

11 November 2025

Knight Investments Limited  
Attn Doyle Smith

## **Orawaahi Development Fast Track Referral Application - Ecology**

### **Introduction & Project Description**

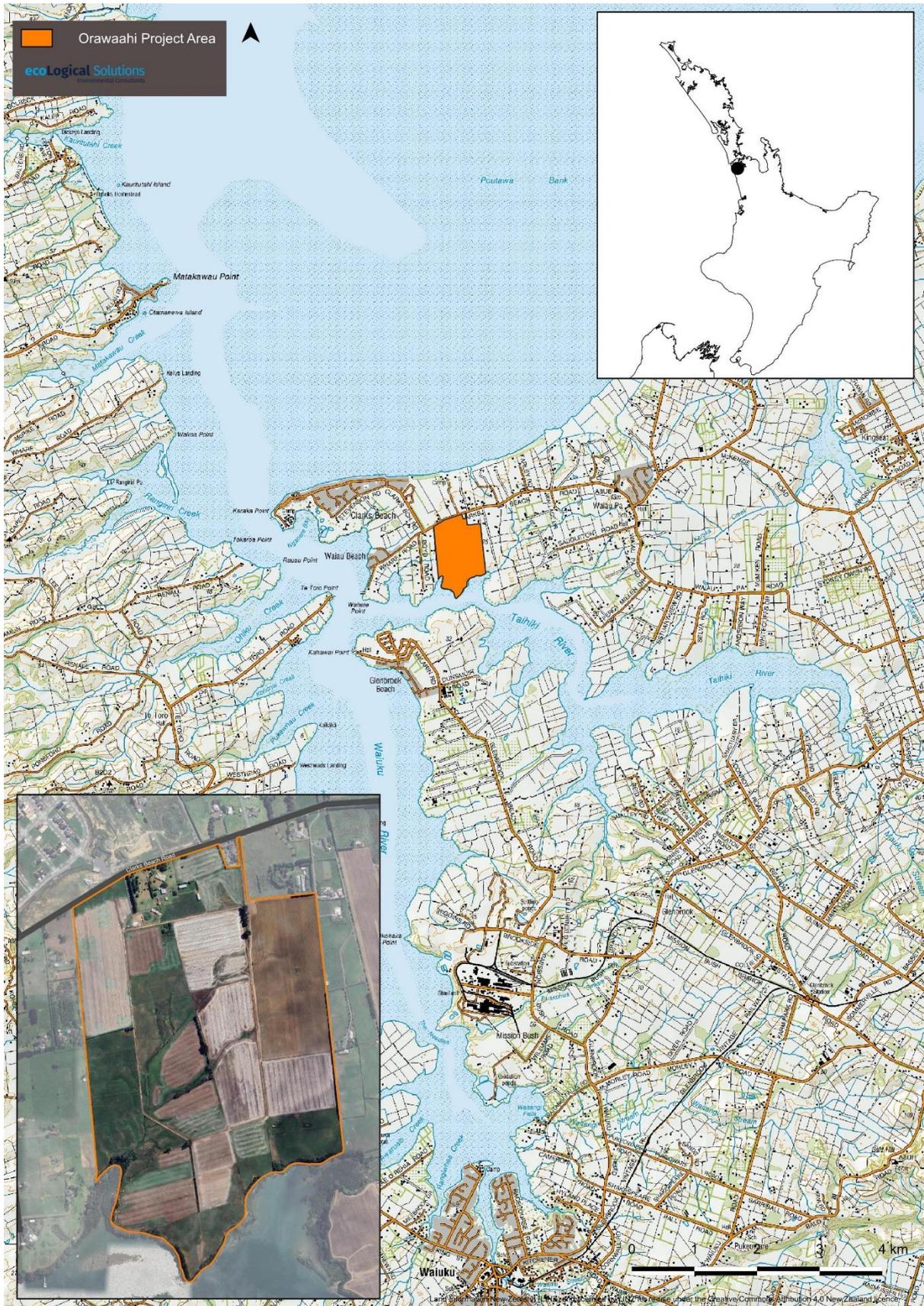
This report has been prepared to accompany an application for Knight Investments Limited's (KIL) proposed "Orawaahi" Project (hereafter, 'the Project') at Clarks Beach, Auckland through the Fast Track Approvals Act (FTAA) (2024).

The Project Area encompasses 74.8 ha of farmland (Lot 3 and Lot 3 DP 337204) as well as approximately 2.6 ha of land held as both esplanade reserve (Lot 4 DP116708, 0.48 ha) and vested road (unformed, 2.11 ha) adjacent to the Coastal Marine Area at the mouth of the Taihiki River located to the south. The Project Area is shown in Figure 1.

The current zoning of the Project Area in the Auckland Unitary Plan (AUP) is 'Mixed Rural Zone' and 'Rural Coastal Zone'. No works are anticipated within the Coastal Marine Area.

KIL as the applicant, has engaged Ecological Solutions Limited to provide ecological consultancy services to guide the master planning, consenting and design of Orawaahi Development.

The proposed Orawaahi master plan includes a retirement village along with an industrial employment area, neighbourhood centre, open spaces and infrastructure (including pedestrian walkways and cycleways). The proposed master plan concept is shown in Figure 2.



**Figure 1: Location of the Orawaahi Development.**



Disclaimer: Aerial obtained from Auckland Council GIS Database. This masterplan is a concept and subject to change through detail design and further analysis.

Masterplan | MP1  
Scale@A3 NAS Date : 22/10/25

**Figure 2: Orawaahi Development – Masterplan Concept .**

## Background Analysis and Receiving Environment

### Surveys and Analysis

The ecological values of the Project Area for this referral application have been identified and quantified using multiple site visits (the most recent being April 2025) combined with reference to existing ecological databases (New Zealand Freshwater Fish database (NZFFDB), Department of Conservation (DOC) Bioweb and eBird).

Surveys within the Project Area included classifying watercourses in accordance with the definitions in the AUP and conducting Stream Ecological Valuations (SEVs) and eDNA surveys in a selection of watercourses.

Significant Ecological Areas (SEAs) identified in the AUP were located using Auckland Council Geomaps<sup>1</sup>.

Ecological features including native vegetation, habitat for fauna and wetlands were indicatively mapped, noting that comprehensive field studies, especially with respect to wetlands, will be undertaken to inform the substantive application, should the application be accepted and referred under The FTAA (2024).

### Terrestrial Ecological Values

The Project Area was farmed at the time of the survey. The overall lack of indigenous vegetation, and the modified and degraded nature of the watercourses and wetlands, within the Project Area reflects this history.

Almost no indigenous vegetation remains within the Project Area which is mostly cropped, with pasture retained on steeper slopes. Mature exotic trees, ornamental plantings, shelterbelts, hedgerows, and weeds were present along fence lines and around buildings.

A Significant Ecological Area (SEA\_T\_521), which qualifies based on the 'threat status and rarity' factor, is located within the Project Area covering 3,149 m<sup>2</sup>, mostly within the esplanade reserve, as shown in Figure 3. Much of the coastline within the esplanade reserve / unformed road contains indigenous pōhutukawa (*Metrosideros excelsa*) coastal forest, exotic forest and māpou (*Myrsine australis*) coastal shrubland, with some exotic scrub. The extent of these vegetation types is indicatively mapped in Figure 3.

With respect to fauna within the Project Area, native birds recorded in the local area on the eBird database which could use habitat within the Project Area include exotic and common native species. Given the overall absence of indigenous and/or taller vegetation within the Project Area, and the degraded nature of the wetlands, habitat for birds is limited. However, the pōhutukawa forest and exotic trees within the esplanade reserve and unformed road could provide roosting opportunities for coastal birds such as shags and herons.

Copper skink (*Oligosoma aeneum*) (considered 'At Risk – Declining') (Hitchmough et al. 2021) has been recorded within 11.1 km of the Project Area (DOC Bioweb). If present within the Project Area, copper skink are likely to be restricted to the very small areas of suitable habitat associated with woody debris, shrubs and vines, scrub/shelterbelts, overgrown grass along fence lines (e.g. at the centre of Project Area and near the dwelling), and the coastal forest/shrubland/scrub.

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<sup>1</sup> Accessed 16 April 2025.



**Figure 3: Terrestrial vegetation within the Project Area.**

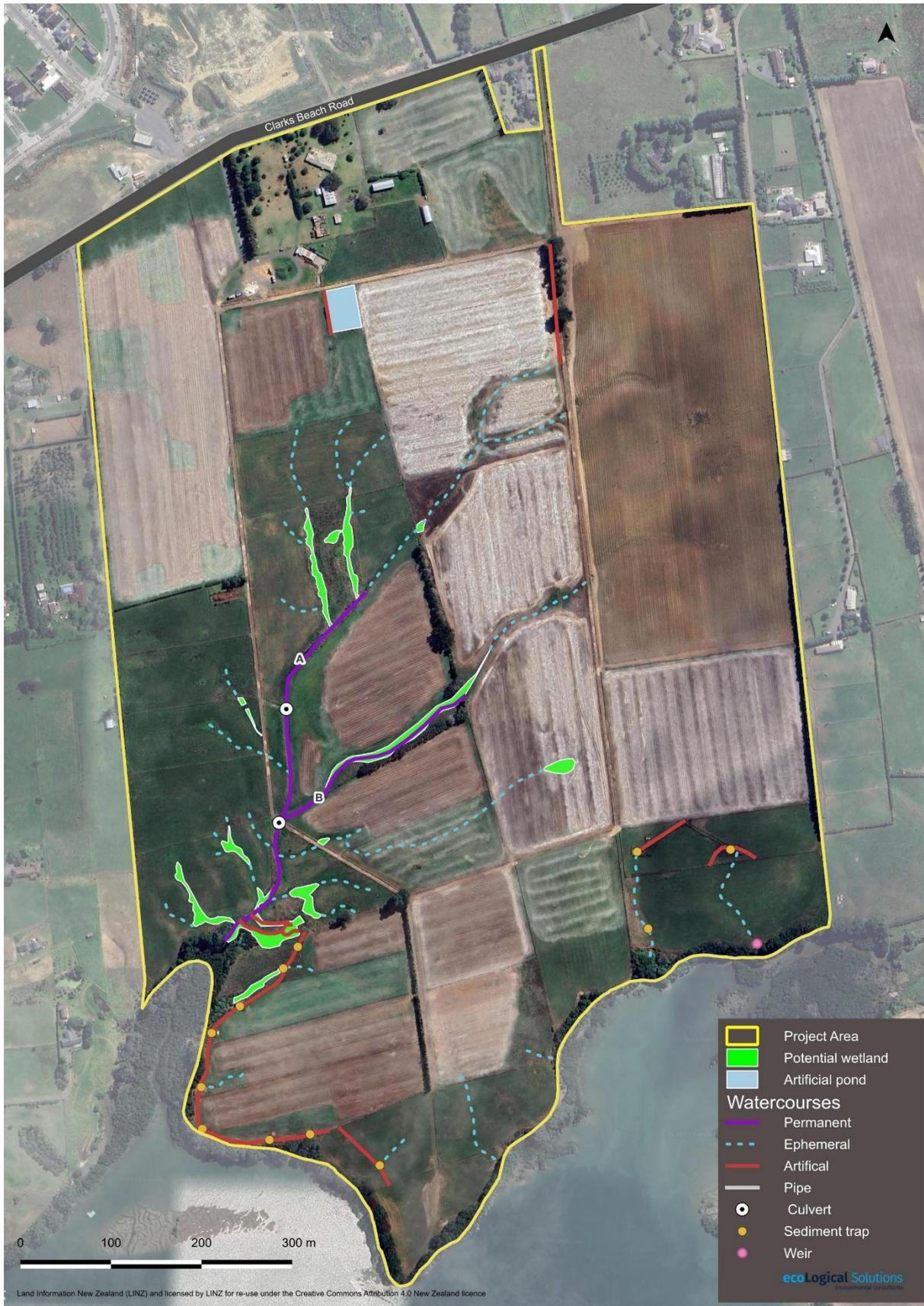
In relation to bats, two properties, one 400 m to the west and the other 2.2 km to the east of the Project Area, were surveyed for bats in 2022. No bats were detected in either survey (DOC Bioweb records). The closest bat detection records are 5.4 km and 6.8 km southeast of the Project Area and also date from 2022 (DOC Bioweb records), at Glenbrook and Mauku Stream mouth respectively. Mature and senescent exotic trees (e.g., radiata pine (*Pinus radiata*) and macrocarpa (*Hesperocyparis macrocarpa*)), particularly within the northeastern, centre and southwestern extent of the Project Area, could provide foraging and roosting habitat for long-tailed bats, but this is yet to be confirmed. Long-tailed bats (*Chalinolobus tuberculatus*) have a conservation status of 'Threatened – Nationally Critical' (O'Donnell et al. 2023). More detailed surveys for bats will be undertaken as part of the substantive application should the project be referred.

### **Wetland Values**

The Project Area contains numerous small (average <500 m<sup>2</sup>) potential wetlands within gully systems, which may meet the Resource Management Act and National Policy Statement for Freshwater Management (NPS-FM 2020) definitions of a wetland and natural inland wetland respectively. These potential wetlands are indicatively mapped in Figure 4. Based on a review of aerial images, the potential wetlands within the Site vary over time in terms of size, vegetation composition and location, possibly partly as a result of farming and cropping practices, however those observed during the most recent Site visit collectively covered approximately 0.7 ha.

All potential wetland areas have been affected by historic vegetation removal and ongoing drainage and livestock access. As a result, they are highly modified and degraded. Vegetation typically comprised low-stature exotic vegetation, including grasses, herbs and rushes, with occasional and sparse native species.

An artificial farm pond is located in the northern portion of the Project Area (see Figure 4), and is a 'deliberately constructed water body' and therefore excluded from the NPS-FM definition of a natural inland wetland.



**Figure 4: Watercourses and wetlands within the Project Area.**

## Freshwater and Coastal Ecological Values

Watercourses draining the Project Area flow into the Taihiki River and eventually the Manukau Harbour as shown in Figure 4. The Taihiki River mouth is a marine environment which is recognised as a Significant Natural Area (SEA-M2-31) in the AUP. The inlet is comprised of a diversity of sheltered harbour habitats such as sandy intertidal flats, mangroves and saltmarsh. It is considered to be an important nursery for flounder and young mullet and provides habitat for banded rail and other wading birds (Schedule 4, AUP).

Freshwater habitat within the Project Area has been highly modified through historic vegetation removal and ongoing drainage and modification with the average SEV score for Watercourse A (average of upper and lower reaches) being 0.45 and equating to low-moderate ecological values.

Watercourses within the Project Area appear to have been extensively tile drained, with a historic aerial from 1942 (Retrolens<sup>2</sup>) showing evidence of defined channels that did not exist at the time of the survey. The current watercourses within the Project Area are shown in Figure 4. The main watercourse within the Project Area (Watercourse A) contains a perched culvert in the lower third, which may prevent upstream fish passage beyond that point.

The NZFFDB holds numerous records of native fish within the Taihiki Catchment, some of which have conservation status (Dunn et al. 2018) e.g., longfin eel (*Anguilla dieffenbachii*), kōaro (*Galaxias brevipinnis*) and inanga (*G. maculatus*) (all listed as 'At Risk – Declining'). Environmental DNA surveys identified inanga and banded kōkopu (*G. fasciatus*) and shortfin eel (*Anguilla australis*) (both 'Not Threatened') in Watercourse A, however no inanga were detected in eDNA samples from the upper extent of Watercourse A, above the culvert. Shortfin eel and banded kōkopu were also detected in Watercourse B.

## Key Known and Anticipated Effects

The Orawaahi Development will involve works which have the potential for both positive and adverse effects on the ecological values of the Site. Based on the proposed masterplan (Figure 2), the anticipated effects include:

Positive Effects:

- Riparian and wetland restoration (native planting), enhancing stream and wetland quality and increasing the amount of native vegetation within the site, and increasing (and potentially connecting) habitat for native fauna.
- Retention and enhancement of native vegetation within the esplanade reserve area adjacent to the coast (coastal fringe), providing a vegetated buffer between the Orawaahi Development and the coastal area and increasing habitat for native fauna.
- Removal and/ or upgrading of existing culverts, enhancing fish passage.
- Landscape buffer planting between industrial and residential land uses within the Orawaahi Development, and between the Project area and adjacent rural land which will increase the overall amount of habitat for fauna and promote connectivity between habitats.

Possible adverse effects, that may occur if not managed:

- Removal of poor quality, predominantly exotic terrestrial vegetation (pasture crops and mature and senescent exotic trees) and habitat, and the effects of this loss on terrestrial fauna.

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<sup>2</sup> <https://retrolens.co.nz/>

- The removal of artificial watercourses and ephemeral watercourses that may provide low quality and/or temporary habitat for shortfin eel.
- Unavoidable loss or modification (e.g., culverting) of modified (natural) permanent or intermittent streams, which may provide habitat for banded kōkopu, inanga and shortfin eel.
- Effects on water quality and aquatic life in both the freshwater and marine environment due to temporary sediment mobilisation (during construction) and/or in the long-term contaminant discharge from sediment runoff, stormwater and potential wastewater discharges.
- Alteration (possible reduction) of groundwater and surface water flows to wetlands and streams as a result of water diversions/ interception to supply potable water to the development.
- Depending on timing, the disturbance of fish migration and spawning during the works.
- Scour and erosion at discharge locations.
- Weed introduction (from machinery and equipment, topsoil and domestic garden escapes).
- The potential for unavoidable loss of and/ or effects on low-quality wetland habitat (although the masterplan as its currently shown, avoids wetland features within the site, so no loss is anticipated).
- The potential for an increase in mammalian pest species (e.g., rodents) as a result of increased housing density.

### Approach to Addressing Effects

- The removal of predominantly exotic vegetation (or habitats) can be managed to avoid impacts on native terrestrial fauna. A management plan approach, specifying management objectives, is proposed to address any potential effects on birds, lizards and bats so that they are avoided and/ or mitigated and/ or offset. The riparian, wetland and amenity planting proposed as part of the Project will increase the amount of native habitat for these species. In particular,
  - Management of fauna (specifically lizards) is subject to the provisions of the Wildlife Act 1953, and would require a Wildlife Act Authority (WAA) in order to handle, capture and relocate salvaged lizards, and any incidental killing of lizards that are not collected.
  - The approach to managing effects on bats would involve following the Department of Conservation protocols for tree felling. By implementing these protocols, one should not be in a position where bats require handling, thus a WAA would not be required.
  - If bat roosts are identified during detailed surveys, appropriate avoidance and/ or mitigation and/or offsetting will be set out in the management plan.
  - The direct effects of vegetation removal on birds would be handled by avoidance (e.g., avoidance of felling during nesting season or if outside this period, avoiding felling any tree with a nest until chicks have fledged). On that basis a WAA for managing birds would not be required.
- The potential loss and or/ modification of permanent/ intermittent watercourses will be avoided where practicable, and where loss cannot be avoided, mitigation and/ or biodiversity offsetting will be implemented. The site itself, and a site at nearby Kingseat (McKenzie Road, Lot 11 DP 492623), have been identified for potential

offsetting activities (subject to confirmation of suitability). The Kingseat site also drains to the Manukau Harbour.

- The magnitude of adverse effects on water and aquatic habitat quality (and ultimately fish and invertebrates) due to sediment discharges and sediment and contaminant deposition during construction will be minimised through the following:
  - Using best practice approaches to the timing of works.
  - Through careful construction methodologies and erosion and sediment control measures implemented in accordance with Auckland Council guidelines (GD05).
- Earthworks catchments will be managed as far as practical to avoid effects on hydrology of natural inland wetlands.
- Effects of wastewater discharge will be carefully managed to ensure quality outputs align with the respective receiving environments. The new technologies available for wastewater treatment plants enable the quality of treated wastewater, to be tailored to the specific receiving freshwater environment to avoid adverse effects on water quality and aquatic ecology.
- The potential effects of stormwater discharge caused by development of the site will be managed using best practice stormwater treatment devices, hydrology mitigation (e.g., retention and detention), whilst factoring in allowances for climate change in accordance with the Auckland Council Stormwater Code of Practice. Groundwater recharge will be incorporated into the stormwater design techniques, and management of surface water catchments;
- Potential scour and erosion at discharge locations will be managed using proven methods.
- The removal of natural and artificial watercourses has the potential to disrupt migration and spawning for native fish species for the duration of the works. This is of particular relevance for species of conservation interest that may be spawning within the watercourses. These effects will be reduced by managing the timing of the works and through fish relocations (see below).
- There is the potential for fish to be directly affected during works in modified natural watercourses and artificial drains. Fish capture and transfer can be used to manage the direct impacts of habitat loss on native fish. These effects will be addressed via a dedicated fish management (salvage and relocation) plan.
- Any proposed culverts shall be designed in accordance with best practice solutions for fish passage, drawing on the New Zealand Fish Passage Guidelines (NIWA 2024).
- The risk of weed introduction can be managed via site biosecurity protocols (e.g., for earthworks machinery entering the site) and including weed management actions as part of planting and restoration management. Likewise animal pest control will form part of restoration management.
- The applicant will use best endeavours to avoid any loss of low quality natural inland wetland habitat (as shown in the proposed masterplan). However, any unavoidable loss will be addressed via mitigation and/or offsetting consistent with NPS-FM guidelines. A site at nearby Kingseat (McKenzie Road, Lot 11 DP 492623) has been identified for potential offsetting activities for wetlands (subject to confirmation of suitability).

## Further Assessment Required to Inform Substantive Application

Ecological Solutions Ltd. were engaged to undertake the initial high-level terrestrial and aquatic ecological assessment of the project including the identification of any actual or potential effects. A suitably qualified and experienced ecologist(s) will prepare a description of the current ecological values, provide an assessment of the actual or potential effects of the project and set out the methods to avoid, remedy, mitigate and offset/compensate those effects on the values identified. This will include a thorough description of the existing environment informed by undertaking:

- Stream assessments (revised stream classification according to Auckland Council Definitions and updated Stream Ecological Valuations).
- Wetland assessments (according to the definition in both the RMA 1991 and NPS-FM, 2020 and following the delineation protocols outlined in NPS-FM, 2020).
- Fauna surveys (birds, bats, lizards and fish).
- Detailed mapping of vegetation, including species identification, community description and mapping of habitat for specific fauna.

Specific detailed ecological management plans required to address any adverse effects on ecological values will be prepared, including applications for any statutory authorisations (e.g., Wildlife Act Authorisation). Once the necessary resource consents are obtained, appropriately qualified and experienced ecologists will also assist with implementation of any ecological management plans as required.

## Wildlife Act Authorities

It is acknowledged that WAA obligations require management of populations of protected species where they or their habitats are threatened by land use changes.

It is anticipated that the only indigenous species that may be present and may require a WAA will be native lizards. Native reptiles are legally protected under the Wildlife Act 1953 (and subsequent amendments), and vegetation and other features that provide habitat for these species are recognised by the Resource Management Act 1991.

Impacts on birds and bats will be managed during construction, to avoid disturbing or handling active nests or roosts or individuals. As a result, no WAA would be required.

We understand that the WAA approvals will **not** be sought through this fast-track process.

## Conclusion

The anticipated adverse effects of the Orawaahi Development on ecology would be managed via suitable conditions during consenting and the effective implementation of site-specific management plans for particular species (e.g., fish, birds, bats and lizards) and mitigation and/or offsetting plans as appropriate for habitats (e.g., watercourses and wetlands). A Wildlife Act Authorisation will be required for the salvage and relocation, as well as incidental injury or death of absolutely protected indigenous lizards which occurs during vegetation clearance. These measures will be set out in a lizard management plan.

With respect to wetlands and streams, any unavoidable loss may require offsetting, these activities could be undertaken within both the Project Area and/or at nearby Kingseat (McKenzie Road, Lot 11 DP 492623) which is in the ownership of a sister company to the applicant. The suitability of the Kingseat site for these activities would be subject to further investigations.

Should the application be accepted and referred under The Fast-track Approvals Act 2024, a detailed ecological assessment and ecological management/ offsetting plan(s) will be included in the substantive application package.

## Qualifications and Experience

Ecological Solutions Ltd (formerly Freshwater Solutions Ltd and The Ecology Company Ltd) are expert freshwater and terrestrial environmental consultants with offices based in Northland, Auckland, Tauranga and Nelson from where we service our national client base. The company is managed by Richard Montgomerie who founded Freshwater Solutions Ltd in 2009. Dr Gary Bramley is the terrestrial team lead and Nick Carter is the freshwater team lead, each with more than 20 years' experience managing a diverse range of environmental projects, including significant infrastructure and housing projects, throughout the country.

Becky Bodley one of our senior ecologists, is the project manager for the Orawaahi project. Becky has over 14 years' experience as a consultant and has managed the ecology component for plan change applications and consenting for housing projects including most recently Warkworth Ridge (Plan Change 40) and the Rotokauri Greenway Project, located in Waikato which was granted consent in July 2024 under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

Ecological Solutions Ltd has extensive experience in the Auckland area, having provided ecology services for numerous land development projects and primary sector clients since 2009. Ecological Solutions Ltd are experienced in developing appropriate mitigation and biodiversity offsets required to offset terrestrial, wetland and stream habitat loss and for a range and flora and fauna.

## References

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