Attachment 1:
Response to request for further information

The following table provides a response to the questions raised by the EPA in relation to the completeness of the Substantive Application for Stage 1 of the Mill Road Project. The responses provide clarification and additional information where requested and identify the relevant parts of the Application and supporting technical material where those matters are addressed. This table has been completed with input from Jerry Liu (water flows), Rosa Kirkham (freshwater ecology) and Andrew Blayney (terrestrial ecology).

<table>
<tr><th>Question</th><th>Response</th></tr>
<tr><td>Water flows: Water flows are required under Clause 3 of Schedule 9(a)(v). No flow rates/hydrological data is provided in either the Substantive Application Part F Freshwater Fisheries Act Approval or in the Assessment of Freshwater and Wetland Ecology application documents.</td><td>For permanent culverts where fish passage is being provided, we assume that the request for “water flows” relates to the designed fish passage upper (QH) and lower (QL) flows. The table below, whilst not included in the Substantive Application, forms part of the background material used to inform the design of the proposed permanent culverts that provide fish passage (i.e. MM04A, MM04B, MM05, MM06, MM10).
<table>
<tr><th></th><th colspan="2">Design fish passage flow (m^3/s)</th><th colspan="3">Design flood flow (m^3/s)</th></tr>
<tr><th>CULVERT ID</th><th>10% of 2yr ARI (Q_L)</th><th>50% of 2yr ARI (Q_H)</th><th>2yr ARI</th><th>10yr ARI</th><th>100yr ARI</th></tr>
<tr><td>CUL MM04A</td><td>0.02</td><td>0.12</td><td>0.24</td><td>2.45</td><td>5.63</td></tr>
<tr><td>CUL MM04B</td><td>0.09</td><td>0.43</td><td>0.86</td><td>4.47</td><td>9.99</td></tr>
<tr><td>CUL MM05</td><td>0.24</td><td>1.19</td><td>2.38</td><td>6.41</td><td>14.07</td></tr>
<tr><td>CUL MM06</td><td>0.06</td><td>0.30</td><td>0.60</td><td>1.63</td><td>3.57</td></tr>
<tr><td>CUL MM10</td><td>0.08</td><td>0.40</td><td>0.81</td><td>2.17</td><td>4.76</td></tr>
</table>
We have not provided any flow information for culverts that do not provide for fish passage because this data provides no useful purpose where fish passage is not being provided. These culverts (i.e. MM01, MM01A, MM01C and MM02) are located within intermittent streams that do not provide suitable habitat for fish, which is why fish passage is not being provided.
We consider that sufficient relevant information has been provided in relation to streams subject to the complex freshwater fisheries activity, and the requirements of Clause 3(a)(v) are met.</td></tr>
<tr><td>Operating regime: The operating regime is required under Clause 3 of Schedule 9(a)(vi). A comparison of the current to natural flow regime is presented in the SEV data in Table 7.6 within the Assessment of Freshwater and Wetland Ecology. Information on the current operating regimes at the sites is not present in the application documents.</td><td>We assume that “operating regimes” refers to the hydrological flow regimes for base flow condition within stream or wetland systems.
We confirm that the culvert structures in the table above will not alter the low flow regimes because they have been specifically designed to avoid becoming a dam, constriction of flow and obstructions during the low flow conditions. Therefore, we consider that sufficient information has been provided about the current operating regimes of the streams subject to the complex freshwater fisheries activity, and the requirements of Clause 3(a)(vi) are met.</td></tr>
<tr><td>Water quality and quantity: The water quality and quantity in the surrounding habitat (at the proposed structure location, upstream and downstream) is required under Clause 3 of Schedule 9(c). Tables</td><td>The Freshwater and Wetland Ecology Assessment (Appendix C7 of Part C of the Substantive Application) broadly comments on the water quality of the catchments in relation to the land use and inferred from macroinvertebrate data. These details are provided in Sections 3.3.2 and 3.3.3.</td></tr>
</table>

Question	Response
5-1, 5-2, and 5-3 in the Substantive Application Part F Freshwater Fisheries Act Approval has a column titled Clause 3(c): The water quality and quantity in the surrounding habitat (at the proposed structure location, upstream, and downstream) that is populated with SEV data, habitat, and stream and catchment values but does not contain water quality or quantity data (e.g., nutrients, sediment, E. coli, or flow rates).	Specific water quality data such as nutrients, sediment, or E.coli are not available. This data was not collected, and public records of water quality have not been identified. While additional water quality data can provide additional context of stream habitat, it is not necessary to determine the impacts of instream structures and their effects on fish passage. The broad assessment of water quality describing the state as degraded is sufficient to provide the required context. Specific water quality information for areas or impacts of concern are often established through baseline monitoring programs. We consider that sufficient relevant information has been provided in relation to water quality and the requirements of Clause 3(c) are met.
Freshwater species and values present: The application does not provide sufficient detail of the freshwater species and values present as required by Clause 3 of Schedule 9(b).	Information on freshwater species and values present has been included in Part H Freshwater Fisheries Act Approval of the Substantive Application. In particular, Section 5, Tables 5-1 to 5-3 provide detailed freshwater species and values under column heading *Clause 3(b): The freshwater species and values present.* The level of information provided is sufficient to assess the freshwater species and values likely to be impacted by instream structures as the likely species to be impacted are described for each stream/structure individually. We consider that sufficient relevant information has been provided in relation to the freshwater species and values present, and the requirements of Clause 3(b) are met.
eDNA replicates and where samples were obtained: Table 5-1 in Part F Freshwater Fisheries Act approval lists species that are present or assumed to be present. Other application documents state that Fish populations were inferred from eDNA surveys, the NZFFD and historical electrofishing survey data. It is unclear if the freshwater species and values present are adequately described for each river reach affected by the proposed structures. The application includes eDNA and New Zealand Freshwater Fisheries Database (NZFFD) results but does not expand on the methodology or detail the sites sampled. Clarification is required on the number of replicates of eDNA and where samples were obtained from in relation to the affected reaches. The number of eDNA replicates and the locations they were collected from are necessary to accurately determine the species and values present.	Information on location of eDNA sampling is provided in the **Freshwater Ecological Impact Assessment – Appendix E Section 7.5 Table 7-2**. Single replicate eDNA samples were collected at each site for analysis. This involves using one filter, and filtering approximately one litre of stream water. In comparison, a six-replicate sample would involve six filters, each filter used to filter approximately one litre of stream water. Single replicate sampling is sufficient for general assessments of species presence that does not require ongoing monitoring or statistical analysis. Single replicate samples are at higher risk of false negatives (not detecting a species that is present). However, smaller streams such as intermittent, single order streams, and headwaters, can often be assessed with fewer replicates. Many of the streams sampled were small streams and therefore a single replicate eDNA sample is adequate for the broad descriptions of species presence required.
Stream dimensions and NES-F clause 70: In relation to the complex freshwater fisheries approval, the dimensions of the structures are provided but further detail around the stream dimensions (primarily width) are needed to ensure the dimensions are appropriate under the National Environmental Standard – Freshwater 2020 (NES-F) clause 70.	We assume that the “width” details requested relate to the bank full width required under Clause 70 of the NES:F. Bank full width has been calculated for sections of the streams that are proposed to be culverted. These details are shown on drawing 60755376-SHT-DR-0508 in Part H of the Substantive Application.

Question	Response
Placement of the proposed work zone: In relation to the complex freshwater fisheries approval, the slope of the structure or fish facility is described in the application in terms of placement in the stream, but the placement within the proposed work zone is not provided in detail.	The final placement within the 'proposed work zone' will depend on the construction methodology and sequencing. Drawings 60755376-SHT-DR-0101 to 0113 in Part H of the Substantive Application Report show the location of these proposed culverts in relation to the overall project. We do not have specific details about construction methodologies or sequencing at this stage so cannot provide any further details.
Wildlife Act approval: In relation to the wildlife approval, the Wildlife Approval report discusses its consideration of avoiding, minimising and mitigation impacts, referring to the Lizard Management Plan Section 5-12. Residual effects on lizards are listed in the Terrestrial Ecology Effects report in Section 5.6.4, Table 5-8. Despite having a 'moderate' residual impact on lizards, they have not been incorporated into the offsetting and compensation calculations. It is assumed that the 36.6% positive benefit to impacted ecosystems will adequately address any residual effects to lizards. Section 6.3.2 of the Terrestrial Ecology Effects report describes lizard habitat replacement and enhancement that will be undertaken to address residual effects associated with habitat loss to lizards, with 5.18ha dedicated to a 'lizard habitat matrix'. The Panel may wish to request further information in relation to residual effects on lizards.	The residual effects on indigenous lizards are already addressed through the residual effects management package described in the Terrestrial Ecology Assessment (Terrestrial EcIA) - see Appendix C4 of Part C of the Substantive Application Report. As identified in Sections 5.6.4 and 6.1 of the Terrestrial EclA, the residual effects include the permanent loss and modification of confirmed and potential lizard habitat, together with residual uncertainty associated with injury or mortality despite salvage and relocation. These residual effects are addressed through the residual effects management package and Biodiversity Compensation Model (BCM) described in Sections 6.2 to 6.6 of the Terrestrial EcIA. The BCM assesses biodiversity at an ecosystem scale. While vegetation type, extent, condition and ecological value are used as assessment inputs, the model does not assess botanical values in isolation. Rather, the benchmark is a functioning indigenous ecosystem, including the habitat attributes, ecological functions and ecological processes that support associated indigenous fauna. Accordingly, the affected vegetation and habitat types are incorporated within the biodiversity losses assessed by the model, including the habitat values they provide for indigenous lizards. The vegetation and habitat types affected by the Project, including confirmed and potential lizard habitat, are included as losses within the model, with the corresponding restoration and enhancement measures providing gains in habitat extent, condition, structural complexity and connectivity. As restoration planting establishes and matures, it will progressively provide habitat attributes utilised by indigenous lizards, including vegetation cover, leaf litter, coarse woody debris, refuge opportunities, suitable microclimates and connections with retained habitat. Accordingly, the wider restoration programme contributes to addressing residual effects on indigenous lizards through the creation and enhancement of indigenous habitat across the Project area. In addition, approximately 5.18 ha of the restoration package will be specifically designed and managed as a lizard habitat matrix, as described in Sections 6.2 and 6.3.2 of the Terrestrial EcIA This area provides an additional targeted response to the permanent loss of lizard habitat through the incorporation of habitat features specifically intended to support indigenous lizards, including coarse woody debris, refuge structures and increased habitat complexity. These features are intended to provide habitat function in the short term while restoration planting establishes and matures. The residual effects management package also includes pest plant control and pest animal control within Cheesman's Bush (SEA_T_9102) and Puhinui Gully (SEA_T_4570). These measures will improve habitat condition, support regeneration, and increase the survival of resident indigenous fauna populations, including indigenous lizards, within these retained forest remnants. Accordingly, residual effects on lizards have not been omitted from the compensation assessment, nor are they assumed to be addressed incidentally through the modelled 36.6% positive benefit. Rather, they form part of the biodiversity losses addressed through the residual effects management package. The combination of indigenous habitat restoration, the specifically designed 5.18 ha lizard habitat matrix, habitat enhancement, and pest management measures provides the ecological gains intended to address the residual effects on indigenous lizards.
Holding period: The application for the wildlife approval only seeks a maximum of four hours of captive holding on each day of salvage before lizards are transported and released into the pre-appointed release sites. It is queried whether twice	The four hours holding period has been recommended for two reasons; the first being that the most likely native species regularly captured in these environs is copper skink. This species is prone to heat and handling stress, and shorter holding periods assist in reducing both of these concerns. The second is the proposed release sites are very close to the proposed areas of salvage and making additional trips to carry out interim releases during each day of salvage would not be onerous.

Question	Response
daily releases will be undertaken or whether the duration is extended to a maximum of 8 hours per day.	That said this four hour period could remain as a recommendation in the Lizard Management Plan and the 8 hour maximum being permitted as an authorised maximum.