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ecoLogical Solutions

Environmental Consultants



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SL1 Residential South Development Fish Management Plan

Prepared for:
Saxby Rd JV Limited



water



fauna



flora



land

Quality Assurance

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1.0 Introduction

1.1 Background

Ecological Solutions Limited has prepared the following Fish Management Plan (FMP) in accordance with the SL1 Residential South Development Ecological Impact Assessment (EclA) prepared by Ecological Solutions (Ecological Solutions 2026). The EclA and associated suite of ecological management plans have been prepared as part of a FTAA substantive application for the SL1 Residential South Development.

The SL1 Residential South Development is located at 37a, 71 and 129 Saxbys Road, Hamilton (the 'Residential South Site') (Figure 1). The SL1 Residential South Development will involve the development of residential dwellings and associated infrastructure pertaining to stormwater management and roading.

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

Watercourses to be reclaimed, piped or impacted during the proposed development are classified as artificial drains. Fish trapping within the Residential South Site recorded five native species: shortfin eel (*Anguilla australis*, 'Not Threatened'), longfin eel (*Anguilla dieffenbachii*, 'At Risk – Declining'), giant kokopu (*Galaxias argenteus*, 'At Risk – Declining') and banded kokopu (*Galaxias fasciatus*, 'At Risk – Naturally Uncommon') (Dunn et al. 2025). Shortfin eel are expected to be the most common native species in watercourses proposed to be impacted. No black mudfish were captured during onsite surveys (Ecological Solutions 2026).

This FMP considers the National Policy Statement for Freshwater Management (NPS-FM; MfE 2025), the Resource Management Act, National Environmental Standards for Freshwater (NES-F) and satisfies the requirements of the draft consent conditions.

1.2 Scope and Objectives

The objective of this FMP is to ensure adverse effects on native fish are minimised during watercourse reclamation, diversion or culvert installation.

This FMP describes the approach to be used in the capture of native fish within the development footprint and their relocation to a suitable and identified release site.

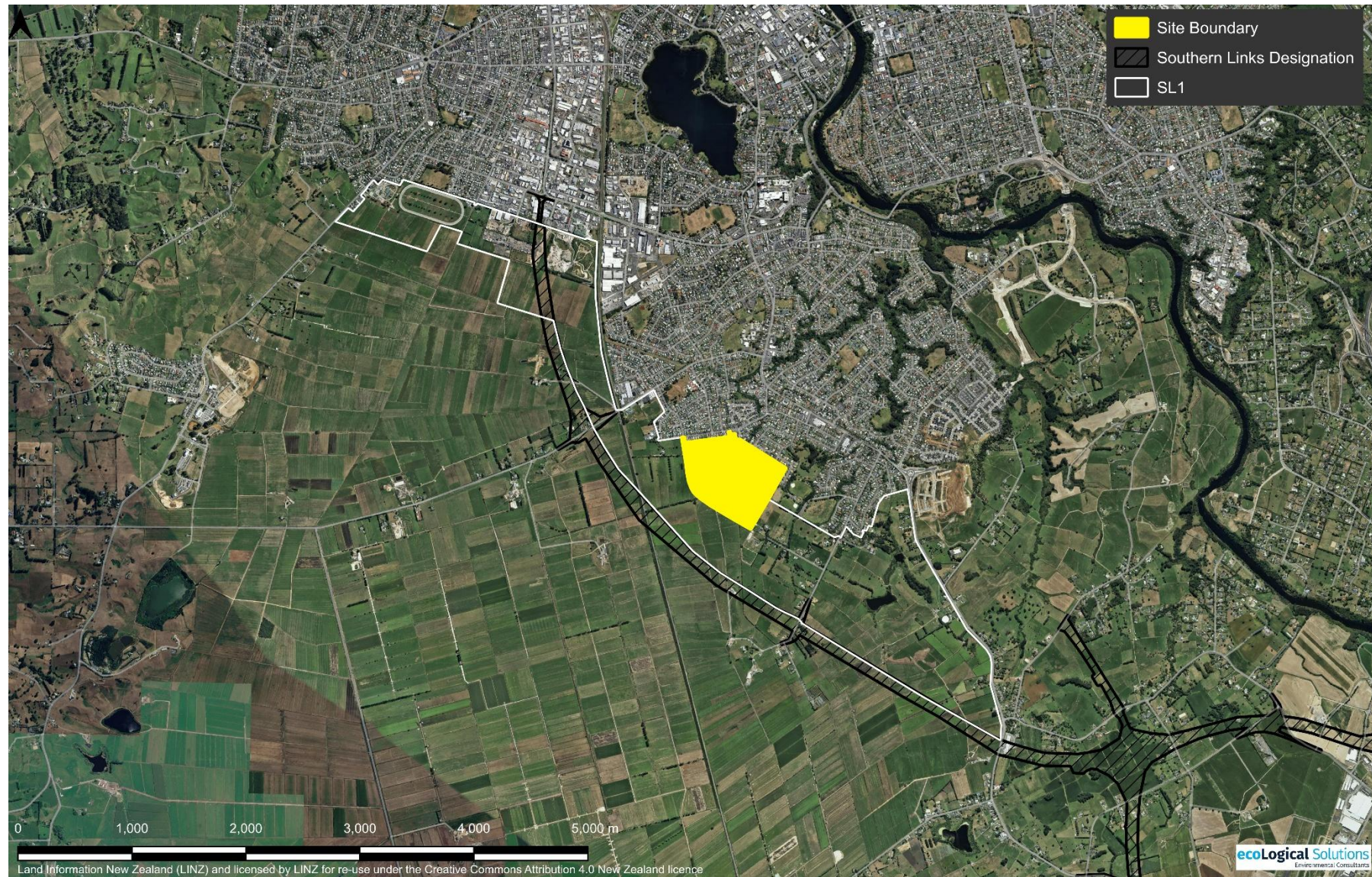


Figure 1: Location of the site.

2.0 Fish Management Plan

2.1 Responsibilities

Responsibilities are outlined below:

- Fish relocations are to be carried out by experienced freshwater ecologists whom are responsible for implementing all aspects of the FMP including the installation and maintenance of temporary fish barriers.
- The consent holder is responsible for ensuring the FMP is implemented and that all results are reported to the appropriate entities (e.g., Waikato Regional Council (WRC)).
- The Construction Site Manager is responsible for earthworks, construction, diversion, dewatering and reclamation/infilling. These responsibilities also include the management of environmental impacts associated with sediment and erosion.

2.2 Permits

Fish capture and relocations are to be carried out under the relevant permits including:

- A special permit (Permit Number SP905 held by Ecological Solutions Limited) from the Ministry of Primary Industries to capture fish using methods outside of amateur fishing regulations.
- An approval to transfer aquatic life under either section 26ZM(2) or 26ZM(3) of the Conservation Act 1987 (Native Fish Transfer Permit number NFT 441 held by Ecological Solutions Limited). Section 26ZM(2) is administered by the Ministry of Primary Industries in situations where a species is being translocated to locations where it already occurs while Section 26ZM(3) is administered by the Department of Conservation in situations where a species is being translocated to locations where that species is absent.

2.3 Earthworks Staging and Timing

The following outlines earthworks staging and timing of fish relocations:

- The timing of fish relocations will depend on the construction schedule and weather/flow conditions prior to fishing. Fish capture and relocations will require fine weather and base flow conditions so monitoring the weather forecast and maintaining close communication with the Construction Site Manager will be required.
- The Construction Site Manager will determine start times for pre-works fishing and is to provide at least 14-day notice of the intended construction start dates for each stage of works. This will ensure that the installation of fish barriers and fish relocations can be completed before fish capture and earthworks commence.

2.4 Fish Capture Methodology

2.4.1 Introduction

The upstream and downstream extents of drains to be fished will be isolated with fish barriers, which will be maintained over the duration of fishing and until it can be assured that fish will not move back into the reach.

Fish relocations will be implemented in the following phases:

- Stage 1: Isolation of the capture area.
- Stage 2: Pre-works fish capture.
- Stage 3: Dewatering fish capture.
- Stage 4: Excavation fish capture (if required).

During Stage 4 excavation works, a suitably qualified and experienced freshwater ecologist will be present on-site during the works and will observe all drain excavation works in order to sift through excavated material / spoil in order to salvage any stranded fish.

2.4.2 Stage 1: Isolation of the capture area

Fish barriers will be erected at the upstream and downstream extent of the reaches to be fished (Figure 2). The purpose of these barriers is to isolate the capture area to prevent fish from moving into the area. This will help to maximise the efficiency of the capture and relocation programme.

These barriers will be constructed from plastic mesh fencing held in place by steel waratahs driven into the bank and streambed. A layer of heavy-duty shade cloth with a mesh size of approximately three millimetres will be attached to the upstream side of the plastic mesh to block fish passage while still allowing water to flow through. These barriers will be constructed so that they extend above the normal water level to reduce the risk of them becoming overtopped during rain events.

The fish barriers will remain in place until the stream works have been completed to prevent fish from moving into the area of works. For this reason, the barriers will be erected as close to the commencement of stream works as possible to minimise the length of time that they will be required to be in place.

High flow events or having the mesh clogged with debris may result in overtopping or breaching of the barriers, which will reduce their effectiveness. Therefore, all barriers will be checked daily for intactness during the duration of the fish capture and relocation programme.

2.4.3 Stage 2: Pre-works fish capture

Fyke Netting

Pre-works netting will be carried out in each reach using fine mesh fyke nets set at approximately 10 m intervals, if depths/vegetation allow. Nets will be baited, set overnight and cleared the following morning. Nets will be deployed with an air gap if dissolved oxygen levels are low to ensure fish can gulp air from the surface.

Netting will continue over consecutive nights for a minimum of three nights and maximum average of <1 fish per trap per night has been achieved. Any fish captured will be handled as per protocols set out in Section 2.5 (Fish Handling and Transfer).

Gee Minnow Trapping

Pre-works trapping will be carried out using un-baited Gee minnow (3 mm wire mesh) traps, with two traps set at approximately 10 m intervals along each section of drain. The traps will be set in the late afternoon and retrieved the following morning to reduce the risk for depleted dissolved oxygen concentrations.

The traps will be set according to best practice for black mudfish monitoring (Ling et al.

2013) with the opening of the entry cones just below the water surface and adequate air space provided to ensure the fish do not drown if the water dissolved oxygen concentration is low.

Trapping will continue over consecutive nights for a minimum of three nights and maximum average of <1 fish per trap per night has been achieved. Any fish captured will be handled as per protocols set out in Section 2.5 (Fish Handling and Transfer).

Electric Fishing

Once the trapping and/or netting in the impact section has reached the target catch rate, the section will be electric fished as a final check that fish have been removed. Electric fishing will involve multiple passes carried out in short sections to maximise fishing effort and to ensure as many fish as possible are captured prior to diversion. Any fish captured will be handled as per protocols set out in Section 2.5 (Fish Handling and Transfer).

After the ecologist is satisfied that electric fishing has captured as many fish as possible, the fished reach can be isolated (e.g., banded) and Stage 3 of fish relocations can commence.

2.4.4 Stage 3: Dewatering fish capture

Experience has shown that fish (e.g., mostly eels) are likely to remain in streams even after netting/trapping and intensive electric fishing. It is proposed that any remaining fish will be salvaged during the dewatering stage.

A suitably qualified and experienced freshwater ecologist will be on site during the dewatering. Any fish observed moving within the channel during the dewatering stage when water levels are lowered will be captured using hand-held nets and/or the potential use of an electric fishing machine if it is safe to do so. Any fish captured during the dewatering stage using will be handled as per the protocols set out in Section 2.5 (Fish Handling and Transfer).

2.4.5 Stage 4: Excavation fish capture

After dewatering, there is still potential for eel to be present within the channel as they can burrow into streambanks or the soft-bottomed silt/mud bed. A suitably qualified and experienced ecologist will be on site during the excavation. During the excavation stage, any material removed from the channel and deposited into designated holding areas will be inspected by the ecologist. Any fish observed will be captured using hand-held nets and handled as per protocols set out in Section 2.5 (Fish Handling and Transfer).

2.5 Fish Handling and Transfer

The following procedures will be followed for the transfer of native fish.

- All fish captured will be immediately transferred into a clean bucket or fish bin of water from the existing habitat and placed in a well-shaded location. Water may be collected from the release site to ensure it is cool and of good quality.
- Multiple fish bins will be used if there are large numbers of fish captured to reduce stress on captured fish.
- Battery powered aquarium pumps will be used to maintain dissolved oxygen in fish bins if required.
- Fish will be checked to ensure that all aquatic plant material is removed prior to transfer into the bucket/fish bin.

- Native fish will be monitored and released within two hours of capture if water quality is poor and fish are displaying signs of stress.
- Pest fish will be humanely euthanised.
- If large numbers of eels are collected, eels will be transferred from fish bins into catch bags to enable safer transport (i.e., carrying by hand) from the vehicle to the release site.

2.6 Fish Release Locations

The following outlines the proposed fish relocation sites:

- Eels will likely make up the greatest proportion of the fish captured. A suitable release site was identified on a section of Mangakōtukutuku Stream within the Residential South Site, as shown in Figure 2.
- The Mangakōtukutuku Stream release site occurs within the site, has an abundance of suitable habitat, and has no obvious barriers to fish migration.
- If fish numbers are higher than expected and overstocking is considered a possibility, then alternative fish relocation sites that provide suitable habitat will be explored within the wider catchment.



Figure 2: Fish relocation site.

3.0 Culvert Design and Installation

There are two watercourse crossing structures proposed to be installed across Drain A (Figure 3). These structures have been designed, and will be installed, and monitored in accordance with the NES-F (MfE 2020) and New Zealand Fish Passage Guidelines (Franklin et al. 2024). The proposed culvert designs are open bottomed, clear span arch culverts which will not require instream works to install (Figure 4).

As a result, it is not anticipated that fish management will be required for the installation of the proposed arch culverts. Should design or construction methods change and instream works are required, the proposed culvert crossing sites will be isolated and fish removed in accordance with the methods described in Section 2.4 (Fish Capture Methodology) and Section 2.5 (Fish Handling and Transfer).



Figure 3: Proposed culvert crossing locations.

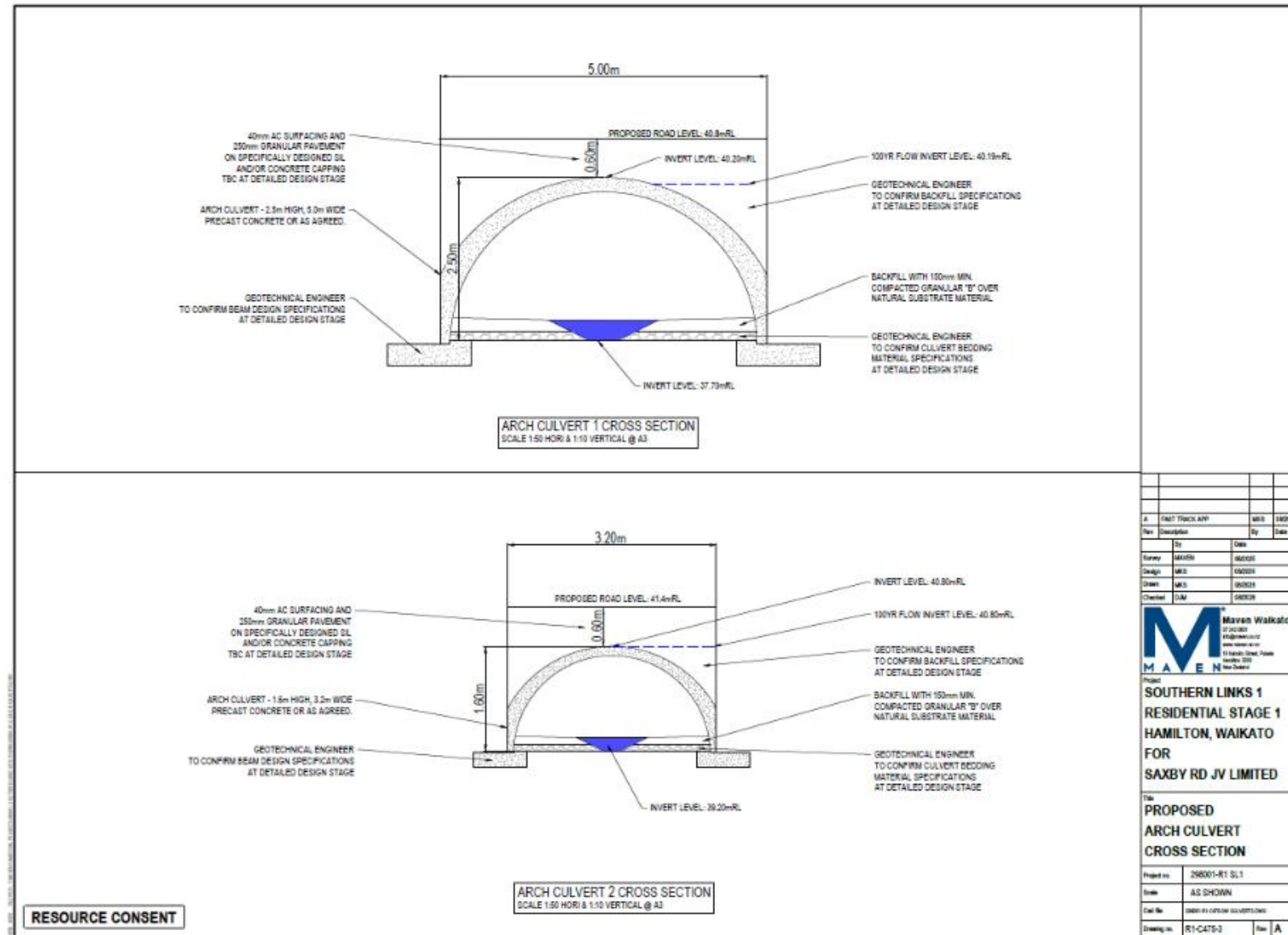


Figure 4: Proposed open bottomed arch culvert cross section.

4.0 Reporting

Ecological Solutions will report the results of the fish relocation work to the consent holder and Waikato Regional Council within one month of completion. Results will include the following information:

- Fish species caught.
- Number caught.
- Health/condition.
- Location of capture.
- Location of release.

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5.0 References

- Dunn, N.R.; Closs, G.P.; Crow, S.K.; David, B.O.; Goodman, J.M.; Griffiths, M.; Hicks, A.S.; Hickford, M.J.H.; Jack, D.C.; Kitson, J.C.; Ling, N.; Waters, J.M.; Wylie, M.J.; Hitchmough, R.A.; Makan, T. 2025: Conservation status of New Zealand freshwater fishes, 2023. New Zealand Threat Classification Series 46. Department of Conservation, Wellington. 66 p.
- Ecological Solutions. 2026. SL1 Industrial North Development: Ecological Impact Assessment. Prepared for Saxby Rd JV Limited. August 2026.
- Franklin, P., Baker, C., Gee, E. Bowie, S., Melchior, M., Egan, E., Aghazadegan, L., and Vodjansky. 2024. New Zealand Fish Passage Guidelines. Version 2.0. Prepared for Ministry for the Environment. June 2024.
- Ling, N.; O'Brien, L.K.; Miller, R.; Lake, M. 2013: A revised methodology to survey and monitor New Zealand mudfish. Department of Conservation, Wellington (unpublished).
- Ministry for the Environment. 2020. Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (as amended). New Zealand Government.
- Ministry for the Environment. 2025. National Policy Statement for Freshwater Management 2020. Amended December 2025.