

**BEFORE THE INDEPENDENT HEARING PANEL  
APPOINTED BY UPPER HUTT CITY COUNCIL**

**IN THE MATTER** of the Resource Management  
Act 1991 (**RMA**)

**AND**

**IN THE MATTER** of a request by **MAYMORN  
DEVELOPMENTS LIMITED** for  
Private Plan Change 55  
(Gabites Block) to the Upper  
Hutt District Plan under Part  
2 of Schedule 1 to the RMA

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**STATEMENT OF EVIDENCE OF ANNABELLE JULIA COATES**

**ECOLOGY**

**29 SEPTEMBER 2022**

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**Counsel acting:**

**JAMES WINCHESTER**  
**BARRISTER**

P 06 883 0080

M 021 303 700

*the office*

Level 1, 15 Joll Road

PO Box 8161, Havelock North 4130

[jameswinchester.co.nz](http://jameswinchester.co.nz)

## **INTRODUCTION**

1. My full name is Annabelle Julia Coates.

### *Qualifications and experience*

2. I am currently employed by Babbage Consultants Limited (Babbage), as an Ecologist in the Ecology and Environmental team. The Ecology team operates under the name Bioresearches. I have been employed by Babbage since July 2018.
3. I hold a Bachelor of Science, endorsed in Environmental Science, and a Master of Science in Environmental Science, from the University of Canterbury. I am a member of the Environmental Institute of Australia and New Zealand, a professional body for environmental practitioners. I am a Certified Environmental Practitioner.
4. I have nine years' experience as a professional ecologist and during that time have undertaken numerous ecological surveys and monitoring programmes, assessments of ecological values and assessments of effects of proposed works on ecological values for freshwater, estuarine, marine and terrestrial environments.
5. I have completed assessments of ecological values for a number of waterways in the Wellington Region, including the majority of Kapiti Coast District Council's managed waterways. These assessments have continued to assessments of effects for some waterways for stormwater upgrade projects. I have also completed assessments of value and effect for the establishment of cleanfills in Wellington Region, including valuing and assessing both terrestrial and freshwater habitats.

### *Code of Conduct*

6. I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and confirm that I have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise, except where I have indicated that I am relying on

others' opinions. I have not omitted material facts known to me that might alter or detract from my evidence.

## **SUMMARY OF EVIDENCE**

- 7.** My evidence is split into two parts. Part 1 provides an overview of my involvement in the project and provides a summary of the ecological report prepared for the plan change application. It summarises the existing ecological values of the site, and outlines potential effects and constraints associated with developing the land for housing.
- 8.** Part 2 assesses the proposed PC55 against effects on ecological values. It also summarises and responds to issues raised by submitters that are specific to ecology. Part 2 is concluded by addressing issues raised in the section 42A report.
- 9.** The main ecological issues relating to the proposed plan change stem from the change from a rural dominated site to a low density and rural-residential site, and how the change affects fauna predominantly. It is proposed to protect existing areas of indigenous vegetation. It is also proposed to prepare and execute an ecological management plan prior to the first subdivision of the site, in order to fully understand how the remaining areas support indigenous fauna, including bats, lizards and birds. This management plan will also inform how to manage any effects, including but not limited to, capture and relocation.
- 10.** Setbacks from waterways are proposed. It is also proposed that, during works to increase its flood capacity, the straightened reach of the waterway running through the site will be subject to naturalisation and enhancement.
- 11.** Through the provisions proposed in PC55, and measures to be developed in the ecological management plan, it is expected that the change in land use will result in a low level of effect on ecological values across the site, with areas where there will be a net increase in ecological values (i.e. riparian zone of the main waterway).

## **PART 1 – Ecological Values and Effects**

### **BACKGROUND AND INVOLVEMENT IN PC55**

- 12.** Bioresearches were commissioned to provide an ecological values and constraints report for the proposed plan change. I completed a site visit to the property in September 2021. The visit focused on the terrestrial ecology of the entire site, as well as aquatic and wetland ecology in the hilly part of the site (the Upper Zone as per Figure 1 of the ecological report). The site visit revisited areas that had been previously mapped in a survey completed by another consultant. Additional assessments were made where habitats had changed, or where areas had not previously been visited.
- 13.** Wetlands and some surface waterways had been previously considered by my colleague Treffery Barnett<sup>1</sup>, during a site visit in July 2021. During this site visit, Ms Barnett used definitions and methods as per the National Policy Statement for Freshwater Management (NPS-FM) to determine if any natural wetlands were present within the Lower Zone.
- 14.** Desktop assessments were undertaken to determine potential and likely fauna present within the site, including freshwater fish, lizards, birds, and bats. The desktop assessment utilised existing databases, review of aerial images and knowledge of the wider area through other projects. Desktop assessment of bat and lizard habitat was completed by my colleague Dylan van Winkel<sup>2</sup>.
- 15.** The outcomes of the desktop and site assessments were described in the ecological report. This report included valuation of all freshwater and terrestrial habitats within the site. Ecological values were assigned to ecological features/habitats/species using criteria given in the Environment Institute of Australia and New Zealand (EIANZ) Ecological Impact Assessment Guidelines<sup>3</sup>. The ecological significance of areas, including areas already identified as draft

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<sup>1</sup> Treffery Barnett, M.Sc. (Hons), MEIANZ. Senior Freshwater and Coastal Ecologist, Bioresearches.

<sup>2</sup> Dylan van Winkel, M.Sc. (Hons). Senior Terrestrial Ecologist, Bioresearches.

<sup>3</sup> EIANZ, (2018). Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition.

Significant Natural Areas (SNAs) was assessed using the criteria in Policy 23 of the Wellington Regional Policy Statement. The ecological values assessment and constraints assessment yielded a number of recommendations which are presented in sections below. The report was delivered to the applicant to inform them of ecological constraints associated with development of the site, and to allow them to undertake design around these constraints and the recommendations provided.

16. I was the primary author of the 'Preliminary Ecological Assessment: Gabites Block, Maymorn' report, dated 8 October 2021, provided as an appendix with the plan change application. In this evidence I present the results of this report, which also includes assessments undertaken by my colleagues, as well as additional assessments and consideration of ecological issues that have been arisen more recently.

#### **OVERVIEW OF CONTEXT AND ENVIRONMENT**

17. The property in question (hereafter referred to as "the site") comprises an approximately 75ha area at the southern end of Maymorn Road, Upper Hutt.
18. For ease of description, we separated the site into two zones, the Upper and Lower Zones, as illustrated in Figure 1 of this evidence, and also Figure 1 of the ecology report.
19. Upper Zone
  - (a) The Upper Zone is predominantly low rolling hill country, with areas of exotic and indigenous vegetation. It has been under various land uses over the last approximately 80 years that are covered by aerial image records, including forestry, scrub and bare land (potentially pasture/grazing).
  - (b) The gullies within the zone support waterways, all of which are tributaries of Blaikie Stream, which discharges into the Mangaroa River, and then the Hutt River.

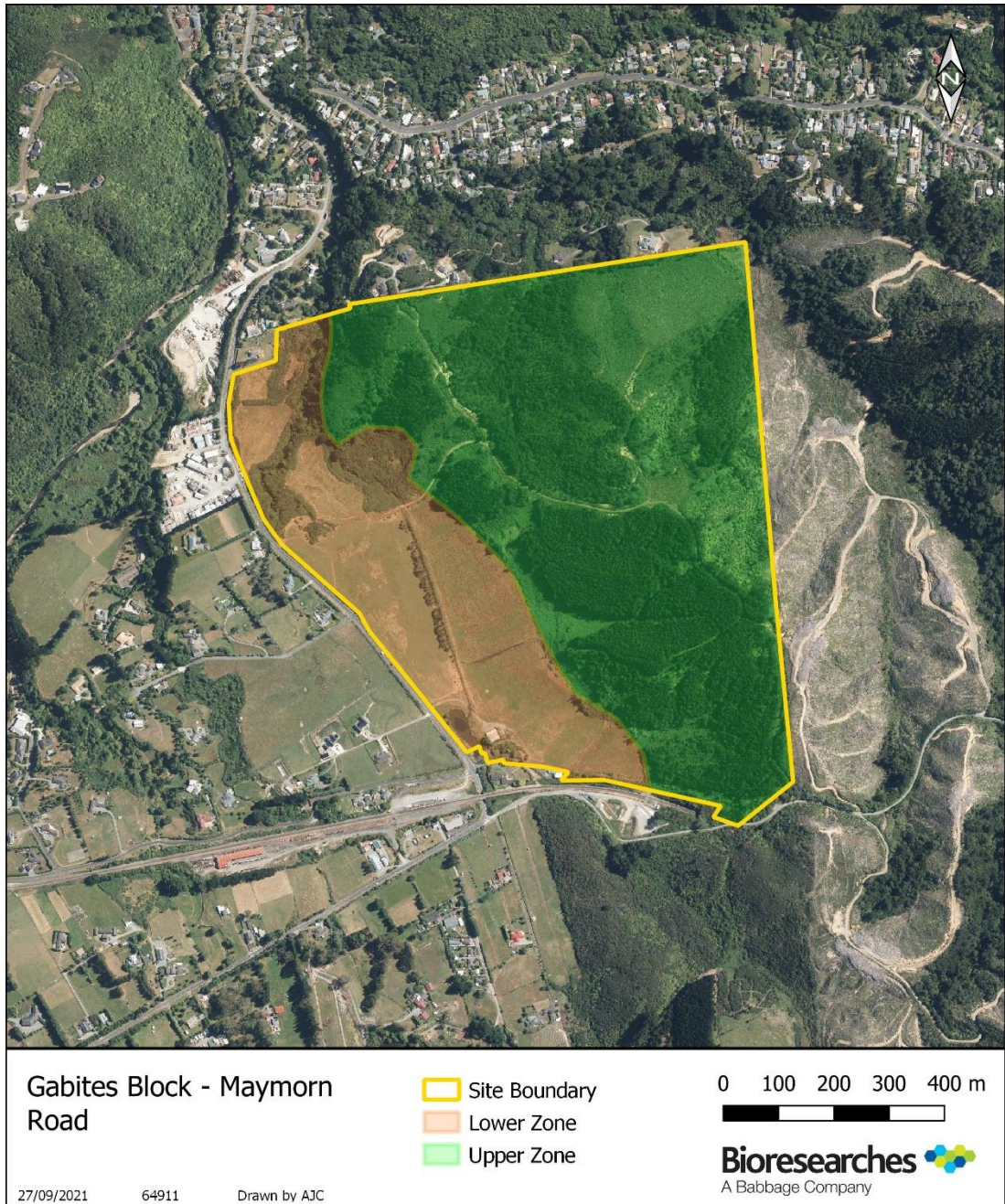


Figure 1: Gabites Block, Maymorn. Zone boundaries, for site descriptions.

## 20. Lower Zone

- (a) The Lower Zone is mostly flat land. It is separated from the Upper Zone by a stream that flows around the bottom of the hilly land. It is mostly covered in pasture, and is utilised for grazing and hay making. It has historically housed a piggery, with associated buildings and oxidation ponds, and horticulture/orchards. The oxidation ponds were filled in between 2002 and 2008.

- (b) As well as the waterway that separates the Upper and Lower Zones, the Lower Zone also contains a number of other waterways, including highly modified permanent streams, a constructed pond, and farm drains.
- (c) There is an existing draft Significant Natural Area (SNA) near the northwest corner of the site (UH041). It spans the downstream reach of the waterway separating the Upper and Lower Zones.

**21. Statutory context**

- (a) The Wildlife Act (1953) provides statutory protection for all native wildlife, excluding freshwater fish (i.e. lizard, frog, bat and bird species).
- (b) The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-FW) set out requirements for carrying out certain activities that pose risks to freshwater and freshwater ecosystems. These standards are currently under review, and updates to existing rules may be provided in time.
- (c) The National Policy Statement for Freshwater Management (2020) sets out objectives and policies for freshwater management, including definitions of freshwater bodies such as wetlands. The NPS-FM is currently under review with regard to a number of points, and updates may be provided in time.
- (d) The Proposed National Policy Statement for Indigenous Biodiversity sets out objectives and policies to manage natural and physical resources so as to maintain indigenous biodiversity. Since writing the ecology report, an updated Proposed National Policy Statement has been released for consultation.
- (e) The Wellington Regional Policy Statement sets out framework and priorities for resource management in the Wellington region. It sets out the process of how to identify Significant Natural Areas (SNAs) in the

region (Policy 23). SNAs are areas of indigenous ecosystems and habitats with significant indigenous biodiversity value.

- (f) The Greater Wellington Proposed Natural Resources Plan sets out objectives, policies and methods for managing the coast, soil, discharges to land, freshwater and air.
- (g) The Upper Hutt District Plan is the primary document that manages land use and development within Upper Hutt.

## **ECOLOGICAL ASSESSMENT**

### **Methodologies**

- 22.** A combination of desktop and site investigations were undertaken to determine ecological values of the site. Full methods can be found in Sections 4.1 and 4.2 of the ecological report, but for completeness they are summarised below.
- 23.** Desktop assessments involved reviewing various databases and historical and current aerial imagery of the site and surrounding landscape. The results of the desktop assessment focused site visit assessments to areas of interest that required a more detailed assessment and identified specific habitat features to be aware of, e.g. lizard basking habitat.
- 24.** The July 2021 site visit was specifically to determine if there were any natural wetlands, as per the definition in the NPS-FM within the site. This site visit was restricted to the flatter, Lower Zone. Overland flow paths in this area were ground-truthed and classified under the definitions with the greater Wellington Proposed Natural Resources Plan. Any areas that contained hydrophytic vegetation were assessed using the criteria within the NPS-FM, including the methodologies described in Clarkson's "A vegetative tool for wetland delineation in New Zealand<sup>4</sup>."

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<sup>4</sup> Clarkson, B. (2014). A vegetative tool for wetland delineation in New Zealand. Landcare Research New Zealand Ltd 2014



- 25.** The July site visit was also attended by Mr Owen Spearpoint of Greater Wellington Regional Council who undertook wetland delineation in conjunction with Ms Barnett. The results of his assessment were provided in a memo dated August 2021<sup>5</sup>.
- 26.** The September 2021 site visit focused on the remainder of the site, namely the Upper Zone, and the northern portion of the Lower Zone. The site was traversed, either by vehicle or on foot. Using a GIS programme on a cell phone, vegetation and other significant features were mapped, and extensive photos were taken. Incidental observations of birds were made when they were encountered. Habitats suitable for fauna were also mapped. Any areas of hydrophytic vegetation were subject to assessment using the Clarkson methodology<sup>4</sup>.
- 27.** Following the site visits, the data collected on site and the desktop assessment results were used to assign a value, ranging from Low to Very High, to each ecological feature, habitat or species. Values were assigned using methods prescribed in the EIANZ guidelines<sup>6</sup>. Where desktop assessment results could not be confirmed on site, e.g. the presence of bats, a conservative value based on the desktop assessment was assigned.

## **Vegetation**

- 28.** There is an existing draft SNA within the site (UH041), measuring approximately 1.3ha in size (within the site). It spans both sides of the main waterway through the site and continues to the north and west, around Blaikie Stream. In addition there is another draft SNA along the eastern and southern boundaries (UH031). No part of this SNA is within the site itself.
- 29.** Four main vegetation types were present on the site – native vegetation, native scrub, exotic scrub and pine dominated areas.

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<sup>5</sup> Assessment Wetland Presence and Extent 1135 Maymorn Road, Maymorn. Memorandum prepared by Owen Spearpoint to Nicola Fenn, dated August 2021.

<sup>6</sup> EIANZ, (2018). Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition.

### **Existing Draft SNA**

- 30.** Vegetation within the existing draft SNA included kahikatea, tōtara, beech, māhoe, five finger, red matipo, *Pittosporum* sp., *Veronica salicifolia*, *Coprosma repens*, and tree ferns. Blackberry and old man's beard were abundant, and gorse and broom were present around the edges, but appeared largely absent from the interior of the area.
- 31.** The actual area of native vegetation was larger than that indicated by the draft SNA. The area was considered to have high ecological value as it met SNA criteria for *Representativeness*, *Rarity*, and *Ecological context*.

### **Other Native Vegetation**

- 32.** There were six other areas of native vegetation (Figure 2), one of which was essentially contiguous with draft SNA UH041. These areas ranged in size from 1200m<sup>2</sup> to 2.65ha. The two areas on the eastern boundary, and area on the southern boundary were contiguous with the adjacent draft SNA UH031.
- 33.** The areas consisted of young native vegetation including seven finger, rangiora and tree ferns. While not as botanically diverse as the SNA vegetation, they represent young successional native vegetation and were considered to meet the *Representativeness* and *Diversity* SNA criteria. The native vegetation was considered to have high ecological value.

### **Native Scrub**

- 34.** There were six main areas of native scrub throughout the site (Figure 2), covering a total area of approximately four hectares.
- 35.** The native scrub areas were dominated by mānuka, but also contained some gorse, broom and pines.

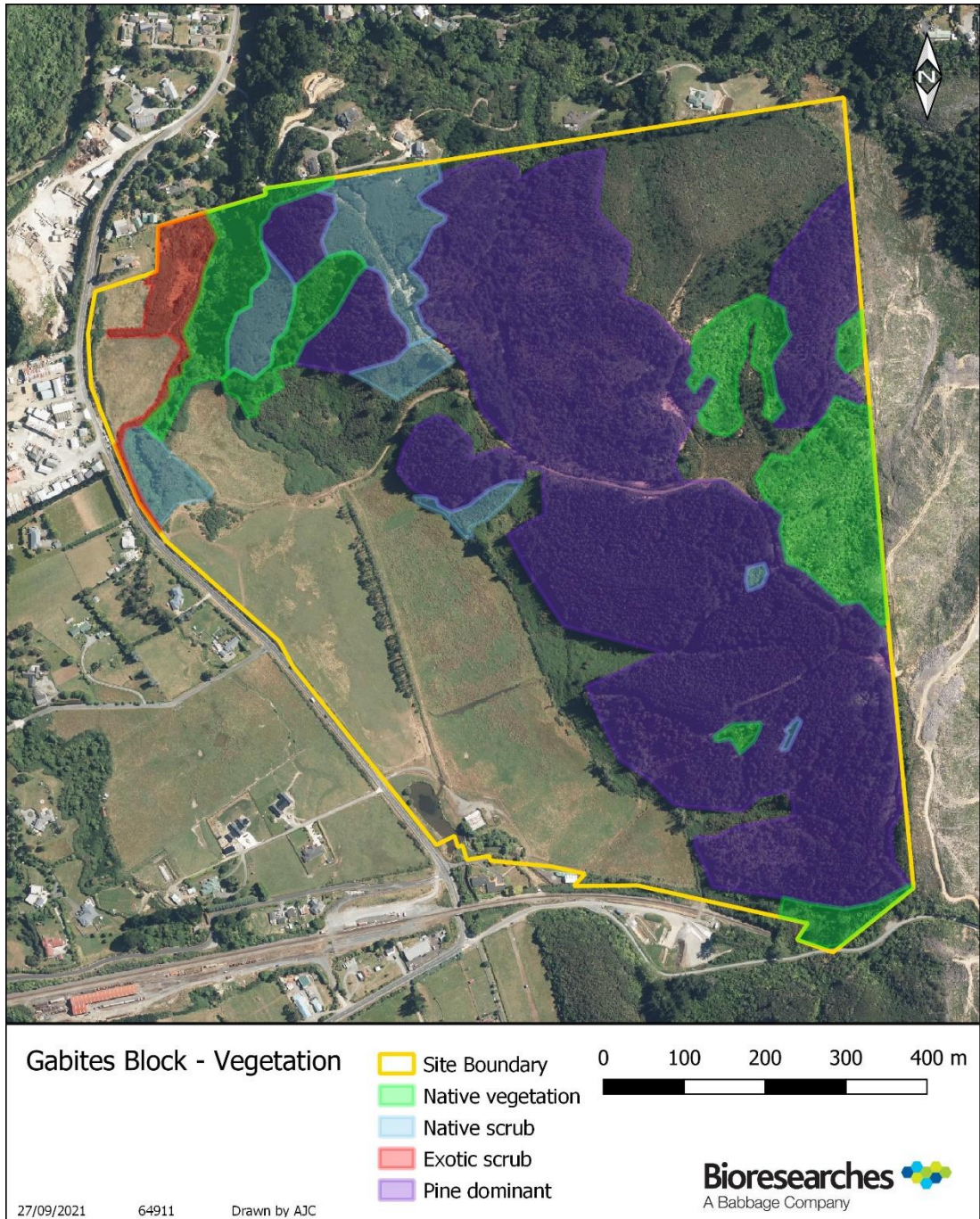


Figure 2: Vegetation types within the Gabites Block (Figure 4 of the ecology report)

36. Mānuka is listed as an 'At Risk - Declining' species due to its potential susceptibility to myrtle rust (a fungal disease that affects plants in the Myrtaceae family). An 'At Risk – Declining' conservation status would technically meet the Rarity criterion. However, myrtle rust is now widespread throughout most of the North Island and across the northern and western areas of the South Island, and it is recognised that there is some resistance to the fungus in New Zealand Myrtaceae species. There is no current evidence to demonstrate large-scale diebacks in species of Myrtaceae

and consequently, Biosecurity New Zealand is no longer collecting, analysing, or reporting myrtle rust data. Targeted surveillance and control activities have also ceased.

- 37.** Given the widespread and common status of mānuka, the areas of scrub on-site were not considered to meet any significance criteria. However, the scrub areas could potentially meet the *Rarity* criterion where 'At Risk' or 'Threatened' native lizards are confirmed to be present, and therefore they were considered to have a moderate ecological value.

### ***Pines***

- 38.** The majority of the Upper Zone was covered by wilding pines (approximately 30ha). Aerial images show the site was clear-felled approximately 20 years ago, and the wildings likely established shortly after this. The pines were very dense, and the understory was mostly devoid of vegetation.
- 39.** The ecological value of the pine areas was considered to be low.

### ***Exotic scrub***

- 40.** An area of exotic scrub was present in the north west corner of the site, in the Lower Zone. It was mostly limited to the area between Maymorn Road and the lower portion of the waterway separating the zones.
- 41.** Species present included weedy species such as gorse, broom and blackberry. The ecological value of the exotic scrub was considered to be low.

### ***Avifauna***

- 42.** Approximately 50 species of birds have been reported within 5km of the site, based on database records accessed in September 2021.
- 43.** A number of species were listed as Threatened or At Risk, including whitehead (*Mohoua albigilla*; 'At Risk-Declining'), New Zealand falcon (*Falco novaeseelandiae*; 'At Risk-Recovering'), and New Zealand pipit (*Anthus novaeseelandiae*; 'At Risk-Declining'). Threatened and At Risk wading, shoreline, water and seabirds were

excluded from this count as the site does not support habitat suitable for these birds, therefore their presence in the wider area has little relevance to the site's ecological value.

- 44.** This list is slightly different to that provided in the ecological assessment. Further consideration and discussion with colleagues has resulting in removing black shag and New Zealand dabchick from this list. Black shag are more usually found in coastal, large river and lake habitats. While they may periodically pass through the site, based on the advice of colleagues I consider it unlikely they will ever utilise the habitat within the site for anything more than a temporary rest point. New Zealand dabchick were originally included due to the presence of the artificial pond in the southern corner of the site, however this pond is now considered to be unsuitable for them due to the lack of riparian vegetation and macrophytes within the waterbody.
- 45.** Opportunistic observations on site recorded 14 species. None of the observed species were At Risk or Threatened. A full list of species is provided in Table 5 of the ecology report. This number likely underestimates the avifauna community due to the opportunistic nature of the survey.
- 46.** The regenerating and mature native vegetation within the site provides suitable roosting, foraging and nesting habitat for a range of common native species. The open pasture areas, riparian margins and pond habitats in the Lower Zone provide a greater variety of bird habitat. The pine and scrub dominated areas likely provide roosting habitat, and some feeding habitat for insectivorous species.
- 47.** The ecological value of the site for birds was considered to be moderate-high, due to the possibility of At Risk species being present in, and utilising the site.

### **Herpetofauna**

- 48.** Review of the DOC Amphibian and Reptile Distribution Scheme (ARDS) database showed five indigenous herpetofauna and one exotic species have been reported within 10km of the site, while only one species had been reported within 5km of the site. No frogs or lizards have been recorded in the ARDS for the site itself.

- 49.** Of the species recorded within 10km, all except two are listed as At Risk on a national basis, and all except one are listed as At Risk or Threatened on a regional basis.
- 50.** Opportunistic searches on site during the site visit did not detect the presence of herpetofauna, however suitable lizard habitat was observed on site. The lack of observations on site was not unexpected given that native lizards are often cryptic and secretive and many species that could potentially occur on-site are nocturnal.
- 51.** Established native trees and shrubs, and their canopy foliage, offer potentially suitable habitat for arboreal geckos such as ngahere and barking gecko. While the denser undergrowth and leaf litter layer beneath tree and shrub canopies offer habitat for terrestrial skinks and possibly Raukawa gecko.
- 52.** It was considered reasonably likely that native lizards would be present within the site. Grass skink, brown skink, and copper skink are the most likely to be present on-site, given their ability to occupy a diverse range of habitat types, from forests edges to urban parkland, residential gardens, and even occurring on the fringe of industrial areas.
- 53.** Ecological values of the site as lizard habitat were conservatively considered to be moderate-high, due to the possibility of At Risk species being present within the site.

#### **Bats**

- 54.** Review of the DOC National Bat Database showed both long tailed bats (LTBs) and short tailed bats (STBs) have been recorded in the Wellington Region, but most records were from the Tararua Forest Park, approximately 26km northeast of the site. The closest records to the site include observations of 'unknown' species, approximately 400m northwest and 12km southwest of the site. Both records are from the 1980s.
- 55.** Potential bat habitat was present on site, including trees suitable for roosting (e.g. the larger native trees in the SNA vegetation, and large mature pines), and linear

waterways used for hunting and foraging. The site is also largely free of light spill, and residential/industrial noise, factors which can affect bat presence.

56. Bats can have very large home ranges (~100km<sup>2</sup>) and, as suitable habitat was present on site and they are known to be present in the wider area (Upper Hutt/southern Tararua Ranges), the ecological value of the site for bats was considered to be very high, due to the possibility they are present on site.

#### **Pest mammals**

57. No specific pest mammal surveys were undertaken. However, evidence of deer and feral pigs was observed on site (tracks and scat). It is also likely rodents, possums, hedgehogs, mustelids and cats are also present.

#### **Freshwater Environments**

58. Freshwater habitats were assessed during both the June and September site visits, and are discussed below.

#### ***Waterways***

59. A number of waterways are present within the site, both in the Upper and Lower Zones. Portions of the waterways in the Upper Zone were walked, however access issues (including dense blackberry) prevented entire lengths being walked.

60. Figure 14 in the ecology report illustrates waterways within the site.

61. Upper Zone Waterways

- (a) The majority of the waterways in the Upper Zone were considered to be intermittent, and it is likely reaches experience periods of no flow during summer months. These waterways were strongly influenced by the topography of the area and all ultimately flow to Blaikie Stream, to the north of the site.

- (b) Most waterways were within pine dominated areas. Channels were incised, indicating flashy high flows, and were heavily dominated by pine needles.
- (c) It was considered unlikely these waterways provide significant fish habitat, due to the small size of the watercourses, lack of deep pools and intermittent nature.
- (d) The ecological values of the permanent waterway was considered to be moderate, while the value of the intermittent waterways was considered to be low.

**62. Lower Zone Waterways**

- (a) The waterways in the Lower Zone contain a combination of natural and artificial waterways. All have been heavily modified with flows diverted around the historical oxidation ponds.
- (b) The stream that originally ran through the site has been diverted west through the centre of the site in a single channel, then through a straightened channel. It flows through a double culvert approximately half way through the site, and then the alignment becomes more natural.
- (c) The old alignment of the stream is now essentially a farm drain, present only for the purpose of drainage.
- (d) The habitat in the new alignment, the artificially straightened channel was defined by gravel substrate with almost no riparian vegetation. Fish and macroinvertebrate habitat was limited.
- (e) Habitat in the drainage channel was dominated by soft, fine sediment. It is likely that flow in the drainage channels decreases, or stops, during summer months.



- (f) A small reach of subsurface flow was present connecting the two highly modified reaches (realigned reaches) to each other.
- (g) Downstream of the culverts, i.e. in the natural reach of the waterway separating the Upper and Lower Zones, was a waterfall, approximately 3m in height. This waterfall likely presents a barrier to most fish species moving upstream, with the possible exception of the active climbing species, kōaro and eels.
- (h) The stream was highly incised, within very steep banks. Habitat within the stream was variable, and presented mixed fish and invertebrate habitat. Riparian vegetation was dominated by mature native vegetation.
- (i) Fish records were not available for the stream itself. However, records from NZ Freshwater Fish Database for the Mangaroa River were retrieved and it is considered that any species within the Mangaroa catchment, could be present on site, providing there are no barriers to fish passage downstream of the site. Nine species have been recorded in the Mangaroa catchment, including four At Risk species.
- (j) The ecological value of the main waterway upstream of the culverts was considered to be moderate, while downstream of the culvert it was high. The ecological value of the farm drains is considered to be negligible.

### ***Wetlands***

- 63.** Four general areas of potential wetland were assessed to determine if they were 'natural wetlands' as per the definitions in the NPS – FM. Owen Spearpoint from Greater Wellington Regional Council was also present during the site visit in June, and agreed with the conclusions of the wetland assessments.
- 64.** All areas assessed during the June site visit were in the Lower Zone, on the part of the site that contained the filled-in oxidation ponds. This is important as it demonstrates that the area cannot be considered indicative of natural ground conditions.

65. None of the four areas investigated met criteria for the dominance test, or prevalence index, as per MFE's Wetland Delineation Protocols. All areas were dominated by pasture species, including perennial ryegrass and Yorkshire fog. Full results from the dominance and prevalence index calculations are given in Tables 8 to 10 of the ecology report.
66. As such, none of the areas were considered to be natural wetlands. This conclusion was supported by Owen Spearpoint in his memo dated August 2021. He concluded *"My conclusion is the property [assessed areas] contains no significant natural wetland, as although the vegetation did reflect natural wetland the scores were uncertain and the soils and hydrology could not be relied on to provide certainty in the determination of the presence of natural wetland."*
67. During the September site visit, two additional areas were investigated for wetland presence.
- (a) An area associated with a waterway in the Upper Zone had been previously identified as a potential wetland. This area was approximately 10 m in length and 2 m in width. The hydrophytic vegetation was growing in a flatter area of stream that had defined, incised channels upstream and downstream. Water was flowing in the channel downstream of the vegetated area. Therefore, the area was more appropriately identified as a shallow area of stream and not a natural wetland. It appeared that an uprooted pine tree, coupled with the significant amounts of pine needles and slightly flatter topography, had resulted in the stream slowing and spreading slightly, allowing the sedges to establish.
- (b) The second area was located on the eastern boundary of the site in the Upper Zone. It was located at the bottom of the native vegetated gully on the eastern boundary, and appeared to be an induced wetland, formed when forestry slash had partially dammed the intermittent stream draining the gully. The area was dominated by *Carex geminata*. The dominance and prevalence tests were met and therefore it was considered to be an induced natural wetland. Full dominance and prevalence index calculations are provided in Table 11 of the ecology report.

## Summary of Ecological Values of the Site

68. A summary of the ecological values of the site is provided in Table 1. Please note, the value of the site as bird habitat has been changed to ‘moderate’ from the ‘moderate-high’ that was listed in the ecological report. The reduction in value has been due to reconsidering what species are likely to be present within the site, as per paragraph 44 of this evidence.

Table 1: Summary of ecological values within the Gabites Block

Ecological feature	Summary description and where appropriate DOC threat classification system for species.	Ecological value
Pasture	<ul style="list-style-type: none"> <li>Exotic rank grassland on the lowland flats but could provide habitat for ground nesting native birds (e.g., pūkeko).</li> </ul>	Negligible
Exotic scrub	<ul style="list-style-type: none"> <li>Dominated by gorse, broom, and blackberry.</li> <li>Abundance of weed plant species.</li> <li>May support native lizards and provide habitat for common native birds (e.g., tūī, fantail, etc.).</li> </ul>	Low
Pines	<ul style="list-style-type: none"> <li>Dominated by densely growing wilding pines with an understorey devoid of vegetation.</li> <li>Could potentially provide habitat for bats.</li> <li>Low ecological value unless bats are confirmed to be present.</li> </ul>	Low
Native vegetation	<ul style="list-style-type: none"> <li>Young native bush/ scrub, dominated by understory and subcanopy species.</li> <li>Not as botanically diverse but represents young successional native vegetation not abundant in the wider vicinity.</li> <li>Could provide habitat for protected native lizards, birds, and bats, including potentially ‘At Risk’ and ‘Threatened’ species.</li> </ul>	High
Native scrub	<ul style="list-style-type: none"> <li>Dominated by dense young mānuka (1.5–3 m in height), interspersed with gorse, broom, and pine.</li> <li>Could provide habitat for protected native lizards, including an ‘At Risk’ species, and common native birds.</li> </ul>	Moderate
Draft SNA vegetation	<ul style="list-style-type: none"> <li>Vegetation dominated by understorey species; however, some mature canopy species present.</li> <li>Could provide habitat for protected native lizards, birds, and bats, including potentially ‘At Risk’ and ‘Threatened’ species.</li> </ul>	High

	<ul style="list-style-type: none"> <li>Meets <i>Diversity</i> and <i>Representativeness</i> criteria for assigning SNAs.</li> </ul>	
<b>Native lizards</b>	<ul style="list-style-type: none"> <li>Records of native lizards in the surrounding landscape and the suitability of the habitats on-site for lizards suggests that several species, including those with 'At Risk' conservation statuses may be present.</li> <li>Lizard presence/values to be confirmed with a survey prior to consenting stage.</li> </ul>	Moderate-high
<b>Native birds</b>	<ul style="list-style-type: none"> <li>Common protected native birds utilise the site and the vegetation offers suitable roosting, foraging, and nesting habitat for them.</li> <li>'At Risk-Declining' birds may be present.</li> </ul>	Moderate
<b>Bats</b>	<ul style="list-style-type: none"> <li>No bats have been recorded on-site; however, no surveys have been undertaken.</li> <li>The vegetation and habitat features on-site are suitable for bats and considering there are verified records of bats in the wider surrounding landscape, bats could potentially be resident on-site or at least use site temporarily/ seasonally.</li> </ul>	Very high
<b>'Lower zone' permanent waterway (below culverts)</b>	<ul style="list-style-type: none"> <li>Natural alignment with high quality riparian vegetation.</li> <li>Good instream habitat.</li> <li>At Risk fish species known from the catchment and potentially present in the channel.</li> </ul>	High
<b>'Lower zone' artificial alignment and above (above culverts)</b>	<ul style="list-style-type: none"> <li>Reasonable quality instream habitat.</li> <li>Artificially constructed/straightened channel.</li> <li>Highly limited riparian vegetation.</li> <li>Fish barrier at downstream extent of this reach.</li> </ul>	Moderate
<b>Farm drains</b>	<ul style="list-style-type: none"> <li>Low quality instream habitat.</li> <li>Limited to no riparian vegetation.</li> <li>Likely experience drying periods.</li> </ul>	Negligible
<b>'Upper zone' permanent waterway</b>	<ul style="list-style-type: none"> <li>Good instream habitat and 'At Risk' fish species known from the wider catchment.</li> <li>Riparian vegetation dominated by pines with significant pine needle detritus in the channel in some areas.</li> </ul>	Moderate

<b>'Upper zone' intermittent waterways</b>	<ul style="list-style-type: none"> <li>• Predominantly in pine forested areas strongly influenced by pine needles in channels.</li> <li>• Periodically dry meaning it is difficult for a diverse biotic community to establish.</li> </ul>	Low
<b>Wetland</b>	<ul style="list-style-type: none"> <li>• Relatively uncommon habitat in the wider area.</li> <li>• Likely wetland is induced by forestry slash over stream channel.</li> <li>• Low diversity of wetland species.</li> </ul>	Moderate

## ECOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

### Ecological Constraints

- 69.** The key constraints on development of the site with regard to ecology are considered to be:
- (a) All categories of native vegetation have moderate or higher ecological value. Native vegetation and the draft SNA areas should be retained, enhanced and protected. Native scrub should be enhanced and protected as far as practicable. Design around these areas should be considered.
  - (b) Fauna with limited dispersal capability (e.g. lizards, nesting birds, roosting bats) are at risk of injury and mortality during development and vegetation removal. It is likely appropriate avoidance, management and mitigation measures would be required to ensure compliance with legal fauna protection mechanisms (e.g., Wildlife Act 1953, RMA 1991).
  - (c) Vegetation removal and/or earthworks within 10m or within the eastern boundary wetland, and/or discharges, damming and/ or diversion of water within 100 m of the boundary wetland should not occur, unless they are for the purposes of restoring this wetland. Any work for activities other than restoration is likely to be a non-complying activity.

- (d) Intermittent waterways in the 'Upper Zone' should only be altered if absolutely necessary. Damming/ diverting is a discretionary activity. Installing culverts and crossings is likely to be permitted, providing the criteria within the Proposed Natural Resources Plan are met.
- (e) All stream crossings, including intermittent streams, should be designed to facilitate fish passage where fish access to the stream currently exists.
- (f) Sediment runoff to watercourses that may affect water quality and/ or aquatic habitat must be managed appropriately.

### **Recommendations**

**70.** Below are a number of recommendations related to the development of the site. They are relevant to both PC55, and any other works where earthworks and/or vegetation clearance will occur.

- (a) Dedicated surveys for native lizards and bats should be undertaken prior to any vegetation clearance and/or bulk earthworks.
  - i. Where lizards are detected and works could have detrimental effects on their habitat, a Lizard Management Plan (LMP) should be prepared. The LMP would detail measures required to avoid and mitigate adverse effects on protected native lizards. It may involve capture and relocation of lizards from within the works areas prior to works commencing.
  - ii. If bats are determined to be present, a Bat Management Plan (BMP) will likely be required and all clearance of suitable bat roosting trees will need to be undertaken under the BMP.
- (b) Clearance of mature trees and scrub should be avoided during bird breeding season (September to February, inclusive). If it cannot be avoided, a pre-vegetation clearance bird nesting survey should be completed and appropriate nest protection measures put in place as necessary.

- (c) Restoration activities should be encouraged within the site. These may include pest plant and animal control, revegetation and enhancement plantings of native species suitable for the area.
- (d) Channelised watercourses would benefit from naturalisation and riparian planting, which can likely occur without compromising the ability of these watercourses to manage flood flows as I discuss in further detail below. Other waterways should have the riparian zone planted with appropriate native species. Ongoing weed management is likely going to be required in areas where exotic scrub has been cleared.
- (e) Works should not occur within, or within 10m of the eastern boundary wetland and any earthworks within 100m of the wetland should not alter the catchment or hydrology of the wetland.
- (f) Any stream crossings should be designed within fish passage in mind, where fish access to the stream currently exists.

## **PART 2 – PC55, Submissions and Section 42A Report**

### **ASSESSMENT OF PC55**

- 71.** PC55 includes a number of proposed provisions for the protection of ecological values within the site, including one objective, four policies and rules to protect the identified Gabites Block Natural Areas (GBNAs). The GBNAs align with the areas of native vegetation I have identified in the ecology assessment (Figure 2).
- 72.** The permitted activities proposed in DEV3-ECO-R1 and R2, allow for minor works to occur within the GBNAs for maintenance, fencing, some recreation activities, pest control, enhancement and protection, among other things.
- 73.** The objective, policy and rules focus on the areas of native vegetation, while some values, especially for terrestrial fauna, apply to the site as a whole.
- 74.** Birds present within the site are highly mobile species that are capable of moving away from disturbance and between suitable habitats. It is expected some displacement of birds will occur as part of the development of the site, particularly in the Upper Zone where some or all of the pines may be removed. However, this effect is expected to be largely temporary, as garden and amenity planting will provide habitat for the majority of species likely to be present on site. Significant areas of unaffected habitat remain directly adjacent to the site in the Tunnel Gully Recreation Area/Pakuratahi Forest. The proposed GBNAs will also provide a relatively large area of high-quality habitat that will remain mostly unaffected by the proposal and will, over-time, likely have an enhanced ecological and habitat function.
- 75.** Lizards are likely to be present throughout the site, however the potential loss of the pine areas is expected to have low effects, due to the unsuitability of the habitat for arboreal geckos, and high levels of shade reducing suitability for basking skinks. The proposed GBNAs represent the higher quality lizard habitat within the site and these will be retained. It is expected some lizards will be present within the currently grazed sections of the lower zone. Lizard management prior to works



will seek to relocate these lizards away from the works areas. Once works have been completed, it is expected some common species will be able to persist in the urban environment, however they are likely to experience pressures from that environment including facing the risk of predation by domestic cats.

- 76.** The protection of the GBNAs does not take into account edge effects that may result from the ability to clear vegetation right up to the boundaries of the GBNAs. Edge effects are the influences two different adjoining habitats have on each other. In this case, it is likely to be either native vegetation and pine/scrub, or native vegetation and open areas. Both types could create the risk of weed invasion into the GBNAs, while open areas adjacent to the GBNAs are likely to result in changes to species composition on the edges through increased light penetration, and increased effects of wind, potentially resulting in damage to the vegetation. Edge effects are particularly influential on small areas such as GBNA-05 and the western end of GBNA-06. Edge effects can be managed to some degree through buffer planting and pest plant and animal management.
- 77.** Freshwater features, including wetlands and waterways are not considered in the Plan Change. These are subject to the NPS – FM and NES – F, both of which regulate the activities that can occur in and around freshwater features. Any culverts/bridges installed over waterways will have to comply with NES-F and regional rules and include the provision of fish passage. The development of the site will include a buffer around all waterways where development cannot occur within 10m of a waterway, although there are likely to be some exceptions to this where vehicle access/road crossings are necessary.
- 78.** The Plan Change also includes frameworks around biodiversity offsetting and compensation. I support this inclusion as there can be significant confusion about how to apply these principles.
- 79.** Following submission of the plan change application, amendments have been proposed including an additional policy and information requirement (SUB-DEV3-P7, SUB-DEV3-IR-2) requiring that the first subdivision of the site operate under an ecological plan that will identify potential bat habitat, identify lizard management options, identify bird nesting (if vegetation clearance occurs between September

and February, inclusive), and specify legal protection of bat habitat and lizard relocation areas if outside the GBNAs. This policy will address many of the recommendations generated from the ecological report.

- 80.** I also understand that there are plans to increase the flood capacity of the main waterway that flows through the Lower Zone. The works would provide the opportunity to improve the ecological functioning of the stream by creating a naturalised 'low flow' channel within the larger flood channel. It is expected naturalisation works would include the low flow channel meandering within the flood channel, habitat heterogeneity through the creation of pools and riffles, addition of natural substrate, addition of habitat features including boulders and woody debris, and planting of the riparian zone. These works would significantly increase ecological values of both the stream and the riparian zone and would result in a net gain of ecological values.

#### **ISSUES RAISED IN SUBMISSIONS**

- 81.** I have read the submissions received in response to the PC55 plan change request.
- 82.** The majority of the submissions are not specific to ecology, with the exception of a small number that mention ecological features/values in a general manner. A more detailed submission from Greater Wellington Regional Council was received with regard to the proposed wording of the Plan Change.
- 83.** Instead of addressing the submissions on an individual basis, I make a number of comments to address the general themes in the submissions:
- (a) The wet areas on the flat are not natural wetlands. While wetland plants are present, the highly modified nature of the soil, including filling of the oxidation ponds, preclude the area from being identified as a natural wetland as per NPS definitions. The only wetland present on the site will be protected by NPS – FW and NES – F rules/policies.
  - (b) Adverse effects on the environment from the proposed plan change are mostly related to potential vegetation clearance and therefore habitat

loss/change. Vegetation removal can already occur as a permitted activity, including clearance of indigenous vegetation in certain situations.

- (c) Development of the area, if done in a responsible manner, is unlikely to result in contamination of surface waterways, over and above what already occurs. Removal of grazing animals, and stormwater treatment facilities associated with subdivisions, may actually result in improvements to water quality. Sediment inputs can be adequately managed during development through an appropriate erosion and sediment control plan.
- (d) Domestic pets are unlikely to have any significant effect on the ecology of the area due to the existing presence of exotic pests within the site. Signs of feral pigs and deer were present within the site, including on the border between the site and the Pakuratahi Forest, showing they are also present within the forest. It is also highly likely cats, rats, mustelids, and possums are also present within both the site, and the forest. Pest control has been recommended.

### ***Greater Wellington Regional Council Submission***

**84.** Greater Wellington Regional Council (GWRC) provided feedback on the ecological (ECO) components of the proposed PC55. GWRC generally supported the ecological components of the plan change, with amendment. These included:

- (a) *Consideration of opportunities to encourage planting of the slopes and ridgelines to help secure erodible land and to create corridors for indigenous flora and fauna.*
  - i. I support this consideration, though I can make no comment on the practicalities of planting certain areas, and who would be responsible for maintaining them (including pest plant and animal control). From an ecological perspective, the more indigenous vegetation within the site, the better ecological values will be. I

also note that not all of the pines are likely to be removed, and therefore planting of certain areas may not be possible or necessary.

- (b) DEV3-ECO-P2 and DEV3-ECO-R2 – *remove the word ‘identified’ before biodiversity values when referring to adverse effects caused by activities or maintenance of biodiversity values, as this quantifier unnecessarily limited the consideration of effects to values identified at the time of notification.*
  - i. I support removing the word ‘identified.’ I agree that inclusion of the word limits assessment of effects against values that are present at the time of plan notification. Values may improve, or decline over time, depending on how the site is used and managed, and depending on climatic variability and extreme natural events.
  
- (c) DEV3-ECO-R2 - *Amend permitted activity status for removal of non-indigenous plants that are not pest plants to Restricted Discretionary or Controlled activity status. This is to reflect that habitats for indigenous fauna can occur in exotic vegetation.*
  - i. I neither support nor oppose this amendment. Wilding pines present the largest risk for the site, however wilding conifers are listed as a pest organism in the Greater Wellington Regional Pest Management Plan 2019-2039, and are therefore subject to management regardless of the wording of this rule.
  
- (d) DEV3-ECO-Appendix 2 and 3 – *Amend framework of principles for biodiversity offsetting and compensation to be consistent with the PNRP and Local Government New Zealand (LGNZ) guidance.*
  - i. I support the amendment for consistency. I note it is beneficial to ensure consistency between documents and to have a framework for application of offsetting and compensation.

- ii. The current proposed approach is consistent with the principles in the Proposed Porirua District Plan, and largely similar to the Greater Wellington Regional Council PNRP. Both sets of principles are also generally similar to those within the latest exposure draft of the NPS – Indigenous Biodiversity, however I note this document has not yet been finalised, and is currently being updated following submissions on the exposure draft.
- (e) There has been some confusion as to what set of principles (for offsetting and compensation) is most appropriate, and who has proposed which. I therefore recommend that the Business and Biodiversity Offsets Programme (BBOP, an international collaboration between companies, financial institutions and civil society organisations) principles are adopted. The BBOP principles are also those contained within The New Zealand government's "*Guidance on Good Practice Biodiversity Offsetting in New Zealand*"<sup>7</sup>. The same principles can be adapted for biodiversity compensation with any reference to offsets/offsetting being replaced with compensation.
- 85.** GWRC opposed the definition of Gabites Block Natural Areas and sought to include wetlands and waterbodies in the definition as they do not consider the NES – F and Proposed Natural Resources Plan adequately protect wetlands.
- 86.** I do not agree with this statement. Under Regulation 54 of the NES – F, vegetation clearance and earthworks within, or within 10m of a natural wetland is a non-complying activity. The taking, use, damming, diversion or discharge of water within 100m of a natural wetland is a non-complying activity. The NES – F prevents works occurring within/around wetlands that would result in detrimental effects, unless it is for the purposes of restoration, which would result in positive impacts.
- 87.** I further note that the only natural wetland identified within the site is located within GBNA-04, and as such clearance of vegetation would be a restricted discretionary activity under the proposed plan change, regardless of the NES – F.

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<sup>7</sup> <https://www.doc.govt.nz/documents/our-work/biodiversity-offsets/the-guidance.pdf>

- 88.** Any works that will, or are likely to occur, in the waterways and/or riparian zone, are likely to require resource consent obtained through the Greater Wellington Regional Council PNRP, unless they are a permitted activity, where a number of conditions will need to be met. The plan change has no impact on how the PNRP can be applied. Effects of any such activities will be considered and addressed if/when resource consent is applied for. As a result of the plan change, stream works in the GNBA are expected to be minimal and are likely to be limited to access requirements and stream enhancement. Both these activities could occur regardless of the zoning of the site. As there are already protections and provisions in place for the waterways in the PNRP through consenting pathways and policies, I do not consider it is necessary to subject the low to moderate value waterways within the site to protections not afforded to other higher quality streams within the Wellington region.

*Summary of position on issues raised in submissions*

- 89.** The majority of the submissions were not directly related to ecology. Those that did mention ecology were very general, and did not provide any specific concerns other than 'environmental impacts' or similar.
- 90.** Based on the site visits, subsequent values and significance assessments, and recommendations provided through the ecological report and replicated in this evidence, I do not consider any further assessments or consideration of ecological effects are required.
- 91.** The high value areas, namely the proposed GNBA will be protected from development through the plan change wording. Fauna values outside of these areas will be managed through an Ecological Plan, required as part of the first subdivision of the site. Naturalisation of the waterway in the Lower Zone will result in significant ecological increases for the waterway and riparian zone. Vegetation likely to be removed through development of the site (including infrastructure and building platforms) is predominantly wilding pine, though I note it is anticipated resource consents are likely to be required for this stage, and therefore effects assessments and mitigation will be developed at a later date.

## SECTION 42A REPORT

92. I have reviewed the s42A report prepared by Ms Corinna Tessendorf of Urban Edge Planning, on behalf of Upper Hutt City Council, as well as the Ecological Review memo provided by Ms Sarah Budd of Wildland Consultants. I respond to those points raised that specifically relate to ecological values.

### ***Wildland Consultants Review***

93. The review asked for “*clarification on the natural areas that have not been mapped and described, or have been mapped as ‘native scrub’, as these areas may also meet the criteria for GBNAs.*”
94. All vegetation within the site was mapped during the site visit. No other areas were present. We note that some of the aerial imagery used for the mapping was not up to date, however current aerials were not available. The maps in the ecology report should be used to quantify vegetation within the site, not the aerial images.
95. As per section 4.3.2.3 (Existing native scrub) of the ecology report, the areas of native scrub not considered to be GBNAs were dominated by established, young mānuka. They were not considered to meet any criteria in Policy 23 of the RPS despite mānuka technically being listed as ‘At Risk – Declining.’ Their status has been given due to the potential susceptibility to myrtle rust, however, myrtle rust is now widespread throughout the North Island. As there have been no large-scale diebacks of Myrtaceae species in New Zealand, it is accepted that there is some level of resistance to myrtle rust amongst Myrtaceae species, such as mānuka, in New Zealand.
96. While mānuka is technically ‘At Risk – Declining’, it is widespread throughout the site, wider area and ecological district. It is therefore not considered to meet any criteria in Policy 23, specifically Rarity criteria. It is noted and accepted that the native scrub may provide habitat for indigenous fauna, and these values will be comprehensively identified and addressed through the ecological management plan proposed as part of the plan change.

97. The review also sought to “ensure that the provisions acknowledge the potential for exotic vegetation to support threatened indigenous fauna.” The ecological management plan, and surveys associated with it, will occur across the entire site, including exotic vegetation.
98. The review was also generally supportive of the proposed offsetting and compensation principles, but recommended some amendments.

#### **Section 42A Report**

99. The section 42A report relied on advice provided by Ms Budd, which I have addressed above. The report recommended some amendments to the wording of the plan change which I discuss below.

#### **EMP**

100. SUB-DEV3-P7 – I support the recommended change of wording. Changing from ‘monitoring’ to ‘survey’ does not alter the intention of the policy.
101. SUB-DEV3-IR-2 – I support the additions to this Information Requirement. I note the change in wording for parts c. and d. do not alter the intention. The expansion of expanded requirements in part e. would have been identified in the plan as required under part f. however I have no concerns about including it in the wording. I also support the additions in parts g. and f. and note the work ‘inclusive’ had been left out in error.

#### **GBNA protection**

102. SUB-DEV3-S1 – I support the addition of utility structures and sewage disposal fields to a number of areas under this standard. I agree these structures should not be allowed within the GBNAs. Allowing these within the GBNAs is likely to require vegetation clearance, and operation may impact on ecological integrity.
103. DEV-3-ECO-P3 – I have no concerns regarding the deletion of the words.



- 104.** DEV3-ECO-P4 - I support this amendment, and also the inclusion of sewage disposal fields.
- 105.** DEV3-ECO-R1 – I have no opinion on the proposed additions. The additions do not specifically relate to ecological values, but rather to safety and access. I do note that the requirement that trimming/vegetation removal in relation to an imminent threat be undertaken by a qualified arboricultural expert is likely to minimise impacts. I also note the limits for trimming/removal proposed in parts iii. and iv. are unlikely to result in significant impacts on ecological values in most cases. However, I cannot say for certain as plans for roads, tracks and associated structures have not been developed to date.

#### **Offsetting and Compensation Principles**

- 106.** Ms Budd recommended including ‘ecological equivalence’ as a separate principle and replacing ‘long term outcomes’ with ‘permanence.’
- 107.** The points raised are valid, however, I do not consider them to be material to the plan change. It is my preference that a set of respected, published and internationally recognised principles are used, without modification.
- 108.** Ecological equivalence can be addressed as part of the ‘no net loss’ principle contained within the recommended BBOP principles. No net loss requires the offset provide no loss of biodiversity and preferably a net gain. I also note it can be difficult to accurately create like for like habitat as often the habitat to be offset has formed as a result of numerous intersecting conditions that may not be able to be replicated.
- 109.** The ‘long term outcomes’ in the BBOP principles refer to protecting offsets “preferably in perpetuity”. In addition, there are likely to be cases, such as where offsetting is located in riparian corridors, where regional rules already provide protection from alteration without the need for measures such as covenants.

## SUMMARY AND CONCLUSIONS REGARDING PC55

110. The Gabites Block on Maymorn Road, Upper Hutt is characterised by grazed pasture on the flats, with wilding pines, mixed native and exotic scrub, and areas of mostly regenerating indigenous vegetation on the hills.
111. Indigenous vegetation areas, namely, those areas identified in the plan change as GBNAs, were considered to be of high ecological values, and met the criteria for significance as per Policy 23 of the Regional Policy Statement.
112. One wetland was identified within the site, located on the eastern boundary in the Upper Zone. The Lower Zone contained no natural wetlands as per the definition in the NPS – FM. This part of the site has been heavily modified over time, and as such, soil conditions are not natural and cannot be used to indicate wetland presence or absence.
113. The site likely contains indigenous lizards, and a variety of indigenous birds. It is possible native bats are present within the site periodically as they have been recorded in the wider area and suitable habitat is present within the site.
114. The proposed PC55 includes a number of measures to protect and enhance ecological values. The proposed GBNAs will be protected from development, with only minimal activities able to be undertaken within them, without subsequent resource consents. An overarching Ecological Plan will be required to be in place prior to implementation of the first subdivision of the site. The plan will manage values of lizards, birds and bats and will propose methods for relocation, habitat enhancement and habitat protection as necessary. If the main waterway through the lower part of the site is subject to works to increase its flood capacity, it can be naturalised and enhanced, resulting in a significant increase in ecological values. All waterways will be subject to a 10m setback for development, with the exception of culverts/bridges for access, though these are likely to require resource consent anyway.

- 115.** Submissions on the plan change were generally limited to general statements about adverse effects on the environment. I consider that adverse effects have been adequately identified, and will be appropriately addressed through the recommendations and proposed policies and rules. The submission from GWRC generally supported, with amendments, the ecological intentions of the plan change, with the exception of the definition of the GBNA. I do not agree with GWRC's suggestion that the definition be amended to include wetlands and waterbodies. I note any works in these habitats is likely to require resource consent under the regional plan and/or NES-F as it stands. These areas are therefore protected from inappropriate works through the resource consent process.
- 116.** I support the ecological components of the plan change. The plan change is unlikely to result in significant adverse effects on ecological values. I consider the proposed mitigation, through the policies, objective and rules adequate to address any adverse ecological effects. The works associated with potential subdivision of the site will result in improvements in ecological values for the main waterway in the lower zone, and will provide protection to areas of significant natural vegetation that is currently not protected through district and/or regional plans.

**DATED** this 29<sup>th</sup> day of September 2022



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Annabelle Coates