

ecoLogical Solutions

Environmental Consultants



September 2026

SL1 Industrial North Development Ecological Impact Assessment

Prepared for:
Industre Property and SouthPark Agri Development



water



fauna



flora



land

Quality Assurance

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Qualifications, Experience and Code of Conduct

The qualifications and experience of the authors and technical director/reviewer of this report are summarised below. We confirm that we have read the Code of Conduct for Expert Witnesses Contained in the Environment Court of New Zealand Practice Note 2023 and we agree to comply with it. We confirm that the issues addressed in this report are within our area of expertise, except where we state that we are relying on the evidence or advice of another person. We have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this report.

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Executive Summary

Ecological Solutions Limited were engaged to undertake terrestrial and freshwater ecological surveys, and prepare an ecological impact assessment (EclA) and associated ecological management plans, as part of a Fast-track Approvals Act substantive application for the SL1 Industrial North development (the Site). The proposed Industrial North development area comprises c. 60 ha of both light industrial and farmland located between Higgins Road and the Hamilton Railway line, Hamilton.

Overall, the value of terrestrial ecological features on the Site ranged from negligible to very high due to the predominance of exotic pasture under intensive farming, and the presence of long-tailed bat (*Chalinolobus tuberculatus*) activity which have a conservation status of 'Threatened-Nationally Critical'. Freshwater ecological features of the Site ranged from negligible to low due to the artificial watercourses (farm drains) and the only fish species present being the 'Not Threatened' shortfin eel. According to the Waikato Regional Policy Statement (WRPS) ecological significance criteria this site can be considered significant due to the presence of long-tailed bats; however, the level of bat activity recorded in comparison to other areas of Hamilton south and east of the Site indicates the Site is not likely important bat habitat.

The application of effects management measures to manage effects on indigenous fauna and their habitat are outlined in specific management plans including a bird management plan (Bird MP), lizard management plan (LMP), bat management plan (BMP), and a fish management plan (FMP). A wildlife approval under the FTAA is being applied for to implement the LMP and authorise the handling and incidental killing of lizards which may be missed during lizard management.

The ecological impacts attributable to the proposed development after application of the effects management measures, ranged from 'very low' to 'low', in accordance with the EclAG, with no significant residual effects.

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1.0 Introduction

1.1 Background

Ecological Solutions Limited were engaged to undertake terrestrial and freshwater ecological surveys, prepare an ecological impact assessment (EcIA) and associated ecological management plans as part of a Fast-track Approval Act 2024 (FTAA) substantive application for the SL1 Industrial North development. The SL1 Industrial North development is located between Higgins Road and the Hamilton Railway line, Hamilton (the 'Industrial North Site' or 'the Site') as shown in Figure 1.

The Southern Links Designation for the highway proposed by the New Zealand Transport Agency Waka Kotahi traverses through the Industrial North Site. Whilst technically not within the proposed development area, this land is required for access and enabling works and is therefore included in the scope of this ecological impact assessment (Figure 1).

The SL1 Industrial North Site is exclusively within Waipa District and is contiguous with Hamilton City Council's southwestern boundary.

1.2 Project Description

The SL1 Industrial North development forms part of the industrial component of 'Southern Links 1', a listed project under FTAA 2024. The Southern Links 1 project is a combined 106 ha development, including residential and industrial activities. The industrial component comprises circa 60 ha, and is in joint landownership, and currently used for a mix of rural and related activities.

The landholding includes four parcels Lot 2 Deposited Plan 603134, Lot 1 Deposited Plan 603134 both within Southpark Agri Development Limited landholdings (circa 50 ha), and Lot 1 Deposited Plan 584573 Industrie Property Tahī Limited and S&S Property Investments Limited (7.8 ha) and Lot 1 Deposited Plan 396081 and Lot 1 Deposited Plan 486522 within Industrie Property Tahī Limited landholding (2.1 ha). This site is part of the wider Southern Links Growth Cell, a circa 440 ha contiguous land area that stretches the south-western edge of Hamilton and includes the Hamilton Southern Links (RoNS) designation.

The proposal seeks approval under the FTAA for a comprehensively master planned and staged industrial development.

The Industrial North Development provides for the establishment of 60 ha gross developable industrial land, together with associated infrastructure and services, including roading and associated stormwater ponds.

The proposal includes substantial enabling works to establish developable land, including bulk earthworks and necessary pre-load to manage ground conditions across the Site and the Southern Links Designation for the New Zealand Transport Agency Waka Kotahi proposed highway. An integrated stormwater management system including wetlands, detention/attenuation devices and treatment ponds supports the development. The proposed master plan is shown in Figure 2.

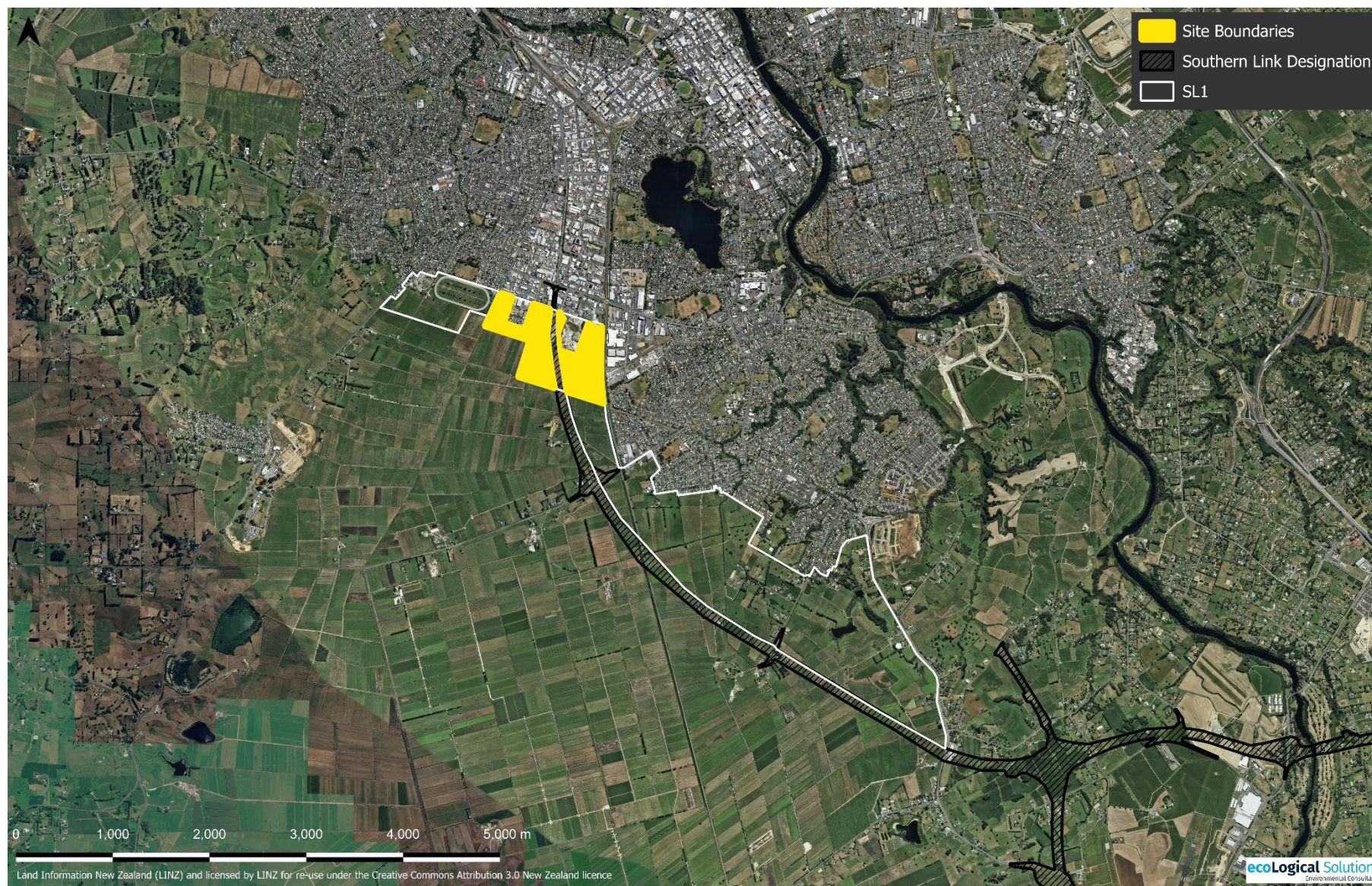


Figure 1: Location of Industrial North Site within greater SL1 Growth Cell.

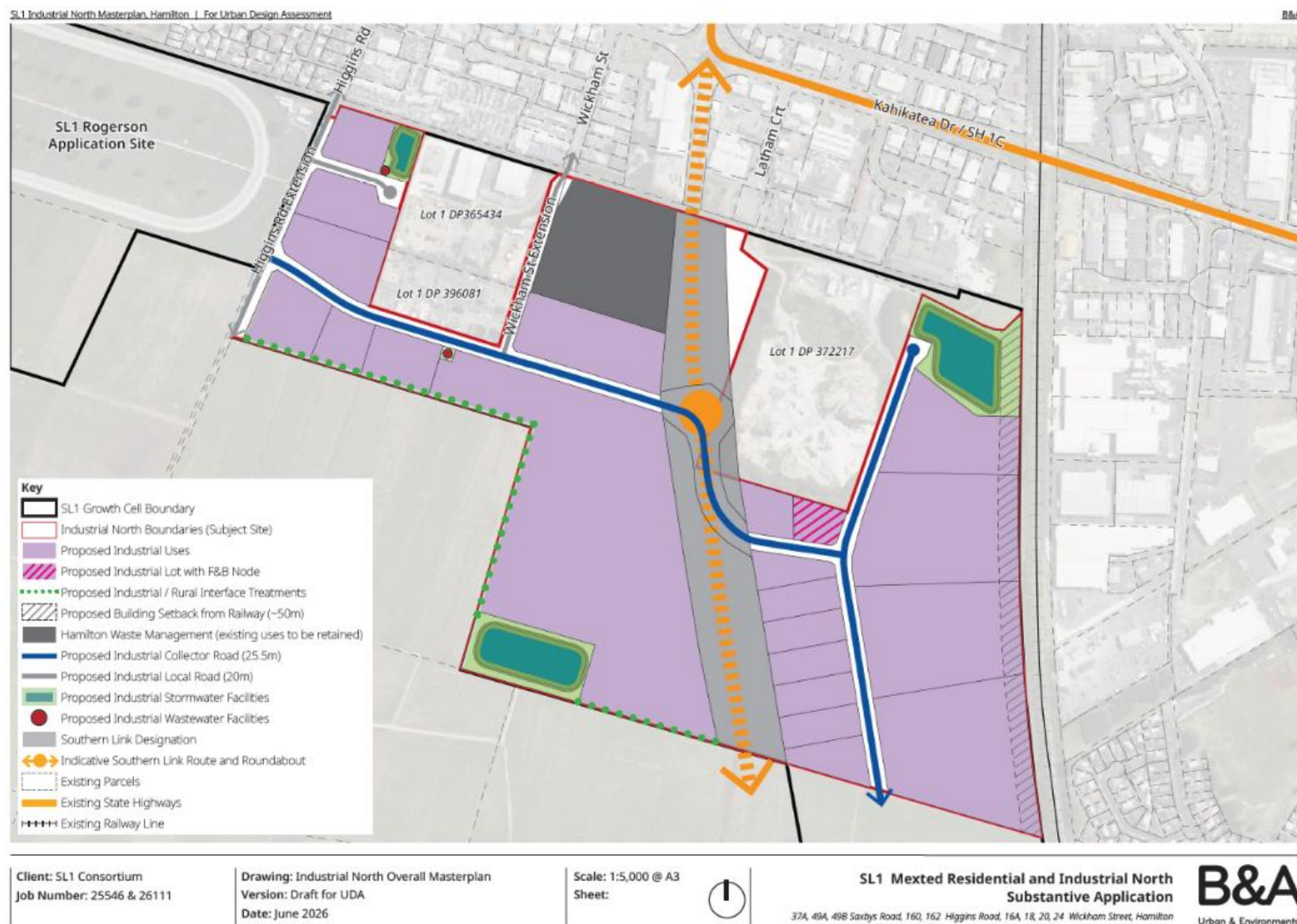


Figure 2: Proposed Industrial North Site master plan (Barker and Associates).

2.0 Scope of Report

The EclA identifies the actual and potential ecological effects attributable to the proposed development of the Industrial North Site and provides recommendations for the management of adverse effects in accordance with the effects management hierarchy.

The EclA considers both regional and national guidance including the Waikato Regional Policy Statement (WRPS), New Zealand National Policy Statement for Freshwater Management 2020 amended December 2025 (NPS-FM; MfE 2025a) and The National Policy Statement for Indigenous Biodiversity 2023 amended December 2025 (NPS-IB; MfE 2025b). The EclA has been prepared as part of a Fast-track Approval Act 2024 (FTAA) substantive application for the SL1 Industrial North development.

3.0 Ecological Setting

3.1 Hamilton Ecological District

The Industrial North Site lies within the Hamilton Ecological District ('the district') which covers c.159,376 ha and is one of the most modified districts in New Zealand with only 1.6% of the original indigenous vegetation remaining (Leathwick et al. 1995). Vegetation was formerly predominantly bog, shrubland and fernland with small areas of swamp forest (McEwen 1987). Hamilton City, in the centre of this transformed landscape, has only a few tiny remnants of the former indigenous forest cover, less than 20 ha in total of high-quality indigenous habitat (Clarkson and McQueen 2004), but recent efforts have been made to restore gully systems and city-wide ecological connectivity via gully restoration projects.

No Significant Natural Areas (SNAs), identified in Schedule 9c of the Hamilton District Plan or the Waipa District Plan, occur within or immediately adjacent to the Industrial North Site. The nearest operative SNA to the Industrial North Site is Grove Park Kahikatea located c. 1.1 km to the northwest. Proposed SNAs under Plan Change 9 (PC9) are located >1 km away from Industrial North Site at Bremworth Park, Lake Rotoroa and Mangakōtukutuku Gully south (Figure 3).

3.2 Threatened Environment Classification

The Threatened Environment Classification (TEC) combines data from three national databases: Land Environments of New Zealand (Manaaki Whenua Landcare Research 2012), the Land Cover Database (LCDB V5.0), and the national protected areas network (Cieraad et al. 2015, Walker et al. 2015). The TEC is designed as a regional-national scale tool for assessing the threat status of land environments based on the loss of original natural vegetation cover and the extent to which the remaining indigenous vegetation is protected. The entire Industrial North Site is within Threatened Environment Classification 2 (10–20% indigenous cover left), which means that any remaining indigenous vegetation would be ecologically important because of its rarity.

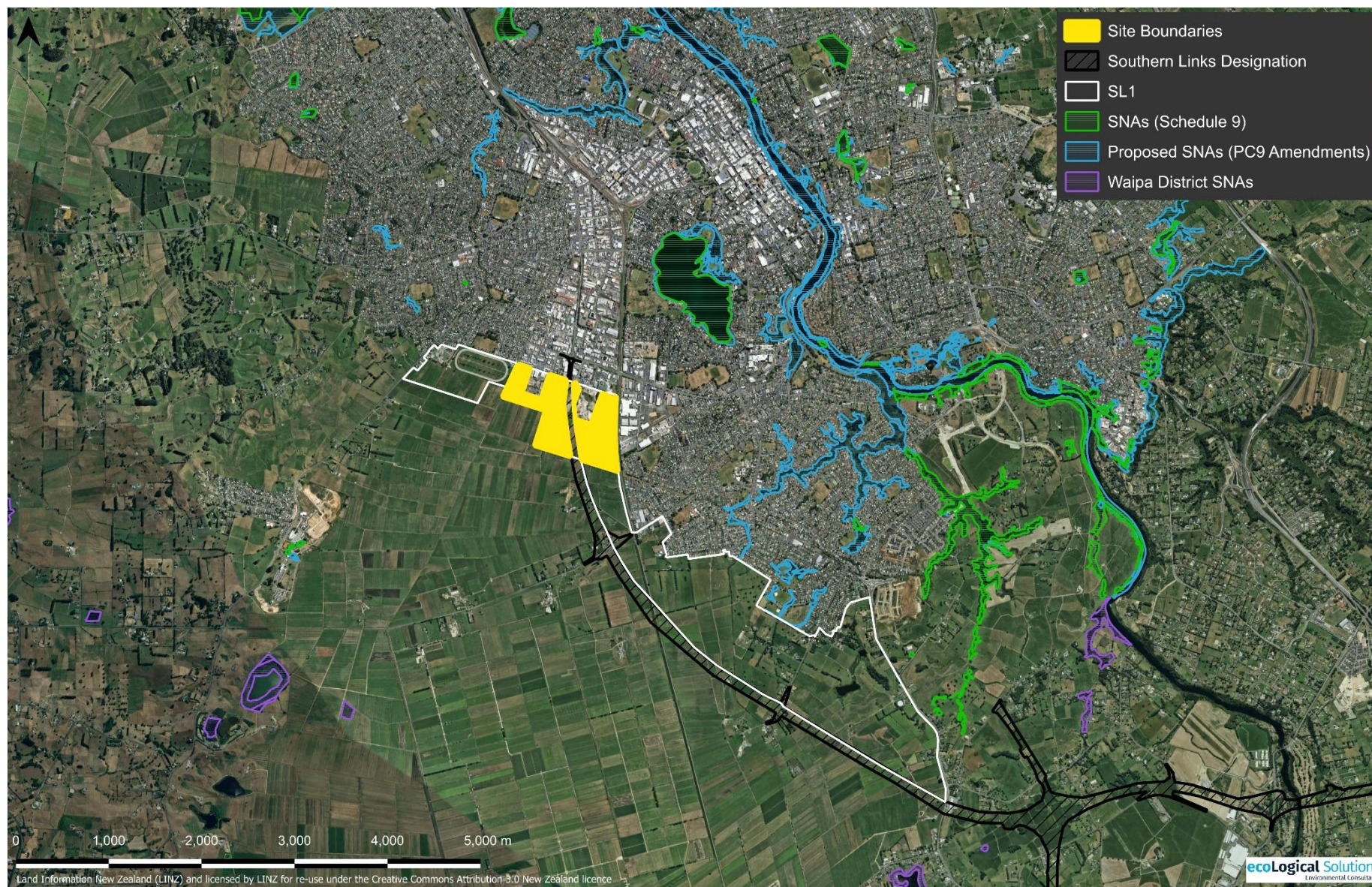


Figure 3: Significant Natural Areas (SNAs).

4.0 Methods

4.1 Terrestrial Ecology

4.1.1 Vegetation

An initial desktop assessment of aerial imagery (e.g., Google Earth, Retrolens), topographic maps, GIS datasets (e.g., Land Cover Database version 5.0 (LCDB V5.0), Waikato Regional Council, Hamilton City Council) was used to inform an assessment of historic landcover and vegetation types as well as current landcover and vegetation types within the Industrial North Site and the Hamilton ED more generally.

Vegetation assessments were carried out over multiple survey periods across the vegetation growing season including 10 April, 6 November, and 4 December 2025 and again in 9 April 2026. Vegetation was photographed and described in terms of composition, value, structure, and integrity. Any 'Threatened' or 'At Risk' plant species encountered were recorded. Vegetation within any potential wetlands was surveyed as set out in Section 4.2 below.

4.1.2 Birds

Existing avifauna survey records within 10 km of the Industrial North Site were obtained from the New Zealand eBird database (accessed April 2025) to inform which species were likely to be present in proximity to the Site. All birds seen or heard during the Site visits were recorded and potential bird habitats were identified during the November and December 2025 site surveys.

4.1.3 Lizards

A search of the Department of Conservation BioWeb database within 12 km¹ of the Industrial North Site was undertaken to inform which lizard species were likely to be present at the Site. Data were issued by the Department of Conservation in March 2025. Any potential lizard habitat on site was identified, photographed, and mapped during the November and December 2025 site survey. Manual habitat searches were undertaken within suitable lizard habitat areas during the November site survey.

4.1.4 Bats

A search of the Department of Conservation national bat database was undertaken for records within 25 km of the Site. Data were issued by the Department of Conservation on 4 February 2025. In addition, the Waikato Region Bat Distribution online map was reviewed for any additional data that may have been uploaded to the DOC database after February 2025 as well as any spatial planning information. The Waikato Region Bat Distribution data represents data from the DOC National Database as at 17 of June 2025 and includes spatial planning layers as of June 2024.

The Waikato Region Bat Distribution data includes three bat spatial planning layers (A, B and C) indicating differing spatial and content aspects for identifying bat habitat. These layers were prepared for the Bat Alliance group consisting of Waikato, Hamilton, and Waipa Districts. Layer A covers bat roost areas; Layer B covers connections including foraging and commuting corridors as bats fly across landscapes between roosts and foraging areas using waterways and waterbodies and Layer C covers areas of opportunity for habitat connectivity and identified gaps. In addition, an overlay polygon has been created by placing a 2 km buffer around known bat roost locations for the southern Hamilton bat

¹ Distance to existing lizard records not precise. 12 km equals smallest reporting distance in accordance with ESL's GIS data sharing agreement with the Department of Conservation.

population. While these spatial layers have no regulatory function, the distribution of these layers in relation to the Industrial North Site were examined to better understand the bat habitat values present.

Two automatic bat monitor (ABM) surveys were undertaken across the Industrial North Site. The first survey from 10 April to 6 May 2025 broadly aligned with the mating season. The second survey from 6 November to 4 December 2025 corresponded with the pre-parturition period. Eleven AR4/AR5 ABMs were deployed across the Industrial North Site in the same locations over both surveys with an additional ABM added for the November survey to increase coverage within the Site. All ABM data was analysed using BatSearch Version 3.23. The number of valid survey nights was determined based on requirements outlined in the Bat Roost Protocols (Department of Conservation 2024). Weather data was provided by EnviroNZ from their onsite weather monitoring station (-37.808425, 175.258896).

Potential bat roost trees and features, (e.g., trees with a >15 cm dbh with cavities, crevices, loose bark)², observed during the surveys were noted and photographed.

4.2 Wetlands

The Industrial North Site was assessed for the presence of potential wetland habitats likely to meet the definition of 'wetland' under the Resource Management Act 1991 (RMA) as well as 'natural inland wetland' the National Policy Statement for Freshwater Management 2020 (NPS-FM) (MfE 2025a). This involved an initial desktop assessment and detailed review of available aerial imagery (e.g. Google Earth, Retrolens), topographic maps and GIS datasets (e.g., LCDB V5.0, Waikato Regional Council, Hamilton City Council, Digital Elevation Model (DEM)). These were used to assist in assessing historic and current hydrological conditions and identify possible wetland locations and extents within the Site requiring subsequent field survey.

Field assessment of potential wetland habitat areas was undertaken in November 2025, April 2026 and August 2026 and involved a visual assessment of the area and use of the wetland delineation protocols (WDP) (MfE 2020) where deemed necessary to inform professional judgement. The visual assessment first looked at whether the identified area met the definition of a wetland under the RMA. The RMA defines wetland as:

"includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions".

Where the visual assessment determined the area either met the RMA definition or was inconclusive, the WDP were used to inform the determination. If the wet area was deemed to be an RMA wetland then the WDP were applied to determine if the wetland area met the definition of a 'natural inland wetland' under the NPS-FM. Under the NPS-FM a 'natural inland wetland' is a wetland (as defined in the RMA) that is not:

- *in the coastal marine area; or*
- *a deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or*
- *a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or*
- *a geothermal wetland; or*

² Department of Conservation 2024, Protocols for minimising the risk of felling occupied bat roosts (Bat Roost Protocols) Version 4: October 2024. New Zealand Department of Conservation's Bat Recovery Group.

- *a wetland that:*
 - *is within an area of pasture used for grazing; and has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the pasture Exclusion Assessment Methodology (see clause 1.8)); unless*
 - *the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply.*

Potential wetland areas within 100 m of the Industrial North Site, and outside the Southern Links Road Designation, were not assessed directly because permission to access them could not be obtained.

4.3 Freshwater Ecology

4.3.1 Survey sites

Freshwater ecological data collected within the Industrial North Site in November 2025 included water physiochemistry and aquatic and riparian habitat descriptions. In addition, fish presence data was collected via trapping.

4.3.2 Watercourse classification

Watercourses were classified in accordance with the definitions outlined in the Waikato Regional Plan for the Waikato Region (i.e., artificial, farm drainage canal, modified, ephemeral or perennial). The Waikato Regional Plan definitions are set out in Table 1.

Table 1: Watercourse definitions in the Waikato Regional Plan.

Watercourse classification	Description
Artificial	A watercourse that contains no natural portions from its confluence with a river or stream to its headwaters and includes irrigation canals, water supply races, canals for the supply of water for electricity power generation and farm drainage canals.
Farm Drainage Canal	An artificial watercourse on a farm that contains no natural portions from its confluence with a river or stream to its headwaters, and includes a farm drain or a farm canal.
Modified Watercourse	An artificial or modified channel that may or may not be on the original watercourse alignment and which has a natural channel at its headwaters.
Ephemeral	Streams that flow continuously for at least three months between March and September but do not flow all year.
Perennial	Streams that flow year-round assuming average rainfall.

4.3.3 Fish

A search of the New Zealand Freshwater Fish Database (NZFFD) (updated February 2025) was carried out to identify fish records within the Site and wider catchment.

During the November 2025 site survey, watercourses were inspected and assessed for their capacity to support fish, including black mudfish (*Neochanna diversus*), which are classified as 'At Risk – Declining' (Dunn et al. 2025). Watercourse reaches that contained adequate habitat and water levels were intensively trapped using 31 un-baited Gee's-minnow traps.

Environmental DNA (eDNA) samples were not collected due to the predominance of stagnant water in the drains, high concentrations of algae, high tannin content, volume insufficiency leading to difficult filtering, and the expected rapid breakdown of DNA integrity

due to high water temperatures, and UV radiation attributable to the lack of riparian cover.

4.4 Ecological Values and Effects

4.4.1 Assigning ecological value

Ecological values were assigned following the approach outlined in the Environment Institute of Australia and New Zealand's (EIANZ) Ecological Impact Assessment guidelines (EclAG) (Roper-Lindsay et al. 2018). The EclAG outline a standardised approach for defining ecological values. The approach involves assessing four matters including representativeness, rarity/distinctiveness, diversity/pattern, and ecological context with consideration of the attributes outlined in Table 4 of the EclAG (Appendix A). The overall ecological values within the Industrial North Site and vicinity were assigned based on the four matters outlined above and using the scoring system outlined in Table 6 of the EclAG (Appendix A).

4.4.2 Assessment of ecological effects

The level of effects was assessed using the method outlined in the EclAG (Roper-Lindsay et al. 2018). This method involves assigning ecological values as above and determining the magnitude of effects based on criteria outlined in Table 2 below and assigning the overall level of effect using the matrix in Table 3 below. The magnitude of the effects was considered at the Site and ecological district scale, with consideration given to factors relevant at a regional and national scale.

Table 2: Criteria for describing magnitude of effect (EclAG 2018).

Magnitude	Description
Very high	Total loss or very major alteration to key elements/ features of the baseline conditions such that the post development character/ composition/ attributes will be fundamentally changed and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known population or range of the element/feature.
High	Major loss or major alteration to key elements/ features of the baseline (pre-development) conditions such that post development character/ composition/ attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element/feature.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of baseline will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element/feature.
Low	Minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible but underlying character/composition/attributes of baseline condition will be similar to pre-development circumstances/patterns; AND/OR having a minor effect on the known population or range of the element/feature.
Negligible	Very slight change from baseline condition. Change barely distinguishable, approximating to the "no change" situation; AND/OR having negligible effect on the known population or range of the element/feature.

Table 3: Criteria for describing level of effects (EclAG 2018).

Effect level	Ecological value				
	<i>Very high</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Negligible</i>
Very high	Very high	Very high	High	Moderate	Low
High	Very high	Very high	Moderate	Low	Very low
Moderate	High	High	Moderate	Low	Very low
Low	Moderate	Low	Low	Very low	Very low
Negligible	Low	Very low	Very low	Very low	Very low
Positive	Net gain	Net gain	Net gain	Net gain	Net gain

5.0 Terrestrial Ecology

5.1 Vegetation

Neither the Hamilton City Operative District Plan maps, Plan Change 9 or the Waipa District Plan indicate any SNAs or protected trees within or adjacent to the Industrial North Site. The nearest SNAs to the Site were c. 1.1 km away and include Grove Park Kahikatea to the west, Lake Rotoroa to the north and the proposed Maungakotukutuku Gully South SNA to the Southeast (Figure 3)

The Industrial North Site was a mixed land use area with c. 21 ha of the Site actively used for light industrial activities, which are largely dominated by metal and impervious surfaces, with little to no vegetation cover, and c. 39 ha of intensively managed paddocks used for stock grazing. Vegetation cover within the paddocks was dominated by meadowgrass (*Poa annua*) and perennial ryegrass (*Lolium perenne*), with scattered pasture weeds such as scotch thistle (*Onopordum acanthium*) and small areas of buttercup (*Ranunculus* sp.) and *Persicaria* spp. Specimen trees on Site were exotic, including eucalyptus trees (*Eucalyptus* sp.), London plane (*Platanus × hispanica*), oak (*Quercus* sp.), pine (*Pinus* sp.), silver wattle (*Acacia dealbata*), crack willow (*Salix × fragilis*), and poplar (*Populus* sp.). Terrestrial vegetation features recorded within the Site are shown on Figure 4.

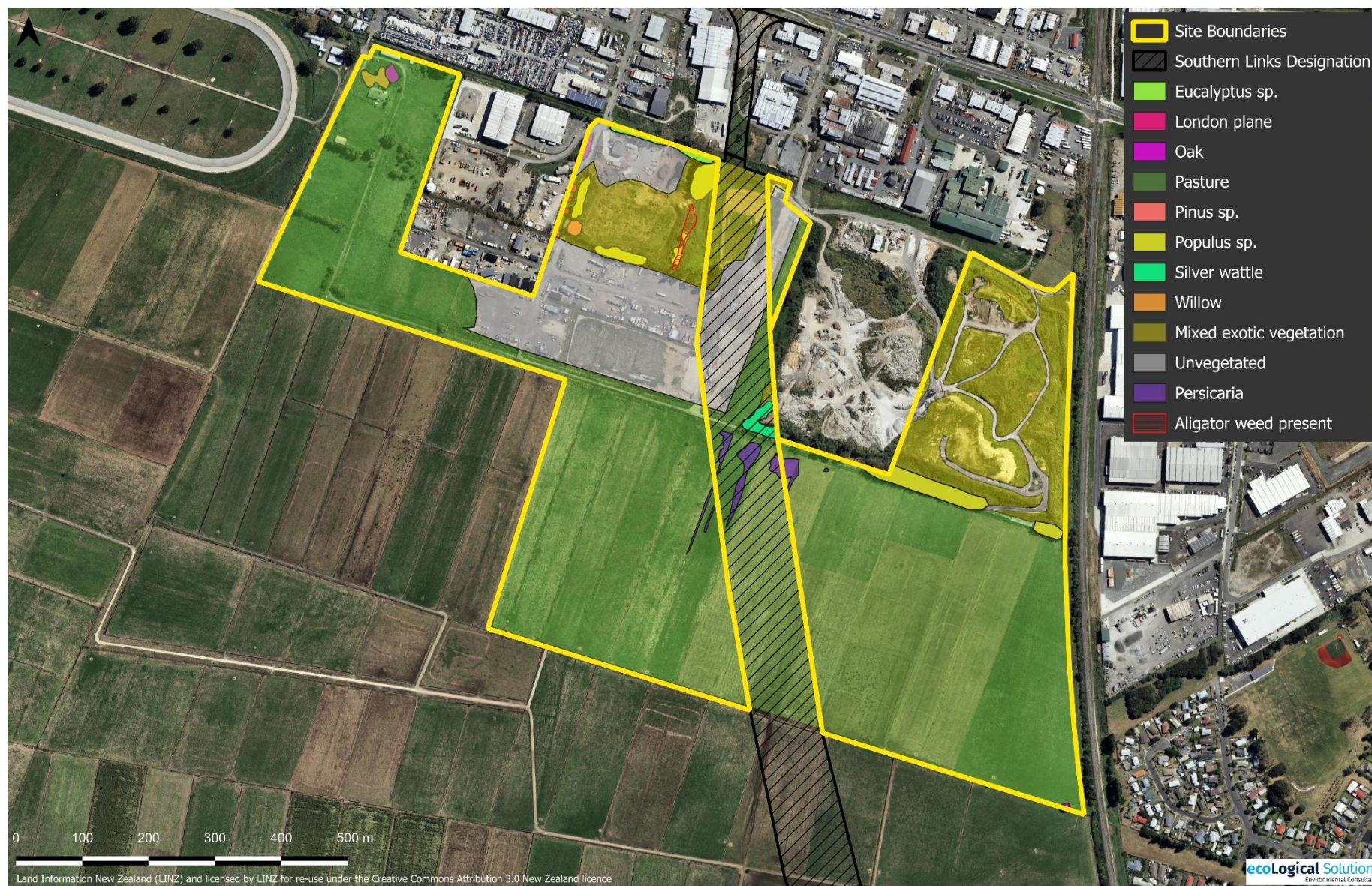


Figure 4: Location of vegetation types within the Industrial North Site.

5.2 Birds

5.2.1 eBird database

The eBird database included records of 76 bird species (either native or introduced and naturalised) within a 10 km radius of the Site (full list provided in Appendix B). Of the native species recorded, 23 are considered to be 'At Risk' or 'Threatened' (Robertson et al. 2021). Spatial distribution of these records is shown on Figure 5.

Most species of conservation interest have been recorded along the alignment of the Waikato River, open waterbodies, or peat lakes and are aquatic birds which are unlikely to use the Site beyond infrequent loafing or foraging. Four of these species are most often found in forest habitats and are also unlikely to occur due to the lack of suitable habitat. There were multiple records of karearea - New Zealand falcon (*Falco novaeseelandiae*) and New Zealand pipit (*Anthus novaeseelandiae*), which are regarded as 'Threatened – Nationally Vulnerable' and 'At Risk – Declining', respectively (Robertson et al. 2021); however, neither of these species are considered likely to use the Site outside occasional visits.

5.2.2 Site observations

Bird species observed during surveys were common, rural lowland, species and included the native pūkeko (*Porphyrio melanotus*), silveryeye (*Zosterops lateralis*), welcome swallow (*Hirundo neoxena*), swamp harrier (*Circus approximans*), spur-winged plover (*Vanellus miles*), and white-faced heron (*Egretta novaehollandiae*), and the exotic Eurasian blackbird (*Turdus merula*), house sparrow (*Passer domesticus*), goldfinch (*Carduelis carduelis*), myna (*Acridotheres tristis*), and mallard (*Anas platyrhynchos*). All of these species have threat categories of 'Not Threatened' or 'Introduced and Naturalised' (Robertson et al. 2021). The trees on site likely provide nesting habitat for various species, in particular near the cleanfill in the northeast of the Site and at the EnviroNZ property at the centre of the Site. However, these exotic trees are likely only used by common, tolerant, exotic species.

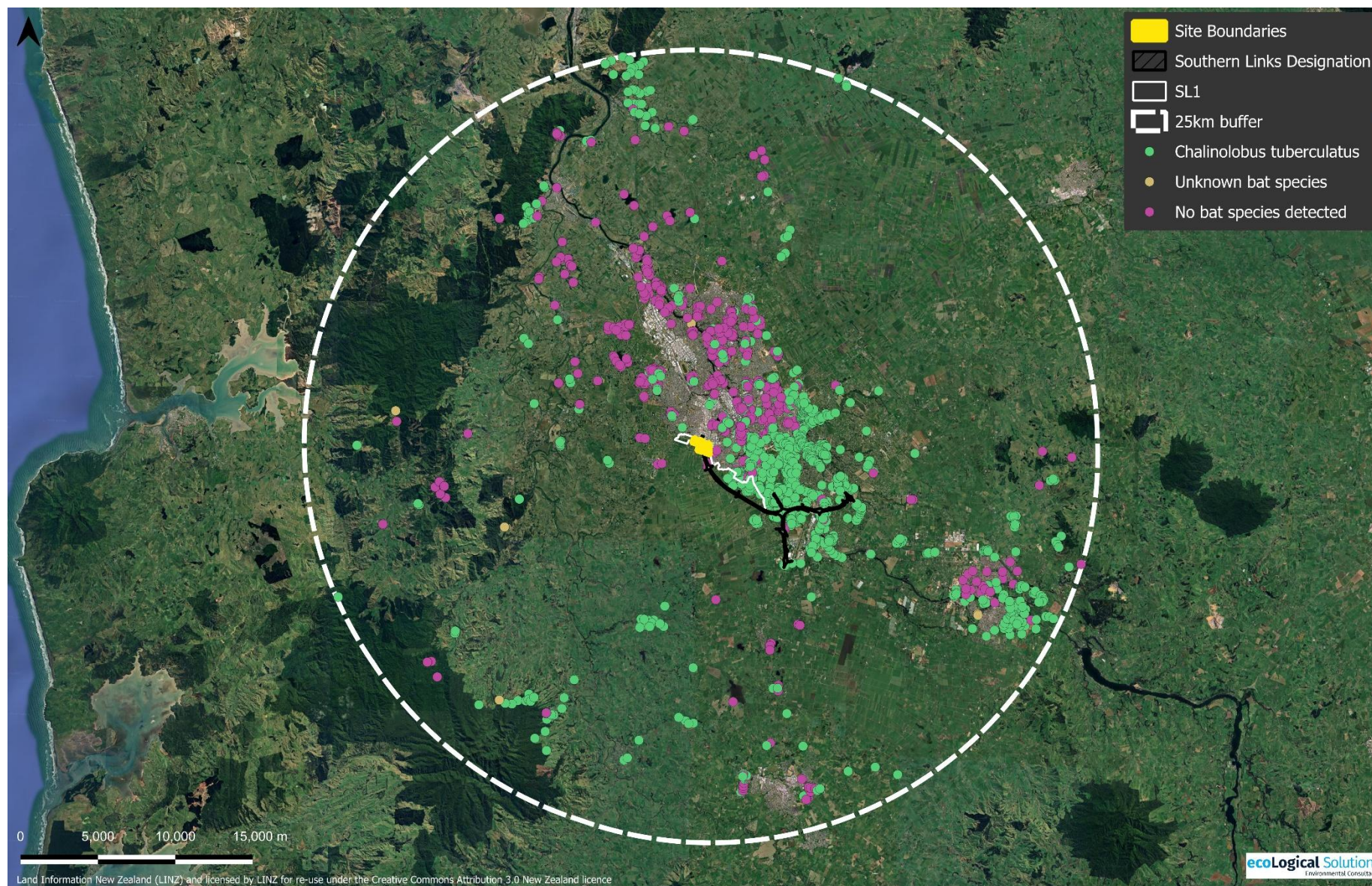


Figure 5: eBird records of 'Threatened' or 'At Risk' species within 10 km of the Site.

5.3 Lizards

5.3.1 Desktop assessment

The Department of Conservation herpetofauna database holds records of three indigenous lizard species within 12 km³ of the Site. Two of the species recorded were geckos; Pacific gecko (*Dactylocnemis pacificus*) and goldstripe gecko (*Woodworthia chrysosiretica*). Pacific geckos are both terrestrial and arboreal favouring mature lowland forests, mānuka and kānuka scrubland, and other areas of dense vegetation. Goldstripe gecko are primarily found in the Taranaki region and are semi-arboreal in nature favouring forests, scrub, and flaxlands.

There were 173 records of copper skink (*Oligosoma aeneum*) within 12 km of the Site. Copper skinks are 'At Risk – Declining' (Hitchmough et al 2026). They are ground dwelling skinks which are fairly ubiquitous across the Waikato region favouring forests, shrublands as well as urban and rural areas with dense ground cover like logs, deep leaf litter, and long rank grass.

5.3.2 Habitat survey

There was no suitable habitat within the Site for geckos. Potential ground dwelling lizard habitat on site comprised dense weeds, rank grass, inorganic debris, and loose rock. Rank grass and weedy areas were primarily found around the margins of the active industrial areas (Figure 6), and along fence lines and the riparian margin of the central drainage canal. In addition, an old cleanfill area on the eastern end of the Industrial North Site contained an abundance of suitable habitat features for ground dwelling skinks. These included numerous inorganic debris piles, loose rock along tracks as well as extensive coverage of dense weeds (Figure 7–Figure 8).

Manual habitat searches determined the presence of large numbers of unidentified skinks (likely exotic plague skink (*Lampropholis delicata*)); however, it is also expected that copper skink were present. Potential lizard habitat areas within the Industrial North Site are shown in Figure 9.

³ Distance to existing lizard records not precise. 12 km equals smallest reporting distance in accordance with Ecological Solutions GIS data sharing agreement with the Department of Conservation.



Figure 6: Dense weedy areas around perimeter of current industrial areas.



Figure 7: Dense weed cover atop the cleanfill site.



Figure 8: Loose rock track atop the cleanfill site and with dense pampas.

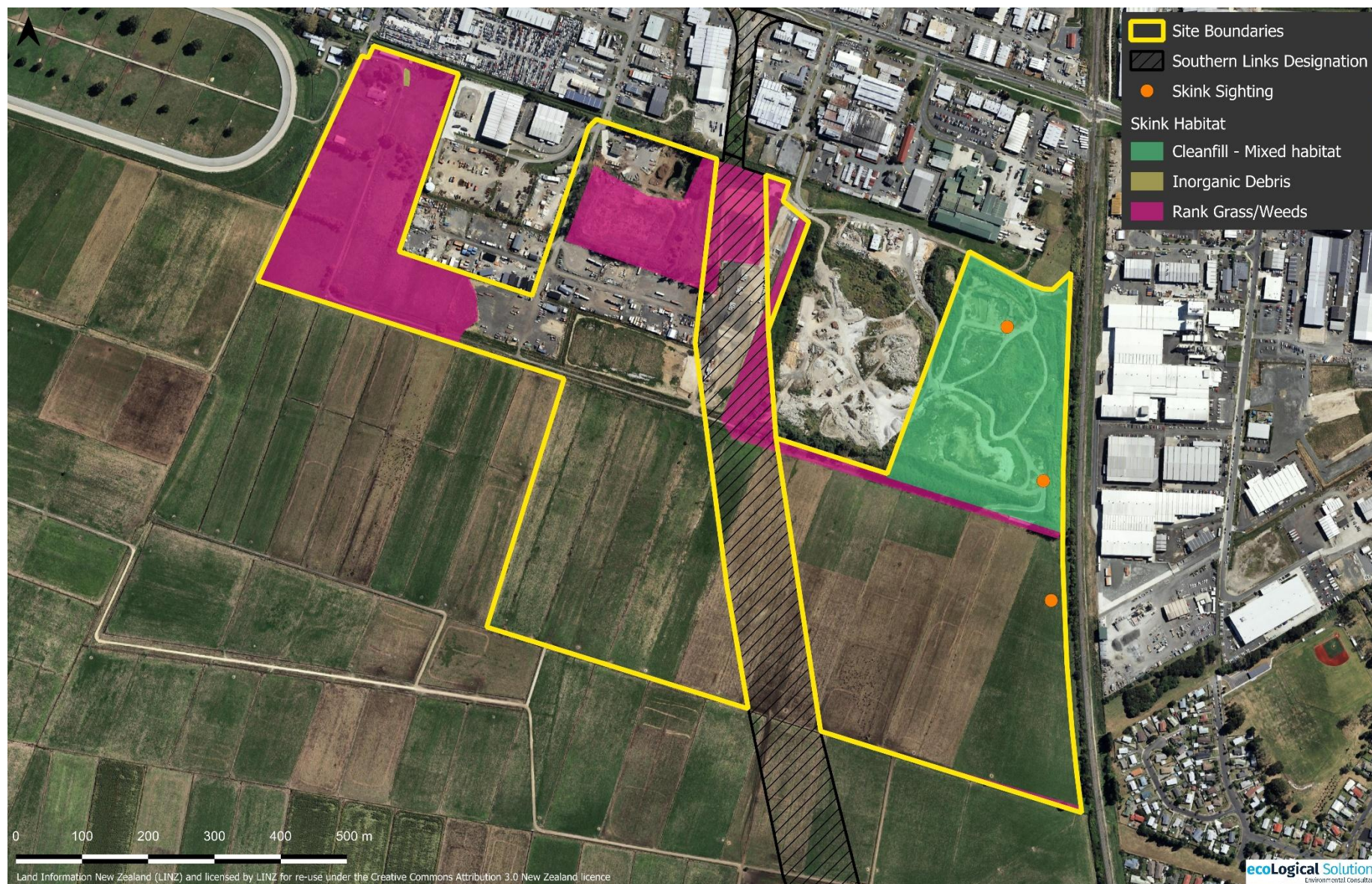


Figure 9: Potential skink habitat.

5.4 Bats

5.4.1 Desktop assessment

An abundance of bat activity records exist within 25 km of the Site (Figure 10). Extensive surveying confirming long-tailed bat (*Chalinolobus tuberculatus*) activity, utilising automatic bat monitors (ABM) recording acoustic bat echolocations (e.g., AECOM 2025; Le Roux and Le Roux 2012; Wildlands 2017) and radio tracking (Davidson-Watts Ecology 2019), have been undertaken to the south and east of the SL1 Growth Cell.

Most of this survey effort was undertaken as part of baseline data collection and long-term bat monitoring programmes associated with the Southern Links Transport Network (AECOM 2025; Wildlands 2017, Davidson-Watts Ecology 2019), a Hamilton City Bat Monitoring programme (Le Roux and Le Roux 2012) and several small and large-scale resource consent applications. Previously recorded bat activity to the southeast of the SL1 Growth Cell is extensive with an abundance of records including known roosting habitat within the Mangakōtukutuku Gully system and Peacocke Structure Plan Area.

The Waikato Region Bat Distribution and Department of Conservation National Bat Database records show long-tailed bat activity previously recorded within c. 1 km of the Industrial North Site to the north, east and south. Records of bat activity to the west of the Site were sparse with the nearest activity recorded c. 5 km away at Barret Bush Reserve, west of Temple View.

None of the Waikato Region Bat Distribution layers created for the Bat Alliance Group, intersect the Industrial North Site. Layer A indicating potential bat roost areas for long tailed bats extends to within less than 1 km east of the Industrial North Site covering Kahikatea Park.

Long-tailed bats have a threat status of 'Threatened – Nationally Critical' (O'Donnell et al. 2023).

5.4.2 Acoustic bat surveys

Two ABM surveys were undertaken across the Industrial North Site between October and April. Long-tailed bat activity was recorded on five of eleven ABMs deployed from 10 April to 6 May 2025. None of the ABMs recorded more than one bat pass during the survey period (Table 4). However, ABMs that detected bat activity were evenly distributed across the Industrial North Site, suggesting bats may be commuting across the Industrial North Site. The distribution of ABMs and bat activity levels recorded are shown in Figure 11.

A second ABM survey was undertaken from 6 November to 4 December 2025 with 12 ABMs deployed. Long-tailed bat activity was generally lower over this period compared to the April survey, with only three of the twelve ABMs recording long-tailed bat activity and none recording more than two bat passes over the survey period (Table 5). Recorded bat activity was confined to the ABMs deployed within the southeastern corner of the Site (Figure 12). This is also thought to be representative of bats commuting across the southeastern corner of the Site.

Both the April/May and November/December surveys showed a low level of activity during the survey periods.

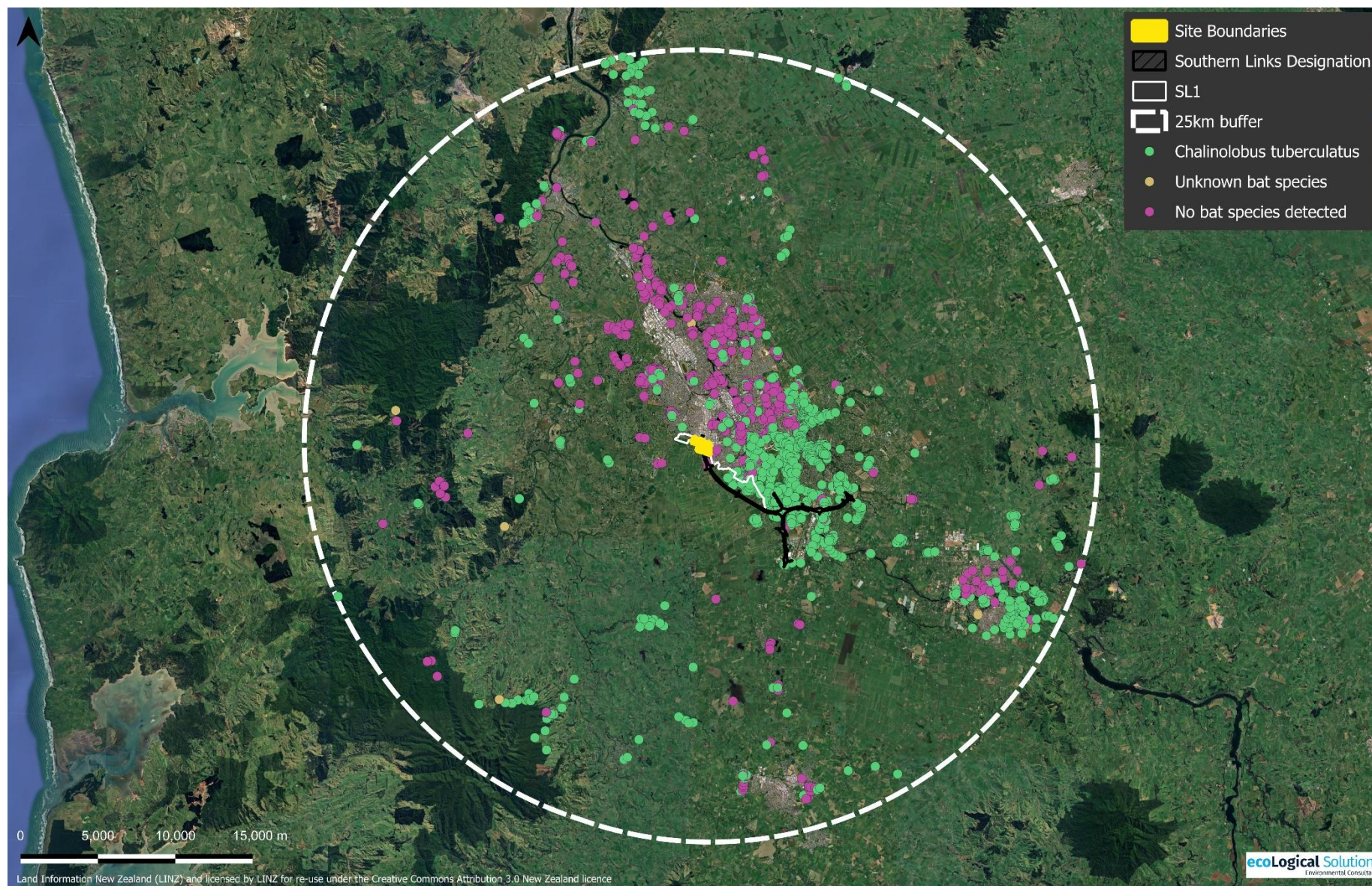


Figure 10: Bat database records within 25 km of the Industrial North Site.

Table 4: Bat passes during April–May 2025 survey.

ABM number	Total bat passes	Valid survey nights ⁴	Passes per valid survey night
AR04	0	14	0
AR15	0	14	0
AR21	1	14	0.071
AR26	0	14	0
AR29	1	14	0.071
AR31	0	14	0
AR32	0	14	0
AR42	0	14	0
AR46	0	14	0
AR47	1	14	0.071
AR51	0	14	0

Table 5: Bat passes during November–December 2025 survey.

ABM number	Total bat passes	Valid survey nights	Passes per valid survey night
AR10	0	21	0
AR23	0	21	0
AR24	0	21	0
AR26	0	13*	0
AR29	0	21	0
AR31	0	20*	0
AR43	0	21	0
AR48	1	21	0.048
AR49	1	21	0.048
AR50	0	21	0
AR52	2	21	0.095
AR54	0	21	0

* ABMs failed to record for full survey period

⁴ Valid surveys nights were defined in accordance with the Department of Conservation's Bat Roost Protocols Version 4: October 2024 approved by the New Zealand Department of Conservation's Bat Recovery Group

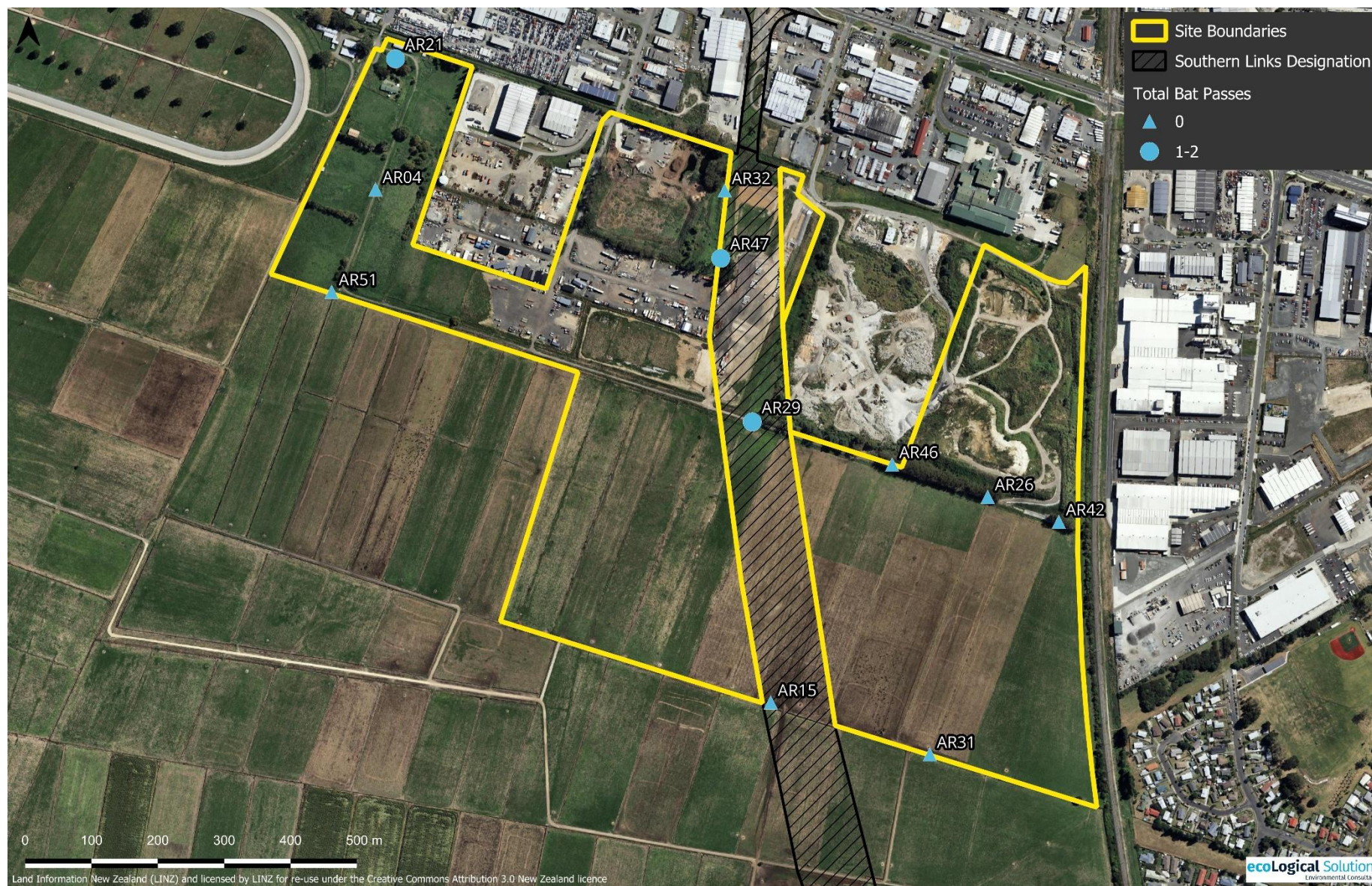


Figure 11: Bat activity detected in the April–May 2025 survey.

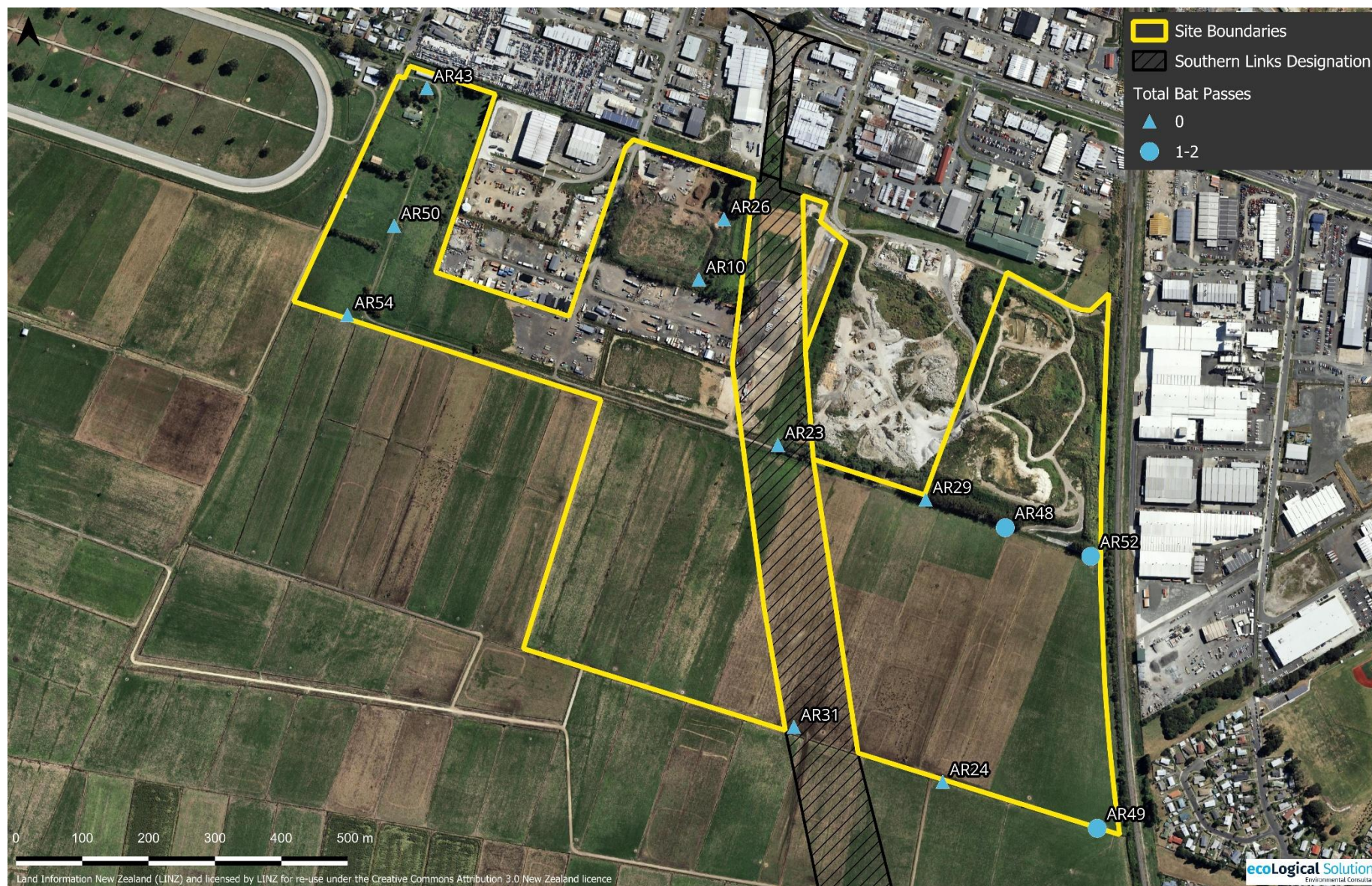


Figure 12: Bat activity detected in November–December 2025 survey.

5.4.3 Bat habitat assessment

Long-tailed bats are known to preferentially use the edges of different habitat types for commuting, foraging, and socialising (Rockell et al. 2017, O'Donnell 2001, 2018). The Hamilton long-tailed bat population are also known to commute, socialise, and forage across open pasture (Davidson-Watts 2019).

The Industrial North Site was characterised by predominately open pasture (c. 65%) with mature tree cover restricted to a single exotic shelterbelt of Silver Wattle (*Acacia dealbata*) located centrally along the southern boundary of the cleanfill area and adjacent to the central drainage canal. This shelterbelt offered some potential bat roost features including extensive climbing ivy coverage (Figure 13) and tree crevices/hollows (Figure 14).

Collectively the Industrial North Site provided c. 39 ha of potential commuting, foraging, socialising, and roosting habitat for long-tailed bats.



Figure 13: Ivy covered acacia shelterbelt providing potential bat roost features.



Figure 14: Tree crevice providing a potential bat roost feature.

6.0 Wetlands

6.1 Desktop Assessment

The Industrial North Site was initially assessed for the presence of potential wetland habitats likely to meet the definition under the RMA as well as the NPS-FM. Through this assessment two areas (i.e., area 1 and 2) within the Site were identified, that needed further field assessment to ascertain their status (Figure 15).



Figure 15: Potential wetland habitats for further field assessment.

6.2 Field Assessment

Field assessment of the potential wetland habitat areas concluded there were no RMA or 'natural inland wetlands' within the Industrial North Site.

Area 1 appeared to be a historic soil stockpile assumed to be associated with the stripping and formation of the existing industrial area. The vegetation in this area was dominated by facultative and facultative upland species, including pasture species. Vegetation survey plot data is presented in Appendix C. Therefore, Area 1 was not an RMA wetland nor a natural inland wetland under the NPS-FM due to the absence of a hydric vegetation community or suitable hydrology.

Area 2 was characterised as intensively managed wet pasture with a dynamic vegetation community that varied depending on the time of year. Area 2 was dominated by pasture species including perennial rye grass (*Lolium perenne* - facultative upland (FACU)), white clover (*trifolium repens* (FACU)), Yorkshire fog (*Holcus lanatus* (facultative (FAC))), creeping buttercup (*Ranunculus repens* (FAC)) and wet tolerant species including creeping bent (*Agrostis stolonifera* – facultative wetland (FACW)) (Figure 17). Through the summer months the vegetation community was characterised by the presence of the exotic weed species *persicaria hydropiper* (FACW) (Figure 18) forming a taller herbaceous stratum

overtopping the facultative and pasture species.

The nature of the vegetation community in Area 2 appeared to be the product of the intensive management and disturbance regime impacting the hydrology within this area resulting in a non-natural ecosystem. The area was directly adjacent to a low-lying farm drainage canal and concrete stock watering trough(s). The area was frequently wet, heavily grazed and pugged by cattle. There was an abundance of evidence the area had been historically backfilled with coarse inorganic material such as bricks, broken concrete and concrete blocks (Figure 16) contributing to the non-natural conditions. As a result, Area 2 was not considered an RMA wetland based on the non-natural ecosystem present.

Three vegetation plots were surveyed within Area 2 (Figure 19) to further inform the non-RMA wetland classification. The vegetation plots demonstrate that the area was predominately managed for and maintained as pasture, despite the presence of persicaria during the growing season. In accordance with vegetation tests (ie. rapid, dominance, prevalence and pasture exclusion) outlined by the Wetland Delineation Protocols (MfE 2020) and the pasture exclusion assessment methodology (MfE 2022) the vegetation community was also found to not meet the definition of a 'natural inland wetland'. Vegetation survey plot data is presented in Appendix C.

From an ecological perspective, this area was considered a non-natural ecosystem dominated by exotic vegetation species typical of a highly modified, pasture in the Waikato Region. This modified ecosystem was the result of the intensive management regime and ongoing land use. Therefore, Area 2 was not considered an RMA wetland nor a 'natural inland wetland' under the NPS-FM.



Figure 16: Backfilled inorganic material.



Figure 17: Area 2 wet pasture vegetation community in August 2026.



Figure 18: Area 2 wet pasture vegetation community in April 2026.



Figure 19: Areas of potential wetland and vegetation plot locations.

7.0 Freshwater Ecology

7.1 Watercourses

The Industrial North Site was drained by a network of farm drainage canals and artificial watercourses, as defined under the Waikato Regional Plan (Figure 20).

The longest of these was a central farm drainage canal that ran c. 1,275 m west to east through the Site. This drain was fed by several smaller paddock drains (artificial watercourses) that discharged to it from the south (Figure 20). Another large farm drainage canal ran east-west along the Site's southern boundary and was c. 940 m long. The alignment of this drain did not appear to run parallel with property boundaries, with only the eastern portion of its length entering the Site boundary.

A shorter drainage canal ran towards the northern boundary of the Industrial North Site within the EnviroNZ site. This drainage canal supported the pest plant alligator weed (*Alternanthera philoxeroides*) and was actively isolated by bunds on either side. Due to the potential biosecurity risk, and the proposed continuation of the EnviroNZ operation on this site, this canal was not investigated further.

Drainage channels within the Site were variably wet during the various survey periods, with some portions of the drains remaining perennially wet and some portions drying out (Figure 21 and Figure 22). The channel morphology was shallow (<1 m) and straight, with sloped to vertical banks, soft bottomed (organic) substrate and little to no flow. The drainage channels were generally inundated with algae, and macrophyte growth, and an abundance of tannins. Riparian vegetation consisted of rank grass only.

The paddock drains were narrow, shallow, damp to dry throughout the survey periods and with an abundance of algae cover (Figure 23).

In addition to the artificial drains, there were two artificial stormwater runoff ponds (Figure 24) within the EnviroNZ site. These ponds were not functionally connected to any watercourses except for a small isolated artificial drain inlet which appeared to be draining the greater EnviroNZ site.



Figure 20: Watercourses on site.



Figure 21: Section of central drainage canal running west to east.



Figure 22: Section of central drainage canal running west to east.



Figure 23: Section of paddock drain with variable water depth throughout the year.



Figure 24: Artificial stormwater runoff pond within the EnviroNZ site.

7.2 Fish

7.2.1 New Zealand Freshwater Fish Database

The NZFFD holds records of 13 species of freshwater fish within the Mangakōtukutuku Stream catchment (Table 6). These records include nine indigenous fish species and four exotic fish as well as kōura (*Paranephrops planifrons*). The location of NZFFD fish records are shown in Figure 25.

Table 6: Fish records in the NZFFD for Mangakōtukutuku Stream catchment.

Common name	Scientific name	Conservation status (Dunn et al. 2025)
Indigenous fish		
Common smelt	<i>Retropinna retropinna</i>	At Risk – Declining
Giant kōkopu	<i>Galaxias argenteus</i>	At Risk – Declining
Longfin eel	<i>Anguilla dieffenbachii</i>	At Risk – Declining
Banded kōkopu	<i>Galaxias fasciatus</i>	At Risk – Naturally Uncommon
Torrentfish	<i>Cheimarrichthys fosteri</i>	At Risk – Naturally Uncommon
Redfin bully	<i>Gobiomorphus huttoni</i>	At Risk – Naturally Uncommon
Īnanga	<i>Galaxias maculatus</i>	Threatened – Nationally Vulnerable
Common bully	<i>Gobiomorphus cotidianus</i>	Not Threatened
Shortfin eel	<i>Anguilla australis</i>	Not Threatened
Exotic fish		
Koi carp	<i>Cyprinus carpio</i>	Introduced and Naturalised
Gambusia	<i>Gambusia affinis</i>	Introduced and Naturalised
Rainbow trout	<i>Oncorhynchus mykiss</i>	Introduced and Naturalised
Brown trout	<i>Salmo trutta</i>	Introduced and Naturalised

7.2.2 Trapping survey

Thirty-one Gee's-minnow traps were set in drainage canals with sufficient surface water and suitable habitat characteristics over one night to sample fish presence (Figure 26). Two shortfin eels (300 and 350 mm long) were captured during the survey (Figure 26). Shortfin eels are listed as 'Not Threatened' (Dunn et al 2025). No black mudfish were captured.

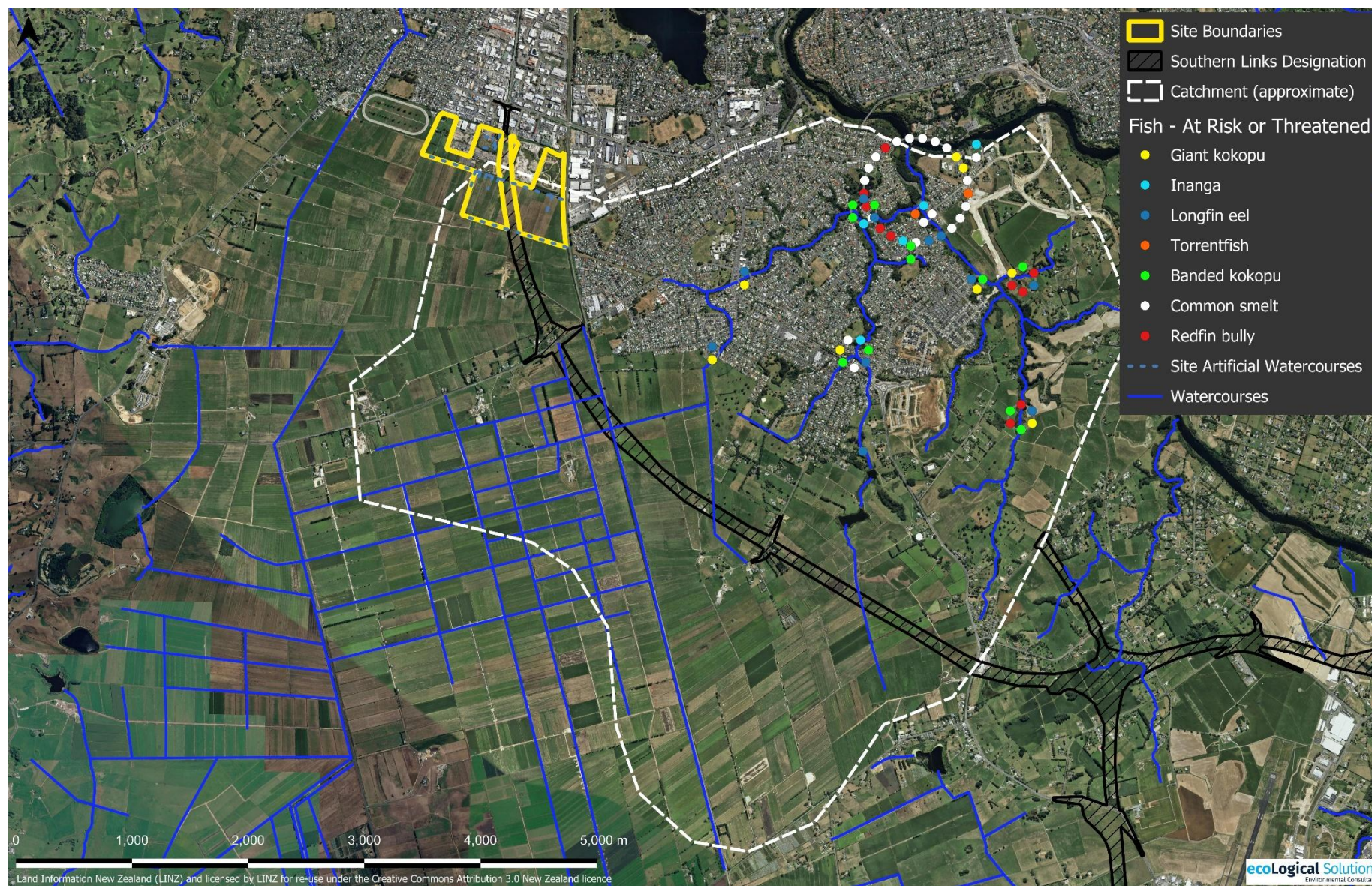


Figure 25: NZFFD records of fish species within the Site catchment.



Figure 26: Location of survey site, Gee's-minnow traps and eels caught on site.

8.0 Ecological Values

8.1 Terrestrial

8.1.1 Vegetation

Vegetation within the Industrial North Site comprised mainly exotic pasture with other exotic weedy areas, such as the top of the cleanfill area on the east side of the Industrial North Site. Grazed exotic pasture and exotic weedy areas were considered to have 'negligible' botanical or ecological value in accordance with the EclAG.

The exotic specimen trees onsite were predominantly common exotic species and therefore were deemed to have 'negligible' ecological value as well. Exotic vegetation communities may provide valuable habitat for native species. The value of the vegetation communities onsite to provide fauna habitat is discussed below.

8.1.2 Birds and bird habitat

No 'At Risk' or 'Threatened' birds (Robertson et al. 2021) were recorded during the site visits. Some species listed in the eBird database (e.g., NZ falcon, NZ pipit) are unlikely to be present but may occasionally use pasture habitat within the Site for foraging. New Zealand pipit typically avoid high producing pasture habitat so are unlikely to use the Site for breeding or nesting. The exotic trees onsite likely provide nesting habitat for various common, tolerant, exotic and native bird species. The overall ecological value for birds and bird habitat within the Site was assessed as 'low'.

8.1.3 Lizards and lizard habitat

There was potential habitat for native ground dwelling skinks within the Industrial North Site. Several sightings of unidentified skinks (likely plague skinks) were made during the site surveys. If present, the native lizard species most likely to occur within the Site are copper skink (At Risk – Declining) (Hitchmough et. al. 2026) due to the habitat present and their habitat preferences. The overall ecological value for lizards and lizard habitat within the Site was considered 'moderate' due to the lack of lizard diversity, the active disturbance regime, and the absence of a predator control programme across the Site.

8.1.4 Bats and bat habitat

Long-tailed bats (Threatened – Nationally Critical (O'Donnell et. al 2023)) were confirmed to be using the Site based on acoustic surveys. Consequently, the ecological value of long-tailed bats at this site was assessed as 'very high'.

Potential bat habitat in the form of open pasture for feeding and commuting, and potential roost trees were identified onsite. While the Site was located near areas of known bat activity, historical bat activity records have shown that the Hamilton bat population is much more active to the south of the Site, with only a low number of bat passes in proximity or further north of the Site. Bat activity recorded across the Site during mating and pre-parturition seasons was low, suggesting only occasional usage of the Site by bats. With c. 35% of the Site characterised by active light industrial land use and the remaining c. 65% intensively farmed, the Site is subject to an active disturbance regime. Consequently, the ecological value of bat habitat within the Site was considered 'low' to 'moderate'.

Table 7: Summary of terrestrial ecological values following the EclAG (Roper-Lindsay et al. 2018).

Feature	Representativeness	Rarity and Distinctiveness	Diversity and pattern	Ecological Context	Overall value	Comments
Vegetation (exotic pasture and weeds)	Very low	Very low	Very low	Very low	Negligible	The majority of the Site is covered by exotic pasture with a low diversity of species and provides negligible ecological value.
Vegetation (exotic specimen trees)	Very low	Very low	Very low	Very low	Negligible	The exotic trees at the Site provide negligible ecological value.
Birds	Low	Low	Low	Low	Low	No 'Threatened' or 'At Risk' bird species recorded or expected to be using the Site.
Bird habitat	Low	Low	Low	Low	Low	The habitat for birds within the Site is typical of rural/peri-urban habitats utilised by common native and introduced birds within the Waikato Region. The habitats are not representative of indigenous habitats or the previously occurring habitats, which would have had extensive wetlands and substantially more forest present.
Lizards	Low	High	Low	Low	Moderate	Based on existing records and available habitat, only copper skink (At Risk – Declining)) is likely to be present and potentially only in low numbers due to the disturbance regime and absence of a predator control programme.
Lizard habitat	Low	Low	Moderate	Moderate	Moderate	The vegetation community within the clean fill area and other habitats throughout the Site provided potential skink habitat.
Bats	High	Very High	High	High	Very High	Long-tailed bats (Threatened – Nationally Critical) recorded within the Site.
Bat habitat	Low	Low	Low - Moderate	Moderate	Low-Moderate	Low quality commuting and foraging habitat, with some potential roosting habitat.

8.2 Freshwater

8.2.1 Artificial watercourses and stormwater retention ponds

The artificial watercourses on site held non-flowing surface water, extensive algae and macrophyte growth, lacked riparian vegetation (other than rank grass), and generally provided poor quality aquatic habitat characteristics. The artificial stormwater ponds within the EnviroNZ site lacked connectivity to surrounding watercourses and any riparian vegetation. Consequently, these artificial features were determined to have 'negligible' ecological value.

8.2.2 Fish

Two shortfin eels ('Not Threatened' (Dunn et al. 2025)) were the only native fish species captured during surveys within the Site. The ecological value of the native fish fauna within the Site was assessed as 'low' due to very low diversity and abundance and the absence of 'At Risk' or 'Threatened' species.

Table 8: Summary of freshwater ecological values following the EclAG (Roper-Lindsay et al. 2018).

Feature	Representativeness	Rarity and Distinctiveness	Diversity and pattern	Ecological Context	Overall value	Comments
Artificial watercourses and stormwater retention ponds	Very low	Very low	Very low	Very low	Negligible	Drains on site are artificial watercourses that lack vegetated riparian margins, with the exception of some rank grass. Provide poor quality aquatic habitat. Artificial stormwater retention ponds lack connectivity to other waterbodies.
Fish	Low	Low	Low	Moderate	Low	Only two individuals of one native species noted during surveys, shortfin eel.

9.0 Waikato Regional Policy Statement Assessment of Significance

The operative Waikato Regional Policy Statement (WRPS) sets out the criteria in Appendix 5 for determining significance of indigenous biodiversity (Waikato Regional Council 2016). Table 9 below summarises the assessment of indigenous vegetation and habitats of indigenous fauna recorded across the Site against these criteria. If any criteria are met, the Site is deemed significant under the WRPS (Waikato Regional Council 2016).

In summary the Site is deemed significant under the WRPS criteria with respect to indigenous fauna (long-tailed bats – Threatened Nationally Critical); however, the level of bat activity recorded across two acoustic surveys at the Site, in comparison to other areas of Hamilton south and east of the Site indicates the Site is not likely important bat habitat.

Table 9: WRPS criteria for determining significance of indigenous biodiversity

Ecological values		Criteria met
2.	In the Coastal Marine Area, it is indigenous vegetation or habitat for indigenous fauna that has reduced in extent or degraded due to historic or present anthropogenic activity to a level where the ecological sustainability of the ecosystem is threatened.	N/A
3.	It is vegetation or habitat that is currently habitat for indigenous species or associations of indigenous species that are: • classed as threatened or at risk, or • endemic to the Waikato region, or • at the limit of their natural range.	Y
4.	It is indigenous vegetation, habitat or ecosystem type that is under-represented (20% or less of its known or likely original extent remaining) in an Ecological District, or Ecological Region, or nationally.	N
5.	It is indigenous vegetation or habitat that is, and prior to human settlement was, nationally uncommon such as geothermal, chenier plain, or karst ecosystems, hydrothermal vents or cold seeps.	N
6.	It is wetland habitat for indigenous plant communities and/or indigenous fauna communities (excluding exotic rush/pasture communities) that has not been created and subsequently maintained for or in connection with: • waste treatment; • wastewater renovation; • hydro electric power lakes (excluding Lake Taupō); • water storage for irrigation; or • water supply storage; unless in those instances they meet the criteria in Whaley et al. (1995).	N
7.	It is an area of indigenous vegetation or naturally occurring habitat that is large relative to other examples in the Waikato region of similar habitat types, and which contains all or almost all indigenous species typical of that habitat type. Note this criterion is not intended to select the largest example only in the Waikato region of any habitat type.	N
8.	It is aquatic habitat (excluding artificial water bodies, except for those created for the maintenance and enhancement of biodiversity or as mitigation as part of a consented activity) that is within a stream, river, lake, groundwater system, wetland, intertidal mudflat or estuary, or any other part of the coastal marine area and their margins, that is critical to the self sustainability of an indigenous species within a catchment of the Waikato region, or within the coastal marine area. In this context "critical" means essential for a specific component of the life cycle and includes breeding and spawning grounds, juvenile nursery areas, important feeding areas and migratory and dispersal pathways of an indigenous species. This includes areas that maintain connectivity between habitats.	N
9.	It is an area of indigenous vegetation or habitat that is a healthy and representative example of its type because: • its structure, composition, and ecological processes are largely intact; and • if protected from the adverse effects of plant and animal pests and of adjacent land and water use (e.g. stock, discharges, erosion, sediment disturbance), can maintain its ecological sustainability over time.	N
10.	It is an area of indigenous vegetation or habitat that forms part of an ecological sequence, that is either not common in the Waikato region or an ecological district, or is an exceptional, representative example of its type.	N
Role in protecting ecologically significant area		
11.	It is an area of indigenous vegetation or habitat for indigenous species (which habitat is either naturally occurring or has been established as a mitigation measure) that forms, either on its own or in combination with other similar areas, an ecological buffer, linkage or corridor and which is necessary to protect any site identified as significant under criteria 1-10 from external adverse effects.	N

10.0 Assessment of Effects

10.1 Introduction

This section assesses the actual and potential ecological effects associated with developing the Site as described in Section 1.2 and shown on Figure 2. Positive and adverse effects, cumulative effects, and residual effects are considered, and the assessment informs the nature and scale of impact management required. The approach to effects management follows the effects management hierarchy outlined in the National Policy Statement for Indigenous Biodiversity (NPS-IB) (MfE 2025b) and incorporates avoid, minimise, remedy and where more than minor residual adverse effects remain, biodiversity offsetting or compensation.

Activities that have potential to result in adverse ecological effects in the terrestrial and freshwater environments are:

Terrestrial Effects

- Positive
 - Removal of exotic weedy vegetation.
- Adverse
 - Vegetation clearance.
 - Habitat loss and indirect effects on terrestrial fauna (birds, lizards, bats).
 - Direct effects on terrestrial fauna (birds, lizards, bats).

Freshwater Effects

- Positive
 - Removal of stock and stock effluent from entering watercourses reducing nutrient loading.
 - Implementation of high-quality stormwater management system reducing contaminated runoff into watercourses.
- Adverse
 - Earthworks and effects on water quality and habitat.
 - Stormwater discharge to watercourses.
 - Direct effects on native aquatic species such as fish including injury or death during reclamation of artificial watercourses.

10.2 Terrestrial Effects and Effects Management

10.2.1 Vegetation

The Site was dominated by exotic pasture, weeds, and specimen trees of 'negligible' ecological value. It is anticipated that the c. 65 ha of exotic pasture across the Site will be removed in its entirety. The resulting pre-effects management level of overall effect on vegetation was considered 'very low' in accordance with the EclAG, as set out in Table 10.

Low and very low levels of effect should not normally be of concern, although normal design, construction and operational care should be exercised to minimise adverse effects.

10.2.2 Birds and bird habitat

The proposed development activities will result in the removal of low-quality potential bird nesting habitat in the form of exotic trees and grassland. If vegetation clearance occurs during the primary bird breeding season (September to February inclusive), direct mortality or injury to primarily common, tolerant exotic and native birds could result due to the potential presence of nests and nesting birds.

Almost all birds are absolutely protected under the Wildlife Act 1953. Consequently, it is recommended that vegetation clearance be avoided between September and February inclusive; or, where this is not practicable, pre-clearance nest checks should be undertaken by a suitably qualified ecologist. If native bird nests are identified, a 20 m setback from the nest tree should be implemented and maintained until the nest has been determined to have failed or the chicks have fledged. These measures are outlined in a Bird Management Plan (BirdMP) (Ecological Solutions 2026a).

With the above effects management measures, the post-effects management level of overall effect on birds and bird habitat is considered 'very low' (Table 10).

10.2.3 Lizards and lizard habitat

The cleanfill area, areas of weeds and rank grass, and inorganic debris piles within the Site provide potential ground dwelling skink habitat. The presence of native lizards on the Site has not been confirmed; however, it is likely that copper skinks ('At Risk – Declining' (Hitchmough et al. 2025)) are present in low numbers. Vegetation clearance will result in the loss of low-moderate quality lizard habitat and has the potential to cause injury or death to native lizards.

Management of the potential adverse effects on lizards are outlined in a Lizard Management Plan (LMP) (Ecological Solutions 2026b). A wildlife approval under the FTAA is being sought with respect to lizards, to authorise the handling, capture, relocation and incidental killing of native lizards during lizard management. The LMP details implementation of a pre-vegetation clearance lizard capture and relocation programme as well as lizard habitat restoration details to be included in any restoration across the proposed release site. With the above effects management measures implemented, the post effects management level of overall effect on lizards and lizard habitat will be 'low' (Table 10).

10.2.4 Bats and bat habitat

Surveys showed a low level of use of the Site by long-tailed bats (Threatened – Nationally Critical (O'Donnell et al. 2023)) compared to the SL1 Residential South Site, Resthills Park and the Peackcoke Structure Plan area to the south and east of the Site. The presence of bats within the Site means the removal of vegetation with suitable roosting features onsite has the potential to injure or result in mortality of bats.

Additionally, the industrial development will increase the amount of artificial light at night such as street, security, outdoor and vehicle illumination which has the potential to disrupt bat behaviour resulting in adverse effects on bats and their ability to use the Site or surrounding area (Schamhart et al. 2024).

Management of the adverse effects on bats is outlined in a Bat Management Plan (BMP) (Ecological Solutions 2026c). The BMP details the implementation of pre-vegetation clearance 'bat roost protocols' (DOC 2024) as well as bat sensitive lighting design guidelines in accordance with the recommendations in the HCC-BMP (Phoenix Ecology 2024). With the above effects management measures implemented, the post effects management level of overall effect on bats and bat habitat will be 'low' (Table 10).

10.3 Freshwater Effects and Effects Management

10.3.1 Earthworks and effects on water quality and habitat

Earthworks associated with developing the Site has the potential to result in fine sediment mobilisation and runoff into watercourses. The addition of fine sediment to freshwater environments has the potential to alter water chemistry, increase turbidity and decrease light penetration that affects primary production, smother invertebrate habitat and adversely affect the feeding for some fish species.

The receiving environments are highly modified artificial drains with poor water quality due to catchment land use pressures. As a result, the ecological sensitivity to the discharge of well-treated stormwater from earthworked areas is low. Proposed measures for erosion and sediment control will be installed and maintained in accordance with Waikato Regional Council's Erosion and Sediment control Guidelines for Soil disturbing Activities (WRC 2009), the Earthworks Management Plan (Maven Associates 2026a), and the Construction Management Plan (CMP) (Maven Associates 2026b).

With the implementation of appropriate silt controls and treatment of stormwater during earthworks, the potential effects of earthworks on water and habitat quality during construction will be minimised with the overall level of effect post effects management of 'low'.

10.3.2 Stormwater discharge to watercourses

The proposed development will increase impervious areas and lower stormwater residence time. Stormwater will also pose risks to water quality due to contamination, sediment, and erosion.

While the pre-effects management level of effect of stormwater discharges to artificial watercourses with 'negligible' value is considered 'low', and therefore should not normally be of concern, normal design, construction and operational care such as erosion and sediment control and stormwater treatment and attenuation measures will be implemented to minimise potential adverse effects. Details of erosion and sediment control measures are outlined in the Construction Management Plan (CMP) prepared by Maven Associates (2026b) while the stormwater treatment and attenuation measures are outlined in the Stormwater Management Plan (SMP) also prepared by Maven Associates (2026c).

10.3.3 Reclamation of artificial watercourses

The proposed development will result in the loss of c. 2.7 km of artificial watercourse. Artificial watercourses within the Site are known to support a small number of shortfin eels. Reclamation of these drains therefore has potential to result in the injury or death of shortfin eels if they are present when the drains are reclaimed.

The adverse effects of drain reclamation on shortfin eels will be managed through the implementation of a Fish Management Plan (FMP) (Ecological Solutions 2026d). The FMP will outline the management measures to be implemented prior to and during disturbance of watercourses to ensure the protection of native freshwater fish. Specifically, the FMP will outline the timing and protocols for fish capture and relocation prior to and during reclamation. If the above effects management measures are implemented the post-effects management level of overall effect on native fish will be 'low' (Table 10).

Table 10: Magnitude and level of effects for the proposed Industrial North Site pre and post effects management.

Activity	Ecological Feature	Effect	Ecological value	Magnitude of effect	Level of effect (pre-effects management)	Proposed mitigation measures	Level of effect (post effects management)
Vegetation Removal	Exotic trees and managed pasture	Loss of botanical value.	Negligible	Very high	Low	Low effects should not normally be of concern.	Very low
	Birds	Injury or mortality to birds.	Low	Moderate	Low	Low effects should not normally be of concern. Avoid vegetation clearance between September and February inclusive; or, if this is not practicable, check trees prior to felling and if native bird species are nesting, leave the tree standing until the nest can be declared abandoned. Full measures outlined in the Bird Management Plan. Wildlife Act Authorisation NOT required.	Very low
	Bird Habitat	Loss of bird habitat	Low	Moderate	Low	Low effects should not normally be of concern.	Low
	Lizards	Injury or death of indigenous lizards during vegetation clearance	Moderate	High	Moderate	Implementation of LMP. Vegetation clearance supervision and salvage. Wildlife approval is being sought as part of the Project.	Low
	Lizard habitat	Loss of indigenous lizard habitat	Moderate	Moderate	Moderate	Proposed habitat enhancement throughout the proposed release site will lead to a net increase in available high-quality lizard habitat in the long-term.	Low
	Bats	Injury or death of bats during vegetation clearance	Very High	High	Very High	Implementation of bat roost protocols, as outlined in a BMP.	Low.
	Bat habitat	Loss of bat habitat	Low-Moderate	High	Low - Moderate	Implementation of BMP measures such as bat sensitive lighting design.	Low

Activity	Ecological Feature	Effect	Ecological value	Magnitude of effect	Level of effect (pre-effects management)	Proposed mitigation measures	Level of effect (post effects management)
Reclamation of Artificial Watercourses	Indigenous freshwater fish	Injury or death of indigenous fish stranded in drains	Moderate	High	Moderate	Implementation of FMP.	Low
Stormwater Discharge to nearby waterways	Catchment waterways	Alteration of flows and water quality	Low	Low	Low	Low effects should not normally be of concern. Standard practice and design guidelines to be implemented	Low

11.0 Conclusions

This EclA provides an assessment of ecological impacts attributable to developing the proposed Industrial North Site between Higgins Road and the Hamilton Railway line, Hamilton.

Overall, the value of terrestrial ecological features on the Site ranged from negligible to very high due to the predominance of exotic pasture under intensive farming, and the presence of long-tailed bats (*Chalinolobus tuberculatus*), which have a conservation status of 'Threatened-Nationally Critical'. According to the WRPS ecological significance criteria this site can be considered significant due to the presence of long-tailed bats. The level of bat activity recorded at the Site was; however, much lower than that recorded at the nearby Residential South Site, Resthills Park or further south and east within the Peacocke Structure Plan Area. Bat survey results suggest the Site is not likely important bat habitat.

Freshwater ecological features within the Site ranged from negligible to low due to the artificial watercourses (farm drains) and the only fish species present being the 'Not Threatened' shortfin eel.

The application of effects management measures to minimise effects on indigenous fauna and habitat are outlined in specific management plans including a bird management plan (BirdMP), lizard management plan (LMP), bat management plan (BMP), and a fish management plan (FMP). A wildlife approval under the FTAA is being sought to implement the LMP and authorise the handling and incidental killing of lizards which may be missed during lizard management. The ecological impacts of the proposed development after application of the effects management measures, ranged from 'very low' to 'low', in accordance with the EclAG. No significant residual effects were identified.

12.0 References

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APPENDIX A

EclAG Tables

Table 4: Attributes to be considered when assigning ecological value or importance to a site or area of vegetation/habitat/community (Roper-Lindsay et al. 2018).

Matters	Attributes to be considered
Representativeness	<u>Criteria for representative vegetation and aquatic habitats:</u> • Typical structure and composition • Indigenous species dominate • Expected species and tiers are present • Thresholds may need to be lowered where all examples of a type are strongly modified <u>Criteria for representative species and species assemblages:</u> • Species assemblages that are typical of the habitat • Indigenous species that occur in most of the guilds expected for the habitat type
Rarity/distinctiveness	<u>Criteria for rare/distinctive vegetation and habitats:</u> • Naturally uncommon, or induced scarcity • Amount of habitat or vegetation remaining • Distinctive ecological features • National priority for protection <u>Criteria for rare/distinctive species or species assemblages:</u> • Habitat supporting nationally Threatened or At Risk species, or locally uncommon species • Regional or national distribution limits of species or communities • Unusual species or assemblages • Endemism
Diversity and Pattern	• Level of natural diversity, abundance and distribution • Biodiversity reflecting underlying diversity • Biogeographical considerations – pattern, complexity • Temporal considerations, considerations of lifecycles, daily or seasonal cycles of habitat availability and utilisation
Ecological context	• Site history, and local environmental conditions which have influenced the development of habitats and communities • The essential characteristics that determine an ecosystem's integrity, form, functioning, and resilience (from "intrinsic value" as defined in RMA) • Size, shape and buffering • Condition and sensitivity to change • Contribution of the Site to ecological networks, linkages, pathways and the protection and exchange of genetic material • Species role in ecosystem functioning – high level, key species identification, habitat as proxy

Table 5: Factors to consider in assigning value to terrestrial species for EclA (Roper-Lindsay et al. 2018).

Determining Factors	
Nationally Threatened species, found in the ZOI either permanently or seasonally	Very High
Species listed as At Risk – Declining, found in the ZOI, either permanently or seasonally	High
Species listed as any other category of At Risk, found in the ZOI either permanently or seasonally	Moderate
Locally (ED) uncommon or distinctive species	Moderate
Nationally and locally common indigenous species	Low
Exotic species, including pests, species having recreational value	Negligible

Table 6 Scoring for sites or areas combining values for four matters in Table 4 (Roper-Lindsay et al. 2018).

Value	Description
Very High	Area rates High for 3 or all of the four assessment matters listed in Table 4. Likely to be nationally important and recognised as such.
High	Area rates High for 2 of the assessment matters, Moderate and Low for the remainder, or Area rates High for 1 of the assessment matters, Moderate for the remainder. Likely to be regionally important and recognised as such.
Moderate	Area rates High for one matter, Moderate and Low for the remainder, or Area rates Moderate for 2 or more assessment matters Low or Very Low for the remainder Likely to be important at the level of the Ecological District.
Low	Area rates Low or Very Low for majority of assessment matters and Moderate for one. Limited ecological value other than as local habitat for tolerant native species.
Negligible	Area rates Very Low for 3 matters and Moderate, Low or Very Low for remainder.

APPENDIX B

Bird Species List

Common name	Scientific name	Conservation status (Robertson et al. 2021)
Great egret	<i>Ardea alba</i>	Threatened - Nationally Critical
Australasian bittern	<i>Botaurus poiciloptilus</i>	Threatened - Nationally Critical
New Zealand falcon	<i>Falco novaeseelandiae</i>	Threatened - Nationally Increasing
New Zealand grebe	<i>Poliiocephalus rufopectus</i>	Threatened - Nationally Increasing
Pacific black duck	<i>Anas superciliosa</i>	Threatened - Nationally Vulnerable
Caspian tern	<i>Hydroprogne caspia</i>	Threatened - Nationally Vulnerable
Long-tailed koel	<i>Urodynamis taitensis</i>	Threatened - Nationally Vulnerable
New Zealand pipit	<i>Anthus novaeseelandiae</i>	At Risk - Declining
Silver gull	<i>Chroicocephalus novaehollandiae</i>	At Risk - Declining
Yellow-crowned parakeet	<i>Cyanoramphus auriceps</i>	At Risk - Declining
South Island oystercatcher	<i>Haematopus finschi</i>	At Risk - Declining
North Island robin	<i>Petroica longipes</i>	At Risk - Declining
New Zealand fernbird	<i>Poodytes punctatus</i>	At Risk - Declining
White-fronted Tern	<i>Sterna striata</i>	At Risk - Declining
Baillon's crane	<i>Zapornia pusilla</i>	At Risk - Declining
Spotless crane	<i>Zapornia tabuensis</i>	At Risk - Declining
Eurasian coot	<i>Fulica atra</i>	At Risk - Naturally Uncommon
Little black cormorant	<i>Phalacrocorax sulcirostris</i>	At Risk - Naturally Uncommon
Royal spoonbill	<i>Platalea regia</i>	At Risk - Naturally Uncommon
New Zealand kaka	<i>Nestor meridionalis</i>	At Risk - Recovering
Pied cormorant	<i>Phalacrocorax varius</i>	At Risk - Recovering
Little pied cormorant	<i>Microcarbo melanoleucos</i>	At Risk - Relict
Great cormorant	<i>Phalacrocorax carbo</i>	At Risk - Relict
Cook's petrel	<i>Pterodroma cookii</i>	At Risk - Relict
Gray teal	<i>Anas gracilis</i>	Not Threatened
New Zealand bellbird	<i>Anthornis melanura</i>	Not Threatened
New Zealand scaup	<i>Aythya novaeseelandiae</i>	Not Threatened
Shining bronze-cuckoo	<i>Chalcites lucidus</i>	Not Threatened
Swamp harrier	<i>Circus approximans</i>	Not Threatened
Black swan	<i>Cygnus atratus</i>	Not Threatened
White-faced heron	<i>Egretta novaehollandiae</i>	Not Threatened
Gray gerygone	<i>Gerygone igata</i>	Not Threatened
New Zealand pigeon	<i>Hemiphaga novaeseelandiae</i>	Not Threatened
Pied stilt	<i>Himantopus leucocephalus</i>	Not Threatened
Welcome swallow	<i>Hirundo neoxena</i>	Not Threatened
Kelp gull	<i>Larus dominicanus</i>	Not Threatened
Morepork	<i>Ninox novaeseelandiae</i>	Not Threatened
Tomtit	<i>Petroica macrocephala</i>	Not Threatened
Pukeko	<i>Porphyrio melanotus</i>	Not Threatened
Tūī	<i>Prosthemadera novaeseelandiae</i>	Not Threatened
New Zealand fantail	<i>Rhipidura fuliginosa</i>	Not Threatened
Australasian shoveler	<i>Spatula rhynchotis</i>	Not Threatened

Common name	Scientific name	Conservation status (Robertson et al. 2021)
Paradise shelduck	<i>Tadorna variegata</i>	Not Threatened
Sacred kingfisher	<i>Todiramphus sanctus</i>	Not Threatened
Masked lapwing	<i>Vanellus miles</i>	Not Threatened
Silvereye	<i>Zosterops lateralis</i>	Not Threatened
Eastern cattle-egret	<i>Ardea coromanda</i>	Migrant
Latham's snipe	<i>Gallinago hardwickii</i>	Vagrant
Redpoll	<i>Acanthis flammea</i>	Introduced and Naturalised
Common myna	<i>Acridotheres tristis</i>	Introduced and Naturalised
Eurasian skylark	<i>Alauda arvensis</i>	Introduced and Naturalised
Mallard	<i>Anas platyrhynchos</i>	Introduced and Naturalised
Graylag goose	<i>Anser anser</i>	Introduced and Naturalised
Canada goose	<i>Branta canadensis</i>	Introduced and Naturalised
Sulphur-crested cockatoo	<i>Cacatua galerita</i>	Introduced and Naturalised
California quail	<i>Callipepla californica</i>	Introduced and Naturalised
European goldfinch	<i>Carduelis carduelis</i>	Introduced and Naturalised
European greenfinch	<i>Chloris chloris</i>	Introduced and Naturalised
Rock pigeon	<i>Columba livia</i>	Introduced and Naturalised
Rook	<i>Corvus frugilegus</i>	Introduced and Naturalised
Mute swan	<i>Cygnus olor</i>	Introduced and Naturalised
Yellowhammer	<i>Emberiza citrinella</i>	Introduced and Naturalised
Common chaffinch	<i>Fringilla coelebs</i>	Introduced and Naturalised
Australian magpie	<i>Gymnorhina tibicen</i>	Introduced and Naturalised
Wild turkey	<i>Meleagris gallopavo</i>	Introduced and Naturalised
Helmeted guineafowl	<i>Numida meleagris</i>	Introduced and Naturalised
House sparrow	<i>Passer domesticus</i>	Introduced and Naturalised
Indian peafowl	<i>Pavo cristatus</i>	Introduced and Naturalised
Ring-necked pheasant	<i>Phasianus colchicus</i>	Introduced and Naturalised
Eastern rosella	<i>Platycercus eximius</i>	Introduced and Naturalised
Dunnock	<i>Prunella modularis</i>	Introduced and Naturalised
Spotted dove	<i>Spilopelia chinensis</i>	Introduced and Naturalised
African collared-dove	<i>Streptopelia roseogrisea</i>	Introduced and Naturalised
European starling	<i>Sturnus vulgaris</i>	Introduced and Naturalised
Eurasian blackbird	<i>Turdus merula</i>	Introduced and Naturalised
Song thrush	<i>Turdus philomelos</i>	Introduced and Naturalised

APPENDIX C

Wetland Vegetation Plot Data

Wetland	Area 1	Date	17/04/2026	Hydric soil indicators	Primary hydrology indicators							
Plot	1			Organic layer	--							
Client		Wetland code	Area 11	Colours (grey/mottled)								
Surveyor				Does it meet soils?	No							
Wetland	Pasture excl. (%)	Rapid	Dominance	Prevalence	Dom.FAC%							
No	Yes	No	No	3.20	0							
Pasture Exclusion												
Pasture	Stratum	Code	Common Name	Status	Abs. cov. (%)	Abs. cum. cov. (%)	Tier.rel.veg. cov (%)	(A) No. of Dominant Species (OBL, FACW, FAC)	(B) Dominant Species (Across All Strata)	(A/B) Dominance Test (>50%)	Prevalence Indicator (PI)	Prevalence multiplier
Yes	Herb	cencla	Kikuyu	FACU	80	80	98		1	80	4	320
	Sapling/Shrub	acamol			20	100	100		1	20		
	Herb	calsep	Pink bindweed	FAC	2	102	2	1	2	1	2	6
Wetland	Area 1	Date	17/04/2026	Hydric soil indicators	Primary hydrology indicators							
Plot	2			Organic layer	--							
Client		Wetland code	Area 12	Colours (grey/mottled)								
Surveyor				Does it meet soils?	No							
Wetland	Pasture excl. (%)	Rapid	Dominance	Prevalence	Dom.FAC%							
No	No	No	No	3.17	100							
Pasture Exclusion												
Pasture	Stratum	Code	Common Name	Status	Abs. cov. (%)	Abs. cum. cov. (%)	Tier.rel.veg. cov (%)	(A) No. of Dominant Species (OBL, FACW, FAC)	(B) Dominant Species (Across All Strata)	(A/B) Dominance Test (>50%)	Prevalence Indicator (PI)	Prevalence multiplier
	Herb	ranrep	Creeping buttercup	FAC	80	80	71	1	80	1	80	240
	Herb	galapa	Cleavers	FACU	15	95	13				4	60
	Herb	calsep	Pink bindweed	FAC	15	110	13				3	45
	Sapling/Shrub	solame	-	FACU	3	113	100			1	3	12
Yes	Herb	cencla	Kikuyu	FACU	2	115	2			1	2	8
	Herb	cyndac	Indian doab	FACU	0	115	0			1	0	0.4
Wetland	Area 1	Date	17/04/2026	Hydric soil indicators	Primary hydrology indicators							
Plot	3			Organic layer	--							
Client		Wetland code	Area 13	Colours (grey/mottled)								
Surveyor				Does it meet soils?	No							
Wetland	Pasture excl. (%)	Rapid	Dominance	Prevalence	Dom.FAC%							
No	Yes	No	No	3.58	100							
Pasture Exclusion												
Pasture	Stratum	Code	Common Name	Status	Abs. cov. (%)	Abs. cum. cov. (%)	Tier.rel.veg. cov (%)	(A) No. of Dominant Species (OBL, FACW, FAC)	(B) Dominant Species (Across All Strata)	(A/B) Dominance Test (>50%)	Prevalence Indicator (PI)	Prevalence multiplier
	Herb	ranrep	Creeping buttercup	FAC	25	25	21	1	25	1	25	75
Yes	Herb	Dacglo	Cocksfoot	FACU	20	45	17			1	20	80
Yes	Herb	cencla	Kikuyu	FACU	20	65	17			1	20	80
	Herb	galapa	Cleavers	FACU	15	80	13				4	60
Yes	Herb	dacglo	Cocksfoot	FACU	10	90	8				4	40
	Herb	calsep	Pink bindweed	FAC	10	100	8				3	30
Yes	Herb	dacglo	Cocksfoot	FACU	10	110	8				4	40
	Herb	rubfru	Blackberry	FAC	5	115	4				3	15
	Herb	ISAgl	Swamp millet	OBL	3	118	3				1	3
Wetland	Area 2	Date	19/08/2026	Hydric soil indicators	Primary hydrology indicators							
Plot	1			Organic layer	--							
Client		Wetland code	Area 21	Colours (grey/mottled)								
Surveyor				Does it meet soils?	No							
Wetland	Pasture excl. (%)	Rapid	Dominance	Prevalence	Dom.FAC%							
No	Yes	No	No	3.50	0							
Pasture Exclusion												
Pasture	Stratum	Code	Common Name	Status	Abs. cov. (%)	Abs. cum. cov. (%)	Tier.rel.veg. cov (%)	(A) No. of Dominant Species (OBL, FACW, FAC)	(B) Dominant Species (Across All Strata)	(A/B) Dominance Test (>50%)	Prevalence Indicator (PI)	Prevalence multiplier
Yes	Herb	lolper	Perennial ryegrass	FACU	65	65	65			1	65	260
	Herb	agrsto	Creeping bent	FACW	20	85	20	1	20	1	20	40
Yes	Herb	plalan	Narrow-leaved plantain	FACU	1	86	1				4	4
	Herb	ranrep	Creeping buttercup	FAC	10	96	10				3	30
Yes	Herb	trirep	White clover	FACU	4	100	4				4	16

Appendix C

