

**BEFORE THE INDEPENDENT HEARING COMMISSIONERS ON
BEHALF OF NORTHLAND REGIONAL COUNCIL (THE COUNCIL)**

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

24 individual resource consent applications for groundwater takes from the Aupouri Aquifer for horticultural irrigation.

APPLICANT

Resource consent applications by the Te Aupouri Commercial Development Ltd, Far North Avocados Ltd, P McLaughlin, NE Evans Trust & WJ Evans & J Evans, P & G. Enterprises (PJ & GW Marchant), MP Doody & DM Wedding, A Matthews, SE & LA Blucher, NA Bryan Estate, SG Bryan, CL Bryan, KY Bryan Valadares & D Bryan (Property No 1), MV Evans (Property No 2), MV Evans (Property No 1), Tuscany Valley Avocados Ltd (M Bellette), NA Bryan Estate, SG Bryan, CL Bryan, KY Bryan Valadares & D Bryan (Property No 2), Tiri Avocados Ltd, Valic NZ Ltd, Wataview Orchards (Green Charteris Family Trust), Mate Yelavich & Co Ltd, Robert Paul Campbell Trust, Elbury Holdings Ltd (C/- K J & F G King) for new groundwater takes from the Aupouri aquifer subzones: Houhora, Motutangi and Waiharara and applications by Waikopu Avocados Ltd, Henderson Bay Avocados Ltd, Avokaha Ltd (c/- K Paterson & A Nicholson), KSL Ltd (c/- S Shine), Te Rarawa Farming Ltd and Te Make Farms Ltd for increased existing consented takes from the Aupouri aquifer subzones: Houhora, Motutangi, Sweetwater and Ahipara.

**STATEMENT OF EVIDENCE OF THOMAS RUSSELL CHRISTIE
(Planning)**

21 AUGUST 2020

For the Director-General of Conservation:

Sarah Ongley
Barrister
PO Box 8213
NEW PLYMOUTH
Telephone: 0274 467 917
Email: sarah@ongley.co.nz
www.bankchambers.co.nz

Lisa Sutherland
Legal Adviser, DOC (Te Papa Atawhai)
c/- PO Box 842
WHANGAREI 0140
Telephone: 0272 750 826
Email: lsutherland@doc.govt.nz

INTRODUCTION

1. My name is Thomas Russell Christie, I hold the position of RMA Planner at the Department of Conservation ("the Department"). I have held this position since November 2019.
2. I hold a Bachelor of Environmental Planning from the University of Waikato. I am an Intermediate member of the New Zealand Planning Institute. I have four years' experience practising as a resource management planner.
3. I previously worked for Tauranga City Council for three years. During this time, I worked on a variety of resource management matters including processing a variety of subdivision and land use consents within Tauranga City. From this work, which included interpreting plans, policy statements and processing resource consent applications, I developed a good understanding of indigenous biodiversity issues.
4. This understanding has further developed through my work within the Department, interpreting and submitting on district and regional plans along with assessing a range of consequential coastal permits and resource consent applications.
5. I am providing independent planning evidence for this hearing. I was not involved in preparing the Director-General's submission on this matter prior.

2 CODE OF CONDUCT

6. I have read and agree to comply with the Code of Conduct for Expert Witnesses produced by the Environment Court 2014 and have prepared my evidence in accordance with those rules. My qualifications as an expert are set out above.
7. I confirm that the issues addressed in this brief of evidence are within my area of expertise.
8. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I have specified where my opinion

is based on limited or partial information and identified any assumptions, I have made in forming my opinions.

3 SCOPE

9. I have been asked to provide planning evidence in relation to the Director-General's approach to the management of the Aupōuri Aquifer, with respect to the 24 applications for new ground water takes from the deep shell bed of the Aupōuri Peninsula received by Northland Regional Council during the period between February 2018 and August 2019. For the purpose of this evidence the scope of my consideration will be limited to:

- Identifying and consideration of relevant higher order statutory documents.
- Consideration of inherent uncertainties of modelling and predicting impacts upon the groundwater resource.
- Assessing the assumptions adopted relating to the connections between the Aupōuri Aquifer and surrounding ground water environs.
- The understanding of potentially interconnected ecological values.

10. I have read the notified application documents and the s42A Staff Report prepared by Council Officer in preparing my evidence. I have further read the evidence of M Letica and J Williamson. I rely upon Dr West, Mr Blythe and Mr Baker in relation to the identification and understanding of ecological values and potential hydrological impacts on these values.

4 HIGHER ORDER STATUTORY DOCUMENTS

11. I generally agree with the relevant Objectives and Policies as listed in Attachment 6 of the section 42A Report, with the following comments/exceptions:

- The NPS Freshwater Management 2020 comes into force on 3 September 2020. It is therefore appropriate to consider the NPSFM 2020 as it will come into force prior to determining these applications (refer section 88A(2) of the RMA).

- The Proposed Regional Plan for Northland (PRPN) June 2020 version should be given significant weight (as opposed to the Regional Water and Soil Plan). There are relatively few appeals to be heard and the PRPN has been through the submissions, Council-level hearings, Council-level decisions and some 'consent orders' have been issued. Ms Ongley will address this further in legal submissions for the Director-General of Conservation.
 - The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 come into force on 3 September 2020. This NES (Freshwater) contains provisions relating to "natural wetlands". This will be further addressed in legal submissions.
 - Existing regional resource consents do not form part of the "existing environment" and so a cumulative assessment must include consideration of all effects: *Ngati Rangī* [2016] NZHC 2948. This will be addressed further in legal submissions.
12. In addition to section 5 of the Act, and not precluding consideration of other relevant Objectives and Policies, my evidence addresses in particular the following provisions (the following includes my emphasis):
- *"...preservation of the natural character of the coastal environment...wetlands, and lakes and rivers and their margins..."*
(s6(a));
 - *"... protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna...."* (s6(c));
 - *"maintenance and enhancement of the quality of the environment"*
(s7(f));
 - *"Intrinsic values of ecosystems"* (s7(d));
 - *"The maintenance and enhancement of the quality of water in water bodies and coastal water"* (s30(1)(c)(ii));
 - *"The maintenance of the quantity of water in water bodies and coastal water"* (s30(1)(c)(iii));

- *“To protect indigenous biological diversity in the coastal environment...” (Policy 11 NZCPS)*
- *“To preserve the natural character of the coastal environment and to protect it from inappropriate... use, and development” (Policy 13 NZCPS)*
- *“Maintain flows, flow variability and water levels necessary to safeguard the life supporting capacity, ecosystem processes, indigenous species and the associated ecosystems of freshwater.” (Objective 3.3 NRPS)*
- *“The maintenance of water flows and levels in rivers, lakes and indigenous wetlands that are sufficient to provide for the preservation of their natural character, safeguard life-supporting capacity, and has particular regard to protecting their intrinsic ecosystem, amenity and cultural values.” (Objective 9.4 RSWPN)*
- *“The sustainable management of groundwater resources in conjunction with the sustainable management of surface water resources.” (Objective 10.4 RSWPN)*
- *“Manage the taking, use, damming and diversion of fresh water so that:*
 - 1) *the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water are safeguarded and the health of freshwater ecosystems is maintained, and*
 - 2) *the significant values, including hydrological variation in outstanding freshwater bodies and natural wetlands are protected, and*
 - 3) *the extent of littoral zones in lakes are maintained, and*
 - 4) *rivers have sufficient flows and flow variability to maintain habitat quality, including to flush rivers of deposited sediment and nuisance algae and macrophytes and support the natural movement of indigenous fish and valued introduced species such as trout, and*

- 5) flows and water levels support sustainable mahinga kai, recreational, amenity and other social and cultural values associated with freshwater bodies, and
- 6) adverse effects associated with saline intrusion and land subsidence above are avoided (except where the taking, use, damming or diversion is for groundwater management at the Marsden Point refinery, in which case this clause does not apply), and
- 7) it is a reliable resource for consumptive and non-consumptive uses.”
(Objective F.1.1 Freshwater quantity)

- “For the purpose of assisting with the achievement of Objective F.1.1 of this Plan:
 - 1) apply the allocation limits set in H.4 Environmental flows and levels when considering and determining applications for resource consents to take, use, dam or divert fresh water, and
 - 2) ensure that no decision will likely result in over-allocation.”
(D.4.10 Avoiding over-allocation)

- “Prepare and consider applications for resource consents to take groundwater in accordance with H.5 Managing groundwater and surface water connectivity so that surface and groundwater resources are managed in an integrated way.”
(D.4.11 Integrated surface water and groundwater management)

- “When considering any application, the consent authority must have regard to the following matters:

...

b) the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided”
(Policy D.4.19)

- “Activities affecting a natural wetland:
 - 1) should maintain the following important functions and values of wetlands, including:
 - a) water purification and nutrient attenuation;

- b) *contribution to maintaining stream flows during dry periods;*
 - c) *peak stream flow reduction; and*
 - d) *providing habitat for indigenous flora and fauna, including ecological connectivity to surrounding habitat, and*
 - e) *recreation, amenity and natural character values, and*
- 2) *must avoid, remedy, or mitigate adverse effects on important wetland functions and values; and*
- 3) *must provide biodiversity off-setting or environmental biodiversity compensation, so that residual adverse effects on the important functions and values of wetlands are no more than minor*.
(Policy D.4.22).

13. I concur with NRC's assessment that the NZCPS is relevant to the proposed groundwater abstractions insofar as they may potentially impact on the ecological and natural character values of the coastal environment, particularly around the coastal margins of the Kaimaumau Wetland. It is important to acknowledge the Environment Court's decision in *Burgoyne v Northland Regional Council* [2019] NZEnvC 028, that the extent of the coastal environment is not only that delineated by the RCPS but comprises all the Kaimaumau-Motutangi wetlands. For the purposes of these applications, other areas that are influenced by coastal processes are also included within the 'coastal environment'. This means that Policy 11 of the NZCPS is directly applicable to these applications. Mr West's evidence sets out At-Risk and Threatened species that are potentially at issue (for the purpose of Policy 11(a) NZCPS) and the other values potentially at issue (for the purpose of Policy 11(b) NZCPS).
14. The assumptions contained within assessment provided by WWLA and Mr Hughes's report, adopted within the Councils s42A Report within section 4.12, acknowledge that we do not fully understand the interconnections between the groundwaters of the Aupōuri Aquifer, other potentially isolated groundwater systems and the functions of the Kaimaumau Wetland and other surface waters within the coastal margins. In the *Burgoyne* case, the Environment Court also acknowledged that there is "no certain scientific information" in this respect (at [26]). The Environment Court in that decision stated that the nature of adverse effects are currently unknown but that, in relation to the Kaimaumau

wetland “any change to that water level which is not a natural variation could be a concern” (at [43]).

15. While the evidence of Mr Baker supports that these systems are likely largely independent of one another, a precautionary approach is required to be adopted under Policy 3 of the NZCPS where proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse. Policy D.2.18 of the PRPN provides a further version of the precautionary approach, stating:

“Where there is scientific uncertainty about the adverse effects of activities on:

- 1) species listed as Threatened or At Risk in the New Zealand Threat Classification System including those identified by reference to the Significant Bird Area and Significant Marine Mammal and Seabird Area Maps (refer Maps), or*
- 2) any values ranked high by the Significant Ecological Areas maps (Refer Maps), then the greatest extent of adverse effects reasonably predicted by science, must be given the most weight.”*

16. Clause 1.6 NPSFM (2020) provides guidance on the use of modelling in situations where there is a lack of complete or scientifically robust data, stating that the local authority must “take all practicable steps to reduce uncertainty (such as through improvements to monitoring or the validation of models used)” and “if the information is uncertain, must interpret it in the way that will best give effect to this National Policy Statement.”
17. Section 2.1 of the NPSFM 2020 Objective 1 provides that natural and physical freshwater resources are to be managed in a way that prioritises the health and well-being of water bodies and freshwater ecosystems (‘Te Mana o Te Wai’).
18. In my opinion, the most relevant policies of the NPSFM 2020 are set out in Table 1 below

Policy number	Policy wording
Policy 1	Freshwater is managed in a way that gives effect to Te Mana o te Wai.
Policy 2	Tangata whenua are involved in freshwater management ... and Māori freshwater values are identified and provided for.
Policy 3	Freshwater is managed in an integrated way that considers the effects of the use

	and development of land on a whole-of-catchment basis, including the effects on receiving environments.
Policy 6	There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.
Policy 8	The significant values of outstanding water bodies are protected.
Policy 9	The habitats of indigenous freshwater species are protected.
Policy 11	Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided.
Policy 13	The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.
Policy 15	Communities are enabled to provide for their social, economic, and cultural wellbeing in a way that is consistent with this National Policy Statement.

Table 1: NPSFM 2020 Policies

19. Te Mana o te Wai is a concept that refers to the fundamental importance of water. The hierarchy prioritises the "*health and well-being of water bodies and freshwater ecosystems*" above the ability of people to provide for their well-being. In this way 'the river comes first'. Te Mana o te Wai recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai.
20. The NPSFM 2020 provides clear direction regarding the appropriate management of the Aupōuri Aquifer and potentially impacted surface waters. It provides strong policy guidance regarding allocation, monitoring and protection of freshwater resources. The NPSFM 2020 is more specific than its predecessor in relation to the protection of wetlands (Policy 6) and the habitats of indigenous species (Policy 9).

21. Subpart 3 of the NPSFM (2020) contains specific directions to regional councils relating to wetlands. The regional council must include in its plan (as soon as reasonably practicable¹) a policy that states:²

“The loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, ...”

22. The rest of the policy only provides for exceptions to this strong ‘avoid’ direction in specific circumstances related to customary, restoration, scientific or infrastructure works. In those circumstances, effects must be managed in accordance with an effects management hierarchy and residual effects offset or compensated.
23. In my opinion, there is a strong policy theme throughout the planning framework towards avoiding the over allocation of ground water resources, safeguarding and protecting the life supporting capacity of freshwater ecosystems and taking a precautionary approach where not all aspects of an application may be fully understood.

5 CONSIDERATION OF INHERENT UNCERTAINTIES OF MODELLING AND PREDICTING IMPACTS UPON THE GROUNDWATER RESOURCE.

24. There is a degree of uncertainty inherent in modelling and predicting effects on groundwater due to the nature of the resource and the variables that influence it. The model that forms the basis of the applications (and the s42A Report) is believed to represent the best available data that exists for the Aupōuri Aquifer, however, retains uncertainty. In relation to the water balance model for the Kaimaumu-Motutahi wetland³, Mr Blythe’s evidence shows that model may not be representing the mosaic of wetland types and hydrological functions occurring within the wetland. Further monitoring and model development would be necessary to help understand what degree of impact abstraction may have.

¹ NPSFM 2020 1.7, section 55(2A) of the RMA applies, requiring the Council to include this policy in the Plan without following the Schedule 1 process.

² Clause 3.22(1).

³ Kaimaumu Wetland Modelling Report_rev3 (June 2020).

25. The NPSFM 2020 anticipates circumstances when complete and scientifically robust data will not be available, and accepts that modelling may be an appropriate foundation for basing decision-making. The NPSFM 2020 requires that, should this be the case, all practicable steps to reduce uncertainty be taken.
26. Mr Baker generally supports the findings within Mr Hughes technical review report that surface water features within the vicinity of the proposed takes have limited hydraulic connectivity with the shallow sand aquifer and that the dune lakes present are likely to be perched on underlying iron-pan layers impeding filtration.
27. However, Mr Baker's evidence highlights the modelled reduction of 4.3% in the mean annual low flow between the base case naturalised scenario (no groundwater pumping) and Scenario 2 (including all consented existing and proposed groundwater takes) will not be evenly distributed across the surface water features present above the Aupōuri Aquifer. It is considered that in these areas of increased draw down, as being between Ngataki and Pukenui in the north, and between Ahipara and Sweetwater in the south, may be impacted to a larger degree than that described within the 42A report.
28. Mapping of these systems, and consideration of which may be more vulnerable to increased draw down, has not been made available through this process. Of particular concern are ephemeral wetlands, springs, small streams because these waterbodies are more vulnerable to non-natural fluctuations.
29. Dr West's evidence describes the potential ecological values that may be present in these features, including that of indigenous Black mudfish, which is recognised as being At Risk due to widespread wetland habitat loss. In addition to the Black mudfish, Dr West states that fish species that are classified as At Risk by the NZ Threat Classification System, occur throughout Aupōuri streams, lakes and wetlands. Many threatened plants also occur in turf communities, and small alterations in drying and wetting conditions can change such communities.
30. In the context of the current consent applications, many of these values and habitats are not able to be confirmed, as they have not been identified or recorded.

31. The importance and statutory requirement of protecting these freshwater ecosystems are reiterated throughout the planning frameworks (above).
32. It is considered of the utmost importance that appropriate conditions, including monitoring systems, must be in place in the event that these consents are granted. This would require monitoring stations to be established where strategic surface water features are present within the areas identified as experiencing greater levels of draw down. This is difficult to progress at this time as not all features have been identified.
33. Based on the findings within Mr Baker's evidence, and the Environment Court's decision in *Burgoyne*, I generally support the proposed adaptive management regime that stages the rate of abstraction for each take to enable monitoring, reporting and analysis to be undertaken. This staged approach goes some way toward addressing uncertainty regarding potential adverse effects as consequence of the proposed takes. The ability of trigger levels to be reviewed and/or remedial actions taken is crucial in the effective management of this system.
34. However, in my view, based on Mr Baker's evidence it cannot be determined that the currently proposed monitoring systems are adequate in achieving the policy direction set out within the statutory framework. In the *Burgoyne* decision, the Environment Court accepted the evidence of Mr Riddell for the Department on what is required for an appropriate adaptive management approach. This included:
 - (a) *that incremental stages of development are set out;*
 - (b) *the existing environment is established by robust baseline monitoring;*
 - (c) *there are clear and strong monitoring reporting and checking mechanisms so that steps can be taken before adverse effects eventuate;*
 - (d) *these mechanisms must be supported by enforceable resource consent conditions that require certain criteria to be met before the next stage can proceed; and*
 - (e) *there is real ability to remove all or some of the development that has occurred at that time if the monitoring results warrant it.*
35. I am concerned particularly regarding item (b) of this list. Although robust baseline monitoring is to be established for the Kaimaumu-Motutangi Wetland, it has not been established for other ecological values that may

be affected by the current takes and, as stated in Dr West's evidence, for some applications the sensitive waterbodies that may be affected are not even identified. Sensitive surface water bodies within the areas of increased drawdown, identified as being between Ngataki and Pukenui in the north, and between Ahipara and Sweetwater in the south will need to be mapped, surveyed and recorded, with monitoring stations located where appropriate as deemed by an appropriately qualified professional.

8 CONCLUSION

36. Understanding the impact of utilising the Aupōuri Aquifer is a significant resource management issue within the Northland Region. It is important that the full impacts of the proposed and existing takes are sufficiently understood, and where this is not practicable that an approach required by the Act, the NPSFM (2020) and NZCPS is undertaken.
37. This requires that all possible steps to reduce uncertainty be taken. Within the evidence of Mr Baker and Dr West it is clear that there is a lack of understanding around not only the connectivity of these proposed takes upon surface water systems but in fact the presence of surface waters and the potential ecological values they may hold.
38. I am generally supportive of the intention of the proposed adaptive management (staging) conditions of the consent but without areas of wetness and surface waters being appropriately mapped, surveyed and recorded, especially within the areas of significant drawdown, it is impossible to be assured that the monitoring will occur in the correct locations to provide for early indication of adverse effects of the proposed takes.



Thomas Russell Christie

21 August 2020