Specialist Response Fast-track Approvals Act 2024

1. Application Summary

Project Name	Mahinerangi Wind Farm
Applicant	Mercury Energy / Tararua Wind Power Limited
Site Address	Near Eldorado Track (connecting to Mahinerangi Road), 50 kilometers west of Dunedin and 5 kilometers north of Lake Mahinerangi.
Fast-track	https://www.fasttrack.govt.nz/projects/mahinerangi-wind-farm/substantive-application FTA 120
Council reference number	RM25.091 - Mercury Energy Limited
Description of Proposal	• The installation of up to 44 turbines • The construction of an electricity substation/switchyard compound and permanent operations/maintenance facility within the project site (including battery storage system) • The installation of new underground 33kV electrical and fiber optic cable network between the turbines • The establishment of an internal access road network and earthworks, including the widening of existing local roads approaching the site from the State Highway • The construction of an 8km 110kV transmission line from the wind farm site to Transpower's Halfway Bush-Roxburgh 110kV line, including connection infrastructure.

2. Specialist Response Details

Author: Andrew Rossaak

Specialist Area: Ecology

Qualifications and relevant experience: I hold the qualification of: Masters of Science in Ecology and have 29 years of experience in preparing and reviewing environmental and ecological assessments. I have prepared expert evidence and technical assessments for resource consent applications, plan changes, notices of requirements, and have appeared as an expert witness before consent authorities on multiple occasions.

Date: 27 March 2026

Documents reviewed:

1. B.06 - SLR (2025) - Vegetation, Wetland and Terrestrial Invertebrate Assessment
2. B.07 - SLR Aquatic (2025) - Ecological Assessment - Aquatic Ecology

3. C.01 - Riley (17 March 2026) - Environmental Construction Management Plan (ECMP) – there are 3 dates on the cover page (latest one referenced).
4. C.02 - Riley (2025) - Earthworks Management Plan
5. C.08 - SLR & Boffa Miskell (2026) - Ecological Monitoring and Management Plan
6. C.09 - SLR (2026) - Water Quality Monitoring Plan
7. C.10 - SLR (2026) - Rehabilitation Management Plan
8. C.11 - SLR (2026) - Wetland Monitoring and Management Plan
9. C.12 - SLR (2026) - Wetland and Aquatic Offset Plan
10. C.13 - SLR (2026) - Native Fish Recovery Plan
11. C.17 - SLR (2026) - *Carex tenuiculmis* and *Epilobium chionanthum* Management Plan
12. E.03 Otago Regional Consent Conditions Final
13. Memo from Sarah Edwards of Mitchell Daysh to Puke Kapo Hau Mahinerangi Wind Farm Expert Panel, titled: FTAA-2510-1125 Puke Kapo Hau Mahinerangi Wind Farm Stage 2 Fast-track approval application - Response to Further Information Request, dated 16 March 2026.
14. Memo from Sarah Edwards of Mitchell Daysh to Andrew MacLennan, titled: Puke Kapo Hau Mahinerangi Wind Farm Stage 2 Fast-track approval application - Responses to Feedback Raised by Otago Regional Council at 5 February 2026 Workshop, dated 17 March 2026.

Scope: Ecology

Overview.

The application for additional wind turbines is being made through the Fast Track Approvals Act (2024) process. I have previously been requested to review drafts of most of the above listed plans and reports from an ecological perspective for the Otago Regional Council (ORC) in relation to this application prior to lodgment. I provided responses on where the plans were considered to require updating, additional information was required to allow an informed assessment, or evidence that effects would be appropriately managed. In a review of the lodged plans and assessments, as well as, in a response tracking table provided, few amendments had been made to the material reviewed as part of the pre-lodgment process. I note that others (eg. DOC) have provided similar concerns and responses.

I attended a site visit on 15th January 2026, and a further site visit and a workshop with the applicant's agents on 4th and 5th February 2026.

I provided a technical review of the application material on the 20th January 2026, and the technical review herein follows that with updates from the second site visit, workshop, and the memos and updated reports listed above.

The applicant has subsequently provided updated application material and this response is based on the material provided on the 18th March 2026. It is noted that the documents have

various dates, often conflicting. For example, the Draft Environmental Construction Management Plan is dated 6th March, 9th March and 17 March on the front page.

3. Specialist Assessment

Vegetation, Wetland and Terrestrial Invertebrate Assessment

- The Vegetation, Wetland, and Terrestrial Invertebrate Assessment describes wetlands that have been avoided, those that would be affected, or are potentially affected. Two wetlands are further described that will have portions reclaimed for roading access.
- A total of 9 wetlands are assessed to be within 10 m of proposed works for platforms, towers or roading
- The adverse effects of the loss of, non-wetland, native vegetation (often exotic pasture) is not detailed, and no effects management is provided to address the overall effects. It is understood that pasture removed will be reinstated with pasture if not otherwise occupied .
- The memo dated 17 March 2026 provides additional information on avoidance, minimization, remediation which is acknowledged. The detail on offsetting is addressed below.
- The engineering report provides for hydrological connectivity of the wetland 43 through the proposed track and base material.
- The loss of wetland *extent* and *value* has not been demonstrated to be accounted for in the proposed offset through industry standard ecological accounting tools. The National Policy Statement for Freshwater Management 2020 (amended October 24) (NPS:F) directs that both extent and value are considered in the effects management hierarchy and also under Policy 6 as well as cumulative effects.
- The potential values of the impacted wetlands are not considered (as required under the NPS:F) in the effects management. This is for both the offset sites as well as the impact sites.

See further comments below in the wetland and aquatic compensation plan.

Ecological Assessment - Aquatic Ecology

- Watercourses are described and mapped. The descriptions, mapping detail and assessments of the watercourses using the Rapid Habitat Assessment (RHA) are considered acceptable.
- The memo dated 17 March 2026 provides additional information on avoidance, minimization, remediation which is acknowledged. The detail on offsetting is addressed below.
- Effects on watercourses are reported to be largely avoided in the proposed development. There is, however, mention of 96 culverts required with diameters of 300 mm and above, with lengths from 6 m to 43 m. There is limited information on these 96 culverts, where they are to be located, the areas they drain or the flows to be managed. Some are reported to be required to maintain wetland hydrology (Civil Engineering

Assessment, Part 1, page 17 & 21). Further information provided was discussed on site and in the workshop and I consider these culverts to address stormwater on the platforms created and potential effects on any wetlands will be monitored and assessed through the Wetland Monitoring and Management Plan.

- Potential adverse effects of the culverts relate mainly to sediment generation during construction.
- The replacement of a culvert, which is described as unavoidable, with a 34 m of 2.5 m X 2.5 m box culvert and associated inlet and outlet structures (replacing a smaller 600 mm diameter, 3 m long farm culvert) will also involve loss of stream extent and diversion.
- The culvert drawings and reporting is that the culvert will be installed in line with fish passage best principles, adopted from the New Zealand Fish Passage Guidelines Version 2.0 (Fish Passage Guidelines). The design was amended post site visits, and I consider the revisions to likely provide for fish passage and habitat.
- Effects on native fish (Eldon's galaxias, which is classified as 'Threatened – Nationally Vulnerable) is proposed to be managed through the Fish Recovery Plan.
- The presence of Eldon's galaxias means the stream is considered significant under the Otago Regional Policy Statement 2021. Eldon's galaxias is non-migratory and persists as small, highly fragmented sub-population fragments. These fish were observed on the site visit (n = >20). I consider the presence of Eldon's galaxias to meet the rarity APP2 criteria for an SNA under the Proposed Otago Regional Policy Statement, June 2021 (appeals updated to January 2026).
- The Aquatic Ecology Report provides a effects assessment and management is provided (page 52) and it is stated that "*Any reduction in habitat for fish in the stream, given the length of the new culvert compared to the shorter existing culvert, will be offset/compensated for by the proposed fencing and planting of a gully site and associated waterway in the catchment upstream of the culvert*." This has been the subject of discussion and is addressed below, in the Wetland and Aquatic Offsetting Plan.

Ecological Monitoring and Management Plan

- The Ecological Monitoring and Management Plan provides a framework for the individual management plans.
- Aspects of the different plans as they relate to regional consents, are discussed separately below.

Water Quality Monitoring Plan

- The Water Quality Plan proposed is for the monitoring of water quality at the culvert installation site on Lee stream only to ensure the erosion and sediment management measures are effective.

- Monitoring is proposed to be undertaken in the stream, upstream and downstream of the culvert (assuming sufficient flow) immediately prior to instream works as well as during and post works. The monitoring at two sites will allow the isolation of the effect of the works from baseline environmental conditions.
- Monitoring turbidity (using a field meter)is proposed to be up to 3 times a day. Metadata will be added to the turbidity reading comprising photographs of each sampling site and rainfall in the 24 hours prior to the sampling event using the closest monitored rainfall gauge.
- Should instream conditions and habitats be suitable, visual assessments of the stream bed for deposited sediments will also be undertaken using standard protocols (the protocol to use is to be determined by the applicant ecologist).
- Monitoring will commence immediately prior to construction works commencing and continue until the removal of all equipment and control measures from the watercourse, and stabilisation of areas of bare earth, including placement of fill, has been completed.
- Whilst the installation of automated sampling from static turbidity meters (one upstream and one downstream of the works) with a reading at least every 15 minutes would provide better resolution of pulsed discharges, the measurement of the turbidity three times a day is a reasonable alternative and provide rapid indication of any changes.
- The plan provides for turbidity monitoring up to 3 times a day. This should be the minimum when the stream is flowing. If there is no flow, it is practicable for turbidity monitoring to be suspended.
- The proposed action should there be a non-compliance (a 30% change in visual clarity and/or turbidity or a 10% change in deposited sediment) will trigger a review by site staff. ORC will also be notified of any incidents and the response.
- It is not clear from the plan what would be an incident and when ORC would be informed. The assumption that the exceedance of either of the parameters above would constitute an incident. There should also be a period following an incident that ORC should be notified (eg. 48 hours).
- There is no reason provided for the 30% difference between upstream and downstream turbidity as being the threshold. A smaller difference may be more appropriate and this can be verified in initial baseline monitoring.

Rehabilitation Management Plan

This plan summarizes the various restoration plans and planting in the offset areas. Where these apply to regional consents, they are discussed separately below, in particular Wetland and Aquatic Offsetting Management Plan.

Wetland Monitoring and Management Plan

- The Wetland Monitoring and Management Plan describes the process and locations (56) for monitoring wetlands that are within 30 m of earthworks or 20 m of new access tracks.
- For some wetlands, vegetation monitoring will be used to determine potential adverse effects of changes in wetland hydrology on wetland values. Wetlands 43, 15, 37 and 68/69 will have vegetation monitoring. Other metrics that will be measured in these plots are plant survivorship, plant health, animal damage, presence and extent/depth of soil/sediments, and presence/extent/type of erosion.
- Adaptive management and implementation of various actions are proposed should any changes be noted.
- A report following each three-monthly monitoring event, which summarises the findings of the monitoring and any changes and/or adverse effects that may have occurred since the previous monitoring event, will be provided to ORC.
- The: *Vegetation, Wetland, and Terrestrial Invertebrate Assessment. Mahinerangi Wind Farm Stage 2* included a statement that:
  "For the limited instances where avoidance of a wetland has not been practicable, compensation by way of wetland enhancement is proposed and management of wetlands (including those other wetlands within 100 m of works) will be addressed by the Wetland Monitoring and Management Plan" [my emphasis]. This is expected to refer to the Wetland and Aquatic Offsetting Plan.
- Whilst potential wetland management actions are included in the plan, the implementation of these are not linked to any objective thresholds (such as a score change of difference from a control). I recommend that thresholds for action are included in the monitoring plan.

Wetland and Aquatic Offsetting Plan

- 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.
- It is noted that the areas of wetland proposed to be reclaimed are those directly within the footprint of the road crossings. The assessment of impact does not assess the alteration of the hydrology and potential adverse effect on remaining wetland extent.
- The wetland offset site has 1.4 ha of wetland habitat. The loss of wetland proposed is 0.067 ha. The offset site also contains large areas of rare wetland species.
- The expected gains in wetland values are proposed to be assessed using the Wetland Condition Index (WCI), primarily based on the indicators and guidelines in the Handbook for Monitoring Wetland Condition (Clarkson et al. 2004) but also incorporating one element of the Edge Condition Index (buffer vegetation) from the Wetlands Monitoring and Assessment Kit (WETMAK; NZ Landcare Trust 2014). A minimum increase of 2 points

or an overall value of >19 for the Wetland Condition Index, or an increase in 3 Indicator Components of 2 or more points, at the Offsetting Wetland after 5 years is proposed.

- The aquatic offset is proposed to be 160 m of stream length that is fenced with 2 m riparian planting (increased to 4 m where wetlands exist) to account for the 50 m of stream that is lost or culverted.
- To demonstrate net gains on values from the offsetting, Rapid Habitat Assessment (RHA) is proposed to assess improvements in habitat quality at the offsetting site due to fencing and planting. The initial RHA scores at the offset site is provided as (52/100), which is higher than the impact site (45/100). An increase in the overall site score to at least 60 (i.e., a 15% increase in habitat quality) at the offset site is proposed as addressing the offset.
- The Wetland and Aquatic Offset Plan has no detail on the application of the effects management hierarchy (from the NPS:F). The implementation of the effects management hierarchy is hierarchical, and directed to be applied sequentially. A biodiversity offset, requires the demonstration of no net loss, and preferably a net gain, of both extent and value (for both streams and wetlands). Biodiversity compensation is required to address the remaining residual effects that could not be offset.
- There is no clear ecological accounting to demonstrate that the biodiversity and aquatic offsets adequately address for the effects (in terms of value). For the biodiversity offset, a ratio is provided (3.3:1) as to what the wetland offset achieves. There is no evidence presented that this will *achieve no net loss or net gain* required. Previously the applicant indicated they had used the Biodiversity Compensation Model (BCM) for the wetland offset assessment, however, this was not provided or the values applied in the model. The BCM modelling would be considered an acceptable method for ecological accounting and demonstrating a no net loss of value for the wetland.
- Aquatic offset calculation methods, such as the Stream Ecological Value (SEV) apply a multiple of 1.5 to account for uncertainty and time-lag. This is significantly greater than the 15% proposed for the aquatic value increase.
- The lack of ecological accounting of the offset is compounded in that the impacts and compensation must be considered in terms of the potential of the streams or wetlands (NPS-F – clause 3.22 (3) (a) (i)), not just the current state.
- Stream length and value are considered together. It is unclear what part of the proposed offset addresses value and what addresses the loss of stream extent (the loss of extent would mean that this is not an aquatic offset but aquatic compensation as defined in the NPS:F).
- The wetland offset includes planting at the offset site of over 550 plants. As was discussed on site, the offset wetland should be mapped and the planting/restoration areas defined, as well as, the areas of the rare carex species and other existing vegetation. This is to gain an existing value and understand the potential of the offset.
- No reason is given to why the offset actions are focused on the offset wetland, when for example, other wetlands on the site are not being fenced for stock exclusion.

- The stream offset planting is limited to fencing located 2 m to 4 m (wetland areas) from the stream and riparian tussock planting. This limited riparian restoration and ecological benefits creates high edge effects locking in the potential need for regular maintenance for the future.
- The offset areas are proposed to be covenanted for the duration of the wind farm activity. I do not support the limitation of the covenant as the effects (stream and wetland loss) will be in perpetuity and therefore the measures proposed to address those impacts should remain for as long as these losses exist (in this case in perpetuity).
- The offset areas are proposed to have closure plans, however, I do not support a closure as the covenanted areas must have long term management plans to ensure they continue to provide the ecological outcomes required to address the impacts.
- In summary, the offset plan does not:
    - Provide any ecological modelling or accounting to demonstrate no net loss (of value or extent).
    - Assess wetland or stream potential values.
    - Ensure that the ecological gains will be secured in the long-term.
- It is recommended that best practice offset (or compensation) is addressed through robust ecological modelling or accounting such that both loss of value and extent are demonstrated to be accounted for in the proposed offsets.
- Based on the level of information for wetland and stream impact offsets, there remains uncertainty that no net loss is achieved and as currently set out. I do consider that there is adequate opportunity available on site to manage these effects and it is possible that the offset offered may be shown to achieve this.
- For appropriate consent monitoring by ORC, it is recommended to have the outcomes (no net loss/net gain) set out clearly (standards, targets, locations and performance) so that this can be inspected/audited and assessed if it is on track to being – or has been achieved or whether further management is required.

Native Fish Recovery Plan

- The fish recovery plan details methods aimed to ensure that no Eldon's galaxids are harmed during the installation of a culvert.
- The actual plan for fish recovery (section 4.2) is not specific whilst potential methods are proposed, it is flexible to account for the particular site conditions.
- An 80% of species population is the target for fish relocation. I would consider, given the threatened status of Eldon's galaxias, that this should be 95 to 100% which is achievable.
- It is recommended that an updated fish management plan is provided to ORC for certification prior to streamworks that will be related to existing conditions and be able to specify the release site, ecological capacity of the release site, methods and level of effort.

Earthworks Management Plan, CMP and Chemical treatment

The following documents have not previously been reviewed by myself and are assessed:

- *Civil Engineering Assessment Puke Kapo Hau Mahinerangi Wind Farm Stage 2 Otago,* report prepared by Riley, dated 15 October 2025.
- *Draft Environmental Construction Management Plan Puke Kapo Hau Mahinerangi Wind Farm Stage 2 Otago,* report prepared by Riley, dated 17 March 2026. – marked 'Revised draft'
- *Draft Earthworks Management Plan (EMP) Puke Kapo Hau Mahinerangi Wind Farm Stage 2 Otago,* report prepared by Riley, dated 17 March 2026.
- *Draft Chemical Treatment Management Plan Mahinerangi Wind Farm Stage 2,* report prepared by EnviroCo, dated 12th June 2025
- *Puke Kapo Hau - Mahinerangi Wind Farm Stage 2 Proposed Conditions of Consents*

On balance, the aforementioned application material does demonstrate that the earthworks could be managed to address the sediment-discharges to an acceptable level. However, as currently written, the application material does not achieve this outcome. Matters of detail would need to be provided via management plans that are updated to reflect the technical points noted below. An amendment to the proposed condition that requires a finalised ESCP, prepared in accordance with GD05, and certified by Council prior to the commencement of works for each stage is required. The applicant provides for this in section 4.11, point B of the EMP:

Such planning is to be carried out for each stage/area of earthworks. Detailed Erosion and Sediment Control Plans shall be prepared and form part of the final EMP – to be approved by Council.

However, this is not adequately captured in the proposed conditions of consent.

Review comments – Civil Engineering Assessment:

- Section 8.5: The stream diversion methodology is light on detail. The diversion channel would need to be constructed and stabilised in advance of flows to the existing channel being blocked. Any pump used should; have a 3 mm fish exclusion screen attached.
- Section 8.6: mention of the term *where practicable* without defining this term. At no time should sediment-laden water be discharged offsite without treatment through a certified, GD05 compliant sediment control.

- Section 8.6.2 Earthworks proposed to be undertaken in a staged manner – but no area detail is provided on the stages. There isn't a need to specify a limit but rather to ensure stage is appropriately sized for management measures and there should be stage-by-stage ESCPs, certified by Council to confirm they are appropriate.

- Section 8.6.2 l) c), infers that silt fences would not be required on slopes less than 18 degrees – which is inappropriate and inconsistent with GD05.

- 8.6.31, surfaces covered by hydroseed will not be considered stabilised until the grass strike achieves 80% of a pastoral swad. V-drains, should have flat bottom to avoid flows concentrating and eroding at the nape of the 'V' – see Figure 19 of GD05 for a reference. This applies even where rock-lined as flows can seep below the rock.

- 8.6.3.10 statement regarding the dead/live storage is incorrect. Dead storage should comprise 30% (and no more or less) of the main pond storage volume.

- 8.6.3.12 Chemical treatment, via a rainfall activated system should be applied to all SRPs and DEBS – see further comments below on the ChTMP.

- Plan 240034-292. Not all flows are directed to the SRP and a small area would pond in the south-western corner.

EMP.

- Section 4.11, point B: *Such planning is to be carried out for each stage/area of earthworks. Detailed Erosion and Sediment Control Plans shall be prepared and form part of the final EMP – to be approved by Council.*

This is supported, but not adequately captured in the proposed conditions.

- Section 6.3: does not state what is to be monitored (TSS, pH), where (main pond, outlet, downstream)or by who; or when.

Review comments – ChTMP

- Section 4.1: design criteria for a 4-hour residency time. I have never seen this before and would like to know how that could be established and monitored and ensured.

- Section 4.2. Minimum DEB sizing should be 2% of the contributing catchment (as per GD05 and Civil Engineering Assessment).

- Section 7 – should add visual clarity limit of 100 mm; TSS cannot be measured in the field (rather it can only be inferred from clarity measures once a correlation has been established).

Chemical treatment, via a rainfall activated system should be applied to all SRPs and DEBs.

The comment about sediment settling out, within 24 hours in laboratory conditions should be removed as it is not applicable to a real-world earthworks site. This does not apply to SRPs and DEBs when in use (when activated there will be water movement in the pond).

Rain activated systems should be mandate over batch dosing (which requires someone to be physical present, to continually revising the dosing rate/volume during any storm event). Passive flow-based dosing (Floc socks/logs) should be avoided as it cannot be determined when they have runout of treatment chemical (the chemical can be displaced by sediment), the first sock in a train receives most of the sediment and so runs out of chemical faster than the rest.

Bench testing will be needed for each catchment. The methodology does not appear to align with best practice given the lack of detail provided.

Overall key points:

1. Offset and compensation needs to be implemented sequentially.
2. The determination of offset needs to be undertaken in a transparent manner using ecological accounting or modelling tools and consider the potential of both the impact and offset sites.
3. Impacts need to consider loss of extent and value(including potential value).
4. The offset offered needs to be able to demonstrate no net loss and net gain.
5. All monitoring requires objective monitoring indices as well as thresholds that triggers actions.
6. Construction management plan and earthworks plans need to be updated to include GD05 best practice standards.

4. Comment on Proposed Conditions

Specific comments on the ecology plans have been provided separately at an earlier date, and updated conditions have not been received at the time of writing, however, the following general comments are made:

- Conditions are overly reliant of management plans, some of which lack the required detail. As a minimum it is proposed that the outcomes in terms of objective measures are contained within the consent conditions.

- Being accountable to a plan that is vague on methods or is difficult to assess and provides room for mis interpretation by consent monitoring officers and implementation contractors.

For the earthworks and engineering, the following recommendations are made:

Conditions

Condition No.	**Comments**
General	
G12	Needs to be updated to refer to each stage and the technical points noted in this assessment.
G15	For certification
G16/G18	Should update performance metrics to reflect GD05 standards
G19	Needs to be updated to refer to each stage, and to provide staging details.
G35	Remove 'to the extent practicable'
G37	100 mm clarity should be achieved *prior to* discharge under GD05 standards (not in the receiving environment, and not after an undefined extent/period of reasonable mixing).
Landuse	
3	Remove 'as far as practicable', 'where practicable'