



27 October 2017

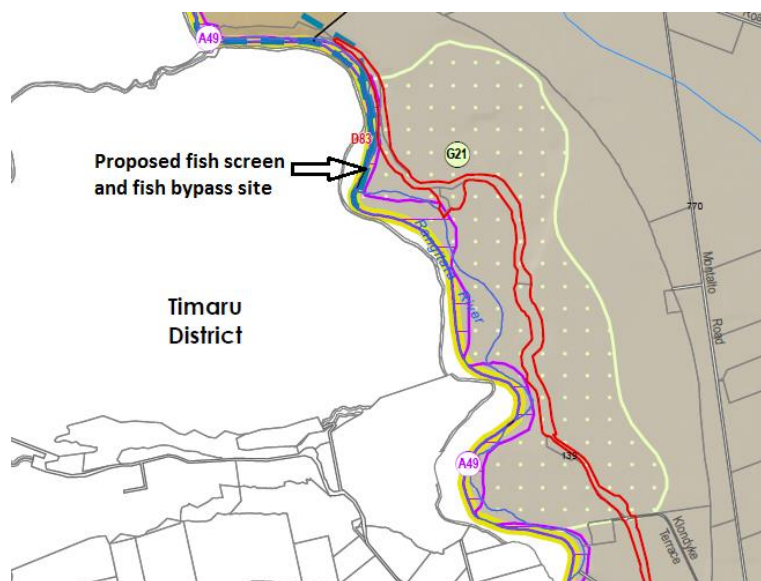
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Dear David

## GEOCONSERVATION AREA ASSESSMENT FOR PROPOSED FISH SCREEN AND FISH BYPASS

### 1.0 Introduction

As part of the Klondyke Water Storage Project Rangitata Diversion Race Management Ltd (RDRML) is proposing to construct a new fish screen at the Rangitata Diversion Race (RDR) which will replace the Bio Acoustic Fish Fence (BAFF). The application lodged in 2015 was for a rock bund and gallery near the sandtrap, but as a result of submissions the proposal has changed. The current proposal is for a fish screen and fish bypass located between the RDR intake and the sandtrap. As part of the proposal, it has been identified that the site is located within a geoconservation area (Rangitata Outwash Terraces) as specified in the Ashburton District Plan (Figure 1). Under the Ashburton District Plan, geoconservation sites have been identified as natural features that are considered to be nationally important because of their presence in the landscape. Additionally, the policies within the Ashburton District Plan recognise that geoconservation sites are an important element of natural character.



**Figure 1: Location of proposed fish screen and fish bypass and the geoconservation site dotted in yellow (Sourced from Map 56 of the Ashburton District Plan).**

The earthworks associated with the construction of the new fish screen are unable to comply with the Rural Zone earthworks standards under the Plan in which Rule 3.9.13 (b) limits earthworks near a geoconservation site to 50 m<sup>3</sup>. Geoconservation site 21 is listed as Rangitata outwash terraces under the Ashburton District Plan and is located adjacent to the RDR intake canal and associated structures. The site is described as “A very legible flight of seven terraces cut into outwash gravel”.

Under Section 3.11.11, the relevant matter for assessment for earthworks is *“the extent to which the activity will adversely affect the geological or geomorphological values of the geoconservation sites listed in Appendix 3-3 and areas of Significant Nature Conservation Values as identified on the Planning Maps”*.

Pattle Delamore Partners Ltd (PDP) has prepared this letter to detail the potential effects on the geological or geomorphological values of this geoconservation site as a result of the proposed earthworks associated with the construction of a new fish screen and bypass channel adjacent to the Rangitata River.

## 2.0 Description of the Potentially Affected Environment

From the proposed fish screen and fish bypass site shown in Figure 2, some of the outwash terraces can be seen adjacent to the RDR intake canal when looking towards the north-east (on the true left bank of the river). The lower-most terrace terminates at the true left extent of the current RDR canal. However, as shown in Figure 1, the terraces span over a large area upstream and downstream of the proposed fish screen and fish bypass site.

The 1:250,000 geological map of the area (Cox & Barrell, 2007) indicates that the fish screen and fish bypass site is located in an area of grey river gravel, sand and silt associated with floodplains or low level terraces. The outwash terraces have been formed during the most recent quaternary period via avulsion and aggradation of the Rangitata River over the upper Canterbury Plains, with a series of terraces being left in the landscape where the river has shifted course and further incised into quaternary alluvium.

The proposed fish screen and fish bypass (Figure 2) is located between the existing canal and an active braid of the Rangitata River, which is covered in broom and willow trees. It is not located on the elevated terraces that are the main characteristic of this geoconservation feature. This area is a younger feature of the Rangitata River bed and is lower in elevation than the alluvial terraces to the north-east.

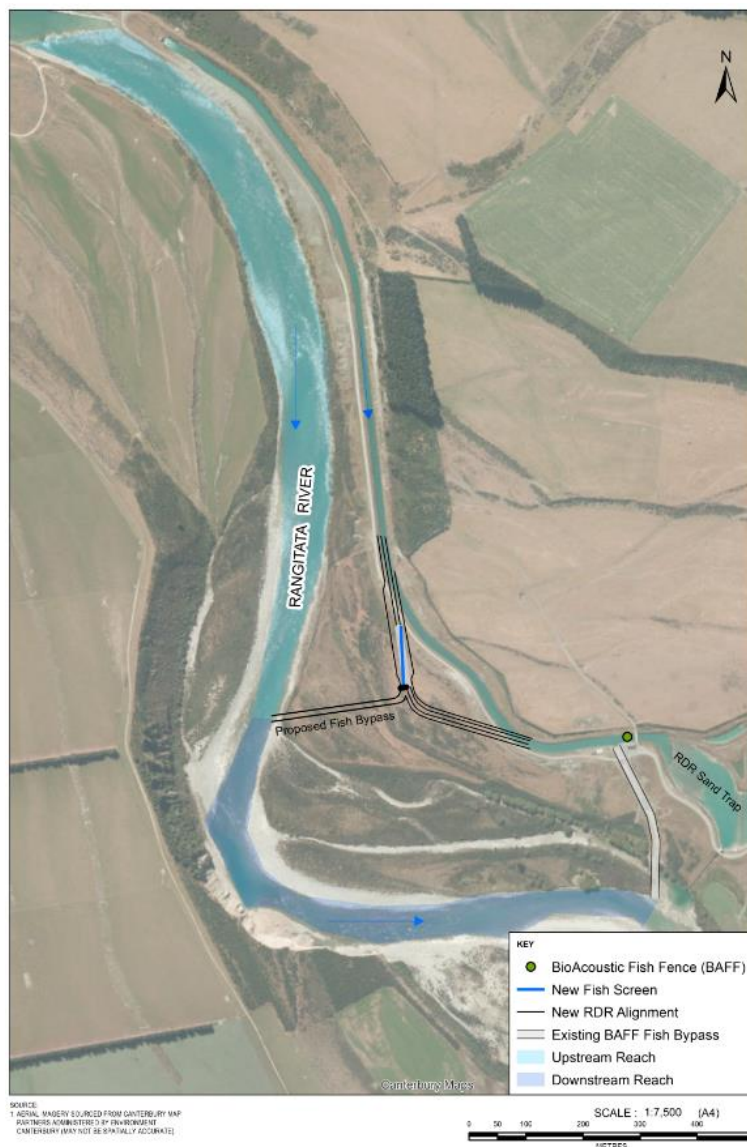


Figure 2: Location of the BAFF, proposed fish screen and associated fish bypass channels.

### 3.0 Potential Effects on the Rangitata Outwash Terraces

Due to the proposed fish screen and fish bypass works being located within the existing canal, or further towards the active Rangitata River channel, in an area away from the elevated terraces, the earthworks related to the construction of these structures will not impact on the elevated Rangitata outwash terraces. Additionally, the fish bypass will be diverted away from the base of the elevated outwash terraces and therefore the risk of erosion at the base of the terraces is minimised. The construction effects are of a temporary nature, which also lessens their impact on the geoconservation area. Consequently, the integrity of the Rangitata outwash terraces is not expected to be affected as a result of the proposed earthworks. The end result will be some extra length of canal similar in nature to what was already present when the geoconservation area was established. It will not adversely affect the geological or geomorphological values of the legible flight of terraces that rise up above the riverbed.

### 4.0 Conclusion

In light of the information above, no adverse effects on the elevated Rangitata outwash terraces which characterise the geoconservation area are expected as a result of the proposed temporary earthworks

associated with the construction of a new fish screen and fish bypass for the Rangitata Diversion Race adjacent to the Rangitata River.

## 5.0 References

Ashburton District Council. (2014). *Ashburton District Plan*. Ashburton.

Cox, S. C., & Barrell, D. J. (2007). *Geology of the Aoraki Area*. Lower Hutt: GNS Science.

## 6.0 Limitations

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Rangitata Diversion Race Management Limited and others (not directly contracted by PDP for the work), including Riley Consultants. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Rangitata Diversion Race Management Limited for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

Kind regards

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