

Appendix 2: s53(2)(a) Fast Track Approvals Act 2024, Technical Advice- Surface Water Ecology

Date	1 September 2025
To	Joanne Mitten, Principal Consents Planner, Environment Canterbury
From	Michele Stevenson, Senior Scientist – Water Quality Science, Environment Canterbury
Project advice provided for	Ryans Road Industrial Development
Documents referred to	Initial application documents: the AEE; the Waterways and Wetland Assessment; the Earthworks Management Plan; the proposed Consent Conditions. Further documents provided 15/08/25: Memorandum of Counsel Appendix 4: Ecology – Updates to Ecology Technical Advice; amended proposed Consent Conditions.
Qualifications	I hold a Master of Science degree in Environmental Science and a Bachelor of Science in Zoology and Geography. I have over 25 years work experience in environmental science with a focus on water quality and ecology, working for government and private consulting organisations in Australia, the United Kingdom and New Zealand. I am a member of the New Zealand Freshwater Sciences Society. I have been employed by Environment Canterbury for 18 years.
Code of Conduct	I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical report has been prepared in accordance with that Code. In particular, unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

Executive summary/overview

1. My advice relates to proposed activities related to the water race that is adjacent to the development site and flows west to east along Ryans Road. The water race is a part of the Paparua Water Race Network (PWRN) and provides a connection between the water race system upstream and the Ōtākaro/Avon River catchment downstream. The initial proposal was to pipe the 840 metre length of the water race adjacent to the development site, on the basis that there are limited ecological values in the watercourse and piping would facilitate the upgrading of Ryans Road to an industrial standard with kerb and footpath. Following discussions between local authorities and the applicant the proposal has been amended to retain the water race as an open channel with multiple culverts installed to provide access to the development site. The information provided on the amended water race proposal is lacking sufficient detail to understand the design and construction methodology and thus enable assessment of potential effects.

Agreement with the Applicant

2. I agree with the broad description of the water race provided in the AEE and the Ecology assessment that supports that (Appendix 8). The water race is considered an artificial watercourse under the Resource Management Act (RMA) and the Canterbury Land and Water Regional Plan (LWRP).
3. The updated Ecology Advice (dated 13 August 2025) states that the amended proposal to retain an open channel will result in a measurable improvement to the quality and condition of the habitat within the waterway. I agree that not piping the watercourse is a better outcome for the stream habitat and ecological values.
4. The Ecology Advice provided has recommended fish salvage for areas where culverts are proposed to be installed and I agree that this will be necessary to mitigate potential effects on fish and larger invertebrates that live in or are moving through this part of the water race. The draft conditions provided include a suite of 'Fish Protection' conditions that I agree with, including the requirement for screens on any pumps used, no stranding of fish in pools or channels, a Fish Management Plan and fish salvage requirements.

Benefits of the project

5. The amended proposal to retain an open channel is preferred to the initial piping proposal and should result in a better outcome for aquatic ecological values, provided that the channel design, bankside planting and culvert construction methodology is well planned and implemented.
6. The project does not propose any discharge of stormwater to surface water, during either the construction or operational phase of the development, and this will avoid potential effects from such discharges.

Outstanding areas of contention and significance of these

Discussions with Applicant

7. Discussions between local authorities (ECan, CCC and SDC) signalled a collective preference for the water race to not be piped and this resulted in the amended proposal. I have not had any direct discussions with the applicant but supported the comments made by the CCC Principal Waterways Ecologist regarding the water race when they attended a meeting with the applicant and their consultants.

Outstanding areas of contention

8. Ecological values of the water race were described based on a desktop review of the NZ Freshwater Fish Database (NZFFD). The records found were from a site downstream of the reach adjacent to the development site, which was surveyed in 2022 as part of a broader survey of aquatic ecology in the PWRN. Given that the initial proposal was to pipe the full 840 m reach of the water race adjacent to the development site, it would

have been preferable if a site-specific survey was undertaken to better characterise the ecological value of this reach.

9. There are some statements made in the updated Ecology Advice that are not supported by the information that we have been provided to date regarding details of the amended proposal. The updated plans show 900 mm diameter culverts at vehicle crossings and road junctions with the culverts countersunk 20% for fish passage (Drawing No. RC-RD330). The cross sections of the water race in Drawing No. RC-RD320 show some approximate measurements but are largely conceptual so we do not have details of aspects such as the width, depth and bank slope of the water race and the proposed bankside planting. Without this information I cannot agree with the statements made that the sizing of culverts will ensure fish passage is maintained and the planting will provide instream shade and improved food supply for the aquatic species that live there, although I agree that these are desired goals.
10. We have not received sufficient information on construction methodology for the installation of the culverts to know whether potential effects on the water race will be adequately mitigated.

Significance of these matters

11. At this stage I do not consider it is essential for a site-specific survey to be conducted to inform further assessment but I recommend that the affected reach is surveyed prior to any construction works involving the water race. As well as standard fishing methods, this should involve an instream survey to check for the presence of kākahi/freshwater mussels and koura/freshwater crayfish. This will avoid potential effects on species present during construction.
12. I consider that the information gaps that I have highlighted in paragraphs 9 and 10 above can be addressed by conditions related to fish passage, riparian planting (may be more suitable on CCC consent?), and construction methodology. Further information would be desirable but is not essential for effects assessment.

Solutions and/or Conditions sought

13. Fish passage requirements should be included in consent conditions, following the guidance in the New Zealand Fish Passage Guidelines (NIWA, 2024). Key design elements are:
 - The culvert must span a minimum of the bank-full width where it intersects with the bed of the stream or drain;
 - The culvert must be placed at the same grade as the stream or drain bed;
 - The culvert invert must be embedded by 33-50% of the nominal diameter of a round culvert;
 - The width of the embedment within the culvert must be at least as wide as the streambed;
 - The maximum length of the culvert will be 6 m;
 - The nominal diameter of a round culvert must be <1.5 m.
14. I recommend that a condition is included that will limit the duration of construction works during culvert installation to minimise impacts of over-pumping on the aquatic ecosystem

within the water race. Erosion and sediment control measures will also be needed as appropriate for the construction methodology to minimise sediment inputs.