BEFORE THE ENVIRONMENT COURT
I MUA I TE KOOTI TAIAO O AOTEAROA

Decision No. [2019] NZEnvC 028

IN THE MATTER	of the Resource Management Act 1991
AND	of appeals pursuant to s 120 of the Act against a decision granting resource consent applications for the taking of groundwater from the Houhora, Motutangi and Waiparera aquifer management sub-units of the Aupouri Aquifer, Northland
BETWEEN	A BURGOYNE / TE TAUMATUA O NGATI KURI RESEARCH UNIT (ENV-2018-AKL-121) DIRECTOR-GENERAL OF CONSERVATION (ENV-2018-AKL-126) Appellants
AND	NORTHLAND REGIONAL COUNCIL Respondent
AND	MOTUTANGI-WAIHARARA WATER USERS GROUP Applicant

Court:	Environment Judge JA Smith Environment Commissioner RM Dunlop Environment Commissioner SK Prime
Hearing:	At Whangarei 12-14 December 2018
Appearances:	CM Lenihan and M Downing for Department of Conservation (DoC) A Burgoyne, assisted by Mr EJ Wagener, for himself and Te Taumatua o Ngati Kuri Research Unit (Mr Burgoyne) GJ Mathias for Northland Regional Council AMB Green for the Motutangi-Waiharara Water Users Group (Applicant)
Date of Decision:	19 February 2019
Date of Issue:	19 February 2019

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

DECISION OF THE ENVIRONMENT COURT

A: The grant of consent is generally appropriate on the basis of a group approach to conditions (Master Consent) and specific consents to individual members of the group. The conditions now proposed as **Annexure A** are generally appropriate subject to additional conditions to protect the attributes and values of the Kaimaumau wetlands until values are set under the adaptive management regime, and conditions to detect any saline intrusion. However, the Master Consent and conditions (General Conditions) need to be clarified.

B: By 26 April the Applicant is to file and serve amended Master Consent with conditions and the Specific Consents (general wording and conditions) by 29 March 2019. The parties have until 12 April 2019 to provide their comments on the consent to the Applicant.

C: The Applicant is to file its preferred consents and conditions, together with a memorandum explaining any points of difference between it and the other parties, the reasons therefore, and the reasons for preferring its option. We note that the Applicant needs to provide the Master Consent and wording for general conditions for all consents.

D: The Court will then, at its discretion, determine the matter on the papers or convene a Judicial Telephone Conference to address further steps to resolution.

E: Costs are reserved. Any application is to be filed by 5.00pm, Friday 12 April 2019 and replies by 5.00pm, Friday 26 April 2019.

REASONS

Introduction

[1] The Applicant is a group of individual landowners having properties situated within the Aupouri Aquifer[1] in the Far North. At the insistence of the Regional Council they have acted as a single group to make applications for water takes from the Houhora, Motutangi

[1] The Aquifer covers an area of approximately 75,000 ha extending along the whole length of Ninety Mile Beach on the west coast, and from Kokota to Waimanoni on the east coast – Agreed Statement of Facts 20 September '18 (ASF) at [10].

and Waiparera aquifer management sub-units of the Aupouri Aquifer. The Kaimaumau-Motutangi wetland lies to the southeast and northeast of the proposed groundwater takes. It is said to be the largest wetland in Northland and the third largest peat bog system in New Zealand. It covers an area of approximately 4,000 ha including large areas designated as a Scientific Reserve (955 ha) and a Conservation Area (2,312 ha)[2]. Within the Kaimaumau-Motutangi wetland area the scientific reserve and Conservation Area contain the highest values and attributes. These areas are generally shown as containing the deeper water area on Map **B** attached. However, wider values and attributes are displayed throughout the wetland as a whole. (We shall refer to the combined Scientific Reserve and Conservation Areas as the **Reserve Area** in this decision.)

[2] Annexed hereto and marked **C** is a map showing the position of the various takes anticipated in relation to the general layout of properties and the land in question. It can be seen that the subject aquifers are located on a relatively narrow isthmus, with the applications to take situated between the eastern coastal areas, including conservation area and scientific reserves, and the hillier section of the peninsula on the western side of these properties.

[3] The case raises important issues about avoiding adverse effects on the natural values and attributes of significant indigenous vegetation, the management of freshwater ecosystems wider issues of significant habitats of fauna under s 6(c) of the Act and Policy 11(a) of the New Zealand Policy Statement in the context of appropriate aquifer management and abstraction. In particular, this focusses on how a consent should operate until an adaptive management approach has sufficient data to enable its effective operation.

The consent and appeals

[4] The consent was granted by Commissioners subject to a suite of conditions. The Department of Conservation (**DoC**) was not satisfied with the conditions and did not consider that they properly and fully addressed:

(a) the potential and actual adverse effects;

(b) the phasing of water extraction volumes;

[2] ASF [21] – [22]. In contrast Mr Riddell in his evidence-in-chief at paragraph at [52], relying on Dr Robertson, told us that the Kaimaumau wetland totals some 2,931 ha and the Conservation Area 1,503 ha.

(c) the requirements of the Motutangi-Waiharara Water Users Group groundwater monitoring and contingency plan (**the GCMP**);

(d) the purported adaptive management framework relied on to address potential adverse effects; and

(e) the failure to have proper regard to cumulative effects of authorised future abstractions.

[5] The DoC appeal sought amendments to the conditions rather than refusal of consent. It sought more significant monitoring and sampling, and identification of trigger levels for actions to prevent possible harm.

[6] The appeal for Mr Burgoyne was more wide-ranging and sought that the decision be reversed and the application refused. Mr Burgoyne's appeal is somewhat difficult to follow but appears to raise issues relating to the Treaty of Waitangi and the Regional Policy Statement.

[7] He also raises issues under sections 27 and 241(b) of the State-Owned Enterprises Lands Act 1986. He cites the requirement under s 27(b) of the right to be heard in relation to the application as owner of the land, in relation to identified properties. He had a particular interest in the certificates of title for identified land, although their connection with the application was not clear.

[8] However, later in the written appeal Mr Burgoyne does note that he sought an amendment to conditions to ensure actual and potential adverse effects were adequately addressed, and a definition of the amount of water needed to preserve avocado root stock and such further relief as the Court deems fit to satisfy those concerns.

Court processes

[9] Out of an abundance of caution, the Court adopted an approach that Mr Burgoyne's appeal was an appeal against the grant of consent as a whole, and held a pre-hearing conference to try to better elucidate the issues and a process towards hearing.

[10] As a result of that, expert witness conferencing took place and a timetable for the exchange of evidence was engaged. The evidence for all parties was circulated, and the

Court was advised on 6 December 2018 that a settlement had been reached between DoC, the Regional Council and the Applicants. Given that no agreement had been reached with Mr Burgoyne the matter was still required to proceed to hearing. The Court had also read the evidence of all witnesses, including the DoC witnesses and had a series of questions relating to the solution now proposed.

The issues at hearing

[11] It appeared that counsel, at least for DoC, were under the impression that the hearing would be vacated, although the reasons for this were never explained to the Court, nor explored in full before the Court. Several witnesses were not required to be called, or were not called by the parties, but the majority of witnesses gave evidence to answer questions of either the parties or the Court.

[12] In our view, the approach adopted by the Applicant is one of adaptive management, and this is referred to many times in the Applicant's evidence and in the evidence of DoC. We examined this approach, particularly in light of the discussion and criteria set out by the Supreme Court in the *King Salmon* [3] decision.

[13] Mr Burgoyne gave some formal evidence, largely related to title issues and historical issues relating to the occupation of the land in question. Mr Wagener was given special leave to give evidence also. He tried to clarify some of the issues of concern to Mr Burgoyne. We will deal with these issues in due course.

[14] The primary issue in this case is whether or not the method utilised to avoid adverse effects on the area is an adequate method of adaptive management as that term is used both in the Environment Court and confirmed by the Supreme Court. It appears to have been conceded that the previous first-instance conditions were not adequate, and that those now proposed by the Applicant at the hearing, with the approval of DoC and the Regional Council, met those requirements.

[15] However, as a result of the hearing itself we now understand that all parties, including the Applicant, accept that the conditions need to be subject to further improvement to meet the requirements of the Court and the Supreme Court in terms of the approach adopted.

[3] *Environmental Defence Society and Ors v NZ King Salmon and Ors*, [2014] NZSC 40

[16] To that end, the Applicant was granted leave to file submissions in reply in writing. This included an updated set of conditions. These are attached as **A** in tracked-change format showing the proposed amendments to conditions. These have yet to be approved by all parties.

The area of coastal environment covered by the NZCPS

[17] The first issue relates to what area is covered by the New Zealand Coastal Policy Statement (**NZCPS**), and if so how any adverse effects are to be avoided.

[18] Initial evidence for the Applicant and the Regional Council seemed to suggest that only part of the land the subject of applications was subject to the NZCPS being the area delineated on the Regional Coastal Policy Statement (**RCPS**) maps as a coastal environment. Although the scale of the maps makes it difficult to determine their exact intent, the coastal environment delineation seems to proceed south from Houhora Heads along the black line shown on **C** to the word "Conservation area" and then continue largely on an extension of that line parallel with the coast before looping around Otiaia Point into the Rangaunu Harbour. Importantly, at least part of the area marked as the Reserve Area is not shown as coastal environment in the Regional Policy Statement, and the area known as the Kaimaumau-Motutangi Wetland is shown as south of that line and therefore not part of the coastal environment.

[19] At the hearing, however, the evidence was unequivocal that all of the Reserve Area (identified by us earlier as the combined Scientific and Conservation reserve) is a coastal area of importance lying just behind extensive dune and coastal wetland habitat. In fact, no witness before us disputed that the Kaimaumau-Motutangi Wetland is part of the coastal environment. This is of some particular importance because the lowest lying areas within the area of application lie within the Kaimaumau-Motutangi Wetland. Map **B** shows the surveyed groundwater underlying aquifer levels and wetland groundwater levels. By extension, the topography utilises colour notations for metres above mean sea level (**mASL**). We accept that the area south of the Reserve Area is more tentatively connected to the coastal environment, and the exact delineation between the coastal environment and the hinterland is not as clear in this area.

[20] Similarly, as one approaches Houhora harbour the exact extent of coastal environment, although back from the water's edge, would not cover the entire area of land within the aquifer. Given that there was no relevant dispute between the parties in

respect of this area, it is not necessary for the purposes of this hearing to conclude the exact area of coastal environment. Suffice it to say the coastal environment includes all of the Kaimaumau-Motutangi Wetlands, namely all those areas shown in blue to light yellow through to blue on **B**. For current purposes we conclude that the Reserve Area (as we have defined it) is within the Coastal Environment.

The New Zealand Coastal Policy Statement

[21] That being the case, it was acknowledged by all the experts that NZCPS Policy 11(a) is engaged. Even beyond this, it was acknowledged that to avoid adverse effects on taxa, ecosystems and vegetation types, and indigenous species, there are surrounding areas that contain nationally significant examples of community types, and areas set aside for full or partial protection. In short, all items of Policy 11(a) (i) to (vi) are engaged.

[22] Outside the Reserve Area there are still values and attributes recognised under NZCPS Policy 11(b). This gives rise to an obligation to avoid significant adverse effects, and to avoid, remedy or mitigate other adverse effects on the recognised values and attributes. We understand that, towards its south-eastern area, the wetland has been subject to fire, and as a result the extant values may presently not be as significant as those further to the north-west. If correct, this may still change over time and under different land management.

[23] Nevertheless, it was recognised that it is necessary to avoid significant adverse effects on recognised values and attributes throughout the entire area. It was acknowledged that both the Regional Policy Statement and other documents, including the Regional Coastal Plan, recognise these wider values and also require appropriate management responses. Annexed hereto and marked **D** is a table of relevant objectives and policies engaged from the various plans produced by Ms M Letica, the planner for the Applicant. NZCPS means New Zealand Coastal Policy Statement; NPS means National Policy Statement on Freshwater Management; RPS means the Regional Policy Statement; RWSP is the Regional Water and Soil Plan; and PRP is the proposed Regional Plan. Importantly, this table omits the reference to Policy 11 of the NZCPS, which clearly applies as was conceded by Ms Letica and all other relevant witnesses. However, it does include reference to RWSP Objective 10.4.1.3 concerning land subsidence and Objective 10.5.1(a) regarding saltwater intrusion.

National Policy Statement on Freshwater Management 2014

[24] Mr Riddell drew our attention to the following provisions which we accept are also relevant to consideration of the proposed water takes and management of the wetland under s.104(1)(b)(iii), namely:

> i) Objective B1 – to safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using damning or diverting of fresh water;
>
> ii) Objective B3 – To improve and maximise the efficient allocation and efficient use of freshwater.
>
> iii) Objective B4 – To protect significant values of wetlands and of outstanding freshwater bodies.

[25] Policy B7 sets out a transitional policy that Mr Riddell told us has been included in the Regional Water and Soil Plan. Part 1 of Policy B7 states:

> 1. When considering any application, the consent authority must have regard to the following matters:
>
> (a) the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and any associated ecosystem; and
> (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.

Avoiding adverse effects – adaptive management

[26] It was clear from the evidence of the Applicant that there was no certain scientific information that could satisfy us that there would be no adverse effects on the NZCPS Policy 11(a) Values and attributes from the abstraction of water. We were told that there is already an abstraction from aquifers relevant to the appeals of approximately 1,400,000m^3 per annum authorised by other existing consents, and that the abstractions subject to appeal will add a further 1,000,000m^3 to that figure.

[27] Like many others, the subject aquifers seem to be semi contained, with certain areas where the wetland is perched clearly above the shallow aquifer while in other areas there is some degree of hydrological connection. Inadequate evidence seems to be available as to what has occurred as a result of drawdowns to date and the degree of natural fluctuations in the surface waters of the wetland area. It transpired during the hearing that there are both natural and constructed drainage courses connecting to the wetland. How these features interact with groundwater and surface levels within the

wetland is unclear. We suspect from the Court's site visit and hearing materials that some constructed drains direct water from surrounding farmland towards the wetland area, ensuring that it has some form of recharge. There are also drains through and intersecting the Kaimaumau-Motutangi wetland.

[28] It was apparent from the evidence of Mr Williamson, the hydrologist for the Applicant, that there is some form of related data available. However, it was not sufficient to give any certainty in modelling results as to the outcome of additional drawdown. Notwithstanding that, Mr Williamson considered that even with the most conservative modelling available, there is likely to be no more than minimal effects on the area affected by the applications for extraction. He was less certain about the Kaimaumau-Motutangi Wetland and whether there would be any adverse effect (greater than minimal) on NZCPS Policy 11(a) Values and attributes. Nevertheless, his overall view was that the prospect of any adverse effects was low. For this reason, he suggested that ongoing monitoring during abstraction for the first year would enable the developing model to be calibrated and to check anticipated outcomes with actual results.

[29] For reasons that were not so clear, he considered that potential effects at certain boundary locations should not be monitored. For example, he concluded that no monitoring was required in the south-eastern area because the aquifers are separated by some 4-5 metres and that the condition of the wetland was unlikely to change. By the time of the hearing, there had been extensive meetings between the expert witnesses, and a joint hydrologists/technical expert's report was provided, the Joint Witness Statement that takes the form of an amended Groundwater Contingency Management Plan ("**GCMP**"). This largely formed the basis upon which all the experts gave their evidence, however, it was acknowledged that there had been a further planning witness meeting on 7 December 2018 at which further agreements had been made, particularly to do with the GCMP and the potential conditions of consent.

Adaptive management

[30] The starting point for consideration of adaptive management must be the discussion of the Supreme Court in *Sustaining our Sounds et al v Marlborough District Council* (known as *King Salmon*). At paragraph [129] the Supreme Court said:

> The secondary question of whether the precautionary approach requires an activity to be prohibited until further information is available, rather than an adaptive management or other approach, will depend on an assessment of a combination of factors:

> (a) the extent of the environmental risk, including the gravity of consequences if the risk is realised;
>
> (b) the importance of the activity (which could in some circumstances be an activity it is hoped will protect the environment);
>
> (c) the degree of uncertainty; and
>
> (d) the extent to which an adaptive management approach will sufficiently diminish the risk and the uncertainty.
>
> The overall question is whether any adaptive management regime can be considered consistently with a precautionary approach.

[31] It was acknowledged by counsel that this statement was applicable to this case, at least as it related to the Kaimaumau-Motutangi Wetland and the Reserve Area.

[32] We found the evidence of DoC witnesses to be particularly compelling. Mr Riddell, the planner for DoC gave well-balanced evidence in relation to this matter. We agree with his approach. He makes the statement at paragraph [41] of his evidence:

> The necessary features of adaptive management are
>
> (i) that incremental stages of development are set out;
>
> (ii) the existing environment is established by robust baseline monitoring;
>
> (iii) there are clear and strong monitoring reporting and checking mechanisms so that steps can be taken before adverse effects eventuate[4];
>
> (iv) these mechanisms must be supported by enforceable resource consent conditions that require certain criteria to be met before the next stage can proceed; and
>
> (v) there is real ability to remove all or some of the development that has occurred at that time if the monitoring results warrant it.

[33] He goes on to say at paragraph [42]:

> In my opinion adaptive management is a technique best suited to development and resource use where the actual and potential impacts are reversible. This is because a basic proposition with adaptive management is that the scale of the development or resource use depends on monitoring results, including where the monitoring results show that there is a need to scale back the level of development or resource use. …

[34] This follows closely from the propositions we have just identified from the Supreme Court decision and we consider in the circumstances of this case Mr Riddell adopts a reasonable approach.

[35] We hasten to add that Mr Riddell acknowledges, as does this Court, that it is possible for conditions to be imposed in this case that would meet those requirements.

[4] As corrected when presenting evidence and recorded in the Transcript at page 145

What became very clear as the case progressed was that the developed conditions, even those agreed on 7 December 2018 between the planners, do not reach this point. And it is evident form Mr Green's Reply submissions (paragraph [2]) that DoC witnesses still have reservations about some proposed conditions.

The conditions agreed

[36] After the hearing, Mr Green sought the opportunity to update the conditions in light of the evidence before the Court. Attached as **A** are the conditions agreed between the planners after the meeting of 7 December 2018, together with the Applicant's further tracked changes shown. These have been agreed with the Regional Council. DoC witnesses have some reservations and Mr Burgoyne has not commented on the latest changes.

Alterations to consents

[37] In the further submissions and updated set of conditions, Mr Green addressed the concerns of the Court in a comprehensive way. In short, the Applicant acknowledges that the intent of the conditions is to ensure that the regime (including the Adaptive Management Regime) avoids adverse effects on the coastal environment including the Kaimaumau-Motutangi Wetland, and the values and attributes of the Reserve Area. It would also seek to avoid significant adverse effects on values and attributes of the areas that are outside the coastal environment but within the drawdown area.

[38] In doing so, Mr Green has proposed a series of amendments to the conditions, and also to the Management Plan (GCMP) in the following areas:

- Condition 1 has been altered to make it clear that the activity is not to result in any adverse effects, or impact on identified areas. This is now linked to the GCMP itself, with Objective 1 of the plan now reflecting Condition 1;

- There have been minor changes to the wording of Condition 3 to make it clear that the purpose of the Plan is to monitor and adapt the exercise of the consent to comply with both Condition 1 and Conditions 27-30 and their equivalents within the Plan, ie Objective 1;

- Condition 4 has now been added to require the consent holder to pay all charges for the administration, monitoring and supervision of the consents;

- Condition 5 has been added to clarify the commencement of the consent in relation to existing water permits. We understand the latter to include temporary permits granted by the respondent, being for a similar purpose to those now sought by the applicant water user group.[5] Completion of the proposed amendments to Condition 5 is required by the respondent and/or Applicant adding the permit number details foreshadowed in counsel's 21 December 2018 format;

- Condition 18 (which was previously Condition 15) relates to water use efficiency and seeks to ensure that the purpose of the Irrigation Scheduling Plan achieves that 80% of the annual volume applied is retained in the soil in the root zone of the crop. The advice note reflects this by seeking at least 85% of that water is to be achieved within the root zone. It is assumed that the ISP will identify individual irrigation areas, and that the term "area" has the same meaning as "zone" used in sub-paragraph (e);

- The breach of GCMP trigger level conditions 27 – 30 (formerly 24-27) have been amended and a new Condition 31 added so that the abstraction must be suspended, until such time as the Council advises that the consent can be resumed, albeit on an amended basis, after a groundwater trigger exceedence report review;

- Condition 31 (previously Condition 28), which provides for a Council s 128 review, has been amended to allow for the insertion of trigger level thresholds in accordance with the GCMP. This is offered on an A*ugier* basis by the Applicant.

[39] We are satisfied that all of these conditions seek to make the intent of the parties clearer, and the administration of the consent more certain in its formulation. We reserve our final conclusion as to the final form of conditions because there was no formal opportunity for the parties to comment to the Court on the latest conditions. Mr Green advises the DoC planner still has some reservations in relation to technical matters, while there is agreement with the NRC planner. Accordingly, there would need to be some opportunity for this wording to be further refined.

[40] In broad terms, however, the preceding amendments address many of the

[5] Transcript, page 87

concerns that the Court holds in respect of the conditions themselves. We note the Applicant's preference is still to retain a consent for each holder together with a set of conditions applicable to all consents (Master Consent). That is an approach that has been adopted in other cases. This could be seen as being appropriate in this case, provided the individual consents are bound by the Master Consent, and these general conditions take precedence. Care will be required when completing Condition 10(a) for each consent so that the aggregate authorised abstraction volume described in paragraph [26] above is not exceed.[6] However, we await final comments from the parties on this, including whether Condition 4 can operate efficiently if charges are to be apportioned and recouped from individual consent holders. We make it clear that Mr Burgoyne has not been circulated the latest conditions, nor has he provided any comment on them.

Amendments to the GCMP

[41] The GCMP now attempts to link more directly to the conditions of consent, including Objective 1 that we have already identified. This means that there are other linkage provisions provided through the GCMP to make it clear as to the purpose of the Plan and its overall objectives. A remaining issue, which we now discuss in relation to the adaptive management approach adopted, relates to what occurs pending the establishment of the Adaptive Management Regime, and the Adaptive Management Plan with Trigger Level Values.

Remaining issues with conditions

[42] One of the particular concerns this Court has is that for the first twelve months there is in fact no wetland water level trigger(s) levels because the monitoring results thus far have not enabled this to be properly modelled. We have concluded that to allow a lacuna of this sort would be directly contrary to the requirements of the NZCPS, the Supreme Court decision, and case Law generally as to adaptive management.

[43] We conclude that a water level in the Reserve Area needs to be set for monitoring purposes for the first abstraction period. We agree that this could be used as a proxy for effects generally on the wetland, and clearly if there is any level of change in the Reserve Area (the most protected area) then there may be further effects, perhaps even of significance, in other areas of the wetland outside the coastal environment. We conclude

[6] Proposed Condition 10(b) remains to be completed for each individual consent

that the standing waters of the Reserve Area have critical values and attributes, meeting all of the criteria of 11(a) of the NZCPS. As such, any change to that water level which is not a natural variation would be of concern. Such impacts are potentially not only hydrological but may include wide-ranging adverse effects on the freshwater wetland ecology of the area. What those effects might be in detail is currently unknown, but the Court favourably notes the GCMP Section 2.3 requirement that monitoring include input from a suitably qualified ecologist as well as a hydrologist.

[44] We have concluded that an interim water level needs to be set that will trigger further investigation by wetland ecologists and hydrologists to ascertain whether the change in the water level is a natural fluctuation or is related to the further extraction. We keep in mind that the situation is complicated by the drawdowns that are already occurring, both those that have been authorised by other consents and those that have been authorised recently by the Regional Council as temporary consents in relation to activities the subject of this application.

[45] In practical terms we have concluded that the base levels in the interim period should be those recorded when the relative monitoring for the wetland surface water levels devices are established. Clearly, if this can be done before the end of the summer season this will give a trigger level that is unlikely to be breached again until the next irrigation season. This would represent a water level prior to the implementation of these consents, acknowledging some temporary consents are already being utilised. However, it would include the taking which is already occurring as the result of other consents. To that extent it is not perfect but will at least give some baseline. If any existing levels are in place in the Reserve Area, these can be used by agreement, with the baseline being the existing figure (on a monthly average). Failing the availability of such data, it occurs to the Court that one or more water level gauge(s) will need to be installed in the Reserve Area by the consent holders in a manner and location agreed by DoC and the respondent.

[46] We acknowledge that if the levels are established after the summer season (say March-April 2019) then they are almost inevitably likely to be triggered by the summer taking in 2019-2020. In our view that is appropriate, given we have no actual information to deal with at the current time. While a drop would trigger an investigation by wetland ecologists and hydrologists, they should be undertaking these investigations in any event for the purposes of establishing the trigger levels under the adaptive management regime.

[47] Accordingly, we have concluded that the baseline position should be set as the water levels at the time the measurement equipment is installed by agreement between DoC, the Regional Council and the Applicant. Any drop of more than 25mm below the levels at that time is to represent a trigger for further investigations as to the cause involving both wetland ecologists and hydrologists. The proposed conditions are to be amended to reflect this determination.

[48] The Court is also concerned that there is no evident baseline data available for the purposes of monitoring potential saline intrusion. It will be recollected that the proposed Conditions and GCMP both have the objective of ensuring the consented abstractions, individually and cumulatively, do not result in "saltwater intrusion into the Aupouri aquiver". Section 3.3.2 of the GCMP specifies the metrics, frequency, method and location of related monitoring but the TL1 and TL2 trigger levels are not required to be confirmed for up to 15 months.[7] Assuming we have not overlooked some other GCMP provision, we find this approach contrary to the fundamental tenets of adaptive management set out above. If this is the case, the Applicants and parties are to consult on how this gap can be redressed prior to the consents being exercised and propose, preferably by agreement, a suitable approach to detect and respond to saline intrusion. Failing agreement, submissions from individual parties are directed.

Adaptive Management

[49] We have concluded that the Adaptive Management process amended as directed will, in this case, establish in due course an appropriate method for meeting the requirements of the Supreme Court, and NZCPS, NPSFM and the Act in relation to ensuring the avoidance of adverse effects on significant indigenous vegetation, freshwater ecosystem processes and on significant indigenous habitats and fauna. Moreover, we are also satisfied that, in doing so, this will seek to protect the wider attributes and values that contribute towards those areas that are either outside the Coastal Environment or do not contain the particular values and attributes recognised under NZCPS Policy 11(a) or the Regional Plan documents. We assume that a suitable method to detect saline intrusion into the Aupouri aquifer can be devised.

[50] The reason we have reached this conclusion, notwithstanding Mr Burgoyne's ongoing concerns and the reservations of some evidence, is that there is the potential to

[7] GCMP Tables 4 and 5 provide where saline monitoring is to be done. On the Court's reading the named locations differ between the tables which, if correct, requires editorial attention

suspend the consents should exceedences occur and enable full studies to be undertaken. We are also mindful of Mr Baker's evidence that a reduction in wetland water levels would be reversed by cutting back on pumping, although he was unsure that this would necessarily reinstate any impacted ecological values being an area outside his expertise.

[51] The basis upon which this consent is considered and granted, by both the Commissioners and this Court, is that the water can be abstracted without any adverse effect on the significant values and attributes recognised under Policy 11(a) of the NZCPS, the NPSFM provisions identified in evidence, and under s 6(c) of the Act. In the event that that cannot be done, the basis upon which the consent is granted will have proved to be fallacious and the consent itself would need to be reviewed and/or cancelled. It cannot be argued that a consent once granted must continue even if the basis upon which it was granted proves to be fallacious. It may also be relevant in this context to note that proposed Condition 32 allows for a five-year lapse period.

[52] We have a high degree of confidence, as do the experts, that with a proper Adaptive Management Regime, and appropriate controls and measurements, the consent can be conducted in a way that avoids any adverse effects on the Kaimaumau-Motutangi Wetland, and the values and attributes of the area, particularly the Reserve Area. Given the lack of any regime to date, and the existing abstractions, we are of the view that the monitoring and information obtained may result in better outcomes for this area than the current regime.

[53] Nevertheless, if there is a clear adverse effect on the wetland and values and attributes of that area, that is not contemplated by any party, including the Applicant, this would need to lead to a review of the consent itself. To this end s 132 provides that a consent authority may cancel a resource consent and review, under s 128, if there were material inaccuracies (s 128(1)(c)) when granting the application. The provision in proposed (renumbered) Condition 31 enabling the Council to conduct a s 128 review for specified purposes is also noteworthy. Clearly, an adverse effect on relevant natural values or the wetland would be such an inaccuracy, given the clear and unequivocal position of the parties that all adverse effects on the matters identified in Condition 1 and Objective 1 will be avoided.

Conclusion on effects

[54] Having reached this position, we have therefore concluded that the conditions of consent, with the addition of water level triggers for the initial abstraction phase, and GCMP saline intrusion triggers, will achieve an appropriate outcome. In the unlikely event that there is an adverse effect on the Reserve Area or Aupouri aquifer from the activity, then this would constitute grounds for revision on the basis of material inaccuracy under s 128 of the Act.

[55] The concern, of course, for us with regards water levels, has been the interim period before the Adaptive Management Plan can be populated with data. We recognise that during the initial period there is to be a drawdown of 25% of the final abstraction figures, but this is cumulative on the consents already granted. We understand that some of the individual operators the subject of this application have also been granted temporary consents, but we are unclear whether that is calculated within the existing takes of 1,4000,000m^3.

[56] In the interim, upon the installation of the recording devices the following changes are to be the default regime. If the water levels at the time of commencement of recording drop more than 25mm in one month, this will require further investigation and report. Any drop of more than 50mm in any continuous period will also require such investigation. [Continuous being a period where the initial level (or level set in accordance with the GCMP) is not reached or exceeded.]

[57] The reason we have reached these figures is that it is clear from the evidence of DoC that a drop of 100mm would be of concern. Given that we do not, at this stage, understand the natural fluctuation levels, or the effect of the existing draws, we consider that a suitably conservative number would be to look at any change of more than half of that figure, ie 50mm in any yearly period on a rolling basis. On the other hand, any rapid drawdown, of even 25mm, may indicate an ongoing tendency towards exceedence within a very short period of time. Taking into account the requirement to undertake an exceedence investigation, this would mean that the experts would be able to look at the ongoing hydrographic figures after any exceedence of more than 25mm in one month (rolling basis). A more gradual drop in levels is likely to lead to more hydrographic information to show whether there is any connection between abstraction and such water level drops, or whether there are any natural factors, ie vapo-transporation, hot periods, lack of rainfall, that may explain the difference as a natural fluctuation. Thus, a 50mm

drop over any continuous period would also require investigation. The calculation would not recommence until and unless the initial water level value is exceeded.

[58] This is only for an interim period, and we consider that within a year those trigger levels should be able to be populated within the Adaptive Management Plan. However, those figures will remain as default figures until they are replaced by new trigger levels through the mechanism of the Adaptive Management Plan (GCMP).

[59] In this way, there is a default position until such time as there is adequate data to enable the management plan to commence. Of course, it is intended that the Adaptive Management Plan may change those figures over a period of time as new and better data is received. The Court's concern is simply to ensure that there is oversight during the interim period. Failure to do so in our view would not meet the criteria of the NZCPS requiring the Court and parties to be satisfied that there was no adverse effect in that interim period.

Avoiding cultural effects

[60] Mr Burgoyne is particularly concerned to avoid any adverse effects on the wetland and he is also concerned about cultural effects. From his evidence, we ascertain that his concern also relates in part to his hapu and iwi interest in land subject to this application and the fact that some land of cultural interest was sold by Landcorp to private interests. This resulted in the reacquisition of some of the land in due course through government funding by Ngai Takoto. Mr Burgoyne considers that Landcorp land should never have been sold to private interests. To that extent he is on common ground with Mr Marsden for Ngai Takoto.

[61] Mr Burgoyne also considers that the land that Ngai Takoto now holds is held with a kaitiaki responsibility. Mr Marsden agrees entirely and considers that Ngai Takoto are undertaking the role as kaitiaki not only to preserve the land but to ensure it is of benefit to the people of the Far North, including Ngati Kuri to whom Mr Burgoyne whakapapas.

[62] We have concluded that these issues relate to the avoidance of adverse effects. Although we do not accept that the anticipated absence of physical effects means there is no cultural effects, we are satisfied that the avoidance of adverse effects on the Kaimaumau-Motutangi Wetland coastal area (and the Reserve Area) and the avoidance of significant effects on the balance of the area would maintain the mauri of the area, and

may improve it in the longer term given the resource information that would be supplied to iwi including Ngai Takoto, Ngati Kuri and others.

[63] Mr Marsden then went on to explain at some length the approach that Ngai Takoto had taken to the issue. He indicated that the land they re-acquired had been subjected already to consideration for development by a Resin and Wax company. Ngai Takoto also learned more recently that if they were not part of the present water application group, they may find it difficult to acquire water for use on their property in the future. Although we paraphrase Mr Marsden to some extent, his overall impression is that they were better to be part of the negotiations and involved in how development occurred than be left out.

[64] To that end Mr Marsden asserts that the principles of kaitiaki and environmental balance would be better taken into account utilising any consents obtained if they were involved. We respect and see the force of Mr Marsden's approach and that for Ngai Takoto.

[65] We recognise that the Far North is one of the most socio-economically deprived areas in New Zealand, and iwi see themselves utilising Treaty settlement funds and their assets for the purposes of providing for their people. It is clear to us that Mr Marsden sees those objectives as being balanced with their obligations as kaitiaki and guardians of the environment in which they live and operate.

[66] We did not understand Mr Burgoyne to have a separate approach, and his questions and his evidence to us did not suggest that other iwi and hapu within the area did not have a legitimate interest in this area either.

The land issue

[67] Much of Mr Burgoyne's evidence related to the priority of Torrens titles in respect of the land. He argued, for example, that because Ngai Takoto had not produced the certificate of title showing them as owner of the lands, that they were not the legitimate owners. We accept the evidence of Mr Marsden, and it is clear the Council records also reflect Ngai Takoto is the registered owner of some land the subject of this application. We do acknowledge, as did Mr Marsden, that the sale of that land from Landcorp to private ownership in the late 1980s breached the State-Owned Enterprises Act. This is not the first occasion on which this Court has been faced with the reality of land dealings

prior to Treaty settlement claims being resolved. Nevertheless, the matter was covered in a Waitangi Tribunal Claim, we understand Wai 45.

[68] Mr Burgoyne disputes that his hapu claim in respect of this land was ever abandoned in respect of Wai 45. Nevertheless, it is clear that Ngai Takoto pursued that matter and eventually obtained funding from the Government to repurchase the land. To that extent the sale of the land in the 1980s has been redressed by the repurchase of land on behalf of Ngai Takoto.

[69] By the end of the hearing Mr Burgoyne seemed to accept that if he had a dispute as to who should properly own land subject of the application(s), that was a matter that needed to be resolved in another forum. We can only echo that position and agree that this is not the Court in which to determine the proper ownership of land.

[70] Nevertheless, we acknowledge Mr Burgoyne's (and hapu Ngati Kuri) cultural interest in the land not only the subject of Ngai Takoto's title but that of the Aupouri Aquifer generally. We have no difficulty in acknowledging that a number of iwi and hapu would have had a direct interest in these wetlands and the lands now converted for farming given its proximity to the coast and the rich wetland area immediately behind it. We acknowledge that although one iwi may have had mana whenua, this does not mean that other hapu and iwi could not have a legitimate cultural relationship with the land and even utilise it from time to time and occupy it. As both Mr Burgoyne and Mr Marsden mentioned, the significant degree of inter-marriage between the various iwi and hapu also means that this outcome is more likely than not.

[71] We notice that the whakapapa of both Ngati Kuri and Ngai Takoto have a common ancestor in Pohurihanga. This relates to both these iwi (and others) being descended from the Kurahapo waka of which Pohurihanga was a member. So far as the Te Matua Ngati Kuri is concerned, Mr Burgoyne acknowledges that this is not a legal group, it is not registered, and has no constitution or bank account. It appears to have been a group formed to pursue some of the interests of Ngati Kuri at an earlier time but it is difficult to know if there are any existing members beyond Mr Burgoyne. Apparently, there is no membership list or membership fee.

Further issues

[72] Mr Wagener, in trying to assist Mr Burgoyne, contributed positively to the conduct

of the hearing in a manner welcomed by the Court. He made a number of points additional to the question of ownership of land and the potential further claims to both land and water. In particular, he noted that water is a global issue in the Far North, and that issues relating to Pukenui Houhora community water are not addressed anywhere in the evidence of the parties. He further noted that temporary resource consents had been issued after the setting up of several of the avocado orchards, and were already being utilised for root stock watering.

[73] Mr Wagener also pointed to Mr Burgoyne's emphasis on a cautious approach to a consent being operated and suggests that the Regional Council has not followed its own policy. He is particularly concerned that there may be a slumping of the Kaimaumau-Motutangi Wetland if the pressure (currently around 10 bar) is reduced significantly without further infiltration of water. He suggests that the amount of water could be overstated, and caution should be exercised until reinfiltration into the deep aquifer is proven.

[74] His view is that the whole Aupouri peninsula is a contiguous entity and is floating on the aquifer, and if there is insufficient underground pressure then there will be subsidence. He points out in particular that Kaimaumau is not far above sea level and there have been slumps in other areas locally of half to one metre. His concern is that any slumping will be irreversible, and that if peat shrinks it cannot be regenerated.

[75] So far as the issue of water as a global issue within the Far North and potential slumping, these are matters that we share as concerns. It seems to us that the primary purpose of the consent conditions must be to avoid adverse effects on the values and attributes of this area. Clearly, any slumping of the wetland, drying of peat, or lowering of the water level generally (whether as slumping or otherwise) are unacceptable adverse effects. There is clearly a potential connection to reductions in water level and to saline intrusion.

[76] We conclude that all experts are well aware of this and have focused their efforts on ensuring that there is early detection of any potential adverse effect on the Reserve Area in particular, but also the wider abstraction area.

[77] To that extent, we consider that the redrafting of the conditions in **A** has made it clear that the overall objective of all plans, conditions and actions by the parties are to ensure the avoidance of adverse effects. We are satisfied that the conditions now

proffered address the issues appropriately. This is subject to the additional conditions discussed to address the interim period, saline intrusion and receipt of comments from the other parties.

Overall conclusion

[78] In considering an application for discretionary consent, the Court is directed to the matters under s 104 RMA, and s 104(1) in particular. In this case it is acknowledged that any consent must avoid adverse effects on the coastal features and coastal environment including the Kaimaumau-Motutangi Wetlands and/or the Reserve Area.

[79] To utilise an adaptive regime, adequate baseline information needs to be obtained and there needs to be a strict cautious regime in place as part of that plan taking effect. We have made directions that we consider would lead to the conditions of consent avoiding such adverse effects even in the interim period before trigger levels are met, and achieve the general enabling provisions of the Act.

[80] We note that the advantage of granting such consent would be to not only add to the economic activity of the Far North, but also to provide a basis for future employment in one of the most deprived sectors of New Zealand. It should also provide better information about this important wetland area and potentially lead to better management in the longer term.

[81] We recognise the cultural aspect of this application but acknowledge that Ngai Takoto are not only a landowner but a representative for the iwi of the area and hold kaitiaki responsibilities in this place.

[82] We do not consider any provisions of the Act or the plans derogate from the principles of the NZCPS, Policy 11, which must operate at all times to inform and direct the actions of the parties in relation to this consent. From the Court's perspective, it is not the intention of this application, or any consent that was granted, that adverse effects occur on Kaimaumau-Motutangi Wetland or the coastal environment generally. If unexpected adverse effects do occur, in our view this fundamentally contradicts the terms of this consent and would breach the primary purpose of the adaptive management plan and consent conditions.

[83] Subject to inserting an interim regime (until the effect of initial abstractions are

better known, and redressing the GCMP saline intrusion lacuna, we are generally content with the proposed conditions. Subject to receiving the comments of other parties on the Applicant's amended conditions and being satisfied with the final terms of consent issued, we have determined that this consent would reach an appropriate balance between economic and employment benefits to be derived from the activity, while avoiding adverse effects on the natural environment, particularly in the coastal environment and in the Kaimaumau-Motutangi Wetland.

Directions

[84] We direct that:

(i) the Applicant is to file and serve amended consents and conditions of consent by **5.00pm, 29 March 2019**. The parties have until **5.00pm, Friday 12 April** to provide their comments on the consent to the Applicant;

(ii) by **5.00pm, 26 April 2019** the Applicant is to file its preferred consents and conditions, together with a memorandum explaining any points of difference between it and the other parties, the reasons therefore, and the reasons for preferring its option. We note that the Applicant needs to provide the Master Consent and condition items (for all consents) and a form of specific consent and conditions for adaption to each consent;

(iii) the Court, at its discretion, will then determine the matter on the papers **or** convene a Judicial Telephone Conference to address further steps to resolution;

(iv) costs are reserved. Any application is to be filed by **5.00pm, Friday 12 April 2019** and replies by **5.00pm, Friday 26 April 2019**.

For the court:

JA Smith
Environment Judge

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A

Annexure A: Track Change Version of Conditions of Consent and GMCP

CONDITIONS APPLICABLE TO ALL CONSENTS:

To take groundwater for the purpose of horticultural irrigation on the below properties:

(Note: each consent approved by the commissioners will be individually issued and linked to the legal description(s) listed in the relevant application)

General

1 The consented activity must not, individually or cumulatively, result in:

(a) saltwater intrusion into the Aupouri aquifer; or~~,~~

(b) adverse effects on ~~the~~ the hydrological functioning of the Kaimaumau-Motutangi ~~Kaimaumau~~ wetland; ~~,~~ or

(c) adverse effects on the significant indigenous vegetation and significant habitats of indigenous fauna in terrestrial and freshwater environments of the Kaimaumau-Motutangi wetland; or

(~~c~~d) ~~adverse impacts on other bore~~lowering of the groundwater levels in ~~of~~ the ~~Motutangi, Waiharara and Houhora sub-aquifers of the~~ Aupouri aquifer ~~management unit abstractions that~~such that ~~are~~ existing efficient bore takes within the aquifer cannot access ~~efficiently using the aquifer~~groundwater ~~from these sub-aquifers~~.

2~~2~~ Subject to compliance with the conditions of this consent, the activity authorised by this consent shall be carried out in accordance with the application and documents submitted as part of the application, including the following documents:

(a) Assessment of Environmental Effects prepared by Williamson Water Advisory Ltd: *Irrigation Water Supply, Groundwater Take Consent Application – Motutangi Waiharara Water User Group. WWA0026: Final – Rev. 4*, dated 30 August 2017;

(b) Model Report prepared by Williamson Water Advisory Ltd: *Motutangi-Waiharara Groundwater Model, Factual Technical Report – Modelling. Motutangi-Waiharara Water User Group. WWA0026: Final – Rev. 9*, dated 31 August 2017.

(c) Technical Peer Review Letter Report prepared by LWP Ltd: *Water Permit Application – Motutangi – Waiharara Water User Group (MWWUG), Aupōuri Peninsula*, dated 19 September 2017.

~~(d) Joint Witness Statement from meeting of technical experts involved in conferencing in Whangārei on 20 September 2018 over appeal ENV-2018-AKL-126 Director-General of Conservation v Northland Regional Council.~~

For the avoidance of doubt, where information contained in the application documents is contrary to the conditions of this consent, or where the information contained in the application documents is internally inconsistent, the conditions of this consent shall prevail.

3~~3~~ This consent operates under an adaptive management regime. The detail of that adaptive management regime is set out in the *Groundwater Monitoring and Contingency Plan for the Waiharara, Motutangi and Houhora sub-areas of the* Aupōuri aquifer management unit ~~-~~ ("G~~C~~MCP"). The primary purpose of the GMCP is ~~shall be~~ to set out the procedures by which the abstraction will be monitored and managed to ensure compliance ~~complying~~ with Condition 1 ~~, and 25-27~~ 30 of this consent ~~is not breached~~. For the purpose of this consent, the GMCP is the most recent version of GCMP that has been approved under Condition ~~23~~ 26 of this consent. ~~.~~ In the event that any of the provisions of the GMCP conflict with the requirements of these conditions of consent,

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the conditions of consent shall prevail.

4. The consent holder shall pay all charges relating to the recovery of cost for the administration, monitoring and supervision of this consent fixed by Council under Section 36 of the Resource Management Act 1991~~, unless they are~~ .

Prior to the Exercise of Consent

45 This Consent shall not commence until Water Permit ##### has been surrendered or has expired.

6 Prior to the exercise of this consent, new bores required to be installed for the purposes of monitoring the baseline effects in accordance with the GMCP, as required under Condition 22, shall be constructed and all required equipment installed.

~~5~~ 7 Prior to the exercise of this consent, a meter shall be installed to measure the volume of water taken, in cubic metres, from each production bore. Each meter shall:

(a) Be able to provide data in a form suitable for electronic storage;

(b) Be sealed and as tamper-proof as practicable;

(d) Be installed at the location from which the water is taken; and

(d) Have an accuracy of +/-5%.

The Consent Holder shall, at all times, provide safe and easy access to each meter installed for the purposes of undertaking visual inspections and water take measurements.

Water Extraction Volumes

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~~6~~8 The quantity taken from the bore shall not exceed:

(a) 1,150 cubic metres within any continuous 24 hour period; nor

(b) 8,000 cubic metres within 7 continuous days; nor

(c) 120,000 cubic metres within the 12 month period 1 July to 30 June.

Other 16 Consents

~~6~~9 The consent shall be exercised in a staged manner as follows:

(a) Stage 1, which shall be for the minimum period of the first full irrigation season after the consent is first exercised;

(b) Stage 2, which shall be for the minimum period of two consecutive irrigation periods;

(c) Stage 3, which shall be for the minimum period of two consecutive irrigation periods;

(d) Stage 4 which shall be from the irrigation season immediately following written approval to progress from Stage 3 until the expiry of the consent, unless Conditions ~~24 to 27~~27-30 apply.

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~~7~~10 (a) The annual volume for each stage shall not exceed the following table, unless Conditions ~~24 to 27~~27-30 apply:

Stage	Annual Limit (m^3), being 1 July to 30 June the following year
Stage 1	
Stage 2	
Stage 3	
Stage 4	

(b) The rate of abstraction shall not exceed **XX** cubic metres in any 24 consecutive hours.

11~~8~~ (a) Progress to the next stage shall only occur where written approval is given by the C~~c~~ouncil's Compliance Manager; and

(b) This written approval will only be given if the council is satisfied that the Staged Implementation and Monitoring Review prepared in accordance with the GMCP confirms that the groundwater abstraction ~~is not resulting in a breach of~~complies with Condition 1; and

(c) A decision on whether written approval will be given or not will not be made until the C~~c~~ouncil has consulted with the Consent Holder and the Department of Conservation over the Staged Implementation and Monitoring Review; and

(d) Notwithstanding Condition ~~8~~11(b), written approval to progress from Stage 1 to Stage 2 will not be considered unless all the monitoring trigger levels required by the GMCP have been set; and

(e) A report detailing the reasons for the C~~c~~ouncil's decision in regard to progressing to the next stage, including the identification and discussion of any matters raised during the consultation described in Condition ~~8~~11(c), will be provided to the Consent Holder and the Department of Conservation.

Notification of Irrigation

12~~9~~ The Consent Holder shall advise the C~~c~~ouncil's assigned Monitoring Officer in writing when irrigation is to commence for the first time each season, at least five working days beforehand.

Metering and Abstraction Reporting

13~~0~~ The Consent Holder shall verify that the meter required by Condition ~~5~~7 is accurate. This verification shall be undertaken prior to 30 June:

(a) Following the first taking of water from each production bore in accordance with this consent; and

(b) At least once in every five years thereafter.

Each verification shall be undertaken by a person, who in the opinion of the council's Compliance Manager, is suitably qualified. Written verification of the accuracy shall be provided to the council's assigned Monitoring Officer no later than 31 July following the

date of each verification.

14~~1~~ The Consent Holder shall keep a record of the daily volume of water taken from each production bore in cubic metres, including all nil abstractions, using the readings from the meter required by Condition ~~5~~7.

15~~2~~ If the instantaneous rate of taking is equal to or greater than 10 litres per second, then the water meter required by Condition ~~5~~7 shall have an electronic datalogger for automatic logging of meter data.

16~~3~~ Each calendar month a copy of the records required to be kept by Condition ~~11~~ 14 shall be forwarded to the council's assigned Monitoring Officer by the seventh of the following month. In addition, a copy of these records shall be forwarded immediately to the C~~c~~ouncil's assigned Monitoring Officer on written request. The records shall be in an electronic format that has been agreed to by the council.

Advice Note: *If no water is taken during any calendar month then the Consent Holder is still required to notify the council's Monitoring Manager in writing of the nil abstraction. Water use record sheets in an electronic format are available from the council's website at www.nrc.govt.nz/wur.*

14~~7~~ The Consent Holder shall, at all times, provide safe and easy access to the production bore wellhead(s) for the purpose of undertaking monitoring on the bore(s), as set out in the GMCP.

Water Use Efficiency

18~~5~~ The Consent Holder shall prepare an Irrigation Scheduling Plan (ISP) that outlines how irrigation decisions will be made. The purpose of the ISP is to set out how the irrigation will be undertaken to ensure that at least 80 percent of the annual volume of water applied to the irrigable area is retained in the soil in the root zone of the crop, compared to the average gross depth of water applied to the crop. The ISP shall be prepared by a suitably qualified and experienced person and submitted to the council's Compliance Manager for written certification that it will achieve the purpose of the ISP. The ISP shall, as a minimum, address:

- Water balance and crop water requirements;
- Subsurface drainage; and
- Overall irrigation strategy.

For each irrigation area, the ISP should include:

(a) A description of how water requirements for each irrigation cycle are calculated;

(b) Method(s) for assessing current soil moisture levels;

(c) Method(s) for assessing potential evapotranspiration (PET) and rainfall to date;

(d) Assessment of other inputs such as effluent irrigation and effect on irrigation requirement;

(e) Soil moisture target to be maintained in each zone by irrigation;

(f) How measured data will be used to assess irrigation requirements over the next irrigation cycle; and

(g) A description of proposed method(s) for remaining within consent limits at each borehole or group of boreholes.

~~***Advice Note:*** *~~The ISP seeks to ensure that an irrigation efficiency of a minimum 80% is achieved.~~*

1916 The Consent Holder shall not exercise this consent until the ISP required by Condition 15 has been certified by the Ccouncil's Compliance Manager.

1720 The ISP certified in accordance with Condition 16 19 shall be implemented prior to the first irrigation season, unless a later date has been approved in writing by the Ccouncil's Compliance Manager.

1821 The Consent Holder shall, within six months of the first exercise of this consent, undertake an audit of the irrigation system and of the certified ISP. The audit shall be undertaken by a suitably qualified and experienced person. The irrigation system audit shall be prepared in accordance with Irrigation New Zealand's "Irrigation Evaluation Code of Practice" (dated 12 April 2010), and shall include recommendations on any improvements that should be made to the system to increase water efficiencies or any amendments to the ISP. The results of the audit and its recommendations shall be submitted in writing to the council's assigned Monitoring Officer within one month of the audit being undertaken. Any recommended amendments to the ISP shall be submitted to the council's Compliance Manager for written certification that it will achieve the purpose of the ISP before they take effect. A follow-up audit shall occur at five yearly intervals throughout the term of this consent, with the intent of confirming water use an irrigation efficiency is of at least 80%.

1922 The Consent Holder shall, within three months of notification in writing by the Ccouncil's Compliance Manager, implement any recommendations of the audit referred to in Condition 1821.

203 The reticulation system and its component partss shall be maintained in good working order to minimise leakage and wastage of water.

214 The rate at which water is applied to the irrigated area There shashall be nonot result in significant excessive ponding of irrigated water within any irrigated area, or significant runoff from either surface or subsurface drainage to a water body, as a result of the exercise of this consent.

Advice Note: *The ISP seeks to ensure that at least 80% ~~percent~~ of the annual volume of water applied to the irrigable area is retained in the soil in the root zone of the crop, compared to the average gross depth of water applied to the crop.*

Monitoring and Contingency Measures

225 This consent shall be exercised and monitored in accordance with the GMCP.

236 Excluding the Staged Implementation and Monitoring Review process, the GMCP may be amended at any time by the following process:

(a) Subject to Condition 263(d), the council may amend the GMCP by providing notice in writing to the Consent Holder that the GMCP has been amended, and providing a copy of the amended GCMP to the consent holder.

(b) Subject to Condition 263(d), the Consent Holder may submit a request for an amendment by giving written notice to the council of the proposed amendment

along with any supporting technical documents.

(c) Prior to making any decision to amend the GMCP or not, the council will seek input on any proposed amendment from the Consent Holder and from the Director-General of Conservation.

(d) The council will not approve any amendment to the GMCP unless the technical assessment of the proposed change clearly indicates that the change ~~is unlikely to~~ will not result in a breach of Condition 1.

Breaching of Trigger Levels

2~~7~~4 In the event of a Trigger Level 2 in the GMCP being exceeded~~ance~~, the following actions and requirements shall be initiated;

(a) ~~Should any of~~The Council will advise the Consent Holder in writing that a ~~the~~ Trigger Level ~~L~~2 ~~trigger level from Section 2.2 of the~~s in the ~~GMCP~~ has been ~~b~~reached;

(b) Upon receipt of this notice ~~advice~~, the Consent Holder shall immediately reduce their daily abstraction to 50% of the current average daily quantity, as advised by the Council in the notice~~writing~~. The current average daily quantity will be calculated using the previous months water use records required by Condition 11. If the exceedance occurs within one month of a Consent Holder first taking water for irrigation purposes within an irrigation season, then the average shall be calculated using the water use records for this period only;

(c) As required by the GMCP, the Council will~~and that they have~~ commission ~~ed~~ a Groundwater Trigger Exceedance Report ~~to be prepared which~~to assesses why the~~a~~ trigger level ~~TL2~~ has been breached, identifyfies the pumping bores in the area of effect and reviews all of the available data collected in the affected area(s)~~, in particular, the data collected according to the GMCP~~; and.

~~(b) ; and *calculated using the previous months water use records required by Condition 11. If the exceedance occurs within one month of a Consent Holder first taking water for irrigation purposes within an irrigation season, then the average shall be calculated using the water use records for this period only.* (c) The Ccouncil will advise the Consent Holder in writing of any breach and the required reduction in the daily water take volume.~~

2~~5~~8 Once Condition ~~24~~ 27(b) has been complied with, the Consent Holder may apply to the Ccouncil's Compliance Manager for an alternative reduction in its daily water take volume. Council's approval of an alternative reduction value will only be given if it is satisfied that a ~~it will not increase the~~ TL2 exceedance that is attributable to this consent will ~~ould~~ not occur. ~~or result in any additional is likely to achieve compliance with TL2 trigger values and the alternative reduction value is of a trigger level in the GMCP, not inconsistent with Condition 1~~. The applicable alternative reduction value is the value that is contained in the recommendations made in the Groundwater Trigger Exceedance Report required to be prepared by the GMCP.~~upon a TL2 breach~~ ~~*Advice Note: An alternative reduction value must be based upon the recommendations of the Groundwater Trigger Evaluation Report to be commissioned by the Council which assess why a TL2 has been breached, identifies the pumping bores in the area(s) of effect and reviews all of the available data collected in the affected area(s), in particular, the data collected pursuant to the requirements of the GMCP.*~~

2~~6~~9 If the TL2 trigger levels are still exceeded after 21 days, then the Consent Holder shall

reduce their daily abstraction to 25% of the current average daily quantity calculated for Condition ~~24~~27(b). The Ccouncil will advise the Consent Holder in writing of any breach and the required reduction in the daily water take volume.

~~Advice Note: According to the method specified in Section 4.2 of the GMCP, the average daily quantity of abstraction will be calculated using the previous months water use records required by Condition 11. If the exceedance occurs within one month of a Consent Holder first taking water for irrigation purposes within an irrigation season, then the average shall be calculated using the water use records for this period only.~~

~~27~~30 Once Condition 29 has been complied with, the Consent Holder shall also comply with the recommendations contained in the revised and updated Groundwater Trigger Exceedance Report commissioned by the Council which will be prepared for the purpose of specifying a programme of actions to achieve compliance with Condition 1 of this consent.

31. If the TL2 trigger levels continue to be exceeded after the implementation of the remedial measures required under Conditions ~~24 to 26~~27-29, the Ccouncil may require the Consent Holder to ~~cease~~ suspend the exercise of this consent, or continue their daily abstraction at a specified rate, until such time as the Ccouncil issues written notice that the ~~c~~Consent may be exercised again in accordance with the requirements of the revised and updated Groundwater Trigger Exceedance Report~~the GCMP~~.

Review Condition

~~28~~31 The ~~c~~Council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions annually during the month of September for any one or more of the following purposes:

(a) To deal with any adverse effects on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or

(b) To insert trigger level thresholds established in accordance with the GMCP as conditions of consent.

(c) To review the allocation of the resource.

The Consent Holder shall meet all reasonable costs of any such review.

Lapsing Condition (Not to be included for APP.027391.01.01 - I.A. Stanisich)

~~29~~32 This consent shall lapse five years after the date that the ~~date~~ consent commences in accordance with section 116(1) of the Resource Management Act 1991, unless before this date the consent has been given effect to.

EXPIRY DATE: 30 NOVEMBER 2033

APP.027391.01.01 - I.A. Stanisich:

EXPIRY DATE: 30 NOVEMBER 2025

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Groundwater Monitoring and Contingency Plan for the Waiharara, Motutangi and Houhora sub-areas of the Aupōuri Aquifer Management Unit


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1. Introduction

1.1 Scope and Objective of the GMCP

This document comprises a groundwater monitoring and contingency plan for the Waiharara, Motutangi and Houhora sub-areas of the Aupōuri aquifer management unit (GMCP). The GMCP covers the implementation and monitoring of the groundwater take consents listed in **Table 1** (the Consent Holders) ~~for the purpose of avoiding:~~ and is a programme of adaptive management that is suitable to provide a platform for the implementation of the abstractions listed in **Table 1**

An adaptive management regime requires reasonably clear objectives against which the effects and management progress may be evaluated against. The objective of this GMCP is that:

Objective 1: The abstractions must, individually and cumulatively, avoid:

(a) saltwater intrusion into the Aupouri aquifer; or

(b) adverse effects on the hydrological functioning of the Kaimaumau-Motutangi wetland; or

(c) adverse effects on the significant indigenous vegetation and significant habitats of indigenous fauna in terrestrial and freshwater environments of the Kaimaumau-Motutangi wetland; or

(d) lowering of the groundwater levels of the Aupouri aquifer such that existing efficient bore takes cannot access groundwater from these sub-aquifers.

~~Saline intrusion into the aquifer;~~

~~Adverse effects on the Kaimaumau wetland;~~

~~Adverse impacts on the other bore abstractions that are efficiently utilising the aquifer.~~

Extensive environmental monitoring is required to ~~ensure the effects on the environment are no greater than those anticipated in the AEE~~achieve avoidance of the effects listed above, and to support the proposed 'adaptive management' approach including a staged implementation of groundwater extraction. The purpose of the GMCP is to formalise specific monitoring requirements, establish groundwater level and groundwater quality monitoring triggers and outline a process for implementation of appropriate mitigation and remediation measures in the event that nominated trigger valu~~es~~es are exceeded.

The GMCP is intended to allow the early detection of any impact to the Waiharara, Motutangi and Houhora sub-~~areas~~ aquifers of the Aupōuri aquifer management unit and the Kaimaumau-Motutangi wetland associated with the exercise of groundwater take consent(s), by:

- Ensuring regular monitoring of the groundwater system both on and off-site;
- Setting monitoring criteria (trigger levels) to indicate potential impact on the groundwater system and Kaimaumau-Motutangi wetland;
- Informing the Council when changes in the pumping regime are required;
- Reviewing monitoring data before and after a step level increase in pumping rate;
- Ensuring that the monitoring data is available for regular review by the Council;
- Detailing a Contingency Plan to be implemented if an unanticipated impact(s) is identified;

- Providing information as to the actual effects of the abstraction on the groundwater resource; and
- Enabling validation of the numerical model by the Consent Holders for any replacement groundwater take consent applications.

It has been agreed by all Consent Holders that the Council will undertake the requirements of the GMCP on their behalf. The actual and reasonable cost of undertaking the ongoing monitoring of these consents for the Consent Holders will be charged on a pro rata basis using the allocated water volumes in accordance with Council's Charging Policy. The cost of installing the additional sentinel bores and monitoring equipment will be recouped from the Consent Holders via an annual charge.

~~1.1 Scope and Purpose of the GMCP~~

~~1.2 The GMCP addresses the potential effects on groundwater, saline intrusion, and water levels within the Waiharara, Motutangi and Houhora sub-areas of the Aupouri aquifer management unit and the Kaimaumau wetland. Specifically, the GMCP is aimed at:~~

~~1.3 Providing procedures to avoid:~~

~~1.4 Saline intrusion into the aquifer;~~

~~1.5 Adverse effects on the Kaimaumau wetland; and~~

~~1.6 Adverse impacts on the other bore abstractions that are efficiently utilising the aquifer;~~

~~1.7 Ensuring the owners and operators of the consents understand their legal responsibility and how to go about implementing their consents within the legal limits; and~~

~~1.8 Providing all stakeholders and the Council assurance that the consent will be exercised in compliance with the conditions.~~

~~1.9~~1.2 Changes to the GMCP

This GMCP may be amended at any time to incorporate new or replacement water permits in the Waiharara, Motutangi or Houhora sub-~~areas~~ aquifers of the Aupōuri aquifer management unit that have overlapping and/or additional monitoring requirements or which are subject to different trigger levels or trigger levels based on monitoring described in this GMCP.

Changes may also be made at any time to the nature and scope of the required monitoring (i.e. monitoring frequency and intensity (type and number of samples)) and associated trigger levels.

If either the Council or a Consent Holder wishes to amend the GMCP, then it must provide notice in writing of the proposed changes, along with any supporting technical documents, to the other Consent Holders and the Director-General of Conservation.

The Consent Holders and Director General of Conservation have 20 working days to provide a response to the Council on the proposed changes to the GMCP.

If no response is received from a party within the stated timeframe, then Council will consider that the party has no concerns with the conclusion of the report.

If any party does not agree with the proposed change, that party shall engage a suitably qualified hydrogeologist and/or an ecologist to prepare a report detailing the reasons for the disagreement

which shall be provided to Council within 30 working days from the date that the written notice of the proposed changes was sent to the party.

Any change to the GMCP will only be authorised by Council if the technical assessment of the proposed change clearly indicates that the change willould meet Objective 1 of the GMCP.

~~Any change to the GMCP will only be authorised by Council if the technical assessment of the proposed change clearly indicates that the change is unlikely to result in:~~

~~Saline intrusion into the aquifer;~~

~~Adverse effects on the Kaimaumau wetland;~~

~~Adverse impacts on the other bore abstractions that are efficiently utilising the aquifer~~

Council will provide a report to the Consent Holders and the Director General of Conservation detailing the reasons for its decision, including the identification and discussion of areas of agreement and disagreement.

If any changes are made to the GMCP, then a copy of the amended GMCP will be provided to the Consent Holders and the Director General of Conservation.

2. Framework for Adaptive Management

In summary, the following adaptive management techniques are applied in this GMCP;

(a) Baseline monitoring – a monitoring programme has been developed for Stage 1 of the Table 1 abstractions to establish robust existing environment baseline. This monitoring programme is contained in this GMCP, however, some monitoring detail is still required and this is indicated by a 'TBC'.

(b) Staged development – Abstraction volumes will progressively be increased in a staged manner, with expansion contingent on compliance with yet to be established trigger levels and on regular reviews of groundwater level, wetland ecology and hydrology, and salinity monitoring result~~s~~

(c) Stage 1 after 12 months of monitoring data has been collected; and

(d) Tiered approach to monitoring – Monitoring effort is proposed to increase if and when site trigger levels are approached or exceeded. Likewise, monitoring intensity may decrease with evidence of sustained compliance and stability; and

(e) Ongoing adaptive management – The abstractions will be managed adaptively within the term of consent, in response to environmental monitoring results, through the implementation of the recommendations of a Groundwater Trigger Exceedance Report (GTER) prepared by Council.

(f) Suspension of abstractions – Should ~~the GTER not achieve~~ compliance with Objective 1 of this GMCP not be achieved, then the exercise of the consents to abstract and use groundwater may be suspended until such time as Council confirms in writing that compliance can be achieved.

The following sections provide detailed information relating to the adaptive management framework to be imposed for the exercise of the consents listed in Table 1.

~~The uptake of water by the Consent Holders will be over 4 stages in accordance with the following factors:~~

~~Level of current orchard development – noting the following orchards are already well established:~~

~~APP.038650.01.01 – Hewitt;~~

~~APP.039345.01.01 – McLarnon;~~

~~APP.038380.01.01 – Huanui Orchards (Holloway);~~

~~APP.038589.01.01 – Thompson;~~

~~APP.038591.01.01 – Cypress Hills Ltd.~~

~~Rate of orchard development - will occur at differing rates depending on the owner's cashflow and access to plants; and~~

~~Tree maturity - approximately nine years to full maturity and plant water usage, hence irrigation requirements commensurately increase with tree growth.~~

~~The steady progressive development of the orchards, particularly the new large developments, provides an opportunity to apply an adaptive management approach that establishes a baseline and allows potential groundwater, wetland and coastal salinity effects to be checked against the predictions made in the AEE, specifically the following:~~

~~The groundwater drawdown predictions in both the shallow and deep aquifer;~~

- ~~Impacts on wetland water levels by inference from shallow ground monitoring adjacent to the wetland; and~~
- ~~Salinity at key coastal locations.~~

~~The management approach provides a series of responses to be taken based on the monitoring results, including where monitoring shows effects or trends outside those predicted in the AEE as being no more than minor develop, as discussed in Section 2.1.~~

2.1 Staged Implementation

The uptake of water by the Consent Holders will be over 4 stages in accordance with the following factors:

Level of current orchard development – noting the following orchards are already well established:

APP.038650.01.01 – Hewitt;

APP.039345.01.01 – McLarnon;

APP.038380.01.01 – Huanui Orchards (Holloway);

APP.038589.01.01 – Thompson;

APP.038591.01.01 – Cypress Hills Ltd.

Rate of orchard development - will occur at differing rates depending on the owner's cashflow and access to plants; and

Tree maturity - approximately nine years to full maturity and plant water usage, hence irrigation requirements commensurately increase with tree growth.

The steady progressive development of the orchards, particularly the new large developments, provides an opportunity to apply an adaptive management approach that establishes a baseline and allows the original hypotheses of avoidance of effects to be re-evaluated, specifically that Objective 1 of this GMCP is being met.

The management approach provides a series of responses to be taken based on the monitoring results, including where monitoring shows that Objective 1 of this GMCP is not being met, as discussed in **Section** 2.2~~2.1~~.

The uptake by Consent Holders of the consented total allowable water volumes will be permitted in four stages over nine years, as shown in **Table 1** below, unless the outcome of the Staged Implementation and Monitoring Programme Review detailed in **Section 2.4** shows that there should be a delay in moving to the next stage, or that the next stage should not occur.

Table 1. Summary of staged implementation annual volumes

Application Number	Consent Holder	Allowable Annual Volume (m^3)			
		Stage 1 (Year 1)*	Stage 2 (Year 2-3)*	Stage 3 (Year 4-6)*	Stage 4 (Year 7 - 9)*
Houhora sub area management unit					
APP.038610.01.01	Mapua Avocados Ltd (3), C/o Murray Forlong	34,000	96,000	198,000	209,000
APP.039244.01.01	Kevin Thomas & Danielle O'Connor	34,000	59,600	59,600	59,600
APP.039381.01.01	Jonathan Brien & Carol Carr	14,900	14,900	14,900	14,900

Application Number	Consent Holder	Allowable Annual Volume (m^3)			
		Stage 1 (Year 1)*	Stage 2 (Year 2-3)*	Stage 3 (Year 4-6)*	Stage 4 (Year 7 - 9)*
APP.039345.01.01	Ian McLarnon & Jason McLarnon*	23,520	23,520	23,520	23,520
APP.038732.01.01	Kathy Valadares	22,350	22,350	22,350	22,350
Motutangi sub area management unit					
APP.038610.01.01	Mapua Avocados Ltd (1 and2), C/o Murray Forlong	34,000	96,000	198,000	418,000
APP.039332.01.01	L J King Limited	34,000	78,400	78,400	78,400
APP.038589.01.01	Neil & Alma Violet Thompson and Steven & Josephine Suzanne Thompson*	34,000	35,280	35,280	35,280
APP.038591.01.01	Cypress Hills Ltd, C/o Alan Anderson & Carolyn Dawn Smith*	34,000	35,280	35,280	35,280
Waiharaha sub area management unit					
APP.038471.01.01	Honeytree Farms Limited, C/o Tony Hayward	34,000	96,000	198,000	346,425
APP.038410.01.01	Georgina Tui and Mate Nickolas Covich	34,000	96,000	198,000	223,500
APP.038420.01.01	Largus Orchard Ltd Partnership, C/o Murray Forlong (Changed from Matijevich)	34,000	96,000	193,700	193,700
APP.038513.01.01	Te Runanga o Ngai Takoto, C/o Rangitane Marsden	34,000	96,000	193,700	193,700
APP.038454.01.01	Elbury Holdings Limited, C/o Kevin and Fiona King	34,000	96,000	113,700	113,700
APP.038650.01.01	Tony and Diane Hewitt*	34,000	39,200	39,200	39,200
APP.038328.01.01	Bernard Kim & Sheryl Dianne Shine	34,000	39,200	39,200	39,200
APP.038380.01.01	Daimen & Katherine Holloway*	14,900	14,900	14,900	14,900
TOTAL		517,670	1,034,630	1,655,730	2,060,655
% of Total		**25%**	**50%**	**80%**	**100%**
Note: *The staged implementation is based on years when irrigation occurs following the granting of the consents					

~~2.1~~2.2 Trigger Level System

Trigger levels (TLs) will be established to set up an early warning system that provides a response mechanism when differences between predicted and actual water levels, and/or salinity concentrations occur. A trigger level is an environmental criterion that if reached or met, requires a certain response to be actioned.

A two-tier trigger level system will be implemented in this GMCP:

- **TL1** - The first-tier trigger level establishes whether the parameter of concern is approaching outer limits of baseline data (e.g. Median ±2 times the standard deviation, or some other criteria determined with agreement of Council). If this trigger level is breached, then additional monitoring will be undertaken by the Council;

- **TL2** - The second-tier trigger level is set at a threshold defining a 'significant' departure from baseline conditions and/or conditions where the risks of adverse environmental effects are increased. If this trigger level is breached, then the Consentt Holders will be required to reduce their daily water take volume in a staged manner over a set period of time.

The TL parameters required under this GMCP for the various suites are summarised in **Table 2.**

Table 2. Summary trigger level parameters by monitoring suite

Monitoring Suite	Parameters
Groundwater level and salinity monitoring	Groundwater level, electrical conductivity
Saline intrusion monitoring	Electrical conductivity, chloride, sodium, total dissolved solids.
Kaimaumau-Motutangi Wetland water level	Groundwater level in shallow sand aquifer.

~~2.1.1~~2.2.1 Timeframe for setting of trigger levels

The setting of TL1 and TL2 trigger levels values for each parameter (where TBC is indicated in the monitoring plan tables in **Section 3** Monitoring Programme) will be undertaken during the first implementation stage after 12 months of monitoring data has been collected and within 15 months of the date of commencement of these consents. This approach recognises that:

- There is historical monitoring data available for some parameters;
- In some areas, no baseline data has been established by the consent holder(s) or any of the key stakeholders in the area; and that
- The manifestation of any effects from the exercising of these consents will steadily progress with time in accordance with the stages of orchard developments and age of the crop. The scale of abstraction during the baseline data collection period (i.e. 12 months following granting of consent) will not vary significantly from existing conditions.

~~2.1.2~~2.2.2 Response to exceeding trigger levels

The actions required should TL's be exceeded are set out in **Section** 4 (Contingency Plan).

~~2.2~~2.3 Environmental Monitoring Report

At the end of each irrigation season, the Council will commission the preparation of an Annual Environmental Monitoring Report (AEMR) by a suitably qualified hydrogeologist and, in relation to monitoring of the Kaimaumau Wetland, a suitable qualified wetland ecologist. The Council will endeavour to ensure that, if possible, both the hydrogeologist and the ecologist will have experience and knowledge of the locality. A copy of the AEMR will be provided to the Consent Holders and the Director General of Conservation by 31 July each year.

The purposes of the Annual Environmental Monitoring Report are to;

- provide a summary of the monitoring results for the previous year, including trends, against Objective 1 of the GMCP;
- assess the monitoring undertaken over the previous year against the standards set out in Objective 1;
- report on any issues apparent with the monitoring and
- identify any improvement that could be made with respect to the monitoring.

~~The AEMR will provide an analysis and interpretation of the results of bore water meter (use) records, groundwater level and water chemistry monitoring data, and compare the monitoring data to predicted impacts within the AEE~~The AEMR will also contain an evaluation of whether the observed effects of the groundwater takes ~~Objective 1 of this GMCP is being achieved by comparing~~are consistent with the predictions of environmental response contained in the *Motutangi-Waiharara Groundwater Model, Factual Technical Report – Modelling. Motutangi-Waiharara Water User Group. WWA0026: Final – Rev. 9*, dated 31 August 2017 (hereon in referred to as the 'Model Report').~~.~~

~~2.3~~2.4 Staged Implementation and Monitoring Programme Review

A "Staged Implementation and Monitoring Programme Review" (SIMPR) will be required for Council to decide on whether Consent Holders proceed to the next allocation stage. At the following times, the volume of abstraction authorised will be reviewed against the staged implementation outlined in **Section 2.1** at the minimum intervals of:

End of Stage 1 – 1 full irrigation season following date of commencement of the consents;

End of Stage 2 - 3 irrigation seasons following date of commencement of the consents;

End of Stage 3 - 6 irrigation seasons following date of commencement of the consents; and

End of Stage 4 - 9 irrigation seasons following date of commencement of the consents.

The main purpose of the SIMPR is to assess whether proceeding to the next stage would comply with Objective 1 of the GMCP.

The SIMPR will be commissioned by the Council and shall be prepared by a suitably qualified hydrogeologist and, in relation to monitoring of the Kaimaumau-Motutangi Wetland, a suitable~~y~~ qualified wetland ecologist. The Council will endeavour to ensure that~~, if possible,~~ both the hydrogeologist and the ecologist will have experience and knowledge of the locality.

The SIMPR will include a detailed assessment of all environmental monitoring data including groundwater levels, salinity indicators, and water quality, and include consideration of spatial and temporal trends including potential effects of groundwater abstraction on water levels in Kaimaumau-Motutangi Wetland and the effect of these on the ecology of the wetland. The SIMPR will assess whether Objective 1 of this GMCP is being met at the current level of abstraction, and whether Objective 1 will be met at the next stage level of abstraction. The SIMPR may also consider the nature and scope of continued monitoring (i.e. monitoring frequency and intensity (type and number of samples)) and associated trigger levels.

The SIMPR will provide r~~a r~~ecommendations based on the assessment of the environmental monitoring data to date on:

- the setting or alteration of the trigger levels;
- whether any changes to the monitoring programme are required; ~~and~~, and
- whether ~~an~~to advance to the ~~increase to the~~ next stage of abstraction or to remain at the current leve; of abstraction, or to reduce the level of abstraction. ~~is likely to result in any of the following effects:~~

~~will achieve Objective 1 of this GMCP.Saline intrusion into the aquifer;~~

~~Adverse effects on the Kaimaumau wetland;~~

~~Adverse impacts on the other bore abstractions that are efficiently utilising the aquifer.~~

A copy of the SIMPR will be provided to the Consent Holders ~~covered by this GMCP~~listed in Table 1 and the Director General of Conservation a minimum of three months prior to the anticipated commencement of the subsequent irrigation season utilising volumes defined for the subsequent development stage as stated in Table 1. The Consent Holders and Director General of Conservation have 20 working days to provide a response to the Council on the conclusions and recommendations of the SIMPR.

If no response is received from a party within the stated timeframe, then Council will consider that the party has no concerns with the conclusion of the report.

If any party does not agree with the conclusions and recommendations of the SIMPR, then a report by a suitably qualified hydrogeologist and/or an ecologist, both with experience and knowledge of the locality if possible, detailing the reasons for the disagreement shall be provided to Council within 30 working days from the date that the assessment was sent to the party.

An increase in the volume of abstraction to the next development stage and any change to the monitoring programme will only be authorised by Council if the technical assessment of the monitoring data clearly indicates that the increase in the allocation and change to GMCP would meet ~~is unlikely to result in:~~

Objective 1 of this GMCP.

- ~~Saline intrusion into the aquifer;~~
- ~~Adverse effects on the Kaimaumau wetland;~~
- ~~Adverse impacts on the other bore abstractions that are efficiently utilising the aqufer.~~
- Council will provide a report to the Consent Holders and the Director General of Conservation detailing the reasons for its decision, including the identification and discussion of areas of agreement and disagreement.

If any changes are made to the GMCP, then a copy of the amended GMCP will be provided to the Consent Holders and the Director General of Conservation within 5 working days of the change being authorised as final.

A summary of the above process is also included in the conditions of each consent that is covered by this GMCP.

3. Monitoring Programme

3.1 Bore Locations and Details

A consolidated summary of the schedule of bores that are required to be monitored as part of this GMCP is provided in Table 3~~Table 3~~. Along with the bores identified for monitoring, the table provides key details relating to the bores physical attributes and parameters to be monitored. The following sections of the GMCP provide the monitoring schedules (frequency and trigger levels) for the bores.

The locations of the bores in **Table 3** are shown in **Figure 1**.

Table 3. Schedule of bores and monitoring details

Bore Name		Bore Owner	Coordinates (NZTM 2000)		Depth (m)	Dia. (mm)	Piezo. No.	Target aquifer	Purpose*
Generic	NRC ref.		Easting	Northing					
Fishing Club	LOC.200250	NRC	1611411	6146928	79			Deep shellbed	SI; MI
Waterfront	LOC.200210	NRC	1611712	6146689	19	32	1	Shallow sand	GL, EC
			1611712	6146689	37	32	2	Intermediate	GL, EC
			1611712	6146689	57	32	3	Intermediate	GL, EC
			1611712	6146689	74	32	4	Deep shellbed	GL, EC
Motutangi	TBC	NRC	1615707	6139818	<10	50	1	Shallow sand	GL; EC
			1615707	6139818	80-100 (TBC)	50	2	Deep shellbed	GL; EC
Norton Road	TBC	NRC	1619772	6134408	80-100 (TBC)	50	2	Deep shellbed	GL; EC
Kaimaumau	LOC.316222	NRC	1622445	6134482	20		1	Shallow sand	GL; EC; SI; MI
	LOC.315766	NRC	1622426	6134466	72		2	Deep shellbed	GL; EC; SI; MI
Kaimaumau Wetland	TBC	NRC	1619028	6139489	<1.5	50	1	Standing water in wetland	GL
Kaimaumau Settlement	LOC.200097	Private (Wilson Kaimaumau)	1624293	6135696	<20 (12)		1	Shallow sand	GL, SI
	TBC	NRC	1624253	6135897	>50 (TBC)		2	Deep shellbed	GL, SI
Lamb Road	TBC	J. Brien & C. Carr	1610222	6147542	TBC		1	Deep shellbed	GL, EC
Valadares	TBC	K. Valadares	1611284	6144679	TBC		1	Deep shellbed	GL, EC
McLarnon	TBC	I. & J. McLarnon	1610058	6147313	TBC		1	Deep shellbed	GL, EC
Elbury Holdings	TBC	Elbury Holdings Limited	1611872	6142927	TBC		1	Deep shellbed	GL; SI
Holloway	TBC	Huanui Avocados Ltd	1610366	6143906	TBC		1	Deep shellbed	GL, EC
Ngai Takoto	TBC	Te Runanga o Ngai Takoto	1611284	6144679	TBC		1	Deep shellbed	GL, EC
			1619904	6133984	TBC		1	Deep shellbed	GL, EC
Cypress Hills	TBC	Cypress Hills Ltd	1619097	6135520	TBC		1	Deep shellbed	GL, EC
Stanisich	TBC	I.A. Stanisich	1618987	6135795	95	104	1	Deep shellbed	GL, EC
Honeytree	TBC	Honeytree	1617128	6136793	112	310	1	Deep shellbed	GL, EC

Bore Name		Bore Owner	Coordinates (NZTM 2000)		Depth (m)	Dia. (mm)	Piezo. No.	Target aquifer	Purpose*
Generic	NRC ref.		Easting	Northing					
		Farms Limited	1617128	1617128	6	50	2	Shallow sand	GL
			1614898	6138495	111	310	3	Deep shellbed	GL, EC
Thompson	TBC	N. & A. V. Thompson and S. & J.S. Thompson	1617846	6133480	TBC		1	Deep shellbed	GL, EC
L J King Ltd	TBC	L J King Limited	1618903	6136060	TBC		1	Deep shellbed	GL, EC
Mapua	TBC	Mapua Avocados Ltd	1618611	6136321	111	100	1	Deep shellbed	GL, EC
			1614798	6138773	122	100	2	Deep shellbed	GL, EC
			1614723	6139203	97	100	3	Deep shellbed	GL, EC
Hewitt	TBC	T. Hewitt	1612541	6141795	TBC		1	Deep shellbed	GL, EC
Shine	TBC	B. K. & S. D. Shine	1612979	6142360	TBC		1	Deep shellbed	GL, EC
Largus	TBC	Largus Orchard Ltd Partnership	1612784	6142645	94	100	1	Deep shellbed	GL, EC
			1617436	6132318	TBC	100	2	Deep shellbed	GL, EC
Covich	TBC	G.T. & M. N. Covich	1619411	6134224	TBC		1	Deep shellbed	GL, EC
			1619702	6134754	TBC		1	Deep shellbed	GL, EC
Thomas	TBC	K. Thomas & D. O'Connor	1618003	6133379	TBC		1	Deep shellbed	GL, EC

Notes:

TBC = to be confirmed within 15 months of the date of commencement of these consents.

* Purpose key: GL = Groundwater Level; EC = Electrical Conductivity; SI = Salinity Indicators; MI = Major Ions.

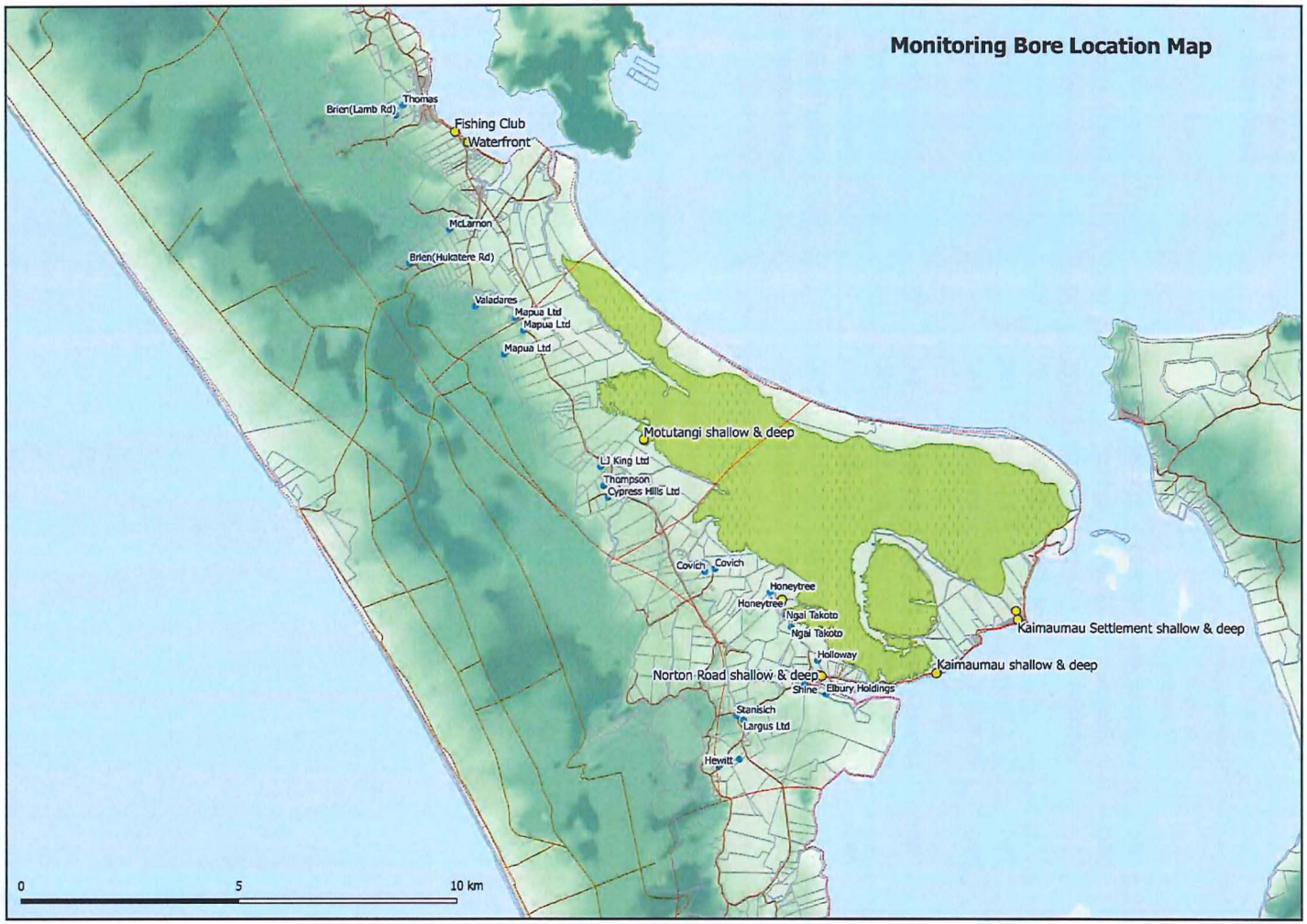

Figure 1. Monitoring Bore Location Map

3.2 Groundwater Level and Salinity Monitoring

Sentinel bores will be utilised as the primary reference sites for regional groundwater level and salinity monitoring. These bores will provide early detection or warning of:

- Groundwater levels around the coastal margin lowering and approaching a threshold that could indicate a greater risk of saline intrusion; and
- Any reduction in water quality that could indicate the landward migration of the saline interface.
- Groundwater levels in the shallow sand aquifer lowering and having a potential adverse effect on the Kaimaumau-Motutangi wetland due to a decline in standing water level.

Details of the sentinel bores is summarised in **Table 4** below. These sentinel bores will collect data continuously for water levels and electrical conductivity in individual piezometers. A two tier trigger level system (TL1 and TL2) for groundwater levels and electrical conductivity will be set in these bores.

Monitoring of groundwater levels in the "shallow sand" aquifer in bores listed in **Table 4** will enable identification of the potential for effects on the Kaimaumau-Motutangi wetland due to a decline in standing water level resulting from groundwater abstraction. It is also useful for understanding the overall response of the groundwater system to abstraction effects and to saline intrusion risks.

The setting of TL1 and TL2 trigger levels values for each parameter will be undertaken during the first implementation stage after 12 months of monitoring data has been collected and within 15 months of the date of commencement of these consents. The current trigger limit values that are shown in **Table 4** are based on existing data and will be reconfirmed by Council when the other trigger levels are confirmed.

All sentinel monitoring bores listed in **Table 4** will be installed within ~~six~~ four months of the date of commencement of ~~these~~ the consents.

Checking of the sensors required for continuous monitoring will be undertaken on a monthly basis, and any faults will be recorded and remedied immediately.

Table 4. Schedule of sentinel monitoring bores for groundwater level and/or salinity indicators

Bore Name	Depth (m)	Piezo. No.	Target aquifer	Units	Frequency	Trigger Levels	
						TL1	TL2
Waterfront	19	4	Shallow sand	mAMSL	Continuous	2.3maMSL EC TBC	0.5 maMSL EC TBC
	37	3	Intermediate	mAMSL	Continuous	2.9 maMSL EC TBC	0.6 maMSL EC TBC
	57	2	Intermediate	mAMSL	Continuous	4.5 maMSL EC TBC	1.1 maMSL 1.2 EC TBC
	74	1	Deep shellbed	mAMSL	Continuous	4.4 maMSL EC TBC	1.8 maMSL EC TBC
Motutangi	<10	1	Shallow sand	mAMSL	Continuous	TBC	TBC
				µS/cm	Continuous	TBC	TBC
	80-100 (TBC)	2	Deep shellbed	mAMSL	Continuous	TBC	TBC
				µS/cm	Continuous	TBC	TBC
Norton Road	80-100 (TBC)	1	Deep shellbed	mAMSL	Continuous	TBC	TBC
				µS/cm	Continuous	TBC	TBC

Bore Name	Depth (m)	Piezo. No.	Target aquifer	Units	Frequency	Trigger Levels	
						TL1	TL2
Kaimaumau Wetland	<5	1	Wetland water levels	mAMSL	Continuous	TBC	TBC
Kaimaumau	20	1	Shallow sand	mAMSL	Continuous	TBC	TBC
				µS/cm	Continuous	TBC	TBC
	72	2	Deep shellbed	mAMSL	Continuous	TBC	TBC
				µS/cm	Continuous	TBC	TBC

Notes:

TBC = to be confirmed within 15 months of the date of commencement of these consents.

GL TL1s (where provided) have been calculated from long term monitoring data.

GL TL2s (where provided) have been interpolated from Table F1, WWA Groundwater Modelling Report.

3.2.1 Setting of Groundwater Trigger Levels

3.2.1.1 Wetland Vegetation Survey

Within six months of the date of commencement of these consents, the Council, in consultation with Director General of Conservation, will commission a suitably qualified and experienced ecologist to catalogue the values and attributes of the significant indigenous vegetation and significant habitats of indigenous fauna of the Kaimaumau-Motutangi w~~W~~etland, including the standing water area ~~of the Kaimaumau-Motutangi Wetland~~ that is being monitored by the standing water level monitoring station required by Table 4. The main plant communities in the standing water are shall be delineated on high quality aerial photographs of the wetland area at a suitable scale. The mapped vegetation types shall be classified and named using an appropriate system of classification such as the Atkinson system (Atkinson, 1985). An assessment of wetland condition and potentially influencing pressures using an appropriate method, such as that proposed by Clarkson et. al., (2004), based on the following indicators:

- Changes in hydrological integrity,
- Changes in physiochemical parameters,
- Changes in ecosystem intactness,
- Changes in browsing, predation and harvesting regimes,
- Changes in the dominance of native plants.

Reference shall also be made to other pressures which may be impacting on the wetland:

- Modifications to catchment hydrology,
- Water quality within the catchment,
- Animal access,
- Key undesirable species,
- % catchment in introduced vegetation.

The information shall be recorded using standard forms and applying the scoring system, such as that from Clarkson et al 2004 to determine an index of wetland condition.

3.2.1.2 Shallow Sand Aquifer

After a period of 12 months of monitoring from the date of commencement of these consents, the Council will commission an assessment of the potential impact of shallow groundwater decline on the Kaimaumau-Motutangi Wetland by a suitably qualified and experienced Hydrogeologist and a suitably qualified and experienced Ecologist. This assessment shall be undertaken in consultation with Consent Holders and the Director General of Conservation, and shall include, but not be limited to:

- Analysis of a single round of radon samples collected in accordance with https://www.gns.cri.nz/Home/Services/Laboratories-Facilities/Tritium-and-Water-Dating-Laboratory/Introduction-to-Water-Dating-and-Tracer-Analysis/Radon following a two week period of no significant rainfall at four representative points in and around the area of the Kaimaumau Wetland (Figure 2) containing standing water within six months of the date of commencement of these consents;
- Analysis of temporal groundwater level variations in the shallow Motutangi piezometer and the Kaimaumau Wetland piezometer (Table 4); and
- Analysis of variation in shallow groundwater levels in response to pumping from the Honeytree Farms production bore.
- The results of the wetland vegetation survey required by Section 3.2.1.1.

A copy of the above assessment will be provided to the Consent Holders covered by this GMCP and the Director General of Conservation. The Consent Holders and Director General of Conservation have 20 working days to provide a response to the Council on the conclusions of the assessment.

If no response is received from a party within the stated timeframe, then Council will consider that the party has no concerns with the conclusion of the report.

If any party does not agree with the conclusions of the assessment, then a report by a suitably qualified hydrogeologist and/or an ecologist detailing the reasons for the disagreement shall be provided to council within 30 working days from the date that the assessment was sent to the party.

Council will ~~only~~ set trigger levels for "shallow sand" groundwater levels in the sentinel bores if the technical assessment of the potential impact of shallow groundwater decline on the Kaimaumau-Motutangi Wetland clearly indicates that ~~there is the potential for~~ adverse effects on the wetland[1] as a result of the groundwater takes cannot be avoided without trigger level response measures~~as a result of the groundwater takes~~. A precautionary approach will be taken to the decision on whether to set trigger levels or not.

If groundwater level triggers are required for the "shallow sand" monitoring bores identified in **Table 4**, then they will be set as follows:

- TL1 – Will be determined based on the median ground water level minus 2 standard deviations of the baseline data. The baseline dataset will comprise 12 months of monitoring data combined with actual historical monitoring data synthesised from an appropriate nearby shallow bore.
- TL2 – Will be determined based on the median ground water level minus 3 standard deviations of the baseline data. The baseline dataset will comprise 12 months of monitoring

[1] Assessment of effects on wetland ecology shall be guided by a suitably qualified wetland ecologist approved by NRC, considering such matters as area of wetland impacted due to lowering of wetland water levels (cognisant of the relationship between aquifer porosity and open body water levels).

data combined with actual historical monitoring data synthesised from an appropriate nearby shallow bore. TL2 will be no less than 0.5 mAMSL in the shallow aquifer.

Council will provide a report to the Consent Holders and the Director General of Conservation detailing the reasons for its decision, including the identification and discussion of areas of agreement and disagreement.

3.2.1.3 Deep Shell bed Aquifer

As a general guide TL2 for deep shell bed groundwater levels should be no less than 1.0 mAMSL (noting that changes in EC are also a key indicator of saline intrusion).

3.2.2 Setting of Electrical Conductivity Triggers

Electrical conductivity triggers will be no greater than:

- **TL1** - Median (weekly rolling average) EC from baseline monitoring period +25%
- **TL2** - Median (weekly rolling average) EC from baseline monitoring period + 50%

3.2.3 Ongoing monitoring

Ongoing monitoring of groundwater and electrical conductivity levels will be undertaken continuously via ~~in~~ individual piezometers in sentinel monitoring ~~ed~~ bores.

3.3 Saline Intrusion Monitoring

3.3.1 Setting of Saline Intrusion Triggers

During the initial ~~12 month~~12-month monitoring period, sampling for the following salinity indicators in the bores listed in **Table 5** below will be undertaken at 6 weekly intervals:

- Electrical conductivity;
- Chloride;
- Sodium;
- Total Dissolved Solids.

The samples will be collected in accordance with A National Protocol for State of the Environment Groundwater Sampling in New Zealand (Ministry for the Environment, 2006).

As an initial guide, trigger levels for individual determinants will be established as follows:

- **TL1** - Median concentration from the baseline monitoring period +25%.
- **TL2** - Median concentration from the baseline monitoring period + 50%.

3.3.2 Ongoing Monitoring

Sampling for the following salinity indicators in the bores listed in **Table 5** below will be undertaken at least once every three months:

- Electrical conductivity;
- Chloride;
- Sodium;
- Total Dissolved Solids.

The samples will be collected in accordance with A National Protocol for State of the Environment Groundwater Sampling in New Zealand (Ministry for the Environment, 2006).

Table 5. Monitoring Schedule – Saline Intrusion

Bore Name	Depth (m)	Piezo. No.	Target aquifer	Parameter*	Units	Frequency	Trigger Levels	
							TL1	TL2
Fishing Club	79	1	Deep shellbed	EC	µS/cm	Quarterly	TBC	TBC
				Chloride	mg/L	Quarterly	TBC	TBC
				Sodium	mg/L	Quarterly	TBC	TBC
				TDS	mg/L	Quarterly	TBC	TBC
Kaimaumau (Sentinel)	20	1	Shallow sand	EC	µS/cm	Continuously	TBC	TBC
				Chloride	mg/L	Quarterly	TBC	TBC
				Sodium	mg/L	Quarterly	TBC	TBC
				TDS	mg/L	Quarterly	TBC	TBC
	72	2	Deep shellbed	EC	µS/cm	Continuously	TBC	TBC
				Chloride	mg/L	Quarterly	TBC	TBC
				Sodium	mg/L	Quarterly	TBC	TBC
Kaimaumau Settlement	<20 (12)	1	Shallow sand	EC	µS/cm	Quarterly	TBC	TBC
				Chloride	mg/L	Quarterly	TBC	TBC
				Sodium	mg/L	Quarterly	TBC	TBC
				TDS	mg/L	Quarterly	TBC	TBC
	>50 (TBC)	2	Deep shellbed	EC	µS/cm	Quarterly	TBC	TBC
				Chloride	mg/L	Quarterly	TBC	TBC
				Sodium	mg/L	Quarterly	TBC	TBC
				TDS	mg/L	Quarterly	TBC	TBC
Elbury Holdings	TBC	1	Deep shellbed	EC	µS/cm	Quarterly	TBC	TBC
				Chloride	mg/L	Quarterly	TBC	TBC
				Sodium	mg/L	Quarterly	TBC	TBC
				TDS	mg/L	Quarterly	TBC	TBC

Notes:

* Parameter key: GL = Groundwater Level; EC = Electrical Conductivity; SI = Salinity Indicators; TDS = Total Dissolved Solids.

TBC = to be confirmed within 15 months of the date of commencement of these consents.

3.4 Production Bore Groundwater Levels

3.4.1 Setting trigger levels

Electrical conductivity trigger levels will be established in the production bores listed in Table 6 below. No trigger levels will be established for groundwater levels in the production bores as water levels in the production bores can be impacted by well efficiency and pumping schedules so are not necessarily representative of groundwater levels in the surrounding aquifer.

3.4.2 Ongoing monitoring

Monthly water level monitoring will be undertaken in the production bore listed in **Table 6**. During the winter months (nominally May to September) this monitoring will provide information to identify any inter-annual variations in aquifer storage which may be anomalous compared to regional trends. During the irrigation season, water level measurements will be undertaken a minimum of eight hours following the cessation of pumping.

Electrical conductivity values will also be measured at monthly intervals from the production bores during the irrigation season to check on any changes in salinity induced by the pumping.

Continuous water level monitoring is required in a shallow observation bore adjacent to the production bore for AUT.038471.01.01 to quantify any localised drawdown effects in the shallow sand aquifer in the vicinity of a relatively large abstraction proximal to Kaimaumau-Motutangi Wetland. This shallow aquifer monitoring will enable comparison between the ~~area of maximum~~ shallow aquifer impact as modelled in the Model Report ~~in the AEE, with~~ and the data from the shallow piezometers in the sentinel bores listed in **Table 4**.

Table 6. Monitoring Schedule – Production Bore Water Levels

Bore Name	Depth (m)	Piezo. No.	Target aquifer	Parameter*	Units	Frequency	Trigger Levels	
							TL1	TL2
Lamb Road	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Valadares	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
McLarnon	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Elbury Holdings	TBC	1	Deep shellbed	GL, SI	mAMSL	Monthly	EC TBC	EC TBC
Holloway	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Ngai Takoto	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Cypress Hills	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Stanisich	95	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Honeytree	112	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
	6	2	Shallow sand	GL, EC	mAMSL	Continuous	EC TBC	EC TBC
	111	3	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Thompson	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
L J King Limited	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Mapua	111	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
	122	2	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
	97	3	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Hewitt	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Shine	TBC	1	Deep shellbed	GL; EC	mAMSL	Monthly	EC TBC	EC TBC
Largus	94	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Covich	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC
Thomas	TBC	1	Deep shellbed	GL, EC	mAMSL	Monthly	EC TBC	EC TBC

Notes:

* Purpose key: GL = Groundwater Level; EC = Electrical Conductivity.

All trigger limit values in this Table to be confirmed by Council.

4. Contingency Plan

~~Exercising~~ Exercise of the consents ~~is subject to maintenance of aquifer conditions that do not indicate on-going unsustainable groundwater level decline or increase in salinity at the coastal margins (saline intrusion)~~ are subject to compliance with Objective 1 of this GMCP.

As described in **Section** 2.2~~2.1~~, a trigger level system is used to define environmental criteria that signals changes may be occurring outside of what is normal (TL1) or at a point where ~~mitigation~~ remedial action is required to avoid Objective 1 not being met~~before the effects become overly damaging~~ (TL2).

This section details the responses that ~~that~~ will be undertaken where TLs are exceeded under any of the monitoring suite discussed in **Sections 3.2, 3.3, and 3.4**.

Where a trigger level is exceeded the Council will commission a Groundwater Trigger Exceedance Report (GTER). The objective of ~~this report~~the GTER is to establish the cause of a trigger level exceedance and to recommend~~ations~~ a programme of action to end the exceedance.

A GTER shall include:

- Review of the monitoring results collected and establish why the breach has occurred;
- set out requirements for more intense monitoring of the breach;
- update the report on a regular basis as more data becomes available; and
- recommend actions to end the breach, this could include;~~:~~
    - a staged reinstatement of abstraction levels to pre-breach levels,
    - reduced levels of abstraction for all or some of the consent holders covered by the GMCP, or
    - ~~cessation~~suspension of abstraction by all or some of the consent holders covered by the GMCP.

4.1 Stage 1 Environmental Response Measures

During the first 15 months from the date of commencement of these consents, the Council will undertake a monthly analysis of the continuous shallow groundwater level monitoring in the Motutangi sentinel bore and the continuous standing water level in the Kaimaumau-Motutangi wetland to determine if Objective 1(b) and (c) are being met. If there is an observed trend that is considered by Council, in consultation with the Director General of Conservation, to not be within a "normal" range, then it will treated as an "Exceedance of TL1" event as described in Section 4.2 below.

If the observed trend continues, the Council, in consultation with the Director-General of Conservation and the Consent Holders, may treat it as an "Exceedance of TL2" event as described in Section 4.3, below.

4.2 Exceedance of TL1

In the event of a TL1 exceedance, which may represent declining groundwater levels or rising salinity indicators, the following actions must be undertaken:

(a) The Council will notify the Consent Holders within two working days of when the TL1 exceedance became known.

(b) If the ~~exceedence~~exceedance is of a salinity indicator in the bores listed in **Table 5**, then sampling of the monitoring bore(s) in exceedance shall immediately be upgraded to a weekly frequency for four weeks following the first exceedance of the TL1. Weekly monitoring shall continue until sample results are consistently below TL1 values for a period of four weeks or as directed by Council.

(c) If after four weeks following the first exceedance of the TL1, the initiation of seawater intrusion and/or water level decline cannot be discounted to the satisfaction of the Council, then a Groundwater Trigger Exceedance Report (GTER) by a suitably qualified Hydrogeologist (and ~~ecollogist~~ecologist if the exceedance concerns the Kaimaumau-Motutangi wetland) shall be commissioned by Council.

(d) The GTER shall assess the significance of the exceedance ~~in terms of~~against the requirements of Objective 1 of the GMCP ~~saline intrusion of the aquifer, effects on the Kaimaumau wetland or on-going declining groundwater levels (including effects on existing groundwater users)~~. The GTER shall assess why TLs have been breached, identify the pumping bores in the area(s) of effect~~, and include~~ and will ~~a~~ review ~~of~~ all of the available data collected in the affected area(s), in particular the data collected pursuant to this GMCP~~, including groundwater levels, groundwater use and groundwater quality~~.

~~4.1~~4.3 Exceedance of TL2

In the event of a TL2 exceedance, which represents significant departure from normal groundwater conditions, with either continuously declining groundwater levels or rising salinity indicators:

(a) Council will immediately inform the Consent Holders upon TL2 exceedance becoming known.

(b) All Consent Holders must reduce their abstraction to 50% of the current average daily quantity, as calculated using the previous months water use records required to be kept in accordance with the conditions of its groundwater take consent. If the exceedance occurs within one month of a Consent Holder first taking water for irrigation purposes within an irrigation season, then the average shall be calculated using the water use records for this period only. The council will advise the Consent Holder in writing of any breach and the required reduction in the daily water take volume.

(c) A Groundwater Trigger Exceedance Report (GTER) by a suitably qualified Hydrogeologist (and ecologist if the exceedance concerns the Kaimaumau-Motutangi wetland) shall be commissioned by Council. The GTER shall assess why the TL2 has been breached, identify the pumping bores in the area of effect, and include a review of all ~~of the~~ available data collected for the affected area(s), in particular, the data collected under this GMCP~~, including groundwater levels, groundwater use and groundwater quality~~.

(d) Once (b) above has been complied with, the Consent Holder may apply to the Council's Compliance Manager for an alternative reduction in its daily water take volume. Council approval for an alternative reduction value will only be given if ~~it is likely to achieve compliance with~~it is satisfied that relevant TL2 ~~trigger~~ values will ~~are~~ not be exceeded. The

Council will use the GTER to inform its decision on any alternative reduction value for a Consent Holder.

(e) If the TL2 ~~exceedence~~exceedance is in a bore(s) that are not continuously monitored, then weekly groundwater level measurements and/or sampling of saline intrusion (depending on which trigger level is breached) in all bores where TL2 trigger levels are breached will commence within one week of the TL2 trigger level exceedance. Monitoring will continue until such time as:

- Three consecutive samples in an individual monitoring bore are below all TL2 thresholds established for that piezometer; or
- As directed by Council.

(f) If salinity indicators continue to increase or groundwater levels continue to decline after 21 days following the implementation of (b), then the Consent Holder's abstraction must be reduced to 25% of the current average daily quantity, as calculated for (b) above. The council will advise the Consent Holder in writing of this further reduction and the required reduction in the daily water take volume.

(g) If (f) is implemented, then the Council will commission a review and update of the GTER report by a suitably qualified Hydrogeologist (and ecologist if the exceedance concerns the Kaimaumau-Motutangi wetland) with a longer-term programme of recommended responses incorporating observed response to interim pumping rate reductions. The updated GTER will include a specific programme (including timeframes) ~~of remedial actions to mitigate saline intrusion risk over the medium and long term~~of actions which would achieve compliance with Objective 1 of this GMCP. The ~~remedial~~ actions may include, but not be limited to incremental reductions in the daily quantity of groundwater taken as a percentage of the allowable daily pumped volume, as well as testing of domestic/stock water supplies in bores that are efficiently utilising the aquifer and are potentially impacted by saline intrusion, and if necessary, the provision of temporary water supplies to any aeffected parties (excluding any of the Consent Holders) in the event that Chloride concentrations exceed 250 mg/L (being the guideline value for taste prescribed in New Zealand Drinking Water Standards for New Zealand 2005 (Revised 2008)). The GTER will also identify a methodology which Council will utilise to increase abstraction back to the volumes applicable to the relevant stage of taking (see Section 2.1), where this can be done ~~with~~ such that Objective 1 of this GMCP will be met~~the adverse effects stated in Section 1.1(a) being avoided~~. If it is not possible to increase abstraction back to the relevant stage of taking, then the GTER will identify a methodology to increase abstraction to a lesser volume ~~which will avoid the adverse effects stated in Section 1.1(a)~~such that Objective 1 of the GMCP will be met.

(h) Actions from the GTER shall continue as long as the issue continues.

(i) Implement additional ~~mitigation~~ remedial measures as directed by Council, including ~~complete cessation of~~of the suspension of taking.

B

Mapua
9.1

9.47

Campbell
9.49

De Bede
9.18

8.54

Scientific Reserve

Conservation Area

8.5

9.51

9.47

9.21

Petrecivich
6.98

Honeytree1
5.41

9.44

9.11

8.94

9.17

I Broadhurst
5.14

Fulton
5.12

9.36

J Broadhurst
5.54

9.31

Holloway
5.41

9.17

Legend

- Surveyed groundwater level (mAMSL)
- Wetland surface water level (mAMSL)
- Groundwater allocation zones

Topography in wetland (mAMSL)

- 6
- 7
- 8
- 9
- 10
- 11
- 12

0 2 3 4 5 Km

Ex A1
C

Thomas
Brien(Lamb Rd)
McLarnon
Brien(Hukatere Rd)
Valadares
Mapua Ltd3
Mapua Ltd2
Mapua Ltd1
Conservation Area
Scientific Reserve
Candy Corn Ltd
Thompson
Cypress Hills Ltd
Covich
Covich
Proposed Peat Extraction
Honeytree2
Honeytree1
Ngai Takoto2
Ngai Takoto1
Holloway
Shine
Elbury Holdings
Stanisich
Largus Ltd
Hewitt

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Legend

- Scientific Reserve/Conservation Area
- Proposed Peat Extraction
- Mr. Burgoyne Properties
- Applicant's bores

0 5 10 km

Attachment B – Relevant Statutory Planning Provisions

MATTER – TANGATA WHENUA CONSULTATION & ROLE IN DECISION-MAKING	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NZCPS	Objective 3 *To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by: recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources; promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act; incorporating mātauranga Māori into sustainable management practices; and recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.*
	Policy 2 *d. provide opportunities in appropriate circumstances for Māori involvement in decision making, for example when a consent application or notice of requirement is dealing with cultural localities or issues of cultural significance, and Māori experts, including pūkenga, may have knowledge not otherwise available; e. take into account any relevant iwi resource management plan and any other relevant planning document recognised by the appropriate iwi authority or hapū and lodged with the council, to the extent that its content has a bearing on resource management issues in the region or district; f. provide for opportunities for tangata whenua to exercise kaitiakitanga over waters, forests, lands, and fisheries in the coastal environment through such measures as: i. bringing cultural understanding to monitoring of natural resources; ii. providing appropriate methods for the management, maintenance and protection of the taonga of tangata whenua; iii. having regard to regulations, rules or bylaws relating to ensuring sustainability of fisheries resources such as taiāpure, mahinga mātaitai or other non commercial Māori customary fishing; g. in consultation and collaboration with tangata whenua, working as far as practicable in accordance with tikanga Māori, and recognising that tangata whenua have the right to choose not to identify places or values of historic, cultural or spiritual significance or special value:..*
NPSFM	Objective D1 *To provide for the involvement of iwi and hapū, and to ensure that tangata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.*
	Policy D1 *Local authorities shall take reasonable steps to: a) involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region; b) work with iwi and hapū to identify tangata whenua values and interests in fresh water and freshwater ecosystems in the region; and c) reflect tangata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.*
RPS	Objective 3.12 *Tangata whenua kaitiaki role is recognised and provided for in decision-*

	making over natural and physical resources.
	Policy 8.1.1 *The regional and district councils shall provide opportunities for tangata whenua to participate in the review, development, implementation, and monitoring of plans and resource consent processes under the Resource Management Act 1991.*
	Policy 8.1.2 *The regional and district councils shall when developing plans and processing resource consents under the Resource Management Act 1991 (RMA): (c) Take into account the principles of the Treaty of Waitangi including partnership.*
	Policy 8.1.3 (Methods 8.1.5 – 8.1.8) *The regional and district councils shall provide opportunities for the use and incorporation of Mātauranga Māori into decision-making, management, implementation, and monitoring of natural and physical resources under the Resource Management Act 1991.*
	Method 8.1.5 *The regional and district councils shall: (b) Include an analysis of the effects of any resource consent application on tangata whenua and their taonga, including details of any proposed measures to avoid, remedy, or mitigate effects and consultation undertaken, in all regional and district council reports on resource consent applications.*
	Policy 8.3.1 *The regional and district councils shall support tangata whenua to have a kaitiaki role in the management of their land, resources, and other taonga.*
RWSP	Objective 6.3.1 *The management of the natural and physical resources within the Northland region in a manner that recognises and provides for the traditional and cultural relationships of tangata whenua with the land and water.*
	Policy 6.4.3 *To have particular regard for kaitiakitanga and consider options for the involvement of tangata whenua in monitoring the use, development and protection of resources within the Northland region.*
PRP	Policy D.1.3 The following persons must be considered an affected person with regard to notification where the adverse effects on the following resources and activities are minor or more than minor ***Table 10 Circumstances where tangata whenua are adversely affected for purposes of notification***

Person	Resource or activity
The tangata whenua entity identified in an analysis of the effects undertaken in accordance with policy D.1.2 'Requirements of an analysis of effects on tangata whenua and their taonga'	Cultural resources or activities identified in an analysis of effects undertaken in accordance with policy D.1.2 'Requirements of an analysis of effects on tangata whenua and their taonga'
The committee of management of a taiāpure	Taiāpure
The Māori committee, marae committee or the kaitiaki with responsibility for the mataitai	Mataitai
The Tangata Kaitiaki/Tiaki appointed by the provisions of the Fisheries (Kaimoana Customary Fishing) Regulations 1998 for the relevant rohe moana	Non-commercial Māori fisheries

MATTER – ASSESSING EFFECTS ON CULTURAL VALUES, PLACES AND ASSOCIATIONS

Planning Document	Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)
NPSFM	Objective AA1 *To consider and recognise Te Mana o te Wai in the management of fresh water.*
	Policy AA1 *a) By every regional council making or changing regional policy statements and plans to consider and recognise Te Mana o te Wai, noting that:te Mana o te Wai recognises the connection between water and the broader environment – Te Hauora o te Taiao (the health of the environment), Te Hauora o te Wai (the health of the waterbody) and Te Hauora o te Tangata (the health of the people); and b) values identified through engagement and discussion with the community, including tangata whenua, must inform the setting of freshwater objectives and limits.*
RPS	Policy 4.5.3 (Method 4.5.4(3) and 4.6.4) *Historic heritage resources (areas, places, sites, buildings, or structures either individually or as a group) are identified taking into account one or more of the following criteria: (a) Archaeological and / or scientific importance: the resource contributes significantly to our understanding of human history or archaeological research; (b) Architecture and technology: the structure or building is significant due to design, form, scale, materials, style, period, craftsmanship, construction technique or other unique element / characteristic; (c) Rarity: the resource or site is unique, uncommon or rare at a district, regional or national level; (d) Representativeness: the resource is an excellent example of its class in terms of design, type, use, technology, time period or other characteristic; (e) Integrity: the resource retains a high proportion of its original characteristics and integrity compared with other examples in the district or region; (f) Context: the resource forms part of an association of heritage sites or buildings which, when considered as a whole, become important at a district, regional or national scale; (g) People and events: the resource is directly associated with the life or works of a well-known or important individual, group or organisation and / or is associated with locally, regionally or nationally significant historic events; (h) Identity: the resource provides a sense of place, community identity or cultural or historical continuity;* ***(i) Tangata whenua: the resource place or feature is important to tangata whenua for traditional, spiritual, cultural or historic reasons;*** *and (j) Statutory: the resource or feature is recognised nationally or internationally, including: a World Heritage Site under the World Heritage Convention 1972; is registered under the Historic Places Act 1993; or is recognised as having significant heritage value under a statutory acknowledgement or other legislation.*
	Policy 8.1.4 (Methods 8.1.5 – 8.1.8) *Relevant Māori concepts, values and practices will be clarified through consultation with tangata whenua to develop common understandings of their meaning and to develop methodologies for their implementation.*
RWSP	Policy 6.4.1 (Method 6.5.1) *To recognise and, as far as practicable provide for the relationship of Māori and their culture and traditions with respect to the use, development and protection of natural and physical resources in the Northland region.*
	Policy 10.5.8 (Method 10.6.23) *When allocating groundwater, to recognise, and as far as practical, provide for the cultural and spiritual values held by the tangata whenua for the*

	groundwater resources and associated surface water resources.
PRP	Policy D.1.1 *When an analysis of effects on tangata whenua and their taonga is required A resource consent application must include in its assessment of environmental effects an analysis of the effects of an activity on tangata whenua and their taonga(1) if one or more of the following is likely: 1) adverse effects on mahinga kai(2) and access to mahinga kai(3) , or 2) any damage, destruction and loss of access to wāhi tapu, sites of customary value and other ancestral sites and taonga which Māori have a special relationship with(4) , or 3) adverse effects on indigenous biodiversity where it impacts on the ability of tangata whenua to carry out cultural and traditional activities(5) , or 4) the use of genetic engineering and the release of genetically modified organisms to the environment, or 5) adverse effects on tāiapure, mataitai or Māori non-commercial fisheries(6) , or 6) adverse effects on protected customary rights(7) , or 7) adverse effects on Sites and Areas of Significance to Tangata Whenua mapped in the Regional Plan (refer I 'Maps').*
	Policy D.1.2 *An analysis of the effects of an activity on tangata whenua and their taonga in a resource consent application must: 1) include such detail as corresponds with the scale and significance of the effects that the activity may have on tangata whenua and their taonga, and 2) have regard to (but not be limited to): a) any relevant planning document recognised by an iwi authority (lodged with the council), and b) the outcomes of any consultation with tangata whenua with respect to the consent application, and c) statutory acknowledgements in Treaty Settlement legislation, and 3) follow best practice, and 4) specify the tangata whenua community on whose behalf the assessment is being made, and 5) be evidence-based, and 6) incorporate, where appropriate, mātauranga Māori, and 7) identify and describe all the cultural resources and activities that may be affected by the activity(8) , and 8) identify and describe the adverse effects of the activity on the cultural resources and cultural practices (including the effects on the mauri of the cultural resources, the cultural practices affected, how they are affected, and the extent of the effects), and 9) identify, where possible, how to avoid, remedy or mitigate the cultural effects of the activity that are more than minor, and 10) include any other relevant information*
	Policy D.1.4 *Resource consent for an activity may only be granted if the adverse effects from the activity on the values of Places of Significance to Tangata Whenua in the coastal marine area and water bodies are avoided, remedied or mitigated so they are no more than minor.*
	Policy D.1.5 *For the purposes of this plan, a Place of Significance to Tangata Whenua in the coastal marine area or a water body: 1) is: a) a historic heritage resource, or b) ancestral land, water, site, wāhi tapu, or other taonga, and 2) is either: a) a Site or Area of Significance to Tangata Whenua, which is a single resource or set of resources identified, described and contained in a mapped location, or b) a Landscape of Significance to Tangata Whenua, which is a collection of related resources identified and described within a mapped area, with the relationship between those component resources identified (11) , and 3) has one or more of the following attributes: a) historic associations, which include but are not limited to: i) stories of initial migration, arrival and settlement, or ii) patterns of occupation, both permanent and temporary or seasonal occupation, or iii) the sites of conflicts and the subsequent peacemaking and*

	rebuilding of iwi or hapū, or iv) kinship and alliances built between areas and iwi or hapū, often in terms of significant events, or v) alliances to defend against external threats, or vi) recognition of notable tupuna, and sites associated with them, or b) traditional associations, which include but are not limited to: i) resource use, including trading and trading routes between groups (for instance – with minerals such as matā/obsidian), or ii) traditional travel and communication linkages, both on land and sea, or iii) areas of mana moana for fisheries and other rights, or iv) use of landmarks for navigation and location of fisheries grounds, or v) implementation of traditional management measures, such as rāhui or tohatoha (distribution), or c) cultural associations, which include but are not limited to: i) the web of whanaungatanga connecting across locations and generations, or ii) the implementation of concepts such as kaitiakitanga and manākitanga, with specific details for each whanau, hapū and iwi, or iii) respect for authority, such as rangatiratanga, and respect for relationships, such as tuakanatanga, or d) spiritual associations which pervade all environmental and social realities, and include but are not limited to: i) the role of the atua Ranginui and Papatūānuku, and their offspring such as Tangaroa and Tāne, or ii) the recognition of the wairua of those with us and those who have passed away, or iii) the need to maintain the mauri of all living things and their environment, and 4) must: a) be based on traditions and tikanga, and b) be endorsed for evidential purposes by the relevant tangata whenua community, and c) record the values of the place for which protection is required, and d) record the relationship between the individual sites or resources (landscapes only), and e) record the tangata whenua groups determining and endorsing the assessment, and f) geographically define the areas where values can be adversely effected.
MATTER - AQUIFER SUSTAINABILITY & SALINE INTRUSION	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NPSFM	Objective B2 *To avoid any further over-allocation of fresh water and phase out existing over-allocation.*
	Policy B2 *By every regional council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1.*
	Policy B5 *By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a freshwater management unit that are authorised to be taken, used, dammed or diverted does not over-allocate the water in the freshwater management unit.*
	Policy B7 and direction (under section 55) to regional councils *By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy B1 (allocation limits), Policy B2 (allocation), and Policy B6 (overallocation) have become operative: 1. When considering any application the consent authority must have regard to the following matters: a. the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem and b. the extent to which it is feasible and dependable that any adverse effect on the lifesupporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided. 2. This policy applies to: a. any new activity and b. change in the character, intensity or scale of any established activity – that involves any taking, using, damming or diverting of fresh water or draining of any wetland*

	which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity (or in the case of a change in an intermittent or seasonal activity, compared to that on the last occasion on which the activity was carried out). 3. This policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management 2011 took effect on 1 July 2011."
	Objective CA1 *To provide an approach to establish freshwater objectives for national values, and any other values, that:* *a) is nationally consistent; and* *b) recognises regional and local circumstances.*
	Policy CA1 *By every regional council identifying freshwater management units that include all freshwater bodies within its region.*
	Policy CA2 *By every regional council, through discussion with communities, including tangata whenua, applying the following processes in developing freshwater objectives for all freshwater management units: a) considering all national values and how they apply to local and regional circumstances; b) identifying the values for each freshwater management unit, which i. must include the compulsory values; and ii. may include any other national values or other values that the regional council considers appropriate (in either case having regard to local and regional circumstances); and c) identifying: i. for the compulsory values or any other national value for which relevant attributes are provided in Appendix 2: A. the attributes listed in Appendix 2 that are applicable to each value identified under Policy CA2(b) for the freshwater body type; and B. any other attributes that the regional council considers appropriate for each value identified under Policy CA2(b) for the freshwater body type; and iii. for any national value for which relevant attributes are not provided in Appendix 2 or any other value, the attributes that the regional council considers appropriate for each value identified under Policy CA2(b) for the freshwater body type; d) for those attributes specified in Appendix 2, assigning an attribute state at or above the minimum acceptable state for that attribute; e) formulating freshwater objectives: i. in those cases where an applicable numeric attribute state is specified in Appendix 2, in numeric terms by reference to that specified numeric attribute state; or ii. in those cases where the attribute is not listed in Appendix 2, in numeric terms where practicable, otherwise in narrative terms; iia. in those cases where a freshwater objective seeks to maintain overall water quality in accordance with Objective A2, by every regional council ensuring: A. where an attribute is listed in Appendix 2, that freshwater objectives are set at least within the same attribute state as existing freshwater quality; and B. where an attribute is not listed in Appendix 2, that freshwater objectives are set so that values identified under Policy CA2(b) will not be worse off when compared to existing freshwater quality; and iii. on the basis that, where an attribute applies to more than one value, the most stringent freshwater objective for that attribute is adopted; and f) considering the following matters at all relevant points in the process described in Policy CA2(a)-(e): iaa. how to improve the quality of fresh water so it is suitable for primary contact more often, unless regional targets established under Policy A6(b) have been achieved or naturally occurring processes mean further improvement is not possible; iab. how to enable communities to provide for their economic well-being, including productive economic opportunities, while managing within limits; i. the current state of the freshwater management unit, and its anticipated future state on the basis of past and current resource use, including community understandings of the health and well-being of the freshwater management unit; ii. the spatial scale at which freshwater management units are defined; iii. the limits that would be required to achieve the freshwater objectives; iv. any choices between the values that the formulation of freshwater objectives and*

	associated limits would require; v. any implications for resource users, people and communities arising from the freshwater objectives and associated limits including implications for actions, investments, ongoing management changes and any social, cultural or economic implications; vi. the timeframes required for achieving the freshwater objectives, including the ability of regional councils to set long timeframes for achieving targets; and vii. such other matters relevant and reasonably necessary to give effect to the objectives and policies in this national policy statement, in particular Objective AA1 and Objective A2.
NZCPS	Policy 7 *In preparing regional policy statements, and plans: a. identify areas of the coastal environment where particular activities and forms of subdivision, use, and development: i. are inappropriate; and ii. may be inappropriate without the consideration of effects through a resource consent application, notice of requirement for designation or Schedule 1 of the Resource Management Act process; and provide protection from inappropriate subdivision, use, and development in these areas through objectives, policies and rules. 2. Identify in regional policy statements, and plans, coastal processes, resources or values that are under threat or at significant risk from adverse cumulative effects. Include provisions in plans to manage these effects. Where practicable, in plans, set thresholds (including zones, standards or targets), or specify acceptable limits to change, to assist in determining when activities causing adverse cumulative effects are to be avoided.*
RPS	Policy 4.1.1 Catchment Specific Objectives and Limits (Method 4.3.5) *Collaboratively: (a) Identify the values of water in catchments and receiving estuaries and harbours; (b) Provide for these values by establishing catchment-specific objectives and set water quality limits and environmental flows and / or levels, and where necessary targets; and (c) Establish methods to avoid, and where necessary phase out, overallocation.*
	Policy 4.3.2 Avoiding over-allocation (Method 4.3.5) *Establish regulatory methods to avoid or phase out the over-allocation of region-wide ecological flows and water levels.*
RWSP	Objective 10.4.1 *1. The sustainable use and development of Northland's groundwater resources while avoiding, remedying or mitigating actual and potential adverse effects on groundwater quantity and quality. 2. The sustainable management of groundwater resources in conjunction with the sustainable management of surface water resources. 3. The management of groundwater resources so that the potential adverse effects of land subsidence are avoided.*
	Policy 10.5.1 (Method 10.6.1, 10.6.2) *To ensure the sustainable use of groundwater resources, by avoiding groundwater takes that exceed recharge which result in any of the following: a) Saltwater intrusion or reduced groundwater quality; b) A lowering of the groundwater table below existing efficient bore takes; c) A lowering of the temperature of geothermal waters in geothermal aquifers and springs; d) Adverse effects on surface water resources in terms of Policy 10.05.07.*
PRP	Policy D.4.17 *1) The allocation limits in Clause 2 apply to: a) rules in this plan that permit any activity involving the taking and use of fresh water from aquifers, and* ***b) applications for water permits for the taking and use of fresh water from aquifers****, but do not apply to applications for water permits for the taking and use of fresh water under rules C.5.1.7 'Takes existing at the notification date of the plan - controlled activity' and C.5.1.9 'Takes existing at the notification date of this plan - discretionary activity'. 2)* ***The quantities of fresh water that can be taken from aquifers must not exceed: a) for the Aupouri aquifer, the catchment-specific allocation limits in Table 12 'Allocation limits for the Aupouri aquifer management unit',****…*

Table 12 Allocation limits for the Aupouri aquifer management unit

Sub-aquifer	Allocation limit	
	m^3/year	% annual average recharge
Aupouri-Waihopo	1,278,200	15
Aupouri-Houhora	2,141,300	11
Aupouri-Motutangi	1,069,600	10
Aupouri-Waiparera	2,312,200	10
Aupouri-Paparore	3,787,500	35
Aupouri-Waipapakauri	1,192,800	20
Aupouri-Awanui	4,640,400	12
Aupouri-Sweetwater	4,675,000	35
Aupouri-Ahipara	922,500	12
Aupouri-other	Not applicable	15

EFFICIENT USE OF WATER & COMPETING DEMAND	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NPSFM	Objective B3 *To improve and maximise the efficient allocation and efficient use of water.*
	Objective B5 *To enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing fresh water quantity, within limits*
	Policy B3 *By every regional council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.*
	Policy B4 *By every regional council identifying methods in regional plans to encourage the efficient use of water.*
	Policy B8 *By every regional council considering, when giving effect to this national policy statement, how to enable communities to provide for their economic well-being, including productive economic opportunities, while managing within limits.*
RPS	Objective 3.5 *Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.*
	Objective 3.8 *Manage resource use to: (a) Optimise the use of existing infrastructure; (b) Ensure new infrastructure is flexible, adaptable, and resilient, and meets the reasonably foreseeable needs of the community; and (c) Strategically enable infrastructure to lead or support regional economic development and community wellbeing.*

	Objective 3.10 *Efficiently use and allocate common natural resources, with a particular focus on: (a) Situations where demand is greater than supply; (b) The use of freshwater and coastal water space; and (c) Maximising the security and reliability of supply of common natural resources for users.*
	Policy 4.3.3 (Method 4.3.5) *Allocate and use water efficiently within allocation limits.*
RWPS	Objective 10.4.1 *1. The sustainable use and development of Northland's groundwater resources while avoiding, remedying or mitigating actual and potential adverse effects on groundwater quantity and quality. 2. The sustainable management of groundwater resources in conjunction with the sustainable management of surface water resources. 3. The management of groundwater resources so that the potential adverse effects of land subsidence are avoided.*
	Policy 1 (Method 10.6.5) *1. To ensure the sustainable use of groundwater resources, by avoiding groundwater takes that exceed recharge which result in any of the following: (a) Saltwater intrusion or reduced groundwater quality; (b) A lowering of the groundwater table below existing efficient bore takes; (c) A lowering of the temperature of geothermal waters in geothermal aquifers and springs; (d) Adverse effects on surface water resources in terms of Policy 10.05.07.*
PRP	Policy D.4.20 *An application for a resource consent to take water for irrigation purposes must include an assessment using a field-validated water balance model that considers land use, crop water use requirements, on-site physical factors such as soil water holding capacity, and climate factors such as rainfall variability and potential evapotranspiration. The model must reliably predict annual irrigation volume within an accuracy of 15 percent. The annual volume calculated using the model must meet the following criteria: 1) an irrigation application efficiency of at least 80 percent, and 2) demand conditions that occur in nine out of 10 years.*
	Policy D.4.23 *Water permits must include conditions that:* ***1) clearly define the take amount in instantaneous take rates and total volumes, including by reference to the temporal aspects of the take and use, and 2) require that the water take is metered and information on rates and total volume of the take is provided electronically to the regional council, and 3) for water permits for takes equal to or greater than 10 litres per second, require the water meter to be telemetered to the regional council, and 4) clearly define when any restrictions and cessation of the water take must occur to ensure compliance with freshwater water quantity limits set in this plan, and 5)*** *require the use of a backflow prevention system to prevent the backflow of contaminants to surface water or ground water from irrigation systems used to apply animal effluent, agrichemical or nutrients, and* ***6) specify when and under what circumstances the permit will be reviewed pursuant to Section 128(1) of the RMA, including by way of a common review date with other water permits in a catchment.***
BORE WATER LEVEL DRAWDOWN	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
RPS	Objective 3.10 ***Efficiently use and allocate common natural resources, with a particular***

	focus on: *(a) Situations where demand is greater than supply; (b) The use of freshwater and coastal water space; and* ***(c) Maximising the security and reliability of supply of common natural resources for users.***
	Policy 4.1.1 Catchment Specific Objectives and Limits (Method 4.1.2) *(a)* ***Identify the values of water in catchments*** *and receiving estuaries and harbours; (b)* ***Provide for these values by establishing catchment-specific objectives and set*** *water quality limits and* ***environmental flows and / or levels,*** *and where necessary targets; and (c) Establish methods to avoid, and where necessary phase out, overallocation*
RWSP	Objective 10.4.1 ***1. The sustainable use and development of Northland's groundwater resources while avoiding, remedying or mitigating actual and potential adverse effects on groundwater quantity*** *and quality. 2. The sustainable management of groundwater resources in conjunction with the sustainable management of surface water resources. 3. The management of groundwater resources so that the potential adverse effects of land subsidence are avoided.*
	Policy 10.5.1 (Method 10.6.18 & 10.6.19) *To ensure the sustainable use of groundwater resources, by avoiding groundwater takes that exceed recharge which result in any of the following: a) Saltwater intrusion or reduced groundwater quality; b) A lowering of the groundwater table below existing efficient bore takes; c) A lowering of the temperature of geothermal waters in geothermal aquifers and springs; d) Adverse effects on surface water resources in terms of Policy 10.05.07.*
	36.2.6 Assessment Criteria for Groundwater Takes (b) *The extent to which the proposed groundwater take may adversely affect other groundwater and surface water users, and the adequacy of any pump test analysis to confirm those effects.*
WATER LEVEL DRAWDOWN & ASSOC. ECOLOGICAL EFFECTS	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NPSFM	Objective B4 *To protect significant values of wetlands and of outstanding freshwater bodies.*
	Policy B1 *By every regional council making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives in accordance with Policies CA1-CA4 and set environmental flows and/or levels for all freshwater management units in its region (except ponds and naturally ephemeral water bodies) to give effect to the objectives in this national policy statement, having regard to at least the following: a) the reasonably foreseeable impacts of climate change; b) the connection between water bodies; and c) the connections between freshwater bodies and coastal water.*
	Policy B2 *By every regional council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1.*
	Objective C1 *To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.*
	Policy C1 By every regional council: *a) recognising the interactions, ki uta ki tai (from the mountains to the sea) between fresh water, land, associated ecosystems and the coastal environment; and b) managing fresh water and land use and*

	development in catchments in an integrated and sustainable way to avoid, remedy or mitigate adverse effects, including cumulative effects.
	Policy C2 *By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of: a) land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure; and b) land and fresh water on coastal water.*
NZCPS	Objective 1 *To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:* • *maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;* • *protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna; and* *maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.*
	Policy 11 *To protect indigenous biological diversity in the coastal environment:* *a. avoid adverse effects of activities on: i. indigenous taxa4 that are listed as threatened5 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 rare; 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.*
RPS	Objective 3.1 *Integrate the management of freshwater and the subdivision, use and development of land in catchments to enable catchment-specific objectives for fresh and associated coastal water to be met.*
	Objective 3.3 *Maintain flows, flow variability and water levels necessary to safeguard the lifesupporting capacity, ecosystem processes, indigenous species and the*

	associated ecosystems of freshwater.
	Objective 3.4 *Safeguard Northland's ecological integrity by: a) Protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna; b) Maintaining the extent and diversity of indigenous ecosystems and habitats in the region; and c) Where practicable, enhancing indigenous ecosystems and habitats, particularly where this contributes to the reduction in the overall threat status of regionally and nationally threatened species.*
	Objective 3.14 *Identify and protect from inappropriate subdivision, use and development;* ***(a) The qualities and characteristics that make up the natural character of the coastal environment, and the natural character of freshwater bodies and their margins;*** *(b) The qualities and characteristics that make up outstanding natural features and outstanding natural landscapes; (c) The integrity of historic heritage.*
	Policy 4.1.1 (Method 4.1.2 and 4.1.3) *Collaboratively: (a) Identify the values of water in catchments and receiving estuaries and harbours; (b) Provide for these values by establishing catchment-specific objectives and set water quality limits and environmental flows and / or levels, and where necessary targets; and (c) Establish methods to avoid, and where necessary phase out, overallocation.*
	Policy 4.3.1 (Method 4.3.5, 4.3.6 and 4.4.4) *Establish interim region-wide ecological flows and water levels for water bodies outside of priority catchments to give effect to Objective 3.3 of this Regional Policy Statement.*
	Policy 4.4.1 (Method 4.4.3 and 4.4.4) *(1) In the coastal environment, avoid adverse effects, and outside the coastal environment avoid, remedy or mitigate adverse effects of subdivision, use and development so they are no more than minor on: (a) Indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists; (b) Areas of indigenous vegetation and habitats of indigenous fauna, that are significant using the assessment criteria in Appendix 5; (c) Areas set aside for full or partial protection of indigenous biodiversity under other legislation. (2) In the coastal environment, avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of subdivision, use and development on: (a) Areas of predominantly indigenous vegetation; (b) Habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes; (c) Indigenous ecosystems and habitats that are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass, northern wet heathlands, coastal and headwater streams, floodplains, margins of the coastal marine area and freshwater bodies, spawning and nursery areas and saltmarsh. (3) Outside the coastal environment and where clause (1) does not apply, avoid, remedy or mitigate adverse effects of subdivision, use and development so they are not significant on any of the following: (a) Areas of predominantly indigenous vegetation; (b) Habitats of indigenous species that are important for recreational, commercial, traditional or cultural purposes; (c) Indigenous ecosystems and habitats that are particularly vulnerable to modification, including wetlands, dunelands, northern wet heathlands, headwater streams, floodplains and margins of freshwater bodies, spawning and nursery areas. (4) For the purposes of clause (1), (2) and (3), when considering whether there are any adverse effects and/or any significant adverse effects: (a) Recognise that a minor or transitory effect may not be an*

	adverse effect; (b) Recognise that where the effects are or maybe irreversible, then they are likely to be more than minor; (c) Recognise that there may be more than minor cumulative effects from minor or transitory effects. (5) For the purpose of clause (3) if adverse effects cannot be reasonably avoided, remedied or mitigated then it maybe appropriate to consider the next steps in the mitigation hierarchy i.e. biodiversity offsetting followed by environmental biodiversity compensation, as methods to achieve Objective 3.4
RWSP	Objective 10.4.2 *The sustainable management of groundwater resources in conjunction with the sustainable management of surface water resources.*
	Policy 10.5.1 (Method 10.6.5) ***1. To ensure the sustainable use of groundwater resources, by avoiding groundwater takes that exceed recharge which result in any of the following:*** *(a) Saltwater intrusion or reduced groundwater quality; (b) A lowering of the groundwater table below existing efficient bore takes; (c) A lowering of the temperature of geothermal waters in geothermal aquifers and springs;* ***(d) Adverse effects on surface water resources in terms of Policy 10.05.07.***
	Policy 10.5.7 (Method 10.6.21 & 10.6.22) *To ensure the springflows to associated surface water bodies, and water levels in lakes and wetlands, which may be affected by groundwater takes, are sufficient to: (a) Maintain the life supporting capacity of the surface water resource; (b) Protect the natural character of the surface water body and the habitats of aquatic flora and fauna; (c) Maintain any associated or dependent values, such as amenity or recreational values; and (d) Protect the water supply of any existing authorised user of the surface water resource.*
PRP	Policy D.2.7 *Manage the adverse effects of activities requiring resource consent on indigenous biodiversity by: 1) recognising the following layers in I 'Maps' as showing areas of significant indigenous vegetation and habitats of indigenous fauna in the coastal marine area, in accordance with the assessment criteria of Appendix 5, Regional Policy Statement for Northland: a) Significant Ecological Areas, and b) Significant Bird Areas, and c) Significant Marine Mammal and Seabird Areas, and 2) recognising damage, disturbance or loss to the following as being adverse effects: a) connections between areas of indigenous biodiversity, and b) the life-supporting capacity of the area of indigenous biodiversity, and c) flora and fauna that are supported by the area of indigenous biodiversity, and d) natural processes or systems that contribute to the integrity of the area of indigenous biodiversity, and 3) assessing the potential adverse effects of the activity against the identified values of indigenous biodiversity, including by: a) taking a system-wide approach to large areas of indigenous biodiversity such as whole estuaries or widespread bird and marine mammal habitats, recognising that the scale of the effect of an activity is proportional to the size and sensitivity of the area of indigenous biodiversity, and b) recognising that discrete, localised or otherwise minor effects not impacting on the ecological area may be acceptable, and c) recognising that activities with transitory effects may be acceptable, where they can demonstrate the effects are not long-term and/or irreversible, and 4) recognising that methods of avoiding, remedying or mitigating adverse effects may include: a) careful design, scale and location proposed in relation to areas of indigenous biodiversity, and b) maintaining and enhancing*

	connections within and between areas of indigenous biodiversity, and c) considering effect minimisation during sensitive times such as indigenous freshwater fish spawning and migration periods, and d) providing adequate setbacks, screening or buffers where there is the likelihood of damage and disturbance to areas of indigenous biodiversity from adjacent use and development, and e) maintaining the continuity of natural processes and systems contributing to the integrity of ecological areas, and f) reversing previous damage or disturbance to areas of indigenous biodiversity, and g) improving the public use, value or understanding to areas of indigenous biodiversity, and h) the development of ecological management and restoration plans, and 5) recognising that biodiversity offsetting and environmental compensation (as defined in the Regional Policy Statement for Northland) may be appropriate after consideration of the methods in (4) above.
	Policy D.2.8 *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, or 2) the values ranked high in the: a) Significant Ecological Areas, and b) Significant Bird Areas, and c) Significant Marine Mammal and Seabird Areas, then the greatest extent of adverse effects reasonably predicted by science, must be given the most weight*
	Policy D.4.13 *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 and coastal water are safe-guarded, and 2) the natural hydrological variation of outstanding freshwater bodies and natural wetlands are not altered, and 3) rivers have sufficient flow variability to maintain habitat quality, including to flush rivers of deposited sediment and nuisance algae and macrophytes, and 4) flows and water levels support sustainable mahinga kai, and 5) saline intrusion in, and land subsidence above, aquifers is avoided, and 6) recreational and amenity values associated with fresh water are maintained.*
	Policy D.4.14 *Apply the following minimum flows for Northland's rivers, unless a lesser minimum flow is approved under D.4.19 'Exceptions to minimum flows or levels': 1) for outstanding rivers, 100% of the seven-day mean annual low flow, and* ***2) for coastal rivers, 90% of the seven-day mean annual low flow****, and 3) for small rivers, 80% of the seven-day mean annual low flow, and 4) for large rivers, 80% of the seven-day mean annual low flow.*
	Policy D.1.15 *Apply the following minimum levels for Northland's lakes and natural wetlands, unless a lesser minimum level is approved under D.4.19 'Exceptions to minimum flows or levels': 1) for deep lakes (greater than 10 metres in depth), median lake levels are not changed by more than 0.5 metres, and there is less than a 10 percent change in mean annual lake level fluctuation and patterns of lake level seasonality (relative summer versus winter levels) remain unchanged from the natural state, and 2) for shallow lakes (less than or equal to 10 metres in depth), median lake levels are not changed by more than 10 percent, and there is less than a 10 percent change in mean annual lake level fluctuation and patterns of lake level seasonality (relative summer versus winter) remain unchanged from the natural state, and* ***3) for natural wetlands, there is no change in their seasonal or annual range in water levels.***

	Policy D.1.16 *Allocation limits for rivers 1) The allocation limits in Clause 2 apply to: a) rules in this plan that permit any activity involving the taking and use of fresh water from rivers, and b) applications for water permits for the taking and use of fresh water from rivers, but do not apply to applications for water permits for the taking and use of fresh water under rules C.5.1.7 'Takes existing at the notification date of the plan - controlled activity' and C.5.1.9 'Takes existing at the notification date of this plan - discretionary activity'. 2) The quantities of fresh water that can be taken from rivers at flows below the median flow must not exceed whichever is the greater of: a) the default allocation limits in the following table, or b) the quantities authorised to be taken by: i) permitted rules in this plan, and ii) resource consents at the date of public notification of this plan less, with the exception of water permits for takes from rivers in the Mangere Catchment, any resource consents subsequently surrendered, lapsed, cancelled or not replaced, and iii) resource consents for unauthorised takes that existed at the notification date of this plan* *Table 11 Default allocation limits for rivers* River water quantity management unit / Default allocation limit Outstanding rivers / 10 percent of the seven-day mean annual low flow Coastal rivers / 30 percent of the seven-day mean annual low flow Small rivers / 40 percent of the seven-day mean annual low flow Large rivers / 50 percent of the seven-day mean annual low flow
	Policy D.4.8 *Conjunctive surface water and groundwater management Apply minimum flows, minimum levels and allocation limits set for rivers, lakes and natural wetlands to water takes from aquifers that are directly or highly connected. An application to take water from an aquifer with direct or high hydraulic connectivity to a fully allocated river or which would result in flows or levels to be reduced below a minimum flow or minimum level will generally not be granted. A resource consent may be granted under D.4.19 'Exceptions to minimum flows or levels'.*
MATTER - SOCIO-ECONOMIC BENEFITS	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NZCPS	Objective 6 *To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that: the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits; some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities; functionally some uses and developments can only be located on the coast or in the coastal marine area; the coastal environment contains renewable energy resources of significant value; the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities; the potential to protect, use, and develop natural and physical resources in the coastal marine area should*

	not be compromised by activities on land; the proportion of the coastal marine area under any formal protection is small and therefore management under the Act is an important means by which the natural resources of the coastal marine area can be protected; and historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use, and development.
NPSFM	Objective B5 *To enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing fresh water quantity, within limits.*
	Policy B8 *By every regional council considering, when giving effect to this national policy statement, how to enable communities to provide for their economic well-being, including productive economic opportunities, while managing within limits.*
RPS	Objective 3.5 *Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.*
	Objective 3.7 *Recognise and promote the benefits of regionally significant infrastructure, (a physical resource), which through its use of natural and physical resources can significantly enhance Northland's economic, cultural, environmental and social wellbeing.*
	Policy 4.1.1 (Method 4.1.2(2)(a) and (c), and (5); and Method 4.1.3(l)) *Collaboratively: (a) Identify the values of water in catchments and receiving estuaries and harbours; (b) Provide for these values by establishing catchment-specific objectives and set water quality limits and environmental flows and / or levels, and where necessary targets; and (c) Establish methods to avoid, and where necessary phase out, overallocation*
	Policy 5.2.3 (Method 5.2.5) *Promote the provision of infrastructure as a means to shape, stimulate and direct opportunities for growth and economic development.*
PRP	Policy D.2.2 *When considering resource consents, regard must be had to the social, cultural and economic benefits of the proposed activity.*
MATTER - CLIMATE CHANGE CONSIDERATIONS	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NPSFM	Policy B1 *By every regional council making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives in accordance with Policies CA1-CA4 and set environmental flows and/or levels for all freshwater management units in its region (except ponds and naturally ephemeral water bodies) to give effect to the objectives in this national policy statement, having regard to at least the following:* ***a) the reasonably foreseeable impacts of climate change;*** *b) the connection between water bodies; and c) the connections between freshwater bodies and coastal water.*
RPS	Policy 4.1.1 (Method 4.1.3(h))

	Collaboratively: (a) Identify the values of water in catchments and receiving estuaries and harbours; (b) Provide for these values by establishing catchment-specific objectives and set water quality limits and environmental flows and / or levels, and where necessary targets; and (c) Establish methods to avoid, and where necessary phase out, overallocation.
MATTER - ADAPTIVE MANAGEMENT (SCIENTIFIC UNCERTAINTY)	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NZCPS	*Objective 1* *To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by: maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature; protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna; and maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.*
	Objective 2 *To preserve the natural character of the coastal environment and protect natural features and landscape values through: recognising the characteristics and qualities that contribute to natural character, natural features and landscape values and their location and distribution; identifying those areas where various forms of subdivision, use, and development would be inappropriate and protecting them from such activities; and encouraging restoration of the coastal environment.*
	Policy 3 *1. Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse. 2. In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change, so that: a. avoidable social and economic loss and harm to communities does not occur; b. natural adjustments for coastal processes, natural defences, ecosystems, habitat and species are allowed to occur; and c. the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations.*
RPS	Policy 6.1.2 (Method 6.1.4(b), (d) and (e)) *Adopt a precautionary approach towards the effects of climate change and introducing genetically modified organisms to the environment where they are scientifically uncertain, unknown, or little understood, but potentially significantly adverse.*
RWSP	Policy 10.5.3 (Method 10.6.2 and 10.6.13) *To improve understanding of groundwater aquifer systems.*
PRP	Policy D.2.8 *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, or 2) the values ranked high in the: a) Significant Ecological Areas, and b) Significant Bird Areas, and c) Significant Marine Mammal and Seabird Areas, then the greatest extent of adverse effects reasonably predicted by science, must be given the most weight.
MATTER – MANAGEMENT OF GMCP	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
NZCPS	Policy 7 *1. In preparing regional policy statements, and plans: a. consider where, how and when to provide for future residential, rural residential, settlement, urban development and other activities in the coastal environment at a regional and district level; and b. identify areas of the coastal environment where particular activities and forms of subdivision, use, and development: i. are inappropriate; and ii. may be inappropriate without the consideration of effects through a resource consent application, notice of requirement for designation or Schedule 1 of the Resource Management Act process; and provide protection from inappropriate subdivision, use, and development in these areas through objectives, policies and rules. 2.* ***Identify in regional policy statements, and plans, coastal processes, resources or values that are under threat or at significant risk from adverse cumulative effects. Include provisions in plans to manage these effects. Where practicable, in plans, set thresholds (including zones, standards or targets), or specify acceptable limits to change, to assist in determining when activities causing adverse cumulative effects are to be avoided.***
NPSFM	Objective C1 *To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.*
	Policy C1 *By every regional council: a) recognising the interactions, ki uta ki tai (from the mountains to the sea) between fresh water, land, associated ecosystems and the coastal environment; and b) managing fresh water and land use and development in catchments in an integrated and sustainable way to avoid, remedy or mitigate adverse effects, including cumulative effects.*
	Policy C2 *By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of: a) land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure; and b) land and fresh water on coastal water.*
RPS	Objective 3.1 *Integrate the management of freshwater and the subdivision, use and development of land in catchments to enable catchment-specific objectives for fresh and associated coastal water to be met*
	Objective 3.5 *Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.*
	Objective 3.10 *Efficiently use and allocate common natural resources, with a particular focus on: (a) Situations where demand is greater than supply; (b) The use of freshwater and coastal water space; and (c) Maximising the security and*

	reliability of supply of common natural resources for users.
	Policy 4.1.1 (Method 4.1.2, 4.1.3, 4.4.4) *Collaboratively: (a) Identify the values of water in catchments and receiving estuaries and harbours; (b) Provide for these values by establishing catchment-specific objectives and set water quality limits and environmental flows and / or levels, and where necessary targets; and (c) Establish methods to avoid, and where necessary phase out, overallocation.*
RWSP	Objective 9.4 ***1. 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. 2. The sustainable management of Northland's surface water resource whilst avoiding, remedying or mitigating adverse environmental effects.*** *3. The efficient use of surface water*
	Policy 9.6.19 *To improve understanding of: (a) The minimum flows required to maintain instream processes and protect instream values. (b) The effect of water level changes on the biology, ecology and chemistry of lakes and wetlands. (c) Land use effects on river, lake and wetland hydrology*
	Objective 13.3.1 *Integrated catchment management to achieve the sustainable use of all resources and the minimisation of conflicts.*
	Policy 13.4.1 (Method 13.5.1 – 13.5.5) *Regional catchment management plans will be prepared for a specific catchment, where there is: (a) A significant conflict between the use, development or protection of natural and physical resources, or the avoidance or mitigation of such conflict; (b) A use of land or water that has, or is likely to have, actual or potential adverse effects on soil conservation, air quality or water quality; (c) A significant concern of tangata whenua for their cultural well being in relation to the natural and physical resources within the catchment; (d) Significant potential benefits from the restoration or enhancement of any natural and physical resources which are in a deteriorated state.*
	Policy 13.4.3 (Method 13.5.7) *To promote integrated catchment management in absence of 'catchment specific' regional plan.*
MATTER – RESTRICTIONS ON TAKING	
Planning Document	**Directly Relevant Objectives, Policies, Assessment Criteria, Methods (other than Rules)**
RWSP	Policy 9.5.16 *Where surface water flows and/or levels in rivers, lakes and indigenous wetlands are insufficient to meet the requirements of existing lawful users taking into account instream values, to apportion, restrict or suspend water use, including discharges to water, through a Water Shortage Direction.*
	Policy 9.5.17 *When implementing the Water Shortage Direction, to give priority to the following uses (in order of priority from highest to lowest): (a) Water for the maintenance of public health. (b) Water necessary for the maintenance of animal health. (c) Prevention of long-term or irreversible damage to the water resource and related ecosystems. (d) Horticultural irrigation, industrial and other farming and commercial uses for which continued water use is essential for the continued operation of their primary business. (e) Pasture, lawn and domestic garden irrigation. (f) Swimming pools, vehicle washing and uses not essential for continued commercial operation.*

	Method 10.6.11 for Policy 10.5.1 *Include rules which control the take of groundwater from aquifers at risk.*
	Method 10.6.20 for Policy 10.5.6 *Where monitoring shows the resource is declining in quantity and quality, the Council will undertake a management plan for the resource.*
	Method 10.6.21 for Policy 7 *Include rules which control the taking of groundwater where that activity is likely to adversely affect the springflows to an associated surface water body, or water levels in any lake or wetland.*
PRP	Policy D.4.14 *Apply the following minimum flows for Northland's rivers, unless a lesser minimum flow is approved under D.4.19 'Exceptions to minimum flows or levels': 1) for outstanding rivers, 100% of the seven-day mean annual low flow, and* ***2) for coastal rivers, 90% of the seven-day mean annual low flow,*** *and 3) for small rivers, 80% of the seven-day mean annual low flow, and 4) for large rivers, 80% of the seven-day mean annual low flow.*
	Policy D.4.15 *Apply the following minimum levels for Northland's lakes and natural wetlands, unless a lesser minimum level is approved under D.4.19 'Exceptions to minimum flows or levels': 1) for deep lakes (greater than 10 metres in depth), median lake levels are not changed by more than 0.5 metres, and there is less than a 10 percent change in mean annual lake level fluctuation and patterns of lake level seasonality (relative summer versus winter levels) remain unchanged from the natural state, and 2) for shallow lakes (less than or equal to 10 metres in depth), median lake levels are not changed by more than 10 percent, and there is less than a 10 percent change in mean annual lake level fluctuation and patterns of lake level seasonality (relative summer versus winter) remain unchanged from the natural state, and* ***3) for natural wetlands, there is no change in their seasonal or annual range in water levels****.*