Lizard Management Plan for the Pound Road Industrial Development

Contract Report No. 7316b

Providing outstanding ecological services to sustain and improve our environments

Wildlands

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Contract Report No. 7316b

October 2025

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1.0 Introduction

NTP Development Holdings Limited (NTP) are seeking to develop land on Pound Road, Templeton, Christchurch for industrial activities. The land is located on the corner of Pound Road and Waterloo Road, south of Templeton Golf Course and is west of the Waterloo Business Park. It comprises of *c.*64.4 hectares over six properties on the corner of Pound Road and Waterloo Road: 173 Pound Road, 86 Barters Road, 64 Barters Road, 38 Barters Road, 570 Waterloo Road. The proposal is to subdivide the application site to create 74 industrial lots, 3 lots to vest as Reserve, and associated road network and infrastructure. It is intended that the sites will be used for general industrial activities.

Wildland Consultants Ltd (Wildlands) has undertaken previous works at this site, which assessed the ecological effects of rezoning of the site from Rural Urban Fringe zone to Industrial General zone under a private plan change (Wildlands, 2024). The Pound Rd Industrial Development application is now being made under the Fast Track Approvals Act. It is considered that the development will have significant regional benefits. Wildlands prepared an Assessment of Ecological Effects for the application (Wildlands, 2025), which recommended a Lizard Management Plan (LMP; this document) should be prepared, due to the presence of southern grass skink (*Oligosoma* aff. *polychroma* Clade 5, At Risk – Declining).

This LMP follows the principles outlined by the Department of Conservation (DOC) in their guidelines (Department of Conservation, 2019) (Table 1). These principles describe steps to take and enable the outcome of successful lizard management (including salvage, if determined to be the right mitigation option). These include undertaking a thorough assessment of the lizard values and site significance, both at the site of impact and potential release sites, and an assessment of the actual and potential effects of the earthworks impact on the lizards present.

1.1 Project site and context

The Pound Road industrial development site is approximately 59 hectares, comprising of residential properties and gardens, grazed and crop paddocks, exotic tree and gorse hedgerows, rank grass and derelict buildings. The works are expected to start in summer 2026, and will be completed in four stages over an estimated three-five year period. The first two stages are proposed to be undertaken between February and April 2026, with other stages to follow in October 2026.

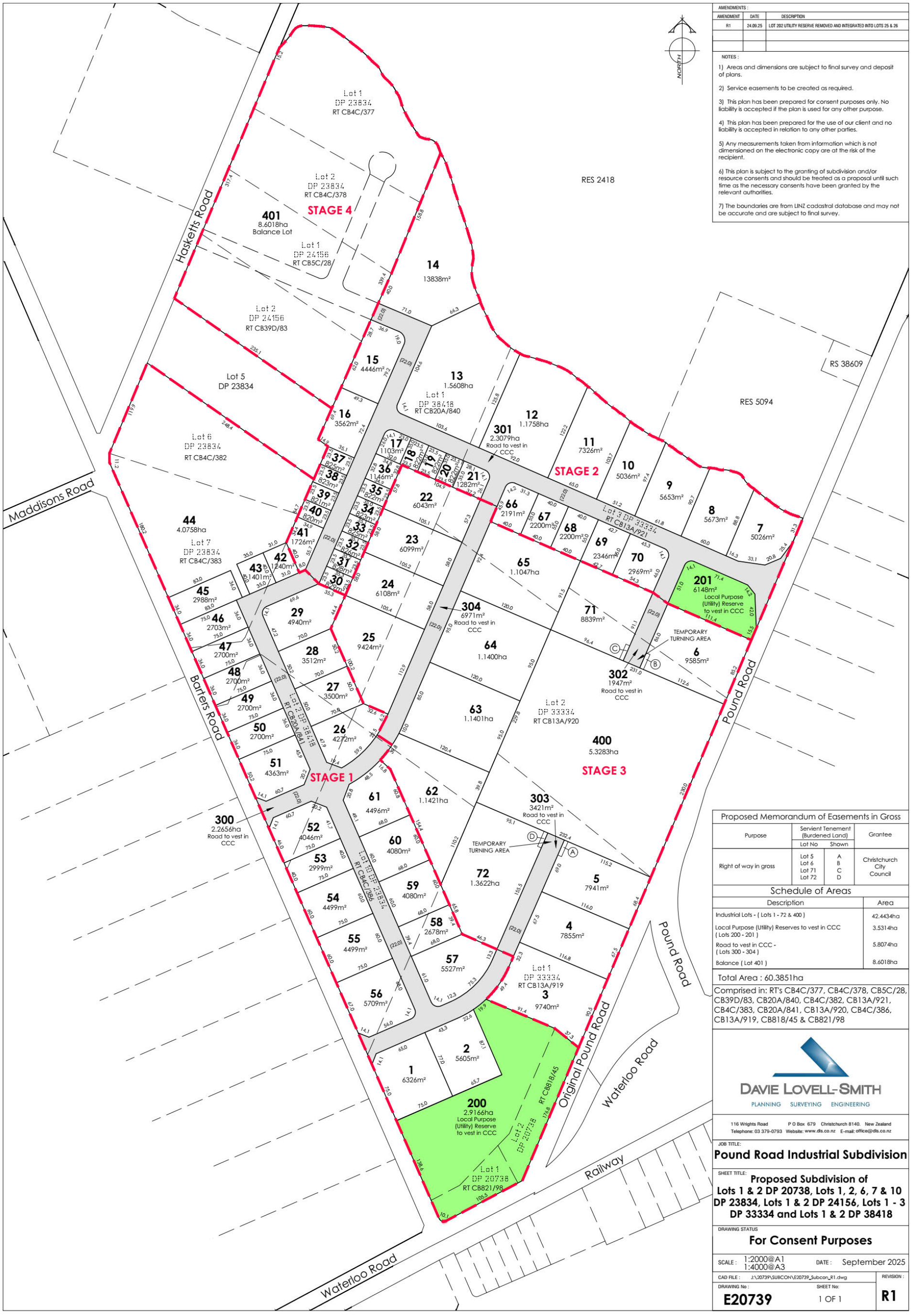


Figure 1 – Proposed industrial development plan for Pound Road, Templeton, Christchurch. Figure provided by Davie Lovell-Smith, 2025.

Table 1 – Key principles for lizard salvage and transfer in New Zealand and corresponding section in this LMP that details the application of each principle.

Key Principle	Summary	Section in this Document that Addresses the Principle
Lizard species' values and site significance must be assessed at both the impact (development) and receiving sites	One At Risk – Declining species present at the impact site. Likely only one At Risk – Declining species present at the receiving site.	Section 4.0 and 6.3
Actual and potential development-related effects and their significance must be assessed	Effects include but are not limited to: accidental injury/death/displacement, disturbance to lizards during earthworks, loss of indigenous habitat and breeding failure/behavioural effects.	Section 5.2
Alternatives to moving lizards must be considered	Avoidance of lizards and their habitats is not possible. The entirety of the site and identified lizard habitat within the site will be earth worked.	Section 6.1
Threatened species require more careful consideration than less-threatened species	No Threatened species have been detected on site. While unlikely they will be encountered, the Incidental Discovery Protocol will address any unexpected discoveries, including Threatened species.	Section 4.0 and Appendix 6.
Lizard salvage, transfer and release must use the best available methodology	Use standard accepted procedures (DOC Toolbox for Herpetofauna; Hare, 2012a & Hare, 2012b).	Section 6.3
Receiving sites and their carrying capacity must be suitable in the long term	The receiving site is likely to be suitable for the species to be released. It will be enhanced through pest plant management, enhancement planting, the creation of additional habitat units and pest mammal monitoring.	Section 7.3.1, 7.4.1
Monitoring is required to evaluate the success of the salvage operation	Post release monitoring is required for this salvage due to the substantial number of lizards predicted to be salvaged. Monitoring will be conducted to determine the success of the salvage and enhancement of the receiving site.	Section 10.0
Reporting is required to communicate outcomes of salvage operations and facilitate process improvements	Standard reporting is required to Christchurch City Council, Environment Canterbury, DOC and relevant mana whenua on the completion of works.	Section 11.0
Contingency actions are required when lizard salvage and transfer activities fail	Contingencies are accounted for throughout the lizard salvage process including additional pest control and completion. The Incidental Discovery Protocol will also be followed throughout works.	Section 9.0 and Appendix 6

2.0 Relevant Legislation

Due to the presence and abundance of indigenous lizards, the proposed industrial development requires a Wildlife Act Approval (WAA) under Schedule 7 of the Fast-track Approvals Act (FTAA; 2024) which includes approvals relating to the Wildlife Act (1953).

All indigenous lizards are protected under the Wildlife Act (1953) and approval under the Schedule 7 of the Fast-track Approval Act must be obtained in order to permit the activity occurring. This includes before any indigenous lizard can be disturbed or relocated on site (Schedule 7(2, 2, i)).

In order to ensure that protective benefit is achieved for lizard populations within the site, appropriate mitigation measures have been provided in the LMP. Lizard mitigation work will be undertaken by a DOC-approved herpetologist who has been authorised to implement lizard management for the project through a DOC WAA issued for the project (see Section 3.2.2).

A LMP is a required to accompany the WAA application and must be submitted to the DOC (via the EPA) and approved prior to undertaking any activities that potentially impact on lizard populations, and any lizard management proposed to mitigate these effects.

3.0 Lizard Management Approach

3.1 General

Any lizard management must be carried out in consultation with DOC, appropriate iwi representatives, Christchurch City Council (CCC), and Environment Canterbury (ECan) respectively. We consider salvage and release a viable option for this site given the surrounding landscape, likelihood of lizards persisting/thriving and long-term management (see Section 6.2 for more detail).

3.2 Roles and responsibilities

Table 2 identifies the roles and responsibilities for the implementation of actions identified in this LMP. Responsibilities for specific actions are also identified in the sections below.

3.2.1 Wildlife approval holder

NTP is the applicant of the industrial development under the FTAA and will therefore act as approval holder and will be responsible for compliance with the WAA and implementation of the LMP. The applicant has never been convicted of any offence under the Wildlife Act, nor has any current criminal changes under the Wildlife Act pending before a court.

3.2.2 Authorised personnel

The authorised personnel for the project will be those suitably qualified as being trained and approved by the DOC lizard Technical Advisory Group and will be implementing lizard management at the site (see Appendix 1 for further detail on their relevant qualifications):

- Samantha King – Wildland Consultants Ltd, Senior Ecologist and Herpetologist (Project Herpetologist).
- Cameron Thorp – Wildland Consultants Ltd, Herpetologist.
- Jade Christiansen – Wildland Consultants Ltd, Herpetologist.
- Anna Meban – Wildland Consultants Ltd, Ecologist.

Delivery of, and compliance with this LMP will be the responsibility of approval holder (NTP) who will liaise with the Site Manager, Site Engineer(s), Project Herpetologist and vegetation clearance and earthworks contractors as required.

Pre-start meeting

Prior to any construction or earthworks on site, a pre-start meeting must be undertaken with the following personnel present on site:

- Site supervisor/Contractor representative.
- Project Herpetologist.
- Client representative.

At this meeting the logistics and timings of mitigation techniques will be discussed, so that all parties understand their roles and responsibilities. In addition, a walk over of the site will be conducted with the above parties, to delineate the areas of works and ensure that all parties understand where works are permitted to occur.

Table 2 – Identified project roles and responsibilities for LMP implementation.

Title	Responsibility	Timeline
Project Owner • NTP Development Holdings Ltd	• Delivery of the Project, including overall compliance with resource consents, LMP and subsequent WAA conditions to be issued for the project.	February 2025 – project completion
Project Engineer(s) • Davie Lovell-Smith	• Project engineering, project management, and delivery. • Liaison between contractors and ecologists. • Implementing actions where responsibility has been identified. • Confirm implementation of LMP and WAA requirements. • Confirm compliance with LMP and WAA.	February 2025 – project completion
Contractor/ Construction Site Manager (TBD)	• Compliance with LMP and subsequent WAA issued for the project. • Implementation of actions required by the LMP and WAA including the following: - Reading and understanding the LMP and WAA requirements. - Facilitating a project start-up meeting with the Project Engineers, Project Herpetologist and Contractors before vegetation clearance for construction commences. - Maintaining clear lines of communication with both the Project Engineer, 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.	February 2025 – project completion
Project Herpetologist • Authorised Personnel on the WAA • Wildland Consultants Ltd	The Project Herpetologist has been engaged by the Project Owner to provide technical advice to the Project Engineer(s), and to assist Project Engineer with compliance checks against this LMP and WAA. The Project Herpetologist will: • Prepare and update the LMP as required. • Ensure any required WAA permits are attained and on hand during site works. • Implement lizard management • Where necessary, assist with contractor training. • Complete the required compliance reporting.	February 2025 – project completion

4.0 Lizard Values

4.1 Lizard habitat

Lizards were found in five of the six terrestrial vegetation types (described in Wildlands 2025), including:

- Exotic shelterbelt forest.
- Indigenous hedgerow forest.
- Ornamental plantings, gardens and dwellings.
- Cocksfoot pasture grassland.
- Farm buildings and debris.

Where access to properties within the project site was not permitted, a desktop assessment using aerial imagery was used to evaluate the potential presence of lizard habitat at the remaining properties. Survey results from property boundaries and adjacent properties were also considered in this assessment.

In addition, due to limitations with site access, lizard habitats are categorised (as both confirmed and potential) and are detailed in Table 3 and shown in Figure 2 below.

- Confirmed lizard habitat: areas of habitat where skinks were detected.
- Potential lizard habitat: either the property was not surveyed, or no lizards were detected but the habitat is considered optimal for skinks.

Table 3 – Summary of lizard habitat present in each of the properties present within the Pound Road industrial development.

Property Surveyed	Confirmed Lizard Habitat Present	Possible Lizard Habitat Present	No Lizard Habitat Present
570 Waterloo Road	✓		
38 Barters Road	✓		
94 Barters Road	✓		
86 Barters Road	✓		
173 Pound Road	✓		
4 Hasketts Road	✓		
48 Hasketts Road	✓		
30 Hasketts Road	✓		
22 Hasketts Road		✓	
64 Barters Road			✓
Not Surveyed			
40 Hasketts Road		✓	
2 Barters Road		✓	
578 Barters Road		✓	
111 Pound Road		✓	

Figure 2. Lizard habitat identified within the Pound Road industrial development, Templeton, Christchurch

4.2 Lizard surveys

Southern grass skinks were confirmed on-site during lizard surveys in April and May 2025[1]. Given the habitat present on site, the presence of McCann's skinks is considered unlikely despite nearby records. However, they will be included in this plan in the event they are detected. Given the site's history of habitat clearance and modification, it is highly unlikely that any other indigenous lizard species commonly found in Canterbury are present. A detailed assessment of lizard values, including the results of the lizard survey, is provided in Wildlands 2025. Lizards were detected within discrete areas of each of vegetation types listed in Section 4.1, such as along fence lines and in shelterbelts that had ground cover or refuge. In some habitats, it could not be determined whether the lack of detections was due to an absence of lizards or simply a result of low population densities combined with reduced detectability at the time of survey. Several properties could not be surveyed due to access restrictions. A summary of the results of the lizard survey across the site is outlined below and in Figure 3 and Appendix 2.

Lizards were detected in the following properties:

- 570 Waterloo Road.
- 38 Barters Road.
- 94 Barters Road.
- 86 Barters Road.
- 173 Pound Road.
- 4 Hasketts Road.
- 48 Hasketts Road.
- 30 Hasketts Road.

[1] The lizard survey was completed at the end of the lizard active season, which may have reduced lizard detectability at the site, despite mostly favourable conditions.

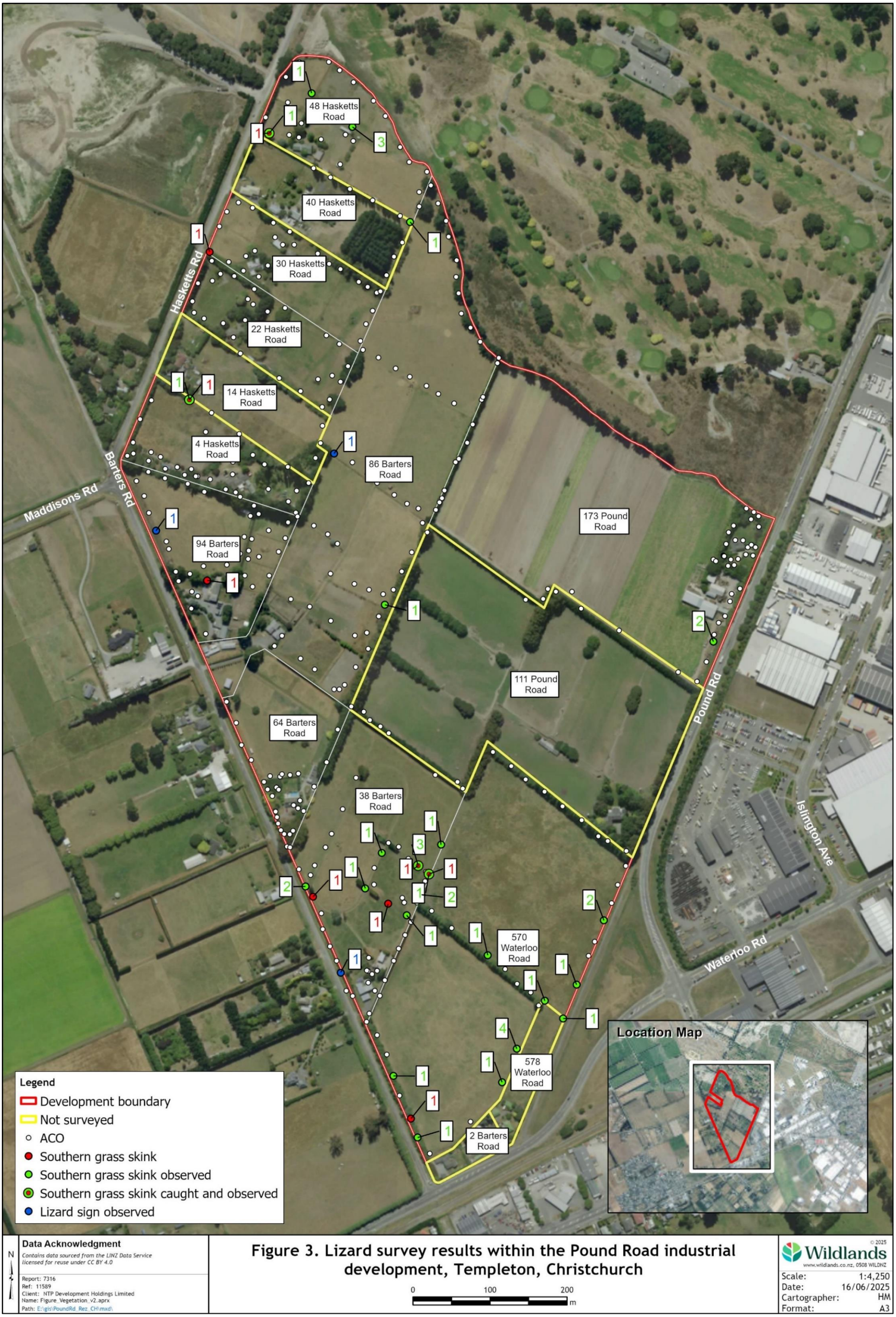


Figure 3. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

5.0 Ecological Significance and Effects on Lizards

5.1 Ecological significance

The habitats identified in Figure 2 meet the ecological significance criteria for rarity/distinctiveness in the Canterbury Regional Policy Statement (Environment Canterbury, 2021) and the National Policy Statement for Indigenous Biodiversity (NPS-IB; Ministry for the Environment, 2023) because of the presence of southern grass skink, which are At Risk – Declining and found in less than three other regions. The presence of indigenous fauna at this site requires consideration under the NPS-IB, and particularly the NPS-IB's objective to achieve no overall loss in indigenous biodiversity.

5.2 Effects on lizards

Potential effects on lizards resulting from the proposed development are outlined in Wildlands (2025).

5.3 Significance of effects

The level of ecological effects on indigenous lizards without mitigation, as per Wildlands, 2025, are presented in Table 4.

Table 4 – Significance of effects to lizards and their habitats without mitigation.

Effect	Level of Effect Without Mitigation
Accidental displacement and harm (injury/death) to lizards.	More than minor
Disturbance to lizards during earthworks.	More than minor
Loss and fragmentation of habitat for indigenous lizards.	Minor
Breeding failure/behavioural effects to lizards.	Less than minor

6.0 Management of Effects

6.1 Avoidance

Avoidance of lizards and their habitats at the site is not possible. The entire site will be earth worked to prepare for industrial development. In addition, small amounts of lizard habitat can be found widely throughout the site. Therefore, avoidance is not possible.

6.2 Minimise: ongoing site maintenance

6.2.1 Ongoing site maintenance

Currently, most of the occupied properties are heavily grazed (cattle, horses, deer), or planted in crops (i.e. onion farm), which is not suitable habitat for lizards. Therefore, lizard habitats are restricted to small areas of ungrazed or unmaintained areas, such as fence lines, hedgerows, soil bunds, house sites and/or machinery lay down areas. Properties where this is applicable are listed below:

- 570 Waterloo Road.
- 38 Barters Road.
- 86 Barters Road.
- 94 Barters Road.
- 111 Pound Road.
- 173 Pound Road.

The staging of the development means that there is likely to be a period of time between obtaining consent under the FTAA and the full extent of the development being completed

Should grazing and current land-uses cease and rank grassland spreads across the properties prior to development, much of these sites could become suitable for skinks and populations could increase across the site.

It is important to continue current land use practice throughout these properties prior to and throughout the development process, until earthworks and vegetation removal commences. This will reduce the risk of lizards dispersing into areas not currently designated as areas of lizard habitat.

If these areas are not managed, and consequently become lizard habitat, they will need to be managed through the same methods highlighted in the LMP (Section 6.3).

6.3 Minimise: salvage and relocation

6.3.1 Overview

A salvage and relocation programme will be implemented within the lizard habitats where vegetation removal is intended to occur, beginning with Stage 1 and 2 in 2026. All lizards will be trapped using live capture traps and will be relocated to the nominated release sites (Section 7.0). Salvage will be undertaken within all the identified habitats in Figure 2 (both confirmed and potential) for the reasons described in Section 4.0.

6.3.2 Timing

<u>Stage 1 and 2</u>

Salvage will be prioritised at all building demolition locations and hedgerows within Stage 1 and 2 (Figure 1). Lizards from Stage 1 and 2 will be released at Weedons Ross Road release site, and any additional buildings outside Stage 1 and 2 requiring demolition will be included within this salvage and release programme. The following properties will be salvaged first:

- 578 Waterloo Road.
- 2 Barters Road.
- 38 Barters Road.
- 64 Barters Road.
- 86 Barters Road.
- 94 Barters Road.

Following lizard salvage at these properties, all hedge row, fences, buildings and vegetation piles will be removed. This will allow continuous maintenance of the paddocks to control grass for fire reasons and to minimise organic material in the site at the commencement of earthworks in late 2026.

Stages 3-5

Tree lines, vegetation, and buildings from 173 Pound Rd will be demolished late 2026 after lizard trapping and relocation is complete (to commence 1 Oct 2026).

Salvage and relocation required from remaining stages of the development and all remaining habitats will be undertaken in the 2026/27 lizard season using the release site at Weedons Ross Road (if capacity has not been reached), and Kōwhai Grove.

6.3.3 Salvage effort

The amount of salvage effort and range of methods proposed for use at the site is aimed to enable the removal of as many individuals as possible, representing a moderate to high proportion of the total number of lizards present. Salvage effort will be higher in habitats where lizards have been confirmed.

The industrial development works will be completed in stages to ensure that management can be implemented in a realistic timeframe; therefore, lizard salvage will also be undertaken in stages. The development stages have not yet been confirmed. However, the first stage is expected to be undertaken between February 2026 and April 2027, with additional stages to follow in subsequent years.

Earthworks will proceed into lizard habitats within a **maximum of two weeks** after the salvage of each stage has been completed. The Project Herpetologist will be notified once the works commence. If works do not proceed in this time, it is possible that lizards from the surrounding areas may move into the works area. If this occurs, the salvage will need to recommence following the methods outlined below.

Table 5 – Estimated number of lizard live capture traps and the manual searching effort required for each property within the wider rezoning area, including the estimated number of skinks caught for each salvage.

Habitat Type	Approximate Number of Traps Required	Minimum Salvage Effort (Trap Days)	Manual Searches Required (Hours)	Estimated Number of Lizards Salvaged[1]
Properties Where Lizards Have Been Confirmed				
570 Waterloo Road	190	14 days	No	150
38 Barters Road	110	14 days	No	150
86 Barters Road	110	14 days	No	50
94 Barters Road	70	14 days	10 p/h	20
4 Hasketts Road	80	14 days	No	20
30 Hasketts Road	100	14 days	12 p/h	20
48 Hasketts Road	100	14 days	4 p/h	80
173 Pound Road	20	14 days	2 p/h	10
Properties Where Lizards May Be Present				
22 Hasketts Road	100	5 days	No	20
Properties Not Yet Assessed For Lizards				
40 Hasketts Road	20	5 days	12p/h	20
14 Hasketts Road	70	5 days	5 p/h	20
2 Barters Road	20	5 days	5 p/h	20
578 Waterloo Road	100	5 days	5 p/h	50
111 Pound Road	70	5 days	5 p/h	20
Total	**1,160**		**64 p/h**	**650**

6.3.4 Salvage methods

- Live-capture lizard traps will be placed at 5-10 metre spacings, as outlined above in each property prior to earthworks.
- Traps used may be a mix of funnel or pitfall traps, but funnel traps will **not be used** within any areas with significant patches of rank grass, to avoid incidental mouse predation.
- Hand-searching techniques will be used to capture additional basking/active skinks. This will involve manually searching through and destructing the debris piles (where possible) at the end of the salvage to locate and capture any additional lizards.

[1] Estimated numbers of lizards to be salvaged are highly conservative due to the late season survey (despite mainly favourable conditions) and the absence of surveys in some properties. Accordingly, these estimates represent the likely upper limit of the number of lizards likely to be salvaged.

Confirmed lizard habitat

- Once active, live capture traps will be checked daily for a minimum of 14 consecutive days. If trapping reveals trends of decreasing numbers of skinks over the course of 14 days, with no skinks captured after day ten, trapping will cease.
- If live capture traps continue to get the same or high numbers of skinks over these 14 days (>3 individuals per day), trapping will continue for three-day increments until the threshold is met, or until no more skinks are caught.

Potential lizard habitat

Salvage efforts in potential lizard habitat will be conducted over a shorter timeframe.

- Once active, live capture traps will be checked daily for a minimum of five consecutive days. If trapping reveals no captures after five survey days within a discrete area of habitat, traps will be removed.
- If lizards are detected within the first five days, the same salvage methods for the confirmed lizard habitat above will be followed (detailed above).

Pitfall traps consist of a plastic container (>2 litre depth) dug into the ground (typically baited with pear as an attractant), which lizards may fall into and be unable to exit. The pitfalls will be covered with Onduline to provide additional thermoregulatory advantages and attract more lizards to the traps. Pitfall traps will be filled with grass and a damp sponge, in addition to the Onduline artificial cover to provide shelter and prevent desiccation of skinks within the trap. Pitfall traps will be installed one week prior to habitat clearance and will be closed during this time to allow for lizards to become habituated to the traps and for the traps to weather in (as per the DOC Herpetofauna Toolbox for Pitfall Trapping; Hare, 2012a).

Funnel traps will be baited with canned pear or berry bliss lollies, Natural Confectionary Co.™ (known lizard attractants). Funnel traps will be padded with grass to provide shelter and prevent desiccation, in addition to preventing mice from predating upon caught skinks. The funnel trap with be covered with or nestled into the surrounding vegetation (as per the DOC Herpetofauna Monitoring Toolbox for Funnel Trapping; Hare, 2012b).

- The length of trapping past the minimum requirements will be up to the discretion of the Project Herpetologist.
- Any lizards captured will be handled and held following best practice and released as soon as practical to the pre-selected lizard release area.

Responsibility: Project Herpetologist.

6.3.5 Data collection

Lizard capture data will include species identify, sex, length and tail regeneration. Each day of salvage will be recorded, including start/stop time, GPS coordinates and a habitat description for the capture location, date and time. Weather conditions will be recorded during and at the beginning and end of each salvage event.

Responsibility: Project Herpetologist.

6.3.6 Temporary holding of lizards

All captured lizards will be temporarily placed in clean individual lizard cloth bags, and stored in ventilated, hard-sided containers(to prevent accidental crushing), in coll, full shade until release. A small amount of damp leaf litter or vegetation from the capture site will be placed inside the cloth bags with the lizard to provide cover and prevent dehydration. Lizards will be released within two hours of capture into the pre-selected release area.

Responsibility: Project Herpetologist.

6.3.7 Habitat clearance

All vegetation found within the lizard habitat, will be removed post-salvage without supervision. **All unsupervised vegetation will occur within two weeks** of the salvage to ensure any remaining lizards do not move back into the habitats. The incidental discovery protocol must be followed (Appendix 6).

A bare earth buffer would be provided to the boundary of 111 Pound Rd and the Hasketts Rd properties (4, 14, 22, 30, 40, 48) and the golf course to mitigate lizards moving onto the cleared land.

Responsibility: NTP, Contractor.

6.4 Constraints

There are inherent risks associated with lizard capture, salvage and relocation as a management tool for mitigation purposes. In particular, there is high risk of poor capture rates for lizards during pre-survey capture and salvage activities. This will be managed by maximising lead-in time for pre-clearance capture and using a range of tools suitable to the species in question.

Lizard salvage climatic constraints:

Many lizard species are inactive below 16°C. Hot summer temperatures (>25°C) also reduce lizard emergence and detectability. Because of these constraints, salvage will be undertaken between October – April (inclusive), when:

- The temperature is between 16°C and 25°C, and
- Rain is no heavier than 0.1 – 2.0 mm per hour.
- The wind is not strong.

Relocation of lizards is a complex process, and many factors must be considered before animals are moved. Consideration will need to be given to assess whether the release site has sufficient habitat and resources to support lizards (or additional lizards if some lizards are already present).

When lizards are first translocated, they will be unfamiliar with the landscape and may be unable to find suitable refugia to hide from predators and competitors, and they may therefore potentially disperse away from the release site. By releasing lizards into the aggregate piles first this may help to orientate and maintain translocated individuals at the site.

6.5 Release methods

Skinks will be transported by car to the release sites. The hard sided containers that skinks are temporarily held in will be placed in larger bins (fish bins) securely in the car (seat belted) so movement is limited. The most direct route will be taken to the release site to limit the amount of time the lizards spend in the car. Lizards will be checked on release for any signs of stress or illness.

Skinks will be released into pre-constructed habitat units (rock piles) first to prevent initial dispersal of lizards outside of the release site. Between 10-20 skinks (depending on the numbers caught) will be released into each habitat unit, to not create unnecessary competition. Where any lizards are found together or in an aggregation (i.e. multiple captures in one trap), they will be released in groups together.

Responsibility: Project Herpetologist.

7.0 Lizard Release

7.1 Overview

Due to the high numbers of skinks predicted to be salvaged from Pound Road, and the lack of available release sites within Canterbury, two release sites (Figures 4 and 5) have been chosen which are situated on ECan land, between 12 and 15 kilometres from Pound Road. The first site, Weedons Ross Road (Figure 4), is an enhanced site which has previously been used for release by developers. The site has capacity for additional skinks, but will not be able to receive all skinks from the development. The second site, is a smaller kōwhai remnant (Kōhwai Grove; Figure 5), west of Weedons Ross Road, which can take fewer skinks, but can be suitably enhanced overtime. Combined, the release sites should be able to take all skinks from the development. Table 8 details the release site suitability for each site and summarises enhancement measures required for the sites.

7.2 Agreement of use of sites

The release site has been agreed for use with ECan (Canterbury Regional Council: Team Leader – Land Ecology). Evidence of agreement of the site use has been provided, and all implementation of enhancement at the release site will be undertaken following approval of ECan. This includes any contractor engagement for construction of rabbit-proof fences or rabbit and hare control.

7.3 Weedons Ross Road release site – stage 1 & 2 lizard salvage

A dryland reserve located at 1550134N, 5185665E on Weedons Ross Road (the Weedons Ross Road release site; WRR) is a *c.*8.2 hectare site, which is being used as a release site for development-related lizard salvages of southern grass skink (*Oligosoma* aff. *polychroma*; Clade 5; At Risk – Declining Hitchmough et al., 2021). The Weedons Ross Road reserve is owned by Canterbury Regional Council and managed by Environment Canterbury (ECan).

The WRR release site was determined a suitable release site by ECan for skinks based on an existing low density of lizards and potential for additional habitat enhancement following DOC guidelines (Department of Conservation, 2019). In the unlikely event that McCann's skinks are salvaged from the development, they will only be released at the Weedons Ross Road site, which provides dry habitat suitable for the species. The site was enhanced in 2023 for a development related lizard salvage with a fixed period of predator control and agrregate piles. Thirty-six rock piles were installed at the site within existing historic river braids. A total of 13 piles have been used by developers.

A long-term plan is currently being prepared for the site (Wildlands; in draft), to provide developers and Ecan with guidance around management of lizards long term at the site. The plan is intended to provide consistency between development related lizard relocations and enhancment at the site. The requirements below aim to align as much as possible with this plan.

7.3.1 Carrying capacity

It is likely that resident skinks have begun to occupy the rock piles on site, due to the time since rock pile establishment. Population recruitment may have been occurring within the rock piles, but the rock piles are highly unlikely to be at capacity due to the size of aggregate piles created within the release site (15-20 m^2). In addition, the size and extent of dryland habitat within the reserve provide substantial opportunities for the natural dispersal of skinks throughout the site and into adjacent areas. Further, additional capacity can be gained through the construction of a rabbit-proof fence and limited predator control, which will reduce predation pressures on all skinks present.

Vegetation such as *Muehlenbeckia* has recently established in and around the rock piles, enhancing habitat quality by providing additional shelter, protection, and food resources for skinks, thereby also increasing carrying capacity.

Therefore, between 10 and 20 skinks can be released at each of the 23 aggregate rock piles that have not yet received lizards. The Weedons Ross Road reserve therefore has capacity to take between 230-460 skinks before reaching a capacity that is appropriate for natural population increase (so long as additional enhancement measures are achieved). Monitoring undertaken at this site during the 2025/26 season (currently proposed for November/December 2025) will determine the appropriate capacity for this site.

7.3.2 Rabbit and hare control

Rabbit monitoring

Rabbit and hare population densities will be monitored before and after implementing control. This data is essential for selecting the most appropriate control strategy and for assessing the overall effectiveness of control.

Night counts will be conducted over two consecutive nights under favourable weather conditions (clear skies, minimal wind, and ideally no full moon) between dusk and dawn. This activity will be carried out by a suitably-qualified contractor in accordance with established best practice guidelines (National Pest Control Agencies, 2015).

In addition, a rabbit sign assessment will be undertaken during the day to count buck heaps, burrows and scratching, and any other signs of rabbit occupation. This will help to determine both presence and density of rabbit populations but will also help to inform the best control strategy. The Modified Maclean Scale will be used to assess and compare rabbit activity using rabbit sign.

Rabbit-proof fence

Environment Canterbury have previously recommended that a rabbit-proof fence should be installed at Weedons Ross Road release site to reduce browse pressure by rabbits and hares on dryland plants, as well as deter hedgehogs (a significant predator of lizards and invertebrates).

NTP Development Holdings Ltd. will provide funding to ECan to contract construction of the rabbit-proof fence and initial rabbit control, as outlined below.

The rabbit proof fence will be erected before pest mammal management begins, two or more months before lizards are released. Pest mammal control will be undertaken within the fence, once constructed, following the methodology below.

The fence will require monitoring and ongoing maintenance to ensure its integrity. Fence monitoring will be undertaken by an ECan approved pest control contractor, in conjunction with pest control implementation for five years post-release. Any required maintenance identified during this

monitoring will be addressed at the cost of NTP. After this time, fence management will be under the discretion of ECan.

All rabbits and hares within the enclosed area will be removed to prevent a rapid increase in their population once the fence is in place.

The first round of rabbit and hare control will be undertaken using fumigation (if burrows are present) followed by a night shoot. Six months following the first round of control, monitoring will be undertaken following the methods above. If rabbits and hares are present, another night shoot and fumigation round will commence.

Night shoots

An initial night shoot will be undertaken prior to fumigation to knock down rabbit and hare numbers.

Rabbit and hare night shoots can be undertaken concurrently. Rabbits and hares will need to be shot at night using a spotlight following best practice methods (National Pest Control Agencies, 2015). The police and the Public Health Unit will need to be notified prior to any night shooting, and local and national bylaws and legislation will need to be followed. Night shoots will take place as soon as possible following fence construction. Higher-density populations may require multiple nights of control to achieve eradication.

Fumigation

If burrows are observed during monitoring, fumigation will be undertaken using Magtoxin (magnesium phosphide) fumigant pills, which react with water to release toxic phosphine gas. All burrow entrances except one must be blocked before the pills are introduced along with water through the remaining open entrance, whereupon it must be blocked immediately.

Active rabbit burrows must be present within the release site for fumigation to be effective. Fumigation will follow best practice guidelines (National Pest Control Agencies, 2015).

No licence or permit is required to use Magtoxin. It is a relatively safe and non-intrusive method, although the person carrying out the fumigation must be careful not to inhale any gas as it is extremely toxic and forms immediately when the pellets contact moisture.

7.4 Kōwhai Grove – all remaining lizards

Kōwhai Grove is located on Thompsons Road, adjacent to 'The Willows' park and Waimakariri River. The release site identified is an approximately 0.61-hectare area of grassland habitat with established kowhai trees throughout. Kōwhai Grove was previously cultivated paddock, with remnant kōwhai trees, which has since been fenced and protected and is under the management of ECan. The site is adjacent to lizard habitats which are joined by a stop-bank, allowing for natural dispersal.

A survey at Kōwhai Grove was completed to determine the suitability of the site as a release site. A two-week tracking tunnel survey was undertaken where 19 tracking tunnels were set out within the release site. The survey was undertaken during good weather from 4-17 December 2024. No lizards were detected on the tracking cards during this period.

The wider area is infrequently affected by fire, primarily due to the prevailing northwest winds characteristic of the low plains. A large fire did, however, burn through neighbouring properties during the lizard survey. The Kowhai Grove release site is comparable to other areas of the low plains and is not considered to be any more susceptible to fire than surrounding areas. Additionally, the adjacent road acted as a natural firebreak, preventing the fire from reaching the release site.

The enhancement described below will provide protective benefits for the lizards proposed to be salvaged from the Pound Road industrial development site. Proposed release site enhancement includes enhancement planting and plant maintenance, the construction of rock piles and pest mammal management.

7.4.1 Carrying capacity

The results of the survey suggest a low-density/absent population (at the most) of skinks present at the Kowhai Grove release site. Enhancement of the site through predator control, planting and rock piles will allow for populations to establish and naturally increase over time. Release of at least 200 individual skinks could be undertaken if 20 rock piles are established within the reserve.

Mice prints were detected on 31.58% of cards. Considering the minimal number of tracks on each card and that tracking tunnels where spaced close together (10 metres), mice density in the release site can still be considered relatively low.

Release site enhancement will increase the overall quality of lizard habitat within the reserve and provide additional resources for the released population of lizards. Although enhancement planting will not increase carrying capacity in the short term, it will provide additional habitat, which will increase the carrying capacity of the site over time.

Plate 6 – Proposed Kowhai Grove release site.

7.4.2 Enhancement plantings

Planting has been ongoing at the site by the ECan parks' team. Additional planting will be undertaken at the discretion of ECan by a suitably qualified contractor funded by the developer. A proposed species list is outlined below in Table 6 –, which has been reviewed and amended by the ECan Land Ecology and Science team. All plants will be eco-sourced.

Plants will be planted in clumps to provide a uniform density of ground cover (i.e. groups of 10 plants). Plants will be spaced at 1-2m spacings where possible to facilitate effective ground cover over a shorter

time frame. Ground cover plants will be planted in association with rock piles to create added protective refugia for skinks.

It is best to install plants between May and October, when soil moisture is sufficient and must be implemented at least three months prior to release in order to allow for the plants to establish before the translocation of lizards from the development site, for the second stage of lizards. Although enhancement planting will not increase carrying capacity in the short term, it will provide additional habitat and increase the carrying capacity of the site over time.

The use of weed mats (other than those for individual plants), mulch, bark and woodchip in the enhancement areas will be avoided. These types of ground covers inhibit the establishment of suitable habitat and vegetation often relied upon by lizards for cover, reduce and presence of invertebrate communities that provide important food resources for lizards. Small amounts of woodchip, and individual weed mats may only be used around the bases of new plantings if required for weed suppression.

Table 6 – Number of plants estimated for planting within the proposed Kowhai Grove release site.

Species	Benefits to Lizards	Establishment/ Grade	Estimated Number of Plants
Silver tussock (*Poa cita)*	C, I	RX90	310-330
Creeping pōhuehue (*Muehlenbeckia axillaris*)	C, N, F, I	RX90	70-80
Helichrysum lanceolatum	C, N, I	RX90	30-40
Mingimingi (*Coprosma propinqua*)	C, N, F, I	RX90	30-40
Matagouri (*Discaria toumatou*)	C	RX90	20-30
Porcupine shrub (*Melicytus alpinus*)[1]	C, F, I	RX90	30-40
Prostrate Kowhai (*Sophora prostrata*)	C, N, F, I	RX90	30-40
Total			**520-600**

Key to known benefits to lizards: C = Cover, R = Retreats, N = Nectar, F = Fruit, I = Invertebrates. All plants will be eco sourced from the Low Plains Ecological District.

7.4.3 Plant maintenance and monitoring

Planting maintenance and monitoring will be commissioned by NTP Development Holdings Ltd and implemented by a suitably qualified contractor for 12 months after planting. Planting will be followed by monitoring visits every one to two months over spring and summer to ensure the uptake and survival of plantings and determine what maintenance is required. Post-planting maintenance will include:

- Plants kept free of weeds by means of hand weeding only or weed eaters when absolutely necessary. Weeding will be undertaken three to four times a year to ensure that weeds do not compromise plant growth.

[1] It is important to source the porcupine shrubs from local source plants (such as the site near the airport) due to concerns regarding genetic swamping and hybridisation.

- Hand weeding around the plants will allow for better establishment of the plants and limits disturbance to skinks.
- Where plant losses exceed 10 percent, these will also be replaced.

Maintenance will take place on warm, sunny days when the daily temperature exceeds 16 degrees as this is when skinks are most active. Contractors will also refrain from using sprays in and around lizard habitats, as the effects herbicides and insecticides have on lizards are largely unknown.

Responsibility: NTP, ECan approved contractor.

7.4.4 Rock piles

To increase the amount of suitable lizard habitat to provide cover and refuge, and to increase carrying capacity within the site, the release site will also be enhanced through the deposition of rock piles. Rock piles approximately 0.5 metres in height, 1-2 metres wide and 10 metres apart will be deposited throughout the release sites.

To ensure enough habitat units are provide for the expected number of lizards salvaged, a minimum of 20 rock piles should be deposited across the site.

The aggregate will be a 50-200 mm grade to provide optimal interstitial spaces amongst the piles for lizard occupation. Rocks will be sourced from a landscape supplier or local quarry prior to the salvage and release site remediation. All rocks will be washed and free from soil to avoid unwanted grasses/invasive plants growing in the spaces. Rocks will be transported on site by a small trailer or similar. The placement of the rock piles will be supervised by the Project Herpetologist, to ensure they are placed correctly and ensure that disturbance to the site is minimised. DOC provides guidance on habitat enhancement that can be used to assist with rock placement (DOC, 2023).

Responsibility: NTP, ECan approved contractor, Project Herpetologist

7.5 Pest mammal management – both sites

7.5.1 Overview

Management of mammalian pests (rats *Rattus* spp., mice *Mus musculus*, mustelids *Mustela* spp., hedgehogs *Erinaceus europaeus*,) at both sites is outlined below. Pest mammal management will be set up before lizards are released, to ensure that pest mammals will be in low numbers within the release area when lizards are most vulnerable shortly after release. Pest mammal management will be implemented by a suitably qualified and ECan approved contractor, funded by NTP, at least two months before lizard release and will continue for six months-five years after it has been set up[1].

Predator control equipment has previously been installed at the Weedons Ross Road release site and will be reused for this project. The small size (0.61 hectares) of the Kōwhai Grove release site may minimise the impact of predator control on mammalian predator populations in the area. However, it may reduce the amount of direct predation on the released lizards. Table 7 summarises the type of equipment required and timing of works.

7.5.2 Monitoring

Initial monitoring will be undertaken at the sites to determine pest mammal abundance. Tracking tunnels will be placed at 15-30 metre spacings (Norbury *et al*, 2014), baited with peanut butter and

[1] Dependent on contingency measures triggered, and pest animal control type.

left for 3 fine nights. Tracking cards will be checked on the fourth day to determine whether mouse tracking is below 5% in the release area. Tracking tunnel monitoring will be undertaken monthly, for six months.

7.5.3 Trapping

DOC series traps will be set at 50 x 50 m spacings across the sites. Trapping will commence one-two months before lizards are released at the sites in order to give the traps time to weather in and the predators time to get used to the traps. Hedgehogs also get caught in all DOC-series traps. There is no best-practice method of controlling hedgehogs. Traps will be serviced once per week until no more hedgehogs are caught, then once per fortnight and once per month following release.

7.5.4 Poison baiting

Run-through lockable bait stations will be placed at 25 x 25 metre spacings throughout the release sites. If tracking is above 5% bait stations will be set. Poison baiting will commence one month before lizards are released, so that numbers are knocked down before lizard release. The bait for the initial pulse will be Vertox (brodifacoum) and the bait stations will be checked and refilled according to a pulsing regime, on the third and fifth day after the first fill followed by another check on day 14. Four weeks after first filling the bait stations, all bait will be removed and the bait stations will be left empty until the next pulse. D-Block (diphacinone) will be used for subsequent pulses, unless it is not found to be effective, in which case Vertox will be reinstated. Pulses will be undertaken in January, February, April, August and November to coincide with peaks in rodent activity.

7.5.5 Reporting

Pest control operators will be trained to recognise rare and threatened plants so that they do not disturb the soil or place traps where those species are growing. All trap catch and monitoring results will be input into TrapNZ and reported to the Project Herpetologist.

7.5.6 Safety precautions

The hazard profile at the release site comprises a dwelling, a nearby urban area, and a golf course, all of which affect the placement and notification protocols for toxins. Use of toxins in the release site will be carefully managed, following all local bylaws and the manufacturer's guidelines, and including communication with the local Public Health Officer. Signage will need to be placed at every entrance advising of the poison operation. All carcasses found on-site will be buried or disposed of safely off-site.

Feral cat (*Felis cattus*) control is not recommended due to the proximity of the neighbouring residential areas and domestic pet cats. Local people may wish to keep their cats indoors to avoid the low risk of secondary poisoning from cats eating poisoned mice.

Responsibility: NTP, Ecan approved Contractor, Project Herpetologist.

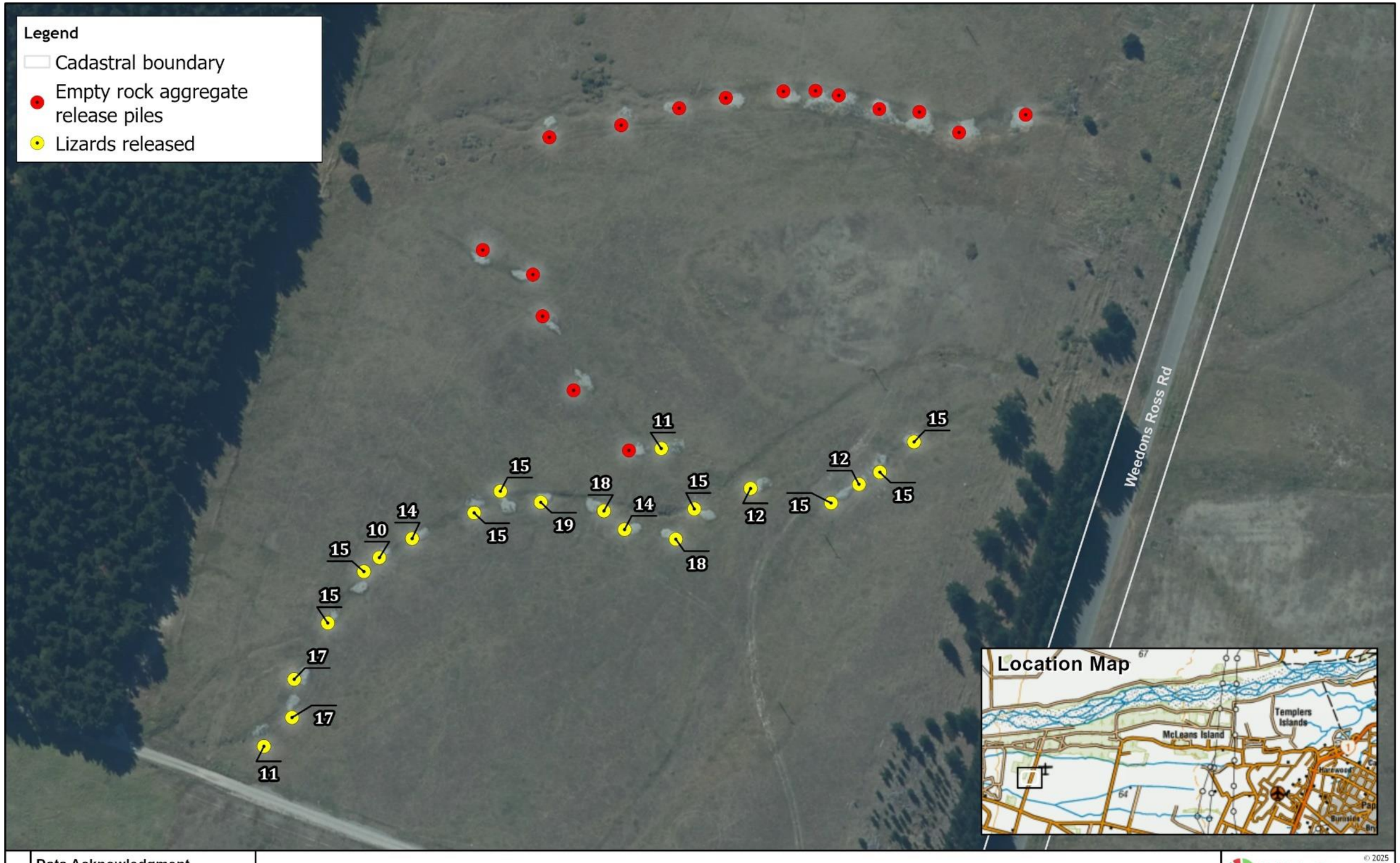
Table 6 – Summary of recommended trapping and baiting layout at each site. All sizes in metres.

Mammalian Predator	Device	Bait	Spacing (metres)	Service Frequency
Mustelid, hedgehog	DOC series	Hen egg, and rabbit meat	50x50	Once per week until no more hedgehogs are caught, then once per fortnight (September to March) and once per month (April to August).
Mouse, rat	Run-Through bait station	Vertox (first pulse), then D-block (subsequent pulses)	25x25	On days three, five and 14 after first laying the bait. All bait will be removed at the end of each four-week pulse.
All predators	Tracking tunnel	Peanut butter	15-30	Left for 3 fine nights. Tracking tunnel monitoring will be undertaken monthly, for six months.

Table 7 – Assessment of lizard release site based on principle 6 of the lizard salvage guidelines (DOC 2019).

Principle Relating to Salvage and Release	Description	Weedons Ross Road	Kowhai Grove
1. The site must be ecologically appropriate and have long-term security	**Resident lizard communities must be understood** *Will released lizards increase viability of population, or be released in high enough numbers to start new population?*	Resident lizards are present (preference two of release site quality; DOC 2019), as well as lizards salvaged as part of other lizard salvage operations.	No lizards were detected during the tracking tunnel survey, but it is likely that the site meets preference three of release site quality (DOC 2019). Lizards released will supplement a low-density population.
	The release site must be an appropriate distance from the impact site to prevent lizard homing, but close enough that it provides similar habitat.t	The release site will be established at Weedons Ross Road located 11.2 kilometres away from the development site, and close enough that the site is within the known range of the southern grass and McCann's skink and is ecologically appropriate for the relocated population.	The release site will be established at Kowhai Grove, located *c.*15 kilometres from the development site. The release site is within the known range of the southern grass skink and is ecologically appropriate for the relocated population.
	The location must be within the species natural geographic range. *Ensure no mixing of potentially genetically structured populations.*	The location of the release site is within the species' natural geographic range. The released animals should be genetically similar to the resident population at the release site.	The location of the release site is within the species natural geographic range. The released animals be genetically similar to the resident population at the release site.
2. The habitat at the site must be suitable for the salvaged species	**Vegetation composition and size:** predominantly indigenous vegetation and sufficiently large and continuous for residents, release lizards and allowing for population growth.	The release site is a dryland remnant, where introduced marram grass has been planted and offers some cover for skinks. In addition, *Muehlenbeckia* is beginning to establish on rockpiles at the site. It is approximately 10 hectares and can support further population growth in lizards.	The release site is within a ECan reserve. It has had minimal planting but will be supplemented with additional enhancement planting, pest control and creation of habitat units. It is approximately 0.61 hectares in area. The site is located adjacent to the Waimakariri River.
	Must contain sufficient resources for potential population. For example, food, cover, retreats. What enhancements are proposed for expanded population?	The habitat at the releases site contains sufficient resources for the relocated population as there is currently revegetation occurring within the reserve and it is being restored. In addition, predator control is proposed to enhance the availability of resources at the site, as well as a hedgehog fence to reduce abundance of the predator within the fence. Aggregate piles have also been established within the site.	The habitat at the release site will contain sufficient habitat resources for the relocated population. Habitat enhancement will be undertaken prior to the 2026/27 season as per section 7.4.2.

Principle Relating to Salvage and Release	Description	Weedons Ross Road	Kowhai Grove
	Habitat enhancement – must be ongoing in an ecologically relevant timeframe	The site was previously utilised as a release site by another developer, and rock piles were deposited within the site. Additional habitat enhancement will include weed monitoring and hedgehog/rabbit protection, which will increase ground cover and restoration of the dryland communities.	Habitat in rank grass covered areas will be improved using lizard appropriate plants. Predator control can be introduced to reduce pressures to population after release.
	Edge effects – The release site must be buffered from intermittent climatic extremes, such as drought.	The reserve is prone to drought. However, drought is part of its natural system, and will benefit from pest animal control to enhance plant growth within the reserve.	The release site is adjacent to the Waimakariri River. Inundation is possible, but unlikely due to the presence of a stop bank. If any inundation events occur, they will be monitored and reported on. Drought is also part of the release site natural system and was previously cultivated. It will benefit from pest animal control to enhance plant growth within the reserve.
3. The site must provide protection from predators	*Habitat must protect from predators, or effective pest control must be in place. Must include full suite of predators including trapping for mice*	Pest animal control will be undertaken in conjunction with rabbit-proof fence installation. Traps and poison bait stations (retained from previous salvages) will be used by the developer for knockdown of mice prior to release.	Predator control in the form of DOC series traps for hedgehogs will be introduced 1-2 months before salvage and release. This will be ongoing for five years post-release.
4. The site must be protected from future human disturbance	*Land tenure must ensure long term protection from disturbance*	The release site is on ECan land, so it is protected and is of high interest to the council, due to its ecological significance.	The release site is on ECan land so is protected due to its ecological significance.



Data Acknowledgment

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Figure 4. Weedons Ross Road release site

0 50 100 m

Wildlands
www.wildlands.co.nz, 0508 WILDNZ

Scale:	1:1,750
Date:	7/10/2025
Cartographer:	HM
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Figure 5. Kōwhai Grove release site and indicative rock piles

8.0 Remediation

A five metre wide buffer of amenity planting is planned to be implemented along Barters Road (818 metres) to replace the exisitng shelter belts. A five metre buffer is required to ensure successfull planting and to mitigate rural amenity. Too remedy some of the effects of the development, this amenity buffer planting will consist primarily of lizard friendly plant species. A Landscape Plan has been created by Novo Group Ltd for the buffer drain remediation (Appendix 3).

A variety of lizard friendly plants will be installed to provide a wide range of resources for lizards. The proposed remediation will not only replace some of the lizard habitat lost but increase the available lizard habitat and connectivity throughout the site over time.

All planting will be carried out by a suitably qualified contractor funded by NTP. A comprehensive planting schedule has been developed in collaboration with the Landscape Architect and Project Herpetologist. A list of lizard friendly plant species that has been included in the buffer planting plans is provided in Table 10.

Table 8 – Plant species for enhancement planting within the Barters Road buffer areas within the Pound Road industrial development site.

Species	Common Name	Benefits to Lizards
Apodasmia similis	Oioi	C, F, I
Carex secta	Pukio	C, I
Cortaderia richardii	South Island toetoe	C, R, I
Phormium tenax	Harakeke	C, R, N
Coprosma propinqua	Mingimingi	C, N, F, I
Cordyline australis	Cabbage tree	R, F
Sophora prostrata	Prostrate kowhai	C,N, I

Key to known benefits to lizards: C = cover, R = retreats, N = nectar, F = fruit, I = invertebrates

Responsibility: NTP, Landscape Architect, Project Herpetologist.

9.0 Contingencies and Risks Associated with Proposed Management

9.1.1 Risks associated with salvage

Potential risks to lizards as a result of the proposed salvage, and management actions to reduce these risks, include:

- Overheating
  - Issue: Overheating may occur when captured lizards are temporarily held in containers during ongoing salvage activities.
  - Action: Lizards will be placed in individual containers and kept in a cool place until transported and released. Handling will be minimized to ensure they do not become stressed. All traps will be checked at least once daily.

- Overcrowding, competition and displacement
  - Issue: Lizards are already present at WRR. No lizards are present (or undetectable densities) at Kōwhai Grove The addition of supplementary lizards to the release site population may result in competition for resources and increased predation pressure and may result in displacement when released.
  - Action: Enhancement planting, predator control, fencing and creation of additional habitat units within the release site will allow for a greater carrying capacity of lizards. This will reduce the amount of competition and potential displacement of released skinks.
- Injury/death
  - Issue: Incorrect trapping or handling during salvage by untrained staff.
  - Action: All lizards will be captured or supervised by an appropriately qualified herpetologist, following best practice and full hygiene protocols, minimising the risk of injury, death and disease transmission through inappropriate handling and capture.

9.1.2 Contingencies

There is inherent uncertainly in the outcomes of lizard salvage and release as a result of the complexities of the process and long-term management of the release site for species conservation. In some cases, threatened species may be discovered during salvage, the release site is not viable in the long term, or predator control regime has been found ineffective. The main risks and resulting contingencies relating to the proposed management are detailed in Table 9.

Table 9 – Risks associated with salvage and proposed management.

Risk Associated with Salvage	Detail	Contingency
Additional lizard species encountered	Although unlikely, if any other species is encountered during salvage.	Follow Incidental Discovery Protocol. Stop works, notify DOC, and develop further instructions (see Appendix 6).
More lizards than expected are salvaged	Each property has an estimated number of skinks to be salvaged. While these estimates are conservative, they may underestimate numbers in some areas, particularly for properties that were not included in the original survey.	Salvage will continue for a minimum of 14 days until **three or less** skinks are captured, or until **no** skinks are captured during the latter stages of salvage (c. day 10) (see Section 6.3.46.2).
		If more than 660 lizards are salvaged, predator control will extend for a further five years at both release sites following Section 7.5.
		If more than 700 skinks are salvaged, further funding can be directed to fence maintenance and upkeep.
Residual skink populations remaining after salvage completion	It is unlikely that all lizards will be removed from the impact site and may be displaced by earthworks.	Incidental Discovery Protocol (see Appendix 6).
Release site failure	Lizard population decline.	Post-release monitoring to determine population persistence. Any recommendations to address population declines will be recommended in annual reporting (see Section 10.0 and 11.0).
	Enhancement planting fails.	Any more than 10% plant failure will be replaced at the cost of NTP. This will be determined through post planting monitoring (see Section 10.0).

Risk Associated with Salvage	Detail	Contingency
	Pest mammal reinvasion.	**Hedgehogs** – DOC series traps will increase in frequency to once per week until they are no longer detected see Section 7.5). **Rodent bait stations** – If bait take becomes reduced despite abundant rodent sign, a pulse of brodifacoum will be implemented before returning to diphacinone for following pulses (see Section 7.5).
Delays to development	Given the staged nature of the development, any delays may result in a significant amount of time between the staged lizard salvage and release. In which time NTP's release site management requirements may cease.	Release site management will be continued for at least two years following the completion of the final stage of lizard release (see Section 8.0).

Notable changes to the salvage and relocation protocol will be undertaken in consultation with CCC, DOC, other territorial authorities, iwi, and/or stakeholders (as required). Resulting changes and updates to the LMP, following consultations, will be effective upon confirmation with all respective groups (unless a WAA variation is required by DOC).

9.1.3 More than 660 skinks salvaged

If during salvage, it becomes apparent that more than 660 lizards will be salvaged (i.e., still catching high numbers of skinks at 560), pest mammal control will be extended to five years for both sites, following the methods in Section 7.5. The estimated number of lizards for each stage will be reassessed at the conclusion of each stage to allow sufficient time for any necessary enhancements to be carried out.

9.1.4 More than 700 skinks salvaged

Further funding can be directed to fence maintenance and upkeep, directed by ECan, for five years at both release sites.

9.1.5 Delays to development staging and lizard salvage: additional release site management

Development is proposed to be implemented in stages over a three-to-five-year period. Pest mammal management of the release site has been proposed for between six months and five years. If the development is delayed so that salvage is still required in years four-five, management will restart at least two months before each salvage. This will allow for the released lizards to establish within the site with reduced pressures.

9.1.6 Incidental discovery protocol

If lizards are incidentally discovered during works following the implementation of mitigation measures, contractors will be required to follow the Incidental Discovery Protocol (IDP). This protocol outlines the appropriate steps to take in order to ensure the protection and proper handling of any lizards found on site. Appendix 6, which contains the full IDP will be provided to all contractors and must be adhered to in the event of an incidental lizard discovery.

Responsibility: NTP, NTP contractors.

10.0 Post Release Monitoring

10.1 Overview

DOC's lizard mitigation guidelines (DOC, 2019) recommend monitoring to evaluate the success of the salvage operation. This is due to the generally low success rates of mitigation-based reptile translocations worldwide. As such, it is essential to undertake ongoing monitoring of the relocated population to assess its success over time. If any signs of population decline are observed, it is crucial to identify and understand the underlying causes. Therefore, it is important to also monitor other environmental factors at the release site to ensure that, if issues arise, appropriate adaptive management actions can be implemented effectively. All monitoring will be commissioned by NTP.

10.2 Objectives

The purpose of long-term monitoring is to ensure the success of the salvage from the Pound Road industrial development site to the release site. The objectives for long-term monitoring at the release sites are as follows:

Objective 1: Ensure population persistence of the released lizard population.

- Monitor skink persistence within the release sites, post-release.

Objective 2: Ensure survival of enhancement plantings at Kōwhai Grove.

- Monitor plant growth and establishment.
- Determine success of plantings.

Objective 3: Reduce mammalian pest presence with the release sites.

- Monitor and control (where necessary) mammalian predators within the release sites.

10.2.1 Objective 1 – lizard population persistence

Monitoring

Post release monitoring may not detect any changes in the population of any lizards in the short term and may need to be carried out for up to five years. Therefore, lizard post-release monitoring will be established at the release site during the first lizard active season post salvage and will be undertaken by a suitably qualified ecologist annually for five years.

Monitoring of relocated individuals for survivorship and establishment is not practical without toe clipping for this species, as they cannot be reliably identified to an individual level from their natural markings. However, this method will not be used as it is widely considered to be unethical. Therefore, the design of the post-relocation monitoring work will be focussed on achieving population persistence at the site over five years following lizard release.

Post-release monitoring will consist of a mark-recapture[1] live capture survey over one week during fine weather between November and February annually. One to two pitfall traps will be placed at each wood and rock pile throughout the reserve. The pitfalls will be covered with an ACO to provide additional thermoregulatory advantages and attract more lizards to the traps. The pitfall traps will be left in place for the entire monitoring period (five years). However, the ACOs will be removed between each year of monitoring as not to influence population dynamics. All skinks captured and measured (snout-vent length, tail vent length, regen tail length), sexed, photographed and marked with an ID number.

Numbers tracked during each monitoring session can be compared over time to provide some indication as to how skinks are faring at the site. These methods will not provide accurate estimates of population size or trends over time. However, these methods will determine skink persistence at each pile, and can inform the ongoing management prescribed for the site.

Adaptive management

If capture rates decline during the initial lizard monitoring period at the release sites, post-release monitoring will continue for another five years to determine if (any) management interventions are required. Management interventions may include increased predator control, or increased habitat enhancement. These interventions will be determined in consultation with NTP, ECan, and DOC, on an as required basis, based on follow up monitoring in the shoulder season (i.e. October or March), and a review of predator control success, and habitat enhancement (Sections 10.2.2 and 10.2.3 below).

10.2.2 Objective 2 – Plant survival

Monitoring

Enhancement planting and maintenance will occur only at Kōwhai Grove. As described above in Section 7.4.2, monitoring and maintenance will be commissioned by NTP and implemented by a ECan approved contractor for five years after planting. Planting will be followed by monitoring visits two to three times a year for the first three years followed by annual monitoring visits for years four and five.

Adaptive management

If plant monitoring indicates that plant losses exceed 10% within the first two years, the affected plants will be replaced at the expense of NTP, as described in Section 7.4.2, which is a standard condition of planting contracts. In such cases, an assessment will be undertaken to determine the underlying causes of the plant loss.

If any pest plant incursions are detected during the monitoring period, a suitably qualified and ECan approved contractor will be commissioned by NTP to address the incursion, following the methods outlined in Section 7.4.2 and Appendix 4.

10.2.3 Objective 3 – Reduction of mammalian pests

Monitoring

Mammalian pest control will be undertaken throughout both release sites. As described in Section 7.5, monitoring will be undertaken by a suitably-qualified ECan-approved contractor, commencing two

[1] Marking will consist of using a xylene free silver sharpie to number each skink caught, with a dot on the top of the head and a corresponding number on the ventral or lateral surface of each skink.

months prior to lizard release and continuing for five years to reduce predation pressure while lizards establish within the new release site.

Due to the small size of the Kōwhai Grove site, there is unlikely to be any beneficial statistical analysis that can be done with such limited monitoring data. However, tracking tunnels will provide data on rodent activity levels within the release area, and surveillance for hedgehogs and other threats such as weasels. A tracking tunnel survey will be carried out twice per year, in spring and autumn, with six tracking tunnels placed in a line through the middle of the site. The tunnels will be baited with peanut butter for three fine nights.

Adaptive management

As described in Section 7.5, after hedgehogs have been eradicated from the release site, fence breaches may occasionally occur and these should be detected in traps or tracking tunnels. Upon discovering a hedgehog reinvasion, DOC-series trap checks will increase in frequency to once per week until they are no longer detected. The fence should be inspected to see if any holes have formed, though hedgehogs may get through the fence even if it is intact.

Within rodent bait stations, bait take will fluctuate throughout the year, and pulsing (as described above) reduces the risk of bait aversion developing within the rodent populations. However, if bait take becomes reduced despite abundant rodent sign, a pulse of brodifacoum will be implemented before returning to diphacinone for following pulses.

If tracking tunnel monitoring indicates that current pest control methods are not having an effect on predator abundance (despite trapping and baiting, pest mammal tracking is consistently high), pest control methods, such as bait or poison type, will be reassessed. Pest control methods for additional mammalian pest species may also be considered, including for the brushtail possum (*Trichosurus vulpecula*) and/or feral cats. If pest control methods need to vary this will be determined in consultation with NTP, and ECan.

Responsibility: NTP, Project Herpetologist, ECan approved contractor.

11.0 Reporting

11.1 Salvage report

A salvage report will be prepared, including details of the lizard species, capture locations, and number of individuals salvaged and release at the release sites. This report will also include details around the enhancement of the release site and compliance with the WAA permit issued. The report will contain information regarding the success of the lizard salvage and any adaptive management that was required.

Lizard species and location details will be provided to DOC within six months of salvage completion as a part of the Wildlife Approval permit obligations. ARDS cards will be completed and submitted to DOC.

This report will be provided to CCC, ECan, DOC, and mana whenua, as required.

11.2 Annual monitoring report

A monitoring report detailing the outcomes of the release site will be prepared annually for five years post-salvage. The report will contain information regarding the success of the habitat enhancement (enhancement planting and pest mammal control) and lizard salvage (post-release lizard monitoring) and suggest any adaptive management that is required.

This report will be provided to CCC, ECan, DOC, and mana whenua, as required.

12.0 Significance of Effects After Management

Accurately predicting the level of effect with mitigation in place is difficult, but Table 10 gives a broad picture of how effects can be significantly reduced with mitigation measures in place. We consider that if the effects management outlined in this plan are properly implemented, the overall level of effect will be **less than minor.**

Table 10 – Potential significance of ecological effects if effective mitigation is implemented as recommended above.

Effect	Level of Adverse Effect Without Mitigation	Mitigation	Level of Effect With Mitigation
Accidental displacement and harm (injury/death) to lizards	More than minor adverse effects	Lizard salvage and relocation (Section 6.3). Contingencies and risks with proposed management is considered (Section 9.0). Incidental Discovery Protocol (Appendix 6).	Minor adverse effects
Disturbance to lizards during earthworks	More than minor adverse effects	Lizard salvage and relocation (Section 6.2) Contingencies and risks with proposed management is considered (Section 9.0). Incidental Discovery Protocol (Appendix 6)	Minor adverse effects
Loss of habitat for indigenous lizards	Minor adverse effects	Release site will be enhanced to create additional lizard habitat (Section 6.3).	Less than minor adverse effects
Breeding failure/behavioural effects to lizards	Less than minor adverse effects	Lizard salvage and relocation (Section 6.3).	Less than minor adverse effects

Acknowledgments

Dean Christie from NTP; and Georgia Brown and Anne Wilkins from Novo Group are thanked for providing access and information in regard to works happening at the site. Jean Jack (ECan) is thanked for their help in providing the release sites.

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Appendix 1

Authorised personnel – relevant experience

Wildland Consultants Ltd will provide a highly skilled team with extensive and long-term experience in lizard salvages and relocations and implementation of Lizard Management Plans. **Samantha King** will lead the project, working closely with **Jade Christiansen**, **Cameron Thorp** and **Anna Meban**, who are all highly experienced in undertaking lizard salvages.

Samantha King

Senior Herpetologist and Ecologist - Christchurch

Samantha King has more than eleven years of experience working on a diverse range of herpetofauna projects, and completed her MSc in Conservation Biology studying the genetics and morphology of a rare species of South Island green gecko. Samantha's field experience includes lizard surveys, salvage, release and monitoring using a range of species-specific methods (including lizard radio tracking and tail tipping for genetic analysis). Samantha also has extensive experience preparing and implementing Lizard Management and Conservation Plans, Compliance Reports and Monitoring Reports.

Samantha has worked under several survey permits:

- South Island survey permit (excluding PCL; 96003-FAU)
- Auckland(82063-FAU) and Canterbury (81898-FAU) region survey permits
- MSc research permit (63428-FAU)
- Cypress mining wildlife permit (WC-31903-FAU) (Solid Energy)
- Rockies and Millerton mines, (WC-32714-FAU),
- Under Marieke Lettink's permit (35196-FAU)
- The Escarpment Mine authority (36887-FAU).

Following correspondence with the Department set out below are the following details regarding Samantha King in order to meet the criteria that the Lizard TAG applies.

Appropriate qualifications as an ecologist

- MSc, Conservation Biology, Massey University, 2018. Thesis: Genetic and phenotypic variation used to identify populations of endangered green gecko (*Naultinus*) found in the north-west South Island, New Zealand.
- Postgraduate Diploma Science, University of Auckland, Environmental Management, 2017
- BSc, Environmental Studies, Victoria University of Wellington, 2011
- Completed online Department of Conservation training courses:
  - Bird identification.
  - Wildlife health.
  - Introduction to natural heritage.

Suitable and relevant field skills from New Zealand and NZ lizard and frog species. Experienced in the conservation management and/or ecological requirements of most/all NZ Not Threatened and At Risk lizard species (and many Threatened or Endangered species).

- Herpetofauna management including searching, handling, monitoring, attaching small radio transmitters, and tail tipping for genetic analysis. (36887-FAU), (63428-FAU).

- Diurnal green gecko searches on West Coast, Golden Bay and Takaka Hill, Boyle River, Hanmer, Waiau Valley, Kaikoura Range, Leetham Valley, Wairau Valley, and Rakaia Gorge. (96003-FAU, 35196-FAU).
- Pitfall trapping for annual scree skink surveys in Mt Somers. (35196-FAU).
- Funnel trapping for Roamatimati and white-bellied skinks in the Rangitata head waters. (35196-FAU).
- Spotlighting for green geckos in Abel Tasman National Park. (35196-FAU).
- Field project leader for Escarpment Mine lizard salvage and management, with a leadership role in site hazard and risk assessments, creating efficient and novel species-specific survey techniques (36887-FAU).
- Spotlighting and manual searches for Archey's and Hochstetter's frog in Coromandel, Auckland.
- Undertaking biodiversity inventories for Oceana Gold WKP expansion – Coromandel including for forest gecko, and two frog species 2018-2021.
- Providing expert advice for surveying lizards on post-rehabilitated vegetation of Stockton Mine – March 2019.
- Providing expert advice on green gecko habitat preference and surveys on Denniston and Stockton plateaux – March 2019 (36887-FAU).
- Surveys and conservation management advice for green geckos in the Nelson region for Nelson City Council and Tasman Pine ltd.
- Contributing to the Nelson City Council resource management plan on habitat requirements for Nationally Endangered or At Risk lizard species, with specific regard to green geckos. March-April 2019.
- Leading field surveys for lizards, using a variety of techniques in Kahurangi National Park, January 2021.
- Herpetologist for Coleridge Downs Irrigation Pipeline Lizard Salvage
- Lizard Management Plans for complex projects such as McCallums Mill Road, and Kawatiri Coastal Trail, 2021.
- Undertaken lizard salvage and consent monitoring of a sandmine in Auckland with spotlighting for *Dactylocnemis pacificus* and *Naultinus elegans,* 2021. (Surveys under 82063-FAU).
- Spotlight and pitfall surveys for lizards at Stillwater for Penlink roading project (82063-FAU).
- Pitfall trapping for grass skink in Canterbury.
- Lizard survey for Mackenzie District Council, 2023.
- Designed and established the NZDF Tekapo Military Training Area lizard monitoring, 2025.
- Tree ACO surveys for Tautuku gecko, broad-cheeked gecko and Waitaha gecko, 2023-2025.
- Set up and monitoring for Nationally Critical and Threatened species including harlequin gecko, West Coast green gecko, Southland green skink, and small-eared skink 2022-2025.
- Population distribution surveys for Alborn skink, including at Mahoneys Pakihi, Slab Hut Pakihi and Big River, 2021-2025.

Have complied with all permit conditions of pervious permits, including reporting.

- Sam has always complied with permit conditions of pervious permits, including reporting. In her capacity as field leader Sam has had to ensure that conditions of permit are upheld by all workers.
- Annual reporting for WAA:
  - Annual reporting for 96003-FAU.
  - Auckland and Canterbury regions and end of survey summaries, including ARDS reporting.
- Writing scientific and advisory reports specifically for clients such as the Department of Conservation, Bathurst Resources Ltd and Solid Energy.

- Annual Lizard Salvage and Monitoring Report contributing author – Escarpment Mine Bathurst Resources Ltd, 2014. (36887-FAU)
- Annual wildlife permit reporting for Cypress Mine WC-31903-FAU (Solid Energy), and Rockies and Millerton mines, WC-32714-FAU (Solid Energy) between 2012 and 2015.
- Annual wildlife permit reporting for Coleridge Downs Irrigation Pipeline Lizard Salvage.
- WAA compliance reporting for LMPs following salvage.

Evidence of Lizard Management Plans:

- *Kawatiri Coastal Trail Lizard Management Plan – Kawatiri Coastal Trail Trust - 90101-FAU.*
- *Oparara Arches Lizard Management – McCallums Mill Road LMP – DOC.*
- *Coleridge Downs Irrigation Pipeline WAA Variation – Private.*
- *Te Arai South LMP – Private.*
- *Smooth Hill LMP – GHD / Dunedin City Council.*
- *34 Kauri Point Road LMP – Private.*
- *Faringdon Oval LMP - 102434-FAU.*
- *235 Kanohi Road LMP – Transpower.*
- *Westland Mineral Sands LMP – 9 Mile.*
- *Southland Wind Farm LMP – Contact Energy.*
- *Mornington Rd LMP – Dunedin.*
- *Corban Reserve LMP – Watercare (Auckland Council).*
- *Hanmer Elevations LMP.*
- *130 Styx Mill Rd Subdivision 108830-FAU.*

Reviewed and signed off on the following LMPs:

- *Nevis Valley Gold LMP.*
- *Coronet Peak LMP.*
- *NZDF pipeline LMP- 117243-FAU.*
- *Tosswill Rd LMP – Ngai Tahu Properties Ltd– 118761-FAU.*
- *121 Halswell Junction Road LMP – 118123-FAU.*
- *Hororata Pipeline LMP – Canterbury Plains Water Ltd.*

Jade Christiansen

Herpetologist – Christchurch

Jade Christiansen has five years of experience working with lizards in New Zealand. Jade has a Master's of Science in Zoology (2023) from the University of Otago investigating the translocation and habitat preferences of Kapitia skink (*Oligosoma salmo* – Nationally Critical). During her studies (between 2018 and 2023), Jade was involved in a range of herpetological work which included monitoring a range of lizard species, specifically those found in the Otago region. Since 2023, Jade has been employed as a herpetologist, where she has experience in the preparation and implementation of Lizard Management Plans, primarily within the Canterbury region.

Jade's field experience includes lizard surveying, translocation, salvage and monitoring using a range of methods including hand capture, visual searching, spotlighting, burrow-scoping and radio tracking, as well as, trail camera and tracking tunnel monitoring.

Following correspondence with the Department set out below are the following details regarding Jade Christiansen in order to meet the criteria that the Lizard TAG applies.

Appropriate qualifications as an ecologist:

- MSc, Zoology, University of Otago, 2022. Thesis: Habitat use and translocation techniques for the critically endangered Kapitia skink, *Oligosoma salmo*.
- BSc, Zoology and Ecology, University of Otago, 2020.

  Suitable and relevant field skills from New Zealand and NZ lizard species. Experienced in the conservation management and/or ecological requirements of most/all NZ Not Threatened and At Risk lizard species (and many Threatened or endangered species).
- Tuatara monitoring at Orokonui ecosanctuary (hand capture, trail camera monitoring, burrow scoping, and spotlighting, as well as, artificial retreat and tracking tunnels for hatchlings), 2018-2023.
- Teaching, advocacy and research of captive lizards at University of Otago (lizard handling – korero gecko, jewelled gecko, Otago skink), 2020-2022.
- Kapitia skink translocation monitoring and habitat assessment – Masters research and annual population monitoring (Artificial retreats (ground and arboreal), tracking tunnels, fluorescent powder, trail cameras, tail tipping), 2020-2022.
- Research assistant on kōrero gecko research (hand capture, rock turning, radio tracking), 2018-2019.
- Surveys and long term-monitoring for grass skink in Canterbury.
- Surveys for *Naultinus* sp. (jewelled gecko, rough gecko and barking gecko).
- Salvage and release for grass skink in and around Christchurch.
- Supervised progressive vegetation clearance for northern grass skink, 2024 and southern grass skink, 2025.
- Surveys for roamatimati and Mackenzie skink for NZDF, Tekapo Military Training Area, 2025.
- Supervised vegetation clearance for West Coast green gecko, 2024.
- Population distribution surveys for Alborn skink at Big River, 2025.
- Arboreal artificial retreat surveys for Tautuku gecko, 2024-2025.

Have complied with all permit conditions of pervious permits, including reporting.

- Jade has always complied with permit conditions of pervious permits, including reporting.
- Contributing author on different compliance reports:
  - Creamery Ponds, Halswell (94672-FAU).
  - Bellgrove, Rangiora lizard salvage reports (100703-FAU).
  - Faringdon Oval (102434-FAU).
  - Kawatiri Coastal Trail - Section 6 (90101-FAU).

Evidence of Lizard Management Plans:

- Styx Mill subdivision LMP – 108830-FAU.
- Tekapo Military Camp pipeline LMP – 117243-FAU.
- 179 Milns Road subdivision LMP – 117499-FAU.
- 121 Halswell Junction Road subdivision LMP – 118123-FAU.
- 93 Tosswill Road subdivision LMP – 118761-FAU.

Cameron Thorp

Herpetologist – Dunedin

Cameron Thorp has seven years' experience working as a herpetologist in New Zealand. Cameron previously worked for EcoGecko Consultants (2018-2019) before joining Wildland Consultants in 2019. Cameron is experienced in the set up and implementation of lizard surveys, monitoring programmes and lizard salvages across New Zealand, and writing Lizard Management Plans, and Assessments of Ecological Effects (AEEs)/Ecological Impact Assessments (EcIAs). Cameron has worked with a wide range of species across the country, including in alpine environments and with Nationally Critical species. He is currently serving on the Council for the Society for Research on Amphibians and Reptiles in New Zealand (SRARNZ).

Following correspondence with the Department set out below are the following details regarding Cameron Thorp in order to meet the criteria that the Lizard TAG applies.

Appropriate qualifications as an ecologist

- Master of Science with Honours, Ecology, University of Otago.
- Post-graduate Diploma, Endangered Species Recovery, Durrell Wildlife Conservation Academy (Mauritius), 2014.

Suitable and relevant field skills from New Zealand and NZ lizard species. Experienced in the conservation management and/or ecological requirements of most/all NZ Not Threatened and At Risk lizard species (and many Threatened or endangered species).

- Experience surveying, including spotlighting, hand-searching, funnel traps (Gee's minnow traps and other forms of funnel trap), pitfall traps and artificial cover objects (such as Onduline and closed-cell foam covers), handling, recording morphometrics, monitoring (including mark-recapture studies), and translocating New Zealand lizards.
- Department of Conservation: surveys for Data Deficient lizard species, including alpine rock skink (Canterbury 2022), awakopaka skink (Fiordland 2020-2023) and hura te ao gecko (Otago 2020-2022), post-translocation monitoring for ornate skink and ngahere gecko on Matiu/Somes Island (Wellington 2018-2020), supervised vegetation clearance for McCallums Mill Road Widening/Ōpārara Arches Lizard Management (West Coast 2022).
- Rangitāne o Manawatū lizard handling and surveying training (Matiu/Somes Island and Manawatū 2023).
- Porirua City Council: surveys of six council reserves (2020-2021).
- Wellington City Council: surveys of two council reserves (2020), Miramar Peninsula surveys at Moa Point (2022).
- Greater Wellington Regional Council: long-term monitoring programme at Baring Head (2018-2021).
- Whanganui District Council: Plan Change 58 lizard survey, including discovering the largest known population of a Nationally Critical species (2021).
- Hawke's Bay Regional Council: survey of Napier population of northern spotted skink (2021).
- Waka Kotahi NZTA: Otaki to North of Levin motorway surveys (Kapiti Coast/Horowhenua 2021-2022), Takitimu North Link lizard salvage (Tauranga 2021), State Highway 58 Safety Improvements lizard salvage (Wellington 2019-2020).
- Mercury Energy's Turitea Wind Farm lizard survey and salvage of barking gecko, ngahere gecko and ornate skink (Palmerston North 2019-2020).
- OceanaGold's Macraes Phase III and Coronation Projects lizard monitoring (Otago 2018-2019), and Deepdell, Camp Creek and Cranky Jim's covenant lizard monitoring (2023).

- Lizard surveys for community groups, including: Kaipupu Wildlife Sanctuary and Picton Dawn Chorus (Marlborough 2019), Makara Peak Supporters (Wellington 2020), Sustainable Wairarapa (Onoke Spit and Ocean Beach 2020, Castlepoint 2021), ZEALANDIA wildlife sanctuary (Wellington 2019).
- University of Otago study: monitoring and radio-tracking of translocated ngahere geckos (Mana Island 2018).
- Various surveys for subdivision, afforestation and other development projects particularly in the Wellington, Christchurch, and wider Otago regions between 2018-2024.

Have complied with all permit conditions of pervious permits, including reporting:

- Cameron has always complied with permit conditions of pervious permits, including reporting.
- Author on compliance reports, including lizard salvage and monitoring reports (e.g., *Chard Farm, Gibbston lizard salvage* (100542-FAU)).

Evidence of Lizard Management Plans:

- LMP for a subdivision at 49 Cleat Street, Whitby, Porirua (97664-FAU).
- LMP for Styx Mill Road subdivision, Casebrook, Christchurch (108830-FAU).

Anna Meban

Ecologist – Christchurch

Anna Meban has three years' of experience working with lizards in New Zealand. Anna has a Masters of Science in Conservation and Ecology (2024) from Lincoln University investigating the bait preferences in rabbits in the Mackenzie and Otago districts. During her studies Anna has been involved with a range of herpetological work as a student intern at the Department of Conservation and Wildlands as a casual employee. Anna's field experience includes lizard surveying, salvage and monitoring using a range of methods including, spotlighting, tracking tunnels and visual searches

Following correspondence with the Department set out below are the following details regarding Anna Meban in order to meet the criteria that the Lizard TAG applies.

Appropriate qualifications as an ecologist:

- MSc, Conservation and Ecology, Lincoln University, 2024. Thesis: Bait preferences in rabbits (*Oryctolagus cuniculus*) and non-target species in rabbit-prone areas of New Zealand's South Island
- BSc, Conservation and Ecology, additional major Parks and Outdoor Recreation, Lincoln University, 2021
- Internship with Department of Conservation, Mahaanui Office, Canterbury, 2021

Suitable and relevant field skills from New Zealand and NZ lizard species. Experienced in the conservation management and/or ecological requirements of most/all NZ Not Threatened and At Risk lizard species (and many Threatened or endangered species).

- Experience surveying, using a range of different techniques including spotlighting, hand-searching, funnel traps (Gee's minnow traps), pitfall traps and artificial cover objects (such as Onduline), handling, monitoring, and salvage and release of New Zealand lizards.
- Species specific work undertaken as part of field surveys or monitoring programmes with New Zealand herpetofauna includes the following species: *Oligosoma* aff. *polychroma* 'Clade 5', *Oligosoma* aff. *polychroma* 'Clade 4', *Oligosoma maccanni, Oligosoma aeneum, Oligosoma* aff. *longipes* "southern", *Woodworthia* cf. *brunnea, Woodworthia chrysosiretica,* and *Naultinus gemmeus.*
- Lizard surveys and habitat assessments for subdivisions and development projects, particularly in Christchurch, the wider Canterbury region and North Island (e.g. Bowenvale, Cunliffe Road, Milns Road, Tekapo Military Camp, SH3 New Plymouth, Pound Road, Woodend Bypass) (2022-2025).

- Lizard salvage fieldwork around Christchurch (e.g. Creamery Ponds, Bellgrove, Farringdon Oval, Styx Mill Road) (2023-2025).
- Habitat assessments (e.g. Amberly Beach, Leistrella Road, Johns Road) (2023-2025).
- Department of Conservation jewelled gecko monitoring (2021).

Have complied with all permit conditions of pervious permits, including reporting.

Anna has always complied with permit conditions of previous permits, including reporting.

- Contributing author on different compliance reports, including lizard salvage and monitoring reports (Styx Mill Road Lizard Salvage, 179 Milns Road).

Contribution to and author of Lizard Management Plans:

- *Ashley Solar Farm.*
- *CPWL Hororata River.*
- *Cashmere Estates Stage 5 & 6.*

Appendix 2

Lizard survey results for north-western section of the Pound Road industrial development site

Figure 3a. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Lizard survey results for north-eastern section of the Pound Road industrial development site

Figure 3b. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Lizard survey results for south-western section of the Pound Road industrial development site

Figure 3c. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Lizard survey results for south-eastern section of the Pound Road industrial development site.

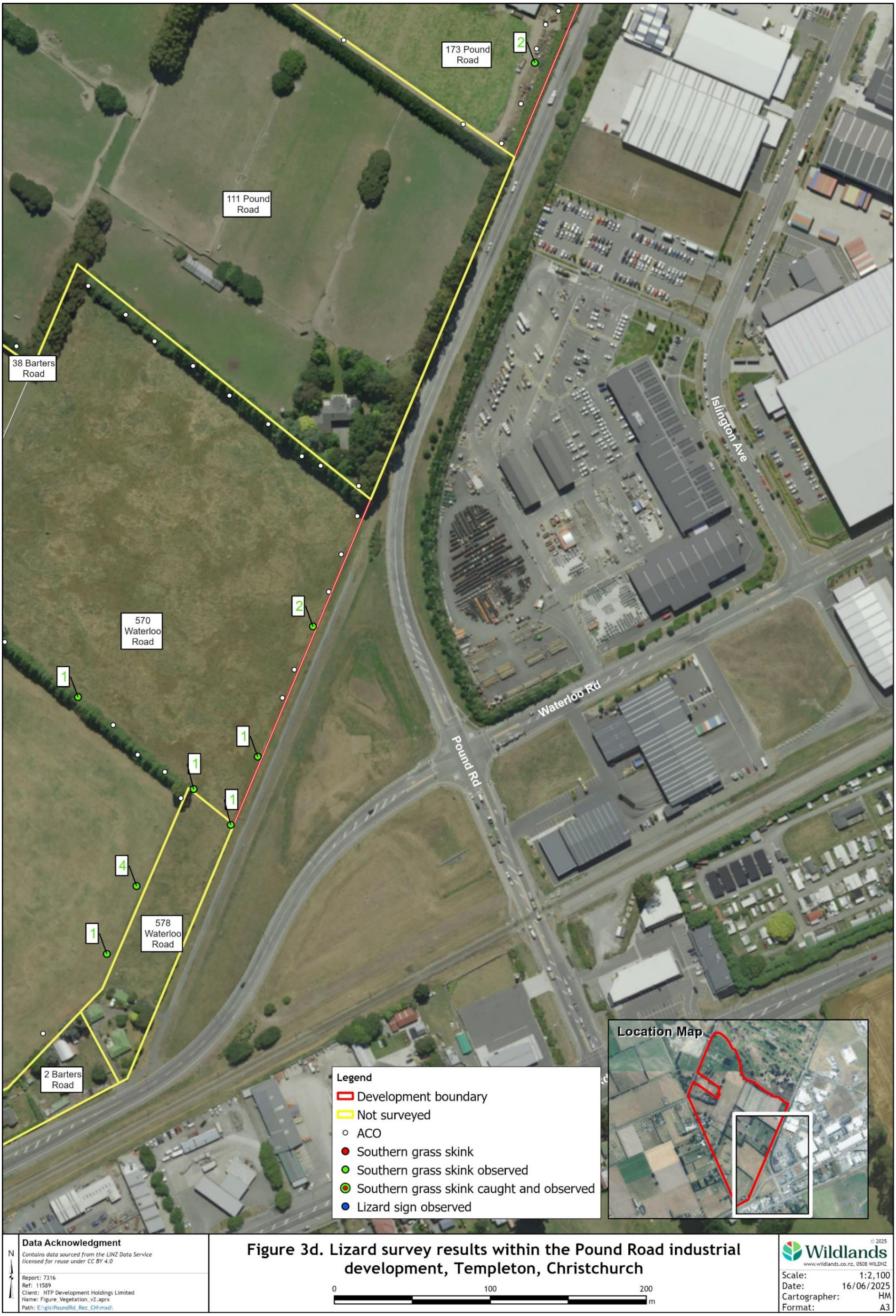
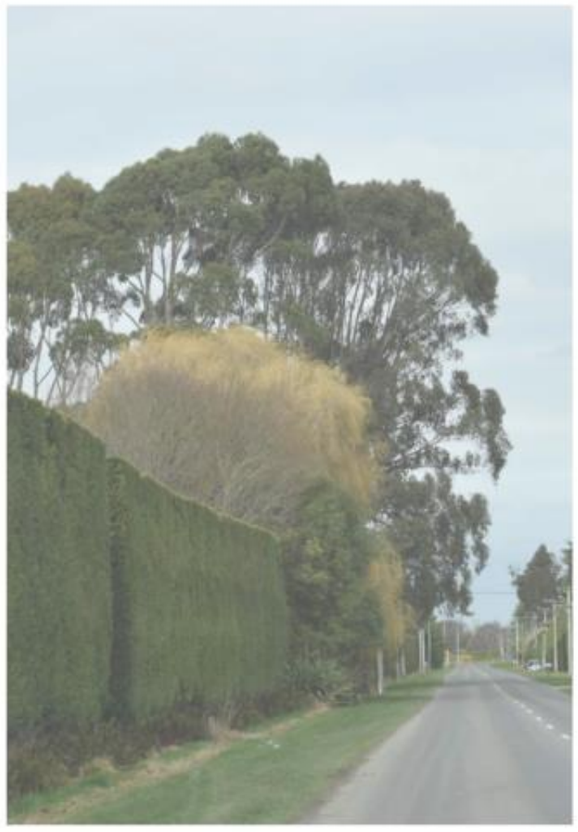


Figure 3d. Lizard survey results within the Pound Road industrial development, Templeton, Christchurch

Appendix 3

Pound Road Industrial Development lizard habitat landscape design



Pound Road Industrial Development

Landscape Offset Enhancement

LANDSCAPE DESIGN

ADDRESS: 173 Pound Road, Islington, Christchurch, 7676
PROJECT NO.: 383004
CLIENT: NTP Development Holdings Limited

STATUS: For resource consent
REVISION NO.: A
DRAWN/REVIEWED: ECF/AW

Offset Sheet List		
LO.01	A	Landscape Offset Enhancement - Overall
LO.02	A	Landscape Offset Enhancement - Planting details
LO.03	A	Landscape Offset Enhancement - Sections
B.01	B	Lot 73 Proposed Bunding/Buffer Planting

1 Proposed Waterway Buffer
Scale: 1:3000

2 Images of existing Waterway/Drain
Scale: NA

LEGEND

- Proposed Application Site
- Drain - above ground
- Drain - culvert
- Drain - proposed cluvert
- Proposed 5m vegetation buffer

NOTES:

1. Total area of proposed buffer planting ~4085m² (0.48ha).

2. The buffer planting has the potential to provide secondary lizard habitat. See plant species and notes on LO.01.

GENERAL NOTES:

A. THE CONCEPT PLAN IS BASED ON INFORMATION PROVIDED ON BEHALF OF/ BY THE CLIENT.

B. THE PLANS HAVE BEEN PREPARED TO ACCOMPANY THE RESOURCE CONSENT. THE PLANS ARE TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DOCUMENTS.

C. INTENDED SOLELY FOR THE USE OF THE CLIENT IN ACCORDANCE WITH THE AGREED SCOPE OF WORKS.

D. INFORMATION CONTAINED WITHIN THIS DRAWING IS THE SOLE COPYRIGHT OF NOVO GROUP AND IS NOT TO BE REPRODUCED WITHOUT THEIR PERMISSION.

E. CONSTRUCTION DRAWINGS AND SPECIFICATION ARE NOT INCLUDED AS PART OF THIS STAGE OF WORK.

REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Landscape Offset Enhancement - Overall

PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO. 383004	DRAWN EOF
SCALE 1:3000	DATE 13/06/2025
SHEET NO. LO.01	REVISION NO. A
STATUS For resource consent	

Oioi
Apodasmia similis
1m W x 1m H
Medium - Slow growth rate

South Island Toetoe
Austroderia richardii
2m W x 2m H
Rapid growth rate

Mingimingi
Coprosma crassifolia
2m W x 4m H
Medium growth rate

Ti Kouka
Cordyline australis
2m W x 10m H
Medium - Rapid growth rate

Manatu/ Ribbonwood
Plagianthus regius
4m W x 12m H
Medium - Rapid growth rate

Pukio
Carex secta
1.5m W x 1.5m H
Rapid growth rate

Harakeke/NZ flax
Phormium tenax
2m W x 3m H
Rapid growth rate

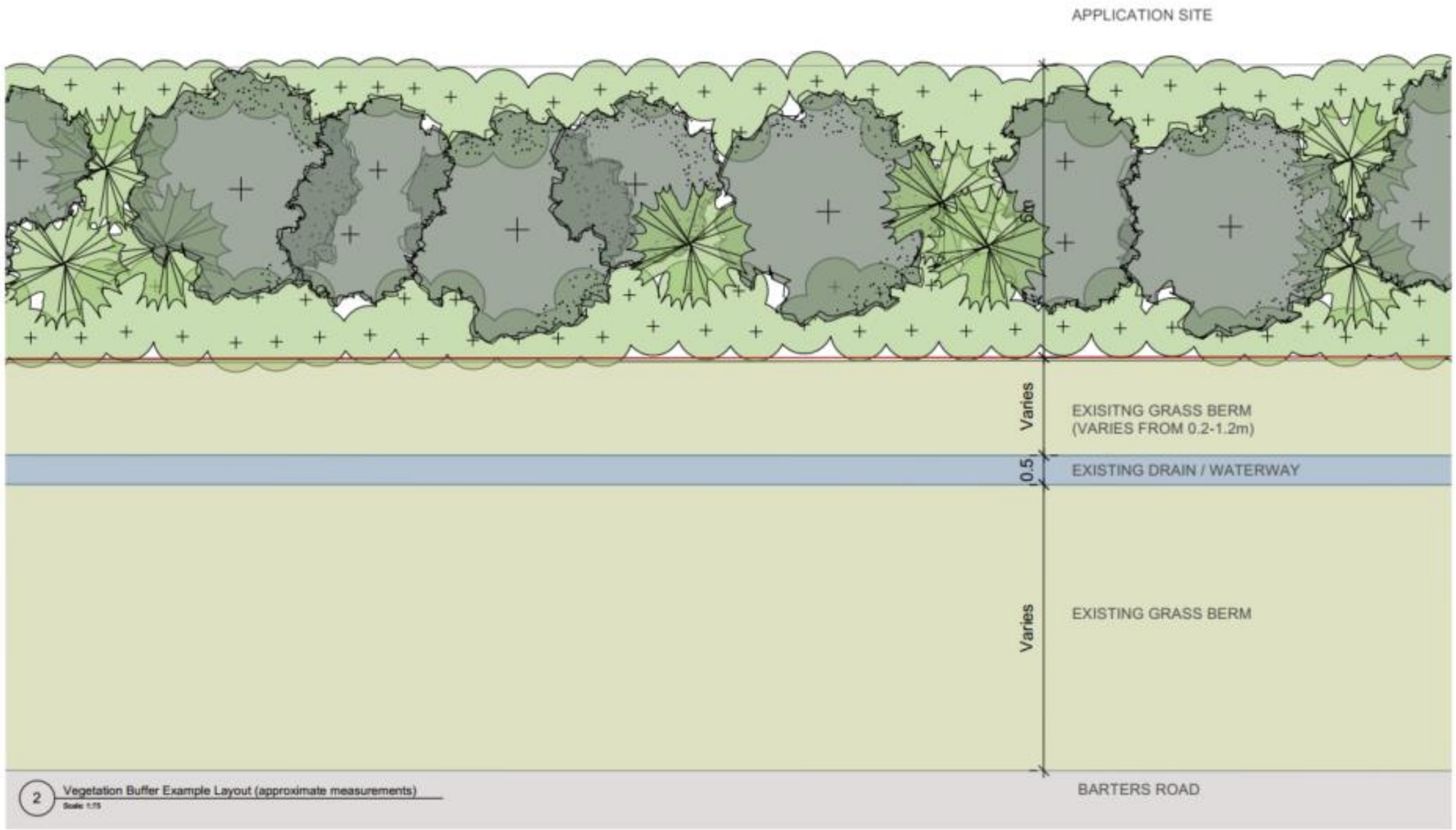
Akiraho / Golden Ake Ake
Olearia paniculata
2.5m W x 4m H
Rapid growth rate

Prostrate Kōwhai
Sophora prostrata
2m W x 2m H
Slow growth rate

Hungere/Narrow-leaved Lacebark
Hoheria angustifolia
3m W x 6m H
Medium growth rate

1 Plant Palette
Scale: N/A

= Grasses / Sedges = Mid height / Shrubs = Canopy / Trees (L) = Lizard friendly



2 Vegetation Buffer Example Layout (approximate measurements)
Scale: 1:75

LEGEND

- Proposed Application Site
- Drain / Waterway
- Grass berm
- Road
- Grasses / Sedges
- Mid height / Shrubs
- Canopy / Trees

NOTES:

1. No mulch, bark or woodchip to be used during implementation or maintenance.

2. All proposed plants are to be eco-sourced from the 'low plains' ecological district where possible (see Appendix 9.1.6.4 Ecological districts map from the CDP).

3. Plants should be kept free of weeds by hand weeding when possible (or weed eaters when absolutely necessary). Chemical spray use to be limited, as the effects herbicides and insecticides have on lizards are largely unknown.

4. Maintenance should take place on warm, sunny days when the daily temperature exceeds 16 degrees as this is when skinks are most active.

5. Where plant loss exceeds 10%, these should be replaced with species from the plant list provided.

6. Potential for rock/wood refugia piles to be added to the buffer planting ~20m. Will be adressed at the detailed design phase.

GENERAL NOTES:

A. THE CONCEPT PLAN IS BASED ON INFORMATION PROVIDED ON BEHALF OF/ BY THE CLIENT.

B. THE PLANS HAVE BEEN PREPARED TO ACCOMPANY THE RESOURCE CONSENT. THE PLANS ARE TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DOCUMENTS.

C. INTENDED SOLELY FOR THE USE OF THE CLIENT IN ACCORDANCE WITH THE AGREED SCOPE OF WORKS.

D. INFORMATION CONTAINED WITHIN THIS DRAWING IS THE SOLE COPYRIGHT OF NOVO GROUP AND IS NOT TO BE REPRODUCED WITHOUT THEIR PERMISSION.

E. CONSTRUCTION DRAWINGS AND SPECIFICATION ARE NOT INCLUDED AS PART OF THIS STAGE OF WORK.

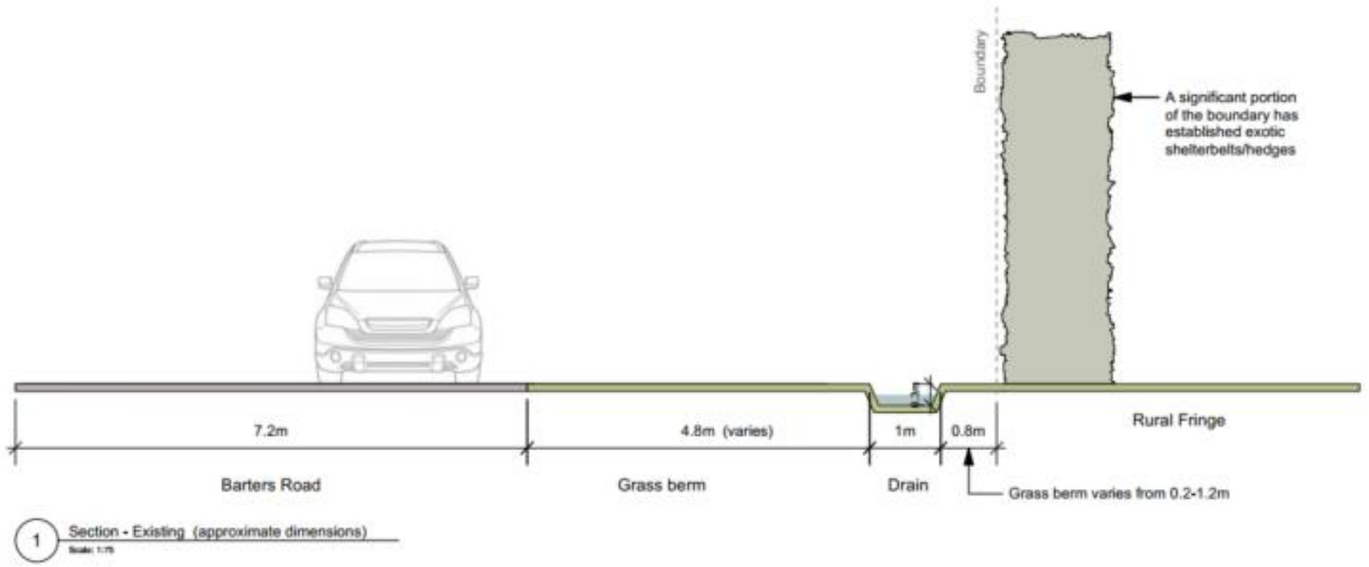
REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Landscape Offset Enhancement - Planting details

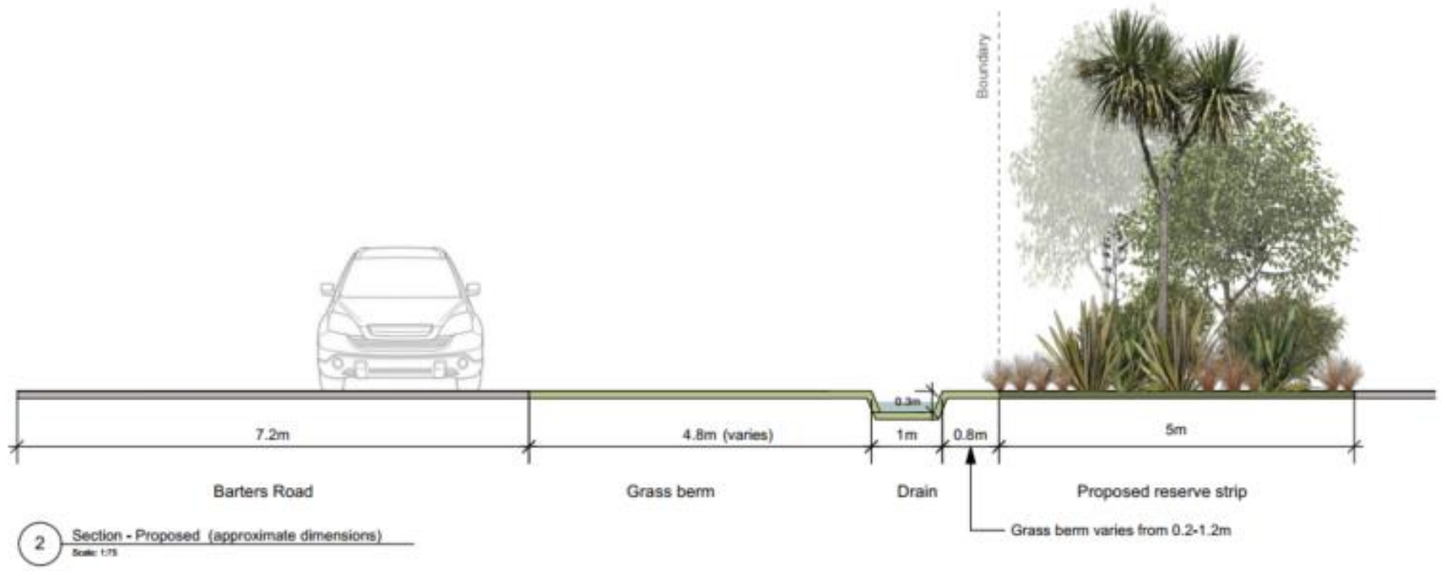
PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO. 383094	DRAWN ECF
SCALE 1:75	DATE 13/06/2025
SHEET NO. LO.02	REVISION NO. A
STATUS For resource consent	



1 Section - Existing (approximate dimensions)
Scale: 1:75



2 Section - Proposed (approximate dimensions)
Scale: 1:75

LEGEND

- Drain / Waterway
- Grass berm / Rural fringe
- Road
- Proposed 5m buffer

GENERAL NOTES:

A. THE CONCEPT PLAN IS BASED ON INFORMATION PROVIDED ON BEHALF OF/ BY THE CLIENT.

B. THIS PLANS HAVE BEEN PREPARED TO ACCOMPANY THE RESOURCE CONSENT. THE PLANS ARE TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DOCUMENTS.

C. INTENDED SOLELY FOR THE USE OF THE CLIENT IN ACCORDANCE WITH THE AGREED SCOPE OF WORKS.

D. INFORMATION CONTAINED WITHIN THIS DRAWING IS THE SOLE COPYRIGHT OF NOVO GROUP AND IS NOT TO BE REPRODUCED WITHOUT THEIR PERMISSION.

E. CONSTRUCTION DRAWINGS AND SPECIFICATION ARE NOT INCLUDED AS PART OF THIS STAGE OF WORK.

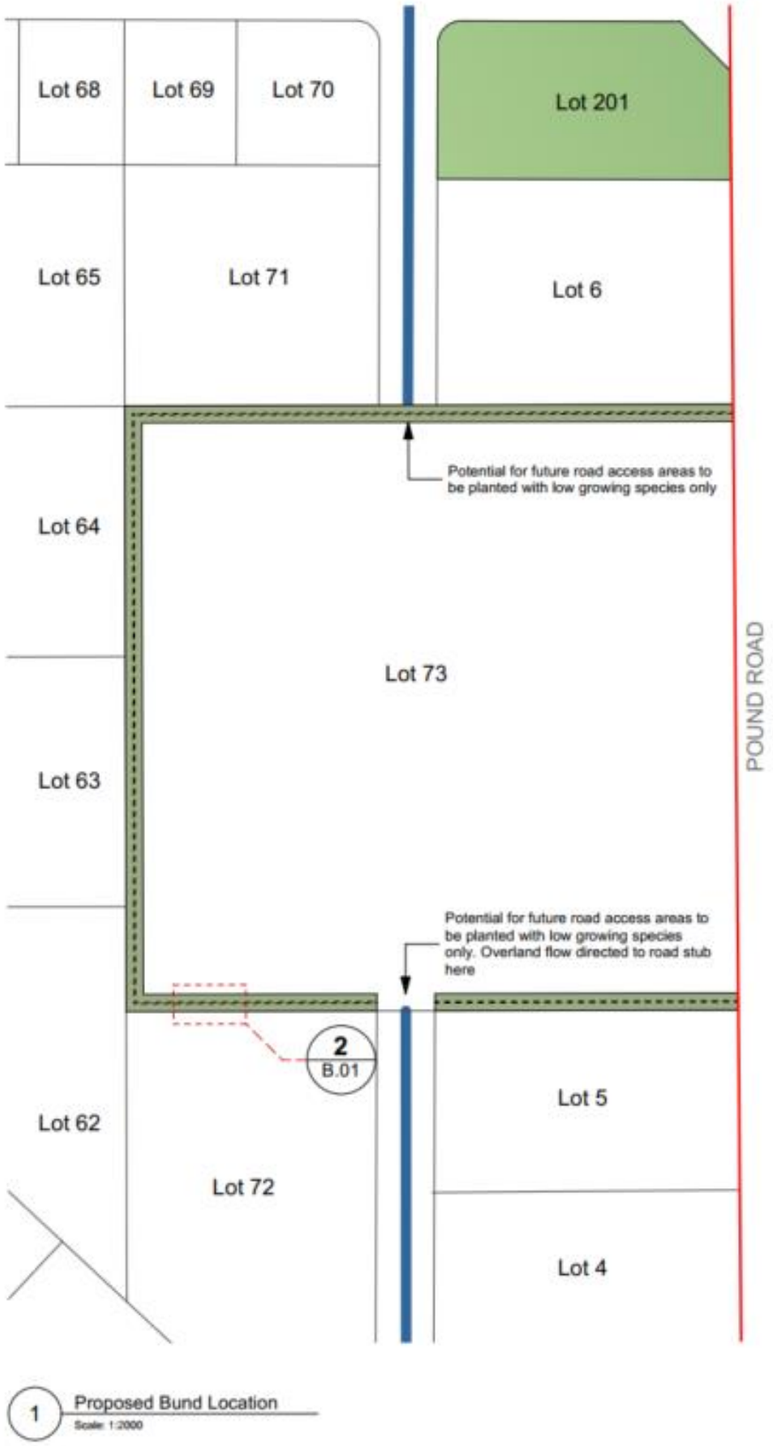
REV	DATE	STATUS
A	13/06/2025	For resource consent

DRAWING
Landscape Offset Enhancement - Sections

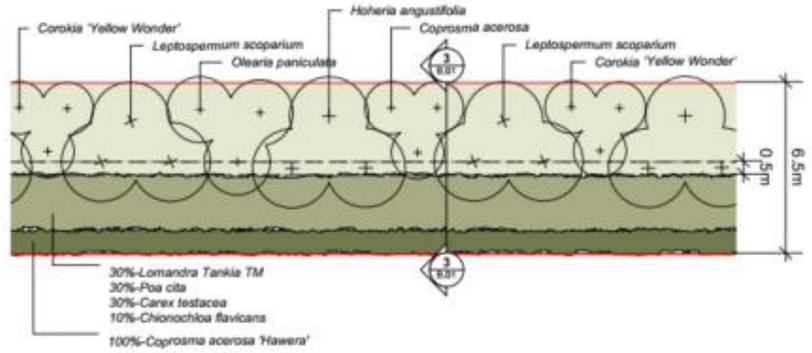
PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

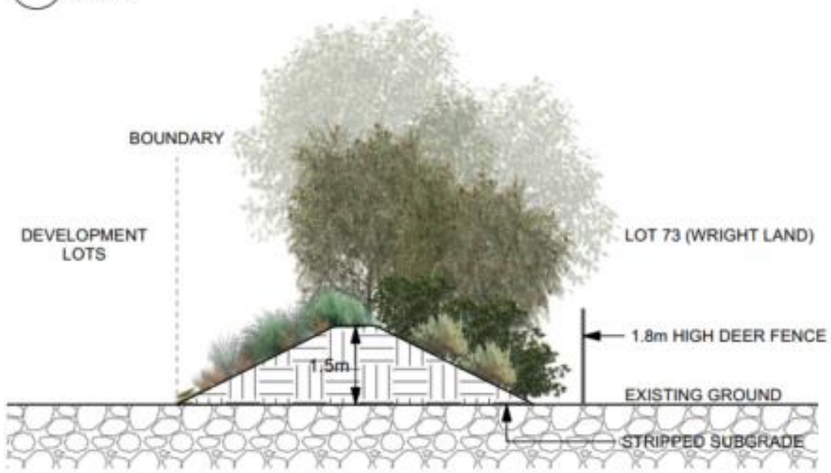
PROJECT NO. 383004	DRAWN ECF
SCALE 1:75	DATE 13/06/2025
SHEET NO. LO.03	REVISION NO. A
STATUS For resource consent	



1 Proposed Bund Location
Scale: 1:2000



2 Typical Planting Layout
Scale: 1:200



3 Typical Cross Section of Bund
Scale: 1:100

Indicative Plant List

ID	Common Name	Botanical Name	Schd. Size	Mature Height	Mature Spread
Trees					
Ho an	Narrow-leaved lacebark	*Hoheria angustifolia*	2.5L	6m	3m
Le sc	Mānuka	*Leptospermum scoparium*	0.2L	4m	3m
Shrubs					
Co ac	Sand coprosma	*Coprosma acerosa*	2.5L	2m	2m
Co 'YW'	Yellow-berried Corokia	*Corokia 'Yellow Wonder'*	2.5L	3m	2m
Ol pa	Akiraho - Golden Ake Ake	*Olearia paniculata*	2.5L	4m	2.5m
Ground Covers					
Co 'Ha'	NZ Sand Coprosma	*Coprosma acerosa 'Hawera'*	0.2L	0.2m	1m
Grasses					
Ca te	Orange sedge	*Carex testacea*	0.2L	0.6m	0.6m
Ch fl	Mini Toe toe	*Chionochloa flavicans*	0.2L	1.2m	1.5m
Lo Ta	Lomandra Tanika (LM300 PVR)	*Lomandra Tankia TM*	0.2L	0.7m	0.7m
Po ci	Silver Tussock	*Poa cita*	0.2L	0.7m	0.8m

LEGEND
- Site boundary
- Proposed bund planting
- Top of bund (0.5m wide)

NOTES:

1. None of the proposed plant species are hazardous to deer.

GENERAL NOTES:

A. THE CONCEPT PLAN IS BASED ON INFORMATION PROVIDED ON BEHALF OF/ BY THE CLIENT.

B. THE PLANS HAVE BEEN PREPARED TO ACCOMPANY THE RESOURCE CONSENT. THE PLANS ARE TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED DOCUMENTS.

C. INTENDED SOLELY FOR THE USE OF THE CLIENT IN ACCORDANCE WITH THE AGREED SCOPE OF WORKS.

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E. CONSTRUCTION DRAWINGS AND SPECIFICATION ARE NOT INCLUDED AS PART OF THIS STAGE OF WORK.

REV	DATE	STATUS
B	13/06/2025	Overland flow considerations
A	13/06/2025	For resource consent

DRAWING
Lot 73 Proposed Bunding/Buffer Planting

PROJECT
Pound Road Industrial Development

CLIENT
NTP Development Holdings Limited

PROJECT NO.	DRAWN
383004	ECF
SCALE	DATE
See drawings	13/06/2025
SHEET NO.	REVISION NO.
B.01	B
STATUS	
For resource consent	

Appendix 4

Weed control methods

Weed control will be carried out during appropriate seasons when weeds can be more easily identified and targeted for control. Different weed control methods are described below, but the exact method to be used on each plant will depend on the species, and its growth stage and location when the control is carried out (refer to Weedbusters[1] for more information). Where necessary, e.g. if seeds are present or as directed, weed plants or seed heads could be bagged and left in secure areas on-site to rot inside the bags, to ensure seeds are not spread. These could be removed from sites, as required, subject to permit requirements for weeds designated as Unwanted Organisms under the Biosecurity Act 1993.

Manufacturers' guidelines, current best practice procedures, and NZ Standards of agrichemical management (NZS 8409:2021) will need to be followed. All mixing of chemicals, and cleaning and refuelling of equipment must be carried out greater than 20 metres from surface water bodies, and care will be taken to minimise the risk of spillage. The amount of herbicide used should be minimised by favouring more direct and manual methods over foliar spraying.

Cut stump and treat

This method is used to control woody weeds and trees that have woody stems. Trunks/stems of the plant are cut close to the ground and herbicide immediately applied to the stump. Herbicide used is either gel-based, in an applicator bottle, or a liquid in a small handheld spray bottle. This is generally recommended for woody pest plants between 0.5 metres and 3.0 metres high. For old man's beard all cut sections need to be left off the ground (e.g. by hanging in adjacent vegetation), with large plants having a 1 metre section of trunk removed to prevent aerial roots from taking root in the soil.

Drill and fill

This method is used on trees and large woody weeds, e.g. wilding conifers. The method is particularly good for large specimens, and involves drilling holes around the trunks and lower stems of the plants, at regular intervals, and immediately injecting herbicide into the holes. The dead trees can remain standing for quite some time (can be years) and this can help to reduce new weeds establishing beneath them, and can be valuable where tree habitat is needed for indigenous fauna in areas where the indigenous trees have not yet established.

Basal treatment

This method is used on trees and woody weeds, e.g. wilding conifers. This method is quicker that cutting/drilling and treating, especially for large or multi-trunked plants. Basal spray is applied via a low-powered spray unit around the entire circumference of the stems/trunks, and to the manufacturer's recommended height for that plant size and bark thickness.

Frilling

This method is another basal treatment that can be used on trees and woody weeds and is recommended when runoff, from basal bark treatment, is considered a risk to surround indigenous biodiversity. A sharp chisel or axe is used to make a deep cut into the sapwood at regular intervals around the base of the tree, taking care not to ring-bark the plant. Immediately apply the recommended herbicide to each cut using a paintbrush or squeeze bottle.

[1] https://www.weedbusters.org.nz/weedbusters/

Hand pulling (non-herbicide manual control):

This method is effective to use on seedlings and small plants of any of the weed species, provided that the entire plant and root system can be removed to ensure that re-sprouting does not occur.

All operators will carry GPS units to track their movements during weed control works, and record points of interest including weed locations or infestations. This will ensure that all necessary areas are covered and weeds encountered. GPS data will be provided to CCC and DOC so it can be accessed using their GIS. In some areas control work should be carried out in a grid formation to enable thorough searching for cryptic or scattered weeds.

Selected data can be collected during weed control works, such as: operators present, general weather conditions, ground covered during the work (via GPS tracking), weed species controlled and control method, new weed infestations located, new hazards encountered and health and safety incidences. This information will help track work that is occurring and identify possible areas for improvements, and could be collated into a spreadsheet for analysis, or (if required), regular reporting. Follow-up control, monitoring of works carried out, and surveillance for new weed infestations needs to be undertaken on an ongoing basis.

Appendix 5

Restoration planting guidelines

This appendix describes the methods that would generally be used for undertaking restoration plantings and covers the following:

- Plant sourcing:
  - Eco-sourcing of indigenous species.
  - Plant size and quality.
  - Care of stock between the nursery and planting.
- Planting:
  - General site preparation.
  - Plant layout and spacing.
  - Timing of planting.
  - Planting technique.
  - Plant protection.
- Planting maintenance:
  - Weed control.
  - Infill planting.

Eco-sourcing of indigenous species

The use of locally-sourced seed is the preferred and well-established way to grow nursery-raised plants for ecological restoration plantings. Plants used in the Pound Road lizard release site planting should be sourced from the Canterbury Plains Ecological Region, which includes:

- Canterbury Plains Ecological Region: Ellesmere Ecological District, Low Plains Ecological District, and High Plains Ecological District.

Regardless of the ecological region the seed is sourced from it should be sourced from populations occupying appropriate abiotic conditions (e.g. harakeke seed should be sourced from populations occupying dryland free-draining habitats, rather than wetland populations).

Plant size and quality

Nursery-raised plants that are to be used for the standard planting schedule should be a minimum of 20 cm tall and with a root collar/basal stem diameter of at least 2 mm. Plants of this size have the best chance of survival and establishment. Plant stock that is too “young”, less than 20 cm tall and with the root collar less than 2 mm diameter, will have a poor root structure, sparse vegetative growth, and likely result in poor plant survival. Small plants are especially vulnerable to competition from introduced grasses and other weeds as they can be easily over-topped and shaded out. Their smaller root systems also take time to grow and become established and are vulnerable to drying out and competition from weed species. Conversely, plant stock that is too ‘old’ will quickly become root bound, have a high risk of the main root curling or binding, and will also likely result in poor plant survival or growth.

To ensure that plant stock will be in optimum condition for planting, plant stock should be checked periodically during the growing season. Plant stock should also be inspected before it leaves the nursery to ensure that it meets the following quality criteria:

- Plant materials should be first class specimens of nursery stock, true to name and type, and free from pests and diseases. They should be well hardened off prior to planting by exposing them to sun, wind and temperature that are similar to the climatic conditions of the site. Plants have high failure rates when they arrive at the planting site directly out of a shade house, and this is a significant cause of death or poor plant growth in many plantings.
- The roots should have a high percentage of fibrous roots that are just touching the edge of their containers. Plants with roots that are wound round their containers in circular fashion should be rejected.
- Plants should be free from disfiguring knots, bark abrasions, wind, or freezing injury or other disfigurements and bear evidence of proper pruning if this is necessary.
- Plants should be at least 20 cm tall. The ratio of plant height to container size, and the sturdiness of the plant, should allow for the plant to remain upright post planting without the need for staking and it should be large enough to minimise smothering by weeds.
- Root collar diameter should be a minimum of 2 mm, as this will provide plants with sturdy and upright growth.
- Only one seedling should be present in each container. Nurseries often quickly prick out a group of seedlings by pinching them between their thumb and index finger or they sow seed directly onto the potting media in the root-trainers. Having multiple seedlings in a container can result in crowded seedlings, inferior plants, and the need to thin seedlings may result in the remaining plants being damaged or not located in the centre of the container for optimum root growth.
- Plants should have a strong, single, central leader, and not be multi-stemmed or light-starved and drawn up by shaded or dark growing conditions. The leaves should be distributed evenly over the plant, and not be clustered toward the tips of the stems.

Care of stock between the nursery and planting

Nursery-raised plants in larger containers are more tolerant of transportation, variable client handling, and less susceptible to drying out. Plants should be kept well-watered from the time of departure from the nursery until the day of planting. Plant stock should be handled with care to reduce plant damage. If planting of a site is to take an extended period of time (e.g. weeks not days), a temporary nursery for holding the stock should be established at the planting site.

Plant stock that dries out prior to planting will have a much higher chance of mortality, and still requires shelter and watering between being supplied and planted.

General site preparation

If required site-preparation spot-spraying will be undertaken to kill exotic ground-cover vegetation and create places for planting. **Blanket spraying of the planting area should not be undertaken on this site,** as wholesale clearance risks harming lizards and the invasion of that area by pest plants. Planting areas are understood to dominated by exotic weed species, but if indigenous species are found, they should be avoided. Site preparation and planting should take place no less than 1.5 metres from any naturally occurring indigenous plants.

An assessment of the area to be planted should be undertaken at least six months prior to planting to identify any problem weed species which may take more than one round of herbicide application. Planting areas should be spot sprayed to 600 mm diameter at least six weeks in advance of planting.

Timing of planting

Planting should take place from late autumn, once summer-dry conditions have passed, through to mid-winter. The goal in these areas should be to plant while there is adequate soil moisture to allow the plants to establish before dry summer conditions return.

Planting technique

The importance of good planting technique should not be under-estimated, and the following guidelines should be followed:

- Ideally all planting should be undertaken by experienced workers in accordance with recognised industry best practice. If volunteers are used, they must be briefed and thoroughly supervised to ensure correct planting techniques are used.
- Care should be taken to ensure that the root ball is not excessively disturbed during container removal or planting.
- The planting hole should be two times the size of the root mass and the soil broken up with a spade as it is dug out of the hole.
- The root ball should be covered by a thin layer of soil. This will prevent it being exposed to the air and drying out.
- The planting hole, when filled in, should form a very shallow depression, to enable rain water to soak in. Once planted, the plant should resist being pulled out of the ground when given a gentle tug.
- If plants start to show signs of water stress (e.g. wilting leaves), watering should be carried out to reduce plant losses.

Plant protection

Newly-planted trees and shrubs can be decimated by browsing by rabbits, possums, or pūkeko (if present), so protection against browsing is critical, if planting occurs before the installation of a rabbit proof fence and implementation of pest mammal management.

- Individual plant guards should be used to protect each plant from browsing. They also provide shelter, increased humidity, reduction of moisture loss, and help to prevent unintended herbicide damage.
- Guards should be removed and once the plants are large enough to outcompete surrounding exotic vegetation.
- We recommended using cardboard plant guards. The cardboard plant guard is robust, biodegradable and resilient, but are more expensive. Due to the wind exposure on the site, cheap and light weight plastic guards should be avoided.

Planting maintenance

Weed control

The plantings should be maintained two-to-three times a year during the first two years following planting, and annually for the next three years. During these visits, plants should be released (weeding around plantings) from exotic vegetation by the spraying of herbicide in a 30 cm radius ring around each guard to ensure they are not outcompeted by surrounding exotic vegetation. As the plants become established (once they achieve >75% canopy cover), they will begin to out-compete other exotic species and the amount of maintenance required will decrease significantly.

Once the ecological restoration plantings have established, pest plant management should focus on the maintenance of the restoration plantings and stopping the spread of the pest plants.

Infill planting

If the plant survival rate is below 90% then replacement of any dead plants (infill planting) should be undertaken. This should be undertaken in years two and three after the original planting, as necessary. The number and species of infill plants should be identified in the February or March proceeding the planting season.

Supplementary plantings of other indigenous species for biodiversity enrichment, should be considered once the initial restoration plantings form a canopy (3-5 years after initial planting). These species should be planted at a density of 15-20 plants per hectare.

Appendix 6

Incidental discovery protocol

Overview

Incidental discovery protocols are set out below for development contractors, and are to be followed if any further lizards are discovered, post mitigation, during early works of the Pound Road development.

Where lizards might be found:

Lizards could be present in and on vegetation such as within rank grasslands including along fence lines, exotic shelterbelts, indigenous hedgerows, ornamental plantings, gardens and dwellings. They may also bask in sunny exposed spots, such as in/on debris piles. They may be uncovered when disturbed by habitat clearance or earthworks.

Following the incidental discovery of a lizard

- Immediately (as soon as discovery of a lizard is made) cease any activities within 10 metres of the place of discovery. If the species encountered is a species with a Threat Classification status of 'Threatened' then all works must cease immediately, until an assessment is made of the works programme risk for that species, and any specific management identified, including avoidance.
- If possible, capture the lizard and place in a container with grass/leaf litter/moss. Ensure to create breathing holes in the container for the lizard. Hold in captivity in a **cool, shady** location out of sun until a decision is made.
- Immediately inform the project herpetologist and operations manager on-site.
- Document:
  - Date and time.
  - Weather conditions.
  - Observer name(s).
  - Photographs of the animal and the location where it was found. Photograph the lizard from above trying to show the head and any markings on the upper body or back. A cell-phone picture is adequate for this and will help with identification of species.
  - Location (GPS coordinates).
  - Species.
  - If injured:
    - What part of the animal is injured? (Photograph the injury).
    - Time since injury (if known).
    - Probable cause of injury (if known).
    - Immediately (within one hour) contact a local veterinarian and the local DOC office (Mahaanui or Rangiora Office), and arrange for the injured lizard to be delivered to the veterinarian. This may require a monetary contribution for care.

- If a carcass is found:
  - Condition of carcass (see below).
  - Approximate time since death (if known).
  - Probable cause of death (if known).
  - Notify the project herpetologist at Wildland Consultants immediately. The project herpetologist will notify DOC and ask for advice on how to proceed.
  - Arrange for the carcass to be sent to Wildbase (06 350 5329), Massey University, in Palmerston North, unless advised otherwise by DOC.
  - If lizards are unable to be captured and/or photographed, note as much detail as possible: what colour was it; what colour patterns; how big was it; whether it was robust or slender; what habitat was it found in? You may need to describe these details to the project herpetologist and the Department of Conservation (DOC).

Should a nationally 'Threatened' lizard species be encountered during construction, the Project Herpetologist will immediately consult with DOC to ask for advice on how to proceed. Further works may not proceed until approval has been granted to continue by the Project Herpetologist and DOC.

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