Wetland and Aquatic Compensation Plan

Mahinerangi Wind Farm Stage 2

Tararua Wind Power Limited

Prepared by:

SLR Consulting New Zealand

SLR Project No.: 810.031205.00001

23 October 2025

Revision: 1.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	23 October 2025	Steve Rate	Hamish Dean Keren Bennett	Steve Rate

Basis of Report

This report has been prepared by SLR on the instructions of our Client, in accordance with the agreed scope of work. It is intended to support the Client's application under the Fast Track Approvals Act 2024 and may be relied upon by the Expert Panel and relevant administering agencies for the purposes of assessing the application. While SLR has exercised due care in preparing this report, it does not accept liability for any use of the report beyond its intended purpose. Where information has been supplied by the Client or obtained from external sources, it has been assumed to be accurate unless otherwise stated.

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1.0 Introduction

Tararua Wind Power Limited ("TWP"), a fully owned subsidiary of Mercury NZ Limited, is progressing Stage 2 of the Mahinerangi Wind Farm which is to be known as "Puke Kapo Hau" ("the Project", "Puke Kapo Hau" or "MWF Stage 2").

The MWF is located on the eastern foothills of the Lammermoor Range, situated approximately 5 km north of Lake Mahinerangi and approximately 50 km west of Dunedin.

The Vegetation, Wetland, and Terrestrial Invertebrate Assessment (SLR 2025a) assessed the actual and potential adverse effects of construction on natural wetlands under the National Environmental Standards for Freshwater 2020 (NES-F).

Two sites were identified where physical disturbance of the natural wetlands cannot be practicably avoided: Wetland 43 south of turbine 20 and Wetland 20 south of turbine 9 (Appendix A). Approximately 476 m^2 (0.05 ha) of natural wetlands will be cleared by roading works. The wetlands are not able to be remediated at these sites (Figure A).

The Ecological Assessment – Aquatic Ecology (SLR. 2025b) assessed effects on aquatic habitats, with a proposed culvert in wetland 20 affecting potential habitat of the non-migratory Eldon's galaxias (*Galaxias eldoni*), classified as 'Threatened – Nationally Endangered' (Dunn *et al*. 2018).

The NES-F requires all adverse effects on wetlands and waterways to be addressed using the effects management hierarchy (EMH). Using the EMH, SLR (2025a) determined that the direct adverse effects on affected wetlands will be compensated by way of enhancement of existing onsite wetlands and aquatic habitats (Figure A). The compensation outlined in this Wetland and Aquatic Compensation Plan (WACP) meets Principles 1-6 for aquatic compensation, as described in the National Policy Statement for Freshwater Management (NPS-FM) (Appendix B).

2.0 Objective

This WACP describes the requirements of compensation works to achieve a net positive gain in wetland and aquatic values within the Wind Farm Site, and includes:

- Fencing of the compensation sites to exclude stock which are the greatest threat to wetland and aquatic values.
- Direct transfer of narrow-leaved snow tussocks (*Chionochloa rigida*), from sites elsewhere in the Wind Farm Site where earthworks are to occur, to gully walls to buffer the wetland from surrounding land uses and improve indigenous cover.
- Planting of indigenous shrubs in the wetland and on gully walls to enhance biodiversity.
- Monitoring of compensation works and ongoing woody weed control required under the Woody Weed Management Plan to ensure the gains in ecological values persist.

This WCP should be read and implemented in conjunction with Rehabilitation Management Plan which contains specific requirements for the rehabilitation of pasture and winter forage, snow tussock grasslands and stream wetland vegetation.

The objectives of this Wetland and Aquatic Compensation Plan are to:

- Compensate for loss of wetland and aquatic habitat that cannot be avoided, minimised or remedied;
- Ensure no net loss of ecological values.

3.0 Compensation requirements

The National Policy Statement for Freshwater Management (NPS-FM) has the following requirements for aquatic compensation:

3.22 (3)

(a) The council is satisfied that:

(i) the applicant has demonstrated how each step of the effects management hierarchy will be applied to any loss of extent or values of the wetland (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity values; and

(ii) if aquatic offsetting or aquatic compensation is applied, the applicant has complied with principles 1 to 6 in Appendix 6 and 7, and has had regard to the remaining principles in Appendix 6 and 7, as appropriate, and

(iii) there are methods or measures that will ensure that the offsetting or compensation will be maintained and managed over time to achieve the conservation outcomes; and

(b) any consent granted is subject to:

(i) conditions that apply the effects management hierarchy; and

(ii) a condition requiring monitoring of the wetland at a scale commensurate with the risk of the loss of extent or values of the wetland; and

(iii) conditions that specify how the requirements in (a)(iii) will be achieved.

4.0 Description of the Wetland Compensation Site

The wetland compensation site comprises a shallow gully system containing wetlands that are similar to the wetlands directly affected by works. The wetlands are fed by surface water flowing into the gully from the surrounding peneplain surface and two farm dams via overflow culverts. Due to the presence of peaty soils and regular rainfall, the wetlands remain wet for most or all of the year, as indicated by the presence of a range of obligate wetland species including extensive areas of sphagnum bog. Like all wetlands within the Wind Farm Site, the wetland is modified by exotic plant species and the presence of farm stock which graze and trample the vegetation and increase nutrient levels. Channelisation of the stream path has occurred within the wetland and there is a vehicle track with a culvert on the Compensation Site's northeastern boundary.

Exotic grassland dominates the vegetation on gully walls within the compensation site, but patches of narrow-leaved snow tussock and golden speargrass (*Aciphylla aurea*) are present in a few areas. A small rock outcrop is present in the southern part of the site.

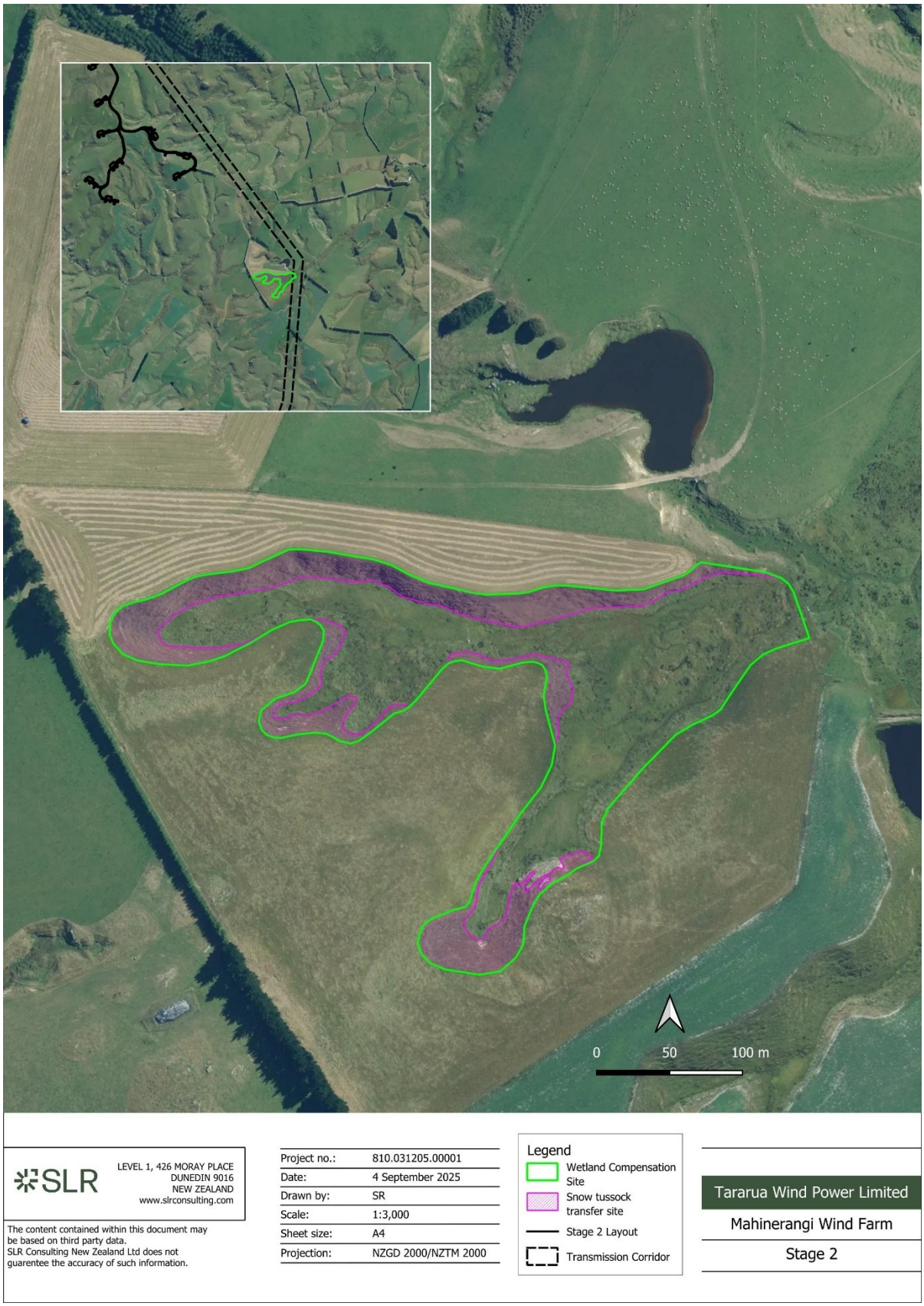

Figure A: Wetland Compensation Site. The boundary is indicative (see Section 7.0 for fencing requirements).

Figure B: North-western arm of Wetland Compensation Site showing *Carex tenuiculmis* (orange foliage) and a snow tussock rehabilitation site on the gully wall.

5.0 Description of the Aquatic Compensation Site

The aquatic compensation site is located near turbine 9 in an upper tributary of the Lee Stream (Figure C). The stream in the compensation site has gravel and cobble substrates and a variety of invertebrate and fish habitats among small pools, riffles, and runs. During dry periods the stream can be reduced to minimal amounts of water flowing through vegetation. The banks are exposed to stock and in places have little vegetation cover aside from grazed pasture (SLR 2025b). The stream provides habitat for Eldon's galaxiid, a Nationally Endangered species (Dunn *et al*. 2018), and aquatic invertebrates.

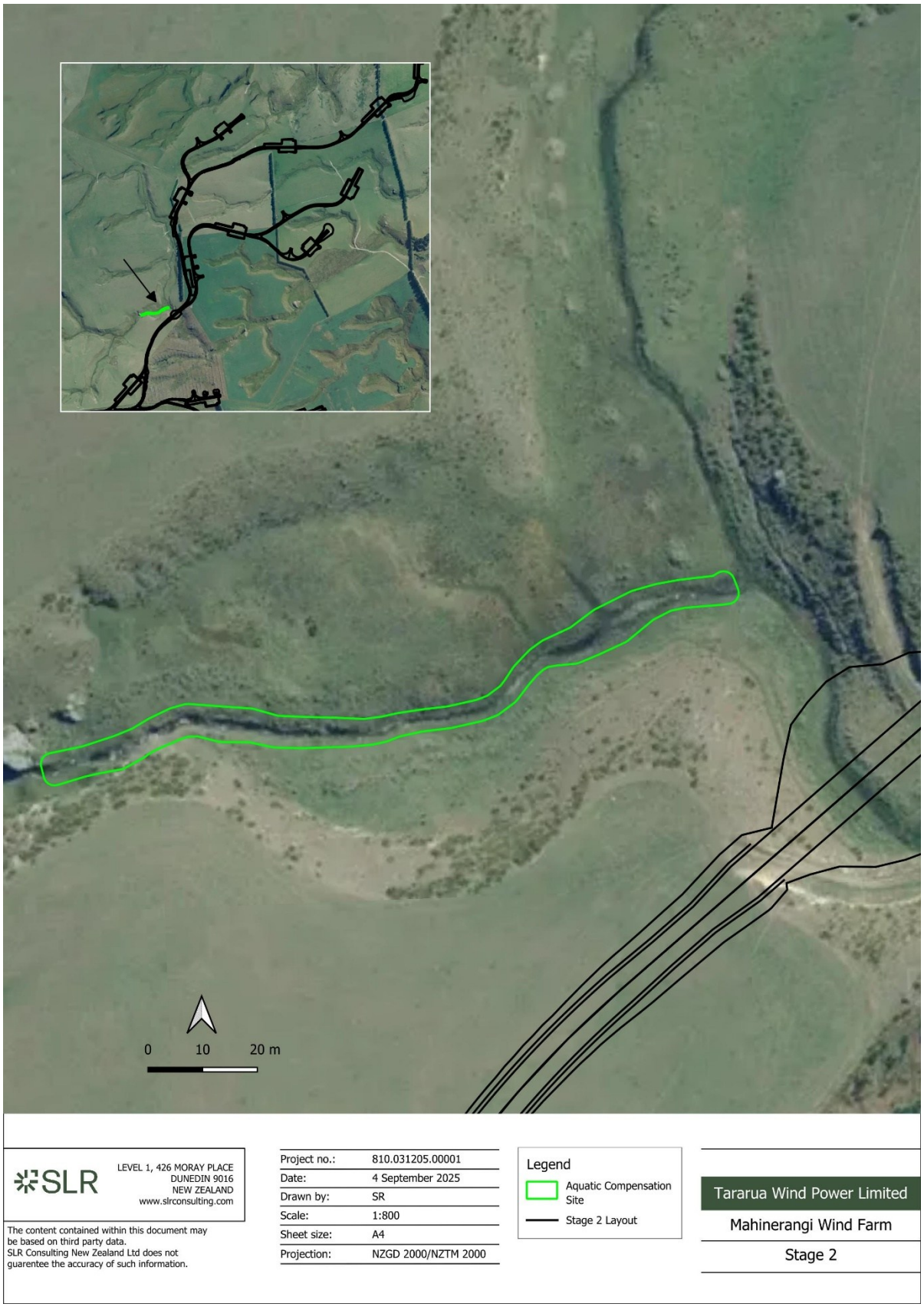

Figure C: Aquatic Compensation Site. The green line is set back approximately 2 m from the edge of the stream channel.

6.0 Areas required for Wetland and Aquatic Compensation

Wetland

A high compensation ratio for effects on wetlands is required as:

- compensation is not like-for-like (there is no wetland creation to balance wetland loss).
- the value of the affected wetlands and waterway is moderately high.
- a smaller compensation site, not incorporating the upper reaches of the gully would not provide adequate protection of wetlands.

The Wetland Compensation Site contains an estimated 1.4 ha of wetland habitat, over 29 times more than the 0.05 ha of wetland directly affected at the two identified locations that cannot be avoided (SLR Consulting 2025a).

In addition, the Wetland Compensation Site contains 1.5 ha of exotic grassland on gully walls, which is more than the 1.3 ha required by the Rehabilitation Management Plan (SLR 2025c) for direct transfer of snow tussocks sourced from works areas (see Section 8.0 below).

Aquatic

A minimum of 50 m of stream length at the downstream end of the tributary is required to be fenced as compensation for adverse effects on aquatic values (SLR 2025b) (Figure A).

7.0 Fencing

Fencing is the primary action that will be undertaken to protect and enhance wetland and aquatic values. All wetlands and waterways within the Stage 2 area are adversely affected by browsing, pugging, tracking, and nutrient enrichment from farm stock.

The compensation sites will be fenced prior to any planting to permanently exclude stock. At the Wetland Compensation site, the fence will be located at the top of the gully wall, and set back from the edge of the wet area/gully bottom by at least 10 m. For the Aquatic Compensation Site, the fence will be set back from the edge of the stream channel by at least 2 m. The fences will be permanent and comprise wooden posts and wire strands and be adequate to exclude cattle and sheep, similar to existing fences in the vicinity. Gates or stiles may be installed to aid access for planting and maintenance activities.

The benefits from fencing will be:

- Growth of exotic grassland (including in the inter-tussock sward) on gully walls which will form a dense thatch to intercept overland water flow, trap sediments, and remove nutrients, buffering the wetland and aquatic habitats from surrounding land uses.
- Recovery of soils from compaction, tracking, and other disturbance caused by stock.
- Removal of a direct source of nutrient inputs to wetland and waterway from stock.
- Removal of grazing pressure on wetland and gully wall vegetation, allowing recovery of snow tussock grassland and indigenous wetland vegetation.
- Protection of an existing population of *Carex tenuiculmis*, a sedge which has a national threat classification of At Risk (de Lange et al. 2023).

8.0 Woody weed monitoring and control

Control of woody weeds is the second most important action that will be undertaken to protect and enhance wetland and aquatic values.

Pest plant control will comply with the Woody Weed Management Plan (SLR 2025d). In summary, all pest plants listed in the Otago Regional Pest Management Plan 2019-2029 (ORC 2019) and any other woody weed species should be controlled prior to snow tussock transfer and maintained at zero density for the term of the consent.

The benefits from woody weed control are:

- Preventing displacement of existing and planted snow tussock grassland by exotic shrubland.
- Maintenance of and improvements in indigenous biodiversity.

9.0 Snow tussock direct transfer

Snow tussock direct transfer will be undertaken according to the requirements outlined in the Rehabilitation Management Plan (SLR 2025c). Snow tussocks will be sourced from sites elsewhere in the Wind Farm Site where earthworks are to occur and transferred to gully walls within the Wetland Compensation Site[1], and stream margins within the Aquatic Compensation Site.

The benefits of snow tussock transfer are:

- Increasing vegetation cover, which will buffer the wetland and aquatic habitats from surrounding land uses.
- Improving fish habitat through shading of the waterway within the Aquatic Compensation Site.
- Increasing indigenous cover and biodiversity.
- Increasing the extent of protected habitat for indigenous terrestrial invertebrates.
- Providing additional habitat for lizards.

10.0 Indigenous planting

Overview

Planting of eco-sourced indigenous species will be undertaken in the Wetland Compensation Site, including on gully walls. The benefits of indigenous plantings are:

- Increasing indigenous biodiversity.
- Returning species likely to have been present prior to conversion to farmland.
- Increasing numbers/populations of At Risk plant species.
- Provision of food plants for lizards (should they colonise the site in the future), avifauna and invertebrates.

[1] There are several areas (covering more than 2 ha) on gully walls within the wetland compensation site that do not have indigenous vegetation present (Figure A). The Rehabilitation Management Plan (SLR 2025c) requires 1.3 ha of this area to be planted with snow tussocks at 1.5 m spacings (centre-to-centre).

Site preparation

To reduce competition/smothering and maximise survival and growth rates, site preparation should include, at a minimum, spot-spraying of planting sites in exotic grassland with glyphosate herbicide (minimum 1 m^2 per planting site) at least 3 weeks prior to planting, pest plant control, and pest animal control (if required) (see below). Spraying herbicide over water or where spray drift could reach water should be avoided. Care will also be needed to avoid the potential for spray drift to impact existing indigenous vegetation present nearby.

Planting of indigenous species

Suitable species for planting at the Wetland Compensation Site are listed in Table A. All of these species are found in similar habitats in surrounding areas. Although an integral part of wetlands within the Stage 2 area, it is not proposed to plant wetland species such as pūrei (*Carex secta*), rautahi (*Carex coriacea*), and rushes (*Juncus* spp.) which are already present at the Wetland Compensation Site and likely to recover and spread once stock are removed, and grassland species such as *Gaultheria macrostigma* and *Styphelia nesophila* which are likely to be attached to the bases of tussocks translocated to the site. The planting list includes two species classified as At Risk in de Lange et al. (2023): *Carmichaelia petriei* and *Olearia lineata*. A minimum of 550 plants will be planted at the Wetland Compensation Site.

Table 1: Indigenous species suitable for planting in wetlands and on riparian margins in the Wetland Compensation Site. Green cells indicate suitability for different habitat types.

Species	Common name	Habitat		Number of plants
		Damp	Dry (Gully wall)	
Austroderia richardii	Toetoe			30
Carmichaelia petriei	Desert broom			50
Chionochloa rubra subsp. *cuprea*	Copper tussock			100
Coprosma propinqua	Mingimingi			75
Melicytus alpinus	Porcupine shrub			75
Olearia bullata				50
Ozothamnus leptophyllus	Tauhinu			30
Phormium cookianum	Mountain flax			50
Dracophyllum longifolium	Inaka			30
Olearia lineata				30
Veronica odora	Hebe			30

Plants should be eco-sourced; that is, grown from seed collected from naturally growing populations of indigenous plants in Waipori Ecological District or Lammerlaw Ecological Region. This will maintain local genetic characteristics and assist plant establishment and growth. Plant cultivars (e.g., variegated varieties, *Olearia lineata* cv. 'Dartonii') should not be used.

Plants will need to be ordered well in advance of the planned planting date. Planting may be staged, although this may result in an increased number of monitoring and maintenance visits.

Plants should be restoration planting grade and hardened off. Plants should be in good condition at the time of planting and meet the following requirements:

- Minimum above ground seedling height of 30 cm.
- Minimum root collar diameter of 5 mm (for shrubs).
- Good root density such that plugs hold together during lifting, transport, and handling.

Planting should be undertaken in late autumn or spring (after severe frosts) by an experienced contractor. Plants should not be left in exposed areas for long periods before planting.

Shrubs and mountain flax should be planted at a minimum 2.0 m spacing, toetoe at a minimum 3.0 m spacing, and copper tussock at 1 m spacing. Copper tussock should be planted away from the main population of *Carex tenuiculmis* to prevent it potentially displacing this species. Each species should be matched to the appropriate habitat type identified in Table 1. Damp areas include the margins of the main wetland, peaty ground within the wetland away from the main stream channels, and seepages on gully walls. Plants adapted to dry habitats should be planted on gully walls amongst transplanted snow tussocks.

Due to removal of grazing pressure, and the potential for rapid growth of rank grasses, it is recommended that each plant is marked with a stake/plant sleeve so that they are easily relocatable for monitoring and maintenance purposes. Planting in loose groups will also allow easier relocation, mimic patterns seen elsewhere within the Stage 2 area, and provide a source of propagules for natural spread. Plant sleeves will also protect the plants from browsing and reduce the risk of overspray when using herbicide to release plantings from competing vegetation.

Maintenance of plantings

Releasing of plantings from competing vegetation will be required in the first two years. This is most efficiently achieved through application of herbicide, although care must be taken not to spray plantings, especially if they are not protected by sleeves. Frequency will be determined by monitoring but will likely be three times in the first year following planting, and twice in the second year.

Pest plant control should be maintained until the closure criteria are met. Plants which die should be replaced in the first year following planting.

11.0 Legal protection

In order that the wetland compensation persists (long term outcomes; see Principle 6 in Appendix B), the compensation site will be protected by a covenant.

12.0 Monitoring

The transferred snow tussocks will be monitored according to the Rehabilitation Management Plan (SLR 2025c).

Indigenous plantings will be monitored following planting to determine requirements for ongoing management. Frequency of monitoring for will be a minimum of three times in the first year following planting, and twice in the second year, and a minimum of once a year for

three more years. This will involve walk-through assessments of plant survival (estimate taken over the entire site, plant species and cause of death (if known) to be noted), and the need for replacement plantings, releasing of plants from non-planted vegetation (e.g. rank grass) to prevent competition, pest plant control, and pest animal control. Notes should also be made on climatic events and any other contributing factors which may have affected the plantings. Plant survival counts will determine if the closure criterion is met (see below). A suggested monitoring sheet is provided in Appendix C.

The fences will be monitored for breaches on an annual basis to determine the need for maintenance. Training for wind farm staff will include reporting the presence of stock within the compensation sites. Any breaches in the fence will be repaired at the earliest opportunity.

To illustrate the works undertaken and inform review and reporting purposes, photographs will be taken at the compensation sites prior to works and then, at a minimum, following fence construction, and at 1- and 2-years following snow tussock transfer/planting.

13.0 Closure criteria

The closure criteria are:

- The Wetland and Aquatic Compensation Sites are protected by an appropriate legal mechanism.
- The compensation sites are enclosed by stock-proof fences and stock are removed permanently from the compensation sites.
- The Aquatic Compensation Site incorporates at least 50 m length of stream habitat suitable for Eldon's galaxiid.
- The requirements of the Rehabilitation Management Plan (SLR 2025d) regarding direct transfer of narrow-leaved snow tussocks to the Compensation Sites are met.
- A minimum of 550 indigenous shrub, mountain flax, and toetoe plants are planted in the Wetland Compensation Site.
- Indigenous plantings achieve an overall survival rate of ≥90% after 5 years.
- Woody weeds are monitored and controlled according to the requirements of the Woody Weed Management Plan (SLR 2025d).

If these criteria are met, then the compensation works will be considered complete, including monitoring. If the criteria are not met, then further compensation (additional planting, maintenance of plantings, and monitoring) will be undertaken.

14.0 Record keeping

Documentation of the compensation works undertaken will be essential for review and reporting purposes.

Records should be kept of all compensation works undertaken including dates of fence construction, pest plant control, indigenous plantings, and snow tussock transfer, numbers of snow tussocks transplanted, survival rates after each monitoring round, and the timing, purpose, and success of any maintenance activities. Photographs should be saved securely.

15.0 Review

A review of the compensation sites to determine whether all wetland compensation works have been undertaken in accordance with the WACP will be undertaken by a suitably qualified and experienced person two years following the practical completion of the wetland and aquatic compensation actions set out in this WACP. The review will assess, but not be limited to:

- Records of fencing.
- Records of tussock transfer and plantings undertaken.
- Records of maintenance works.
- Photographs of works.
- Monitoring records.
- Whether the closure criteria are met.

This review must be submitted to Otago Regional Council.

16.0 References

de Lange P.J., Gosden J., Courtney S.P., Fergus A.J, Barkla J.W., Beadel S.M., Champion P.D., Hindmarsh-Walls R., Makan T., and Michel P. 2023. Conservation status of vascular plants in Aotearoa New Zealand, 2023. New Zealand Threat Classification Series 43. Department of Conservation, Wellington. 105 pp.

Dunn N.R., Allibone R.M., Closs G.P., Crow S.K., David B.O., Goodman J.M., Griffiths M., Jack D.C., Ling N., Waters J.M., and Rolfe J.R. 2018. Conservation status of New Zealand freshwater fishes, 2017. *New Zealand Threat Classification Series 24*. Department of Conservation, Wellington. 11 p.

Otago Regional Council. 2019. Otago Pest Management Plan 2019-2029

SLR. 2025a. Vegetation, Wetland, and Terrestrial Invertebrate Assessment. Mahinerangi Wind Farm Stage 2. Prepared for Tararua Wind Power Limited.

SLR. 2025b. Ecological Assessment – Aquatic Ecology. Mahinerangi Wind Farm Stage 2. Prepared for Tararua Wind Power Limited.

SLR. 2025c. Rehabilitation Management Plan. Mahinerangi Wind Farm Stage 2. Prepared for Tararua Wind Power Limited.

SLR. 2025d. Woody Weed Management Plan. Mahinerangi Wind Farm Stage 2. Prepared for Tararua Wind Power Limited.

17.0 Closure

Sincerely,

SLR Consulting New Zealand

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Senior Ecologist

Hamish Dean
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Keren Bennett (Reviewer)
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Appendix A Directly affected wetlands

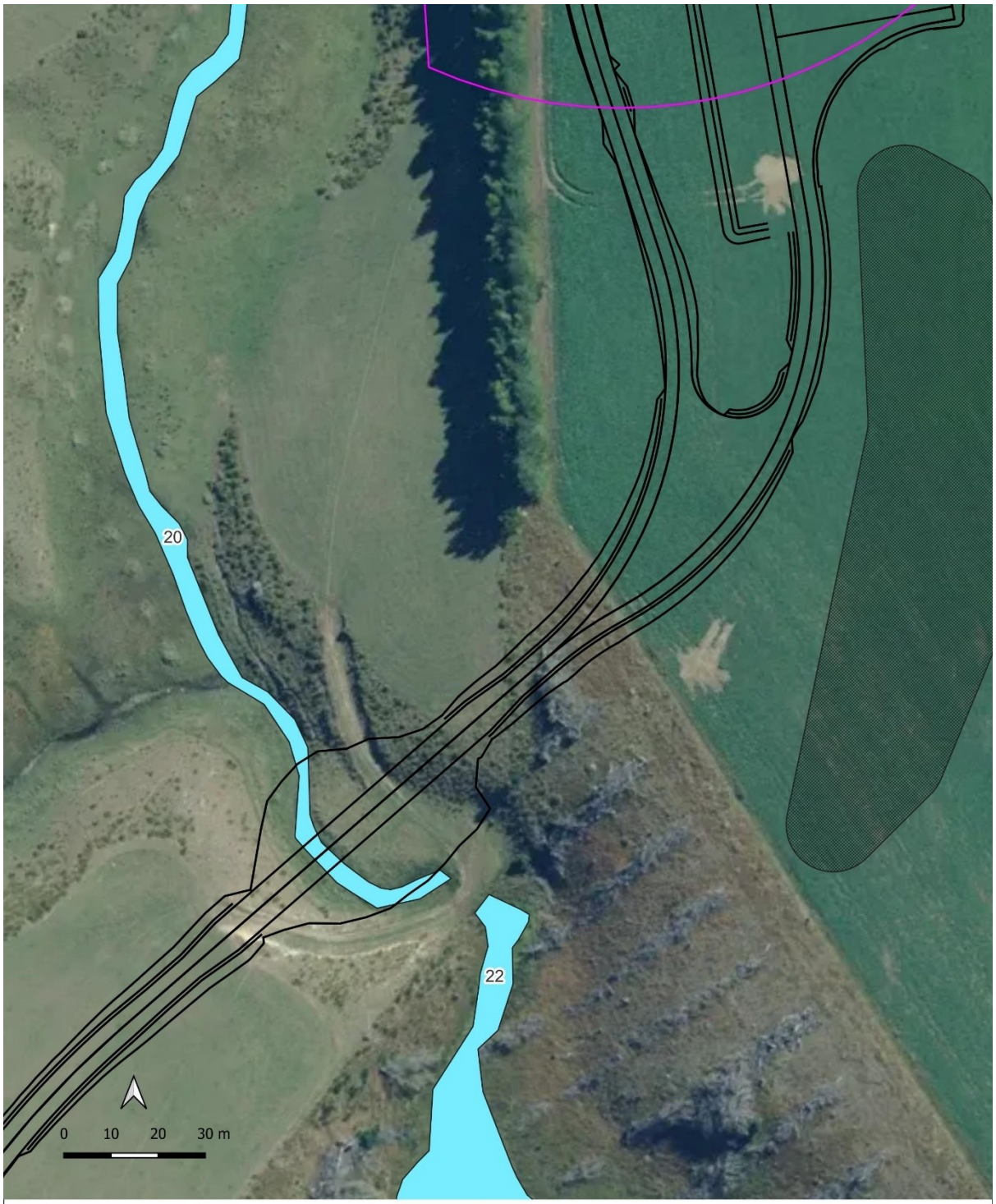
Wetland and Aquatic Compensation Plan

Mahinerangi Wind Farm Stage 2

Tararua Wind Power Limited

SLR Project No.: 810.031205.00001

23 October 2025



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Projection:	NZGD 2000/NZTM 2000

Legend
- CZ
- Windfarm site
- Stage 2 Layout
- Wetland
- SFD

Tararua Wind Power Limited
Mahinerangi Wind Farm
Stage 2

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Legend
- CZ
- Windfarm site
- Stage 2 Layout
- WTG
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- SFD

Tararua Wind Power Limited
Mahinerangi Wind Farm
Stage 2

Appendix B Principles 1-6 for aquatic compensation (Appendix 7 of the NPS-FM)

Wetland and Aquatic Compensation Plan

Mahinerangi Wind Farm Stage 2

Tararua Wind Power Limited

SLR Project No.: 810.031205.00001

23 October 2025

Principles for aquatic compensation	Comment
These principles apply to the use of aquatic compensation for the loss of extent or values of natural inland wetlands and rivers ("extent or values" below).	
1. Adherence to effects management hierarchy: Aquatic compensation is a commitment to redress more than minor residual adverse effects, and should be contemplated only after steps to avoid, minimise, remedy, and offset adverse effects are demonstrated to have been sequentially exhausted.	The effects management hierarchy has been worked through in the Vegetation, Wetland, and Terrestrial Invertebrate Assessment (SLR 2025a).
2. When aquatic compensation is not appropriate: Aquatic compensation is not appropriate where, in terms of conservation outcomes, the extent or values are not able to be compensated for. Examples of aquatic compensation not being appropriate would include where: (a) the affected part of the natural inland wetland or river bed, or its values, including species, are irreplaceable or vulnerable: (b) effects on the extent or values are uncertain, unknown, or little understood, but potential effects are significantly adverse: (c) there are no technically feasible options by which to secure gains within an acceptable timeframe.	The affected wetlands and waterways do not contain irreplaceable features. Vulnerable features are protected by management plans. The extent of effects on values is known and has been quantified. The compensation sites are a practical solution that will bring ecological benefits to the wetlands and Eldon's galaxias in the short term.
3. Scale of aquatic compensation: The extent or values to be lost through the activity to which the aquatic compensation applies are addressed by positive effects that outweigh the adverse effects.	The size of the compensation is much larger than the affected wetlands and planting will be undertaken resulting in higher biodiversity values than those of the affected wetlands.
4. Additionality: Aquatic compensation achieves gains in extent or values above and beyond gains that would have occurred in the absence of the compensation, such as gains that are additional to any minimisation and remediation or offsetting undertaken in relation to the adverse effects of the activity.	All wetlands and waterways within the Wind Farm Site are adversely affected by stock, drainage, and clearance of riparian vegetation and there are no plans or requirements for protection of these wetlands from ongoing effects.
5. Leakage: Aquatic compensation design and implementation avoids displacing harm to other locations (including harm to existing biodiversity at the compensation site).	No leakage will occur.
6. Long-term outcomes: Aquatic compensation is managed to secure outcomes of the activity that last as least as long as the impacts, and preferably in perpetuity. Consideration must be given to long-term issues around funding, location, management, and monitoring.	The compensation sites will be fenced and legally protected so that gains are secured for the life of the wind farm.

Appendix C Monitoring sheet for indigenous plantings

Wetland and Aquatic Compensation Plan

Mahinerangi Wind Farm Stage 2

Tararua Wind Power Limited

SLR Project No.: 810.031205.00001

23 October 2025

Date		**Recorded by**		**Mean % Survival (over all blocks)**		**% Survival (estimate over remaining area)**	

Survival counts (1 and 2 years following initial plantings)

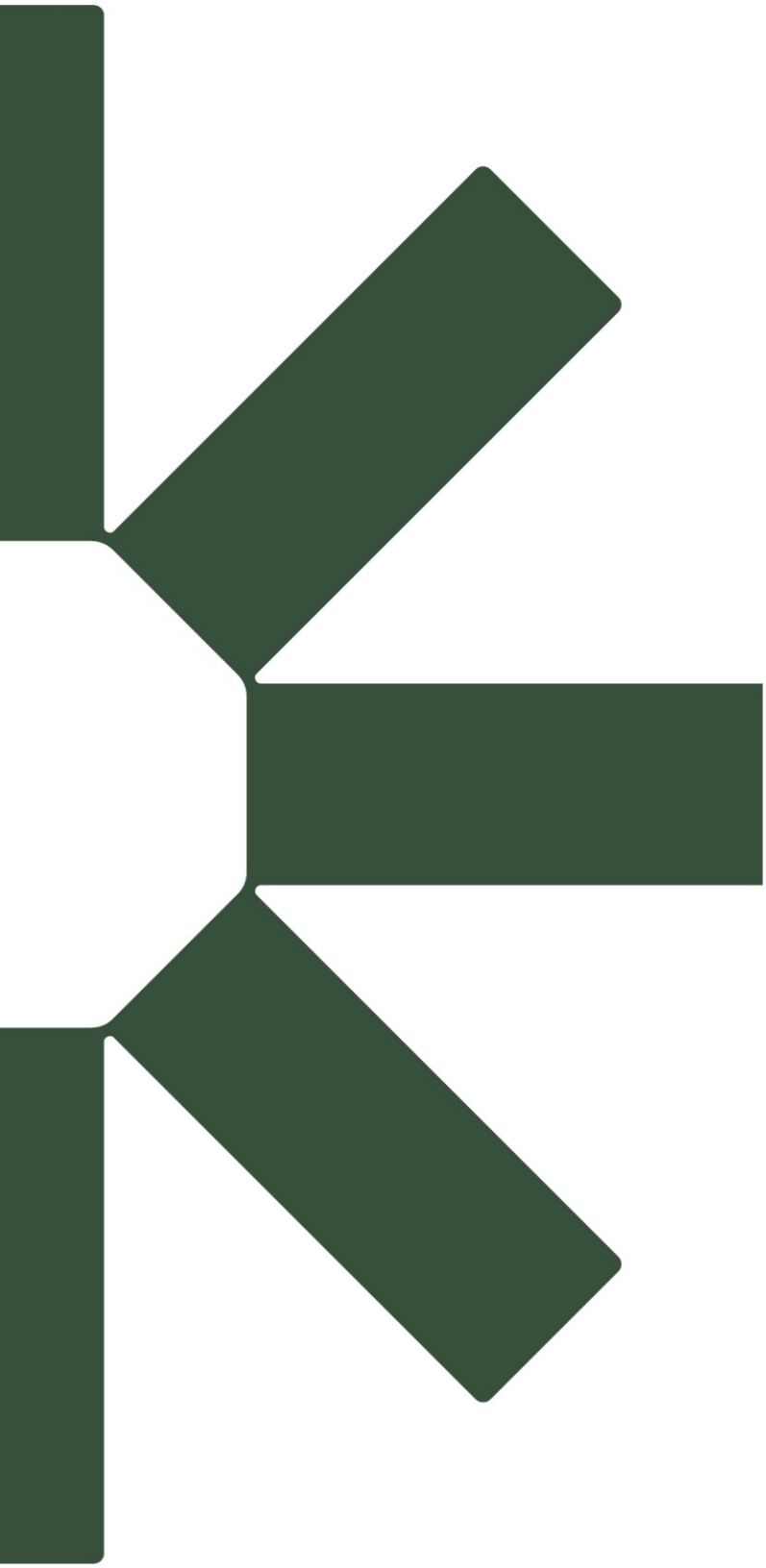
Species	**Block 1**		**Block 2**		**Block 3**	
	Alive	**Dead**	**Alive**	**Dead**	**Alive**	**Dead**
Total						
% survival						
Notes:						

Releasing requirements

Pest plant control requirements

Browse sign / Pest animal control requirements

Photographs



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