

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of submissions and further submissions by Rangitata Diversion Race Management Limited to the proposed Canterbury Land & Water Regional Plan

STATEMENT OF REBUTTAL EVIDENCE OF NIGEL ROLAND BRYCE (HEARING 3)

1.0 INTRODUCTION

1.1 My name is Nigel Roland Bryce. I am an Associate Director and Planner at Ryder Consulting Limited, an environmental consulting business. My qualifications and experience were outlined in my evidence in chief ('EIC') for Hearing 1.¹

1.2 I repeat the confirmation given in my evidence in chief,² that I have read and agree to comply with, the Code of Conduct for Expert Witnesses, as set out in the Environment Court's Consolidated Practice Note. I confirm, for completeness, that I have complied with the code in preparing this brief of evidence.

2.0 SCOPE OF EVIDENCE

2.1 The purpose of this brief of evidence is to respond to the evidence of the following witnesses:

- Ms Sri Hall on behalf of the Ashburton District Council ('ADC');
- Mr Herbert Familton on behalf of the Director General of Conservation ('DoC').

2.2 I discuss various matters raised by these witnesses in turn below.

3.0 EVIDENCE OF MS HALL

3.1 In relation to the implementation of stock water reductions to the ADC's existing takes on the Ashburton River, as required under Policy 13.4.1 of the Regional Plan, Ms Hall sets out at paragraph 10 that the ADC is not able to achieve the 1st July 2015 timeframe given the vast area of the stock water networks. I understand from Ms Hall's evidence that the ADC has undertaken a study into the existing stock water network³, and while this report was not appended to her evidence, Ms Hall's evidence states that the study found that piping the network is the only practical option to achieve the water savings needed and this cannot be achieved by 1 July 2015 as required by Policy 13.4.1.⁴ I further understand from Ms Hall's evidence that it will not be physically or economically possible to meet the requirements of

¹ Dated 4th February 2013 for Hearing 1.

² at paragraph 1.3 of my evidence in chief (Hearing 3).

³ Water Investigation Project, Opus International Consultants Ltd, dated 2012.

⁴ at paragraph 57 of Ms Hall's evidence.

this policy by 1st July 2015 and maintain an adequate stockwater service.⁵

- 3.2 Ms Hall's evidence sets out that the ADC presented an alternative stepped reduction in abstraction and associated timeframe to the Ashburton Zone Committee and was based on no more than 4,100 L/s by 2018 and 2,900 L/s by 2023. As I understand Ms Hall's evidence, these dates were considered to represent a middle ground between 1 July 2015 (as required by Policy 13.4.1) and the 20 year duration of the Council's existing stockwater resource consents.⁶
- 3.3 I understand that the Ashburton Zone Committee agreed to replace '1 July 2015' in Policy 13.4.1 with 'as soon as possible', which is reflected within the minutes appended to Ms Hall's evidence. While the approach is laudable, I note that Ms Hall's evidence appears simply to be a vehicle to convey the ADC's alternative position and does not actually provide any planning analysis as to whether the alternative wording is appropriate and whether it represents good planning and resource management practice. In my opinion, the proposed use of the term 'as soon as possible' is too uncertain in a policy context and offers little to no certainty on what is a key issue for Chapter 13 of the proposed Canterbury Land and Water Regional Plan ('pLWRP' or 'Regional Plan').
- 3.4 While I support the need for the ADC to reduce its current abstraction in order to meet the outcomes of Policy 13.4.1, I am concerned that the suggested wording reflected within Ms Hall's evidence is neither clear nor concise. Good planning and resource management practice dictates, in my opinion, that a policy that establishes the benchmark for the raising of minimum flows should offer the greatest level of certainty possible. This is especially the case were this to undermine investment decisions relating to the implementation of efficiency improvements to the RDR and associated irrigation schemes. Further, I question how a timeframe of 'as soon as possible' would apply to the implementation of minimum flows within Table 12.
- 3.5 While I appreciate the complexities of upgrading and making the ADC stock water network more efficient, the policy and rule framework underpinning these processes must offer a greater level of certainty. Further, given the concerns raised within my Hearing 3 EIC relating to the potential adverse effects associated with a loss of reliability to the RDR and associated irrigation schemes, any reductions in the ADC's stock water takes (and the associate timeframes to implement these reductions), must, in my opinion, be linked to a reduction of 900 L/s at the ADC's Brothers and Spring Creek takes (both of which are located above the RDR Intake). Further, these reductions must, again in my opinion, be advanced with before the minimum flows for the RDR Intake are required to be raised in accordance with Table 12.

4.0 EVIDENCE OF MR HERBERT FAMILTON

- 4.1 Mr Familton addresses DoC's support of the submissions made by Forest & Bird ('F&B').⁷ Mr Familton relies upon the hydrology evidence of Mr John Waugh that was submitted in support of F&B during Hearing 1.⁸ I note that Mr Familton does not provide any reference to, or append a copy of Mr Waugh's evidence to his own evidence.

⁵ at paragraph 51 of Ms Hall's evidence.

⁶ refer paragraphs 60 of Ms Hall's evidence.

⁷ at paragraph 101 to 109 of Mr Familton's evidence in chief.

⁸ I understand that Mr Waugh's evidence was submitted during Hearing 1 (Week 4) day four and is referenced in Audio 2.

- 4.2 Mr Familton states that in his opinion, Mr Waugh's evidence gives better effect to the NPSFM and RPS policies than the status quo in Table 12, particularly with regards to the New Zealand Coastal Policy Statement ('NZCPS').⁹ Mr Familton in reaching this conclusion addresses Policy A1(a)(i) of the NPSFM, as this relates to climate change, and Policies 11(b)(v) (Habitats), 11(b)(vi) (Ecological corridors), Policy 13 and Policy 15 of the NZCPS (which I set out in full below). I note, for completeness, that Mr Familton does not address any other objectives or policies of the NPSFM, nor does he provide any analysis of the RPS objectives and policies in concluding that Mr Waugh's evidence gives better effect to these higher order statutory planning documents. Without this detail, it has been difficult for me to fully understand the basis for Mr Familton's conclusion.
- 4.3 From my review of Mr Familton's evidence (as this relates to the Ashburton River) it is apparent that he has no regard to the social and economic implications of advancing alternative flow and allocation regimes and focuses on the ecological and climate change justifications in reaching his conclusion to support alternative flow and allocation regimes proposed by F&B. In my opinion, this approach too narrowly focuses on instream values rather than taking a broader more integrated assessment of the resource management issues relevant to the consideration of setting flow and allocation regimes. Reinforcing this point, the Section 42a report states that the key outcomes of Section 13 prior to 2022 are to achieve improved flows in the river while maintaining sufficient reliability of supply for existing irrigators. Put another way, the Regional Plan seeks to deliver sustainable management of this natural resource, while also balancing broader considerations such as the continuation of existing abstractions and the physical resources that are reliant upon the use and development of this water resource in accordance with Part 2 of the Act.
- 4.4 When discussing the ecological justifications for adopting the alternative flow and allocation regimes sought by F&B, I note that Dr Ryder's EIC reinforces that the 6,000 L/s minimum flow at SH1 proposed within Table 12 is supported by Mr Horrell (in his report appended as Appendix 2 to the section 42a Report) and the Section 32 report underpinning Section 13 of the Regional Plan.¹⁰ Further, the Reporting Officer considers that the proposed minimum flow of 6,000L/s is a realistic target to deliver improved flows in the river while maintaining sufficient reliability of supply for existing irrigators.¹¹
- 4.5 I note also that Dr Ryder disagrees with F&B's submission¹² that a year round flow of 3,200 L/s is required to sustain fisheries values in the Ashburton River. I find this conclusion compelling as it is based on his own knowledge of the Ashburton River and an extensive review of background technical reports.
- 4.6 F&B submitted that Table 12 of the Plan should be amended, as a flow at the Ashburton River mouth of 7,000 L/s from October to April and 5,000 L/s from May to September is needed in order to keep the river mouth open most of the time (i.e., 90% of the time). Dr Ryder also addressed this submission (at paragraphs 4.11 to 4.13 of his EIC) and concluded that based on his review of a number of supporting

⁹ refer paragraph 104 of Mr Familton's evidence in chief.

¹⁰ Refer paragraph 3.11 of Dr Ryder's evidence.

¹¹ Refer page 56 of the Section 42a Report.

¹² refer paragraph 4.9 to 4.13.

technical documents that a minimum flow of between 5,000 and 6,000 L/s appears to be sufficient to keep the mouth open. Consequently, Dr Ryder does not consider the request for a 7,000 L/s minimum flow from October to April at the SH1 bridge to be justified.

4.7 In justifying the need for a higher minimum flow to keep the mouth open, Mr Waugh's evidence notes that this is based upon communications with Mr Mark Webb of F&G (and is in turn based on F&G's observations over a 7 year period). No additional information has been provided to further justifies this submission. As a consequence, I rely on Dr Ryder's evidence, which I consider to be more compelling.

4.8 In addressing the 10,800 L/s sought by F&B, Mr Waugh (in responding to a question from Commissioner van Voorthuysen¹³) reinforces that F&B submission is based on the proposed NES for Ecological Flows. As I set out in my EIC, the proposed NES for Ecological Flows has no legal status and it would be inappropriate, in my opinion, to apply this to a minimum flow regime, without the proposed regime being supported by a robust and detail assessment of the potential implications of setting this minimum flow.

4.9 I note that the Commissioners in the RPS Hearing addressed a similar issue, albeit one that related to the weight to be given to the proposed NPS on Indigenous Biodiversity and stated:

"There was some difference among submitters about whether we should have regard to contents of the proposed NPS on Indigenous Biodiversity. We find that some of the content of the proposed NPS would be relevant to the content of Chapter 9 – Ecosystems and indigenous biodiversity. However there is no requirement under the RMA for a local authority preparing a RPS to give effect to or have regard to a proposed national policy statement, although it could choose to have regard to it. We understand that the Minister has not yet announced any decision on submissions on the proposed instrument. In our opinion the Regional Council should not presume any particular outcome of the proposed NPS and it would be inadvisable for the Regional Council to have regard to it at its present stage."¹⁴

4.10 I note here that under section 67(3) of the Act, there is no requirement for the Council to give effect to a proposed NES. I remain of the opinion that any weight given to a proposed NES, where this relates to a minimum flow that is not otherwise underpinned by a comprehensive and detailed assessment of costs and benefits (in accordance with section 32 of the Act) should be limited. Dr Ryder sets out that he can find no quantitative information to indicate that a 10,000 L/s minimum flow at SH1 site will provide additional protection or improvement to ecosystem health and biodiversity. Further, Mr de Joux highlights the potential adverse impacts upon the reliability of existing abstractors, including the RDRML should this alternative regime be advanced with beyond 2022.

4.11 In terms of the overarching statutory planning documents that are relevant to the setting of minimum flows and associated policy outcomes that seek to safeguard the life supporting capacity of ecosystems, I discuss these at paragraphs 5.8 to 5.9 of my EIC. I therefore do not revisit them in this statement.

¹³ during Hearing 1 (Week 4) day four and is referenced in Audio 2.
¹⁴

- 4.12 I agree with Mr Familton that the NZCPS is relevant to the consideration of Ashburton River mouth, given the interrelationship with the coastal environment and its importance for migrating species. Mr Familton sets out that Policies 11(b)(v) (Habitats), 11(b)(vi) (Ecological corridors), Policy 13 and Policy 15 are relevant to the Council's consideration and I note that under section 67(3)(b) of the Act, the Regional Plan must give effect to any NZCPS. I set out the above policies out in full in **Appendix A** to this statement.
- 4.13 In addressing Policy 11(b)(v) and (vi), I note that Dr Ryder's evidence concludes that a flow of about 6,000 L/s at SH1 is sufficient to maintain an opening at the mouth as well as provide good habitat for instream biota and river feeding birds in the lower reaches. Given the evidence of Dr Ryder, I believe that the minimum flow of 6,000 L/s at SH1 is appropriate to give effect to the outcomes in Policy 11(v) and(vi) of the NZCPS.
- 4.14 In my opinion, Policy 13(2) and Policy 15 are more relevant to those activities, which have a direct impact upon outstanding natural landscapes or features and the natural character values of the coastal environment. I note that the Ashburton River (or the mouth of the Ashburton River) is not identified as either an outstanding natural landscape or feature in the Canterbury Regional Landscape Study Review 2010.¹⁵
- 4.15 The proposed minimum flow of 6,000 L/s at SH1 is unlikely to have a significant impact upon the natural character values of the Ashburton River. Reinforcing this point, Dr Ryder notes that Hudson (undated) demonstrated using aerial photography that there was no significant flow related changes in channel patterns or numbers of channel braids over the minimum flow ranges recommended by various workers, including MALF and higher flows.¹⁶ Put another way, it would appear that the proposed minimum flow of 6,000 L/s at SH1 will not have a significant impact upon the natural character values of the Ashburton River (other than supporting mouth opening). I note that Dr Ryder states that other factors such as gravel extraction and riparian encroachment may have a more dominant or overriding effect on ecology. While similar activities may have a corresponding impact upon the natural character values of the Ashburton River (which in areas has been heavily modified), such conclusions are reliant upon a more detailed landscape assessment. Based on Dr Ryder's evidence, I conclude that the minimum flow of 6,000 L/s at SH1 is appropriate to give effect to the outcomes of Policy 13 and 15 of the NZCPS.
- 4.16 Lastly, I note that Mr Familton relies on the evidence of Mr Waugh (as this relates to climate change) to justify an proposition that there is a need to reduce the A allocation block from August 2022 in table 12. Mr Familton considers to be consistent with the approach advanced under Policy A1(a)(i) of the NPSFM.¹⁷
- 4.17 Mr de Joux in reviewing Mr Waugh's evidence concludes (in his rebuttal evidence) that the changes in river flows on the Ashburton River are cyclical and follow long-

¹⁵ Environment Canterbury commissioned a report that identifies areas of outstanding natural features and landscapes (ONF/Ls) at a regional scale throughout Canterbury.

¹⁶ Evidence produced by Dr Henry Hudson as part of the RDR Reconsenting process and tabled at the Regional Council Hearing process.

¹⁷ refer paragraphs 105 to 106 of Mr Familton's EIC.

term rainfall patterns. Mr de Joux also concludes that the simple use of 'mean' flows (which is what Mr Waugh reviews in his evidence) does not provide an accurate picture of the actual changes on flow regimes over time. Of particular note is Mr de Joux finding that there is no reason to conclude that river flows will continue to decline into the future as is implied by Mr Waugh.

4.18 Having considered Mr de Joux's rebuttal evidence, I am lead to the conclusion that the changes in river flows are cyclical and follow long term rainfall patterns. I note that the section 32 report touches on climate change and concludes:

"Current projections suggest that for Canterbury, there will be an increase in:

- *mean temperatures particularly during the winter months. The number of frost free days is predicted to decrease by 2100 while the number of days over 25°C is likely to increase. An increase in winter snowfall may occur, but the duration of the winter season will become shorter and snowlines would rise.*
- *annual rainfall in the Main Divide, but less rainfall on the plains and in the mountain ranges in the north of the region. The alpine rivers could maintain or increase flows, but reduced base flows are expected in hill fed rivers and Banks Peninsula streams, accompanied by a reduction in winter rainfall recharge of the aquifers.*
- *the average water deficit , by the 2080's with increases between 2 to more than 6 weeks, increasing the length of the irrigation season. The water deficit is projected to be more severe in coastal, north Canterbury and mid Canterbury. Severe droughts (1 in 20 year event) are likely to occur frequently, particularly in the northern part s of the region."*¹⁸

4.19 While it is evident that the Council has considered the broader climate change implications for the region, and in so doing has had regard to the effects of climate change in accordance with Policy A1 of the NPSFM and section 7(i) of the Act, I question the extent that these considerations have influenced the setting of the 10,000 L/s minimum flow at SH1. I reach this conclusion on the basis that the section 32 report states that *"there is no modelling work carried out to understand the contributing tributary specific minimum flow requirements to achieve a minimum flow of 10,000 L/s at SH1"*.¹⁹ Further, the section 32 report confirms that *"the modelling work undertaken by Mr Horrell is aimed at understanding the catchment wide flow requirements to achieve a flow of 6,000 L/s at SH1"*.²⁰ Put another way, it is more likely that the effects of climate change on the Ashburton River have been considered for the 6,000 L/s minimum flow at SH1, as opposed to the 10,000 L/s minimum flow proposed within Table 12.

Nigel Roland Bryce, B.REP, NZPI.

22nd of May 2013

¹⁸ refer page 18 of Appendix 1 to the section 32 report and is based on a report prepared by O'Donnell, L 2007 *Climate Change: an analysis of the policy considerations for climate change for the review of the Canterbury Regional Policy Statement* Environment Canterbury report no R07/4 February 2007

¹⁹ refer page 172 of the section 32 report.

²⁰ refer page 172 of the section 32 report.

APPENDIX A – POLICIES OF THE NEW ZEALAND COASTAL POLICY STATEMENT

“Policy 11- Indigenous Biological Diversity

To protect indigenous biological diversity in the coastal environment:

- (a) avoid adverse effects of activities on:
 - (i) indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists;*
 - (ii) taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened;*
 - (iii) indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare⁶;*
 - (iv) habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare;*
 - (v) areas containing nationally significant examples of indigenous community types; and*
 - (vi) areas set aside for full or partial protection of indigenous biological diversity under other legislation; and**
- (b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on:
 - (i) areas of predominantly indigenous vegetation in the coastal environment;*
 - (ii) habitats in the coastal environment that are important during the vulnerable life stages of indigenous species;*
 - (iii) indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh;*
 - (iv) habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;*
 - (v) habitats, including areas and routes, important to migratory species; and*
 - (vi) ecological corridors, and areas important for linking or maintaining biological values identified under this policy.”**

“Policy 13: Preservation of natural character

(1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development:

- (a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and*
- (b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; including by:*
- (c) assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and*
- (d) ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions.*

(2) Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as:

- (a) natural elements, processes and patterns;*
- (b) biophysical, ecological, geological and geomorphological aspects;*
- (c) natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*
- (d) the natural movement of water and sediment;*
- (e) the natural darkness of the night sky;*
- (f) places or areas that are wild or scenic;*
- (g) a range of natural character from pristine to modified; and*
- (h) experiential attributes, including the sounds and smell of the sea; and their context or setting.”*

“Policy 15: Natural features and natural landscapes

To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development:

- (a) avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; and*
- (b) avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment; including by:*
 - (i) natural science factors, including geological, topographical, ecological and dynamic components;*
 - (ii) the presence of water including in seas, lakes, rivers and streams;*
 - (iii) legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;*
 - (iv) aesthetic values including memorability and naturalness;*
 - (v) vegetation (native and exotic);*
 - (vi) transient values, including presence of wildlife or other values at certain times of the day or year;*
 - (vii) whether the values are shared and recognised;*
 - (viii) cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Māori; including their expression as cultural landscapes and features;*
 - (ix) historical and heritage associations; and*
 - (x) wild or scenic values;*
- (c) identifying and assessing the natural features and natural landscapes of the coastal environment of the region or district, at minimum by land typing, soil characterisation and landscape characterisation and having regard to:*
 - (i) natural science factors, including geological, topographical, ecological and dynamic components;*
 - (ii) the presence of water including in seas, lakes, rivers and streams;*
 - (iii) legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;*
 - (iv) aesthetic values including memorability and naturalness;*
 - (v) vegetation (native and exotic);*
 - (vi) transient values, including presence of wildlife or other values at certain times of the day or year;*
 - (vii) whether the values are shared and recognised;*
 - (viii) cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Māori; including their expression as cultural landscapes and features;*
 - (ix) historical and heritage associations; and*
 - (x) wild or scenic values;*
- (d) ensuring that regional policy statements, and plans, map or otherwise identify areas where the protection of natural features and natural landscapes requires objectives, policies and rules; and*
- (e) including the objectives, policies and rules required by (d) in plans.”*