Fast-track Approvals Act 2024 – Milldale Substantive Application
Technical Addendum
BUN60446761 / FTAA-2503-1038

Technical Specialist Memo – Aquatic Ecology

From:	Antoinette Bootsma (Senior Freshwater Specialist, Earth, Streams & Trees Team, Planning & Resource Consents Department)
Qualifications & Relevant Experience:	I hold the qualification of Bachelor of Science in Botany and Zoology and a Master of Science in Environmental Science. I have 16 years of experience in freshwater ecological assessment with specific specialization in wetland hydrology. I have published my research on wetland ecohydrology in the peer reviewed South African Journal of Science. I have an additional 2 years experience in reviewing specialist reports for resource consent applications. I am a full member of the Environmental Institute of Australia and New Zealand. I have prepared expert evidence and technical assessments for resource consent applications, plan changes, notices of requirement for designation and fast-track applications and have appeared as an expert witness before consent authorities.
Preparation in Accordance with the Code of Conduct:	I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses (**Code**), and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.
Date:	14/08/2025

1.0 Executive Summary / Principal Issues

Two significant omissions remain unresolved:

- Off site creation of a new wetland is proposed to address the permanent loss of wetlands resulting from the proposed development. No evidence that the offset site is able to support hydrological drivers for a new 2.81 ha wetland has been provided. I consider that there is significant risk that the new wetland may not persist in the long term and that the application may result in the net loss of wetland habitat.
- Offsite wetlands located on 147 Argent Lane have been identified based on visual observation only and have not been delineated formally. Loss of these wetlands through groundwater changes have not been included in offset calculations. NES-F consent triggers relating to partial drainage of natural inland wetlands resulting from earthworks within 100m of a wetland have not been included in the application. Although this matter was not included in my initial assessment since I deferred to the groundwater specialist on dewatering matters, I have since been asked to confirm how the wetland component of this matter was addressed in the application. I therefore include my findings here.

Should this application be granted despite these significant omissions, it is imperative that the inherent uncertainty regarding the establishment of new wetland habitat in perpetuity be considered through monitoring beyond the period of vegetation establishment, but extend to a longer period of at least 10 years.

2.0 Specialist Assessment – Previous Memo / Comments Overview

Summary of 29/07 Issues identified

I am unable to support the application based on the lodged documents. My assessment finds that the application does not demonstrate adherence to Appendix 6 of the NPS-FM, Principles for Aquatic Offsetting and therefore the effects management hierarchy is not adhered to. This is a requirement of NES-F rule 45C(6)(c). I conclude that the application is not aligned with Principle 6 of the NPS-FM.

My reasons are summarized as follows:

1. The wetland delineation is based on two disjunct sets of data that cannot be correlated and therefore does not follow the requirements for wetland delineations as specified in the MfE Wetland Delineation Protocols. Furthermore, the hydrology and hydric soils data contain significant inconsistencies.
2. The assessment presenting the proposed offset of a new wetland to account for the permanent loss of wetlands resulting from this application, does not provide supporting hydrological data from which to confirm that a new wetland will be able to be achieved in perpetuity. There is no discussion on the size of the supporting catchment or water availability to support a proposed new 2.81 ha of wetland. Furthermore, I am uncertain that bunds created to trap surface water on steep slopes will support new wetland habitat in the long-term, such as is required to ensure that proposed offset targets are met.

3. In addition to the two issues above, I was asked for input on the applicant's response to groundwater matters as there is an overlap between groundwater matters and freshwater ecological matters. Specifically, Richard Simonds, the consultant appointed as Council's groundwater specialist, asked my input on the applicant's response to Information Gap 8 presented in Table 7 of Volume 7, Planning Overview Response Report. The information gap notes that no assessment is provided for effects of groundwater-related activity on potentially adverse effects on five offsite wetlands. Comments provided in Section 4 below are additional to my initial assessment summarized above.

3.0 Specialist Assessment – Material Reviewed

Review of 06/08 Updates

I have reviewed the following material provided by the applicant following my initial assessment summarized above.

- Volume 7: Planning Overview Response Report prepared by Fulton Hogan Land Development Limited.
- Appendix 7J - Ecological Response Memo prepared by Viridis Ecology Limited
- Appendix 7M - Revised Groundwater Report prepared by WWLA Limited
- Appendix 7N - Hydric Soils Memo prepared by WWLA Limited
- Volume 8: Milldale Stages 10 – 13, 4C and WWTP Updated Conditions of Consent

4.0 Specialist Assessment – Addendum – Outstanding Issues / Information Gaps

Issue 1 - Wetland delineation

Viridis Limited and WWLA Limited have provided additional information regarding their assessments of areas where the vegetation assessment presented problematic results by supplementing with hydric soils and hydrology assessments.

However, disjunct datasets and inconsistencies in the hydric soils assessment remain unaddressed. I therefore consider this matter partially addressed.

Issue 2 - Offset wetland

No further supporting information was provided to support the proposal that hydrology (surface or groundwater) on the proposed offset site will be able to support a new 2.81 ha wetland on steep slopes in perpetuity. This matter therefore remains unresolved. I consider this to be a significant omission.

Issue 3 - Effects of groundwater drawdown on offsite wetlands

As noted above, the potential effect of groundwater drawdown on off-site wetlands is an additional matter, not previously part of my assessment. In this regard I note that off-site wetlands indicated on

147 Argent Lane are identified as potential wetlands based only on visual observations. Page 28 of the lodged ecological assessment (Appendix 2C Ecology Report prepared by Viridis Limited) states the following (own emphasis):

'*Areas showing evidence of wetland vegetation identified on neighbouring land at 147 Argent Lane (to the south/east of Stage 12) via aerial imagery and during a visual assessment from the site's boundary have been mapped as 'potential wetlands'. The wetland delineation protocols were not able to be applied in these areas due to access restrictions*'.

I therefore don't support the statement in the revised Hydrology Memo, Appendix 7M prepared by WWLA that "*the maximum potential effect is limited to the northwestern wetland, which may be reduced by 32% due to a reduction of surface water catchment area and lowering of groundwater table".* Since no wetland delineation following the prescribed protocol has been undertaken, it is entirely incorrect to give statistics of wetland areas that may be affected, since the wetland area is actually unknown.

Furthermore, the expected reduction in size of the potential wetland resulting from groundwater effects are not addressed in the offset calculations.

Since off-site wetlands are currently a visual estimate, not included in offset calculations and since no supporting evidence is provided that offset wetlands will be able to be maintained hydrologically, I conclude that effects on off-site wetlands, within 100m of earthworks, have not been addressed in this application.

5.0 Additional Reasons for Consent Not included in AEE

While I have not noted the interpretation of culverts and wing walls as an outstanding issue, since I am in agreement that ecological effects are adequately managed, the below remain consent triggers not included in the AEE:

- Consent as a Discretionary activity is required under rule E3.4.1(A33) for culverts or fords more than 30m in length when measured parallel to the direction of water flow. Specifically:
    - Permitted Activity Standard E3.6.1.14(1)(a) requires that the total length of any extended structure must not exceed 30m measured parallel to the direction of water flow. This includes the length of any existing structure and the proposed extension but excludes erosion or scour management works. In the case of 8 proposed culverts, the length of wing walls are calculated as being part of the erosion and scour protection and not part of the culvert structure, resulting in the 30m length being exceeded.
    - Permitted Activity Standard E3.6.1.14(1)(c) requires that a new structure must not be erected or placed in individual lengths of 30m or less where this would progressively encase or otherwise modify the bed of a river or stream. When applying this standard on a site basis, progressive encasement is relevant and must be considered in the assessment of stream extent and value.

I note that the groundwater specialist has indicated the following consent triggers are not included in the AEE;

- NES-F 45 (4a to c). The taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland for the purpose of constructing or upgrading specified infrastructure as a Discretionary Activity where the activity will change, or is likely to change, the water level range or hydrological function of the wetland.
- NES-F 45C (4a to c). The taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland for the purpose of constructing urban development as a Restricted Discretionary Activity where the activity will change, or is likely to change, the water level range or hydrological function of the wetland.

6.0 Proposed Conditions

I have reviewed the draft proposed conditions and suggest the following amendments be considered to the Stages 10-13 Streamworks and Wetlands Conditions of Consent LUS 201, WAT 201 & WAT 2023 below.

General Condition		Commentary
59	*Native Fish Capture and Relocation Plan* Prior to the commencement of any works relating to stream reclamation, stream diversion, culvert removal, or construction of culverts, a Native Fish Capture and Relocation Plan must be submitted to the Council for approval. The purpose of the Native Fish Capture and Relocation Plan is to ensure fish will be appropriately removed prior to commencement of works from an area subject to the streamworks, to avoid fish mortality. The Native Fish Capture and Relocation Plan must be prepared by a suitably qualified and experienced Freshwater Ecologist and include the following details: a. Methodologies to capture fish within the impact *stream and/or wetland* habitat, or justification there is no habitat for native fish present at the time of construction; b. Fishing effort; c. Details of the relocation site;	I note that the applicant has changed wording from 'certification' to 'approval' of management plans. I defer to the planning team's review of this wording.

	d. Storage and transport measures including prevention of predation and death during capture; e. Euthanasia methods for diseased or pest species; and f. Confirmation on the habitat availability of the relocation site to support fish at the time of streamworks. g. An accidental discovery protocol for aquatic fauna (including endangered species) which require specialised handling and relocation effort that is not otherwise covered in the standard methodologies (i.e. mudfish). This includes a protocol to implement the following actions: i. Immediately cease *streamworks* (including dewatering) upon accidental discovery of any unexpected aquatic fauna and notify the Council. ii. Ensure aquatic fauna are left in a suitable environment where they will be unharmed while the NFCRP is updated. iii. Update the NFCRP to address handling and relocation of the unexpected aquatic fauna to be submitted to Council <u>for re-certification.</u> iv. <u>Only re-commence the capture and relocation upon re-certification of the NFCRP.</u>	
Wetland and Streams Conditions		Commentary
63	*Stream and Wetland Management Plan - Milldale North Offset and Compensation Site* Prior to the stream enhancement and riparian planting works, along with the creation of the new wetland and associated enhancement planting, a Stream and Wetland Management Plan (SWMP) must be submitted to Council for approval. The SWMP must be prepared in	Fundamental to the assessment of offset and compensation for the loss of wetlands resulting from this application are the premise that a new wetland will be created that will be a stable freshwater feature in perpetuity. Given the significant uncertainty around wetland delineation and the available hydrology on the offset site, I deem it of the utmost importance that the permanent establishment of a long-term stable feature be ensured through rigorous monitoring over the

	consultation with Ngāti Manuhiri and Te Kawerau ā Maki. The SWMP must be prepared by a suitably qualified and experienced ecologist and give effect to the enhancement planting and wetland creation (totalling 2.81ha), culvert removals, and stream riparian planting detailed in the "Ecological Impact Assessment Milldale – Stages 10-13, prepared by Virdis Environmental Consultants and "Milldale Wetland Offset Planting Plans, prepared by Beca", both referenced in Condition 1. The SWMP must include, but not be limited to: a. How the implementation of stream and wetland enhancement works at the Offset Site will be staged proportional with the extent of wetland and stream reclamation at each stage of earthworks within Milldale Stages 10-13 [noting that the phases of compensation works will be completed within 24 months of reclamation]; b. Extent of compensation required at the Milldale Stages 10-13 site, and timing of stream enhancement works and riparian planting in relation to subdivision stages [noting that a portion of the compensation works required for stream and wetland reclamation will be undertaken within proposed local purpose (drainage) reserves that will be vested with Council as the subdivision stages progress]; c. "Planting plan of stream and wetland and buffer planting detailing species diversity outcomes relative to historic site conditions, expected wetland ecosystem, and regional biodiversity targets. Planting plans must be in general accordance with the Milldale Wetland Offset Planting Plans, drawing no. 4672100-AL-1000 and drawing no. 4672100-AL-1001 prepared by Beca, dated 26.02.25" referenced in Condition 1; d. Site preparation details and approaches to weed suppression;	long-term. I categorically do not agree that a 5 year monitoring period is in any way sufficient to indicate that the proposed new wetland, created on very steep slopes will remain a wetland in perpetuity. I consider there to be a significant risk that the proposed bunds will erode away and the wetland not persist in the long term.

	e. Implementation of planting, weed control and pest control; and f. Detailed monitoring timeframes and outcomes spanning planting and vegetation establishment, ~~and hydrology creation~~ to ensure the new ~~wetland's~~ streams' predicted ecological values are achieved or maintained, with specific 2-year and 5-year outcomes. g. Detailed monitoring timeframes and outcomes spanning planting, and hydrology creation and vegetation establishment, and to ensure that the new ~~wetland's predicted ecological values are achieved or maintained, with specific 2-year and 5-year outcomes.~~ Wetland is a stable, permanent aquatic habitat, with specific 2-year, 5-year and 10-year outcomes. h. Protocols for corrective action should monitoring indicate that wetland establishment is not achieved,	

7.0 Recommendation

I consider the following matters to remain significant omissions in the application:

- No supporting evidence that the offset site is able to support hydrological drivers for a new 2.81ha wetland has been provided.
- Offsite wetlands located on 147 Argent Lane have been identified based on visual observation only and have not been delineated formally. Loss of these wetlands through groundwater changes have not been included in offset calculations.
- The application therefore has not addressed the permanent loss of natural inland wetlands resulting from this proposed development.
- Should this application be granted despite these significant omissions, it is imperative that the inherent uncertainty regarding the establishment of new wetland habitat in perpetuity be considered through monitoring beyond the period of mere vegetation establishment, but extend to a longer period of at least 10 years and a suitable review condition.