Bioresearches
A Babbage Company

TO: Rangitoopuni Development Limited Partnership Date: 27 May 2026
COPY TO: Campbell Brown Job No: 69141
FROM: Laura Drummond, Blair Outhwaite

RANGITOOPUNI FOREST FAST TRACK REFERRAL – ECOLOGICAL MEMORANDUM

Introduction

Te Kawerau ā Maki, in partnership with Avant Property Development Limited ('Avant') under Rangitoopuni Development Limited Partnership (RDLP), intends to lodge an application for referral of the Rangitoopuni Forest (the Project) under the Fast Track Approvals Act (FTAA). Bioresearches were engaged by RDLP to undertake an ecological constraints assessment of Riverhead Forest to inform the referral application for the Project. This ecological constraint assessment pertains to existing terrestrial and freshwater ecological features within the Project Area.

The proposed works include transitioning the existing Riverhead commercial pine plantation to an indigenous forest. The commercial pine plantation will be felled by the forestry operators, independent of the proposed Rangitoopuni Forest, in accordance with their cutting plant. The site will then be subdivided to form approximately 3434 - 4197 residential dwellings and associated amenity and community hubs, villages and recreational services (Figure 1). Within the centre of the site, Rangitoopuni Forest Reserve and its recreational hub will be established, comprising approximately 573 hectares of contiguous indigenous forest revegetation with recreation trails throughout,. The extensive revegetation planting throughout the site, and the protection and enhancement of riparian and wetland margins, which would result in high-quality fauna and flora habitat, providing a significant increase in biodiversity over time

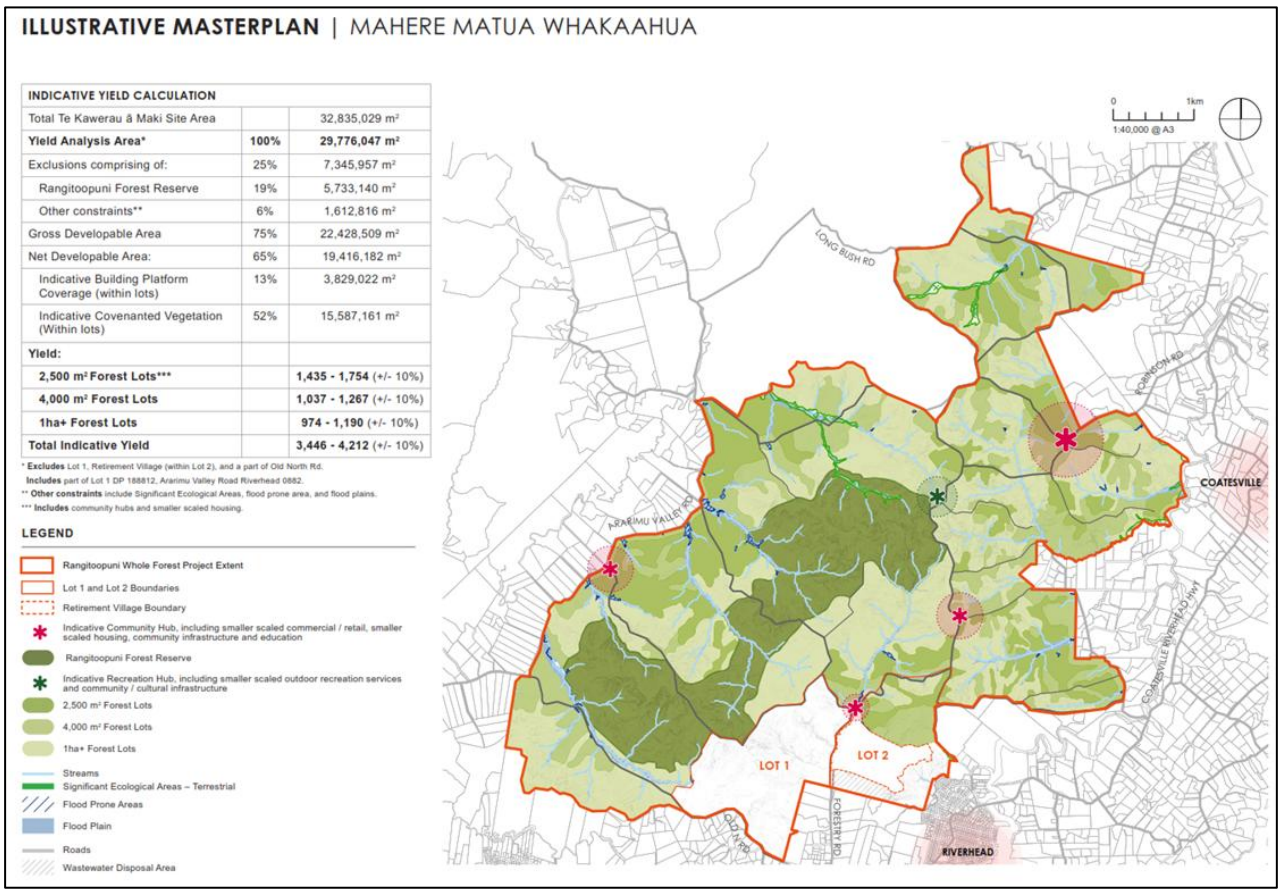


Figure 1. Proposed master plan

Methodology

Bioresearches
128 Montreal Street, Sydenham, Christchurch
PO Box 2027, Shortland Street,
Auckland 1140, New Zealand
T 03 379 2734 **E** admin@babbage.co.nz
www.bioresearches.co.nz

A desktop review of various online GIS databases was undertaken to determine the extent of ecological protection overlays (e.g., covenants, conservation land, Significant Ecological Area's (SEA)), 'ecosystem type' classifications, and visualise historical land-use using historical aerial images. The scheduling of SEAs and classification of ecosystems provides a means for Councils to protect and maintain indigenous biodiversity within Districts and Regions. The desktop review also included a search for fauna records from various information sources.

Specifically, the following databases were reviewed:

- Department of Conservation Bioweb records for herpetofauna and bats[1];
- iNaturalist records for herpetofauna and birds within approximately a 5 km radius from the Project area[2];
- New Zealand Bird Atlas eBird database[3]. Bird data is recorded in 10 x 10 km grid squares. AA66 grid square was accessed as this is positioned over the Project area;
- NIWA's New Zealand Freshwater Fish Database records were accessed for affected stream catchments;
- Auckland Council Geomaps for overland flow paths, Biodiversity Extent and Significant Natural Area overlays[4].

A site assessment was undertaken by experienced ecologists on the 7th May, 2026.

During the site assessments, representative areas were assessed, as informed by aerial image surveys and from findings from the Rangitoopuni Lot 1 and 2 Ecological Impact Assessment. This assessment of representative habitats was deemed to be appropriate for the Referral application as the existence of commercial pine forestry, albeit at different rotational stages, creates a relatively consistent landscape in regards to indigenous habitats. Representative habitats consisted of:

- Deforested pine: felled pine forest with minimal woody vegetation retained and consists primarily of exotic, weedy plants;
- Short Pine: Immature pine, less than 6 metres in height and consists primarily of canopy tier vegetation, with minimal sub-canopy and ground cover;
- Tall Pine: Immature to mature pine exceeding 6 m in height and generally supports a greater diversity and presence of indigenous sub-canopy and ground cover species;
- Indigenous vegetation: Areas indigenous dominant vegetation located throughout the Project Area and support notified Significant Ecological Areas under the AUP OP and/or support a recognised terrestrial ecosystem type (Singers et al., 2017) and identified via Auckland Council Current Ecosystem Extent (Auckland Council Geomaps); and
- Wetlands: Primarily located on gully floors and adjacent to streams, ranging in size and generally contain native and weedy exotic vegetation

During the site assessment:

- The presence and extent of wetland and stream features of the project area were noted, and the quality of any freshwater habitat was visually assessed.

[1] https://www.doc.govt.nz/our-work/monitoring-reporting/request-monitoring-data/
[2] https://inaturalist.nz/home
[3] https://ebird.org/home
[4] https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html

- Terrestrial habitats within the project area were visually assessed, with information recorded on plant species. No formal fauna surveys were undertaken, although incidental observations were made on indigenous bird species observed or heard.
- Habitat assessments of potential habitats of terrestrial fauna, including birds, lizards and bats.

Existing Ecology

The Project Area straddles the boundaries of the Rodney Ecological District (E-D) and Tamaki E-D, with the entirety of the Project Area falling within the Auckland ecological region. Both the Tamaki and Rodney E-D have warm, humid summers and mild winters with annual rainfall of 1200 – 1600 mm. Vegetation within the Tamaki E-D is characterised by typical North Island lowland indigenous forest with abundant taraire and pūriri, while the Rodney E-D originally consisted of extensive podocarp-hardwood forest (McEwan, 1987).

The Project Area has been used for commercial forestry since at least the 1940's, with haulage tracks established throughout stands of vegetation, indicating the land has been utilised for over 80 years. Deforestation is observable in aerial images from the 1970's with pine plantations again re-sown. It is estimated that at least two crops of pine have been felled and subsequently reforested on the site prior to the Te Kawerau ā Maki treaty settlement.

Vegetation

Forestry vegetation

Throughout the site, four main terrestrial vegetation components are present: deforested pine, short pine, tall pine, and indigenous vegetation (Figure 2). It should be noted that the short and tall pine ecosystems described will be subject to harvest prior to construction and therefore will likely reflect the deforested pine ecosystem described here.

The central portion of the site consists of deforested pines vegetation which lacks successional plantation established, with extensive clear-felled pine stumps and slash covering the ground and loose soils. This area was primarily bare, though short gorse (Ulex europaeus) and pampas (*Cortaderia selloana*), less than 1 m tall, dominated the emergent vegetation. Additional exotic vegetation present includes inkweed (*Phytolacca octandra*), black nightshade (*Solanum nigrum*), and thistle (*Carduus* sp.).

Short pine areas consisted of forestry that had been felled and afforested within the last 10 years. This vegetation type consisted of dense short pines, generally less than 6 m in height, with a limited understory and sub-canopy. Where ground cover and sub-canopy were present in the larger pine areas, this was dominated by exotics, such as gorse and pampas with a few native species, such as māpou (*Myrsine australis*), karamū (*Coprosma robusta*), and gahnia (*Gahnia setifolia*).

Tall pines were the largest vegetation group within the Project Area and consisted of established and establishing pine forest. This group differs from the short pine ecosystem as the pine canopy was less dense and supports a diverse indigenous sub-canopy and understory. Patches of younger (c. 15 year old) tall pine did contain sparse understories. The diversity and abundance of indigenous vegetation was greater within the tall pines; however, this was still limited to ground-cover, understory, and sub-canopy tiers. This vegetation included ponga (*Alsophila dealbata*), hangehange (*Geniostoma ligustrifolium*), karamu, māpou, mamaku (*Sphaeropteris medullaris*), cabbage tree (*Cordyline australis*), seven finger (*Schefflera digitata*), māhoe (*Melicytus ramiflorus*), and kumerahou (*Pomaderris kumeraho*). There were also scattered exotic species jasmine (*Jasminum polyanthum*), gorse, Chinese privet (*Ligustrum sinense*), honey suckle (*Lonicera japonica*), pampas, and ginger (*Hedychium* sp.), which were concentrated around the edges.



Figure 2: Example of ecosystem types identified on site. Top left to bottom right; felled pine, short pine, tall pine, and indigenous ecosystems.

The assessment factors for vegetation have been considered in Table 1. The overall ecological value of the various stages of commercial forestry has been initially assessed as low ecological value.

Table 1: Preliminary assessment of ecological factors to determine forestry value.

Factor	Comment	Score
Representative	Low representativeness of native ecosystems	Low
Rarity/distinctiveness	Only common Not Threatened species recorded.	Low
Diversity and pattern	Diversity of native species is low and pattern interrupted by habitat modification.	Low
Ecological context	Not expected to provide notable flora habitat within landscape.	Low

Indigenous vegetation

Approximately 21 ha of indigenous dominant vegetation is present within the Project Area. These areas are primarily restricted to the riparian margins of watercourses and wetlands, however this extent may vary when ground truthing and/or drone aerial imagery is undertaken as part of future investigations.

Four Significant Ecological Areas (SEA) are present within the site. The SEA's were generally large, however infestation of pampas was apparent throughout some wetland areas. Indigenous vegetation represented VS5: Broadleaved species scrub/forest ecosystem and included rough tree fern (*Dicksonia squarrosa*), kiokio (*Parablechnum novae-zelandiae*), cabbage tree, mamaku, scattered kānuka (*Kunzea robusta*), māpou, māhoe, hangehange, karamū, seven finger, flax (*Phormium tenax*), and mānuka (*Leptospermum scoparium*) with occasional gorse and pampas. There was little evidence of transition towards a successional ecosystem.

The four SEA's present on site have met the following criteria for inclusion as SEA's:

- SEA_T_6298: 1) Representativeness, 2) Threat status and rarity, and 4) Stepping-stones, migration pathways and buffers;
- SEA_T_7036: 1) Representativeness, 2) Threat status and rarity, and 3) Diversity;
- SEA_T_6303: 1) Representativeness, 2) Threat status and rarity, 3) Diversity, and 4) Stepping-stones, migration pathways and buffers;
- SEA_T_6301: 4) Stepping-stones, migration pathways and buffers.

In addition to the notified SEA's, six recognised indigenous terrestrial ecosystem extents are indicated to be present within the site, predominantly restricted to the deeper gully systems. These include, VS2 Kānuka scrub/forest, VS3 Mānuka, kānuka scrub, VS5 Broadleaved scrub/forest, WF8 Kahikatea, pukatea forest, and WF11 Kauri, podocarp, broadleaved forest. Of these ecosystem extents, WF8 has a regional IUCN threat status of Critically Endangered, and WF11 has an IUCN threat status of Endangered.

The assessment factors for indigenous vegetation have been considered in Table 2. The overall ecological value of the various stages of indigenous vegetation has been initially assessed as moderate to high ecological value.

Table 2: Preliminary assessment of ecological factors to determine indigenous vegetation value.

Factor	Comment	Score
Representative	Representative of modified native ecosystems.	Moderate to high
Rarity/distinctiveness	Only Not Threatened species recorded on the site though an Endangered ecosystem is mapped on the site.	Moderate to high
Diversity and pattern	Diversity of native species is moderate and pattern interrupted by habitat modification.	Moderate
Ecological context	The vegetation provides habitat for native flora and fauna within a highly modified environment.	Moderate

Wetlands

Approximately 22 ha of potential natural inland wetland is present throughout the Project Area.

Vegetation within the representative wetland areas included raupō (*Typha orientalis*), *Carex* sp, mercer grass (*Paspalum distichum*), soft rush (*Juncus effusus*), swamp millet (*Isachne globosa*), cabbage tree, giant umbrella sedge (*Cyperus ustulatus*), grass-leaved rush (*Juncus planifolius*), jointed baumea (*Machaerina articulata*), budding club-rush (*Isolepis prolifera*), but with most of the assessed wetland infested with pampas. Within the larger wetlands, common native species were located immediately adjacent to the wetland edge, and proceeded to follow the riparian margin, before becoming dominated by pine. These large wetlands were overlaid with notified SEA's and mainly support the recognised

ecosystem type WL19; Raupō reedland (IUCN threat status Endangered) however a WL11; *Machaerina* Sedgeland, was located within a gully on the western portion of the site, which has an IUCN threat status of critically endangered.

The wetland ecological values of the site have been initially assessed as moderate to high ecological value.



Figure 3. Examples of wetland habitats observed within the site. Top left to bottom right, exotic wetland, sedge wetlands and raupō wetland

Streams

Multiple stream catchments are located within the Project Area, with the streams within the eastern side of the site contributing to the Rangitoopuni Stream which ultimately discharges to the Waitematā Harbour and Hauraki Gulf; and streams on the western side contributing to the Ararimu Stream, which then discharges into the Kaipara Harbour. Stream types throughout the site were relatively consistent with their condition dependent upon the dominant vegetation type. Within the Project Area, there is an estimated 160 km of intermittent stream, and 110 km of permanent stream, as indicated by Auckland Council GeoMaps Overland Flow Paths.

Streams located within the deforested pines were highly degraded, with extensive slash overlaying the stream bed, and it is likely that flows are significantly altered due to the degree of slash and channel alteration present. Within the short pine areas, streams are generally of better quality than those in the deforested areas, however some impacts from slash and debris and reduced indigenous buffers were observed. It is expected stream reaches within the deforested areas would lack quality aquatic habitats, such as pools, riffles, overhanging vegetation and viable woody debris, due to the extensive slash damaging the bed and banks. Streams within the short pine likely contain a higher proportion of higher quality aquatic habitats and open water, however these are likely to be limited. There were extensive areas that lacked vegetation, and the corresponding riparian yard to streams, within the deforested areas,

whilst the short pine areas contained pine, gorse and pampas dominated riparian yards. The limited vegetation likely provides few riparian yard functions to the streams, particularly in buffering, shade, filtration and bank stability.



Figure 4. Example of stream habitats within the site. Top left to bottom right, deforested intermittent stream, tall pine streams and fifth order stream.

Streams located within the tall pine contain more naturalised flows and channel characteristics, with the bed and banks showing no severe damage from forestry, however some erosion and bank slumping are present. These streams contained a mix of hard and soft substrates with fast runs, slow runs and pools present.

Large, fifth-order permanent streams are located throughout the Project Area, and are likely to exceed 3m in width. These streams are located within the deforested, short pine and tall pine areas. These permanent streams have generally retained a high degree of indigenous riparian vegetation, with the impacts of forestry activities reduced within the riparian yards. These streams contain deep water with a variety of habitat types, including runs, pools, riffles, undercut banks, overhanging vegetation, woody debris and diverse substrates.

The streams within the site have been initially assessed as being of low (deforested) to high (fifth-order) ecological value.

Fauna

A desktop search of fauna records, including avifauna, herpetofauna, bats, and freshwater fish, indicates a large suite of indigenous species to be present throughout the site, and within close proximity. This includes Not Threatened, Threatened and At Risk (TAR) fauna species. Despite the site's modified nature and dominance of exotic commercial pines, the overall fauna values of the site are considered to be moderate to high based on existing habitat values. Table 3 presents the TAR fauna species that may be present within the site.

Table 3. Threatened and At Risk records for native fauna species (excluding coastal birds) recorded within 5 km of the project area

Taxa	Common name	Scientific name	New Zealand Threat Classification	Auckland Region Threat Classification
Avifauna	Australasian bittern	*Botaurus poiciloptolus*	Threatened – Nationally Critical	Threatened – Regionally Critical
	Fernbird	*Poodytes punctatus*	At Risk - Declining	Threatened – Regionally Vulnerable
	Bellbird	*Anthornis melanura*	Not Threatened	At Risk – Regionally Recovering
	Spotless Crake	*Zaporina tabuensis*	At Risk - Declining	Threatened – Regionally Vulnerable
	New Zealand dotterel	*Anarhynchus obscurus*	Threatened – Nationally Increasing	Threatened – Regionally Increasing
	New Zealand pipit	*Anthus novaeseelandiae*	At Risk - Declining	Threatened – Regionally Vulnerable
	Banded rail	*Hypotaenidia philippensis*	At Risk – Declining	At Risk – Regionally Declining
	Kākā	*Nestor meridionalis*	At Risk - Recovering	At Risk – Regionally Recovering
Herpetofauna	Copper skink	*Oligosoma aeneum*	At Risk - Declining	At Risk –Declining
	Ornate skink	*Oligosoma ornatum*	At Risk - Declining	At Risk –Declining
	Moko skink	*Oligosoma moco*	At Risk - Relict	At Risk –Relict
	Forest gecko	*Mokopirirakau granulatus*	At Risk – Declining	At Risk – Declining
	Elegant gecko	*Naultinus elegans*	At Risk – Declining	At Risk – Declining
	Pacific gecko	*Dactylocnemis pacificus*	Not threatened	At Risk –Declining
Bats	Long-tail bat	*Chalinolobus tuberculatus*	Threatened – Nationally Critical	Threatened – Regionally Critical
Fish	Longfin eel	*Anguilla dieffenbachii*	At Risk - Declining	At Risk – Regionally Declining
	Banded kōkopu	*Galaxias fasciatus*	At Risk – Naturally Uncommon	Not Threatened
	Redfin bully	*Gobiomorphus huttoni*	At Risk – Naturally Uncommon	At Risk – Regionally Declining
	Torrentfish	*Cheimarrichthys fosteri*	At Risk – Naturally Uncommon	Threatened – Regionally Vulnerable
	Īnanga	*Galaxias maculatus*	Threatened – Nationally Vulnerable	At Risk – Regionally Declining
	Cran's bully	*Gobiomorphus basalis*	At Risk – Naturally Uncommon	At Risk – Regionally Declining

Common bird species typical of the Auckland Region (such as fantail (*Rhipidura fuliginosa*), tūī (*Prosthemadera novaeseelandiae*), pūkeko (*Porphyrio melanotus*)) are expected to be found breeding, foraging and roosting within the site. New Zealand pipit (*Anthus novaeseelandiae*) have been found on site, inhabiting rough, open habitats, and observed within the rough recently felled areas for foraging. Although wetland avifauna were not identified within a 5 km radius of the site within the desktop assessment, the wetland habitat on Site is considered suitable for wetland avifauna species. As most wetland birds are inconspicuous in nature, they may be present on Site, and have remained undetected. Species may include those with a 'Threatened' and 'At-Risk' conservation status such as Australasian bittern (*Botaurus poiciloptilus*), spotless crake (*Zapornia tabuensis*) and fernbird (*Poodytes punctatus*), which may utilise such areas for breeding and foraging.

No native lizards have been recorded within Rangitoopuni-Riverhead Forest, however, a suite of six native lizard species is considered to have some potential to be present within and around potential habitats associated with mature and clear-felled pine environments. Three of these species have been recorded within 5 km of the project, although two of these (Pacific gecko and forest gecko) have strong associations with indigenous forest habitats that are located within the deep gullies, which support recognised indigenous ecosystem extents. Whilst native frogs have been found within pine forests within the Auckland Region, no appropriate habitats (i.e. small shady headwater streams with boulders, cobbles other stable substrates) were observed due to the constraints of the site assessment. It is considered unlikely for native frogs to be present.

Two endemic species of bats are found in New Zealand, the long-tailed bat (*Chalinolobus tuberculatus*) and the lesser short-tailed bat (*Mystacina tuberculata*). Both species are listed as 'Threatened' or 'At Risk' under the New Zealand threat classification system (i.e., LTB - 'Nationally and Regionally Critical' and Southern STB – 'Nationally and Regionally vulnerable') (Townsend *et al.,* 2008; O'Donnell *et al.,* 2023). A desktop search for bat records identified the presence of long-tailed bat (*Chalinolobus tuberculatus*) records both directly within the project area, with Riverhead forest known to support a large population of long-tail bats. Long-tail bats are therefore considered to be present within the site for roosting and foraging. Roost trees are primarily expected to be restricted to native trees within SEA areas. No roost features were observed within the pine plantation, given the age and maintenance of the pine plantation, roost features are expected to be limited within pine trees on site.

Kauri snails (*Paryphanta busbyi*) have been recorded within and near the site. Kauri snails are not known to naturally occur south of Warkworth however they are listed as At Risk – Declining. Populations throughout the pine plantation are expected to be patchy and likely crash following each harvest rotation. Kauri snails likely persist by recolonising from non-harvested areas and/or through eggs and individuals that survive harvest activities.

Indigenous fish are likely excluded from the deforested areas due to the lack of aquatic habitats and prevalence of impact stream reaches, however may be present within the more established streams within the short pines. Fish are expected to be present in the fifth-order permanent streams and tall pine areas where no barrier to fish passage are present. Threatened and At Risk fish species potentially present within the site utilise a range of different habitat features.

The assessment factors for indigenous fauna have been considered in Table 4. The overall ecological value of native fauna has been initially assessed as low to moderate ecological value.

Table 4: Assessment of ecological factors to determine native fauna value.

Factor	Comment	Score
Representative	Native fauna communities are not expected to be representative of natural communities due to habitat modification and pest animal impacts.	Low

Rarity/distinctiveness	Several TAR species may be present on the site, several of which are distinctive within the region.	Moderate to High
Diversity and pattern	Diversity of native species is likely low to moderate and community patterns interrupted by habitat modification and pest animal impacts.	Low to Moderate
Ecological context	The extensive wetlands within the site may provide notable habitat for TAR wetland birds within the wider landscape. The site is not expected to be notable for native bats or lizards due to habitat modification.	Low to Moderate

Ecological Constraints Assessment

The Project proposes to subdivide the site and construct residential living lots of various densities. The Project will commence following the harvesting and deforestation of commercial pine, which is in control of the forestry operator who anticipate felling via the cutting plan (appendix 1). The project works will follow up from this felling, resulting in a staged approach over circa 20 years, isolating the area of impact to discrete areas over time. As part of the Project, works including earthworks, vegetation clearance and removal of slash, installation of culverts/stream crossings and establishment of roading (predominantly undertaken on existing forestry roads) will occur during the construction phase of the site. The operation phase of the development will likely include the discharge, diversion and damming of water and wetlands.

Whilst the site is commercial forestry, high-value ecological features, including endangered wetland and forest ecosystem extents, Threatened and At Risk fauna and sensitive receptors are located throughout. As such, careful management of freshwater and terrestrial ecological features is required to be implemented throughout the development stages.

Effects on Freshwater Values

The initial ecological site assessment indicates freshwater ecological values are associated with large networks of streams and natural inland wetlands, which likely range from low to high ecological value. This includes several fifth-order, likely over 3 m in width, which support a range of aquatic habitats and recognised wetland ecosystem extent, including ‘Raupō reedland’ and ‘macherina sedgeland’. These significant freshwater features must be avoided, along with additional natural inland wetland areas identified that subsequently meet these ecosystem classifications.

The project intends, as far as practicable, to avoid the reclamation or diversion of streams and natural inland wetlands. Where avoidance of impacts to streams is not possible, the effects management hierarchy will be applied to ensure potential adverse effects are appropriately minimised, mitigated or offset/compensated, in compliance with the National Policy Statement for Freshwater Management (NPS-FM). If realignment of stream channels is required, these channels must be based of natural stream channel design principals including a range of habitat features such as pool, riffle, run sequences, woody debris, chutes and run variations where achievable. Any channel realignment will require During streamworks and any works within wetlands, mitigation measures are proposed through the implementation of fish salvage to reduce adverse effects to fish populations located within the potential streamworks areas.

The development will likely result in the infringement and removal of vegetation within the 20 m riparian yard and 10 m natural inland wetland setback, and the 20 m setback from wetlands, after the clearance

of commercial pine. In the event that infringement cannot be avoided, adverse effects may be minimised through the proposed extensive riparian planting of the riparian yards and wetland setbacks.

Through the roading up-grades and establishment, existing forestry culverts will likely be removed and replaced, and additional culverts/stream crossings installed within the watercourses. All culverts and/or stream crossings should be designed in accordance with the New Zealand Fish Passage Guidelines (2024) and National Environmental Standards for Freshwater (NES-F), and designed with inputs from a suitably qualified freshwater ecologist to ensure fish passage is promoted.

Earthworks and the diversion, damming and discharge of water within 100 m of wetlands are likely to occur throughout the development stages, including during construction and operation. It is considered that these activities can be appropriately managed to ensure the hydrological function of wetlands are not inhibited, and the values of natural inland wetland are promoted through pest control and buffer planting.

As part of the stormwater management of the site, it is indicated a classifiable dam is to be installed within the headwaters of the Riverhead/Coatesville catchment. This dam is currently proposed to be situated within a natural inland wetland, with the inclusion of the dam, which will result in the loss of natural inland wetland extent and values via inundation and flooding. As such, this would represent a significant residual adverse effect which would require offset and/or compensation in accordance with the NPS-FM.

The replacement and installation of new culverts, and the construction of the dam presents the potential to impede fish passage. New and replacement culverts should be designed to meet fish passage requirements and to the NES-F permitted standards to provide for fish passage. Where culverts may impede fish passage, a complex freshwater fisheries activity approval or standard freshwater fisheries activity approval will be required. The installation of the dam will require a complex freshwater fisheries activity approval.

Effects on Terrestrial Values

It is understood that the development would occur following the harvest and deforestation of the commercial pine forest throughout the site. Outside of the SEA's, botanical values are generally low, consisting of groundcover and sub-canopy indigenous vegetation. The clearance of commercial forestry will be occurring via as commercial forestry, and will not be occurring under this proposal.

All native bats, reptiles, amphibians, kauri snails and most birds are legally protected under the Wildlife Act 1953, and its subsequent amendments, and vegetation and landscape features that provide significant habitat for native herpetofauna, bats, kauri snails and avifauna are protected by the RMA 1991 and National Policy Statement for Indigenous Biodiversity. As such, site specific Wildlife Act Authority (WA) may be required for the handling, capture and relocation, and potential harm and mortality of herpetofauna and kauri snails, and may be required for avifauna if avoidance and appropriate management cannot be achieved.

The areas of highest value habitat for native fauna and flora are expected to be avoided. The value of forestry vegetation is expected to be negligible following felling, however the removal of this vegetation across the site is notable. The works are expected to largely avoid the removal of SEAs, wetland, and riparian vegetation and the WF8 ecosystem. Following the removal of the pine plantation, the remaining habitat for native fauna is expected to be exposed and disturbed. The proposal will primarily require the removal of regenerating pest plants across the site. It is noted that vegetation clearance will be required within small areas of a small number of the riparian margins on the site, however the remaining riparian/wetland margins will be subject to legal protection and management.

The proposal includes extensive areas of revegetation planting throughout the majority of the site, with a total of 2,293 ha of protected indigenous vegetation. This area of protection includes 573 ha of the Rangitoopuni Forest Reserve which will be replanted, alongside the majority of the site, to indigenous forest, replacing commercial pine forestry. The Rangitoopuni Forest Reserve revegetation provide long-

term ecological gains through increased flora and fauna biodiversity. Wetlands, streams and their riparian margins, existing SEA's and vegetation covenant lots are included within the 2,293 ha of protected vegetation, forming a large, contiguous forest which can provide stepping stones and migration pathways throughout the area for indigenous fauna. In addition, the four SEA's and wetland and stream riparian margins (including extensive headwater catchments) will undergo enhancement actions and pest plant and animal control, enhancing their overall value and significance within the landscape. Following the development of the site and considering the extensive indigenous planting described below, this will likely result in a positive ecological outcome, ensuring flora and fauna pest control is thoroughly implemented.

The proposed works could result in harm to native fauna. Given the quality of the habitat to be cleared, it is expected that works could result in harm to a low number of Not Threatened nesting bird species. The works are expected to largely avoid habitats where TAR wetland bird species are expected to nest. However, open spaces and the short, regenerating shrub may provide nesting habitat for New Zealand dotterels and pipit. The loss of even small numbers of Threatened species may have notable effects regionally.

The habitat within the works footprint is likely to only support native skinks, however gecko species may persist within the indigenous habitat fragments. Where present on the site, native geckos are expected to be restricted to areas of native dominated vegetation. While the post-felling habitat is likely low quality for native skinks, the extent of clearance may result in harm to a notable number of an At Risk lizards. As such, herpetofauna surveys to confirm the presence and populations of lizards throughout the site is required to support the application, and a site-specific wildlife authority will likely be required to managed potential adverse effects on lizard populations.

Bat roost trees are only expected to remain within the areas of indigenous vegetation. It is expected that the area of vegetation clearance required within the indigenous vegetation is minimal, however even the loss of a small number of animals from a Threatened species may impact local populations.

It is expected that the post-felling habitat is likely low quality for kauri snails due to habitat disturbances though the extent of clearance may result in harm to a notable number of an At Risk invertebrate. To minimise the risk of harm, kauri snail surveys to confirm the presence and populations of kauri snails throughout the site is required to support the application, and a site-specific wildlife authority will likely be required to manage potential adverse effects on lizard populations.

The magnitude of effect of habitat clearance on native fauna is expected to be at least **high**. In order to mitigate for the impacts of vegetation removal, fauna management is recommended prior to, during, and following habitat removal. Noting that potential fauna habitat includes groundcovers, debris, scrubby regenerating native and exotic plants.

It is recommended that a bird nest check be undertaken prior to vegetation/ground clearance undertaken via RDLP, and that this should be guided through a condition of consent. Whilst no native skinks were detected during lizard management works for Lot 1, it is recommended that a lizard management plan be prepared, which includes a pre-works survey. The lizard management plan should also include habitat enhancement requirements. It is also recommended that a bat management plan be prepared that is in line with DOC's bat roost protocols and includes roost habitat enhancement. Should fauna management be implemented along with the appropriate habitat enhancement, the magnitude of effect on native fauna is expected to be appropriately mitigated, and is to be further detailed in an Ecological Impact Assessment and Ecological Management Plan.

Relevant Legislation

The proposal aims to align with the policies and objectives of national environment legislation, namely the NPS FM and the NPS-IB.

The objective of the NPS-FM is to ensure the health and well-being of waterbodies and freshwater ecosystems are prioritised. A key component to this, in regard to the RDPL is through the avoidance of

freshwater ecosystems, limiting potential adverse effects as far as practicable. Where avoidance cannot be achieved, application of the effect's management hierarchy will be employed to minimise and remedy potential adverse effects, with aquatic offsetting and compensation employed if the adverse effect cannot be managed in order to meet the relevant standards under the NES-F. The Project intends to promote the health and well-being of freshwater ecosystems through the restoration of indigenous forest, including within waterbody setbacks, and the implementation of pest management to reduce weed invasion within the stream margins and natural inland wetlands.

The NPS IB's primary objective is to ensure no overall loss of New Zealand's biodiversity occurs through the protection, enhancement and restoration of indigenous ecosystems and biodiversity values. The Project aligns with this objective through the avoidance of SEA's and their subsequent pest control and enhancements, and the restoration and protection indigenous forest ecosystems following the commercial felling of pines. To ensure the existing values within the site are protected and promoted, careful management of terrestrial flora and fauna is to be implemented to maintain and improve indigenous species populations and ecosystems on site. Overall, ensure indigenous biodiversity is appropriately managed within the site, the Project is anticipated to result in long term gains in indigenous biodiversity, consistent with the NPS-IB.

Conclusion

RDLP proposes to subdivide the site for residential purposes and transition commercial pine plantation, felled by the forestry operator, to indigenous forest. Ecological features within the site include Significant Ecological Areas, indigenous vegetation situated throughout commercial forestry, natural inland wetlands, including those with heightened conservation status and large networks of intermittent and permanent streams. These features provide habitat for high-value indigenous fauna, including bats, avifauna, fish, large macroinvertebrates and herpetofauna, and potentially large terrestrial invertebrates. Appropriate management strategies are imperative to reducing potential adverse effects to indigenous ecological features, including flora, fauna and freshwater, throughout the site, including on a local population scale.

Given the extent of works within the site, a Wildlife Act Authority will be required for the handling, capture, relocation and potential harm and mortality of bats and herpetofauna. This may be required for avifauna and invertebrates, as informed by ecological surveys and the resultant Ecological Impact Assessment. Complex Freshwater Fisheries Approval and/or Standard Freshwater Fisheries approval will be required for any stream diversion and realignment, culverts which have the potential to impede on fish passage and construction and operation of the dam for stormwater management.

The proposal will likely include works within 10 m and 100 m of natural inland wetlands, works within wetlands, and works within the 20 m setback of watercourses. Indigenous vegetation within the site may be impacted through works to facilitate the development. Where activities present a residual adverse effect, offsetting and/or compensation will be required in accordance with the NPS-IB and NPS-FM. Post-development, the site will support regenerating indigenous forest, which will lead to long-term ecological gains over a large area.

References

Bloxham, M., Woolly, J., Dunn, N., Chaffe, A., Tutt, C., &Melzer, S. (2023).
Conservation status of freshwater fishes in Tāmaki Makaurau / Auckland. Auckland Council technical report, TR2023/13.

Dunn, N.R., Allibone, R.M., Closs, G.P, Crow, S.K., David, B.O., Goodman, J.M., Griffiths, M., Jack, D.C., Ling, N., Waters, J.M. & Rolfe, J.R. (2018).
Conservation status of New Zealand freshwater fishes, 2017. New Zealand Threat Classification Series 24. Department of Conservation. 15pp.

Hitchmough R, Barr B, Knox C, Lettink M, Monks JM, Patterson GB, Reardon JT, van Winkel D, Makan T, Michel P. (2026).
Conservation status of reptiles in Aotearoa New Zealand, 2025. Wellington: Department of Conservation. New Zealand Threat Classification Series 50

McEwan, (1987).
Ecological Regions and Dsitricts of New Zealand. Department of Conservation, Wellington.

Melzer, S., R. Hitchmough, D. van Winkel, C. Wedding, S. Chapman & M. Rixon (2022).
Conservation status of reptile species in Tāmaki Makaurau / Auckland. Auckland Council technical report, TR2022/3.

Robertson, H.A., Baird, K., Elliott, G.P., Hitchmough, R.A., McArthur, N., Makan, T.D., Miskelly, C.M, O'Donnell, C.F.J., Sagar, P.M., Scofield, R.P., Taylor, G.A. & Pascale, M. (2021).
Conservation status of New Zealand birds, 2021. New Zealand Threat Classification Series 36. Department of Conservation, Wellington. 43 p.

O'Donnell, C.F.J., Borkin, K.M., Christie, J., Davidson-Watts, I., Dennis, G., Pryde, M. & Michel, P. (2023).
Conservation status of bats in Aotearoa New Zealand, 2022. New Zealand Threat Classification Series 41. Department of Conservation, Wellington. 18 p.

Singers, N., Osborne, B.; Lovegrove, T.; Jamieson, A.; Boow, J.; Sawyer, J.; Hill, K.; Andrews, J.; Hill, S. and Webb, C. (2017).
Indigenous Terrestrial and Freshwater Ecosystems of Auckland. Auckland Council.

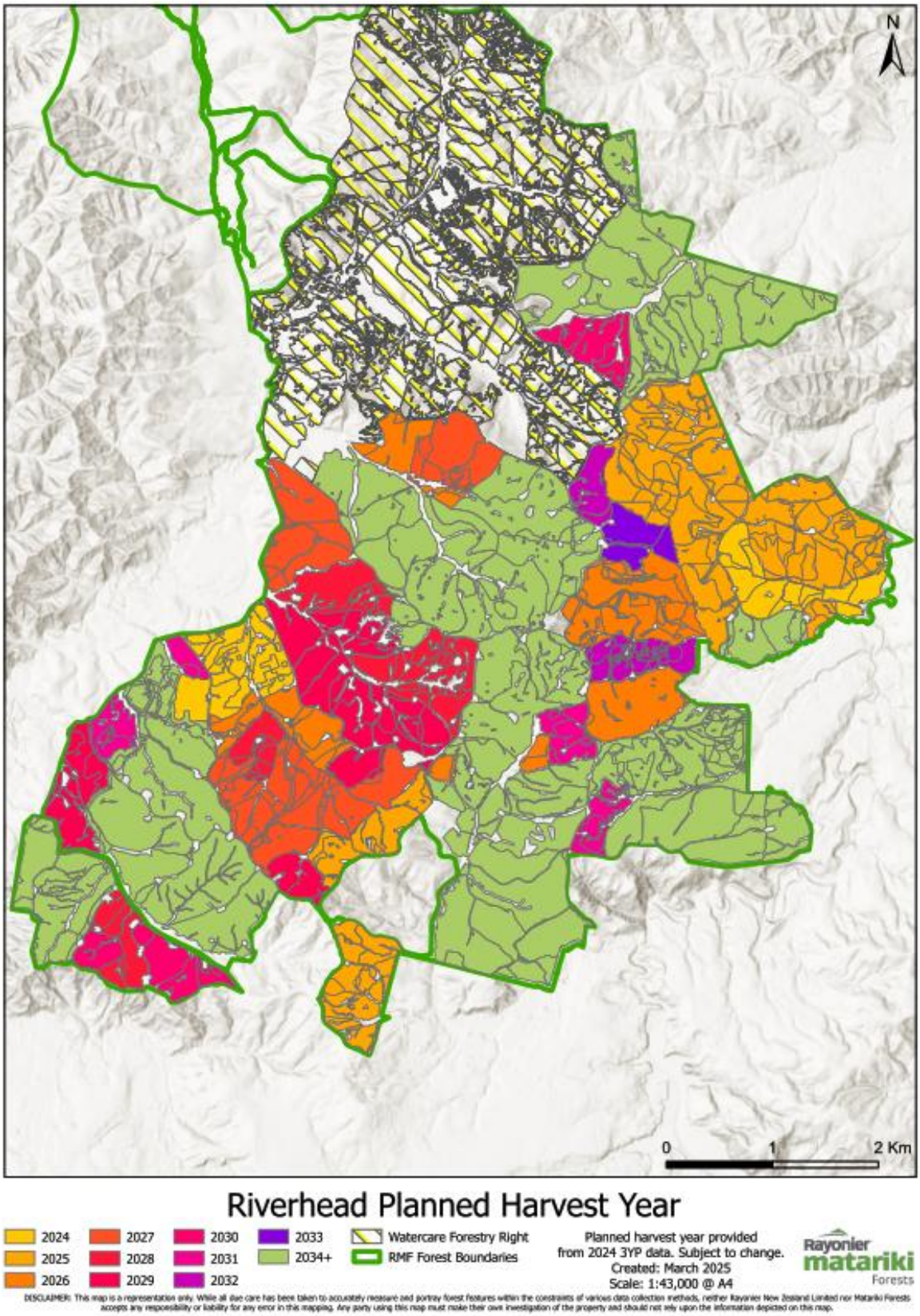
Townsend, A.J.; de Lange, P.J.; Duffy, C.A.J.; Miskelly, C.M.; Molloy, J.; Norton, D.A. (2008).
New Zealand Threat Classification System manual. Department of Conservation, Wellington. 35 p

Woolly, J., Paris, B., Borkin, K., Davidson-Watts, I., Clarke, D., Davies, F., Burton, C. & Melzer, S. (2023).
Conservation status of bat species in Tāmaki Makaurau / Auckland. Auckland Council technical report, TR2023/.

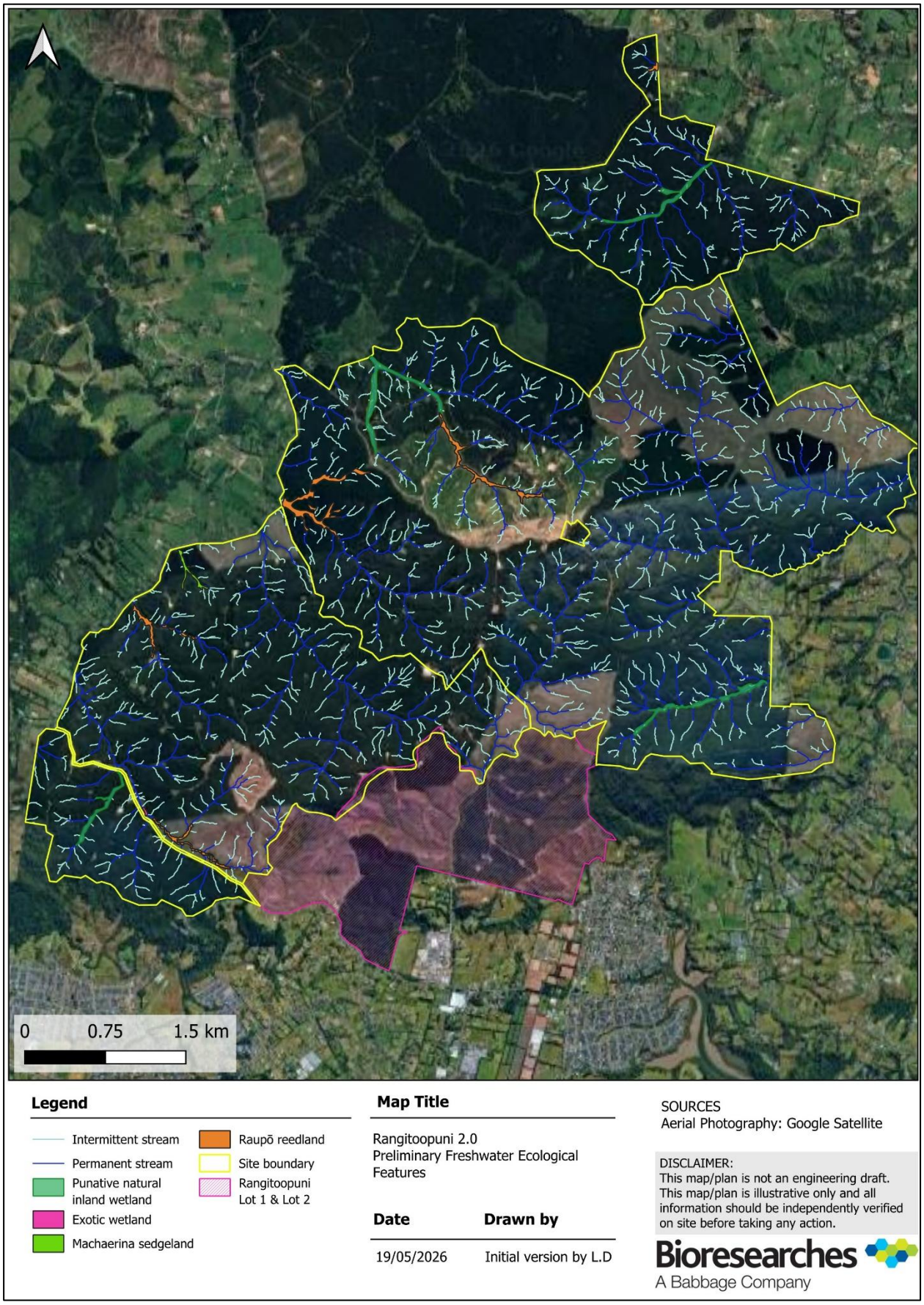
Woolly, J., T. Lovegrove, H. Robertson, G. Dell'Ariccia & S. Melzer (2024).
Conservation status of birds in Tāmaki Makaurau / Auckland. Auckland Council technical report, TR2024/5.

APPENDICES

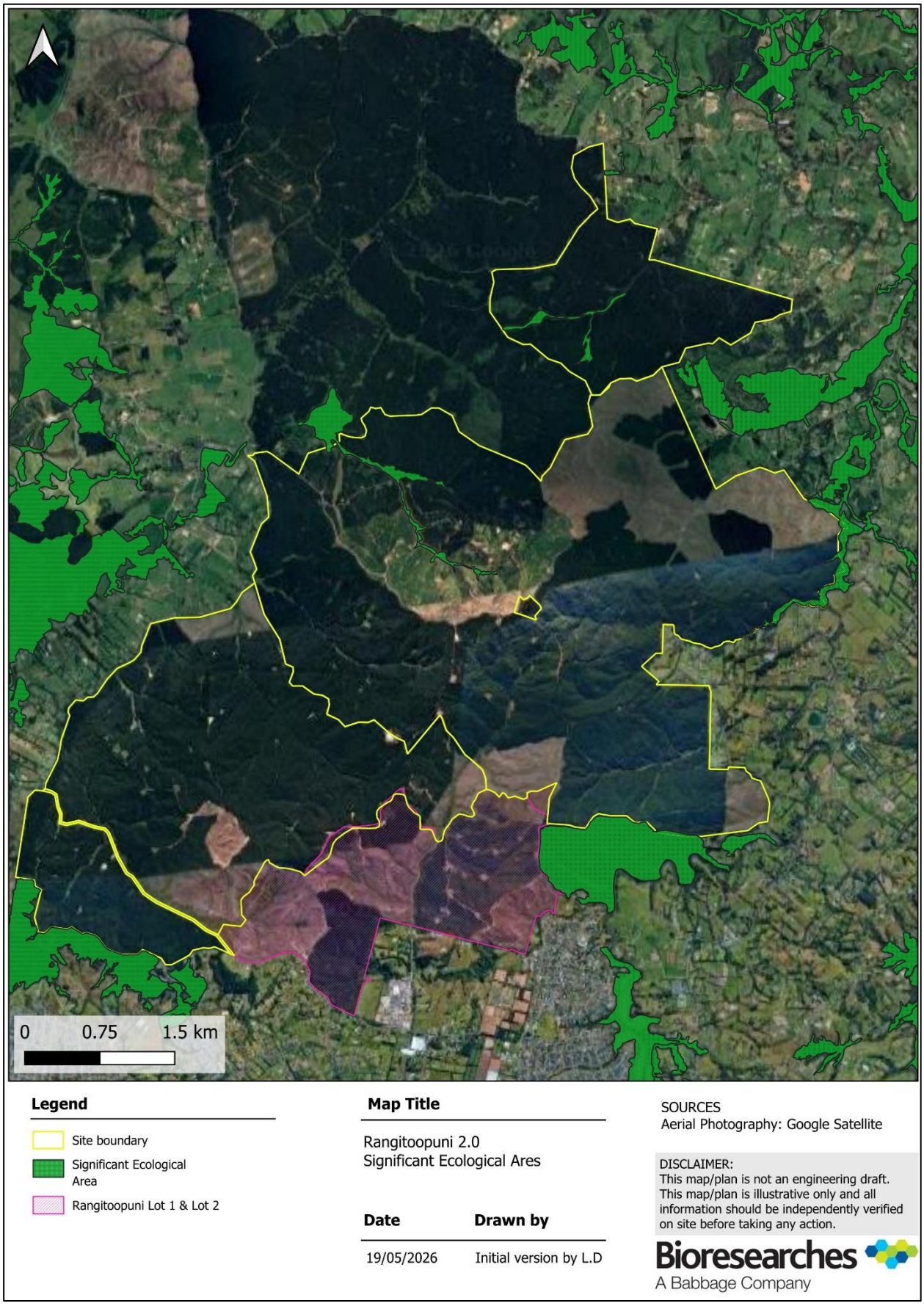
Appendix 1. Indicative Matariki Forest Harvest Schedule



Appendix 2. Preliminary freshwater ecological features within the site.



Appendix 3. Notified Significant Ecological Areas within, and adjacent to the site.



Appendix 4. Preliminary terrestrial ecological features within the site.

