

Technical Specialist Memo - Freshwater ecology

To:	Warwick Pascoe – Premium Project Lead Celia Wong – Senior Planner, Resource Consents Louise Barclay & Jo Hart – Senior Planner, Notices of Requirement
From:	Naz Tavasoli – Specialist (Earth and Stream Works), Specialist Unit
Qualifications & Relevant Experience:	I hold the qualification(s) of Ph.D. of Science in Ecology and have four years of experience in freshwater ecological assessment. I am a full member of EIANZ. I have prepared expert evidence and technical assessments for resource consent applications, monitoring and compliance and fast-track applications.
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 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:	1/04/2026

1.0 APPLICATION DESCRIPTION

Application and property details

Fast-Track project name:	North-West Rapid Transit																										
Fast-Track application number:	<p>FTAA-2511-1146</p> <p>Council Resource Consent References:</p> <p>BUN60461580 LUC60461581 DIS60461582 (contamination) CST60461583 (structures) CST60461584 (disturbance of seabed (other)) CST60461585 (veg removal) WAT60461586 (groundwater) LUS60461587 (structure) LUS60461588 (works)</p> <p>Notice(s) of Requirement</p> <table border="1"> <thead> <tr> <th>NOR number</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NoR 1</td> <td>Busway between Brigham Creek Rarawaru station and north of Westgate Te Waiarohia station (including stations, Park and Ride and all local road connections)</td> </tr> <tr> <td>NoR 2</td> <td>Busway between north of Westgate Te Waiarohia station and north of Royal Road Mānutewhau station (including stations, Park and Ride and all local road connections)</td> </tr> <tr> <td>NoR 3</td> <td>Busway between Royal Road Mānutewhau Station and Te Whau River (including all stations and local road connections)</td> </tr> <tr> <td>NoR 4</td> <td>Brigham Creek Rarawaru station including Park and Ride</td> </tr> <tr> <td>NoR 5</td> <td>Westgate Te Waiarohia station</td> </tr> <tr> <td>NoR 6</td> <td>Royal Road Mānutewhau station</td> </tr> <tr> <td>NoR 7</td> <td>Lincoln Road Wai o Pareira station</td> </tr> <tr> <td>NoR 8</td> <td>Te Atatū Ōrangihina station</td> </tr> <tr> <td>NoR 9</td> <td>Busway between Waterview interchange and west of Ivanhoe Road (including all stations and local road connections)</td> </tr> <tr> <td>NoR 10</td> <td>Busway between Ivanhoe Road and Ian McKinnon Drive (including all stations and local road connections)</td> </tr> <tr> <td>NoR 11</td> <td>Point Chevalier station</td> </tr> <tr> <td>NoR 12</td> <td>Western Springs station</td> </tr> </tbody> </table>	NOR number	Description	NoR 1	Busway between Brigham Creek Rarawaru station and north of Westgate Te Waiarohia station (including stations, Park and Ride and all local road connections)	NoR 2	Busway between north of Westgate Te Waiarohia station and north of Royal Road Mānutewhau station (including stations, Park and Ride and all local road connections)	NoR 3	Busway between Royal Road Mānutewhau Station and Te Whau River (including all stations and local road connections)	NoR 4	Brigham Creek Rarawaru station including Park and Ride	NoR 5	Westgate Te Waiarohia station	NoR 6	Royal Road Mānutewhau station	NoR 7	Lincoln Road Wai o Pareira station	NoR 8	Te Atatū Ōrangihina station	NoR 9	Busway between Waterview interchange and west of Ivanhoe Road (including all stations and local road connections)	NoR 10	Busway between Ivanhoe Road and Ian McKinnon Drive (including all stations and local road connections)	NoR 11	Point Chevalier station	NoR 12	Western Springs station
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Site address:	<p>Generally alongside State Highway 16 between Brigham Creek and Auckland City Centre</p> <ul style="list-style-type: none"> NWRT_Part 6_5_Property Schedule_Land within designation boundary and NWRT_Part 6_6_Property Schedule_Land adjacent to the designation boundary) 																										

2.0 Executive Summary / Principal Issues

Te Ara Hauāuru – the Northwest Rapid Transit Project is a proposed bus rapid transit corridor alongside State Highway 16, intended to improve public transport accessibility and support urban growth in Auckland’s northwest.

According to the ecology report, the Project interacts with a range of modified urban streams across several catchments. No works are proposed within or near wetlands.

Approximately 38 m of stream length across three stream reaches is expected to be directly impacted by culvert and pipe extensions. No bridge piers are proposed within streambeds. Overall, the application provides an assessment of freshwater ecological features and associated effects, with impacts considered low to very low due to the highly modified urban context. Permanent loss of instream and riparian habitat associated with bridge and culvert footprints is proposed to be offset through riparian restoration. With these measures in place, residual freshwater ecological effects are expected to be no more than low.

However, the application does not clearly demonstrate compliance with relevant regulatory standards and consent requirements. In addition, the absence of detailed culvert, outfall, and bridge designs specific to each stream creates uncertainty regarding fish passage provision, hydraulic performance, and the long-term functionality of the stream network. While mitigation planting is proposed, it does not adequately address the permanent loss of stream extent and ecological values through a robust offsetting or compensation framework.

Overall, the application does not yet provide certainty regarding the potential effects on freshwater environments due to a lack of detailed design drawings. As a result, key information gaps remain and should be addressed. These matters can, however, be managed through consent conditions as I deem the potential effects to be low to very low. On this basis, the proposal is generally supported from a freshwater ecology perspective.

3.0 Documents Reviewed

- Te Ara Hauāuru NorthWest Busway Freshwater Ecology Assessment (Garrett-Walker, J., 26 April 2026).
- Te Ara Hauāuru, Northwest Rapid Transit, Part 6_15_Te Ara Hauāuru Northwest Rapid Transit, Assessment of ecological effect, Ian Bredin, 15/12/2025
- Part 4 - Appendix B - Proposed Consent Conditions
- Attachment 6.1 Indicative Design West
- Attachment 6.2 Indicative Design East
- Attachment 6.3 Indicative Cross Section
- Attachment 6.4 Designation Plans, Northwest Rapid Transit Indicative Design
- Part 4 Resource Management Act 1991 Approvals – Appendix C Assessment of AUP rules and NES regulations

4.0 Additional Reasons for Consent Not included in AEE (Resource Consent only)

- No additional reasons for consent have been identified.

5.0 Specialist Assessment (Notice(s) of Requirement and Resource Consent)

Proposal

The New Zealand Transport Agency Waka Kotahi (NZTA) is proposing Te Ara Hauāuru, the Northwest Rapid Transit Project, a linear transport corridor running parallel to State Highway 16. The project involves building, operating, and maintaining a new bus rapid transit (BRT) system from the Brigham Creek Road and SH16 intersection through to Ian McKinnon Drive in Auckland’s city centre. It includes seven rapid transit stations, a Park and Ride facility at Brigham Creek Rarawaru, and links to the existing local bus and road networks, while also utilising current bus shoulder lanes between Te Atatū and the Waterview interchange. Overall, the project aims to deliver high-quality, frequent public transport, improve accessibility and travel choices, and support ongoing urban growth in Auckland’s northwest.

Existing Environment

According to the ecological report on the existing freshwater environment, a combination of desktop review and field assessments was undertaken to identify freshwater features within the project area and its zone of influence. A comprehensive stream classification description, based on both site investigations and desktop assessment, has been provided, along with a description of the proposed activities as outlined in the previous technical memo.

Activities:

- Bridges at Streams 1, 3, 7, and 8 span the channels without any in-stream structures, so there is no loss of wetted habitat, no change to channel form or flow, and no impact on fish passage or connectivity. Effects are limited to small areas of riparian vegetation removal for abutments and access (4–20 m per site) in already modified margins. Overall, instream effects should be negligible and riparian effects are low and localised.
- Culvert and pipe extensions at Streams 4, 6, and 9 will enclose small areas of already highly modified, low-value stream habitat. Given existing degradation, fragmentation, and poor ecological condition, additional effects are minimal. The works result in limited instream loss of 38m with negligible changes to habitat and hydrology. Fish passage will be maintained through the structures, avoiding effects on connectivity. Overall effects are expected to be very low.

Impact assessment

According to the freshwater ecology assessment, April 2026, the construction-phase freshwater ecology effects are expected to be low to very low. Bridge works result in very low instream impacts, while culvert extensions have very low instream effects given the already highly modified stream conditions. Water quality risks from sediment, contaminants, and concrete are also very low with standard management controls in place, and any temporary flow diversion or dewatering effects are very low with appropriate fish salvage and mitigation measures. Collectively, the construction effects are considered low to very low.

Construction-related effects (sedimentation, contaminants, concrete washout, and temporary flow diversion/dewatering) are expected to be short-term and highly localised. Although earthworks may cause minor increases in turbidity and sediment, existing streams are already highly sedimented and ecologically degraded, meaning no measurable change in condition is anticipated, particularly with erosion and sediment controls in place. Risks from hydrocarbons and concrete are low and effectively managed through standard construction practices, while any flow diversion impacts are temporary and mitigated through fish salvage and standard protocols. Overall, all effects are assessed as negligible, resulting in a very low overall level of ecological effect.

Operational effects of the Project are assessed as negligible overall. Stormwater discharges will be treated prior to release, resulting in negligible sediment, nutrients, and thermal impacts, with only very low potential increases in heavy metals and nutrients against a background of existing urban influences. Hydrological changes are also negligible, with only minor increases in peak flows and runoff timing shifts that are not expected to cause measurable ecological change due to existing urban stream conditions and proposed attenuation measures. Bridge shading effects are negligible and may even provide slight ecological benefits by moderating temperature and periphyton growth. Overall, operational effects on freshwater ecology are very low.

Overall, in my opinion, I consider the freshwater ecology effects from construction of the Project will be **Low to Very Low**.

Proposed mitigation

It is recommended that riparian vegetation loss from bridge works is offset through at least a 1:1 replacement of native woody planting along the riparian margin, preferably located immediately upstream or downstream of the structure. For culvert or pipe extensions that result in streambed enclosure, a higher offset ratio of around 1.5:1 is recommended, with riparian restoration undertaken elsewhere to compensate for the loss and achieve overall improvement in stream function.

For any instream diversion or dewatering activities, it is recommended that a fish and kākahi salvage and relocation procedure be implemented to relocate native fauna back into the same catchment, avoid mortality, and remove any pest fish encountered during works. In addition, standard construction environmental controls should be applied, including measures to minimise sediment discharge, ensure safe storage and handling of fuels and hazardous substances, and fully contain wet concrete to prevent pH impacts. Together, these measures ensure that short-term construction effects from turbidity and contaminants remain low to very low.

While the loss of riparian areas to temporary construction areas can be remedied at the affected sites, the loss of instream and riparian areas within the footprint of the bridges and culvert extensions, cannot. These areas require offsetting. The SEV and associated environmental compensation ratio (ECR) tool has been used to quantify the amount of instream and riparian area impacted, and the required riparian restoration.

The SEV (Stream Ecological Valuation) method and related Environmental Compensation Ratio tools were considered but not adopted as the main mitigation framework. Given the highly modified nature of the affected urban streams, minor changes in disturbance location or type would not meaningfully alter SEV outcomes. Instead, a straightforward length-based riparian restoration approach has been proposed, as it is more proportionate to the scale of effects, easier to apply with design flexibility, and better suited to addressing the limited ecological value of these streams. This approach also aligns with the project's effects-based management framework.

Specialist assessment:

Based on my review, the applicant has provided a comprehensive description of the freshwater features, particularly in relation to the streams, and a general assessment of the potential freshwater ecological effects associated with the proposed activities. However, there are several areas where further details would assist in confirming the appropriateness of the proposed works and mitigation measures. The application does not clearly demonstrate how the proposed works comply with relevant regulatory standards and consent requirements. In addition, detailed culvert, outfall, and bridge designs specific to each stream have not been provided, creating uncertainty regarding fish passage provision, hydraulic performance, and the long-term functionality of the stream network. While mitigation planting has been proposed, the application does not adequately address the permanent loss of stream extent and ecological values through a robust offsetting or compensation framework.

Overall, I consider this information gap can be appropriately addressed through the proposed conditions framework and including certification of final designs, preparation of a Streamworks Management Plan, and refinement of mitigation and offsetting requirements prior to construction commencing.

Overall support

Overall, the proposed Te Ara Hauāuru Northwest Rapid Transit Project is well described in terms of its construction and operational freshwater ecology effects, which are appropriately assessed as low to very low. The works are largely confined to already modified urban stream environments, and the inclusion of standard erosion, sediment, and contamination controls, along with fish salvage procedures and riparian restoration, provides a suitable framework for managing adverse effects. While some uncertainty remains due to the absence of detailed final design information and a more explicit offsetting framework for permanent stream loss, these matters can be addressed through further clarification, including incorporation of the Stream Ecological Valuation (SEV) and environmental compensation ratio calculations. In addition, these matters can also be appropriately managed through consent conditions, including design certification and the preparation of a Streamworks Management Plan. On this basis, the proposal is generally supported from a freshwater ecology perspective.

6.0 Section 67 Information Gap

At the time of writing this Memo I have identified the following information gaps:

Information gap	Nature of deficiency	Decision-making impact	Risk / uncertainty created
<i>Compliance with relevant standards The applicant list a list of activities related to proposed work</i>	<i>The applicant has listed the proposed activities; however, the application does not clearly demonstrate whether, and how, the proposed works comply with relevant regulatory requirements, standards, and consent criteria.</i>	<i>Inability to verify compliance, which may affect consent decisions or conditions.</i>	<i>Risk of non-compliance, potential legal or regulatory challenges, and uncertainty regarding the appropriateness of proposed mitigation or management measures.</i>
<i>Culvert and Bridge designs</i>	<i>Detailed designs and specifications for the proposed culverts and bridges have not been provided.</i>	<i>Prevents a full assessment of potential freshwater ecological effects and the effectiveness of proposed mitigation measures.</i>	<i>Uncertainty regarding the scale of stream disturbance, fish passage outcomes, hydrological effects, and long-term stream function.</i>
<i>Recommended mitigation ratio</i>	<i>The proposal relies primarily on mitigation planting recommendations, while the permanent loss of stream extent and ecological values has not been clearly addressed through an offsetting or compensation framework.</i>	<i>Limits the ability to determine whether the proposed measures are sufficient to address residual adverse effects and achieve an appropriate ecological outcome.</i>	<i>Risk that stream loss and associated ecological values are not adequately compensated for, creating uncertainty regarding overall ecological effects and policy alignment.</i>

7.0 Recommendation

In order to support the proposal, the proposed conditions require submission of a streamworks management plan, detailed design drawings of the proposed bridges, culverts and outfall/erosion scour structures, including cross-sections and longitudinal profiles, demonstrating fish passage and compliance with relevant regulatory standards.

8.0 Proposed Conditions (Resource Consent)

In regard to proposed conditions, I have the following comments:

- The term “shall” must be replaced with “must” in the conditions.
- Conditions 12 and 13 do not provide any structure design detail. Council should be given the opportunity to review designs prior to them being implemented. The conditions as written, give the consent holder scope to implement any design which may or may not have significant environmental impact beyond what is generally proposed. A certification process is required.
- There is also no condition regarding a finalised bridge design, to confirm that any bridge structure will not be placed directly within the riverbed and will allow for flood flow.
- There is no condition regarding a streamworks methodology, to manage effects during construction.
- I support Mr Statham’s comments / edits to condition 15. The quantum of riparian planting to address the 38m of stream loss must be calculated using a robust tool that can account for the loss of values, such as the SEV/ECR methodology.
- I recommend conditions 12 and 13 are replaced and have also recommend new conditions regarding a finalised streamworks management plan and bridge design.

Replace condition 12 with:

X1. Prior to any streamworks commencing for construction of each outfall, the consent holder must submit a final Outfall Design including long section and cross section design drawings to the Council for certification. The designs must demonstrate the outfall structure in relation to the stream bed, details/dimensions of the riprap and angle of discharge to the stream to minimise erosion and scour of the stream bed. Construction of each outfall must not commence until Council has provided written certification. The outfall(s) must be constructed in accordance with the certified Outfall Design(s).

Replace condition 13 with:

X2. Prior to any streamworks commencing for construction of each culvert, the consent holder must submit a final culvert design to the Council for certification. The designs must demonstrate that fish passage is provided through each culvert, unless there is no upstream habitat available above the culvert(s). Construction of each culvert must not commence until Council has provided written certification. The culvert(s) must be constructed in accordance with the certified Culvert Design(s).

The final Culvert Designs must include the following details:

- a. Culvert dimensions.
- b. Culvert grade.
- c. Percentage of embedment.
- d. Proposed velocities through the culvert compared to existing velocities.
- e. Provision for bed substrate within the culvert.
- f. Native fish species present which need to be catered for.

New conditions

X3. Prior to any streamworks commencing for construction of each bridge, the consent holder must submit a final Bridge Design to the Council for certification. The design must include long section and cross section drawings, demonstrate that piles are located outside the stream/river bed, and detail the 1% AEP level. Construction of each bridge must not commence until Council has provided written certification. The bridge(s) must be constructed in accordance with the certified Bridge Design(s).

X4. Prior to the commencement of the streamworks activity, a finalised streamworks management plan (StMP), must be submitted to the Council for certification. The purpose of the StMP is to provide a finalised streamworks methodology and management measures that enables effects of streamworks to be managed during construction in accordance with best practice.

Streamworks activity must not commence until written certification is provided from the council.

The StMP must include as a minimum but not be limited to:

- a. management measures to demonstrate how erosion and sediment controls will avoid sediment or sediment laden water entering the stream in accordance with best practice;
- b. management of contaminants to water (e.g. hydrocarbons, construction materials);
- c. maintenance of fish passage during and after the streamworks;
- d. methodology for diverting upstream flows during the streamworks, including how sufficient flow will be maintained at all times below the site of the works to maintain in-stream biota;
- e. a detailed methodology for the installation of the structure(s) / disturbance / reclamation [amend depending on type of stream works activity] and
- f. details of final streambed remediation or stabilisation upon completion of stream works.