order to avoid potential adverse effects on fish and/ or kōura, stream works will be undertaken when the stream bed is dry. If there is no dry period in which works can be undertaken, material will be carefully excavated and spread on the margin of the stream. Any kōura or native fish discovered in the material will be collected and returned to the stream by hand, downstream of the works area.

In order to avoid the loss of passage for fish through the culverts, the culverts should be designed following the specifications detailed in Clause 70 of the National Environmental Standards for Freshwater (NES-F):

Culverts

70 Permitted activities

(1) The placement, use, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area is a permitted activity if it complies with the conditions.

Conditions

(2) The conditions are that—

(a) the culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert; and

(b) the culvert must be laid parallel to the slope of the bed of the river or connected area; and

(c) the mean cross-sectional water velocity in the culvert must be no greater than that in all immediately adjoining river reaches; and

(d) the culvert's width where it intersects with the bed of the river or connected area (**s**) and the width of the bed at that location (**w**), both measured in metres, must compare as follows:

(i) where $w \leq 3$, $s \geq 1.3 \times w$:

(ii) where $w > 3$, $s \geq (1.2 \times w) + 0.6$; and

(e) the culvert must be open-bottomed or its invert must be placed so that at least 25% of the culvert's diameter is below the level of the bed; and

(f) the bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which the water flows for 80% of the time; and

(g) the culvert provides for continuity of geomorphic processes (such as the movement of sediment and debris).

Information requirements

(3) *See also* regulations 62 and 63 for information requirements that apply to the permitted activity (unless the activity is use).

Alternative designs to allow for fish passage, particularly if the size of the culvert required cannot meet the specifications in 2 (d) and (e), must include the installation of flexible baffles (Plate 4), that alter the flow of water through the culvert and provide rest areas for fish.

Plate 4: Multiple *Flexi-Baffles* are placed in a culvert to alter the flow while providing rest areas for species travelling upstream. (Source: https://www.ats-environmental.com/solutions/culvert-baffles/)

The loss of fish and aquatic invertebrate habitat along the length of the culvert will be remedied by the planting of native species along the 5 m setback on both banks of Stream 3. Planting the riparian margin will, in time, provide shade over the channel, and a source of organic debris into the channel, providing foraging and refuge habitat for fish and native invertebrates.

Implementation of these mitigation measures will reduce the adverse effect on native fish and kōura to a very low (damage or death) or nil (fish passage) level.

Planting the 5 m setback along both banks of Stream 3 will increase the ecological value of the stream compared to the current state, and will result in a net gain for biodiversity.

6.3 Birds

The clearance of existing vegetation on the site will result in the loss of a small area of low-quality foraging, roosting, and nesting habitat that is currently used by low numbers of common native bird species. This adverse effect will be remedied through the planting of native species in the 5 m setback along both banks of Stream 3. More broadly, the extensive replanting programme proposed by the applicant, which is separate to the effects assessment process, will provide a far greater area of better-quality bird habitat than currently exists on the site.

The potential for damage to, or death of, birds or their eggs/ nestlings should be avoided by carrying out vegetation clearance outside of the bird breeding season.

Implementation of these mitigation measures will reduce the adverse effect of vegetation clearance on native birds to a very low level. With the broader planting programme in place, the overall effect will be a net gain.

The potential for artificial lighting to have adverse effects on birds (especially Westland petrel, sooty shearwater, and little penguins) will be minimised by adopting good practice lighting design that includes downward-facing LEDs, motion detectors, and timer-operated lighting, and use of window tinting to prevent spill of internal lights, the overall design of which will be provided in a Lighting Management Plan. The Lighting Management Plan will follow recommended guidelines, including those in the Australian Government *National Light Pollution Guidelines for Wildlife*.

With wildlife-sensitive lighting in place, the potential for lighting to result in adverse effects on wildlife is considered to be very low.

The level of noise likely to be generated by the development, both during the construction phase and during the operation of the facility, is unlikely to have an adverse effect on the spotted shag colony. The colony is located on ledges on the northern cliff, beneath an overhang, which will shield the colony from any noise arising from the site. In addition, the background noises of the surf, and wind and rain (weather conditions occur frequently and area typical of the region), are likely to dampen or mask any noise arising from the site. Other coastal bird species are similarly likely to be unaffected by noise emanating from the site during construction or operation of the facility.

The level of effect of noise on coastal birds, particularly the spotted shag colony, is considered to be very low, and no mitigation is required.

Drones are likely to be a source of disturbance to birds, both coastal and terrestrial, particularly during the breeding season. Whilst flying a drone to capture imagery of the spotted shag colony during our site surveys, the shags themselves did not appear to react to the drone, but

oystercatchers and a black backed gull did display defensive behaviour when the drone was flown slowly closer towards the sea and the large rocks used as roosts, and the northern cliffs. The applicant has agreed that guests of the facility will not be permitted to fly drones. We recommend that drone use by staff or contracted professionals should be done so with caution, ensuring adequate distance e.g. 100 m is kept between the drone and any birds, and areas known to be roosting or nesting sites should be avoided. These measures will ensure that the level of effect of drone use will be very low.

6.4 Lizards

The clearance of existing vegetation on the site that constitutes lizard habitat with result in the loss of a small area of native lizard habitat. This adverse effect will be remedied through the planting of native species at the site, and any woody debris on the site will be retained and left to decay.

The potential for damage to, or death of, native lizards will be avoided by mowing grassland areas to reduce habitat prior to earthworks. For the small area of shrubland clearance, shrubs will be hand-cut and placed within existing shrubland areas to allow any geckos present to naturally disperse.

Implementation of these mitigation measures will reduce the adverse effect on native lizards to a negligible level.

6.5 Use of drones on the site

Drone use by guests and visitors to the site will be banned.

Drones use by staff at the site may be required for several reasons including marketing and infrastructure and landscape/ ecological monitoring. Where a drone is used, it will not be flown within 100 m of the shag colony.

6.6 Artificial lighting

A Lighting Management Plan will be prepared in accordance with recommended guidelines to ensure the minimisation of light spill that may affect wildlife, including Westland petrel.

Measures to maintain lighting to a level that will not disturb Westland petrels will include limiting lighting to essential areas, avoiding the use of up-lights or using down-facing shielded lights, use of motion sensors on all roads and accessways, use of amber LEDs across the site, and use of window tints to prevent spill of internal light.

7.0 Residual adverse effects and conditions

The potential effects of the proposed development on ecology values include effects on vegetation, lizards, birds, streams and wetlands; however, the scale of disturbance is very small, and the likelihood of serious ecological damage to the environment is very low.

Controls that will be in place during the construction process will result in the avoidance of most potential adverse effects, including avoiding works within wetlands or their margins, limiting works within streams to one culvert crossing, avoiding clearance of indigenous shrubland and forest, and limiting overall vegetation clearance to exotic grassland and a small area of exotic shrubland. By applying the recommended mitigation measures listed in the sections above of this report, the overall adverse effect of the proposed development on the ecological values of the site will be reduced to a very low level.

Native planting along the 5 m setback margins of Stream 3 will result in a net gain for biodiversity. There will be, therefore, no residual adverse effects that are more than minor, and there will be no requirements for any biodiversity offsetting or ecological compensation measures.

The small scale of habitat clearance, and the adherence to good practice earthworks controls and culvert installation means that scale of potential adverse effects is further reduced.

Given the small scale of potential effects on ecology values, we recommend that management plans to further describe guarantees around site management are not required at this stage, but rather that Conditions of Consent be applied to provide assurance of good practice and to minimise ecological effects.

Consent conditions will be proposed by the applicant that include:

1. Stream 3 culvert installation in accordance with Clause 70 of the NES-F;
2. Stream 3 culvert earthworks to be undertaken in the presence of a suitably qualified ecologist (if the stream is flowing) who will check excavated material laid on the stream bank, and remove any found kōura and fish, and relocate them to the stream, downstream of the works area;
3. Vegetation clearance protocols that will include, but are not limited to, the following measures:
    a. Clearance in general accordance with the development footprint design provided in the landscape drawing prepared by RMM Ltd;
    b. Clearance of grassland areas by progressive mowing to reduce the grass sward to a lot (100 mm) height prior to excavation;
    c. Clearance of shrubland outside of the native bird nesting season (October through to February);
    d. Clearance of shrubland using hand tools to cut shrubs, and relocation of cut shrubs to adjoining shrubland area for a minimum duration to 2 weeks prior to mulching, or leave cut shrubs at the relocation site indefinitely; and

    e. Clearance of shrubland to be undertaken in the presence of a suitably qualified ecologist, who will visually check cut vegetation for arboreal geckos.

4. No vegetation clearance works will take place within the location where fernbirds were recorded, including a 20 m buffer around these noted locations.
5. Enrichment planting along Stream 3 to provide a contiguous, woody vegetation margin that is at least on average 5 m wide on each margin.
6. That stormwater management proposals include measures to ensure that the level of sediment is the same as, or less, than the levels of sediment that are currently discharged into the site's ditches and streams, in order to avoid an adverse effect on the receiving environment, which includes the Punakaiki Marine Reserve.
7. A Lizard Accidental Discovery Response Protocol (see Section 5.5) to ensure appropriate measures are taken in the unlikely event that lizards are found within the works footprint.
8. Preparation of a Lighting Management Plan to ensure adequate measures are implemented to maintain lighting at a level that will not adversely affect wildlife, particularly nocturnal coastal birds including Westland petrel, little penguin and sooty shearwater, but also nocturnal forest birds including long-tailed cuckoo and great spotted kiwi. The Lighting Management Plan will follow appropriate guidelines such as those in the Australian Government's *National Light Pollution Guidelines for Wildlife*. The Lighting Management Plan will include, but is not limited to, the following measures:

    a. Reduction of the level of effect of both internal and external lighting;
    b. Use of shields to prevent vertical spill of external lights;
    c. Appropriate mounting of external lights to reduce horizontal spill of light;
    d. Use of motion sensors to reduce hours of lighting to the minimum required when an area/ path/ track is in use;
    e. Use of appropriate warmth and Lux of lighting; and
    f. Use of blinds or window tints to reduce spill of light from internal sources.

8.0 Ecological restoration

The applicant intends undertaking substantial ecological restoration work across the site as part of the development (Figure 9).

Those works are described in the Assessment of Environmental Effects report and include weed control across the entire property, planting of buffers to streams and wetlands, and active and passive regeneration of native shrublands and forest areas across the broader property in areas set back from the coastal edge.

The list of native plant species that is proposed to be planted is included as part of the Graphic Attachment to the RMM Landscape Assessment Report, and has included input from us with regard to appropriate locally-sourced plant species to include in the various planting and amenity zones across the site.

The plantings will provide substantial future benefits to bird habitat (including fernbird) and native lizards (including skinks and geckos), and will improve the resilience of the neighbouring DOC forested land by providing a substantial ecological buffer, add to the extent of contiguous native shrubland and forest in the local area, and better protect soils, watersheds, and water quality across the site.

Animal pest control will also be undertaken at parts of the site. Following discussion with DOC, it has been identified that control of stoats near to the spotted shag colony would be most beneficial. The key details of this are outlined below, and reflect the advice provided by DOC to this project team.

1. The trapping currently being done by DOC in the Paparoa National Park south of the site is aimed at protecting whio, and thus is done along the riverbeds.
2. That type of trapping is not appropriate for the project site, but trapping and poisoning of stoats near the spotted shag colony would be very useful.
3. Therefore, rather than DOC's earlier request that "predator control that is undertaken by DOC within the Paparoa National Park should also be undertaken within the site", DOC's preference is for a condition to require the trapping and poisoning of stoats near the spotted shag colony.
4. The poisoning is necessary because stoats develop trap shyness, breeding up timid stoat genes which need to periodically be removed. Traps on their own cease to protect kiwi and other species after about 5 years. So, a combination of traps and toxins is needed.
5. Trapping of stoats:
    a. Traplines will be run as close as safely possible to the cliffs around the property and at the tops of the terraces/bush edges at ~200 m spacing, which would be approx. 10-12 traps.
    b. In terms of trap design, this will be DOC 200's or better, and will meet the extended design requirements for protection of weka, kea and kiwi.

6. Poisoning of rats and stoats:
    a. Every 3 years, a poison line (Pest off (brodifacoum)) will be run to target rats and secondary kill stoats.

The ecological restoration works - including planting, weed and animal pest control - will be described in a Vegetation and Pest Animal Management Plan for the site, which we understand will form one of the proffered conditions of consent.

However, it is important to note that the substantial planting, weed control works and animal pest control being proposed do not form part of the effects management package, as the adverse effects of this development are small, and will be managed through the series of mitigations described in Sections 6 and 7 of this report.

Therefore, most of the initiatives that are described in the Vegetation and Pest Animal Management Plan are additional to the actions being proposed to manage actual or potential adverse effects that may arise from the development, and should be considered as actions that contribute towards a substantial net-benefit for ecology – across both aquatic and terrestrial values - for this site.

Figure 9: Plan of the proposed vegetation units following completion of the project. This shows substantial areas that are currently in pasture that will be actively revegetated or assisted back to native-dominated shrubland and native forest.

9.0 Conclusion and recommendations

The proposal to develop luxury eco accommodation at 4663 State Highway 6, Te Miko, West Coast will include works to create vehicle access tracks, accommodation cabins, pathways, and a main lodge facility.

Construction of the project will require clearance of mainly exotic grassland, with a small area (up to 50 m^2) of exotic shrubland and culverting of one stream (Stream 3).

The ecology values that could be potentially affected at the site include:

- Disturbance and loss of stream habitat over a small reach (up to 10 m) for the installation of a culvert in Stream 3;
- Disturbance, injury or death of native birds as a result of lighting at the site, both internal and external, particularly of fledging Westland petrel, as well as of sooty shearwater, little penguin, great spotted kiwi and long-tailed cuckoo; and
- Loss of potential habitat and injury to individuals of native skinks and geckos – although the habitat is of poor quality and no lizards have been recorded at the site.

Adverse effects that will be avoided by the design of the project include:

- Avoidance of any works within wetlands or within 10 m of wetlands;
- Avoidance of infilling of streams;
- Avoidance of clearance of native shrubland and forest; and
- Avoidance of works within the known areas of fernbird recorded from the site.

Controls to be implemented during the development works to reduce the level of effect to very low include:

- Industry-standard erosion and sediment controls across the site, particularly for works in Stream 3;
- Installation of the Stream 3 culvert in accordance with the NES-F Clause 70 design criteria to enable passage for native fish, and to ensure that stream bed loss is temporary and limited;
- Minimising the clearance of regenerating mixed exotic-native shrubland to very small areas for the creation of walkways (up to 50 m^2);
- Shrub clearance outside of the native bird nesting season, and a visual check of cut shrubs followed by relocation, to avoid effects on any geckos present;
- Lighting plan to minimise the generation of artificial light spill, with particular consideration of avoiding adverse effects on Westland petrel, sooty shearwater, little penguin and great spotted kiwi;
- Grassland clearance by mowing to reduce habitat for ground-dwelling skinks and to avoid impacts prior to earthworks; and

- Enrichment planting of Stream 3 along its length to a width of 5 m to provide a continuous woody riparian margin.

By applying the recommended mitigation measures, the overall adverse effect of the proposed development on the ecological values of the site will be reduced to a very low level.

Native planting along the 5 m setbacks of Stream 3 will result in a net gain for biodiversity.

There will be no residual adverse effects that are more than minor, and there will be no requirements for any biodiversity offsetting or ecological compensation measures.

Given the overall small scale of potential effects on ecology values, we recommend consent conditions be applied to provide assurance of good practice to minimise ecological effects.

Consent conditions have been proposed by the applicant that include:

1. Stream 3 culvert installation in accordance with Clause 70 of the NES-F;
2. Preparation of vegetation clearance protocols.
3. No vegetation clearance works within the location recorded for fernbird, plus a 20 m buffer around those noted locations.
4. Requirement that a Lizard Accidental Discovery Response Protocol is implemented to respond to an instance should a native lizard be discovered during vegetation clearance works.
5. Enrichment planting along Stream 3 to provide a contiguous, woody vegetation margin that is at least on average 5 m wide on each margin.
6. Preparation of a Lighting Management Plan to minimise light spill.

10.0 References

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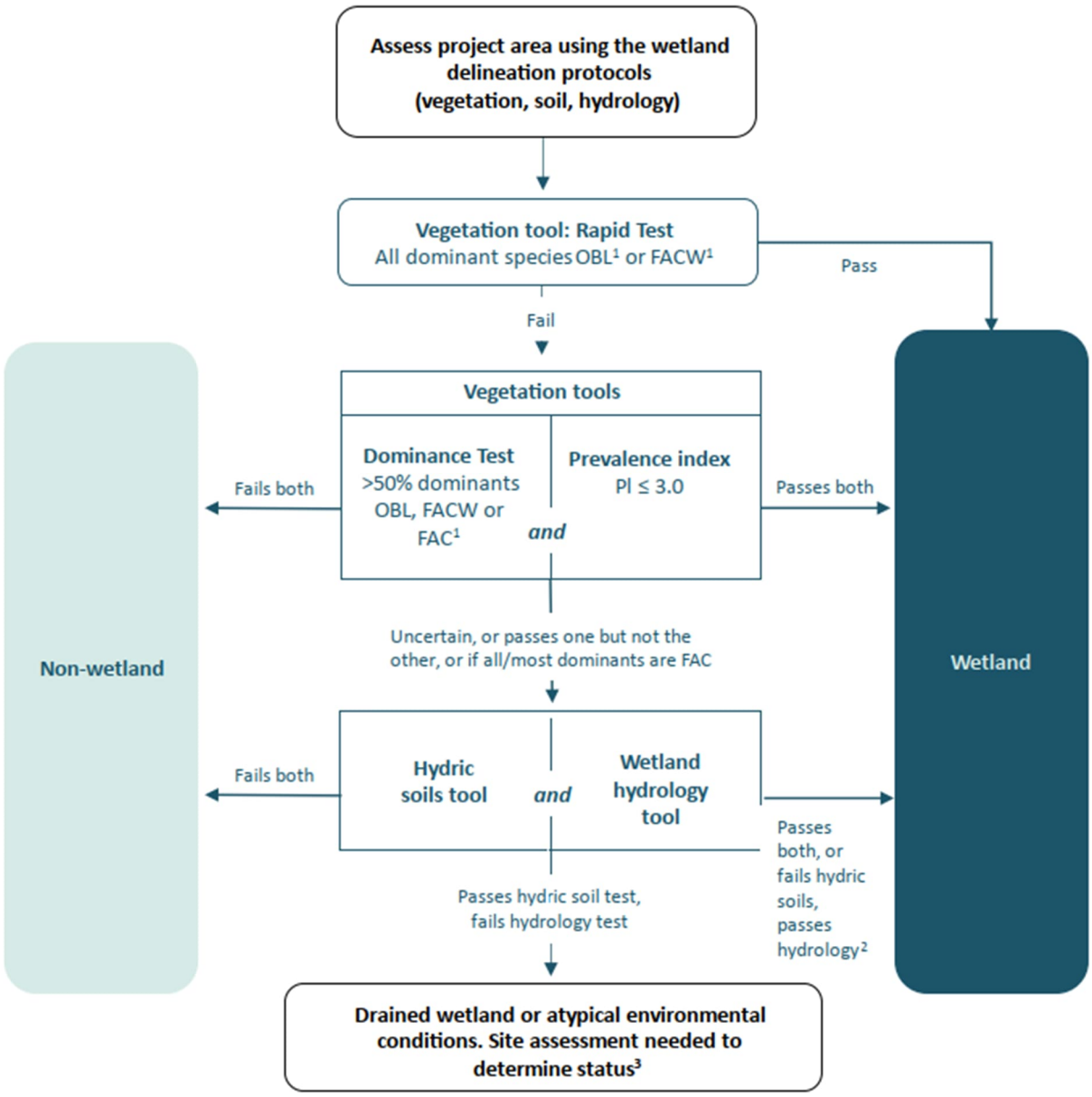
Appendix A: Wetland Delineation Protocols (MfE, 2022)

Figure 3: Determining if an area is a wetland as defined by the RMA 1991



Footnotes:
[1] Wetland indicator status abbreviations: FAC = facultative, FACW = facultative wetland, OBL = obligate wetland.
[2] For example, recent wetland.
[3] The US procedures for atypical or problematic situations are recommended.

Appendix B: Plant species observed within the native forest vegetation communities

Scientific name	Common name	National threat classification[8]
Trees and shrubs		
Aristotelia serratus	wineberry	Not Threatened
Brachyglottis repanda	rangiora	Not Threatened
Carpodetus serratus	putaputawētā	Not Threatened
Coprosma grandifolia	kanono	Not Threatened
Coprosma propinqua var. *propinqua*	mingimingi	Not Threatened
Coprosma robusta	karamu	Not Threatened
Coprosma tenuicaulis	swamp coprosma	Not Threatened
Cordyline australis	cabbage tree	Not Threatened
Dacrycarpus dacrydioides	kahikatea	Not Threatened
Dacrydium cupressinum	rimu	Not Threatened
Hedycarya arborea	pigeonwood	Not Threatened
Hoheria sexstylosa	lacebark	Not Threatened
Melicytus ramiflorus	māhoe	Not Threatened
Myrsine australis	mapou	Not Threatened
Myrsine salicina	toro	Not Threatened
Piper excelsum	kawakawa	Not Threatened
Prumnopitys taxifolia	mataī	Not Threatened
Pseudopanax crassifolius	lancewood	Not Threatened
Pterophylla racemosa	kamahi	Not Threatened
Rhopalostylis sapida	nīkau	Not Threatened
Schefflera digitata	patē	Not Threatened
*Ulex europaeus**	gorse	Not Threatened
Climbers/ vines		
Calystegia tuguriorum	New Zealand bindweed	Not Threatened
Clematis paniculata	white clematis	Not Threatened
Fuchsia perscandens	scrambling fuchsia	Not Threatened
Metrosideros diffusa	white rātā	Not Threatened
Metrosideros perforata	akatea	Not Threatened
Rubus australis	bush lawyer	Not Threatened

[8] de Lange *et al.* 2024. *Conservation status of vascular plants in Aotearoa New Zealand 2023.* Department of Conservation.

Scientific name	Common name	National threat classification[8]
Ferns and fern allies		
Asplenium flaccidum	hanging spleenwort	Not Threatened
Asplenium oblongifolium	shining spleenwort	Not Threatened
Asplenium polyodon	sickle spleenwort	Not Threatened
Dicksonia squarrosa	wheki	Not Threatened
Lomaria discolor	crown fern	Not Threatened
Microsorum scandens	fragrant fern	Not Threatened
Pakau pennigera	gully fern	Not Threatened
Pteris macilenta	sweet fern	Not Threatened
Sedges		
Carex uncinata	bastard grass	Not Threatened
Orchids		
Pterostylis sp.	greenhood orchid species	Not Threatened
Other herbaceous species		
*Digitalis purpurea**	foxglove	Not Threatened
Gunnera monoica	native gunnera	Not Threatened
On rock outcrops within forest		
Adiantum cunninghamii	Cunningham's maidenhair fern	Not Threatened
Asplenium obtusatum	shore spleenwort	Not Threatened
Astelia hastatum	tank lily	Not Threatened
Cranfilia fluviatilis	creek fern	Not Threatened
Earina mucronata	bamboo orchid/ spring earina	Not Threatened
Griselinia lucida	puka	Not Threatened
Hymenophyllum flexuosum	filmy fern	Not Threatened
Olearia avicenniifolia	mangrove-leaved daisy bush	Not Threatened
Phlegmariarius billardierei	hanging clubmoss	Not Threatened
Veronica sp.	hebe species	Not Threatened
Zealandia pustulata subsp. pustulata	hound's tongue	Not Threatened
Near/ in streams where the canopy is open		
Carex virgata	swamp sedge	Not Threatened
Cyperus ustulatus	umbrella sedge	Not Threatened
*Juncus lomatophyllus**	broad-leaved rush	Not Threatened
Pteridium esculentum	bracken	Not Threatened

* exotic species