

APPENDIX B Ecological Impact Assessment, Ecological Management Plans and Wildlife Permit



Awatoto Bridge 217

Ecological Report Summary

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Introduction

Background and Site Overview

The history of the site is complex and unique, involving multiple flood events, changing river courses, and bridge rebuilds, with written records spanning back to 1872 (Kiwirail 2023). Early survey plans have noted “river mouth liable to change” highlighting the frequent fluctuations of the river’s path (MapsPast, 1959). It is likely this changeability has been reinforced since the diversion of the Tutaekuri from its initial outflow in Ahuriri, resulting in the current confluence of three river systems.

The first recorded mention of bridge 217, or ‘(Waitangi) washout bridge’, is in circa 1897 (Kiwirail, 2023). The bridge currently spans the Waitangi Washout Channel and Waitangi Washout Basin. Multiple flood events since the initial construction of the bridge have resulted in several washout and rebuild cycles of the rail bridge, with the most recent being in 2023 during Cyclone Gabrielle.

United Civil was contracted by KiwiRail to rebuild Bridge 217 after it was washed out during cyclone Gabrielle. After four months of construction the bridge was reopened with an anticipated life span of five years.



Figure 1. An image of the potential site, in red, with the rail bridge 217 pinned.

Proposed Activity

Circumstances have necessitated the life span of the bridge be extended to fifty years. This will require significant works to strengthen the existing structure, and reduce the potential impacts caused by weathering and flood events.

Specifically, it has been proposed that the water levels of the Waitangi basin are lowered by approximately 1-2 m, facilitated by the removal of earth from the surrounding bank.

Purpose and Scope

The purpose of this report is to summarise the potential impacts of the environmental alterations proposed under the current plan to increase the lifespan of Bridge 217. This report aims to summarise the values of the different ecological characteristics present at the site. Because of the large scale of the work proposed and the limited details currently available, **no attempt has been made to categorise the magnitude of effects or the potential level of impact as discussed in the EIANZ framework.**

The following scope of the work is proposed:

- Desktop review of relevant databases, reports and plans.
- Field investigation to confirm habitat, flora and fauna.
- Mapping of vegetation and habitat present
- Preparation of report findings

A wetland evaluation has also been undertaken due to the close proximity of the site to the Waitangi Wetland reserve. This is of particular importance because 'natural wetlands' as defined in the National Policy Statement for Freshwater Management (2020), has significant implications for site development.

Methodology

Overall Approach

The overall approach used to undertake the ecological assessment involved the application of the "Guidelines for Undertaking Ecological Impact Assessments" (**EclIA**) (Lindsay Roper et al., 2018) using data from two main sources.

- A desktop review of existing data
- Field Survey conducted on the 25th of March.

Desktop Assessment

The desktop assessment involved the following;

- Review of ebird database
- Review of DOC bat database
- Review of marine and freshwater fish
- Google Aerial imagery
- Department of Conservation Herpetofauna Bioweb (accessed from June 2024)
- Purdie (2022) lizard distribution maps
- New Zealand Herpetological Society (2025) lizard distribution maps

Field Survey

The field survey was conducted on the 25th of March, with the following individuals. Senior Ecologist Melanya King, Senior Ecologist Mark Yungnickel, Senior Ecologist Dr. Emily Frost, Environmental Consultant Lisa Arnold, Graduate Environmental Scientist Lucy van Berlo. Local Iwi were also present for the survey.

The field survey consisted of the following:

- A habitat assessment throughout the proposed release area to determine the habitat types, conditions and quality.
- 5-minute bird counts and surveys (x10)
- Identifying vegetation in the zone of impact.
- Extensive manual /opportunistic searches focused on searching habitat for lizards more likely to be directly impacted by the project (see Figure 3-1). Whitaker's (1994) 'searching by day'

- methodology was used which included searching through rank grass and lifting logs, branches, rocks and other natural and artificial cover objects.
- Daytime visual encounter surveys focused on scanning vegetation for arboreal and terrestrial diurnal species. This included searches of the forest edge habitat, the existing walking tracks and through the middle of the proposed release area.
 - Survey effort focused on higher quality habitat where skinks were more likely to be detected and where the project site was likely to be impacted.

EIANZ Guidelines Assessment of Effects Methodology

The 'EIANZ EclA guidelines for use in New Zealand: terrestrial and freshwater ecosystems' (Roper-Lindsay, 2018), was used to aid in assessing the ecological impacts and effects of the Project. The EIANZ guidelines provide a framework approach for assessing defined actions on ecosystems and their components. This is undertaken by assigning values to ecological features. This assessment framework provides a scientifically defensible approach to informing appropriate ecosystem management. Even so, sound professional judgement is still required when applying the framework and matrix approach.

For this Report the EIANZ assessment criteria has been modified to incorporate the NPS-IB 2023 assessment criteria, the NPS-FM 2023 values.

Ecological Description and Evaluation

Vegetation

Vegetation assessed within the proposed zone of impact was found to be a mixture of native and exotic species. No vegetation was found to be classed as threatened or at risk by DOC, and thus the value of vegetation has been classed as **Low**.

Wetlands

Following the desktop assessment the site visit was undertaken. The site and its 100m buffer were assessed against the wetland delineation protocols (Ministry for the Environment, 2022) to determine if any wetlands were present and or likely to be impacted by the proposal. The rapid test was used to assess the obvious wetland areas located within the site.

Ecological description and assessment

The search of MfE's Pre-human wetland layer found the wider area to contain multiple wetlands (Figure 2), however none within the area of interest. The MfE wetland extent layer also identified no wetlands within the proposed impact area.



Figure 2. Pre-human wetlands. Areas overlaid in blue signify marshland, areas in green signify swamp.

During the site visit the fourteen wetland areas were noted within the works area or its 100m buffer (Figure 3). These wetlands were all dominated by common native or exotic species. The different wetland types found are described in Table 1 below. Representative photos are provided in Figure 4 showing examples of each of the wetland types.

Table 1: Wetland types found during the site visit within the impact area or its 100m buffer.

Wetland Type	Description
Raupo Reedland	Discrete areas of raupo reedland dominated by <i>Typha orientalis</i> . These were generally found along the margin of the waterways.
Carex Sedgeland	Wetland areas dominated by either <i>Carex secta</i> or <i>Carex geminata</i> . These areas contained other common native and exotic species at a lower proportion. And were scattered throughout the impact area and its buffer.
Bolboschoenus Sedgeland	Wetter areas dominated by <i>Bolboschoenus</i> sp. Other common native and exotic species were also noted in lower proportions. This wetland type was commonly found closer to the water's edge.
Rushland	Rushlands often dominated by <i>Juncus</i> sp. were noted to occur within the impact area.
Flax swamp	Areas of restoration plantings were common throughout; these areas were dominated by flax (<i>Phormium tenax</i>). These areas met the rapid test with flax being a facultative wetland species, however it is important to note that these were planted.
Willow Treeland	An area of willow saplings/trees (<i>Salix</i> sp.) located on a wet plain. The understorey was common exotic species. The occasional native species was present.

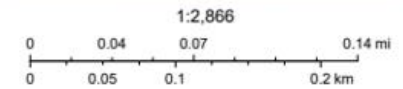
It is likely that many other wetlands exist in the potentially impacted area and its 100m buffer. Wetlands are a national priority for protection and the National Environmental Policy Statement for freshwater (2020) Policy 6 states that there is to be no loss of extent of natural inland wetlands.

Ecology Region Field Maps



03/04/2025, 10:49:00 am

- Culvert
- Wetland Plot
- LINZ NZ River Name Lines - Pilot



Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Figure 3. Ecology Region Field map

The wetlands shown in Figure 3 met the criteria outlined in the rapid tests for Natural inland wetlands. The wider area was a mixture of common and exotic species and included many areas of recent restoration plantings.



Raupo Reedland



Carex Sedgeland



Bolboschoenus Sedgeland



Rushland



Figure 4 Representative photos of Wetlands on site.

To assign value to these wetland areas, four matters were considered, as per the EIANZ guidelines. The wetlands onsite were found to be dominated by common native and exotic species and were small in size located in wetter areas along the river margins. Wetlands are a national priority for protection, due to their reduced extent. These wetlands are likely providing some habitat for fauna and provide ecosystem functions to the wider area. As a result, the wetlands within the impact area or its 100m buffer are valued from **Low-Moderate**.

Impacts and Requirements:

The proposal will result in total loss of many of the above-described wetlands. Further detail on the proposal and impact area is required to determine the extent of this wetland loss. It is important to note that loss of wetland extent contravenes Policy 6 of the National Environmental Policy statement for freshwater (2020). Wetland offsetting will need to be undertaken due to the actual and potential effects of the proposed lowering of the ground level. The overall level of effect is likely to be **Moderate – High**

The following assessments will be required to determine actual and potential effects on wetlands within the impact area (and its 100m buffer):

- Detailed wetland survey – there is potential for more wetlands to be within the area impacted by the proposal.
- Hydrological assessment to determine current wetland hydrology and proposed hydrology after completion of works
- Offsetting report and BOAM (Biodiversity offsets accounting model) to determine what ecological values need to be offset as a result of the proposal.
- Ecological assessment of suitable offset site.
- Planting plans will need to be prepared for the offset site.

It is important to note that offsets need to be maintained in perpetuity.

Freshwater Fish

The Tutaekuri river system (NZSegment 8206041) and Waitangi basin will provide significant habitat for freshwater fauna breeding and feeding. Because of the likely presence of 'At Risk' species such as the Torrentfish (*Cheimarrichthys fosteri*), Bluegill Bully (*Gobiomorphus hubbsi*), and Giant Bully (*Gobiomorphus gobioides*), the value of freshwater fauna is regarded as **High**.

Fish species likely to be found within the site zone has been sourced from the Hawkes Bay Regional Council freshwater fish data base and is collated in the table below. It should be noted that during field site assessment, Inagna (*Galaxias maculatus*) eggs were found near the bank of the basin, within the site of the proposed works. As this species is unable to tolerate high levels of disturbance and has key ecological and cultural significance, appropriate management should be undertaken by a suitably qualified ecologist.

Table 2. Species list for freshwater fauna likely found within the Tutaekuri river system at the location of the proposed works.

Species name	Common name	Threat classification	Likely Presence
<i>Geotria australis</i>	Lamprey	Threatened, Nationally Vulnerable	Possibly Present
<i>Anguilla dieffenbachii</i>	Longfin Eel	At Risk, Declining	Highly Likely present
<i>Cheimarrichthys fosteri</i>	Torrent Fish	At Risk, Declining	Possibly present
<i>Galaxias maculatus</i>	Inanga	At Risk, Declining	Confirmed Present
<i>Gobiomorphus hubbsi</i>	Blue Gill Bully	At Risk, Declining	Possibly Present
<i>Gobiomorphus gobioides</i>	Giant Bully	At Risk, Naturally Uncommon	Highly Likely present
<i>Anguilla australis</i>	Shortfin Eel	Not Threatened	Highly Likely Present
<i>Galaxias fasciatus</i>	Banded Kokopū	Not threatened	Possibly Present
<i>Gobiomorphus cotidianus</i>	Common Bully	Not threatened	Highly Likely Present
<i>Gobiomorphus huttoni</i>	Redfin Bully	Not Threatened	Possibly Present
<i>Retropinna retropinna</i>	Common Smelt	Not Threatened	Highly Likely Present
<i>Carassius auratus</i>	Goldfish	Introduced and Naturalised	Possibly Present

<i>Gambusia affinis</i>	Mosquito Fish	Introduced and Naturalised	Possibly Present
<i>Oncorhynchus mykiss</i>	Rainbow Trout	Introduced and Naturalised	Likely Present
<i>Salmo trutta</i>	Brown Trout	Introduced and Naturalised	Possibly Present

Marine Fish

Various ecological criteria have been used regionally, nationally and internationally to determine the significance of marine ecosystems. Within the Hawkes Bay Region, NIWA (2020) report establishes a key set of criteria, based of the national key ecological areas system. Waitangi Estuary has been established as a Significant Conservation Area on the following criteria:

1. Vulnerability, fragility, sensitivity or slow recovery
2. Uniqueness, rarity and endemism
3. Special importance for life history stages
4. Importance for threatened and/or declining species and habitat
5. Biological diversity

The area has been established as being particularly vulnerable to, and threatened by, high human use and continued urbanisation/development. The lower reaches of the estuary, including the lower reaches of the river as well as the adjoining coastal marine area, are a designated wildlife refuge. This area is used significantly by numerous marine species and has been identified as a key area for completion of life-history for Black Flounder.

Macrofaunal assemblages of the area are dominated by epifaunal bivalves, which provide a key food source to a number of marine fish species.

The immediate coastal area has been recognised as a key area of spawning for 25 marine species, with a total of 39 fin-fish species identified as present within the Hawkes Bay Coastal Marine Area.

Because of the presence of at least eight at risk species, two which are identified as vulnerable (Porbeagle shark and Lig) as well as three which are identified as Near Threatened (Blue shark, Japanese horse mackerel and Grouper), in addition to the identification of the area as an important Significant Conservation Area, the value of marine fauna within the zone of influence is regarded as **high**.

Table 3. Species list for marine fauna likely found within surrounding coastal area at the location of the proposed works.

Species name	Common name	Threat classification	Spawning in Hawkes Bay
<i>Lamna nasus</i>	Porbeagle Shark	Vulnerable- Declining	Yes
<i>Genypterus blacodes</i>	Lig	Vulnerable –Declining	Yes
<i>Prionace glauca</i>	Blue Shark	Near Threatened – Largely Depleted	Yes

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<i>Trachurus japonicus</i>	Japanese horse mackerel	Near Threatened- Declining	Yes
<i>Epinephelus daemeli</i>	Grouper	Near Threatened	No
<i>Pelotretis flavilatus</i>	Lemon Sole	Least Concern- Declining	N/A
<i>Rhombosolea plebeia</i>	Sand flounder	Least Concern- Declining	N/A
<i>Parapercis colias</i>	Blue Cod	Least Concern - Declining	No
<i>Odax pullus</i>	Butterfish	Least Concern	Yes
<i>Callorhinchus milii</i>	Elephant Fish	Least Concern	Yes
<i>Epigonus telescopus</i>	Black cardinal fish	Least Concern	Yes
<i>Chelidonichthys kumu</i>	Gurnard	Least Concern	Yes
<i>Mora moro</i>	Ribaldo	Least Concern	Yes
<i>Azygopus pinnifasciatus</i>	Spotted Flounder	Least Concern	N/A
<i>Peltorhamphus latus</i>	Speckled sole	Least concern	N/A
<i>Pseudocaranx georgianus</i>	Trevally	Least concern	Yes
<i>Arnoglossus scapha</i>	Witch	Least concern	N/A
<i>Seriolella caerulea</i>	White warehou	Least concern	Yes
<i>Aldrichetta forsteri</i>	Yellow – eyed Mullet	Not Threatened	N/A
<i>Rhombosolea retiaria</i>	Black Flounder	Not Threatened	Yes
<i>Arripis trutta</i>	Kahawai	Data deficient	Yes
<i>Chelidonichthys cuculus</i>	Gurnard	Data deficient	Yes
<i>Chrysophrys auratus</i>	Snapper	Data deficient	Yes
<i>Engraulidae</i>	Anchovy	Data deficient	Yes
<i>Mycena spp</i>	Barracouta	Data deficient	Yes
<i>Sardina pilchardus</i>	Pilchard	Data deficient	N/A
<i>Polyprion americanus</i>	Bass	Data deficient	No
<i>Colistium guntheri</i>	Brill	Data deficient	N/A
<i>Peltorhamphus novaezeelandiae</i>	New Zealand sole	Data deficient	N/A
<i>Polyprion oxygeneios</i>	Hapuka	Data deficient	Yes
<i>Macruronus novaezeelandiae</i>	Hoki	Data deficient	Yes
<i>Zeus faber</i>	John dory	Data deficient	Yes
<i>Trachurus murphyi</i>	Murphy's mackerel	Data deficient	Yes

<i>Latridopsis ciliaris</i>	Blue Moki	Data deficient	Yes
<i>Pseudophycis bachus</i>	Red Cod	Data deficient	Yes
<i>Rexea solandri</i>	Gemfish	Data deficient	Yes
<i>Peltorhamphus tenuis</i>	Slender sole	Data deficient	N/A
<i>Kathetostoma giganteum</i>	Giant stargazer	Data deficient	Yes
<i>Nemadactylus macropterus</i>	Tarakihi	Data deficient	Yes
<i>Latris lineata</i>	Trumpeter	Data deficient	N/A
<i>Colistium nudipinnis</i>	Turbot	Data deficient	N/A
<i>Seriolella brama</i>	Warehou	Data deficient	No
<i>Rhombosolea leporina</i>	Yellow-belly flounder	Data deficient	Yes

Fish migration and spawning

Fish spawning periods, detailed below, should be used to inform timeframes for the proposed works to minimise potential impacts.

Table 4. Spawning Periods for “At Risk, Declining’ indigenous and protected sports fish

SPECIES	SUMMER			AUTUMN			WINTER			SPRING		
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Blue Gill Bully												
Inanga												
Lamprey												
Torrent Fish												
Rainbow trout												
Brown Trout												

 = Peak spawning months
 = Range of spawning months

Table 5. Migration periods for 'At-Risk' indigenous and protected sports fish.

SPECIES		SUMMER			AUTUMN			WINTER			SPRING		
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Blue Gill Bully	Upstream (juvenile)												
	Downstream (larvae)												
Inanga	Upstream (juvenile)												
	Downstream (larvae)												
Lamprey	Upstream (juvenile)												
	Downstream (larvae)												
Torrent Fish	Upstream (juvenile)												
	Downstream (larvae)												
Rainbow trout	Upstream (adult)												
	Downstream (juvenile)												
Brown Trout	Upstream (adult)												
	Downstream (juvenile)												

= Peak migration months
 = Range of migration months

Birds

The work’s proposed area of impact consists of habitat for numerous native bird species. In particular, a number of species identified within the zone of impact are classed as “Threatened – Nationally Critical” or “Nationally Endangered”, such as the White Heron (*Ardea modesta*), New Zealand Falcon (*Falco novaeseelandiae*), and Black Fronted Tern (*Chlidonias albostratus*). These classifications lead to bird species have a value of **Very High**.

Table 6. Table showing bird species presumed within the Zone of Impact.

Species name	Common name	Threat classification	Months of breeding/nesting												
			J	F	M	A	M	J	J	A	S	O	N	D	
<i>Ardea modesta</i>	White Heron	Threatened, Nationally Critical													
<i>Falco novaeseelandiae</i>	Falcon	Threatened, Nationally Endangered													
<i>Chlidonias albostratus</i>	Black Fronted Tern	Threatened, Nationally Endangered													

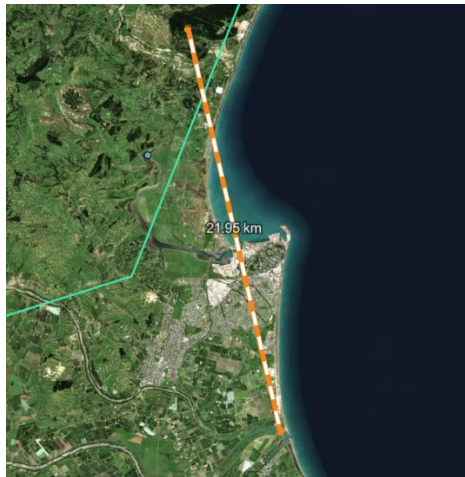


Figure 5. Image showing the distance to the closest recorded location of native bats.

Lizards

Desktop Assessment

A desktop assessment included review of aerial imagery, DOC BioWeb herpetofauna database¹, Purdie (2022) and NZHS (2025) distribution maps. The site falls within the geographic range of 3 gecko and 6 skink species (Table 3.1). The closest records of native lizards are ‘Not Threatened’ northern grass skink (*Oligosoma polychroma*) and ‘At Risk, Declining’ northern spotted skink (*Oligosoma kokowai*) approximately 2.7km north of the site from along the Napier foreshore. The unwanted ‘Introduced and Naturalised’ rainbow / plague skink (*Lampropholis delicata*) has also been recorded from the Napier township approximately 7km from the site.

Table 7. Lizard species identified in the desktop assessment, their threat classification, and likelihood of presence within the project site ZOI.

Species	Common name	Maori Name	Ecological Value ²	Threat Status ³	Overall likelihood onsite
<i>Oligosoma auroraense</i>	Hawke’s Bay skink	-	Very High	Threatened - Nationally Endangered	Unlikely
<i>Oligosoma microlepis</i>	small-scaled skink	-	Very High	Threatened - Nationally Vulnerable	Unlikely
<i>Mokopirirakau</i> “southern North Island”	ngahere gecko	-	High	At Risk - Declining	Unlikely
<i>Naultinus punctatus</i> *	barking gecko	kākāriki	High	At Risk - Declining	Unlikely
<i>Oligosoma kokowai</i>	northern spotted skink	-	High	At Risk - Declining	Possible
<i>Oligosoma zelandicum</i>	glossy brown skink	-	High	At Risk - Declining	Unlikely
<i>Oligosoma polychroma</i>	northern grass skink	mokomoko	Low	Not Threatened	Likely
<i>Woodworthia maculata</i>	raukawa gecko	moko pāpā	Low	Not Threatened	Possible

¹ accessed during June 2024

² Values are based on the conservation status of each species, apart from pacific gecko. While pacific gecko has been assigned a ‘Not Threatened’ conservation status based on stable populations on offshore islands, based on their rarity in the ecological district their value has been elevated to ‘Moderate’.

³ (Hitchmough et al. 2021)

<i>Lampropholis delicata</i>	Rainbow / plague skink	-	Unwanted pest species	Introduced and Naturalised	Possible
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Field Assessment

The lizard survey in the vicinity of the Awatoto Bridge at the Tutaekuri River mouth occurred on an overcast day with little wind, no rain, with a daily high of 23°C, and low of 16°C. There has been rain the previous day so the vegetation and habitats were wet/damp.

Habitat Assessment

Overall, the habitats on the Northern and South banks where similar, largely dominated by dense rank grass with scattered cover objects such of wood located, and disturbed areas of largely gravel and weeds (see Figure 3-1, Appendix A). Further detail on habitats which are described below.

South Bank

There were numerous areas of low or unsuitable quality habitat for native lizards such as the gravel areas between the railway bridge and State Highway 51 (SH51) (Photo 3), the access tracks where machinery has undertaken past and recent work, areas of mown pasture and a pedestrian path, and wet habitat with little or no vegetation on the edges of the waterbody.

There were numerous areas of low to moderate quality habitat for native lizards such as disturbed areas west of the railway bridge where rank grass was less dense and there was more weed cover (Photo 8), and the approximately 10m strip along the water’s edge which has an incised 1m drop which also includes areas of cobble, less dense vegetation and various scattered logs and debris (Photo 4 & 5).

There were two areas with moderate to high quality habitat for native skinks and potential habitat for Raukawa gecko (east of SH51 only). This includes habitat dominated by a mix of dense rank grass, and native shrubs that were planted approximately 10 years ago between the rocky beach and SH51. The groundcover also consists of scattered pieces of large driftwood and other debris (Photo 6 & 7). It also includes an area west of the railway line that consists of very dense rank grass with scattered bits driftwood and other debris throughout. There has been an attempt to plant small native seedlings such as manuka, kowhai, lemon wood, flax and other grasses but these plants are being overtaken by the rank grass (Photo 10). Also, there is a small area of flowing from south to north isolating part of this habitat (Photo 9).

There is also connectivity of rank grass habitat and wooden debris from the cyclone under both the railway bridge and SH51 bridge on the south bank.

North Bank

There was an area of low or unsuitable quality habitat for native lizards along the stop banks and pedestrian path, which is periodically mown, and an area dominated by gravel that is highly disturbed likely based on previous maintenance works around the bridge (Photo 12). There were areas of low to moderate quality habitat for native lizards which had less dense vegetation and were largely dominated by weeds (Photo 14).

There were two areas with moderate to high quality habitat for native lizards west of the railway bridge and east of the SH51 where dense rank grass was present and scattered driftwood throughout (Photo 11 & 15).

There was connectivity under railway bridge with rank grass and structural habitat (Photo 13) but reduced connectivity between habitats based on a ditch that had been dug and is full of water under the SH51 bridge.

Beachfront

The area of beach between the water and the ocean was dominated by cobble habitat with scattered bits of driftwood which is suitable for native lizards (Photo 1 & 2). However, this site is subject to a vehicle

movement (cars and 4wd motorbikes) and pedestrian access across the beach with reduces the quality of habitat.

Manual searches and visual encounter survey

Active manual/opportunistic habitat searching and visual encounter survey resulted in total of approximately 3 hours of search effort by a recognised herpetologist. No lizards or evidence of lizards were observed.

There were numerous crickets found under cover objects such as driftwood and debris on both the north and south banks. On the south bank a mouse (*Mus musculus*) was observed running into a burrow near the water edge, and a rat (*Rattus* sp.) was observed under a large piece of driftwood.

Species possibly present

The site provides suitable habitat for some native skinks and geckos. Northern grass skinks are considered likely present, northern spotted skink and Raukawa geckos are considered to be possibly present.

Northern grass skinks are diurnal and often sun-bask in exposed areas. They occupy a wide range of habitats including coastal vegetation, rock piles, grassland, flaxland, shrubland, screes, forest margins tussock and modified urban / suburban habitats which are present within the project area. They often take refuge in dense vegetation or under rocks and logs when not active (NZHS, 2025). Some of these habitat types are present within the project area but have been subject to modification and disturbance. This species is considered the most likely present within the project area and potentially recolonised this habitat after flooding from cyclone Gabrielle.

Northern spotted skinks are avid sun-baskers. They prefer open/sunny areas such as boulder beaches, sand dunes, open coastal forest and scrub, as well as grassland, shrubland and scree slopes at inland sites. When not basking or foraging, northern spotted skinks will take refuge under coastal debris, rocks, logs, in dense vegetation such as thick grass or flax (*Phormium* spp.) (NZHS, 2025). Some of these habitat types are present within the project area but have been subject to modification and disturbance. This species is considered possibly present within the project area and is less likely to have recolonised the site after cyclone.

Raukawa geckos are primarily nocturnal, but are known to cryptically bask at the edges of retreats. They can be found in a vast array of habitats, from sandy or rocky coastlines right through to inland beech and broadleaf forests. Some of these habitat types are present within the project area but have been subject to modification and disturbance. This species is considered possibly present within the project area and is less likely to have recolonised the site after cyclone.

While the site also provides suitable habitat for glossy brown skink (*Oligosoma zelandicum*) (e.g. coastal areas, in coastal pebble banks, grassland, and shrubland) their potential presence is considered unlikely based on no records being present in the wider area of the project site. Furthermore, the site is considered unlikely to support terrestrial geckos (e.g. ngahere and barking gecko) as the native shrubs have been planted within the last 10 years, there has been high disturbance at the site and there is little connectivity with other suitable habitats.

It is likely only 'Not Threatened' low value northern grass skink are present at the site. However, based on the limited survey effort undertaken during marginal weather conditions, the possible presence of suitable habitat for 'Not Threatened' and 'At Risk, Declining' native skinks and terrestrial geckos, a **high** value has been assigned for lizards.

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Figure 6 Site location of the Tutaekuri River mouth and different habitat quality present within the extent of works. Green = unsuitable to low quality; Yellow = low to moderate quality; Orange = moderate to high quality.

Discussion

Species Potentially Present and Additional Survey Work

No lizards or evidence of lizards were recorded during the site walk over lizard survey at the Awatoto Bridge at the Tutaekuri River Mouth in March 2025. The weather conditions were marginal, and the ground habitat was relatively damp at the time of survey. However, if lizards were present in high abundance it is expected that at least one lizard would have been detected across the project area.

The likelihood of lizards being present is further reduced based on the location of the site within the river flood plain. It is understood floods that cover the banks of the river are extremely rare. However, cyclone Gabrielle impacted the Hawkes Bay in February 2023 and caused widespread flooding and damage particularly along the plains between the Ngaruroro and Tutaekuri Rivers. This resulted in the breach of stopbanks, and the habitat within this area was likely entirely inundated. Therefore, this would likely have resulted in the loss of any lizard population at this site. It has been approximately 2 years since cyclone Gabrielle, therefore it is possible native lizards have moved back into this habitat, and in particular northern grass skink which are considered more mobile.

If this project commences it is recommended that additional lizard survey methodology takes place to better inform the likelihood of lizards being present onsite. This should include the use of gee minnow (funnel traps) and/or pitfall trapping for native skinks, and nocturnal spotlighting for Raukawa gecko during suitable weather conditions.

Potential Ecological Effects

If lizards are present the potential temporary and permanent adverse effects from construction and operation of the stop bank flood management include:

- Modification and loss habitat
- Fragmentation of habitat
- Injury, mortality or disturbance of lizards during earthworks and vegetation removal
- Disturbance from noise, vibration, lighting and dust.

Potential Ecological Mitigation to avoid, minimise and remediate

The following may need to be considered to avoid, minimise and remedy effects on the ecology prior to, during and post construction.

- Habitat creation and enhancement of other nearby habitats not impacted by the works
- Animal pest control
- Vegetation removal protocols: progressing mowing grass to encourage lizards to move away from impact areas to adjacent habitat
- Lizard salvage and relocation

Ecological Constraints and Enhancement Opportunities

National Policy Statement Implications

National Policy Statement for Indigenous Biodiversity (NPS-IB) gives effect to key policies such as:

- NPS-IB Policy 3: A precautionary approach is adopted when considering adverse effects on indigenous biodiversity.
- NPS-IB Policy 8: The importance of maintaining indigenous biodiversity outside SNAs is recognised and provided for.
- NPS-IB Policy 13: Restoration of indigenous biodiversity is promoted and provided for.

Seasonal Ecological Constraints

Field surveys to verify species, and habitats present to support resource consent applications may be restricted by ecological seasons. From example, lizards surveys are often completed between September to May during favourable weather conditions (for particular species) as they are more likely to be detected.

The construction activities will also likely need to be restricted by ecological seasons and species confirmed to be present. E.g. timing of earthworks and vegetation removal for both passive management and lizard salvage will likely need to occur during the warmer months (summer and shoulder season).

Wildlife Act Authority/Permit

Native lizards generally are considered to have small home ranges and therefore if present will likely need to be relocated. A specific release site will need to be identified which will likely need to be in close proximity to the site, have protection (e.g. covenant, significant natural area), and will likely require enhancement and animal pest control.

It is noted that native lizards are absolutely protected under the Wildlife Act 1953 from killing or injury. Wildlife permits issued by DOC are required when physically disturbing or relocating wildlife. Wildlife Authorisations are required for carrying out lizard surveys, salvage and relocation. The application process can greatly exceed six months (e.g. 80% of applications completed within eight months during 2022).

Enhancement Opportunities

There are opportunities to enhance nearby habitats that potentially support lizards and/or where lizards could move back into the area in the near future. This could include introduction of numerous cover wood piles and large rocks that would provide additional refuge and invertebrate resources for terrestrial species.

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Appendix A: Lizard Habitat Site Photos

		
Photo 1: Beach habitat: scattered driftwood east of SH51	Photo 2: Beach habitat: dominated by cobbles east of SH51	Photo 3: South Bank: gravel dominated habitat between the railway bridge and SH51
		
Photo 4: South Bank: vegetation along the water edge east of SH51	Photo 5: South Bank: structural habitat along the water edge east of SH51	Photo 6: South Bank: dense rank grass and native shrubs east of SH51
		
Photo 7: South Bank: dense rank grass and native shrubs east of SH51	Photo 8: South Bank: rank grass west of the railway bridge	Photo 9: South Bank: flowing water isolating habitat west of the railway bridge
		
Photo 10: South Bank: dense rank grass west of the railway bridge	Photo 11: North Bank: dense rank grass and scattered wood west of the railway bridge	Photo 12: North Bank: gravel dominated habitat between the railway bridge and SH51
		
Photo 13: North Bank: driftwood debris under the bridge	Photo 14: North Bank: weed dominated habitat between the railway bridge and SH51	Photo 15: North Bank: rank grass habitat east of SH51

Transport Rebuild East Coast

MANAGEMENT PLAN – FISH



Awatoto Bridge 217 PNGL

Fish Management Plan

Document Number [C5001-02-577-12000-EW-PP-TREC-000001] **(REQUEST VIA DOCUMENT CONTROL)**

1 September 2025

Revision 1



STATUS FINAL

Transport Rebuild East Coast



Te Kāwanatanga o Aotearoa
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1	1/09/2025	Awatoto Bridge 217 PNGL: Fish Management Plan	Fish Management Plan
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Summary of Key Points

- Where practicable, all construction works in watercourses should avoid peak fish spawning and mitigation periods, particularly for 'Threatened', 'At Risk', and sports fish species.
- At least two weeks prior to any works commencing in watercourses, the works area must be isolated using appropriate fish barriers as agreed with the Project Ecologist.
- All works associated with the Tutaekuri River must be supervised by a suitably qualified ecologist, due to the potential presence of 'Threatened' and 'At Risk' species, such as lamprey (*Geotria australis*).
- Fish management including salvage and translocation must occur after fish isolation methods are installed and prior to in-water works at the discretion of a suitably qualified ecologist.
- Excavation works and removal of material from the water must be supervised by a suitably qualified ecologist.
- If fish isolation methods are compromised or water flows enter the work site during works following fish salvage and dewatering, additional fish management and dewatering must be carried out by a suitably qualified ecologist. This may result in delays to construction activities.
- Fish isolation barriers must only be removed with approval by the Project Ecologist.
- Remediation of watercourse banks and adjacent areas should occur as soon as possible after construction works are complete.
- All or some of the management measures in this FMP may be required and will be at the discretion of the Project Ecologist and based on site conditions.

1. Introduction

1.1 Purpose and Scope

This Fish Management Plan (FMP) outlines the requirements to manage risks to freshwater and marine fish species that may be impacted by the proposed construction work at rail Bridge 217. This FMP includes guidance for contractors, outlines the fish species that are likely to be present at the site, and details risk avoidance measures including isolation and salvage methodologies to be carried out at the discretion of the Project Ecologist. Site remediation measures and reporting requirements are also outlined.

This FMP is indicative only and subject to revision depending on construction methodologies undertaken. All or some of the management measures in this FMP may be required and will be at the discretion of the Project Ecologists and based on site conditions, expected impacts and the species likely to be present at any given time.

The scope of works are scheduled to occur between October 2025 until March 2026. This FMP has been written on the assumption that no works will occur after March 2026. If this schedule changes and works need to extend beyond this period, then this FMP will need to be updated to include consideration of the working environment during wetter winter months and peak fish spawning season.

1.2 Project Area and Proposed Construction

Rail Bridge 217 (Figure 1-1) has experienced multiple flood events, with the most recent event being in 2023 during Cyclone Gabrielle. United Civil was contracted by KiwiRail to temporarily repair Bridge 217 after it was washed out during this event, giving the bridge an anticipated life span of five years.



Figure 1-1 Location of Rail and Road Bridge (red outline).

Circumstances have necessitated the reinstatement of the bridge be extended to a target design life of 100 years. This will require significant works to strengthen the existing structure, and reduce the potential impacts caused by weathering and flood events. Specifically, Phase 2 (Span Replacement and Pier

Removal) and Phase 3 (Waterway Restoration) of these works have been identified as having the potential to cause harm to fish.

Phase 2 will involve removing the existing 6 m and 12 m bridge spans between Piers 8–10 (south end) and Piers 15–16 (north end) (Figure 1-2). This will be followed by the demolition of concrete Piers 9 and 15. Two new 18.25 m steel plate girder bridge spans will be installed as part of the works.

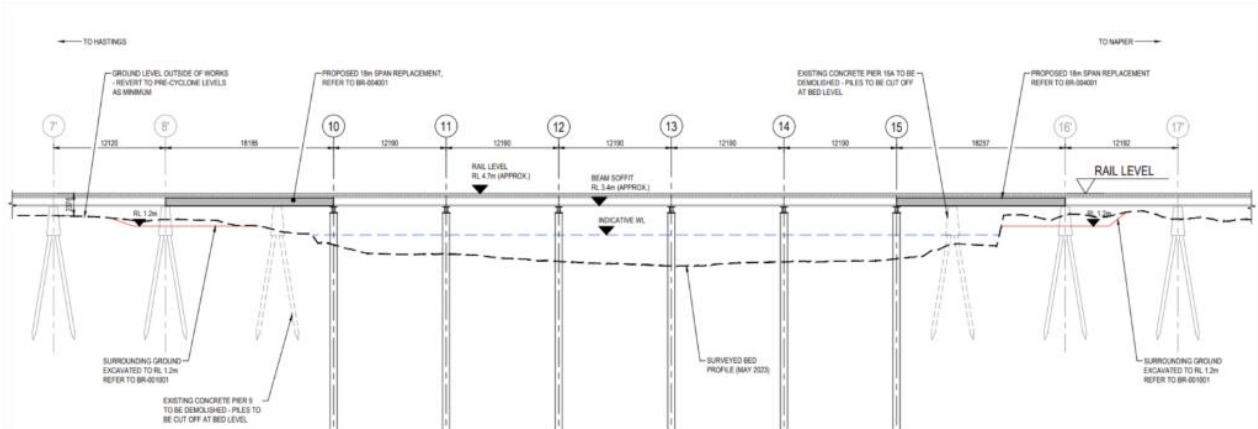


Figure 1-2. Proposed construction methodology for Span Replacement and Pier Removal at Bridge 217.

Phase 3 will involve lowering the water levels of the Waitangi basin by approximately 1-2 m, facilitated by the removal of earth from the surrounding bank. The proposed construction work is still in the design phase, with detailed plans not yet available.

Fish management in relation to the above construction works will follow this high-level sequence of works:

1. Install appropriate erosion and sediment controls
2. Isolation of fish from the work area using appropriate barriers
3. Salvage of fish from the isolated areas
4. Construction works proceed under supervision of Project Ecologist where required (indicative methodology based on proposed design):
 - Infill the isolated fish salvaged areas around the piers to create a causeway
 - Strengthen the existing bridge structure by removing southern and northern piers
 - Excavation of silt / earth from the surrounding bank to lower the water level of the Waitangi Basin by approximately 1-2 metres
5. Removal of fish isolation barriers once work is complete
6. Remediation measures for erosion and sediment control, particularly along banks.

1.3 Watercourses

Freshwater, estuarine, and marine watercourses are present in the vicinity of the project site (Figure 1-1). The Tutaekuri River system (NZSegment 8206041) and the Waitangi Estuary provide important breeding and feeding habitats for freshwater and estuarine fauna. The adjacent coastal marine environment of the Pacific Ocean is recognised as a key spawning area for marine species. Additionally, the Waitangi Estuary is designated as a Significant Conservation Area, with its lower reaches, including the river mouth and adjoining coastal marine zone, classified as a wildlife refuge.

2. Guidance for Contractor

A site walkover will be completed with the contractor and Project Ecologist to define the Impact Zone. The Impact Zone must include all areas where construction activities could occur associated with the pier removal which may include but is not limited to lay down and site access areas, machinery and material storage areas, water-works and earthworks areas, machinery operation areas and construction zone.

The list below provides key points that will dictate the timing of construction works in relation to fish present onsite.

- As a priority, in-water and construction works must first look to avoid wetter winter months to reduce impact to fish. As works are scheduled to occur from October 2025 and no later than March 2026, wetter winter periods will most likely be avoided.
- Where practicable, all in-water works should avoid the spawning and migration periods of 'Threatened' and 'At-Risk' fish expected on-site. Priority should first be given to avoiding the peak spawning period of 'Threatened – Nationally Vulnerable' lamprey (*Geotria australis*) and the months either side (September to November).
- If works are conducted during fish spawning and migration periods, additional mitigation measures may be required and enforced by the Project Ecologist.
- A silt curtain with a weighted chain along the bottom is to be used to isolate the work area
- When installing the silt curtains they must be installed at low tide, and at a height to account for high tides. During the installation, a suitably qualified ecologist must be onsite to offer advice and direction.
- Once the work site isolation method has been installed, if damage occurs to the silt curtain, consult with the Project Ecologist immediately to remediate the issue. There is a possibility that further fish salvage is required, potentially resulting in project delays.
- After the completion of the fish management implementation, if the contractors discover fauna during construction, please refer to the Accidental Discovery Protocol in Section 3.3.6.
- The Project Ecologist will use their discretion during the steps of the fish management implementation, and any methodology outlined in this FMP is subject to change.
- This FMP has been written with the assumption that works will occur from October 2025 and no later than March 2026. Winter months under typically wetter conditions will be avoided within this period. If the schedule changes this FMP will need to be updated.

3. Fish Management Plan

3.1 Overview

This FMP must be implemented under the direction and supervision of the Project Ecologist or suitably qualified ecologists. This FMP has been developed to address the actual or potential impacts to freshwater fauna caused by water works associated with the proposed construction works.

This FMP takes a precautionary approach regarding threatened species and includes accidental discovery protocols should any be encountered during fish management. Any changes to the Project or works in or around water that could further impact fish habitat and/or fauna must only be conducted after engagement with the Project Ecologist.

3.2 Key Species

3.2.1 Freshwater Key Species

Desktop assessments have informed the key freshwater fauna species requiring management on-site. Of particular importance is the likely or confirmed presence of the 'Threatened – Nationally Vulnerable' Lamprey (*Geotria australis*), and 'At-Risk' species, such as the Longfin eel (*Anguilla dieffenbachii*), Torrentfish (*Cheimarrichthys fosteri*), Inanga (*Galaxias maculatus*), Bluegill Bully (*Gobiomorphus hubbsi*), and Giant Bully (*Gobiomorphus gobioides*)¹.

Table 3-1 lists the freshwater species most likely requiring management, based on assessments and habitat suitability.

¹ (Transport Rebuild East Coast, 2025)

Table 3-1 Species list for freshwater fauna likely found within the Tutaekuri River system at the location of the proposed works.

Scientific Species Name	Common Name	Threat Classification ²	Likely Presence
<i>Geotria australis</i>	Lamprey	Threatened, Nationally Vulnerable	Possibly Present
<i>Anguilla dieffenbachii</i>	Longfin Eel	At Risk, Declining	Highly Likely present
<i>Cheimarrichthys fosteri</i>	Torrent Fish	At Risk, Declining	Possibly present
<i>Galaxias maculatus</i>	Inanga	At Risk, Declining	Confirmed Present
<i>Gobiomorphus hubbsi</i>	Blue Gill Bully	At Risk, Declining	Possibly Present
<i>Gobiomorphus gobioides</i>	Giant Bully	At Risk, Naturally Uncommon	Highly Likely present
<i>Anguilla australis</i>	Shortfin Eel	Not Threatened	Highly Likely Present
<i>Galaxias fasciatus</i>	Banded Kokopū	Not threatened	Possibly Present
<i>Gobiomorphus cotidianus</i>	Common Bully	Not threatened	Highly Likely Present
<i>Gobiomorphus huttoni</i>	Redfin Bully	Not Threatened	Possibly Present
<i>Retropinna retropinna</i>	Common Smelt	Not Threatened	Highly Likely Present
<i>Carassius auratus</i>	Goldfish	Introduced and Naturalised	Possibly Present
<i>Gambusia affinis</i>	Mosquito Fish	Introduced and Naturalised	Possibly Present
<i>Oncorhynchus mykiss</i>	Rainbow Trout	Introduced and Naturalised	Likely Present
<i>Salmo trutta</i>	Brown Trout	Introduced and Naturalised	Possibly Present

Sourced from (Transport Rebuild East Coast, 2025).

3.2.2 Marine Key Species

Desktop assessments have informed the key marine fauna species requiring management on-site. The immediate coastal area has been recognised as a key area of spawning for 25 marine species, with a total of 39 fin-fish species identified as present within the Hawkes Bay Coastal Marine Area.

Of particular importance is the likely presence of the ‘Vulnerable – Declining’ species, such as Porbeagle Shark (*Lamna nasus*), Lig (*Genypterus blacodes*), and the ‘Near Threatened’ species such as Blue Shark (*Prionace glauca*), Japanese horse mackerel (*Trachurus japonicus*), and Grouper (*Epinephelus daemeli*).

Table 3-2 lists the marine fauna most likely requiring management, based on assessments and habitat suitability.

² (Dunn et al., 2018)

Table 3-2 Species list for marine fauna likely found within the surrounding coastal area at the location of the proposed works.

Scientific Species Name	Common Name	Threat Classification ³	Spawning in Hawkes Bay
<i>Lamna nasus</i>	Porbeagle Shark	Vulnerable- Declining	Yes
<i>Genypterus blacodes</i>	Lig	Vulnerable –Declining	Yes
<i>Prionace glauca</i>	Blue Shark	Near Threatened – Largely Depleted	Yes
<i>Trachurus japonicus</i>	Japanese horse mackerel	Near Threatened- Declining	Yes
<i>Epinephelus daemeli</i>	Grouper	Near Threatened	No
<i>Parapercis colias</i>	Blue Cod	Least Concern - Declining	No
<i>Pelotretis flavilatus</i>	Lemon Sole	Least Concern- Declining	N/A
<i>Rhombosolea plebeia</i>	Sand flounder	Least Concern- Declining	N/A
<i>Arnoglossus scapha</i>	Witch	Least Concern	N/A
<i>Azygopus pinnifasciatus</i>	Spotted Flounder	Least Concern	N/A
<i>Callorhynchus milii</i>	Elephant Fish	Least Concern	Yes
<i>Chelidonichthys kumu</i>	Gurnard	Least Concern	Yes
<i>Epigonus telescopus</i>	Black cardinal fish	Least Concern	Yes
<i>Mora moro</i>	Ribaldo	Least Concern	Yes
<i>Odax pullus</i>	Butterfish	Least Concern	Yes
<i>Peltorhamphus latus</i>	Speckled sole	Least Concern	N/A
<i>Pseudocaranx georgianus</i>	Trevally	Least Concern	Yes
<i>Seriolella caerulea</i>	White warehou	Least Concern	Yes
<i>Aldrichetta forsteri</i>	Yellow – eyed Mullet	Not Threatened	N/A
<i>Rhombosolea retiaria</i>	Black Flounder	Not Threatened	Yes
<i>Arripis trutta</i>	Kahawai	Data deficient	Yes
<i>Chelidonichthys cuculus</i>	Gurnard	Data deficient	Yes
<i>Chrysophrys auratus</i>	Snapper	Data deficient	Yes
<i>Colistium guntheri</i>	Brill	Data deficient	N/A

³ (Overdyck, 2020), (Department of Conservation, 2019)

Scientific Species Name	Common Name	Threat Classification ³	Spawning in Hawkes Bay
<i>Colistium nudipinnis</i>	Turbot	Data deficient	N/A
<i>Engraulidae</i>	Anchovy	Data deficient	Yes
<i>Kathetostoma giganteum</i>	Giant stargazer	Data deficient	Yes
<i>Latridopsis ciliaris</i>	Blue Moki	Data deficient	Yes
<i>Latris lineata</i>	Trumpeter	Data deficient	N/A
<i>Macruronus novaezealandiae</i>	Hoki	Data deficient	Yes
<i>Mycena spp</i>	Barracouta	Data deficient	Yes
<i>Nemadactylus macropterus</i>	Tarakihi	Data deficient	Yes
<i>Peltorhamphus novaezeelandiae</i>	New Zealand sole	Data deficient	N/A
<i>Peltorhamphus tenuis</i>	Slender sole	Data deficient	N/A
<i>Polyprion americanus</i>	Bass	Data deficient	No
<i>Polyprion oxygeneios</i>	Hapuka	Data deficient	Yes
<i>Pseudophycis bachus</i>	Red Cod	Data deficient	Yes
<i>Rexea solandri</i>	Gemfish	Data deficient	Yes
<i>Rhombosolea leporina</i>	Yellow-belly flounder	Data deficient	Yes
<i>Sardina pilchardus</i>	Pilchard	Data deficient	N/A
<i>Serirolella brama</i>	Warehou	Data deficient	No
<i>Trachurus murphyi</i>	Murphy's mackerel	Data deficient	Yes
<i>Zeus faber</i>	John dory	Data deficient	Yes

Sourced from (Transport Rebuild East Coast, 2025).

3.3 Avoidance Measures

3.3.1 Spawning and Migration Periods

Part 5B Rule 26ZJ “Offences relating to spawning fish” of the Conservation Act 1987 states an offence is committed if the eggs or larvae of any native fish, or sports fish congregating for spawning, are disturbed or injured (Conservation Act 1987, 1987). Where practicable, all in-water works should avoid the spawning and migration period of ‘Threatened’ and ‘At-Risk’ fish expected on-site (Table 3-3 and Table 3-4) (Smith, 2014). Priority should first be given to avoiding the peak October spawning period of ‘Threatened –

Nationally Vulnerable' lamprey (*Geotria australis*) and the months either side (i.e. September to November).

Requirements to manage rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) will need to be met if works are to occur during their spawning season (June – August, inclusive). Works are scheduled to occur outside of this period. However if this schedule changes, this FMP will need to be updated by the Project Ecologist to include trout management protocols.

Table 3-3 Spawning Periods for “Threatened” and “At Risk, Declining’ indigenous and protected sports fish

Common Name	Summer			Autumn			Winter			Spring		
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Blue Gill Bully	Range			Peak			Range			Range		
Inanga	Range			Peak			Range			Range		
Lamprey	Range			Range			Range			Peak		
Torrent Fish	Range			Peak			Range			Range		
Rainbow Trout	Range			Range			Peak			Range		
Brown Trout	Range			Range			Peak			Range		

- = Peak spawning months
- = Range of spawning months

Sourced from (Transport Rebuild East Coast, 2025).

Table 3-4 Migration periods for ‘At-Risk’ indigenous and protected sports fish.

Common Name		Summer			Autumn			Winter			Spring		
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Blue Gill Bully	Upstream (juvenile)	Range			Range			Range			Range		
	Downstream (larvae)	Range			Range			Range			Range		
Inanga	Upstream (juvenile)	Range			Range			Range			Peak		
	Downstream (larvae)	Range			Peak			Range			Range		
Lamprey	Upstream (juvenile)	Range			Range			Range			Peak		
	Downstream (larvae)	Range			Range			Range			Range		

Common Name	Summer			Autumn			Winter			Spring		
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Torrent Fish	Upstream (juvenile)				Range	Peak						
	Range		Peak			Range	Peak					
Rainbow Trout	Upstream (adult)					Range	Peak		Range			
	Downstream (juvenile)											
Brown Trout	Upstream (adult)			Peak			Range					
	Downstream (juvenile)											

- = Peak migration months
- = Range of migration months

Sourced from (Transport Rebuild East Coast, 2025).

3.3.2 Work Site Isolation

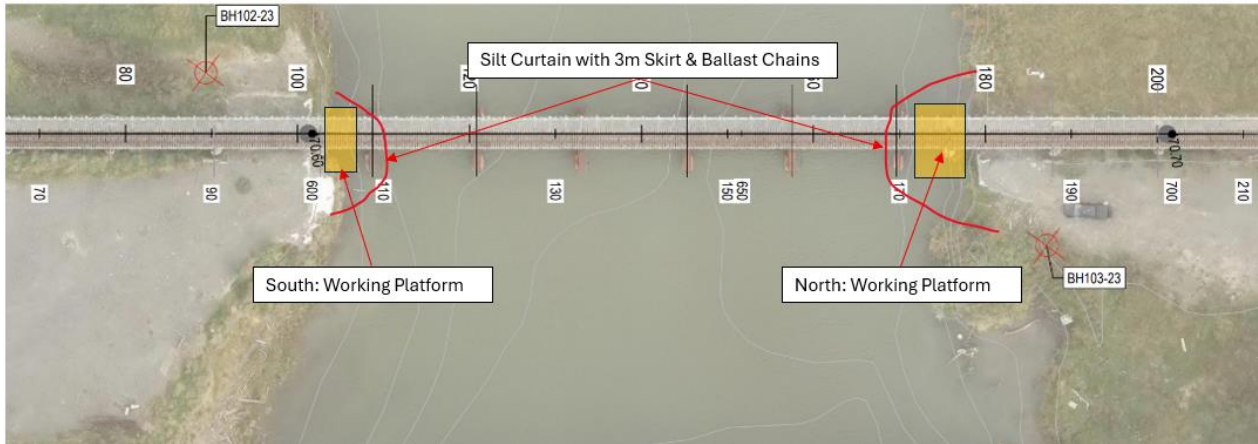
At least two weeks prior to any works commencing in watercourses, the works area will be isolated using a method of fish barriers ('barrier') to prevent fish entering the work site.

Silt curtains must be installed to encapsulate the work site and the locations are to be agreed upon by the Project Ecologist and on-site contractors to ensure adequate space for construction activities.

Works will begin at the northern pier, and these management steps will be repeated at the southern pier.

3.3.2.1 Gravel causeway/ Working platform

For Phase 2 works (Span Replacement and Pier Removal) a working platform/ causeway will be progressively installed using gap 65 material. The material will be pushed from the bank into the water to form a bench around the piles allowing equipment to site under the bridge. The working platform allows the plant and equipment to sit under the bridge to demolish the concrete piers. The concrete will either be cut out using a concrete wire saw or will be broken out with a pneumatic concrete breaker attached to an excavator.



3.3.2.2 Silt Curtains

In order to ensure the area is isolated from fish, a silt curtain with a weighted chain along the bottom be used to isolate the work area. This method helps contain suspended sediments and provides a partial barrier to fish movement, allowing for safer fish salvage operations under the supervision of a qualified ecologist. Silt curtains may be less effective in fully excluding fish or preventing water exchange, especially in high-flow conditions. Therefore, their use is best suited to short-duration or low-risk activities where full isolation is not essential, and where environmental sensitivity or access constraints make cofferdam installation impractical.

Silt curtains must be installed at low tide and at a height to account for high tides. The depth of the water where the silt curtain is to be installed is approx. 2.5 m, with a 3 m deep curtain proposed.



Figure 3-1 Example of a silt curtain and gravel causeway.

3.3.3 Fish Salvage

The following sections describe management measures to minimise impacts to fish during the Project. The decision on which management measures to implement will be at the discretion of the Project Ecologist and will be based on the site conditions at the time of works and the methodology.

3.3.3.1 Trapping

Following work site isolation, fish salvage techniques must be employed to trap and relocate fish from within the work site, minimising the risk of stranding or death when the work site is in filled.

Electric fishing is deemed unsuitable due to the high conductivity of saline water, making it difficult to create a focus electrical field and can be harmful to fish and the environment.

Trapping (fyke nets or gee minnow traps) for fish salvage may be implemented if work site conditions allow. The number of traps will be determined by the size and water depth of accessible areas within the Tutaekuri River. The methodology for fish trapping is as follows:

1. Trapping must occur for at least four nights or until an adequate reduction in catch is achieved.
2. Traps must be installed within a variety of safely accessible habitats to target all species within the works area.
3. Traps should saturate the areas able to be trapped (i.e. use as many traps as possible).
4. Traps should be appropriately baited (e.g., perforated cat food sachets) in slow-release containers.
5. All traps must be installed in such a way to minimise the mortality to fish e.g., if there is risk of anoxic conditions at night then nets should only be partially submerged.
6. Traps are to be checked daily by a suitably qualified ecologist. Redeployment may occur in the same locations or redistributed based on trap results or fish observations.
7. Any fish caught during the trapping stage will be released as detailed in Section 3.5.
8. If high numbers of 'Threatened' or 'At Risk' fish are caught (≥ 20), additional salvage effort at the discretion of the Project Ecologist may be required.

3.3.4 Dewatering and establishing working platform

Dewatering will be undertaken within the area of pier removal, this area will be isolated from the river as it will be within the working platform.

Dewatering of the piers will require treatment of the water for pH as it is likely that the water will come into contact with concrete during the pier demolition. Dewatering will be undertaken in accordance with the TREC dewatering guidelines.

A silt buster and CO₂ system will treat water taken from the pier area before it is discharged back into the river in accordance with the erosion and sediment control plan.

Fish with burrowing abilities (e.g., lamprey) may emerge from the streambank or bed; therefore, suitably qualified ecologists must monitor the drying of the isolated area for stranded fish. Similarly, all soft material and debris removed from the stream needs to be spread in an appropriate location on-site to allow an ecologist to survey the material for fish. Any fish caught during the supervision process will be salvaged and released as detailed in Section 3.5.

Silt curtains will not exclude water from the whole of the isolated area. Therefore, a suitably qualified ecologist is required to be present during any works which are to impact the wet area within the silt curtain, including assessment of the banks where material is to be placed (i.e. installation of a causeway), due to the potential presence of fish left after trapping efforts. The wet area within the silt curtain will be assessed regularly at the discretion of the Project Ecologist, and additional fish salvage may be required.

3.3.5 Construction Supervision

Once fish management measures within the isolated work area have been satisfactorily completed (e.g., trapping), the Project Ecologist will confirm the commencement of infilling the works area to create the causeway.

3.3.6 Accidental Discovery Protocol

'Threatened' species are known to the site and/or within the ZOI (Table 3-1 and Table 3-2). If these species are discovered during the fish salvage, adaptive management will be required. This could include, but is not limited to, temporary delay in construction works and additional salvage effort.

Accidental discovery protocols (ADP) have been provided in the unexpected event a fish is discovered within the works area by contractors or suitably qualified ecologists at any time during the project. The ADP provides protocols to follow.

3.3.6.1 Contractor protocol

Following the accidental discovery of a fish the following should take place:

1. Immediately (as soon as discovery is made) pause construction activities.
2. If the fish is in danger of being injured or killed, attempt to capture the fish using a hand net if available, or using both hands if feasible, and place in a clean container provided by the ecologist with clean water from their habitat. Before handling fish, ensure that your hands are free of sunscreen, oils and other chemicals and wet your hands with clean stream water. Handle fish gently so as not to cause them harm (i.e. do not squeeze them, throw them into the container, or lift them by their appendages).
3. Place the container in a cool, shaded area away from the sun and immediately contact the Project Ecologist.
4. Take a clear photo of the fish if possible. Record other data as outlined below if possible (i.e. approximate fish length, date and time found, where found, weather conditions).
5. If the Project Ecologist or a suitably qualified ecologist is unable to be contacted within 20 minutes of capturing the fish, gently release the fish at least 20 m upstream of the works within the same habitat (for this scope of works this will be the Tūtaekurī River, i.e. not the ocean or wetland environments). Do not leave the fish in the container for longer than 30 minutes to avoid unnecessary stress and harm.
6. Assess the work site for any immediate risk to other fish, and adapt controls if required after discussion with the Project Ecologist (for example, damage to the silt curtain).

3.3.6.2 Ecologist protocol

1. If unable to come to site but able to be contacted, the Project Ecologist or a suitably qualified ecologist will advise the contractor on how to handle the captured fish.
2. If already on site or available to be on site within 30 minutes, a suitably qualified ecologist will assess and handle the fish, including the following data collection:
 - a) Date and time
 - b) Observer name/s
 - c) Species
 - d) Sex (where possible)
 - e) Life stage
 - f) Length
 - g) Photos (of capture and release locations, and the fish including up close from above, the side and below to capture the head, body, markings and any injuries)
 - h) GPS coordinates of capture location
 - i) Habitat Description
 - j) Weather conditions
3. Should any native fish be identified further management will likely need to take place.

3.4 Permits

It is the responsibility of the Project Ecologist to ensure all necessary permits are held to undertake all aspects of this FMP. Permits will include a Ministry for Primary Industry special permit 930 and native fish transfer permit 469.

3.5 Fauna Holding and Handling

Fauna must only be handled by suitably qualified ecologists under permit, unless under the Accidental Discovery protocol described above. Following capture, all fauna will be held in a lidded container with an appropriate volume of clean river water. If necessary, an air stone fitted to a battery powered air pump will be added to the containers to increase surface diffusion. Fauna will be separated into different containers, based on size and the potential for predation, during the temporary holding process to ensure welfare is not compromised. Fauna will be transferred to a relocation regularly to avoid high densities of fauna within the holding container or as conditions dictate (i.e., daily temperature). Manual handling of fauna will be kept to a minimum, and all fauna will be handled with wet hands during the identification and measuring process immediately prior to release.

The following information will be recorded for all fauna caught and released:

- Date of capture.
- Species.
- Size (mm).
- Number caught.
- Capture method.
- Capture and release locations (GPS coordinates).
- Fate of all fauna caught and released.

3.5.1 Relocation Sites

Fauna captured at any point during salvage operations must be released at the nearest location outside of the works area and ZOI. The Project Ecologist must ensure that fauna caught are released in a distributed manner within the relocation site(s), particularly when releasing a large quantity of fauna at one time. This will reduce the risk of predation or overstocking at a single release site.

Fauna release locations must contain suitable habitat for those species being released. Release locations may vary, depending on salvage timing and possible migration patterns for species captured (i.e., upstream versus downstream).

3.6 Remediation Measures

To minimise disturbance, the Tutaekuri River should be left to naturally realign / refill once in-water works are complete; however, the Project Ecologist may require some site remediation to re-naturalise the site. This could include the redistribution of gravel earth bunds within the riverbed of the Tutaekuri River.

If trout redds are impacted, Hawke's Bay Fish & Game may have remediation requirements which must be agreed upon prior to the commencement of works. However this is less likely as works are scheduled to occur outside of trout spawning season.

3.7 Reporting

Reporting will occur when required throughout the Project to detail specific management that may be required for culvert construction. Reporting may be in the form of emailed communications or memorandums with the client and on-site Project Manager prior to and throughout the enabling works.

A Fish Management Completion Report must be produced by an ecologist after the conclusion of all works associated with watercourses on-site and provided to the client and relevant stakeholders. The completion report will outline fish management strategies employed at each location, species captured, lengths of individual fish, method of capture, and release locations of all salvaged fish.

All data must be uploaded to the NZFFD and provided to the Ministry of Primary Industries pursuant to permits (NIWA, 2025) (Fisheries New Zealand., 2025), (Fisheries New Zealand, 2025).

All works associated with the stormwater management construction should be updated within the Fish Passage Assessment Tool (FPAT) and uploaded to the FPAT database.

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MANAGEMENT PLAN – BIRDS



Awatoto Bridge 217 and Tutaekuri Road Bridge

Bird Management Plan

Document Number [C5001-02-577-12000-EW-PP-TREC-000001] **(REQUEST VIA DOCUMENT CONTROL)**

3 September 2025

Revision 1

Transport Rebuild East Coast



Te Kāwanatanga o Aotearoa
New Zealand Government

Document Control

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Summary of Key Points

- Where practicable, all construction works in the Zone of Influence should avoid bird nesting season, primarily between September and March (inclusive) depending on species and their threat classification.
- At least seven days prior to construction pre start nest checks must be conducted by a suitably qualified ecologist and written confirmation will be provided to contractor with permission to commence works.
- Avoiding the disturbance of occupied nests of protected bird species must occur, pursuant to the Wildlife Act (1953).
- All works concerning birds must be supervised and implemented by a suitably qualified ecologist. All bird management is at the discretion of the Project Ecologist.
- If a bird species is observed to be expressing behaviour indicative of breeding or a nest, eggs and/or chicks are discovered by a contractor or any staff onsite, within the Zone of Influence or adjacent to site, the Project Ecologist must be notified immediately.
- If an active nest is found it will be clearly marked out using non toxic spray paint and an exclusion buffer zone around the nest, of which no works may occur within this buffer zone until the chicks have fled the nest and it is deemed inactive by ecologists.
- Some or all of these management measures in this management plan may be required and will be based on site conditions, species present and the discretion of the Project Ecologist.

1. Introduction

1.1 Purpose and Scope

This project requires construction works on the Tutaekuri Road bridge and Rail Bridge 217 at Awatoto, Hawke's Bay, which is habitat to protected bird species. The Zone of Influence and construction impact zone overlaps with the occurrence of protected bird breeding and nesting habitat, therefore there is a risk of killing or injuring birds, chicks and damaging nests. The management strategies in this Bird Management Plan (BiMP) align with standard national practice to minimise the probability of killing or injuring native birds. These methodologies have been formulated to be site specific and tailored to the bird species present onsite.

This Bird Management Plan (BiMP) is indicative only and subject to revision depending on construction methodologies undertaken. All or some of the management measures in this BiMP may be required and will be at the discretion of the Project Ecologist and based on site conditions, expected impacts and the species likely to be present at any given time.

1.2 Project Area and Proposed Construction

In 2023, Cyclone Gabrielle caused significant flood damage to both the Tutaekuri Road Bridge and Rail Bridge 217. Damage to the road bridge was concentrated to upstream piles and several piers which resulted in scour and debris impact to the piers. Following the flood, the structure had temporary repairs to restore access between Napier and Hastings, however the piles need to be repaired to reduce vulnerability. This structure has previously been identified as near the end of its useful remaining life for the past 30 years. Replacement will be required within the next 10 years. The Rail Bridge 217 completely washed-out during Cyclone Gabrielle and has since been repaired. However, circumstances have necessitated the reinstatement of the bridge be extended to a target design life of 100 years. This will require significant works to strengthen the existing structure, and reduce the potential impacts caused by weathering and flood events.

Both bridges are located on SH51 RP2/3.84 approximately 9 km south of Napier (Figure 1-1 and Figure 1-2). This site is very ecologically sensitive with protected birds, confluence of freshwater ecosystems, wetlands and a marine environment influence.

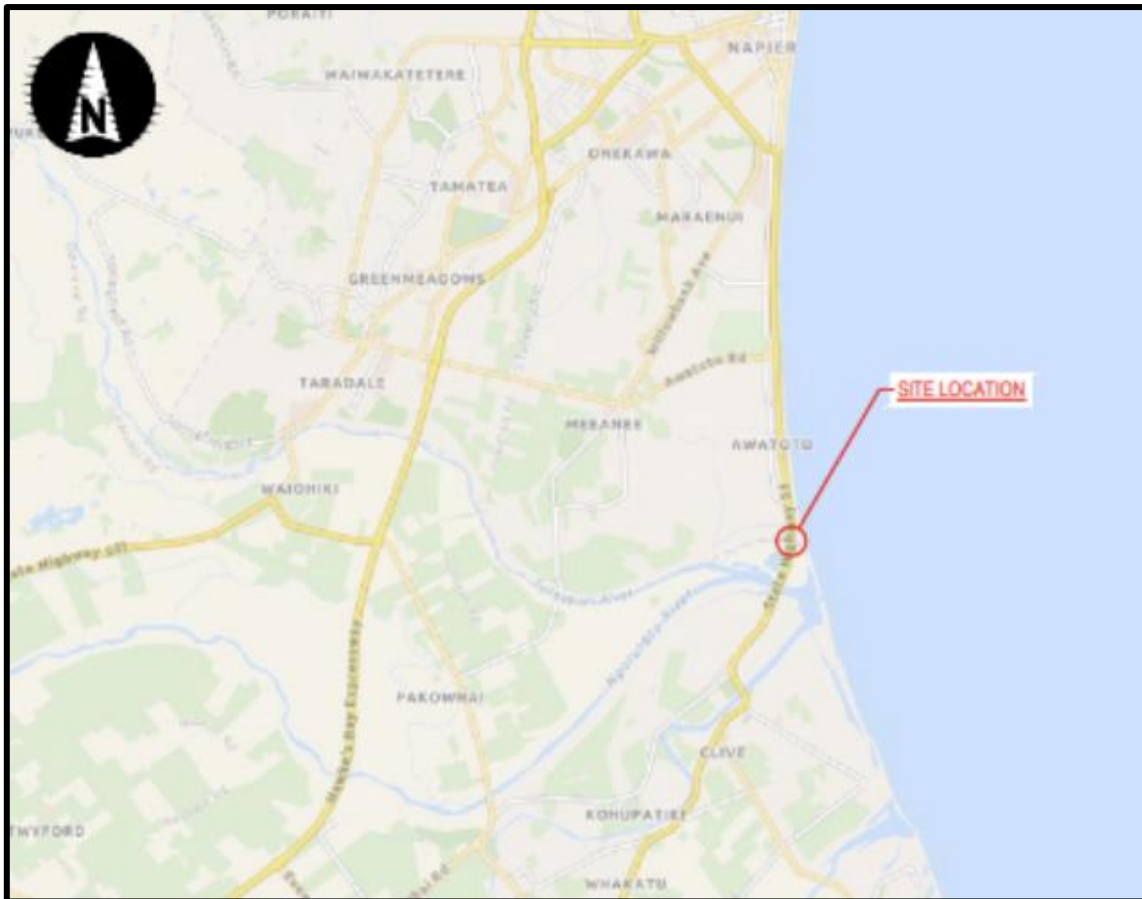


Figure 1-1. Site location in relation to Napier



Figure 1-2 Site location of both rail bridge (left) and road bridge (right)

Proposed design solutions for the road bridge are to concrete 'patch repair' to restrict the ingress of water to existing piles (Figure 1-3). Diagonal bracing impacted and damaged by the flooding will be removed and replaced from underneath the cycleway across the bridge span. Scaffolding will be installed with bitumen cloth to catch any debris that fall into the river. Cracks will be repaired by injecting Sikadur Injectokit LV and ground flush to ensure cracks are filled. All loose and defective concrete is to be removed and Sika Monotop 412N/438R will be applied to reinstate broken out concrete sections.

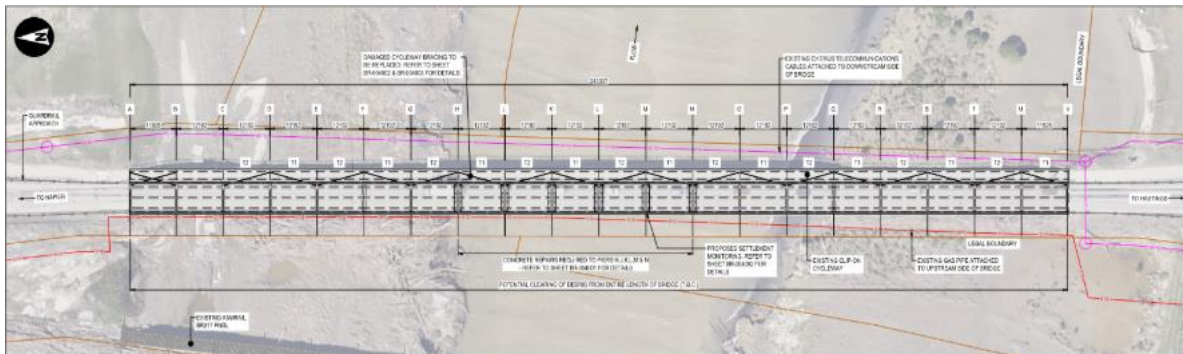


Figure 1-3 Design plan

The repairs and strengthening works of the rail bridge involves three phases. Phase 1 involves corrosion protection works requiring an enclosed scaffolding area around all bridge piers. Birds, particularly swallows, are known to nest under this bridge so bird exclusion during this phase is essential. Once birds have been excluded, the piers and abutments will be water blasted to remove rust and other corroding substances from the piers and treated with chemicals to prevent further scour.

Phase 2 will involve removing the existing 6 m and 12 m bridge spans between Piers 8–10 (south end) and Piers 15–16 (north end) (Figure 1-4). This will be followed by the demolition of concrete Piers 9 and 15. Two new 18.25 m steel plate girder bridge spans will be installed as part of the works.

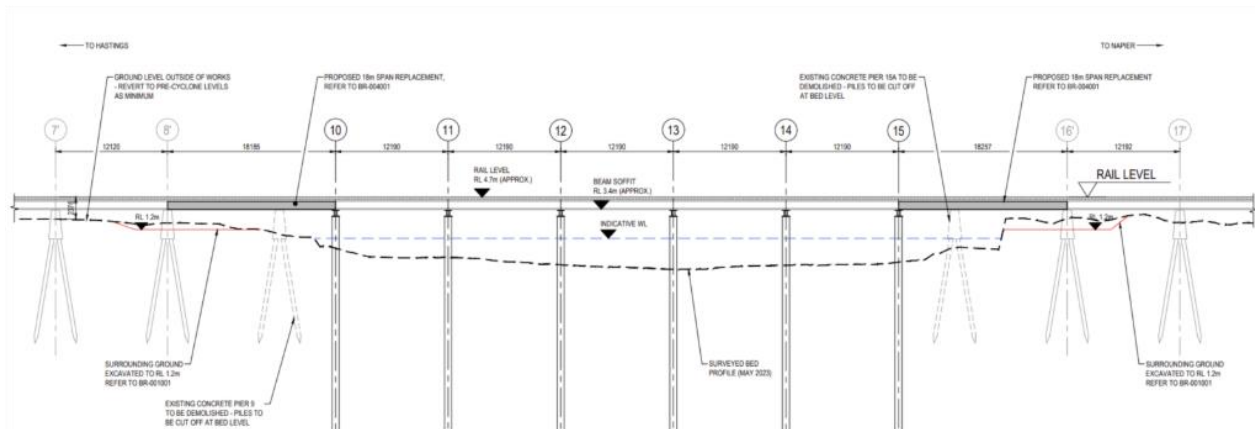


Figure 1-4. Proposed construction methodology for the span replacement and pier removal

Phase 3 will involve lowering the water levels of the Waitangi basin by approximately 1-2 m, facilitated by the removal of earth from the surrounding bank. The proposed construction work is still in the design phase, with detailed plans not yet available.

2. Guidance for contractor

A site walkover will be completed with the contractor and Project Ecologist to define the Impact Zone. The Impact Zone must include all areas where construction activities could occur which may include but is not limited to lay down and site access areas, machinery and material storage areas, earthworks areas, machinery operation areas and construction zone.

The list below provides key points that will dictate the timing of construction works in relation to birds present onsite.

- If works are conducted during bird breeding and nesting season prestart nest checks must be completed within seven days prior to beginning habitat clearance works
- If nesting and breeding habitat is present within the Impact Zone, ecologists must check this habitat for nests prior to the works being undertaken in the Impact Zone.

3. Preventative Management and Avoidance

Adult birds are expected to fly away during habitat disturbance and removal activities and are unlikely to be harmed during construction. However, during breeding season there is the potential for construction activities to result in direct harm to nest, eggs and unfledged chicks. Avoiding the disturbance of occupied nests of protected bird species must occur, pursuant to the Wildlife Act (1953). Reducing the risk of death or injury to protected birds must occur.

To achieve avoidance of nest disturbance and reduce the risk of death or injury to protected birds, where possible, works within bird habitats should be avoided during peak nesting and fledging season (September – March inclusive). It is noted the construction on this project will fall within this period. Management strategies are outlined in Section 9.

4. Birds Present

All native birds and their nesting habitat are protected under the Wildlife Act (1953) from killing and disturbance (except those listed in Schedule 5 of the Act). A total of 73 bird species have been identified to use this site permanently or seasonally as identified in Table 4-1. Of these, 45 bird species are protected under the Wildlife Act (1953) of which nine have a threat status of 'Threatened', 14 are classed as 'At Risk', 22 are 'Not Threatened' and 6 are "Non-Resident Native". The remaining 28 species are 'Introduced and Naturalised' and are not protected by the Wildlife Act (1953).

This area has been classed as having a 'Very High' values for birds¹

The timing for construction activities which may impact birds should, where practicable, avoid breeding and nesting season of protected birds (September – March inclusive).

¹ TREC. 2025. Awatoto Bridge 217 PNGl Ecological Report Summary. No. C5001-02-577-12000-EW-PP-TREC-000001

Table 4-1. Table showing bird species present within the Zone of Impact from EBIRD grid square BG85 and 10x five minute bird surveys completed by Ecologists.

Species name	Common name	Threat classification	Likelihood of Presence	Months of Breeding/Nesting													
				J	F	M	A	M	J	J	A	S	O	N	D		
<i>Ardea modesta</i>	White Heron	Threatened, Nationally Critical	Possible														
<i>Falco novaeseelandiae</i>	Falcon	Threatened, Nationally Endangered	Possible														
<i>Chlidonias albobristatus</i>	Black Fronted Tern	Threatened, Nationally Endangered	Possible														
<i>Anas superciliosa</i>	Grey Duck	Threatened, Nationally Vulnerable	Possible														
<i>Hydroprogne caspia</i>	Caspian Tern	Threatened, Nationally Vulnerable	Possible														
<i>Stictocarbo punctatus</i>	Spotted Shag	Threatened, Nationally Vulnerable	Confirmed														
<i>Anas chlorotis</i>	Brown Teal	Threatened, Nationally Increasing	Possible														
<i>Anarhynchus frontalis</i>	Wrybill	Threatened, Nationally Increasing	Possible														
<i>Poliiocephalus rufopectus</i>	New Zealand Dabchick	Threatened, Nationally Increasing	Unlikely														
<i>Calidris canutus rogersi</i>	Red Knot	At Risk, Declining. Migrant	Unlikely														
<i>Charadrius bicinctus</i>	Banded Dotterel	At Risk, Declining	Confirmed														
<i>Chroicocephalus bulleri</i>	Black Billed Gull	At Risk, Declining	Likely														
<i>Haematopus finschi</i>	South Island Pied Oyster Catcher	At Risk, Declining	Likely														
<i>Larus novaehollandiae scopulinus</i>	Red Billed Gull	At Risk, Declining	Confirmed														
<i>Limosa lapponica baueri</i>	Bar Tailed Godwit (breed in Alaska)	At Risk, Declining	Unlikely														

Species name	Common name	Threat classification	Likelihood of Presence	Months of Breeding/Nesting																			
				J	F	M	A	M	J	J	A	S	O	N	D								
<i>himantopus leucocephalus</i>		Threatened																					
<i>Hirundo neoxena neoxena</i>	Welcome Swallow	Not Threatened	Confirmed																				
<i>Larus dominicanus dominicanus</i>	Southern Black-Backed Gull	Not Threatened	Confirmed																				
<i>Morus serrator</i>	Australasian Gannet	Not Threatened	Likely																				
<i>Ninox novaeseelandiae novaeseelandiae</i>	Morepork	Not Threatened	Unlikely																				
<i>Prosthemadera novaeseelandiae novaeseelandiae</i>	Tui	Not Threatened	Unlikely																				
<i>Porphyrio melanotus melanotus</i>	Pukeko	Not Threatened	Confirmed																				
<i>Rhipidura fuliginosa placabilis</i>	New Zealand Fantail	Not Threatened	Possible																				
<i>Spatula rhynchotis</i>	Australasian Shoveler	Not Threatened	Confirmed																				
<i>Tadorna variegata</i>	Paradise Shelduck	Not Threatened	Confirmed																				
<i>Todiramphus sanctus vagans</i>	New Zealand Kingfisher	Not Threatened	Likely																				
<i>Vanellus miles novaehollandiae</i>	Spur Winged Plover	Not Threatened	Confirmed																				
<i>Zosterops lateralis lateralis</i>	Silvewye	Not Threatened	Confirmed																				
<i>Acridotheres tristis</i>	Common Myna	Introduced and Naturalised	Confirmed																				
<i>Alauda arvensis</i>	Eurasian Skylark	Introduced and Naturalised	Confirmed																				
<i>Anas platyrhynchos</i>	Mallard Duck	Introduced and Naturalised	Confirmed																				
<i>Anser anser</i>	Greylag Goose	Introduced and Naturalised	Possible																				
<i>Branta canadensis</i>	Canada Goose	Introduced and Naturalised	Confirmed																				

Species name	Common name	Threat classification	Likelihood of Presence	Months of Breeding/Nesting													
				J	F	M	A	M	J	J	A	S	O	N	D		
<i>Callipepla californica</i>	California Quail	Introduced and Naturalised	Unlikely														
<i>Carduelis chloris</i>	European Greenfinch	Introduced and Naturalised	Confirmed														
<i>Carduelis flammea</i>	Common Redpoll	Introduced and Naturalised	Unlikely														
<i>Columba livia</i>	Rock Pigeon	Introduced and Naturalised	Confirmed														
<i>Corvus frugilegus</i>	Rook	Introduced and Naturalised	Possible														
<i>Cygnus olor</i>	Black Swan	Introduced and Naturalised	Confirmed														
<i>Emberiza citrinella</i>	Yellowhammer	Introduced and Naturalised	Confirmed														
<i>Fringilla coelebs</i>	Chaffinch	Introduced and Naturalised	Likely														
<i>Gymnorhina tibicen</i>	Australian Magpie	Introduced and Naturalised	Likely														
<i>Pavo cristatus</i>	Peafowl	Introduced and Naturalised	Possible														
<i>Phasianus colchicus</i>	Common Pheasant	Introduced and Naturalised	Possible														
<i>Passer domesticus</i>	Sparrow	Introduced and Naturalised	Confirmed														
<i>Prunella modularis</i>	Dunnock	Introduced and Naturalised	Confirmed														
<i>Streptopelia risoria</i>	Barbary Dove	Introduced and Naturalised	Possible														
<i>Sturnus vulgaris</i>	Common Starling	Introduced and Naturalised	Confirmed														
<i>Turdus merula</i>	Eurasian Blackbird	Introduced and Naturalised	Possible														

Species name	Common name	Threat classification	Likelihood of Presence	Months of Breeding/Nesting													
				J	F	M	A	M	J	J	A	S	O	N	D		
<i>Turdus philomelos</i>	Song Thrush	Introduced and Naturalised	Possible														
<i>Arenaria interpres</i>	Ruddy Ternstone	Non-Resident, Migrant	Unlikely														
<i>Chlidonias leucopterus</i>	White Winged Black Tern	Non-Resident Native, Migrant	Unlikely														
<i>Coprotheres pomarinus</i>	Pomarine Skua	Non-Resident Native, Migrant	Unlikely														
<i>Stercorarius parasiticus</i>	Arctic Skua	Non-Resident Native, Migrant	Unlikely														
<i>Sternula albifrons sinensis</i>	Eastern Little Tern	Non-Resident Native, Migrant	Unlikely														
<i>Tachybaptus novaehollandiae novaehollandiae</i>	Australasian Little Grebe	Non-Resident Native, Coloniser	Unlikely														

5. Nest Checks

Where avoidance of key species nesting periods cannot occur, bird management will be implemented by a suitably qualified ecologist. All construction works and vegetation removal will be subject to management procedures in the below sections.

6. Pre-Start Nest Checks

Where the project is unable to avoid nesting habitat within the impact zone during the active nesting season of protected birds (September – March), pre-start nest checks will be required. Pre-start nest surveys must be conducted a minimum of seven days prior to the commencement of habitat clearance works. This is an appropriate lead-in period where it is unlikely for a bird to create a nest and lay eggs prior to works. Pre-start nest surveys must be conducted within the impact zone and out into the zone of influence (ZOI) of between 15 to 30m depending on the threat status of the nesting species. This is subject to the determination of the project Ecologist.

6.1 Pre-start Nest Surveys

Suitably qualified ecologists will conduct a prestart bird nest survey. This survey will include locations to be directly impacted by the construction works and any areas defined by the ecologist to be within the zone of influence. This must begin before any works commence including any enabling works. On nest discovery the ecologist will undertake the processes outlined in Sections 6.2, 6.3, 6.4 and 8.

6.2 No Nests Confirmed

If no nests are discovered during pre-start nest surveys the Project Ecologist must:

- 1) Provide written confirmation for works to commence within the bird habitat or nesting zone, including the following:
 - a) The date in which the survey was conducted
 - b) A high-resolution map clearly demarcating the habitats surveyed and where works within bird habitat or nesting zone can occur
 - c) The date on which the works must be completed by
- 2) If works are not completed within seven days, an additional pre-start nest survey must occur within remaining habitat and the ZOI.

6.3 Inactive Nest Discovered

If an inactive nest is discovered during pre-start nest surveys on-site within the impact zone and/or ZOI, the Project Ecologist must remove the nest, if possible, then:

- 1) The Project Ecologist must provide written confirmation for works to commence, including the following:
 - a) The date in which the survey was conducted
 - b) A high-resolution map clearly demarcating the habitats surveyed and where works can occur
 - c) The date in which works must be completed by
- 2) If works are not completed within seven days, an additional pre-start nest survey must occur within the remaining habitats and ZOI

If removal of the inactive nest is not possible the Project Ecologist must:

- a) Clearly identify the location of the nest (e.g flagging tape or nontoxic spray paint)
 - b) Record the location with GPS and take photographs of the nest
 - c) Notify the Contractor immediately in person
 - d) Arrange for the works to be completed by the Contractor on the same day
- 3) If works are unable to be performed that day, an additional pre-start survey prior to works starting at the proposed time, must occur to ensure the nest is still inactive.

6.4 Active Nest Discovered

If an active nest is found during pre-start surveys within the impact zone or ZOI, the Project Ecologist must:

- 1) Record the GPS location and take detailed photographs of the location
- 2) Take photographs of the nest, adults if possible and eggs and/or chicks
- 3) Define and demarcate an appropriate buffer specific for the species threat status (15-30 m) around the nest.
 - a) Provide a high-resolution map defining the buffer zone to the contractor where no Project related disturbances may occur as soon as practicable, preferably within one working day.
- 4) Notify the contractor immediately of the discovery
- 5) Provide the contractor with an estimated egg incubation and nesting period that will dictate when follow up surveys must occur to confirm chick fledging.
- 6) Perform a follow up survey and, when there is no risk of injury or death to the eggs, chicks or adult birds, provide written confirmation for the works to commence.

7. Accidental Discovery Protocol

If a bird species is observed to be expressing behaviour indicative of breeding or a nest, eggs and/or chicks are discovered by a contractor or any staff onsite, within the zone of influence or adjacent to site, the Project Ecologist must be notified immediately and procedures outlined in 5 and 6 will be implemented.

8. Injured Wildlife

No wildlife is expected to be injured during this project, however, should an accidental or incidental injury occur, the Department of Conservation must be contacted in the first instance for advice on how to proceed.

The following procedures are a guidance for injured wildlife

- 1) Place the injured animal in a dark box with a towel or similar soft furnishings and place the box in a cool, quiet location
- 2) Notify the Project Ecologists immediately and provide the Project Ecologist information including the species and the nature of injury
 - a) The Project Ecologist may be required to visit the site and assess the animal and either release it or transport it to a veterinary clinic for assessment
 - b) Depending on the species and injuries, the contractor may be requested to transport the animal to the nearest veterinary clinic for assessment
- 3) If the Project ecologist is unavailable, for native wildlife phone DOC emergency hotline 0800 DOC HOT (0800 363 468) for sick, injured or dead animals.
- 4) For non-native wildlife, contact the local SPCA for advice
 - a) SPCA Hastings, 8 Heathcote Road, 06 878 8733

9. Management Strategies

No single bird management technique is 100% effective; therefore, integrating multiple bird deterrent methods is essential to achieve adequate bird management. Successful bird management relies on a combination of passive and active techniques applied in a strategic, adaptive, and rotational manner to prevent bird habituation and acclimatisation to management techniques.

9.1 Integrated and Rotational Use of Methods

Birds rapidly habituate to deterrent methods such as acoustic and visual repellents if used continuously in the same location. To maintain effectiveness, all techniques should be rotated, diversified and changed approximately **every three days**. This prevents birds from learning that deterrents methods can be ignored as they are harmless. The rotation should involve switching not only the method but also the specific area of deterrent application within the site to maximize surprise and discomfort for the birds.

Bird management methods are at the discretion of a suitably qualified ecologist. The suitably qualified ecologist may implement all, some or few of the below methods to deter birds depending on the species

present and the continued effectiveness of certain strategy. Ecologists will monitor bird activity to ensure the most appropriate bird management options are selected.

9.2 Passive Exclusion Options

These methods physically prevent birds from accessing, perching, or nesting in areas that will impede the project, specifically nests constructed by birds under Bridge 217.

9.2.1 Bird Netting

Bird netting functions as a highly effective physical exclusion methods which creates a barrier preventing birds from accessing specific areas. These are commonly used under bridges where bird seek shelter and construct nests. The netting interrupts the bird's ability to land or nest in these places, effectively deterring them without causing physical harm. This is a non-lethal approach which aligns with the Wildlife Act (1953).

The effectiveness of bird netting is dependent on the installation and ongoing maintenance. Debris accumulation, weathering and animal interference overtime could create holes or weak points for birds to access into the exclusion area. Regular inspection, weekly, is essential to identify and repair any damage to the nets, ensuring birds are prevented from reestablishing access.

9.2.2 Anti-Perching Devices

These devices modify surface to make them uncomfortable or impossible for birds to settle on. Spikes disrupt birds balance and inhibit the ability to create a stable foothold on the surface. However, these devices have varying effectiveness depending on the bird species. Smaller birds such as Kingfishers and Swallows can often bypass structures by perching on narrower gaps between spikes which limit the effectiveness. These smaller birds are significantly more likely to utilise under Bridge 217 for nesting habitat so this would not be the most effective options. Larger birds such as gulls will only use the Bridge for perching and will not use the bridge as nesting habitat. Anti-perching devices are not a recommended management strategy.

9.3 Active Exclusion Options

Active exclusion disperses birds by creating fear or discomfort through stimuli. These techniques cause fright and discomfort which birds associated with specific places. When these unpleasant experiences occur, birds avoid these places in the short term.

9.3.1 Acoustic Devices

Acoustic deterrents utilise sound stimuli to generate fear and discomfort for birds which prompt them to vacate the specified area. Commonly used acoustic sound devices include propane cannons, gas guns and predator call playback systems which emit bird distress calls or predator sounds. These exploit instinctual behaviours as birds perceive the loud or distressing noise as an immediate threat and will disperse rapidly.

These devices can cover large areas and operate for 24 hours a day which makes acoustic devices suitable for this site. However, a challenge with these devices is the rapid habituation to the noise by bird species. Birds often learn to ignore these sounds and realise the sounds do not present actual danger. It is essential to regularly (3 days) change the location and re program the timing of the sound emitted for most effective results.

The deployment of these acoustic devices needs to consider noise pollution impacts particularly in regard to disturbing the close proximity to the recreational cycleway, wetland walking tracks and culturally significant sites. It is important to note the large Black Backed Gull colony within 200m of the site which is important to not disturb and deter from using that area for breeding and nesting.

The placement for acoustic devices should be agreed upon by the Project Ecologist.

9.3.2 Visual Deterrents

Visual deterrents work by presenting stimuli that birds associate with threats e.g predators, injury or environmental hazards. These devices can include, predator models, hanging model carcasses of target exclusion species, scarecrows, reflective materials, laser lights and strobes. When birds encounter these cues, they exhibit immediate avoidance behaviour by flying away or refraining from approaching the area.

These are effective in the short term, but effectiveness diminishes as birds habituate to the stationary or predictable nature of the stimuli. To ensure the deterrence is sustained it is essential to rotate, reposition or change the visual devices every 3 days. Approaches such as lasers and strobes can be programs to be variable and unpredictable for birds which can lower habituation rates through dynamic and unpredictable movement patterns. These measures may not be appropriate for this site due to the proximity to the road corridor and live traffic. It is essential these measures do not distract drivers or create glare.

The placement for visual deterrents should be agreed upon by the Project Ecologist.

10. Reporting

Reporting shall occur when required throughout the bird management to detail nest surveys and management strategy effectiveness by ecologists. Reporting may be in the form of email communication, letters or a formal report to construction managers and relevant personnel. A Bird Management Completion report will be issued within 12 weeks of the completion of the project. This will detail the management employed onsite and recommendations for future, similar projects.

11. Recommendations

It is recommended that ecologists undertake appropriate bird management for this site. Management may include but is not limited to:

- Pre-start nest checks conducted by ecologists a minimum of seven days prior to any construction works occurring
- A variety of passive and active management strategies employed to avoid bird habituation
- Netting and visual deterrents are deemed to be the most appropriate for this site
- Acoustic devices may be employed as and when required, however it is recognised that this may have adverse effects on the Black Backed Gull colony east of the bridge, as well as members of the public.

Appendix 1 - Nest Types

Below are the species most likely to be present on site and the type of nest most likely to be used by each species in this environment.

Falcon



Nest type: Scrapes at ground level or on small rock stacks lined with leaves and small vegetation

Maximum clutch size: 4 eggs

Egg incubation: maximum 35 days

Fledge time after hatching: 75-124 days after nesting

Caspian Tern



Nest type: Scrape in sand or shingle

Maximum clutch size: 3 eggs

Egg incubation: 21-28 days

Fledge time after hatching: 33-38 days after nesting

Shag spp.



Nest type: Cliff ledge, ground level platform or raised platform. Large platforms of sticks with a depression in the centre at ground level, a cliff ledge or tree canopy.

Maximum clutch size: 6 eggs

Egg incubation: 27-31 days

Fledge time after hatching: 49-60 days

Wrybill



Nest type: Ground level hollow among riverbed gravel lined with numerous small stones

Maximum clutch size: 2

Egg incubation: 30-36 days

Fledge time after hatching: 35-40 days

New Zealand Dabchick



Nest type: Floating platform with a loose pile of water logged vegetation with a shallow depression in the centre

Maximum clutch size: 3 eggs

Egg incubation: 22-23 days

Fledge time after hatching: approximately 35 days

Banded Dotterel



Nest type: Ground level hollow with a bowl nest in depression in the ground

Maximum clutch size: 5 eggs

Egg incubation: 25-28 days

Fledge time after hatching: 35-42 days

Black Billed Gull



Nest type: Woven cup comprising of sticks and vegetation built on bare gravel

Maximum clutch size: 5 eggs

Egg incubation: 20-27 days

Fledge time after hatching: approximately 26 days

Red Billed Gull



Nest type: ground level platform with a well made nest with a depression in vegetation or on gravels

Maximum clutch size: 3 eggs

Egg incubation: 23- 26 days

Fledge time: approximately 55 days

White Fronted Tern



Nest type: Scrape on shingle, sand or bare rock. Small stones are sometimes added to the nest scrape.

Maximum clutch size: 2 eggs

Egg incubation: approximately 24 days

Fledge time after hatching: approximately 50 days

Royal Spoonbill



Nest type: Raised platform of bowl shaped sticks lined with small leaves and other vegetation

Maximum clutch size: 4 eggs

Egg incubation: 20-25 days

Fledge time after hatching: 49 days

Grey Teal



Nest type: Ground level hollow with a bare surface covered in feathers

Maximum clutch size: 9 eggs

Egg incubation: 23-26 days

Fledge time: 35-40 days

Black Swan



Nest type: Raised platform with a shallow depression, approximately 0.2m high. Comprised of small sticks and vegetation

Maximum clutch size: 7 eggs

Egg incubation: 32-40 days

Fledge time after hatching: 90-120 days

Pied Stilt



Nest type: Ground level platform or lined scrape made from small sticks and occasionally loose gravels.

Maximum clutch size: 6 eggs

Egg incubation: approximately 25 eggs

Fledge time after hatching: 28-32 days

Welcome Swallow



Nest type: Mud lined nest with grasses and feathers, a minimum 0.5m above the ground.

Maximum clutch size: 7 eggs

Egg incubation: 15-19 days

Fledge time after hatching: 18-23 days

Southern Black Backed Gull



Nest type: Ground level platform or lined scrape with grass, seaweeds and small sticks. Nests can be on sand or shingle.

Maximum clutch size: 3 eggs

Egg incubation: 23-26 days

Fledge time after hatching: 45-61 days

Australasian Gannet



Nest type: Cliff ledge or mud nest. Nests are comprised of a shallow central cup made from soil, guano and vegetation. Often at ground level.

Maximum clutch size: 1

Egg incubation: 43- 53 days

Fledge time after hatching: 91 - 119 days

Pukeko



Nest type: Floating platform or ground level hollow. Nest bowls are comprised of small sticks and leaves built near or over water.

Maximum clutch size: 7 eggs

Egg incubation: 23 – 29 days

Fledge time after hatching: approximately 60 days

Paradise Shelduck



Nest type: Lined scrape, usually a depression lined with down feathers and other material

Maximum clutch size: 15 eggs

Egg incubation: 30 -35 days

Fledge time after hatching: 55 – 60 days

New Zealand Kingfisher



Nest type: Burrow or tree hole with a spherical chamber found in trees, road cuttings and cliffs.

Maximum clutch size: 7 eggs

Egg incubation: 20 – 21days

Fledge time after hatching: 33-36 days

Spur Winged Plover



Nest type: Scrape lined with twigs, leaves, dried grass and small pebbles.

Maximum clutch size: 4 eggs

Egg incubation: 30-34 days

Fledge time after hatching: 42- 49 days

Silvereye



Nest type: Woven cup of moss, lichen and small twigs.

Maximum clutch size: 4 eggs

Egg incubation: 12-14 days

Fledge time after hatching: 10-11 days



Wildlife Act 1953 Authority for Wildlife Located on Public Conservation Land and Other Land

Authorisation Number: 122522-FAU

THIS AUTHORITY is made this 29th day of September 2025

PARTIES:

The Director-General of Conservation and where required the Minister of Conservation (the Grantor)

KiwiRail Holdings Limited (the Authority Holder)

BACKGROUND

- A. The Director-General of Conservation is empowered to issue authorisations under the Wildlife Act 1953.
- B. Where the authorisation applies to wildlife located on public conservation land a further authorisation is required, depending upon the legislation applying to the public conservation land, from either the Director-General of Conservation or the Minister of Conservation.
- C. The Authority Holder wishes to exercise the authorisation issued under the Wildlife Act 1953 and where applicable the authorisation issued under the relevant legislation applying to the public conservation land subject to the terms and conditions of this Authority.

OPERATIVE PARTS

In exercise of the Grantor's powers the Grantor:

AUTHORISES the Authority Holder under Section 53 of the Wildlife Act 1953 as modified by clause 45 of the Severe Weather Emergency Recovery (KiwiRail Holdings Limited) Order 2023, and clause 38 of the Wildlife Regulations 1955; and

PERMITS the Authority Holder pursuant to section 38 of the Conservation Act 1987.

subject to the terms and conditions contained in this Authority and its Schedules.

SIGNED on behalf of the Grantor by Grant Bennett, Operations Manager Hawkes Bay acting under delegated authority

in the presence of:



Witness Signature

Witness Name: Geselle Jones

Witness Occupation: Business Support Officer

Witness Address: 34 Wakefield Street, Napier

A copy of the Instrument of Delegation may be inspected at the Director-General's office at 18-32 Manners Street, Wellington.

SCHEDULE 1

<p>1.</p>	<p>Authorised activity (including the species, any approved quantities and collection methods) (clause 2)</p>	<p>a. Activity – i. to catch alive ii. to have in possession (temporarily) iii. to liberate iv. to kill incidentally v. to take samples vi. to mark b. Species – i. Northern Grass Skink <i>Oligosoma polychrome</i> ii. Raukawa Gecko <i>Woodworthia maculata</i> iii. Northern Spotted Skink <i>Oligosoma kokowai</i> c. Quantity – i. As encountered d. Method – i. catch alive using gee minnow / funnel traps, pitfall traps, artificial cover objects, manual habitat searching, spotlighting, destructive habitat searching and supervised vegetation clearance as described in the ‘Awatoto Bridge Tutaekuri River Works Lizard Management Plan’ ii. to have in possession for a maximum of 8 hours for the purpose of transferring to the Lizard Release Area iii. liberate at the Lizard Release Area iv. kill incidentally following the completion of all practicable lizard salvage measures described in the ‘Awatoto Bridge Tutaekuri River Works Lizard Management Plan’ v. take eDNA samples vi. mark using non-toxic paint e. Purpose – i. Salvage for wildlife protection</p>
<p>2.</p>	<p>The Land (clause 2)</p>	<p>a. Public Conservation Land: i. Upoko Block Conservation Area (2801445) (site for capture only) b. Other land: ii. Hawke’s Bay Regional Council land at the Tutaekuri River mouth within the footprint of railway works associated with the Awatoto bridge (sites for capture and release)</p>
<p>3.</p>	<p>Personnel authorised to undertake the Authorised Activity (clause 3)</p>	<p>a. Mark Yungnickel b. Simon Chapman c. Alex Reid d. Other suitably qualified ecologists or herpetologists working under the supervision of the named Personnel</p>
<p>4.</p>	<p>Term (clause 4)</p>	<p>Commencing on and including 1 October 2025 and ending on and including 31 August 2030</p>

<p>5.</p>	<p>Authority Holder's address for notices (clause 10)</p>	<p>The Authority Holder's address in New Zealand is: Wellington Railway Station Level 2, 2 Bunny Street Pipitea Wellington, 6011 Phone: 04 498 2058 Email: Robert.talarkiewicz@kiwirail.co.nz</p>
<p>6.</p>	<p>Grantor's address for notices</p>	<p>The Grantor's address for all correspondence is: Department of Conservation Att: Permissions Team Level 4 73 Rostrevor Street Hamilton, 3204 Email: permissionshamilton@doc.govt.nz</p>

Note: The clause references are to the Grantor's Standard Terms and Conditions set out in Schedule 2.

SCHEDULE 2

STANDARD TERMS AND CONDITIONS OF THE AUTHORITY

1. Interpretation

- 1.1 The Authority Holder is responsible for the acts and omissions of its employees, contractors or agents. The Authority Holder is liable under this Authority for any breach of the terms of the Authority by its employees, contractors or agents as if the breach had been committed by the Authority Holder.
- 1.2 Where obligations bind more than one person, those obligations bind those persons jointly and separately.

2. What is being authorised?

- 2.1 The Authority Holder is only allowed to carry out the Authorised Activity on the Land described in Schedule 1, Item 2.
- 2.2 Any arrangements necessary for access over private land or leased land are the responsibility of the Authority Holder. In granting this authorisation the Grantor does not warrant that such access can be obtained.
- 2.3 The Authority Holder must advise the Department of Conservation's local Operations Manager(s) prior to carrying out the Authorised Activity in the District (where possible, one week prior), when the Authority Holder intends to carry out the Authorised Activity.
- 2.4 The Authority Holder and Authorised Personnel must carry a copy of this Authority with them at all times while carrying out the Authorised Activity.
- 2.5 The Authority Holder must comply with any reasonable request from the Grantor for access to any wildlife.
- 2.6 The Authority Holder may publish authorised research results.
- 2.7 The Authority Holder must immediately notify the Grantor of any taxa found which are new to science. In addition, the Authority Holder must lodge holotype specimens and a voucher specimen of any new taxa with a recognised national collection.

3. Who is authorised?

- 3.1 Only the Authority Holder and the Authorised Personnel described in Schedule 1, Item 3 are authorised to carry out the Authorised Activity, unless otherwise agreed in writing by the Grantor.

4. How long is the Authority for - the Term?

- 4.1 This Authority commences and ends on the dates set out in Schedule 1, Item 4.

5. What are the obligations to protect the environment?

- 5.1 The Authority Holder must not cut down or damage any vegetation; or damage any natural feature or historic resource on any public conservation land being part of the

- Land; or light any fire on such public conservation land; or erect any structure such public conservation land without the prior consent of the Grantor.
- 5.2 The Authority Holder must ensure that it adheres to the international “Leave No Trace” Principles at all times (www.leavenotrace.org.nz).
- 5.3 The Authority Holder must not bury:
- (a) any toilet waste within 50 metres of a water source on any public conservation land being part of the Land; or
 - (b) any animal or fish or any part thereof within 50 metres of any water body, water source or public road or track.

6. What are the liabilities?

- 6.1 The Authority Holder agrees to exercise the Authority at the Authority Holder’s own risk and releases to the full extent permitted by law the Grantor and the Grantor’s employees and agents from all claims and demands of any kind and from all liability which may arise in respect of any accident, damage or injury occurring to any person or property arising from the Authority Holder’s exercise of the Authorised Activity.
- 6.2 The Authority Holder must indemnify the Grantor against all claims, actions, losses and expenses of any nature which the Grantor may suffer or incur or for which the Grantor may become liable arising from the Authority Holder’s exercise of the Authorised Activity.
- 6.3 This indemnity is to continue after the expiry or termination of this Authority in respect of any acts or omissions occurring or arising before its expiry or termination.

7. What about compliance with legislation and Grantor’s notices and directions?

- 7.1 The Authority Holder must comply with all statutes, bylaws and regulations, and all notices, directions and requisitions of the Grantor and any competent authority relating to the conduct of the Authorised Activity. Without limitation, this includes the Conservation Act 1987, and the Acts listed in the First Schedule of that Act and all applicable health and safety legislation and regulation.

8. Are there limitations on public access and closure?

- 8.1 The Authority Holder acknowledges that the public conservation land being part of the Land is open to the public for access and that the Grantor may close public access to that public conservation land during periods of high fire hazard or for reasons of public safety or emergency.

9. When can the Authority be terminated?

- 9.1 The Grantor may terminate this Authority at any time in respect of the whole or any part of the Land, and/or the whole or any part of the Authorised Activity if:
- (a) the Authority Holder breaches any of the conditions of this Authority; or
 - (b) in the Grantor’s opinion, the carrying out of the Authorised Activity causes or is likely to cause any unforeseen or unacceptable effects.

9.2 If the Grantor intends to terminate this Authority in whole or in part, the Grantor must give the Authority Holder such prior notice as, in the sole opinion of the Grantor, appears reasonable and necessary in the circumstances.

10. How are notices sent and when are they received?

10.1 Any notice to be given under this Authority by the Grantor is to be in writing and made by personal delivery, by pre-paid post or email to the Authority Holder at the address, or email address specified in Schedule 1, Item 5. Any such notice is to be deemed to have been received:

- (a) in the case of personal delivery, on the date of delivery;
- (b) in the case of post, on the 3rd working day after posting;
- (c) in the case of email, on the date receipt of the email is acknowledged by the addressee by return email or otherwise in writing.

10.2 If the Authority Holder's details specified in Schedule 1, Item 5 change then the Authority Holder must notify the Grantor within 5 working days of such change.

11. What about the payment of costs?

11.1 The Authority Holder must pay the standard Department of Conservation charge-out rates for any staff time and mileage required to monitor compliance with this Authority and to investigate any alleged breaches of the terms and conditions of it.

12. Biosecurity

12.1 The Authority Holder must take all precautions to ensure weeds and non-target species are not introduced to the Land; this includes ensuring that all tyres, footwear, gaiters, packs and equipment used by the Authority Holder, its staff and clients are cleaned and checked for pests before entering the Land.

13. Are there any Special Conditions?

13.1 Special conditions are specified in Schedule 3. If there is a conflict between this Schedule 2 and the Special Conditions in Schedule 3, the Special Conditions will prevail.

14. Can the Authority be varied?

14.1 The Authority Holder may apply to the Grantor for variations to this Authority.

SCHEDULE 3

Severe Weather Emergency Recovery (KiwiRail Holdings Limited) Order 2023 Schedule 4 Conditions

General conditions relating to wildlife

1. The Agency must provide the Department of Conservation with a written summary of all construction works, no later than 2 months after the completion of those works.
2. The summary must include—
 - (a) general description of the works undertaken:
 - (b) location of the works:
 - (c) maps of the works:
 - (d) designs of any structures erected in waterways.

Procedure for incidental discovery of significant wildlife

3. The Agency must have a procedure for incidental discovery, including as part of indigenous woody vegetation management, of significant wildlife not identified in the ecological scoping survey or the ecological effects assessment.
4. The procedure for incidental discovery must include—
 - (a) immediately notifying the Department of Conservation of the discovery, and compliance with any advice given, or obligations imposed, by the Department; and
 - (b) appointment of a suitably qualified and experienced expert approved by the Department of Conservation to develop a management plan for the discovered species, if required by the Department:
 - (c) an application for authority or consent in respect of the species, if applicable.

Salvage, capture, handling, and relocation of native lizards and frogs, and at-risk or threatened invertebrates

5. The Agency may only release a native lizard or frog, and an at-risk or threatened species of invertebrate, into a release site—
 - (a) of similar or better habitat than the source location, and capable of supporting that lizard, frog, or invertebrate; and
 - (b) that is within 500 m of the project footprint (or other release sites if approved by the Department of Conservation); and
 - (c) where the habitat for that lizard, frog, or invertebrate has been enhanced and approved by the Department of Conservation before relocation.
6. The Agency must ensure that salvage, capture, handling, and relocation of native lizards and frogs, and at-risk or threatened species of invertebrates, is undertaken in a manner and at a time determined to be appropriate by suitably qualified and experienced experts.

7. The Agency must ensure (except where the native lizard or frog, or at-risk or threatened species of invertebrate, is identified under the incidental discovery protocol) that the suitably qualified and experienced experts referred to in subclause (2) are at the on-site induction before construction work commences.

Salvage reporting for lizards, frogs, and invertebrates relocated under clause 9

8. The Agency must submit, to the Department of Conservation each year for the duration of the project, a salvage report for any lizards, frogs, and invertebrates that are relocated under clause 9.
9. The salvage report must include—
 - (a) the species, and number of each species, of lizards, frogs, and invertebrates captured and released; and
 - (b) the GPS location, or a detailed map, or both, of the collection points and release points; and
 - (c) copies of any permits for those species; and
 - (d) results of all surveys and monitoring.
 - (e) The Agency must send completed amphibian and reptile distribution system (ARDS) cards for all herpetofauna sightings and captures to the Department of Conservation, within 1 week of the sighting or capture.

Injury and euthanasia of significant wildlife

10. If any significant wildlife is injured in the course of the project, the Agency must take all reasonable steps to—
 - (a) immediately address the injury; and
 - (b) rehabilitate the wildlife, in consultation with the Department of Conservation.
11. The Agency must not euthanise an injured animal that is significant wildlife unless—
 - (a) a veterinarian recommends euthanasia on animal welfare grounds; or
 - (b) the Agency euthanises the animal under direction of the Department of Conservation.
12. Despite subclause (2), a bat may be euthanised only by a veterinarian.
13. The Agency must notify the Department of Conservation within 48 hours of euthanising significant wildlife.
14. The notification must include details of the species euthanised and the personnel involved in the euthanising.

Death of protected wildlife during course of project

15. If any protected wildlife is killed during the course of the project, the Agency must—
 - (a) inform the Department of Conservation within 24 hours; and
 - (b) comply with any requirements imposed by the Department, for example,—
 - i. chilling the body if it can be delivered for necropsy within 72 hours:

- ii. freezing the body if delivery for necropsy will take longer than 72 hours:
- iii. ceasing the project for a period agreed by the Department and the Agency, after reasonable discussions, but in any event not exceeding 3 months.

Indigenous woody vegetation management

- 16. When indigenous woody vegetation is felled, the Agency must, as far as practicable, move the vegetation a minimal distance outside the proposed project footprint to a location of similar indigenous woody habitat.
- 17. Before mulching felled indigenous woody vegetation, the Agency must, as far as practicable, identify, catch, and remove any native lizards and frogs, and at-risk or threatened species of invertebrates, that are within the vegetation.

Specific conditions: native lizards

- 18. This clause applies when the ecological scoping survey carried out under clause 5(3) identifies the presence or possible presence of native lizards.

Destructive habitat searches

- 19. Where vegetation is to be removed or the ground physically disturbed as part of the project, the Agency must ensure that the vegetation or ground is searched for lizards by hand using destructive habitat searches.
- 20. Any lizard species identified in a destructive habitat search must be salvaged and relocated, in accordance with the lizard management plan, to similar habitat at least 100 m outside the project footprint.

Lizard salvage reporting

- 21. The Agency must submit a report on lizard salvage to the Department of Conservation each year during the project.
- 22. The lizard salvage report must include—
 - (a) the authorisation number; and
 - (b) the species and number of any lizards captured alive and released; and
 - (c) the species and number of any lizards found dead; and
 - (d) results of all monitoring; and
 - (e) a description of how the lizard management plan was implemented, including—
 - i. any difficulties encountered with capture of live lizards; and
 - ii. post-release monitoring; and
 - iii. details of any contingency actions undertaken.



Awatoto Bridge Tutaekuri River Works

Lizard Management Plan

Document Number [C5001-02-577-12000-EW-PP-TREC-000001] **(REQUEST VIA DOCUMENT CONTROL)**

20 August 2025

Revision: v1

STATUS: FINAL

Transport Rebuild East Coast



Te Kāwanatanga o Aotearoa
New Zealand Government

Document Control

Role	Name	Date	Signature / Procore Workflow No.
Author:	Mark Yungnickel Hannah Sharma	20/08/2025	
Project Lead (if required):			
Reviewer/Verifier:	Simon Chapman	20/08/2025	
Peer Reviewer (if required):			
Rebuild Design Manager (Discipline Approver):	Dathan Proudlove	20/08/2025	

Version History

Revision	Date	Name	Brief Description/Change
V1	20/08/2025	Mark Yungnickel	Minor edits after internal review

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Glossary

Brumation	A state of sluggishness or inactivity by reptiles during periods of low temperature.
Diurnal	Active during the day.
Habitat	The area or environment where an organism or ecological community lives or occurs naturally for some or all of its life cycle, or as part of its seasonal feeding or breeding pattern; but does not include built structures or an area or environment where an organism is present only fleetingly.
High-quality habitat	Areas with confirmed lizards or areas of habitat highly likely to support lizard species on-site. Lizard management is required.
Low-quality habitat	Areas with habitat that may support lizards, but of lower quality and condition and their presence has not been confirmed. Minimal lizard management is required.
Mitigation	Alleviate, abate, or moderate the severity of effects on ecological values that cannot be avoided.
Nocturnal	Active during the night.
Project Area	The designation where works are proposed to take place including the SH, railbridge, and north and south banks of the Tutaekuri River mouth.
Project Herpetologist	The suitably qualified herpetologist or ecologist, tasked with implementing this Lizard Management Plan.
Lizard Release Area	Site where salvaged and/or transferred lizards will be moved to and released associated with the Waikare Gorge Realignment Project.
Terrestrial	Ground-dwelling

Abbreviations

°C	Degrees Celsius
ACO	Artificial Cover Object
ARDS	Amphibian and Reptile Distribution Scheme
cc	Carrying capacity
DOC	Department of Conservation
EclA	Ecological Impact Assessment
EIANZ	Environment Institute of Australia and New Zealand
ED	Ecological District
ha	Hectare
km	Kilometre
LMP	Lizard Management Plan
m	Metres
MHS	Manual Habitat Searches
NCO	Natural Cover Object
WAA	Wildlife Act Authority

1. Introduction and Background

KiwiRail Holdings Limited (KiwiRail) maintain a rail bridge over the lower reaches of the Tutaekuri River in Hawkes Bay, Napier (Figure 1). The site has a documented history of flood related damage and reconstruction, with the most recent rebuild occurring in 2023 following Cyclone Gabrielle.

United Civil was contracted by KiwiRail to rebuild Bridge 217 after it was washed out during cyclone Gabrielle. After four months of construction the bridge was reopened with an anticipated life span of five years. Circumstances have necessitated the life span of the bridge be extended to 50 years. This will require significant works to strengthen the existing structure, and reduce the potential impacts caused by weathering and flood events. Specifically, it has been proposed that the water levels of the Waitangi basin are lowered by approximately 0.5 m, facilitated by the removal of vegetation, and earth from the surrounding bank (Figure 2).

The works require vegetation removal and earthworks where suitable habitat for a number of protected lizard species has been observed, and one native lizard has been recorded. Therefore, a Lizard Management Plan (LMP) and Wildlife Act Authority (WAA) have been prepared to undertake lizard salvage for the project.

The Transport Rebuild East Coast (TREC) has been engaged to undertake a detailed lizard survey and prepare a wildlife application for lizard salvage if required for the project. This work is being undertaken under Resource Consent Pathway - Clause 7 and 8 of the Severe Weather Emergency Recovery (KiwiRail Holdings Limited) Order 2023. Specifically, note Clause 45 of the Severe in regards to the Wildlife Act: Authority to take or kill wildlife, or do anything in respect of any protected wildlife, in certain circumstances (see Appendix A).

1.1 Purpose and Objectives

The Project requires vegetation removal and earthworks in areas that have the potential to support native lizards. While only one lizard was recorded onsite in August 2025, there is potential for a number of native lizards are present. It appeared to be a native species but was not captured to confirm species identification. In particular, 'Not Threatened' northern grass skink (*Oligosoma polychroma*) which are mobile are the most likely species to have moved back into the site after the floods during cyclone Gabrielle. All native lizards are absolutely protected, pursuant to the Wildlife Act 1953 (New Zealand Government, 2022).

This LMP has been developed to minimise and remedy (mitigate) adverse effects on lizards and their habitats, where avoidance is not possible. This LMP is required to inform a Wildlife Act Authority (WAA) application required under the Wildlife Act 1953.

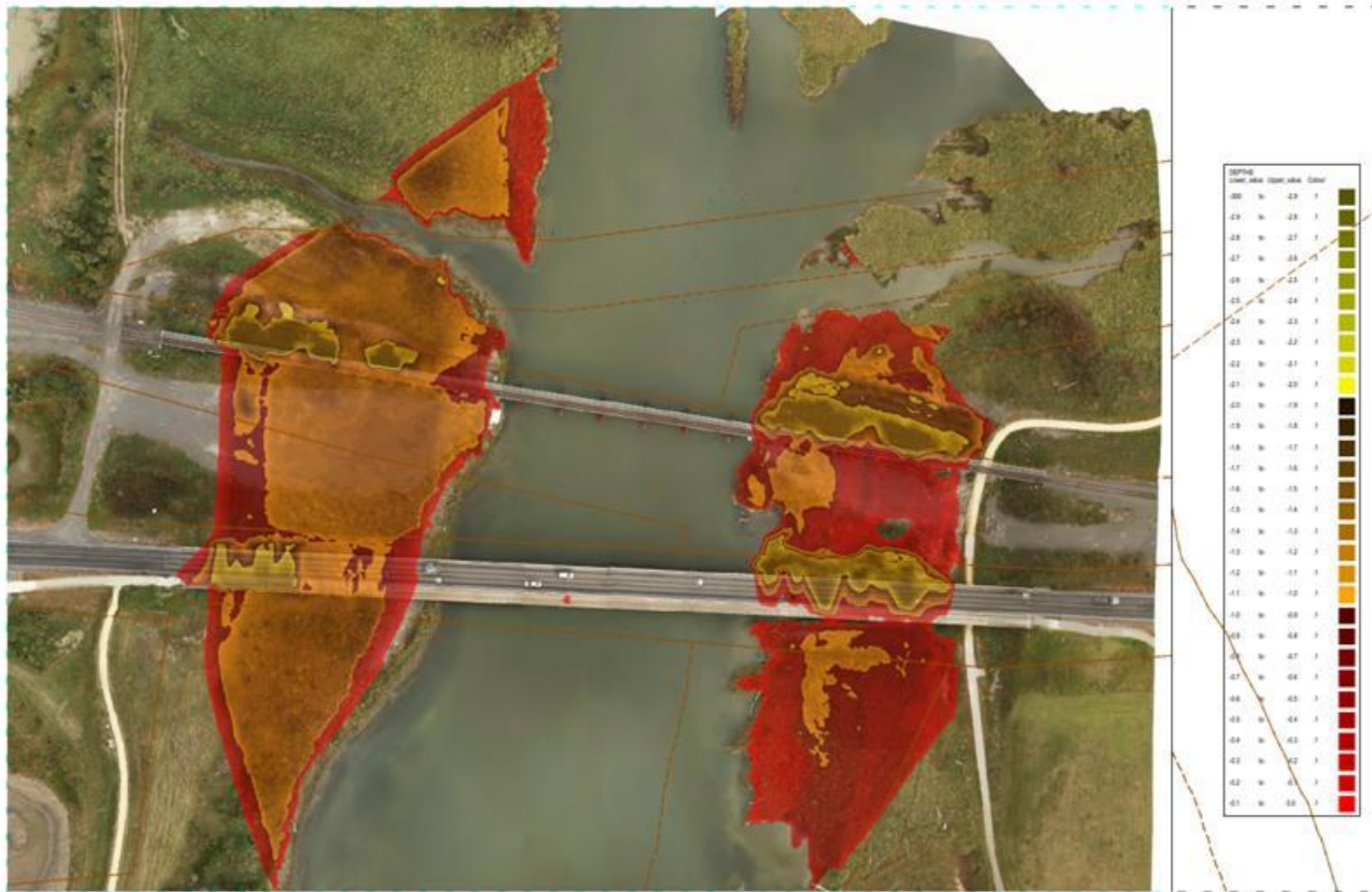
The LMP has been informed by the key principles for lizard salvage outlined in (Department of Conservation Technical Advisory Group, 2019) guidelines for producing management plans for New Zealand lizards (Department of Conservation Technical Advisory Group, 2018), lizard guidance documents for developers, consultants and Department of Conservation staff (Department of Conservation Technical Advisory Group, 2023a, 2023b). The methodologies included in this LMP are suitable for the species affected and local site conditions.

Transport Rebuild East Coast



Figure 1. Site location at the mouth of the Tutaekuri River in Napier.

Transport Rebuild East Coast



PROJECT NUMBER: A0006
PROJECT NAME: A0006 00 GE MG EWRKS

A1 HORIZ SCALE: 1:500
A1 VERT SCALE: 1:500

Figure 2. Main lizard habitat impacted by proposed works

1.2 Wildlife Act 1953

All native lizards are protected under the Wildlife Act 1953 and a Wildlife Act Authority (WAA) under Section 53 of the Wildlife Act must be obtained from DOC.

This LMP is required as part of the WAA application and must be submitted and approved by DOC prior to undertaking any activities that may impact lizards or their habitat.

While the Wildlife Act typically requires road- and rail-related consents to be applied for under Section 71 of the Act, this LMP has been prepared in accordance with the requirements of the Severe Weather Emergency Recovery (Waka Kotahi New Zealand Transport Agency) Order 2023, which specifies Wildlife Act authorisations are to be applied for under Section 53 of the Act.

1.3 Key Staff

This LMP must be implemented by a suitably qualified Project Herpetologist, and other suitably qualified herpetologists/ecologists under their supervision. Staff who will likely undertake work, and their roles and relevant experience, are listed below.

Mark Yungnickel – WSP Principal Ecologist

Mark Yungnickel has a diverse background with 15 years of experience in environmental consulting and ecological research. Mark is a recognised herpetologist and has undertaken herpetofauna surveys, monitoring and relocations/salvage for a range of projects across the country using accepted industry standard methods and techniques. This has included assessment of effects, lizard management plans, lizard salvage/relocation plans, wildlife permits, monitoring programmes, review, desktop assessments, habitat assessments, and survey work including undertaking nocturnal spotlighting, using artificial cover objects, pitfall traps, funnel traps and manual searches.

Work has included Auckland and Auckland's offshore islands, various parts of the Waikato, Manawatu, Bay of Plenty, Wanganui, Hawke's Bay, Wellington, West Coast, and Canterbury regions. Mark currently holds permits to keep native lizards in captivity, authorities to capture, handle, salvage, and release lizards/frogs, and has held/worked under numerous other wildlife permits over the years. Mark is a member of the New Zealand Herpetological Society, Society of Research on Amphibians and Reptiles in New Zealand (SRARNZ), Environment Institute of Australia and New Zealand, and is a certified environmental practitioner (Ecology Specialist).

Mark Yungnickel completed the initial site walkover, drafted this LMP, will undertake a lizard survey and oversee lizard management for this Project.

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Simon Chapman – WSP Ecology Technical Director

Simon has completed hundreds of lizard surveys and dozens of lizard translocations over the last 25 years. He has held or been named as lead herpetologist on several region-wide permits for the Auckland, Waikato and Canterbury Regions including authorities to capture, handle, translocate and hold lizards in captivity. He has also previously held a similar permit for the Far North for carrying out surveys and translocations contracting directly to DOC Northland Conservancy. Simon's name appears on many project-specific permits for lizard surveys and translocations in those and other regions in both the North and South Islands.

He has substantial experience in handling 'Threatened' and 'At Risk' skink, gecko and frog species, including previously undescribed lizard species, and has contributed numerous records to DOC's Amphibian and Reptile Distribution Scheme (ARDS). He has also held permits to carry out herpetological survey work in the Pacific, including Vanuatu and the Solomon Islands. Simon's lizard expertise is further confirmed by his contributions as an author on NZ lizard conservation techniques (Regional Threat Status Publications for herpetofauna; SRARNZ Lizard Conservation Toolkit) and as an expert witness on herpetofauna at Council

and Environment Court hearings. Simon is a member of the New Zealand Herpetological Society, and Society of Research on Amphibians and Reptiles in New Zealand (SRARNZ).

Simon Chapman will undertake lizard survey and/or oversee lizard management for this project if Mark Yungnickel is not available.

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Alex Reid – WSP Senior Ecologist

Alex has expertise in both freshwater and terrestrial ecosystems. He has experience investigating land use effects on a wide variety on environments and species and has undertaken ecological impact assessments for large land transport projects, industrial developments, windfarms and land zoning plan changes. Alex has expertise in assessing effects on indigenous lizards, including desktop and on-site assessments of habitat suitability and advising on species management. He has been involved in the planning and implementation of lizard surveys and salvages using a range of techniques, including artificial cover objects, pitfall and gee minnow traps, foam covers, nocturnal spotlighting and manual searches.

Alex has assisted senior and principal herpetologists, working mostly with Trent Bell or Mark Yungnickel, in surveying ‘Threatened-Nationally Critical’ kupe skink; ‘At Risk’ copper skink, northern spotted skink, goldstripe gecko, barking gecko, ngahere gecko, forest gecko, and elegant gecko; and ‘Not Threatened’ northern grass skink, Raukawa gecko, and Pacific gecko. He has also provided advice and guidance for managing the spread of plague skink at project sites. His herpetological work has been undertaken in various parts of Wellington, Manawatū-Whanganui, New Plymouth, Waikato and Bay of Plenty regions. Alex is a member of the New Zealand Herpetological Society and Environmental Institute of Australia and New Zealand and is a certified environmental practitioner.

Alex Reid will undertake lizard survey and/or oversee lizard management for this project if Mark Yungnickel is not available.

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1.4 Summary of Key Roles and Responsibilities

A summary of the key roles and responsibilities for implementation of this LMP are identified in Table 1-1. The Project Herpetologist will be responsible for implementing the LMP and reporting to DOC and council.

Table 1-1. Roles and responsibilities for implementation of this LMP.

Title	Responsibility
Project Owner: KiwiRail	Delivery and realisation of the Project, including overall compliance with planning approvals, the LMP, and any subsequent WAA conditions to be issued for the Project.
Environmental Manager	Delivery and compliance with LMP and subsequent WAA issued for the Project. Liaise with parties listed in the plan • Implementation of actions required by the LMP and WAA including the following: <ul style="list-style-type: none"> - Reading and understanding the LMP and WAA requirements. - Facilitating a Project start-up meeting with Project Herpetologist, Assisting Ecologists, and Contractors before construction commences. - Maintaining clear lines of communication with both the Project Herpetologist, and Contractors regarding changes to the works schedule. - Implementing actions where responsibility has been identified.

- Briefing new personnel about the contractor's responsibilities under this LMP.
- Confirm implementation of LMP and WAA requirements.
- Confirm compliance with LMP and WAA.

Title	Responsibility
Project Herpetologist, and Supporting Herpetologists / Ecologist/s	<p>The Project Herpetologists have been engaged by the Project Owner to provide technical advice to the Project Environmental Manager(s) and Contractors, implement this LMP and to assist with compliance checks against this LMP and WAA. The Project Herpetologist and other suitably qualified herpetologists/ecologists under their supervision will:</p> <ul style="list-style-type: none"> • Prepare and update the LMP as required. • Ensure any required WAA permits are attained and on hand during site works. • Where necessary, assist with Contractor training. • Undertake salvage site and release site set up and oversee habitat enhancement in accordance with the LMP. • Implement the salvage programme, capturing, handling, identifying and transferring lizards. • Design and undertake post-release monitoring. • Complete the required compliance and reporting.
Site Contractors Various Companies	<p>The Contractor(s) will be engaged by the Project Owner to implement the Project. The Contractor(s) will report to the Project Owners; but work daily with the Contractor/ Environmental Manager. The Contractor(s) will:</p> <ul style="list-style-type: none"> • Follow the requirements in the LMP. • Communicate with the Project Herpetologist and Environmental Manager on when and where vegetation clearance and earthworks will be undertaken. This includes discussing current and upcoming lizard management in daily environmental toolbox meetings. • Undertake vegetation and earthworks at the site under supervision.

1.5 Stakeholder Engagement

1.5.1 Iwi Engagement

KiwiRail has been involved in ongoing consultation with mana whenua for some time. The following iwi, hapū, and Treaty Settlement entities were identified as holding mana whenua over the Tūtaekurī River and Waitangi Wetland and were engaged as part of this rebuild project:

- Tamatea Pōkai Whenua;
- Te Taiwhenua O Heretaunga
- Ngati Pārau Hapu Trust
- Nga Hapu o Tutaekuri
- Ngati Kahungunu Iwi Incorporated
- Mana Ahuriri hapu
- Ngāti Pāhauwera
- Maungaharuru Tangitū Trust
- Te Taiwhenua O Te Whanganui-a-Orotū

A summary of mana whenua engagement including onsite meetings, online meetings, and presentations is included as an attachment of the Wildlife Act Authority application.

1.5.2 Department of Conservation Engagement

Grant Bennet (DOC Napier, Operations Manager) and Kahori Nakagawa (DOC Napier, Lead Ranger) were invited to several 'Southern TREC Liaison Group' online Teams meetings in August 2024, September 2024, and March 2025, and attended the March 2025 meeting which included high level discussion about various TREC process on TREC projects. TREC has also been liaising directly with Kev Carter (DOC Napier, Regional Planner) in July 2025 to further discuss the Awatoto Bridge works.

A pre-application meeting is proposed to take place with a DOC permissions advisor and technical advisor to introduce the project, explain the proposed approach, outline the severe weather recovery works Order in Council process and obtain feedback.

2. Lizard Species, Values and Project Effects

2.1 Desktop Assessment

A gap analysis review of relevant desktop literature (Purdie, 2022; New Zealand Herpetological Society distribution maps, 2025) revealed the site falls within the geographic range of three gecko and five indigenous skink species (Table 2-1). The DOC herpetological database confirms the closest records of native lizards are ‘Not Threatened’ northern grass skink (*Oligosoma polychroma*) and ‘At Risk, Declining’ northern spotted skink (*Oligosoma kokowai*) approximately 2.7 km north of the site from along the Napier foreshore. The ‘Introduced and Naturalised’ rainbow/plague skink (*Lampropholis delicata*; listed as an ‘Unwanted Organism’ by the MPI) has also been recorded from the Napier township approximately 7 km from the site.

Table 2-1. Lizard species identified in the desktop assessment, their threat classification, and likelihood of presence within the project site ZOI.

Species	Common name	Maori Name	Ecological Value ¹	Threat Status	Overall likelihood onsite
<i>Oligosoma auroraense</i>	Hawke’s Bay skink	-	Very High	Threatened - Nationally Endangered	Unlikely
<i>Oligosoma microlepis</i>	small-scaled skink	-	Very High	Threatened - Nationally Vulnerable	Unlikely
<i>Mokopirirakau</i> “southern North Island”	ngahere gecko	-	High	At Risk - Declining	Unlikely
<i>Naultinus punctatus</i> *	barking gecko	kākāriki	High	At Risk - Declining	Unlikely
<i>Oligosoma kokowai</i>	northern spotted skink	-	High	At Risk - Relict	Possible
<i>Oligosoma zelandicum</i>	glossy brown skink	-	High	At Risk - Declining	Unlikely
<i>Oligosoma polychroma</i>	northern grass skink	mokomoko	Low	Not Threatened	Likely
<i>Woodworthia maculata</i>	raukawa gecko	moko pāpā	Low	Not Threatened	Possible
<i>Lampropholis delicata</i>	Rainbow / plague skink	-	Unwanted pest species	Introduced and Naturalised	Possible

2.2 Field and Habitat Assessment Summary

A habitat assessment and lizard survey were carried out in March 2025. The survey covered the vicinity of the Awatoto Bridge and the northern and southern banks of the Tutaekuri River (Figure 3). The habitats on the northern and southern banks were similar, largely dominated by dense rank grass with scattered cover objects such as wood, and disturbed areas of largely cobbles, and weeds which could provide habitat for some native skinks and geckos. Hand searches and visual encounter surveys focused on higher quality habitat where skinks were more likely to be detected, and where suitable habitat was likely to be directly impacted by the project. No lizards or evidence of lizards were observed. However, the

¹ Values are based on the conservation status of each species,

weather conditions were marginal, and the ground habitat was relatively damp at the time of survey (TREC, 2025).

A lizard was observed on 7 August 2025 under debris by the road bridge (true right bank) through incidental discovery by contractors at the site. It was not captured but contractors reported that it appeared to be a native northern spotted skink. However, this may have been confused with another species such as northern grass skink.



Figure 3. Site location of the Tutaekuri River mouth and different habitat quality present within close proximity of the extent of works. Green = unsuitable to low quality; Yellow = low to moderate quality; Orange = moderate to high quality

2.3 Summary of Project Effects on Lizards

2.3.1 Potential Effects

The potential temporary and permanent adverse effects from construction activities include:

- Modification and loss habitat
- Fragmentation of habitat
- Injury, mortality or disturbance of lizards during earthworks and vegetation removal
- Disturbance from noise, vibration, lighting and dust.

Native lizards have been confirmed onsite. As all indigenous lizards are protected pursuant to the Wildlife Act 1953, appropriate mitigation will need to be implemented including salvaging and relocating lizards in accordance with this LMP. The pre-mitigated magnitude of effect has been assessed as **Low** for all effects, which combined with a **High** value results in a **Low** overall ecological effect on any lizard population (Roper Linsay et al. 2018).

2.3.2 Measures for Addressing Potential Adverse Effects

The following measures will be implemented to avoid, minimise and remedy effects on the ecology prior to, during and post construction.

- Habitat creation and enhancement of other nearby habitats not impacted by the works
- Animal pest control
- Vegetation removal protocols: progressing mowing grass to encourage lizards to move away from impact areas to adjacent habitat
- Lizard salvage and relocation

Measures to address potential adverse effects on native lizards for the Project have been summarised in Table 2-2. The post-mitigated magnitude of effect has therefore been assessed as **Negligible** on lizards themselves, which combined with a **High** value, results in a **Very Low** residual level of effect on lizards.

Table 2-2. Summary of the proposed measure for addressing potential adverse effects on native lizards in accordance with the effects management hierarchy.

Step	Assessment
Avoid	<ul style="list-style-type: none"> • Avoiding impacts to lizard habitat when lizards are likely in brumation (cold weather days, and generally between 1 May – 31 August). • Avoiding salvage when weather conditions are not suitable to maximise the success of the salvage.
Minimise	<ul style="list-style-type: none"> • Minimise impacts by salvage and transfer of all native lizards • Minimise population impacts by relocating lizards into a protected area with predator control. • Minimise impacts through releasing lizards to an area with animal pest control (including mice) and undertaking additional animal pest control
Remedy	<ul style="list-style-type: none"> • Remediation of impacts by replanting of areas temporarily impacted by the Project. • Remediation of habitat impacts by creating habitat suitable for northern grass skink, northern spotted skink and Raukawa gecko including habitat enhancement utilising logs and branches from vegetation / flood debris as natural cover objects within the landscape and mitigation planting.
Offset	<ul style="list-style-type: none"> • Not applicable. The residual adverse effects are not “more than minor” after implementing avoidance, minimisation and remediation measures.
Compensate	<ul style="list-style-type: none"> • Not applicable.

3. Lizard Management Protocols

The protocols, management, and potential release sites have been developed and are considered suitable for the species and expected abundance on-site. Species included within this LMP are those with a confirmed presence or possible likelihood of being present within the proposed Project Site.

3.1 SPECIES AND ESTIMATES OF LIZARD CAPTURES

3.1.1 Northern grass skink

Northern grass skinks (*Oligosoma polychroma*) are diurnal and often sun-bask in exposed areas. They occupy a wide range of habitats including coastal vegetation, rock piles, grassland, flaxland, shrubland, screes, forest margins tussock and modified urban / suburban habitats which are present within the project area. They often take refuge in dense vegetation or under rocks and logs when not active (NZHS, 2025). Some of these habitat types are present within the project area but have been subject to modification and disturbance. This species is considered the most likely present within the project area and potentially recolonised this habitat after flooding from cyclone Gabrielle. Based on the current survey work, the habitat of varying quality being impacted, and isolated nature of much of this habitat, up to 20 grass skink could be encountered and relocated during salvage operations.

3.1.2 Northern Spotted skink

Northern spotted skink (*Oligosoma kokowai*) are avid-sun baskers. They prefer open/sunny areas such as boulder beaches, sand dunes, open coastal forest and scrub, as well as grassland, shrubland and scree slopes at inland sites. When not basking or foraging, northern spotted skinks will take refuge under coastal debris, rocks, logs, in dense vegetation such as thick grass or flax (*Phormium* spp.) (NZHS, 2025). Some of these habitat types are present within the project area but have been subject to modification and disturbance. This species is considered possibly present within the project area and is less likely to have recolonised the site after cyclone. Contractors reported that what they suggested was a northern spotted skink (*Oligosoma kokowai*) in August 2025, however, this was more likely a mis identification with a northern grass skink. Therefore, while no northern spotted skink are expected, the WAA has allowed for up to 5 skinks to be relocated during salvage operations.

3.1.3 Raukawa Geckos

Raukawa geckos (*Woodworthia maculata*) are primarily nocturnal in nature, but are known to cryptically bask at the edges of retreats. They can actually be found in a vast array of habitats, from sandy or rocky coastlines right through to inland beech and broadleaf forests. Some of these habitat types are present within the project area but have been subject to modification and disturbance. This species is considered possibly present within the project area and is less likely to have recolonised the site after cyclone Gabrielle. However, while no geckos are expected, the WAA has allowed for up to 5 geckos to be relocated during salvage operations.

3.2 Timing, Duration and Conditions

Enabling works may commence as early as October 2025 and could extend for approximately 20 months. Lizard management may occur in a single concerted effort with habitat clearance and lizard exclusion fencing used to allow unimpeded construction, or it may occur in stages as the Contractor progresses through the development.

Prior to habitat impacts, suitable lizard management will be completed first and will take place during suitable seasonal and daily weather conditions. This is to ensure lizards are sufficiently active to appropriately trap them. Outside of these suitable seasonality and weather conditions, lizards may be in brumation and be less active and less likely to encounter traps or less likely to evade habitat clearance activities, thus are at greater risk of injury or death.

As the Project site is in the North Island lizard activity is deemed appropriate between approximately 1st September to 30th April each year. To reduce the risk to lizards, lizard management, and habitat impacts, will only occur when daily temperatures are over 15°C without rain. Avoiding salvage during warmer temperatures 28°C and above is preferable where possible as some species of lizards are less likely to be detected.

3.3 Site Demarcation and Habitat Reassessment

Prior to the commencement of on-site works, the extent of work should be clearly demarcated. Where necessary, flagging tape or spray paint or other markers (e.g. wooden stakes), will be used to demarcate the Project footprint. The Project herpetologist, or other suitably qualified ecologist will review the indicative alignment, preferably with the Contractor, and confirm areas of suitable lizard habitat, and the management required. If practicable, areas of suitable lizard habitat that can be avoided, must be, similarly areas of lizard habitat in which Project related impacts can be minimised must be. Confirmation of areas requiring lizard management and the management type will be clearly demarcated in maps and provided to the Project Owner and Contractor to ensure all parties are aware of areas where lizard management is required prior to works.

3.4 Lizard Salvage

There are several lizard salvage methods that may be required prior to and during clearance of lizard habitat. These will include trapping, manual habitat searches (MHS), spotlighting, supervised habitat clearance and/or vegetation removal protocols. The Figure 2 map identifies where habitat and likely management will need to take place. As the microhabitats on-site are likely dynamic (rank grass, wooden debris, rocks) habitat and associated lizard management must be confirmed prior to the commencement of the lizard salvage. The exact salvage method and effort within a particular area will be specific to that site at that time, and at the discretion of the Project Herpetologist.

3.4.1 Trapping

As outlined in the map shown in Figure 2, or where confirmed by the Project Herpetologist ahead of Project commencement, gee minnow funnel traps and/or pitfall traps will be deployed within high-quality habitat for skinks and geckos.

- Traps will be installed approximately 5 m apart throughout high-quality habitat, or as directed by the Project herpetologist to target microhabitats.
- The use of gee minnow funnel traps or pitfall must follow best practice guidelines (Hare, 2012a) (Hare, 2012b). For example, pitfalls must have holes in the bottom to allow water to drain and shall be covered by an ACO.
- To minimise the risk of heat stress; within pitfall traps, 4 litre pitfall traps must be used (Turner et al. 2023), and gee traps must be filled with some grass or leaf litter to reduce stress, desiccation, and allow caught skinks to evade any predator that may enter the trap (such as mice). Gee minnow funnel traps will be situated to be suitably shaded, reducing the risk of heat stress and to reduce human tampering.
- All traps will be baited with tinned pear and/or cut banana.
- Traps will be checked for a minimum of 3 suitable trap days following installation.
- Trapping will only occur during suitable weather conditions, as outlined in Section 3.2. Trapping may occur during unfavourable weather, however trap catch data from these days do not qualify for determining additional trap effort.
- If after three suitable trap days no lizards are caught within a defined/isolated area of high-quality habitat, trapping can cease and works can proceed without supervised habitat clearance, or with supervised habitat clearance of key micro-habitats at the Project Herpetologist's discretion.

- If lizards continue to be captured, trapping will continue until no lizards have been captured over a single day within a defined/isolated area of high-quality habitat or an alternative method is proposed by the project herpetologist.
- Traps will be checked at least every 24 hours. If traps are checked more than once a day, a total daily trap catch will be used for percentage trap-catch calculations.
- Based on presence/number(s) of individuals caught, trapping may be rearranged after the first or second night to trap additional animals from any high abundance areas. If lizards continue to be captured, trapping will continue until no lizards have been captured over two consecutive days over all traps in a cluster / defined area or an alternative method is proposed by the Project herpetologist.

3.4.2 Spotlighting

Where required by the project herpetologist, nocturnal spotlighting of suitable ground cover for raukawa geckos will take place. Nocturnal spotlighting surveys will include close-range spotlighting of vegetation and habitat to look for both eye shine from the lizards and/ or lizard bodies. This will involve a slow walkthrough of suitable habitat using powerful headtorches and scanning shrub, foliage, trucks and other debris / cover objects.

Spotlighting will occur for a minimum of two nights over one week within all high-quality suitable habitat. If any gecko is observed during salvage and unable to be captured, the location will be recorded by GPS and flagging tape used. Additional spotlighting will be carried out and include additional intensive survey within a 20m radius of this area.

If no lizards have been captured over two nights, the project herpetologist may release these areas for supervised habitat clearance.

3.4.3 Manual Habitat Searches

Manual habitat searches (MHS) will be conducted through visual encounter and hand searching of low- and high-quality microhabitats will occur. MHS should be used wherever skink habitat is identified and in addition to ACO use or trapping. Hand searching will include pushing through rank grass, leaf litter, thick groundcover; lifting various natural cover objects (NCOs) (e.g.: rocks, logs etc) and preexisting ACOs (e.g.: wood, rubbish etc). Visual searching will include scanning vegetation, and potential basking sites.

The survey effort will be determined by the Project herpetologist. If lizards, or evidence of lizards (scat / sloughed skin etc), is observed during MHS, herpetologist/s will undertake additional effort in the immediate area which may include trapping and/or destructive habitat searching. If no lizards, or evidence of lizards is observed during MHS the Project herpetologist may release these areas for habitat clearance which may include supervised vegetation habitat clearance.

3.4.4 Destructive Habitat Searches

Hand removal of habitat is preferred where possible such as searching through and pulling apart dense groundcover, clumped vegetation, and natural and artificial debris. However, herpetologists may require the assistance of arborists or excavators to remove habitat or carefully prize apart habitat to allow for the searching for and active capture of lizards. Excavators used for habitat clearance should be equipped with a root rake or toothed bucket to minimise risk to lizards while vegetation can be scrapped back to ground level.

Destructive searches may commence at any time during lizard salvage under the direct supervision of the Project Herpetologist or suitably qualified ecologist, so long as works do not disturb areas being actively trapped which may reduce trap efficacy.

3.4.5 Vegetation Removal Protocols

Where required by the project herpetologist, grass habitat possibly supporting northern grass skink that have connectivity with suitable habitat adjacent to the impact area will be managed through implementation of vegetation removal protocols (VRP). This involves progressively cutting grass and

removal of habitat to encourage lizards to move outside of the impact area and disperse into adjacent habitat. This includes the following steps:

- The VRP will commence approximately 5 days prior to starting vegetation clearance.
- Any significant ground cover habitats such as woody debris will be removed by hand, and any leaf litter that may provide refuge for lizards will be raked to areas outside of the impact area.
- Immediately prior to the first cut the herpetologist will walk through the area to be cleared of vegetation as a means of disturbance.
- Grass and weeds will be cut / mown to a height of 150mm above ground surface. Cutting / mowing should commence from the centre of the land parcel or road edge and move progressively towards the exterior with the intention of displacing lizards to adjacent habitat.
- Grass cuttings will be raked outside of the impact area.
- The area will be left for 24-48hours. The herpetologist will walk through the site to determine if any lizards are present, and if found will be released to the proposed release site.
- Grass and weeds will be cut / mown to a height of 50mm above ground surface.
- Grass cuttings will be raked outside of the impact area.
- 24 hours later an excavator can scrape the top layer of soil to bare earth
- Once habitat is removed site establishment can occur.
- The impact area will remain bare, or unsuitable (i.e.: no higher than approximately 50 mm), for the remainder of construction works, which will minimise the likelihood of lizards moving back onto the construction site.
- If the construction site cannot remain bare or <50 mm, lizard exclusion fencing will be installed to isolate the construction zone and avoid the risk of impacting lizards that may recolonise the construction site, or the VRP will be implemented again.

3.4.6 Supervised Habitat Clearance

Habitat clearance may only commence following appropriate salvage efforts and with approval by the Project Herpetologist. Alternatively, discrete areas where the preliminary lizard survey failed to detect northern grass skink with ample survey effort, yet the site may have a negligible population of skinks, supervised vegetation clearance of the site will occur, where confirmed by the Project Herpetologist ahead of Project commencement. Supervising habitat clearance is a precautionary approach should a very low abundance of northern grass skink be present at the time of Construction.

Supervised habitat clearance may involve debris clearance, felling small scrubs and/or scraping back any vegetation or items that provides lizard habitat (e.g. scraping rank grass or debris with a digger, lifting of heavy boulders).

If no lizards are seen or caught during supervised habitat clearance of the best quality microhabitats, the herpetologist may release the area for unsupervised vegetation clearance.

Upon completion of habitat removal, site establishment or construction activities can occur. The impact area will remain bare, or unsuitable (i.e. grass no higher than approximately 50 mm), for the remainder of construction works, to avoid the likelihood of lizards moving back onto the construction site.

If the construction site cannot remain bare or <50 mm (i.e.: due to sediment risk to adjacent watercourses), lizard exclusion fencing will be installed (Section 3.4.7) to isolate the cleared area to avoid the risk of impacting lizards that may recolonise the construction site, or supervised clearance will be implemented again.

3.4.7 Lizard Exclusion Fencing

Locations on-site may require the installation of lizard exclusion fencing. Exclusion fencing may be required to isolate the work site from adjacent high quality lizard habitat to avoid lizards entering the works area or re-entering areas previously salvaged, should works be delayed. The exclusion fence should be

created with steel waratahs to support a silt fence and plastic liner (polythene sheet). The polythene sheet will be on the outside facing the adjacent habitat, buried and extend vertically to create a fence at least 400 millimetres (mm) high to prevent lizards bypassing under or climbing over (Figure 4). The fence will be inspected daily during active works by contractors to ensure the integrity of the fence is maintained and any damage will be repaired immediately.



Figure 4. Lizard exclusion fence, showing buried toe of polythene and polythene extending up the silt fence (File Photo).

3.5 Lizard Capture and Handling

For each lizard captured, data collection will comprise:

- Date and time
- Observer name/s
- Species
- Sex (where possible)
- Life stage (where possible)
- Length (snout-vent length and vent-tail length measurements)
- Tail regeneration length (if any)
- Photos (dorsal, lateral and ventral, and any injuries)
- GPS coordinates (of capture location and release locations)
- Habitat Description
- Weather conditions

The following steps will be undertaken to ensure appropriate handling of lizards:

- Lizards will be handled securely between thumb and fingers, either by shoulders, pelvis or feet (avoiding the tail) to capture data collection.
- Captured Lizards will be processed and transferred to the Lizard Release Area (LRA).

- Lizards will be kept in either catch bags and/or storage containers with appropriate ventilation.
- Lizards held temporarily in storage prior to processing, will be kept cool, away from direct sunlight or heat.
- Lizards will be transferred to the LRA daily, or every few hours due to daily temperatures and perceived risk of heat stress, to be determined by the Project Herpetologist.

3.6 Biosecurity

Although the ‘Introduced and Naturalised’ plague skink (*Lampropholis delicata*) is not listed within the Hawke’s Bay Regional Pest Management Plan, it is classified as an “Unwanted Organism”, pursuant to the Official New Zealand Pest Register (Ministry for Primary Industries, n.d.). They were not identified within the Project area but are known to be established in the Hawke’s Bay Region (Prudie, 2022; van Winkel et al. 2018) (Figure 5).

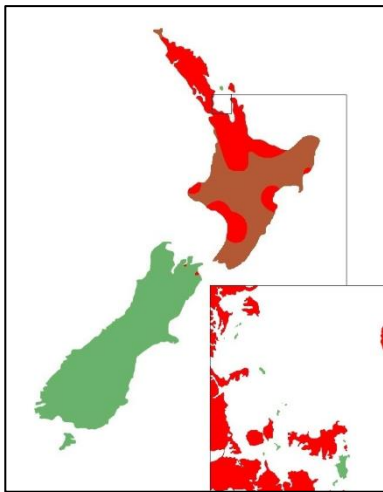


Figure 5. Plague skink distribution².

Machinery and equipment used on-site could transport skinks or their eggs to the Project area. Similarly, although plague skinks were not confirmed on-site, they may be present in areas. The salvage of skinks or material on-site and transferred to the LRA has the potential to introduce plague skinks to the release areas.

For the purposes of this LMP, machinery, equipment sourced directly from areas of bright red (Figure 4), will be thoroughly checked and/or cleaned of gross contamination (mud/dirt) prior to being transported to site.

Similarly, vegetation/potted plants, used in landscape plantings on-site, will be free from plague skinks and their eggs. Potted plants should be sourced from nurseries outside the known range of plague skinks (bright red areas demarcated in Figure 4), or from a plague-skink free nursery. Should nursery stock be sourced from within the plague skink range, appropriate measures will be implemented.

The following protocols will be implemented during the Project:

- Machinery and equipment used during the Project will be cleaned of gross contamination prior to working on-site, if it has come directly from a location where plague skinks are present.
- If vegetation/potted plants are sourced from a nursery within the known plague skink geographic range, a thorough survey of the nursery will be completed by a suitably qualified herpetologist. If plague skinks or their eggs are found in or around the nursery, plants will be rinsed and loose soil removed at the nursery and inspected prior to transport to the site to reduce the risk of introducing plague skinks of their eggs to the site.

² <https://www.reptiles.org.nz/herpetofauna/non-native/lampropholis-delicata>

- If plague skinks or eggs are captured/observed on-site they will be euthanised and buried on-site.
- Any observations of plague skinks or eggs will be reported to the Project herpetologist immediately.
- Any clean vegetation branches or stems proposed to be repurposed in the LRA for habitat creation will not be stored in a location where plague skinks can gain access.
- Rocks and/or old logs salvaged during habitat clearance on-site can be stockpiled and repurposed for site remediation. To avoid the risk of transferring plague skinks, these microhabitats will not be transferred to the LRA.

3.7 Salvage Risks and Risk Management

Potential risks to lizards as a result of the proposed salvage, and management actions including contingencies to reduce these risks are included in **Error! Reference source not found.** below.

Table 3-1. Potential risks to lizards and management actions.

Risk	Description	Management Action
Injury / death	Injury or death to lizards due to handling or trapping by untrained or experienced staff.	<p>The implementation and handling of this LMP will be led by suitably qualified and experienced herpetologist and other herpetologists/ecologists under their supervision.</p> <p>Trapping and handling will follow best practice guidelines including minimal handling, and avoidance of holding any lizard by its tail or in such a way that encourages autotomy (Hare, 2012b) (Letting, 2012).</p> <p>Experienced staff in the field will ensure any lizards present are observed, captured and released safely.</p>
Overheating	Overheating of lizards has the potential to occur during trapping or when captured lizards are temporarily held in containers prior to and during transport for release in the LRA.	<p>All traps (gee minnows or pitfalls) used as part of lizard salvage will be checked at least every 24 hours.</p> <p>A suitably sized piece of canned pear will be used as bait and provide moisture for trapped lizards.</p> <p>Material (grass/leaf litter) will be used inside traps to provide shade and shelter.</p> <p>Traps will be appropriately covered from the sun following best practice (K. Hare, 2012a).</p> <p>A wet sponge may be placed in the trap if the daily temperatures are expected to be exceptionally hot.</p>
Disease Transmission	Diseases and infections are in both captive and wild reptile and amphibians in New Zealand and can include Salmonellosis, fungal diseases, metabolic bone disease, and conditions such as parasites. There is potential for increased risk of disease during salvage operations or if temporarily held in captivity.	To prevent the risk of disease, the herpetologists/ecologists will thoroughly clean hands and equipment before undertaking any lizard salvage work. Lizards are not proposed to be held in captivity and will be released directly to the release site on the same day as capture.
Competition and overcrowding	There are likely relatively low abundance of northern grass skink and no other native lizard species. However, the Project has potential to result in competition and overcrowding in the LRA, if the LRA has a relatively high existing population.	<p>The spaced release of lizards, and large and contiguous habitat will reduce any actual or potential intraspecific competition and allow for population growth.</p> <p>Habitat creation and enhancement (e.g. rock/wood piles), if required following the LRA baseline survey, will provide additional habitat and food resources for terrestrial lizards salvaged as part of the Project.</p>
Biosecurity	<p>Risk of transferring pathogens and parasites through salvaged lizards.</p> <p>Risk of unwanted plague skinks establishing on-site</p>	<p>The short distance of the Project areas and the release site, reduces the risk of introducing pathogens and parasites, not already present at the LRA.</p> <p>Machinery and equipment used for the Project will be cleaned prior to coming on-site if coming directly from a known location to have plague skink (Error! Reference source not found.).</p> <p>Avoiding the transport of old logs or rocks from the site to the LRA will avoid the risk of transporting plague skink eggs to the LRA.</p> <p>Vegetation used for site remediation planting should come from plague skink-free nurseries, or biosecurity measures must be implemented.</p>

3.8 Accidental Discovery Protocol

An accidental discovery protocol has been provided should any lizards be discovered within a works area by contractors during any unsupervised habitat clearance, after clearance has been completed or at any other time during the Project.

3.8.1 Prior to Works

- The Project Herpetologist will provide the Contractor with appropriate (theoretical) training for lizard handling, and care.
- The Project Herpetologist will make available appropriate temporary storage container(s) for any lizards seen and caught by the Contractor until the Project Herpetologist, or suitably qualified ecologist can collect the lizard.

3.8.2 During Works

Upon collection of a lizard during the salvage by the Project Herpetologist, the following should take place, if possible:

- The Project Herpetologist should provide the Contractor with appropriate (practical) training for lizard handling, and care as early in the salvage programme as possible.

Following the accidental discovery of a lizard by the Contractor the following should take place:

- If the lizard can be captured place the lizard in a container with air holes and leaf litter. Keep it in the provided lizard storage container in a cool, shady area away from the sun and construction works.
- Immediately contact the Project herpetologist/s who will then follow the protocol outlined in this management plan.
- If the lizard was only observed, a suitably qualified herpetologist will assess the site and surrounds where further habitat impacts are expected and implement manual habitat searches, supervised vegetation clearance or other salvage methods until satisfied the risk to indigenous lizards is minimised.
- If the lizard was captured, a herpetologist will identify it and if it is a native lizard, transport it to the LRA after completing MHS or supervised vegetation clearance of the remaining habitat. If it is a plague skink, biosecurity measures outlined in Section 3.6 will be followed.
- Works cannot continue until approval has been granted by the Project herpetologist.

3.8.3 Dealing with Injured Lizards

If any injured native lizard is observed on-site the Project herpetologist will be contacted immediately who will then contact the Department of Conservation Hotline 0800 DOC HOT (0800 362 468) for advice or follow the appropriate condition within the Wildlife Act Consent.

If deemed necessary, any injured lizard will be transported by a herpetologist in either a breathable cloth bag or container to a veterinarian for treatment.

Data collection for each lizard will include what is outlined in Section 3.5. In addition, the following will also be documented:

- The part of the lizard that is injured,
- An approximate time since the injury, and,
- The probable cause of the injury.
- The outcome of actions resulting from the injury regarding the individual and lizard management on-site.

3.8.4 Dealing with Dead Lizards

If any native lizard suffers mortality or is found to be deceased on-site, the Project herpetologist will follow the appropriate condition within the Wildlife Act Consent or the Department of Conservation Ranger Hotline 0800 DOC HOT (0800 362 468) will be contacted within 72 hours, and the specimen will be offered for scientific research. They will be chilled (if delivered within 72 hours to DOC), frozen or placed in >90% alcohol (if delivery will take longer than 72 hours) in a labelled container with details of where and when the lizard/s were located.

Data collection for each dead lizard will include what is outline in Section 4.3. In addition, the following will also be documented:

- An approximate time of death, and,
- The probable cause of the death.
- The outcome of actions resulting from the death regarding lizard management on-site.

4. Site Remediation

As outlined in Section 2.3.2, after sequentially exhausting avoidance and minimisation of effects on lizard habitat, where practicable, remediation of Project effects is required to manage residual effects. Due to the Project alignment, it is not possible to avoid or minimise all lizard habitat impacts, as such remediation will be implemented.

Approximately, 7600m² of high quality habitat, and 12,600m² of moderate quality habitat for native lizards have the potential to be impacted by the proposed construction works. These areas are proposed to be replaced with suitable habitat for native lizards. While these areas are to be confirmed, the creation of high-quality habitat that exceeds the area of all high- and low-quality habitat lost, as part of the construction remediation, is expected to achieve a positive residual effect on lizard habitat impacts.

The Project Herpetologist will have input into concept and detailed designs for landscape and planting plans for the site remediation, to ensure plant species, densities and natural cover objects or microhabitats, such as woody debris/log discs are suitable and adequate to appropriately create skink and gecko habitat.

A summary of the input into, and outcomes of, the lizard habitat creation will be included in the lizard salvage completion report.

5. Lizard Release Area

5.1 Overview

Lizard Release Site 1 is located approximately 250m south of the project area within the Waitangi Regional Park. Lizard Release Site 2 is located approximately 40m east of the project area within habitat not impacted by the project (see Figure 6 & Figure 7). Depending on the number of lizards captured as part of the salvage / relocation will depend on whether one or both sites will be utilised.

These release sites have been identified as suitable LRA's for the following reasons:

- The LRAs are ready to receive animals at any time with minimal preparation work.
- There are sufficiently large areas of suitable habitat for lizards.
- Previous survey work suggests few lizards are present within these areas. Based on existing habitat and the proposed reestablishment of habitat within the project area, no carrying capacity constraints are expected.
- The presence of existing habitat ensures there is suitable food availability for relocated lizards.
- The lizards released into these sites will have protection as LRA 1 is designated as a Regional Park, and LRA 2 is adjacent to this area.
- Mammalian pests are proposed to be controlled at the site. Therefore, the lizards will persist largely in the absence of mammalian pests, improving upon their current location.
- The close proximity of the site will maintain local genetics.
- The close proximity of the site allows for direct transfer of lizards without temporary captivity.

5.2 Habitat Suitability

LRA 1 consists of mix of native shrubs and rank grass planted on the edge of a restored wetland. The specific release area is approximately 3200m² in size and consists of a large area of contiguous habitat. This area is considered most suitable for northern grass skink and Raukawa gecko.

LRA 2 consists of mix of native shrubs and dense rank grass with numerous scattered pieces of large driftwood and other debris. The specific release area is approximately 1200m² in size and consists of a larger area of contiguous habitat (Figure 5). This area is the preferred location to release northern spotted skink based on the connection with the rocky beach habitat which is typical habitat where this species has been observed along the Napier coastline. This site is also suitable for northern grass skink and Raukawa gecko. The proposed animal pest control will further improve the habitat suitability for native lizards within these areas.



Figure 6. Representative Habitat within the proposed lizard release areas (LRA). Left: LRA 1; Right: LRA 2.



Figure 7. Proposed lizard release areas. Red = habitat impacted by project; Yellow = release sites; Yellow lines = predator control areas

5.2.1 Enhancement of Release Site

Based on the existing survey work, few if any native lizards are expected to be present within the current release areas. The habitat within these areas is somewhat modified and can be enhanced to improve the habitat quality and condition. Enhancement will focus on providing additional ground cover and specifically natural cover objects (wood piles and large rocks) within the release areas. There is also the opportunity to plant a few additional native shrubs within these areas to provide additional shade and cover.

Large wood piles and/or rocks should be present at least every 10m within this habitat where terrestrial lizards are proposed to be released. This should include repurposed native wood/vegetation (including cut wood discs and/or piles of logs/branches/debris from previous flooding) from the project footprint. A unit of habitat installed should include an ca. 50x50x10cm pile/stack of wood material or rocks. These natural cover objects should also be introduced to other mitigation planting areas within the project site once established.

5.2.2 Animal Pest Control

Salvage and transferred lizards may suffer a period of stress and may therefore be predisposed to predation following their release. As such, and to address the welfare of individual animals salvaged, and pursuant to Principle 6 (Department of Conservation Lizard Technical Advisory Group, 2019), a knock-down of predators at their release sites is therefore important. Predator control within proposed LRAs will be performed prior to and for a period of time after lizard releases to allow lizards to be released into areas with reduced predator pressure.

Based on the rural landscape it is likely that mice (*Mus musculus*), and rats (*Rattus* spp.) are present within the project area. Mustelids (*Mustela* spp.), hedgehogs (*Erinaceus europaeus*), and feral cats (*Felis catus*) could also be present.

Goodnature self-resetting traps are considered a reliable and effective tool for controlling rats, mice, and stoats. The following is proposed for this project:

- Depending on the number of lizards salvaged, one or both of the proposed LRA's may be utilised. E.g. if more than 20 lizards are salvaged the second LRA will be used.
- If LRA 1 is utilised seven A24 Good Nature resettable traps will be deployed within the LRA. If LRA 2 is utilised five A24 Good Nature resettable traps will be deployed.
- Traps will extend to include an approximately 20m+ buffer from the LRAs to account for the smaller home range of mice (see Figure 7).
- Trap placement will focus in and around refuge and be appropriately spaced throughout to obtain good coverage throughout the LRA.
- Traps will be deployed within the release area up to 2 months prior to any habitat disturbance (vegetation removal and earthworks).
- The predator control will commence for a minimum of 2 years following installation.
- All traps will have CO2 and lure replaced every 6 months.

5.3 Alternative Release Site 1: PekaPeka Regional Park

An alternative release site for northern grass skink and Raukawa has been identified at the Pekapeka Regional Park. This is located approximately 45km south-west of the project area within the riparian zone of the Pekapeka Wetland (Figure 8). This site has protection as it designated a regional park, it is understood to have some level of animal pest control, there is a variety of habitats including grass and shrubs which provide habitat for native skinks and geckos, and there would be minimal work and time required to enhance the site for native lizards. However, this is least preferred area based on the distance from the project area and has not been explored further at this point.

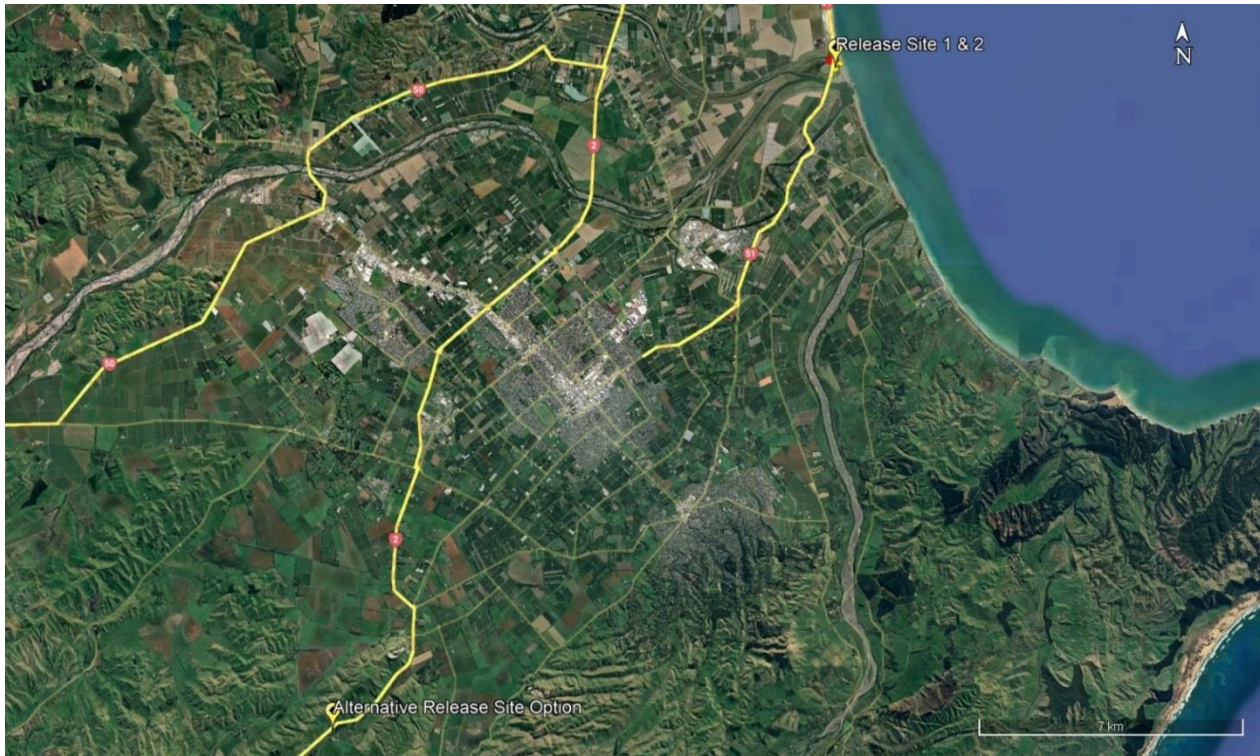


Figure 8. Map showing the location of the alternative lizard release area at the Pekapeka Regional Park.

6. Post-Salvage Monitoring

Pursuant to Principle 7 of the Key Principles for Lizards Salvage and Transfer in New Zealand (Department of Conservation Lizard Technical Advisory Group, 2019) post-salvage monitoring at the release site(s) is required to evaluate the success of the salvage operation.

In the event 20 or more lizards are salvaged to either release site as part of the project the following ACO or trapping presence / absence monitoring will take place:

- Monitoring will consist of a set of transects spaced 20 m apart, with ACOs (or traps) every 5 m along each transect.
- ACOs (or traps) will be weighed down with a suitable rock or tree branch.
- ACO (or trap) monitoring will continue annually for two years.
- ACOs (or traps) will be monitored during suitable seasonal and daily weather conditions
- ACO (or trap) checks each year will consist of three inspections across a one-to-two-week period with at least two days between inspections.
- Indicators of lizard activity, such as air temperature, cloud and wind conditions will be recorded before and after each transect/grid search.
- Captured skins will be measured and any additional unique identifying features will be documented (scaring, toe loss, tail loss, gravidity etc.). A ratio of released skins verses new recruits will be estimated.
- ACO (or trap) monitoring will be for presence/absence only with the aim to determine population persistence at the site.
- If the monitoring outcomes are not verified (e.g. lizards do not persist at the site and neonates/juveniles are not present), then this should trigger a contingency. Either animal pest control will take place for an additional 2 years or the cost of this pest control should include a contribution to conservation that will achieve benefits to lizards in the area through consultation with DOC and Kiwirail.
- Records of any lizards encountered will be submitted to DOC using Amphibian and Reptile Distribution Scheme (ARDS) cards.

7. Reporting

Pursuant to Principal 8 of the Key Principles for Lizards Salvage and Transfer in New Zealand (Department of Conservation Lizard Technical Advisory Group, 2019), a lizard salvage completion report will be submitted to DOC, iwi, and the respective Councils within 3 months following the completion of the salvage and transfer. Where lizard management associated with this Project is expected to span multiple years, a summary letter for works completed for each year is required in the interim.

The Salvage Completion Report will include:

- Timeline of all lizard management measures
- Staff involved
- Lizard management methodologies employed and locations
- Locations, species, morphometric data and photos of all captured lizards
- Locations for all released animals.
- Completed Amphibian and Reptile Distribution Scheme (ARDS) cards with details of all relocated lizards will be appended to the report
- Confirm that lizard salvage was undertaken in accordance with the LMP and wildlife authorisation.
- Adaptive management implemented and rationale
- Experiences, challenges, lessons and learnings.
- Requirements of post-salvage monitoring requirements if any, or compensation value to be paid.
- ARDS cards with details of all lizard observations will be sent to DOC (herpetofauna@doc.govt.nz) for inclusion in the herpetofauna bioweb database by June 30th each year.
- Any other reporting requirements outlined within this LMP or the WAA will also be adhered to.

8. Conclusions

The methodologies, scale, and intensity of mitigation efforts with adaptive management, and the timeframes proposed in this LMP are considered appropriate for managing the predicted impacts of the Project while complying with the Several Weather Emergency Works Order and Wildlife Act 1953.

The full implementation of this site-specific LMP aims to ensure any actual or potential adverse effects caused by this Project on native lizards and their habitat will be avoided, minimised and remedied (mitigated). Minimising risk to lizards through salvage and transfer to enhanced sites of better habitat quality and animal pest control is expected to result in a post-mitigated **Very Low to Positive** magnitude of effect and a qualitative **Net Gain** residual level of effect.

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Appendix A - Severe Weather Emergency Recovery (KiwiRail Holdings Limited) Order 2023

Clause 45: Authority to take or kill wildlife, or do anything in respect of any protected wildlife, in certain circumstances

(1) This clause applies if the Agency applies for authority under [section 53](#) of the Act, or consent under [section 71](#) of the Act (to the extent it relates to the Government Railways Act 1949), to take or kill any wildlife, or carry out any activity in respect of protected wildlife, in the course of carrying out recovery work in an area, and—

(a) the area is outside but within 50 m of a section of railway land affected by a severe weather event and specified in [Schedule 1](#); or

(b) the area is outside but within 500 m of a section of railway land that is specified in [Part 2](#) of Schedule 1; or

(c) the area is within a section of railway land affected by a severe weather event and specified in [Schedule 1](#) in circumstances where—

(i) significant wildlife in the section of railway land has been identified by the Agency or drawn to its attention before the ecological scoping survey required by [clause 5](#) of Schedule 4 is completed; or

(ii) the Department of Conservation has notified the Agency under [clause 44\(4\)](#) that it must apply for authority under [section 53](#) or consent under [section 71](#) of the Act for the activity.

(2) [Sections 53](#) and [71](#) of the Act are modified as set out in this clause.

(3) [Sections 10](#), [14B](#), and [53\(5\)](#) of the Act and the power to impose conditions under [section 71](#) of the Act do not apply to the authority or consent or the activity covered by the authority or consent.

(4) A prohibition or condition imposed by or under [section 9](#), [14](#), or [14A](#) of the Act does not apply to the authority or consent or the activity covered by the authority or consent.

(5) Every application for an authority or consent must include the following information, except where the Director-General or Minister of Conservation alters these requirements to make them less onerous, on a case-by-case basis:

(a) a description of the proposed activity, including—

(i) a general description of the recovery work that is the reason for the application; and

(ii) the type of authority or consent for which the applicant is applying; and

(iii) the places where the proposed activity will be carried out, including—

(A) proposed release sites; and

(B) the legal status of all relevant places; and

(C) restricted lands to which access is required; and

(D) maps; and

(iv) the proposed duration of the proposed activity, and the reason for the proposed duration; and

(v) wildlife species known or predicted to be in the area, including taonga species and protected wildlife; and

- (vi) specific actions in relation to wildlife for which authority or consent is sought; and
 - (vii) the names of supervising experts requiring approval under conditions in [Schedule 4](#); and
 - (viii) draft management plans and other matters required to implement conditions in [Schedule 4](#):
- (b) an assessment of the potential effects of the proposed activity on wildlife, including:
- (i) measures, including project design and sequencing, proposed to avoid, minimise, or mitigate adverse effects on wildlife; and
 - (ii) measures proposed to address relevant matters set out in subclause (8)(b):
- (c) details of any consultation in addition to that required by [Schedule 4](#):
- (d) relevant information relating to the applicant, including any information relevant to the applicant's ability to meet the requirements of relevant conditions in [Schedule 4](#):
- (e) in the case of an application for consent under [section 71](#), in addition to containing the information required by paragraphs (a) to (d), the application must set out a description of:
- (i) how the project is consistent with the purpose and objectives of the relevant empowering legislation under [Schedule 9](#) of the Wildlife Act 1953; and
 - (ii) whether and how the project is considered to be of national importance; and
 - (iii) how the project will affect any species listed in the New Zealand Threatened Species Classification and the threat status of those species; and
 - (iv) measures, including project design and sequencing, proposed to avoid or minimise adverse effects on protected wildlife.
- (6) The application must include a report on the consultation undertaken in relation to the proposed work, setting out the following information:
- (a) the names and contact details of Māori entities the Agency has engaged with:
 - (b) the names of entity representatives who attended meetings and the dates of those meetings:
 - (c) a summary of the discussions and, in particular, any concerns raised about potential adverse effects on taonga species known or predicted to be in the relevant area for which the authority or consent is sought:
 - (d) the Agency's responses to any concerns raised.
- (7) A policy, management strategy, or management plan that would otherwise apply to the relevant taking, killing, or other activity does not apply in relation to the authority or consent or the activity covered by the authority or consent.
- (8) The Director-General or Minister of Conservation may decline to grant the authority or consent if the Director-General or Minister considers that—
- (a) the information provided in the application in accordance with subclauses (5) and (6) is insufficient to enable the adverse effects of the proposed recovery work on significant wildlife in the area to be adequately assessed; or
 - (b) the conditions set out in [Schedule 4](#) would not be sufficient to avoid—
- (i) more than minimal adverse effects on any of the following that are known or predicted to be in the relevant section of railway land:
- (A) a naturally uncommon ecosystem:

(B) an at-risk or threatened species, other than a species categorised by the New Zealand Threat Classification System administered by the Department of Conservation as at-risk and recovering, relict, or naturally uncommon:

(C) a taonga species:

(ii) significant adverse effects on protected wildlife.

(9) The only conditions that the Director-General or Minister of Conservation may impose on the authority or consent are the conditions set out in [Schedule 4](#).

(10) If, 20 working days after the date on which the application was received by the Department of Conservation, the Director-General or Minister of Conservation has not issued or declined to issue the authority or consent, the Agency is deemed to have been granted the authority or consent with all the conditions set out in [Schedule 4](#).