BEFORE	Independent Commissioners appointed by Tasman District Council
IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of an application by C J Industries Ltd for land use consent RM200488 for gravel extraction and associated site rehabilitation and amenity planting and for land use consent RM200489 to establish and use vehicle access on an unformed legal road and erect associated signage

REPLY EVIDENCE OF DR CALUM MACNEIL ON BEHALF OF CJ INDUSTRIES LTD (SURFACE WATER QUALITY AND ECOLOGY)

21 April 2023

1. INTRODUCTION

1.1 My full name is Dr Calum MacNeil. I hold the position of Freshwater Ecologist at the Cawthron Institute, Nelson.

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

(a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting, and

(b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage.

1.3 The applicant has also subsequently applied for a discharge permit (RM220578).

1.4 My qualifications, experience and involvement in this proposal are outlined in my Evidence in Chief dated 15 July 2022.

1.5 The purpose of my reply evidence is to respond to submitter comments from 7 April 2023 and Council's Memorandum dated 14 April 2023 regarding surface water quality and ecology.

Code of Conduct

1.6 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023 and I agree to comply with it. My evidence is within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

2. EVIDENCE

2.1 My Evidence in Chief addressed the surface water quality and ecology assessment of the activities for which consent is sought. My evidence was based on the applicant's proposal documents and a site visit. My evidence assessed the potential of the proposed gravel extraction works to degrade instream ecological values in the Motueka River and a small intermittent stream located in the Peach Island overflow channel. It was my view that the measures put forward by the applicant are proportionate and fit for purpose in protecting instream ecological values in the Motueka River. It was also my opinion that the presence of stop banks and minimum distance of 20 m of excavations from stop banks and no working on the Motueka River side of stop banks are all crucial in protecting the Motueka River. The additional measures I recommended (which have now been incorporated into consent conditions), would provide further safeguards to prevent sediment inputs.

2.2 In response to Minute 7, my Supplementary Evidence dated 17 March 2023 dealt with my review of the Joint Witness Statement relating to Pit Erosion dated 6 March 2023 (JWS-Pit Erosion) and the supplementary evidence of Mr. Simon Aiken of Tonkin and Taylor dated 19 December 2022 (which is referenced in the JWS-Pit Erosion). Mr Aiken's evidence described the potential for sediment to be generated from erosion of material placed in an excavated pit, prior to a vegetated cover establishing over the reinstated pit. The JWS-Pit Erosion set out the opinions of Mr Aiken, Dr Harvey and

Mr Griffith on that topic. I also reviewed additional draft consent conditions that the Applicant proposed in response to the JWS. The conditions contained additional measures to reduce the potential for sediment loss, as a result of flooding of active pits, from Stage 1. They required that Stage 1 is quarried in 3 tranches, with a maximum of one third of the Stage 1 area to be actively quarried or being remediated at any time. In addition, Stage 1 quarrying and placement of clean fill, subsoil and soil was only to take place during the months of October to March, in order to ensure a vegetated cover is established before winter. It was my opinion that limiting stage 1 quarrying to spring/summer months was an additional measure which would reduce the potential for sediment run-off to the Motueka River and/or Peach Island overflow channel. It was also my opinion that limiting quarrying and placement of cleanfill and soil to October to March inclusive, would reduce the risk of autumn/winter flood events increasing erosion risk and therefore sediment discharges to recipient water bodies.

2.3 I have separated my reply into two different sections as follows:

(c) Submitter further comments on additional information and updated conditions and management plans (7 April 2023).

(d) Council Response (14 April 2023).

Submitter further comments

2.4 Submitter Hannah Mae (referring to paragraphs 3.8 and 3.9 of my primary evidence dated 15.7.2022) says: MacNeil states: 'Inundation of Stage 1 works during major flood events has the potential to transport sediments to the Motueka River via failure of the stop banks, including seepage when the water level reaches near the crest level of the banks.' Mae says that I appear confused about erosion potential in the back channel and seem to relate it to stop bank failure. She suggests that I am confused as to where Stage 1 is. She notes that Stage 1 is in the floodplain itself and in the same area as the back channel with no protection from inundation by stop banks because the stage 1 area is in the berm land of the Motueka River itself.

2.5 I am not confused as to where Stage 1 is, or indeed where all the stages are, having visited and walked the site with a colleague from the Cawthron Institute on 23 February 2022 and inspected the Stage 1, 2 and 3 areas, the general layout and size and extent of stop banks (see section 1.7 of my primary evidence). I noted the area of stop bank separating the boundary of stage 1 and stage 2 and already noted it encloses stage 2 but

not stage 1. In section 2.4 of my primary evidence, I state that 'during major flood events, inundation of stage 1 works (the only stage not completely enclosed by stop banks) may ultimately lead to sediment discharges reaching the Motueka River, particularly if seepage through or overtopping of stop banks occurs.' Although the stage 1 area is outside the stop bank enclosing stage 2 , I believe the stop bank bordering stage 1 and stage 2 will still act as at least a partial barrier between parts of stage 1 and the Motueka river. There is obviously nothing physically stopping flood water from stage 1 passing around the outer perimeter of existing stop banks to reach the Motueka River, but in the event of severe flooding and overall stop bank failure such as overtopping, there would be more direct routes from stage 1 via stage 2 and 3 to the river. Also, as material from stage 1 will be stored behind the stop bank, if stop banks failed / overtopped there would also be potential to pick up sediment from stored material In addition, in respect of my primary evidence at paragraphs 3.8 and 3.9, I again make clear that I do believe inundation of Stage 1 works during major flood events and failure of stop banks, including the one bordering stage 1 and stage 2 near where material from stage 1 may be being stored, has the potential to transport sediments originating from stored material from stage 1 to the Motueka river. This is in addition to any other inputs from stage 1 area not bordering stopbanks. Having clarified this issue, I maintain my opinion that sedimentation effects occurring as part of a major flood will be less than minor in relation to the impacts of the flood and the flood's interactions with other anthropogenic features of the landscape.

2.6 Submitter Hannah Mae comments that I suggest (in supplementary evidence) that the proposed new condition requiring that quarrying of Stage 1 occurs in three tranches will provide additional measures to reduce the potential for sediment loss as a result of flooding of active pits from stage 1. She says that she does not understand how a worked pit that is up to 5 times the size of what has previously assessed, can reduce erosion and sediment loss, and that I do not appear to recognize the erosional issues of the pit backfill or headward erosion of the pit walls.

2.7 As correctly identified in the Council's Memorandum, the proposed three tranche requirement is additional to pit dimensions, not instead of. On that basis, I maintain my opinion that it will provide additional measures to reduce potential for sediment loss as a result of flooding of active pits.

2.8 Submitter Hannah Mae comments that my entire focus seems limited to the Motueka River and that I do not connect it to the Tasman Bay ultimate receiving environment.

2.9 My evidence is limited to my area of expertise, which as a freshwater ecologist is the immediate receiving environments of the Motueka River and the overflow channel, including the surface water quality and the in-stream ecological values.

2.10 Submitter Hannah Mae comments with respect to paragraph 2.12 of my Supplementary Evidence that it is not appropriate to suggest the proposal 'will protect instream ecological values in the Motueka River…' and that this concluding statement demonstrates partiality and bias rather than objective professionalism.

2.11 In paragraph 2.12, I provided my independent, objective, expert assessment of the proposal as a whole including all of the safeguards and conditions that are associated with the proposal. I reject Ms Mae's allegations of bias, partiality, lack of objectivity and unprofessionalism.

Council Response

2.12 I note in the Council Memorandum of 14 April 2023 at section 2.6 refers to my supplementary evidence regarding limiting Stage 1 quarrying and placement of fill to October to March and quarrying Stage 1 in three tranches. Section 2.7 of the Memorandum states that Mr. Trevor James, Council's Senior Resource Scientist Freshwater & Estuarine Ecology, has reviewed my supplementary evidence and agrees with my view that quarrying Stage 1 in three tranches reduces erosion risk and hence risk of sediment discharge. There are no other matters in Council's Memorandum relating to surface water.

3. CONCLUSION

3.1 I have reviewed the relevant information provided as part of the application, and statements from Council and submitters. There has been no additional material that has changed my view that the conditions associated with the proposal, the presence and location of stopbanks and the distance of the gravel workings from the Motueka River will protect instream ecological values in the Motueka River and that there will be less than minor effects on the unnamed stream in the Peach Island overflow channel. I note in the council memorandum of 14 April, states that Mr. Trevor James, Council's Senior Resource Scientist Freshwater & Estuarine Ecology, has reviewed my supplementary

evidence and agrees with my view that quarrying stage 1 in three tranches reduces erosion risk and hence risk of sediment discharge.

Dr Calum MacNeil

21 April 2023