

IN THE ENVIRONMENT COURT
AT AUCKLAND

I TE KŌTI TAIAO O AOTEAROA
KI TĀMAKI MAKĀURAU

Decision [2024] NZEnvC 016

IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF an application for Water Take consents
from the Te Aupōuri Aquifer

BETWEEN DIRECTOR-GENERAL OF
CONSERVATION

(ENV-2021-AKL-129)

Appellant

AND

NORTHLAND REGIONAL
COUNCIL

Respondent

Court: Judge J A Smith
Commissioner R M Dunlop
Commissioner S K Prime

Hearing: 11 – 12 December 2023

Last case event: 12 December 2023

Appearances: L M Sutherland for the Director-General of Conservation
(**DOC**)
R Ashton and A Green for Aupōuri Aquifer Water User Group
(**Water User Group** or **AAWUG**)
H Andrews for **Te Make** Farms Limited and **Te Rarawa**
Farming Limited
M Wikaira for Te Aupōuri Commercial Development Limited
(**TACDL**)
G Mathias and C Sharp for Northland Regional Council
(**Regional Council**)
P Anderson for Royal Forest and Bird Protection Society of New
Zealand Incorporated (**Forest and Bird**)
E Wagener and W Thomas for Far North Aquifer Protection
Group Incorporated (**Protection Group**)



Aupōuri Aquifer: Director-General of Conservation v Northland Regional Council

Date of Decision: 16 February 2024

Date of Issue: 16 February 2024

SECOND INTERIM DECISION OF THE ENVIRONMENT COURT

- A: The Court decides particular issues as set out in this decision and directs parties to confer to produce a final set of conditions to the Court by joint memorandum (if possible) by 29 March 2024.
- B: To the extent drafting cannot be agreed or wording for mātauranga members, memoranda for each party setting out their preferred wording and brief reasons (two paragraphs) are to be filed by 29 March 2024. The Court will decide any differences on the papers.
- C: Costs are reserved but applications are not encouraged. Any application/s for costs are to be filed by 19 April 2024, any replies by 3 May 2024, and final reply (if any) by 10 May 2024.

REASONS

Introduction

[1] By interim decision of 7 July 2022,¹ this Court concluded that with appropriate conditions consents could be granted for water takes for the Users Group, Te Make and Te Rarawa Farms and for Te Aupōuri Commercial Development Limited.

[2] The Court noted in its interim decision:

B: Subject to further submissions from the parties, we can see no fundamental concern in dealing with each of the North, Middle and South-western sections of the Aquifer separately, provided that condition wording has sufficient commonality to provide clarity and enforceability by the Council.

¹ [2022] NZEnvC 170.

[3] Directions were made for the parties to have further discussions to see if they could settle terms of consent. The original date given for reporting to the Court was 28 October 2022. This date was extended at the request of the parties on a number of occasions for around a year. In the end, the parties reported that they had narrowed issues in respect of the Northern and Middle aquifers but that there were still a number of relatively substantial issues in respect of the South-western aquifer.

Subsequent progress

[4] The Court issued a minute on 1 November 2023 summarising the position and identifying 15 issues that needed to be addressed for final conditions to be resolved. This was to be addressed at a further hearing on these issues by way of submission.

[5] A two-day hearing commenced on 11 December 2023 at which the 15 issues were addressed. Although there are only three separate issues for the Northern and Middle groups, there is some interconnection with other conditions sought for the South-western group and thus issues of commonality. In addition, this led to questions as to whether or not a number of the outcomes sought for the South-western group were within scope, listed as Issue 15.

[6] Before moving to consider the various issues, we undertake a general discussion about scope matters and then move to consider the overall issues, before reaching conclusions on scope as it relates to each issue. We conclude that some issues can be grouped together but are generally those issues set out in **Appendix A** attached.

General scope

[7] The scope issues did not arise in respect of all 15 issues as annexed hereto in **Appendix A**. The scope issues that were addressed, in particular by Forest and Bird and other parties, related to Issues 5, 7, 8 and 14 (and expressed collectively in Issue 15). These all relate to aspects of the South-western consents.

[8] These were summarised as:

5 The inclusion of provisions requiring the Te Make and Te Rarawa consents

to be subject to a review by an Independent Water Effects Review Panel (IWRP) and an Irrigation Efficiency Review Panel (IERP), rather than reviewed by appropriate experts (including those with sufficient mātauranga Maori, hydrological and ecological expertise) chosen by Te Make and Te Rarawa.

[9] Annexed hereto as **Appendix B** are the conditions sought by Te Make and Te Rarawa. It can be seen that the conditions relating to the Independent Water Effects Review Panel (**IWRP**) and the Irrigation Efficiency Review Panel (**IERP**) have been deleted. These are currently master conditions 10MC.

[10] Related matters are covered in the Te Make and Te Rarawa proposal in Paragraphs 19MC through to 23MC in terms of the following propositions:

- (a) That there is no water user group (12MC to 15MC had been deleted) and there is no Independent Water Effects Review Panel but rather a qualified hydrologist and/or an ecologist to review the annual environmental monitoring report;
- (b) The issue raised in 7 is the extent to which Te Make and Te Rarawa should have flexibility to operate either separately or jointly with Elbury Holdings Limited being the only other applicant in the South-western group. This appears to relate in particular to conditions which are deleted by the applicant relating to Water User Group Conditions 12MC to 15MC;
- (c) In relation to Issue 8, there was a proposition that the Annual Environmental Monitoring Report for Te Make and Te Rarawa only be available publicly if Te Make and Te Rarawa agree or the Regional Council had a statutory obligation to release it. It appeared that the Te Make and Te Rarawa Farms accepted that the Report could be released to DOC;
- (d) At the end of the Te Make and Te Rarawa proposed consent conditions, 41MC and 42MC have been included. Proposed condition 41MC provides that the consent holder may engage the same hydrological and/or ecological experts as those appointed to the Independent Water Effects Review Panel for the Northern and Middle groups;

- (e) Proposed 42MC provides that, in complying with these conditions (for example preparing a Groundwater Monitoring Plan) the consent holders in the South-western group may act either individually or join together with any other consent holders within the group;
- (f) As far as we can ascertain, these conditions are encapsulated and summarised in Issues 5, 7 and 8; and
- (g) Issue 14 relates to the timing and volumes that should apply to the various stages of the Te Make and Te Rarawa consent(s). In hearing discussions, it transpired that the Stage 1 limit of approximately 800,000 m³ is of particular concern. Te Make and Te Rarawa propose a Stage 1 take volume of 2,317,000m³ per annum increasing to a Stage 4 take of 3,093,000m³ per annum.

[11] On examination, and in discussion of Issue 14 with counsel for Te Make and Te Rarawa Farms, it appears that the Commissioners in their decision determined that Stage 1 of the consent was only a proportion of the previous consented volume (less than a third of the applicants' consent that was subject to the replacement application). This appears to have been based upon a view at the time of the first instance hearing, that the applicants were taking less than 800,000 of their presently consented 2.3 million cubic metres per annum.

[12] Since the time of the first instance hearing, however, the applicants' usage has continued to increase. We were told it is currently in the order of 1.6 million cubic metres per annum, based upon the continued exercise of the existing consent under s 124 RMA.

[13] The issue therefore became two-fold. Should Stage 1 of Te Make and Te Rarawa Farms have been the approximately 2.3 million cubic metres previously consented (or some other figure) and if so:

- (a) do we have jurisdiction to address that; or
- (b) do we have jurisdiction to address a different staging regime?

We address this issue later in this decision.

Are the consent conditions requiring TACDL, Te Make and Te Rarawa to be in a sub-aquifer group able to be modified on appeal?

[14] Only the Director-General of Conservation appealed the decision of the Council. The Council decision granted the consents largely on terms more favourable to the applicants than those sought by the Director-General.

[15] One issue which arose during the hearing is TACDL being forced to be involved in the Northern group against its wishes. It transpired at the reconvened hearing that Te Make and Te Rarawa had similar complaints. Thus, while both parties had been part of the original Group at the Council level, both parties sought to distinguish their interests in this Court.

[16] TACDL submitted that as its application was complete prior to the other parties in the Group it should have priority to its application.

[17] Te Make and Te Rarawa argued that there are only two members of the South-western group. Elbury Holdings has less than 10 percent of the volumes of Te Make and Te Rarawa and the requirement for a Group approach was said to be onerous and unnecessary.

The Court's jurisdiction on appeals

[18] Several parties put the proposition to this Court that on hearing an appeal, the Court has a discretion to impose conditions between those in the consent granted by the local authority and those sought by the appellant. While we have no difficulty with this as a general statement of the jurisdiction of this Court on appeal, this in part turns on whether the appeal is an appeal against conditions or against the entire consent.

[19] In this case the appellant, DOC, sought in the alternative the refusal of the consent(s). We conclude that this is an appeal against the whole of the consent. It empowered the Court to refuse the consent(s).

[20] In such cases, the question of how far the Court can go to restructure the consents (if granted), frequently arises. Many of the propositions put to the Court in consent orders involve elements that are not strictly within the application or appeal but seek to restructure the consent in a better or acceptable way to the parties and often to the environment.

[21] Section 290 of the Resource Management Act makes it clear that the Court stands in the shoes of the original consent authority which clearly had a wide ability to impose relevant conditions under the Resource Management Act. That scope under s 290 is subject to an appellant reducing the scope of the appeal generally or the parties agreeing to reduce scope.

[22] In this case however, the applicants TACDL, Te Make and Te Rarawa Farms (**the Tangata Whenua Applicants**) have not narrowed their applications before the Court and essentially argued that at the hearing of the DOC appeal the Court has a wide discretion to impose appropriate conditions.

[23] The Court addressed in its interim decision the potential for mātauranga principles to be incorporated in the consents for the Tangata Whenua Applicants. The Court signalled that it considered that such an approach may be acceptable with appropriate conditions. This is a situation where an outcome required under the RMA and relevant plans could be met by more than one method.

[24] The Tangata Whenua Applicants have acquired their interest by virtue of Treaty of Waitangi settlements. Te Make and Te Rarawa do raise an issue in this case relating to whether the Council's decision to impose a Stage 1 limit of one third of their pre-existing consent, (for which they sought replacement), was appropriate. This would lose them a priority interest, for their pre-existing consent above the 800,000m³ volume, against any other applicant who may seek a take consent before Te Make/Te Rarawa had reached their subsequent Stages 2, 3 and 4 abstraction levels; when any future application was granted.

[25] We have real concerns about removing priority rights to water use utilised under previous consents and protected under s124. The previous consent volume would

have priority if the water was fully allocated. However, in the sub-aquifers (Sweetwater and Ahipara) relevant to South-western Group applicants, there could be further allocations (to full Regional Plan allocation limits) which could then prejudice Te Make and Te Rarawa because they were not granted priority to the volume actually used.

[26] The Commissioners' 21 August 2021 decision records the Sweetwater sub-aquifer as being 99% allocated relative to pRPN limits but this figure may include double counting. The Ahipara sub-aquifer was described as being 73% allocated. Subject to the actual extent of Sweetwater abstraction double counting, such potential appears to exist primarily in the Ahipara sub-aquifer.

[27] In this case, utilisation of the Elbury Holding's Stage 4 consent of around 200,000 cubic metres and that for Te Make and Te Rarawa Farms would amount to some 3.3Mm³ at full (Stage 4) allocation.

[28] We accept that the Commissioners were intending to protect the volumes to the full extent of its utilisation at the date of the Council hearing. However, since that time s 124 RMA has protected the takes increases within consented levels given the appeal.

[29] Thus, as noted earlier, Te Make and Te Rarawa now utilise around 1.6Mm³ per annum. We accept that this is a significant increase in the extraction from the aquifer. However, the previous maximum extraction volume of 2.3Mm³ was permitted for a considerable period and it is within the Northland Regional Plan allocation limit for the subzone. The question needs to be decided whether we can vary the Stage 1 limits within the scope of the appeal.

Balance of appeal issues

[30] The other issues raised by Te Make and Te Rarawa were not in dispute as far as the scope to adopt such changes, and the questions then turned on their relative merits.

[31] For TACDL, it would broadly be fair to describe their submission as seeking to adopt the proposed conditions supported by the Water User Group and the Regional Council. Particular concerns arose relating to the powers to nominate members of the review committees with TACDL saying that it has an interest in the Middle Group. It also acknowledges the role of Ngāti Rūnanga O Ngāi Takoto.

[32] For its part, Te Make and Te Rarawa say that only members of Rūnanga O Ngāi Takoto and Te Runanga o Te Rarawa should have the power to appoint for the South-western Group. We find the South-western provisions proposed uncertain because Ms Andrews submissions state “Te Rarawa and Te Make do not consider that the South-western Group should be subject to oversight by a Panel in the same manner as the Northern and Middle Groups ... Thus, the issue regarding Condition 3MC does not arise in respect of the conditions for that Group.” The Court was somewhat confused by the submissions but in the end understands that the issue that is concerning TACDL is Te Rarawa and Ngāi Takoto potentially seeking to exclude a Te Rūnanga Nui O Te Aupōuri appointment to the Middle Group review panel.

[33] The role of Te Rarawa in the Middle panel was not clear and it may be that Ms Andrews, who is acting for both Te Make and Te Rarawa, was meaning the Ngāi Takoto interest in the Middle area rather than including Te Rarawa in addition. Although it seems to us that the three bodies could work to select a single representative, we acknowledge that there seem to be some sensitivities in the area.

[34] Now we address each issue in turn and discuss our conclusion on the scope in relation to each matter.

Issue 1: Should TL1B apply throughout shallow water hydrograph

Issue 9: Resumption of water takes after prior breach of trigger levels

Issue 12: Wording for application of TL1B trigger level methodology

[35] DOC and others submit TL1B should apply throughout the shallow water hydrograph rather than only when the shallow groundwater recedes below historical median levels. Issue 12 relates to different wording for the trigger in the South-

western group. Also, for the South-western group Te Make and Te Rarawa seek different wording for resumption of takes where trigger levels are breached.

[36] Doubt was expressed as to any utility of condition TL1B by the Water User Group, and also to a lesser extent by the Council. For our part, we see TL1B as giving the potential for an early warning. Whilst we accept that there is a rapid drop as water extraction commences at the beginning of summer, rains fall through the summer season and generally the drop does not continue below historical median levels. Of course, with climate change, the historical hydrograph may change and this may also alter over a longer period the historical median levels.

[37] We acknowledge the concerns of DOC and others in this case but also recognise that seasonal trends of rapid drops are common in Northland, given the high evapotranspiration rates and hot summers. Nevertheless, we also acknowledge the evidence demonstrating that there are frequent rainfall events through the summer period and such rapid drops in the hydrograph are often reversed quite quickly with heavy rainfall.

[38] During the period of this hearing, the hydrograph had dropped to alarmingly low levels on a historical basis due to a long-term drought. Between the time of the delivery of our interim decision in 2022 and the recommencement of the hearing in 2023, there have been a series of significant rainfall events which significantly reversed the trend. The exact levels on the hydrograph were not given to us but we understand that they were at higher levels.

[39] After some consideration we conclude that the application of TL1B should be limited to below the median. We conclude that the application of the trigger above the median would not be a proportionate response to the likely risk of adverse effects on the natural environment, and the economic cost of regulation. In particular, we recognise that it is likely that the hydrograph will drop relatively quickly during summer periods, but this is not necessarily indicative of a long term adverse effect.

[40] The Court therefore concludes that it prefers the proposed approach of the Regional Council, AAWUG and TACDL for the wording for Schedule 1(c) TL1B

trigger level methodology to that sought by DOC. The Court also prefers the Council, AAWUG and TACDL proposed wording for Condition 46MC(d) subject to the inclusion of an amended groundwater monitoring plan condition 22MC(c) covering median groundwater level for shallow groundwater for TL1B, in the master conditions sets.

[41] We also note that Te Make and Te Rarawa abide the decision of the Court on Issues 9 and 12. Overall, we conclude that the wording proposed by the Water User Group and supported by the Regional Council on Issues 1, 9 and 12 are appropriate.

[42] Issue 9 concerns Council preferring revised wording from both DOC and Te Make and Te Rarawa for the resumption of water takes, where such have been reduced due to a prior breach of trigger levels. Issue 12 addresses the wording for the application of the TL1B trigger level methodology. We conclude the wording proposed by NRC and the Water User Group more properly reflects our conclusions on Issues 1 and 9. We conclude the NRC/Water User Group wording should be adopted.

Issue 2: Which iwi should nominate the mātauranga Māori expert for the Independent Water Effects Review Panels (IWRP)?

Issue 5: Remove provisions requiring IWRP and IERP for the South-western Group and require review by experts chosen by Te Make and Te Rarawa (including those with mātauranga Māori, hydrological and ecological expertise) [reworded]

[43] It was our fervent desire that these issues were resolved between tangata whenua. There are three parties before the Court and we understand there is, depending on the approach taken, potentially at least, Ngāti Kuri as well who may have an interest in the Middle Group area but were not represented in the Water User Group or hearing.²

[44] In practical terms, the Water User Group essentially suggested that there be one representative for each sub-catchment group but three for any effects that apply

² Neither TACDL nor Te Make and Te Rarawa supported an approach that would lead to Ngāti Kuri representation, see Transcript, at pp 63 and 74.

to all three catchments. We can see no difficulties in principle with three representatives, one from Te Aupōuri, one from Ngāi Takoto and one for Te Rarawa, with relevant tangata whenua electing one member each, but the question is then in which of the three sub-catchments they would sit.

[45] We understand that for the Northern and Middle groups it is agreed there will be one representative for Ngāi Takoto and one for Te Aupōuri.

[46] On Issue 2, the Regional Council abides the Court's decision for the South-western Group. As the Council states, it is "somewhat incongruous" for Te Make and Te Rarawa to oppose the South-western group IWRP but seek to influence mātauranga Māori representative appointments to both the Northern and the Middle Groups.

[47] TACDL prefers the same wording for all three management areas, namely one person jointly nominated by Te Rūnanga Nui O Te Aupōuri, Te Rūnanga o Ngāi Takoto and Te Rūnanga o Te Rawara who is an expert in mātauranga Māori. TACDL expressly note that Te Aupouri has iwi interests in all three management areas. Te Make and Te Rarawa preferred wording is for the composition of the Northern and Middle IWRPs.

[48] In her submissions, Ms Andrews for Te Make and Te Rarawa proposed that for the Northern Group, there would be one person nominated by Te Rūnanga Nui o Te Aupōuri who is an expert in mātauranga Māori, and that where effects cross a sub-catchment boundary that the expert nominated by Ngāi Takoto as a representative to the Middle Group and/or an expert nominated jointly by Ngāi Takoto and Te Rawara for the South-western Group should join the panel.

[49] Te Make and Te Rawara propose for the Middle Group, that one person be nominated by Te Rūnanga o Ngāi Takoto who is an expert on mātauranga Māori and where cross sub-catchment effects arise there be a Te Aupōuri expert for the Northern Group and/or an expert nominated jointly by Ngāi Takoto and Te Rawara for the South-western Group.

[50] Te Make and Te Rawara propose no similar provisions for the South-western Group. The issue appears to devolve to one where Te Make and Te Rarawa serve a role in both the Northern and Middle Groups but do not recognise the interest of Te Aupōuri particularly in the Middle Group except where there are observed effects outside the Middle Group and within Northern Group boundaries.

[51] We are strongly of the view that all three areas would be assisted by having review groups that involve explicit consideration of mātauranga Māori although we recognise that Te Make and Te Rarawa seek:

- No third-party approval of Te Make and Te Rarawa plans or reports be required prior to submission for Regional Council certification and that the certified plans be complied with.
- Plans may be amended in accordance with Regional Council comments and resubmitted for certification.
- The plans or reports requiring Regional Council certification in the amended conditions sought by Te Make and Te Rawara are a Groundwater Monitoring Plan (7 and 9MC), the Wetland Inventory Report (11MC), Wetland Monitoring Plan (14 and 15(b)MC) and an Annual Environmental Monitoring Report (17MC). There are also a Staged Implementation and Monitoring Programme Review at 24MC and Groundwater Trigger Exceedance Report at 34 and 36MC.
- Condition 6MC requires that suitably qualified person(s) (**SQP**) certify monitoring equipment has been installed in accordance with consent conditions. In the Court's experience this term is best expressed as a 'suitably qualified and experienced person'. Both attributes are typically required for competency. Condition 11MC requires the Wetland Inventory Report to be prepared by an SQP (wetland ecologist, with the assistance of a hydrologist). Condition 14MC requires the Wetland Monitoring Plan be prepared by a SQP (wetland ecologist) but we see no requirement for the related monitoring

programme to be implemented by a SQP.

- Condition 19MC requires a Te Make and Te Rarawa Annual Environmental Monitoring Report be reviewed by an appropriately qualified hydrologist and/or ecologist for their independent assessment and recommendations on matters covered by the Annual Environmental Monitoring Report.
- Condition 24MC requires a Staged Implementation Monitoring Programme Review to be prepared by an appropriately qualified expert (or experts). Condition 35(d)MC simply requires that experts be engaged to prepare a Groundwater Trigger Exceedance Report.

[52] Issues 2 and 5 are interrelated and effectively argue for a different approach for the South-western area. This is predicated on Te Make and Te Rarawa being the predominant takes within the South-western sub-aquifers. Although there is still a possibility of further takes being applied for, clearly these two takes would remain predominant. This is subject only to the comment we make earlier that, if other parties were able to get priority for further amounts of water beyond the Stage 1 800,000 m³ allowed for in the Council decision, then this may result in Te Make and Te Rarawa's predominance within the takes being somewhat reduced.

[53] After considerable consideration, we conclude that the differences described are not significant enough to fundamentally change the appropriate approach for the entire Aquifer.

[54] At this stage, we are not satisfied that the sub-aquifers are separate. Although we are prepared to deal with them on a sub-aquifer basis, this is for the purposes of administrative convenience rather than on any acceptance of assumption that they are entirely unrelated.

[55] We conclude that there should be an IWRP and IERP for each group and that their function and method for appointing members be as uniformed as possible across all groups. Assuming that there were to be an IWRP and IERP panel for each group, it is appropriate for the group consent holders, that preferred methods for making

mātauranga appointments be respected and confirmed. On this basis we have concluded that the changes sought by Te Make and Te Rarawa to Issue 5 should not take place.

[56] Beyond this, however, the constitution of the panels particularly as to the mātauranga member(s) is a matter on which we are reluctant to make any direction unless there is no other possibility. Ms Andrews in her submissions suggested that if the Court considered it lacked jurisdiction to determine IWRP mātauranga representation that the matter should be referred to the appropriate forum for determination and the Court not simply accept the alternative formulation of other parties.

[57] We have concluded that the parties should try and resolve this matter by agreement. On this basis, we are not prepared to finally approve the wording of the representatives. We prefer to give a further opportunity for the parties to reach an amicable resolution on this issue. However, finality is essential to operate the consents and we therefore require the parties to provide a report to the Court no later than **Friday, 29 March 2024** as to any final wording for the mātauranga representation. If there is no agreement, then we require any final submission on our tentative conclusion with wording sought by 29 March 2024. The Court will issue a final decision on remaining issues including mātauranga representation if necessary.

[58] We suggest the parties try and resolve this matter by agreement but failing that we tentatively conclude that the Northern and Middle Groups should have two members; one from Ngāi Takoto and one from Te Aupōuri. The South-western Group should have one member chosen by both Ngāi Takoto and Te Rarawa. The person representing Ngāi Takoto/Te Rarawa would have to be common to both Middle and South-western groups and the two Te Aupōuri members for Northern and Middle would need to be common to those two. We prefer that a resolution in accordance with tikanga is reached.

Issue 3: Kaimaumau Wetland (South) monitoring well

[59] The continued monitoring of this well is sought by the Department of

Conservation and other parties, such as Forest and Bird, support it. It is opposed by the Water User Group and the Council.

[60] The Water User Group supported by Council consider this well is not connected to the aquifer subject to abstraction. There is a technical dispute as to whether that assertion is proven.

[61] Mr Ashton for the AAWUG relied on the evidence of Mr Hughes and Mr Williamson to submit that there was a high degree of certainty the southern portion of Kaimaumu wetland is perched above the Aupōuri shallow aquifer and not hydrologically connected. He then opines that such surface water in this area is not susceptible to effects associated with pumping induced change to shallow groundwater levels.

[62] AAWUG therefore seek deletion from the Middle Group MC Schedule 1 Table 1 of the Kaimaumu Wetland (South), that requires continuous monitoring of standing water level in the Kaimaumu wetland. The Regional Council agrees with AAWUG and considers that the condition imposes unnecessary, extra consent holder costs.

[63] Ms Sutherland for DOC disagrees with the AAWUG position and says that it is not established clearly that the stresses of additional pumping under the MMWUG consent takes have proven that the aquifers are not connected. Mr Wagener for the Far North Protection Group agrees and notes the difficulty of the public in assessing the effects of takes on public resources and the critical importance of the groundwater resource to the area's social and economic wellbeing.

[64] There have been several changes which have occurred since the MWWUG consent took effect, including a major fire within the wetland and also some issues relating to the water level history.

[65] We have concluded that on a precautionary basis, the Kaimaumu Wetland (South) groundwater well should be monitored until such time it is removed on application for variation of the consent on the basis of sufficient monitoring time

(minimum three years), to demonstrate a lack of physical connection.

[66] This could be done through 30MC Annual Environmental Monitoring Reports, noting that 36(b)MC may allow the reducing of extensive monitoring through a change in consent conditions. In our view, this would be consistent with the approach in our first decision.

Issue 4: Whether conditions adequately provide for the potential outputs of the Te Hiku study

[67] This study appears to have been part of the Provincial Growth proposals for the Far North and is intended to try to establish more positively, amongst other things, the connections between the sub-aquifers and surface waters.

[68] To that extent, we agree that when reported it may contain information that may be very important for understanding extraction and groundwater issues for this area. This includes whether there are flows from the north to the middle area and from the south to the middle area and at what level, if any, there is a cross flow from east to west.

[69] We agree that both the master condition(s) relating to review, and the individual consent conditions should be strengthened to specifically require consideration of the outcomes of the Te Hiku study and recommendations to be made as a result. Clearly those recommendations could include that there are no further actions required, but it should require explicit consideration by review panels as well as in the annual reports.

[70] It is clear that s 128 RMA gives the Council general review powers. There is some concern by the Far North Protection Group and others as to the willingness of the Council to undertake such reviews depending on the outcome of the Te Hiku Study.

[71] Mr Ryan, in a memorandum filed for the Protection Group, proposed a modified condition requiring review reports to address any new or additional information relevant to the management of the Aquifer including from the Te Hiku

Study. We have reviewed Condition 30 in the individual consents. We have concluded that the appropriate course of action in this case is the amendment of Condition 30 by adding a (b)(iv) that reads “**to address any new or additional information relevant to the management of the Aquifer including from the Te Hiku Study**”.

Issues 6: Whether Te Make and Te Rarawa’s consents should be future proofed so that future applicants can be added as DOC seeks

Issue 7: The extent to which Te Make and Te Rarawa have flexibility to operate separately or jointly with Elbury Holdings (the other consent holder in the South-western sub-aquifer)

[72] We will further discuss this issue as part of the jurisdictional matters at the end of this decision, particularly in relation to Issue 5. There is also an issue as to the volumes in relation to the consents for Te Make and Te Rarawa that we deal with at the end of the decision.

[73] We agree that Condition 15MC, as currently worded, gives the impression that the Group is responsible for costs associated with the implementation of individual consents.

[74] There appears to be a consensus that the wording of this needs to be changed but the final wording has not been provided to us to date. Subject to us approving that final wording, it appears to us that this issue can be resolved by examining the ability to protect previous consent volumes for Te Make and Te Rarawa and also by having largely common wording between the sub-aquifers.

Issue 8: Should Annual Environmental Monitoring Reports for Te Make and Te Rarawa not be made publicly available unless agreed to by Te Make and Te Rarawa or unless the Regional Council has a statutory obligation to release them

[75] The Court as a general principle would see the use of public resources as requiring transparency in their use. Accordingly, we take the view that information on the take of such public resources should not be withheld.

[76] It seems we are supported by the following:

- (a) the Local Government Official Information and Meetings Act 1987 requires the Council on request to release it as being in the public interest in any event;
- (b) we have real concerns as to the legality of imposing a condition on third parties, (such as DOC), that they are not to disclose information of public relevance to other parties; and
- (c) a concern about lack of transparency leading to potential breaches of the Act, which remain undetected.

[77] Te Make and Te Rarawa are particularly concerned about commercial advantage being sought by other parties in relation to the information. We have concluded that this information is of doubtful commercial value. It would be common to other people operating in this area and with consents throughout New Zealand. The data is unlikely to give precise information as to the date of abstraction(s) and calculations as to commercial yield etc.

[78] Ms Andrews', in answers to questions from the Court, clarified that the primary matter of concern is that live take telemetry data not be provided. On the Court's reading the 22MC Annual Environmental Monitoring Report (**AEMR**) at the centre of this issue is required to report data for the previous irrigation season and is not concerned with live data (17MC). Responding to Court directions, Ms Andrews filed amended wording for Te Make and Te Rarawa's preferred 22MC that would preclude instantaneous take rate data from production bores contained in an AEMR being made public unless first agreed by the consent holder, or the Council had a legal/statutory duty to do so. "Daily, cumulative seasonal or annual take volumes" are not at issue.

[79] Ms Andrews advised that the Water User Group, DOC and TACDL continued to abide the Court's decision on the subject with the latter indicating that, if the Court were minded to adopt Te Make and Te Rarawa's wording, it should also be included in TACDL's consent. The Council was said to prefer 22MC wording agreed earlier

with Te Make and Te Rarawa. Although agreed between the Council and Te Make and Te Rarawa we understand the wording would apply to all consent holders.

[80] Forest and Bird, with the Protection Group agreeing, did not support Te Make and Te Rarawa's latest wording for reasons submitted earlier but "may not oppose a provision of [the type concerned] if it was to protect truly commercial sensitive information".

[81] Noting that the instantaneous take data of concern to Te Make and Te Rarawa is to be provided in an annual report after the takes occur, and in some instances this will be well after the event, the Court remains of the view that it is more likely than not to be of little commercial value.

[82] We are also mindful that this is not a matter raised by Te Make and Te Rarawa on appeal; that data on the use of a public resource should be in the public domain as a matter of principle; that the Council would most likely be required to release the subject information on request; and there is no evident reason to take a different approach for different consent holders. For these reasons we direct 22MC read as expressed and supported by the Council in its 8 December 2023 submissions.

Issue 10: Elbury Holdings to have priority over Te Make and Te Rarawa to proceed to the next stage of abstraction and/or increase take levels again following the imposition of restrictions in accordance with the consents conditions

[83] For the Aupōuri Aquifer Water User Group, Mr Ashton put the case for Elbury having priority over Te Make and Te Rarawa in the circumstances to be consistent with the TACDL priority conditions. This was not accepted by Ms Andrews.

[84] Both Te Make and Te Rarawa and Elbury are in the Sweetwater NRP Management sub-area (the South-western sub-aquifer). These current applications, if consented and fully utilised, would come to just under 3.3 M m³. Together the two consents would be some 75% of the total available volume of 4.6 M m³ per year in the Sweetwater sub-aquifer management unit (NRP Table 32).

[85] It appears that the Kaitaia urban water supply (in all or part) comes from this source, although its volume was not given in these proceedings and may be extra to that provided for the catchment. We acknowledge that, given there are droughts within the area, it is likely in the future that there would be a need to coordinate management of the consents in the sub-area. We are concerned that if Elbury were accorded priority of moving to the next stage and taking ahead of Te Make and Te Rarawa, this would conflict with the existing consent holders' priority under s 124A RMA.

[86] We conclude there is an artificiality to utilising a take at a particular point in time as the allocation even though the consent provides for a significantly greater take than that provided for.

Issue 11: Inclusion of a condition that consent holders must hold copies of the latest version of certified management plans as sought by the Far North Aquifer Protection Group

[87] There is a strong logic to this being an explicit condition in consents, and FNAPG sought a condition to all individual consents under administration as follows:

[x] The consent holder shall keep on-site a copy of the conditions of this consent, and the conditions of the Master Consent, which shall be accessible to all personnel involved in exercising the consents.

[88] The conditions are complex and require a clear understanding of their intent and effect not only by the consent holder but by staff utilising the consent to operate the water takes.

[89] The Court concurs that this an appropriate condition and note it was not challenged by the parties. We find accordingly.

Issue 13: How conditions would ensure Te Make and Te Rarawa would not become liable for any cost relating to the monitoring or supervising of any consent to take water from the Aupōuri Aquifer other than their own

[90] The Court understands that Ms Andrews seeks to substitute wording for individual consent Condition 1 agreed with DOC and the Council. The Court has no issue with the amended wording. We assume it would be adopted also for the Elbury

individual consent.

[91] The master conditions do not deal with recovery of consented administration costs or apportionment of them between consent holders as we understand it. We comprehend that the position of Te Make and Te Rarawa was that there should be a pro-rata proportion of group costs related to the consent holders' take volume. For Te Make and Te Rarawa, they would take the predominant share of the Group costs. Those relating to individual consents, of course, would be paid solely by the consent holder.

[92] Mr Mathias was concerned that the proposed wording for the South-western Group being adopted for the Middle and Northern Groups. Although the TACDL acknowledged that they were content with the existing wording for the Northern and Middle group, they did acknowledge there may be some benefit in tidying up the wording. To this extent, we understand that Mr Mathias was going to see if the wording could be resolved. Again, we wish to give the parties an opportunity to see if they can resolve this matter by consent. Failing that, we would be inclined to accept the wording of Te Make and Te Rarawa for individual consent Condition 1, for the South-western individual consents and leave those for Northern and Middle unaltered.

[93] As a matter of principle, we have concluded that the South-western Group consent conditions should be constructed in a similar way to those for the Northern and Middle Groups. This will allow for the South-western Group management on a similar basis to the other groups and as allowed for in the Northland Regional Plan.

[94] This in our view includes the fact that the consents should provide for the addition of future consents and noting the priority for volumes of those who had previous resource consents. This is why the issue of staging becomes of critical importance. We understand more applications for aquifer takes have been lodged and the issue is likely to become more important in future years.

[95] If the parties cannot reach an agreement on the wording for this by 29 March 2024 the parties are to make submissions on whether the Court's intention in this

regard should be adopted and if not, give precise alternative wording for the Court's determination.

Issue 14: The timing and volumes that should apply to Te Make and Te Rarawa resource consent

[96] The existing consent is for a volume of 2.317M m³ per year. The first instance decision granted a Stage 1 volume of 773,250 m³ and then allows for ramping through Stages 2 and 3 to the Stage 4 maximum of just under 3.1M m³ per year.

[97] The Regional Council does not support any changes to the first instance decision and argues that there is no supporting expert evidence and the argument may not be in scope.

[98] We acknowledge that the issue was not appealed. The Department of Conservation opposed the revised Stage 1 starting point of 2.3Mm³ per annum sought by Te Make and Te Rawara noting that Lake Heather may already be responding negatively to the exercise of increased takes. We note that Te Make and Te Rarawa have increased takes from the time of the Commissioners' (consented) decision of around 800,000 m³ per annum to around 1.6M m³.

[99] This leads us to **Issue 15** and whether there is sufficient scope for Court approval of the amendments sought by Te Make and Te Rarawa in the context of the DOC appeal. We have decided a number of these questions on the merits. The most significant remaining issue for this Court, beyond the finalisation of the mātauranga representatives, is whether we have the authority and, in fact, should alter the volume for Te Make and Te Rarawa's Stage 1.

[100] Section 124 RMA operates to continue the effect of the original consent until the appeals are resolved. At the time the Commissioners imposed a limit of 773,000 m³. As at today's date, that figure can be accepted for current purposes at 1.6M m³. If this condition is now imposed it is relating to a take volume which has now been exceeded and which would alter the effect of s 124 RMA. In our view, it would adversely affect Te Make and Te Rarawa who have increased their take relying

on s124 RMA.

Effect of previous volumes granted on staging

[101] While we do not envisage that the DOC appeals sought a relaxation of consents, it must be said that the consent that this Court can grant must be influenced by the existing state of the environment and the consents at the time it is granted. For current purposes we consider that the Te Make and Te Rarawa Stage 1 should be based upon the current extractions of 1.6M m³. This means moving to later stages will require adjustment to reflect the amended Stage 1 limit. We accept there was power for the Commissioners to impose the limit at the time based upon the existing consent usage. We adopt the same reasoning in this case but have to adopt the current usage.

[102] We are concerned that the environmental impacts of allowing further extractions prior to review may be adverse given the concerns in relation to Lake Heather held by DOC.

[103] On this basis, we conclude that the appropriate response is to amend the Stage 1 for Te Make and Te Rarawa to 1.6M m³. We see this as consistent with the Commissioners' decision but updated to the current volume being taken under the s 124 consent.

[104] We can see no particular reason why we should alter the Elbury Holdings consents. It is unclear whether they are currently taking 200,000 m³ but if they are not then they would be held to the limits as at the date of this decision.

[105] We are mindful that Te Make and Te Rarawa also seek to amend (their) individual consent condition 10 by reducing the number of consecutive irrigation seasons required for progressing from Stages 2 and 3. In the latter case a marked reduction from five years to one year is proposed. We find there is no evidential basis for the changes and have consequently determined Condition 10 should not be amended.

Additional matters

[106] Recognising the complexity of the combined suite of master and individual consent conditions, the Court raised the merits of including a condition requiring a pre-commencement meeting led by Council to brief consent holders on the consents' structure, requirements and related responsibilities.

[107] Mr Ashton confirmed that such conditions are imposed on major projects in other jurisdictions and indicated that the AAWUG would not necessarily be opposed to such a requirement.

[108] Having deliberated on the matter the Court finds there should be a condition to this effect. The Council, in consultation with the parties, is to formulate and file proposed wording by 29 March 2024.

[109] Mr Ashton also helpfully advised the Court that, recognising the consents' complexity, resources have been applied to preparing a flow chart illustrating how all the processes and elements are intended to fit together.

[110] The chart would not substitute for the conditions or change their meaning but simply act as an Advice Note to guide and assist with comprehension. We conclude that this would be a positive addition to the documentation and invite the parties led by the AAWUG to submit suitable material for inclusion in a final decision by 29 March 2024.

Summary

[111] We have decided most of the issues on the merits recognising that the issue relating to the Stage 1 take volume for Te Make and Te Rarawa is not based on the scope of the appeal per se but rather upon the obligation of the consent authority when adopting a s 124 previous decision into a new decision. To that extent, we can see no basis on which the new consent would reduce the s 124 protected consent.

[112] We note that in fact the new consent provides for an increased take volume,

albeit staged. On the other hand, we recognise that the primary purpose of the Act is sustainable management of the environment. To that extent, we note the concerns of DOC in relation to the full implementation of the consent.

[113] Given the Te Make and Te Rarawa take is currently at 1.6M m³, we consider that it is appropriate that we adopt that figure as the Stage 1 consent, given that increased take occurred lawfully during the period between the original consent and this appeal being determined.

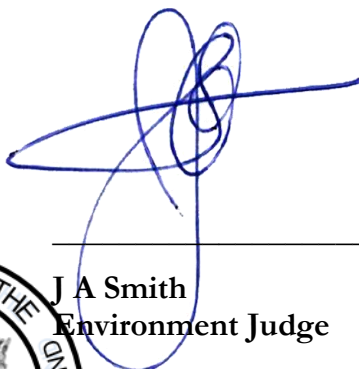
[114] Beyond that, we invite the parties to file final sets of conditions following on from this decision and require all conditions that the Court has settled and those which we asked the parties to further discuss to be filed by **Friday 29 March 2024**.

[115] To the extent there is any difference on the matters that the Court has not finally concluded, where the parties cannot agree on the wording, then they are to provide their alternative wording and a brief reasoning (two paragraphs) for such. The Court will then make a final decision on the wording of the consents on the papers.

Costs

[96] This matter has been particularly protracted. We appreciate that it is within a difficult area concerning a valuable resource. It does not appear to us that costs are appropriate. If there is to be any application for costs at all (which is not encouraged), this is to be filed no later than 19 April 2024, replies by 3 May 2024, and any final reply by 10 May 2024.

For the Court:



J A Smith
Environment Judge



Appendix A

	Issue	Conditions	Groups
1	Whether TL1B, which provides for a maximum seasonal decline in shallow groundwater, should apply throughout the hydrograph, or only when shallow groundwater recedes below the historical median level?	Conditions 22MC(c) and 46MC, and Schedule 1: TL1B Trigger Level Methodology	Northern Middle
2	Which iwi should nominate the mātauranga Māori expert for the Independent Water Effects Review Panels (IWRP)?	Condition 3MC	Northern Middle South-Western
3	Whether the Kaimaumu South monitoring well should be monitored for the middle group, or whether the Kaimaumu North monitoring site is sufficient?	Schedule 1: Table 1. Groundwater Level and Saline Intrusion Monitoring Bores Monitoring	Middle
4	Whether the conditions adequately provide for the potential outputs of the Te Hiku Study?	Individual condition 30	Northern Middle South-Western
5	The inclusion of provisions requiring Te Make and Te Rarawa's consent to be subject to a review by an Independent Water Effects Review Panel (IWER) and an Irrigation Efficiency Review Panel (IERP), rather than review by appropriate experts (including those with sufficient mātauranga Māori, hydrological and ecological expertise) chosen by Te Make and Te Rarawa	Not specified	South-Western
6	Whether Te Make and Te Rarawa's consent should (or must) be "future proofed" such that future applicants can be added to it, as DOC is now seeking	Not specified	South-Western
7	The extent to which Te Make and Te Rarawa should have flexibility to operate either separately or jointly with Elbury	Not specified	South-Western

	Holdings Limited (Elbury Holdings), being the only other applicant in the South-Western group		
8	A proposition that the Annual Environmental Monitoring Report (AEMR) for Te Make and Te Rarawa not be made publicly available, unless agreed to by Te Make and Te Rarawa in writing or NRC has a statutory obligation to release it	Not specified	South-Western
9	NRC preferring revised wording from both DOC and Te Make and Te Rarawa as to the resumption of water takes where such have been reduced due to prior breach of trigger levels	Not specified	South-Western
10	A request by Elbury Holdings that they have priority over Te Make and Te Rarawa to proceed to the next stage of abstraction and/or increase take levels again following the imposition of restrictions in accordance with the consent conditions	Not specified	South-Western
11	Inclusion of a condition that consent holders must hold copies of the latest version of certified Management Plans as sought by the Far North Aquifer Protection Group (FNPG)	Not specified	South-Western
12	Different wording proposed by DOC for the application of the TL1B Trigger Level Methodology	Not specified	South-Western
13	How the conditions should ensure that Te Make and Te Rarawa do not become liable for any costs relating to the administration, monitoring or supervision of any consent to take water from the Aupouri Aquifer, other than their own	Not specified	South-Western
14	The timing and volumes that should apply to the various stages in Te Make and Te Rarawa's resource consent	Not specified	South-Western

15	Whether there is sufficient scope for the Court to approve all if the amendments sought by Te Make and Te Rarawa, in the context of DOC's appeal	Not specified	South-Western
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Appendix B

Individual consent conditions

Te Rarawa Farming Limited and Te Make Farms Limited

AUT.020995.01.04 **To take and use groundwater from the Sweetwater and Ahipara sub-aquifers of the Aupōuri Aquifer for horticultural irrigation purposes.**

LOCATION

Address of Site

Sandhills Road, Awanui

Legal Description of Site

Site of take: Lot 2 DP 170525; Lot 1 DP 156631; Section 2 SO 472393; Section 5 SO 64336; Section 7 SP 64336; Lot 4 DP 156631 and Lot 5 DP 156631.

Sites of use: Lot 2 DP 170525; Lot 1, 2 DP 156631; Section 1, 2, 3, 4, 5, 6, 7, 8 SO 42207; Section 2, 3, 4, SO 472393; Pt Lot 2, 3 DP 40865; Section 1 SO 472393; Section 4 SO 472393; Section 5, 7 SO 64336; Section 8, 11 SO 472393; Section 1 SO 472393; Allotment 118 Parish of Ahipara; Section 4 SO 472393; Lot 4 DP 156631; Lot 5 DP 156631; Lot 6 DP 156631 and Lot 1 DP 416984.

Map Reference (New Zealand Transverse Mercator Projection)

Bore SW1:	1617473E 6119002N
Bore SW2:	1617846E 6119771N
Bore SW3:	1617109E 6120717N
Bore SW4:	1616465E 6120787N
Bore SW5:	1617267E 6121591N
Bore SW6:	1616868E 6120002N
Bore SW7:	1617043E 6118433N
Bore SW8:	1616978E 6116808N
Bore SW9:	1617279E 6117495N
Bore SW10:	1617702E 6114717N
Bore SW11:	1617254E 6113920N
Bore SW12:	1616055E 6112008N
Bore SW13:	1616563E 6111903N
Bore SW14:	1616889E 6111890N

Note: An error accuracy of +/- 50 metres applies to these map references.

CONSENT DURATION

This consent is granted for a period expiring on 30 November 2033.

Subject to the following conditions:

- 1 The Consent Holder must pay all charges relating to the recovery of cost for the administration, monitoring and supervision of this Consent ~~and the Master Consent fixed by Council under Section 36 of the Resource Management Act 1991. Any costs relating to the administration, monitoring and supervision of the conditions that are required to be met by the Group, will be charged on a pro rata basis calculated using the percentage that a consent holder's allocation is of the Group's total allocation, unless all Consent Holder's in the Group unanimously advise Council in writing of a different basis for allocated charges. All other costs relating to the administration, monitoring and supervision of the conditions of this consent and Master Consent where they are incurred only by an individual Consent Holder will be~~

~~charged to the Consent Holder fixed by Council under Section 36 of the Resource Management Act 1991.~~

Advice Notes:

- i. ~~——For the avoidance of doubt, the consent holder will not be liable for any costs relating to the administration, monitoring and supervision of any other consent for the take and use of water from the Aupōuri Aquifer that was granted by the Council as part of the same consent application process as this consent.~~
- ii. ~~To ensure compliance with (i), where Council's charges relate to the costs of administering, monitoring and supervising conditions that are required to be met by the Group, these costs will be charged (and the Consent Holder will only be responsible for these costs) on a pro rata basis, calculated using the percentage that a consent holder's allocation is of the Group's total allocation, unless all Consent Holders in the Group unanimously advise Council in writing of a different basis for allocated charges.~~

- 2 The exercise of this consent is bound by the Master Consent conditions **attached** as **Appendix A**. The Master Consent uses an alternate condition numbering system '1MC, 2MC, 3MC...'.
 - 3 Subject to compliance with the conditions of this consent, the activity authorised by this consent must be carried out in accordance with the application and documents submitted as part of the application, including the following documents:
 - (a) WSP OPUS: *Reference: 1-19430.06 - Application for Water Permit to take and use groundwater*, dated August 2019;
 - (b) Assessment of Environmental Effects prepared by Williamson Water & Land Advisory Ltd: *Aupōuri Aquifer Groundwater Take Consent Applications, Assessment of Environmental Effects – Aupōuri Aquifer Water User Group. WWLA0184: Rev. 2*, dated 27 February 2020; and
 - (c) Model Report prepared by Williamson Water & Land Advisory Ltd: *Aupōuri Aquifer Groundwater Model, Factual Technical Report – Modelling – Aupōuri Aquifer Water User Group. WWLA0184: 3*, dated 5 February 2020.

For the avoidance of doubt, where information contained in the application documents is contrary to the conditions of this consent and those in the Master Consent (Appendix A), or where the information contained in the application documents is internally inconsistent, the conditions of this consent and the Master Consent shall prevail over any other submitted information.

- 4 Prior to ~~the exercise of this consent, the Consent Holder must for all bore fields (i.e., a single~~taking water from any new bore or bore field (being a cluster of bores within 100 m of each other) abstracting more than 432 m³/day (5 L/s) that is established in accordance with this consent, the Consent Holder must:
 - (a) provide to Council for certification the design of a constant rate pumping test of at least 24 hours duration (but no more than 72 hours duration) at the peak daily pumping rate authorised by the Consent for the purpose of monitoring groundwater levels in neighbouring bores at varying depths to allow determination of aquifer parameters and an assessment of drawdown effects in the deep shell bed aquifer,

at the water table and the change in level and/or flow in any surface water feature (wetland, stream or lake) within 2 kilometres of the abstraction point; or

- (b) apply to Council for an exemption from carrying out a constant rate pumping test if:
- i. The proposed bore is at a similar depth to (+/- 10 m) and screened within the same aquifer unit as an existing bore located within 500 m of the proposed bore; and
 - ii. The existing bore has pump test records demonstrating that a constant rate pumping test of at least 24 hours has been undertaken, analysed, and reported; and
 - iii. The constant rate pumping test of the existing bore was carried out at a rate equal to or greater than that of the proposed abstraction.

Advice Notes:

The purpose of the test pumping is to validate the drawdown effect predicted in the Assessment of Environmental Effects and to confirm the hydraulic properties (such as transmissivity, storativity and leakage) of the aquifer assumed in the Model Report are appropriate and/or to highlight any unexpected variation in hydraulic connection.

Existing production bores SW1 and SW2 are not “new bores” for the purposes of this condition and the condition does not require any constant rate pumping test to be undertaken in respect of those bores. The bores have already been subject to constant rate pumping tests. There is also existing pumping records and monitoring data for both of these bores, which is equivalent to a long-term constant rate pumping test.

- 5 Unless Council confirms Conditions 4(b)(i), (ii) and (iii) are complied with, the Consent Holder must, prior to ~~the exercise of~~taking water from any new bore or bore field abstracting more than 432 m³/day that is established in accordance with this consent, undertake the certified constant rate pumping test.
- 6 The Consent Holder must provide the results of the constant rate pumping test required in accordance with Conditions 4 or 5 to the Council’s Compliance Manager prior to taking water from ~~the exercise of the consent~~new bore or bore field. The results of the test will be reviewed by an independent hydrogeologist appointed by the Council and the results of the review may be used as a basis to review consent conditions under section 128 of the Act.

Advice Notes:

~~The~~If the Council ~~may, if it~~ does not accept the test has been carried out according to standard protocols, it may require a repeat test or repeat analysis. Prior to ~~exercising Stage 1~~the first use of any new bore or bore field, the Council will confirm acceptable validation, or alternatively unexpected variation in hydraulic connection, based upon a consideration of:

- *Depths and thickness of all relevant units.*
- *The depth to basement if it will be penetrated.*
- *The static head.*
- *Specific parameters to be determined (at a minimum hydraulic conductivity).*

- 7 The combined daily volume of water taken across all bores must not exceed the lesser of the following:
- (a) 26,230 cubic metres in any 24 consecutive hours unless the rate of abstraction is restricted under a condition of the Master Consent; and
 - (b) That required to replace soil moisture depleted by evapotranspiration over the irrigated area.
- 8 The Consent Holder must take all practicable steps to ensure that:
- (a) The volume of water used for irrigation does not exceed soil field capacity of the irrigated areas;
 - (b) The irrigation does not cause surface runoff that would discharge into natural waterbodies;
 - (c) There is no leakage from pipes and structures;
 - (d) The use of water is confined to targeted areas;
 - (e) Irrigation induced soil erosion and soil pugging does not occur;
 - (f) Soil quality is not degraded as a consequence of irrigation; and
 - (g) Loss of water, nutrients, and agrichemicals by percolation to groundwater is minimised.

Compliance with this condition will be demonstrated by the Water Use Efficiency Conditions ~~20–19~~ to ~~267~~ and the outcome of the ~~Irrigation Efficiency Staged Implementation and Monitoring Programme~~- Review ~~Panel tasks~~ described in conditions 24MC to 29MC of the Master Consent.

Staged Implementation

- 9 Unless Master Consent conditions require a reduced volume, the annual volume of water taken from the bores Sweetwater 1 to Sweetwater 14 (combined) for each stage must not exceed the following:
- (a) Stage 1: 2,317,000 cubic metres between 1 July in a year and 30 June in the following year;
 - (b) Stage 2: 2,575,666 cubic metres between 1 July in a year and 30 June in the following year;
 - (c) Stage 3: 2,834,332 cubic metres between 1 July in a year and 30 June in the following year;
 - (d) Stage 4: 3,093,000 cubic metres between 1 July in a year and 30 June in the following year.
- 10 This consent must be exercised in a staged manner as follows:
- (a) Stage 1, which must be a period during which:
 - i. 12 months of monitoring data has been collected and used to define all the

Trigger Levels specified in Schedule 1; and

- ii. Irrigation has occurred for one Irrigation Season where the irrigation water has been sourced, as far as practicable from the Stage 1 annual volume as specified in Condition 9;
 - (b) Stage 2, which must be for the minimum period of ~~two consecutive~~one full Irrigation Seasons;
 - (c) Stage 3, which must be for the minimum period of ~~five consecutive~~one full Irrigation Seasons; and
 - (d) Stage 4 which must be from the full Irrigation Season immediately following written approval from the Council to progress from Stage 3 until the expiry of the consent.
- 11 The Consent Holder cannot proceed to the next stage:
- (a) Except in all respects in accordance with the recommendations in a certified Staged Implementation and Monitoring Programme Review; and
 - (b) Unless all costs payable by the Consent Holder to the Council have been recovered or, if the amount payable is subject to dispute, objection or appeal, the outstanding amount has been placed into a trust account nominated by the Council pending resolution of the dispute, objection or appeal.

~~Notification of Irrigation~~

~~12 When irrigation is to commence for the first time each season, the Consent Holder must advise the Council's assigned Monitoring Officer in writing at least five working days prior to the exercise of this consent.~~

Backflow Prevention

~~13~~12 Prior to the first ~~exercise~~taking of water from each new production bore that is established in accordance with this consent, a backflow prevention system must be installed on all horticultural irrigation systems that draw water directly from the production bore and are also used to apply animal effluent, agrichemical or nutrients to prevent the backflow of contaminants to groundwater.

Metering and Abstraction Reporting

~~14~~13 Prior to the first ~~exercise of~~taking of water from each new production bore that is established in accordance with this consent, the Consent Holder must install and thereafter maintain at all times:

- (a) A water meter on each production bore that;
 - i. is installed at the location from which the water is taken;
 - ii. is sealed and is as tamper-proof as practicable;
 - iii. measures the volume of water taken to within +/-5% of the actual volume taken;
 - iv. is able to provide data in a form suitable for electronic storage; and

- v. has an international accreditation or NZ equivalent calibration endorsement;
~~and~~
- (b) An electronic storage device that timestamps a pulse from the water meter at least once every 15-minutes and has the capacity to hold at least twelve months data of water taken; and
- (c) A telemetry unit that provides all of the water meter data for a day to the Council no later than the end of the next day in a format compatible with the Council's timeseries database and data standards.

~~1514~~ The Consent Holder must, at all times, provide safe and practical access for the Council to each water meter, electronic storage device, and telemetry unit installed to undertake visual inspections and monitoring, in accordance with these conditions.

~~1615~~ The Consent Holder must verify that the meter(s) required by Condition ~~1413~~ is accurate. This verification must be undertaken prior to 30 June:

- (a) Following the first taking of water from each new production bore that is established in accordance with this consent; and
- (b) At least once in every five years thereafter.

~~1716~~ Each verification must be undertaken by a person who, in the opinion of the Council, is suitably qualified. Written verification of the accuracy must be provided to the Council's assigned Monitoring Officer no later than 31 July following the date of each verification.

~~1817~~ The Consent Holder must keep a record of the daily volume of water taken from each production bore in accordance with this consent in cubic metres, including all nil abstractions, using the readings from the meter(s) required by Condition ~~14.13~~ (or meters that are already installed on any production bore that was lawfully established prior to the commencement of this consent).

~~1918~~ A copy of the records required to be kept under Condition ~~17817~~ must be forwarded to the Council, ~~annually by as part of the 31 July, for~~ Annual Environmental Monitoring Report required in accordance with the ~~previous period 1 July to the 30 June~~ Master Consent conditions. In addition, a copy of these records must be forwarded immediately to the Council on written request. The records must be in an electronic format that has been agreed to by the Council.

Water Use Efficiency

~~2019~~ The Consent Holder must prepare an Irrigation Scheduling Plan that outlines how irrigation decisions will be made. The purpose of the Irrigation Scheduling Plan 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 Irrigation Scheduling Plan must be prepared by a suitably qualified and experienced person and submitted to the Council for written certification that it will achieve the purpose of this condition. The Irrigation Scheduling Plan must, as a minimum, address:

- (a) Water balance and crop water requirements;

- (b) Subsurface drainage;
- (c) Measures for continuous improvement in water efficiency; and
- (d) Overall irrigation strategy.

2120 For each irrigation area, the Irrigation Scheduling Plan must include:

- (a) A map of the irrigation area;
- (b) A description of how water requirements for each irrigation cycle are calculated;
- (c) Method(s) for assessing current soil moisture levels;
- (d) Method(s) for assessing potential evapotranspiration (PET) and rainfall to date;
- (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;
- (g) A description of proposed method(s) for remaining within consent limits at each borehole or group of boreholes; and
- (h) Continuous improvement in water efficiency.

2221 The Consent Holder must ~~not, within three months of the first~~ exercise of this consent ~~until, provide~~ the Irrigation Scheduling Plan required by Condition ~~20 has been certified by 19 to~~ the Council. ~~That for~~ certification ~~must be informed by the Irrigation Efficiency Review Panel (refer Master Consent).~~

2322 The Irrigation Scheduling Plan certified in accordance with Condition 22221 must be implemented prior to the first Irrigation Season undertaken in accordance with this consent, unless a later date has been approved in writing by the Council's Compliance Manager.

2423 The Consent Holder must comply with the Irrigation Scheduling Plan at all times.

2524 The Consent Holder must, within ~~six~~twelve months of the first exercise of this consent, undertake an audit of the irrigation system and of the certified Irrigation Scheduling Plan. The audit must be undertaken by a suitably qualified and experienced person. The irrigation system audit must be prepared in accordance with Irrigation New Zealand Inc. (2010). *Irrigation Evaluation Code of Practice*. and must include recommendations on any improvements that should be made to the system to increase water efficiencies or any amendments to the Irrigation Scheduling Plan. The results of the audit and its recommendations must be submitted in writing to the Council's assigned Monitoring Officer within one month of the audit being undertaken. Any recommended amendments to the Irrigation Scheduling Plan must be submitted to the Council for certification that it will achieve the purpose of the Irrigation Scheduling Plan before they take effect. A follow-up audit must occur at five yearly intervals throughout the term of this consent with the intent of confirming an irrigation efficiency of at least 80 percent.

2625 The Consent Holder must, within three months of notification in writing by the Council's Compliance Manager, implement any amendments certified under Condition 2524.

~~2726~~ The ~~reticulation~~irrigation system and its component parts must be maintained in good working order to minimise leakage and wastage of water.

~~2827~~ The rate at which water is applied to the irrigated area must not result in ponding of irrigated water within any irrigated area, or runoff from either surface or subsurface drainage to a water body, as a result of the exercise of this consent.

Advice Note:

The Irrigation Scheduling Plan 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.

~~2928~~ The Consent Holder must provide ~~free publicly available~~ the Council with a link to the real-time ~~access to~~ continuous groundwater trigger level monitoring data from the Indicator and Sentinel Bores, ~~and provide to the Council a link to this real-time data~~ which is capable of being accessed by the public through the Council's web page.

Advice Notes:

Details of these specific Indicator and Sentinel Bores can be found in Schedule 1 to this Consent.

This condition does not relate to groundwater data from the production bores listed in Table 2 of Schedule 1 to this consent. In particular, it does not require (or provide any ability for) the Council to make the groundwater data from those production bores publicly available, unless in doing so it is complying with a legal/statutory obligation.

Review Condition

~~3029~~ In addition to any reviews otherwise required under the above conditions of this consent, the 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 of this consent at any time 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, including matters stated in Master Condition 1MC; or
- (b) To reduce the abstraction quantity authorised by this consent:
 - i. If the water use is determined to be inefficient or surplus to needs;
 - ii. If recommended by ~~a relevant expert~~ the Independent Water Effects Review Panel under condition 14MC (Wetland Monitoring Plan), 17MC (Annual Environmental Monitoring Report) or 24MC (Staged Implementation and Monitoring Programme Review); or
 - iii. If a review of the constant rate pumping test results, as required by Condition 6, does not provide acceptable validation of the predicted drawdown effects and hydraulic properties of the aquifer; or
- (c) To review the allocation of the resource, provided that:
 - i. Allocation at each of the Stages under Condition 9 cannot be increased, and

- ii. The timeframe for progression through Stages under Condition 10 cannot be reduced.

~~31 A review of this consent may be carried out separately or together with reviews of other consents for the purpose of managing the effects of the activities carried out under those resource consents.~~

~~32~~30 The Consent Holder must meet all actual and reasonable costs of any such review.

Lapsing Condition

~~33~~31 This consent will lapse five (5) years after the date that the consent commences in accordance with section 116(1) of the Resource Management Act 1991, unless the consent has been given effect to before this date.

APPENDIX A

MASTER CONSENT CONDITIONS

WITHOUT PREJUDICE AND CONFIDENTIAL - MASTER CONSENT CONDITIONS – SOUTH-WESTERN GROUP

Glossary of Terms

Act	Resource Management Act 1991 or equivalent subsequent legislation
Assessment of Environmental Effects	Assessment of Environmental Effects prepared by Williamson Water & Land Advisory Ltd: Aupōuri Aquifer Groundwater Take Consent Applications, Assessment of Environmental Effects – Aupōuri Aquifer Water User Group. WWLA0184: Rev. 2, dated 27 February 2020 [and responses to s92 requests]
Aupōuri sub-aquifer Area Group	Means the Northern, Southern and Middle Groups formed following Environment Court proceedings ENV-2021-AKL-129, the boundaries of which are delineated on the map at Schedule 4
Area of Interest	An area mapped in Schedule 3 that may contain natural wetlands.
Baseline monitoring	The 12-month period for collecting data during Stage 1.
Baseline Values	Baseline Values are measured and/or modelled values for monitoring points that reflect the range of fluctuations in water levels and chemistry, set in accordance with the methodology in Schedule 1.
Consents	Individual consents held by Consent Holders of the Northern Group.
Council	Northland Regional Council
DOC	Department of Conservation, represented by the Manager of the DOC Kaitiāia Area office (or their nominee).
Exercise of this Consent	To begin taking groundwater for the authorised use.
Group	Refers to the consent holders in the South-Western Group and includes the Water Users Group required under condition 12MC.
Irrigation Season	When irrigation has occurred during the The period 1 July to 30 June, regardless of whether the full allocation for the Stage is taken during this period.

Model Report	Williamson Water & Land Advisory Ltd: <i>Aupōuri Aquifer Groundwater Model, Factual Technical Report – Modelling – Aupōuri Aquifer Water User Group WWLA0184: 3</i> , dated 5 February 2020.
South-western Group	Consent holders taking water from the Sweetwater and Ahipara sub-aquifer management units of the Aupōuri Aquifer within the South-western Group boundary shown on the map at Schedule 4
Stage	A period where the total amount of groundwater available for abstraction is limited, or in the case of Stage 4 may be limited, <u>as set out in each of the individual consents held by Consent Holders in the South-western Group.</u>
Threatened <u>species</u>	Listed as ‘Threatened’ or ‘At Risk’ taxa in the New Zealand Threat Classification System lists
Trigger Level	A numerical threshold for a parameter of concern (water level or water chemistry) that defines when an action must be taken to ensure that unacceptable adverse effects do not occur. The methodology for establishing Trigger Values is set out in Schedule 1. Abbreviated form is TL.
TL0	Trigger Level 0
TL1	Trigger Level 1
TL1B	Trigger Level 1B
TL2	Trigger Level 2

Environmental Outcomes

1MC. The consented activity must not individually, or cumulatively with other consented abstractions from the Aupōuri aquifer, result in any of the following:

- (a) Adverse effects of saltwater intrusion into the Aupōuri aquifer;
- (b) Adverse effects on the hydrological functioning of natural wetlands, springs and dune lakes, including the Kaimaumau-Motutangi wetland;
- (c) For natural wetlands and dune lakes, changes to:
 - i) water level ranges; or
 - ii) patterns of water level seasonality (relative summer versus winter) within such ranges; or
 - iii) median water levels; or

- iv) mean annual water level fluctuations.
- (d) Alterations to the extents of rivers, natural wetlands, springs and/or dune lakes, including the Kaimaumau-Motutangi wetland;
- (e) Adverse effects on the significant indigenous vegetation and significant habitats of indigenous fauna in (terrestrial and freshwater environments of) dune lakes, springs and natural wetlands, including the Kaimaumau-Motutangi wetland;
- (f) Adverse effects on the flow levels and flow variability of rivers and streams and springs so that their habitat quality and sustainable mahinga kai, recreational, and other social and cultural values, are maintained (including sufficient flows and flow variability to maintain their habitat quality, including to flush rivers of deposited sediment and nuisance algae and macrophytes and support the natural movement of indigenous fish and valued introduced species such as trout); and
- (g) Lowering of the groundwater levels of the Aupōuri aquifer such that existing efficient bore takes operating as a permitted activity or in accordance with resource consent conditions cannot access the authorised volume of groundwater.

Independent Water Effects Review and Irrigation Efficiency Review Panels

~~2MC. — Prior to the exercise of any consents, the Group must establish an Independent Water Effects Review Panel and an Irrigation Efficiency Review Panel. The members to these Panels will be appointed by the Council and contracted by the Group. All costs associated with the roles and functions of the Panels and appropriate administrative support shall be paid by the Group and it shall be the Group's responsibility to ensure that the Panels carry out the tasks required of them, within the timeframes specified in the conditions of consent.~~

~~3MC. — The Independent Water Effects Review Panel will comprise:~~

- ~~(a) — a minimum of three persons being:~~
 - ~~i) — One person nominated by the Council and one person nominated by DOC who between them have qualifications, knowledge and experience in hydrogeology and ecology. These persons must be the same persons as nominated for the other Independent Water Effects Review Panels that are required by the Master Conditions on other consents authorising the taking of water from the Aupōuri sub-aquifers; and~~
 - ~~ii) — One person nominated by Te Aupōuri and Ngāi Takoto iwi who is an expert in mātauranga Māori;~~
- ~~(b) — up to five persons, being the persons set out in (a) together with:~~
 - ~~i) — the mātauranga Māori expert that has been nominated for the South-Western Group (providing that they have been so nominated);~~
 - ~~ii) — the mātauranga Māori that has been nominated for the Middle Group (providing that they have been so nominated);~~

~~which mātauranga Māori expert or experts (as applicable) must be contracted by the Group at any time where the Panel in the exercise of its functions is required to consider observed effects of the Consents outside the boundary of the Northern Group and within the South-Western Group and/or the Middle Group boundaries.~~

- ~~4MC. The persons nominated by the Council and DOC must be independent, meaning persons who are not employees or previously engaged by the Consent Holders or DOC in the applications for the consents.~~
- ~~5MC. The Independent Water Effects Review Panel has the functions set out in these consent conditions, including the following functions:~~
- ~~(a) Reviewing the Groundwater Monitoring Plan;~~
 - ~~(b) Reviewing the Wetland Inventory Report required under Condition 24MC;~~
 - ~~(c) Reviewing and making recommendations in the Annual Environmental Monitoring Report required under Condition 32MC;~~
 - ~~(d) Undertaking the Staged Implementation and Monitoring Programme Review required under Condition 37MC; and~~
 - ~~(e) Undertaking the Groundwater Trigger Exceedance Report in accordance with Conditions 47MC and 48MC.~~
- ~~6MC. In undertaking its functions:~~
- ~~(a) The Independent Water Effects Review Panel must strive to operate unanimously, but if agreement cannot be reached, recommendations will be by majority; and~~
 - ~~(b) The opinions and recommendations of each member of the Panel may in any event be recorded.~~
- ~~7MC. The Irrigation Efficiency Review Panel must comprise not less than two irrigation experts appointed by the Council.~~
- ~~8MC. The Irrigation Efficiency Review Panel has the function of providing input to the Independent Water Effects Review Panel in relation to a Staged Implementation Monitoring Programme Review under Condition 37MC and reviewing an Irrigation Scheduling Plan in accordance with the requirements of a Consent.~~
- ~~9MC. Subject to these conditions, the Panels may determine their own processes and procedures for conducting meetings and producing reports and recommendations as they see fit and shall meet as necessary to fulfil their functions as specified in the Consents, including methods for resolving disagreements and inducting new members.~~
- ~~10MC. Unless otherwise specified in these conditions, the Irrigation Efficiency Review Panel and the Independent Water Effects Review Panel shall have 40 working days to respond on any report submitted to them, with any comments to be in writing.~~

Certification Process for Management Plans and Reports

- ~~11MC.2MC.~~ The certification process is as follows. The certification process for plans and reports required by conditions of this consent must be confined to confirming that the plans or reports give effect to their purposes, consent condition requirements, and schedule requirements, and contain the required information. The certification process is as follows:
- (a) If the Council's response is that it is not able to certify the management plan or report, it must provide the consent holder with reasons and recommendations for changes to

the plan or report in writing. The consent holder must consider any reasons and recommendations of the Council and resubmit an amended management plan/report for certification.

- (b) A plan or report cannot be subject to a third-party approval. The Council in deciding whether to certify the plan or report, however, ~~must take into account the conclusions of any review undertaken by the Independent Water Effects Review Panel or Irrigation Efficiency Review Panel established under Condition 2MC and may also obtain advice from other~~ may obtain advice from an appropriately qualified person(s).
- (c) The review or amendment of a plan or report must follow the process above.

The consent holder must comply with the certified plan or report at all times. A copy of the latest version of the certified plan or report must be kept on site at all times and relevant personnel must be kept informed of their responsibilities under each plan or report.

Water User Group

~~12MC. The consent holders must form a Water User Group prior to the exercise of any consents. The purposes of the Water User Group include:~~

- ~~(a) Coordinating monitoring and reporting required by this Master Consent;~~
- ~~(b) Managing the rationing of water amongst the consent holders to avoid or delay the potential for groundwater abstractions to cause or contribute to the exceedance of Trigger Levels; and~~
- ~~(c) Investigating opportunities to promote the restoration and enhancement of wetlands on the Aupōuri peninsula.~~

~~13MC. The members of the Water User Group agree to be guided by a shared set of values including but not limited to the following:~~

- ~~(a) **Te mahi tahi** — working together in good faith and a spirit of co-operation;~~
- ~~(b) **Pono** — commitment to a relationship based on trust and integrity, reflected in behaviour that is honest and open;~~
- ~~(c) **Manaakitanga** — treating each other with care and respect, and to understand, nurture and support each other to achieve agreed outcomes;~~
- ~~(d) **Mana whakahaere** — acknowledging each other's control of their own consents.~~

~~14MC. The Water User Group must hold a meeting not less than once every year in September following the preparation of the Annual Environmental Monitoring Report, and as soon as practicable after being notified of a Trigger Level exceedance. A meeting must be held at a time convenient for the majority of the Water User Group. The minutes of the previous meeting must be made available to all consent holders and to the Council upon written request.~~

~~15MC. Where the conditions of this consent place an obligation on the "Group", the Consent Holders shall be jointly as well as individually responsible for meeting the obligation.~~

General Monitoring Requirements

~~16MC.3MC.~~ Prior to the exercise of any Consents, Within six months of the commencement of this consent, any new bores and all associated monitoring equipment required to be installed for the purposes of baseline monitoring required under this consent must be constructed and installed by a suitably qualified person(s).

~~17MC.4MC.~~ All monitoring bores must be of sufficient depth to accommodate water level fluctuations so that all the required monitoring can occur. The consent holder must, at all times, provide safe and easy access to the production bore head(s) for the purpose of undertaking and enabling monitoring of the bore(s) as set out in the Groundwater Monitoring Plan (refer Schedule 1).

~~18MC.5MC.~~ Where the consent conditions or Groundwater Monitoring Plan require that the frequency of monitoring for a parameter is continuous at monitoring sites identified in Schedule 1, then the monitoring equipment must be installed prior to within twelve months of the exercise commencement of this consent as follows:

- (a) For groundwater level recording, the monitoring equipment must be installed in accordance with the requirements of the National Environmental Monitoring Standard Water Level: Water Level Field Measurement Standard, Version 3.0.0, dated July 2019;
- (b) Monitoring bores must be of sufficient depth to allow measurements across the full range of water level fluctuations;
- (c) For conductivity sensors they must be able to record "Specific Conductance" (corrected to 25 degrees Celsius), have available software for field calibration, and be able to record across the whole expected conductivity range for the water body measured;
- (d) Sensors must be installed in a secure manner to ensure stationarity over time;
- (e) Instantaneous readings must be recorded at a minimum of every sixty (60) minutes (recording to NZ Standard Time);
- (f) Water Level readings must be compensated for barometric pressure after transmission;
- (g) Where required, data must be telemetered to the Council with a minimum of hourly transmission of data; and
- (h) The reference points must be levelled to One Tree Point datum and New Zealand Vertical Datum.

~~19MC.6MC.~~ Prior to the exercise of any Consents, the GroupWithin twelve months of the commencement of this consent, the consent holder must provide to the Council the installation details from the suitably qualified person(s) of all monitoring equipment that has been constructed and installed in accordance with Condition ~~18MC.5MC.~~

Groundwater Monitoring Plan

~~20MC.7MC.~~ The GroupFrom three months after the commencement of this consent, the consent holder must exercise and monitor their consents the consent in accordance with a certified Groundwater Monitoring Plan. ~~No Consent Holder may exercise its consent until the required Groundwater Monitoring Plan has been certified.~~

~~21MC.8MC.~~ The purpose of the Groundwater Monitoring Plan is to set out the procedures by which groundwater levels and quality will be monitored.

~~22MC.9MC.~~ ~~The Group~~ Within three months of the commencement of this consent, the consent holder must provide the Groundwater Monitoring Plan ~~with interim trigger levels to the Independent Water Effects Review Panel for review and then~~ to the Council for certification. The Groundwater Management Plan must include:

- (a) Details of monitoring required from six months after the commencement of ~~the Consents~~this consent, including ongoing monitoring of water levels, saline intrusion parameters, and any wetland or surface level monitoring as required under these conditions; and
- (b) Specification of Trigger levels (TL) 0, 1, 1B and 2 for the relevant indicator bores using the methodology and criteria for setting trigger levels in Schedule 1; and
- (c) Median groundwater level for the shallow groundwater Indicator bore that is to be used for TL1B.

~~23MC.~~ ~~Where insufficient monitoring data exists under Schedule 1 'Methodology for establishing Baseline Values' subparagraph (a), then within 20 working days following the conclusion of the Baseline monitoring period set out under Schedule 1 'Methodology for establishing Baseline Values' at subparagraph (b), the Group must provide an updated Groundwater Monitoring Plan to the Independent Water Effects Review Panel for review and then to the Council for certification. The updated Plan must specify the Trigger Levels for relevant bores listed in Schedule 1, using the methodology and criteria for setting trigger levels in that Schedule.~~

~~24MC.10MC.~~ Annually, within 20 working days of the shallow groundwater Indicator bore reaching Peak Water Level (as defined in Schedule 1) the ~~Group~~consent holder must submit to the Council for certification an addendum to the Groundwater Monitoring Plan containing the calculation of TL1B in accordance with the methodology in Schedule 1.

Wetland Inventory Report

~~25MC.11MC.~~ Within twelve months of the commencement of this consent, the consent holder ~~Prior to the exercise of any Consents, the Group~~ must have a certified Wetland Inventory Report. The Report must be prepared for the consent holder by a suitably qualified wetland ecologist, with the assistance of a suitably qualified hydrologist.

~~26MC.12MC.~~ The purposes of the Wetland Inventory Report are:

- (a) To quantify the presence, extent, and ecological characteristics and values of all natural inland wetlands, as defined by the Resource Management (National Environmental Standards for Freshwater) Regulations 2020, and associated surface water bodies within and hydrologically connected to the Area(s) of Interest pertaining to ~~the group~~this consent.
- (b) To inform the development of the Wetland Monitoring Plan required by Condition ~~27MC.14MC.~~

~~27MC.13MC.~~ The Wetland Inventory Report must include high resolution aerial imagery analysis of an Area of Interest and immediate surrounds to determine the suite of potential natural

wetlands and connected surface water bodies, describe the ground-truthing of potential natural wetlands and connected surface water bodies, and be based on:

- (a) A wetland presence and delineation assessment undertaken in accordance with the Ministry for the Environment. (2022). *Wetland Delineation Protocols*. Wellington: Ministry for the Environment., or subsequent amendments, except that the following apply:
 - i) Wetland presence and delineation assessment will be based on the wetland vegetation characteristics within the wetland as a whole rather than on wetland vegetation within 'representative' plots (although wetland vegetation plots will be used for monitoring purposes).
 - ii) Hydric soils testing will not be undertaken.
- (b) A wetland condition assessment in general accordance with Table 5 of Clarkson et al. (2004) *The Handbook for Monitoring Wetland Condition*. Coordinated Monitoring of New Zealand Wetlands. Ministry for the Environment Sustainable Management Fund Project 5105.
- (c) A wetland typology assessment undertaken in general accordance with Johnson, P. and Gerbeaux, P. (2004). *Wetland Types in New Zealand*. DOC, Wellington, New Zealand., or subsequent amendments.
- (d) A high-level assessment of ecological values for threatened species based on desktop investigations and habitat suitability assessments to determine potential ecological value.
- (e) Base maps showing the extent and type of wetlands within or immediately adjacent to the Area of Interest and their ecological significance (based on ecological value categories as set out in Roper-Lindsay, J et al. (2018). *Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems*. (2nd edition). EIANZ Melbourne, Australia., or subsequent amendments).
- (f) A delineation and characterisation of surface water bodies that are connected to ground-truthed wetlands including springs, streams and drains.

Wetland Monitoring Plan

~~28MC.14MC.~~ The ~~Group~~consent holder must commission a suitably qualified wetland ecologist to prepare a Wetland Monitoring Plan during the first year of the exercise of ~~the~~this consent and provide it to the Council for certification. The purposes of the Plan are to:

- (a) Detect any adverse effects on wetlands and connected surface water bodies that may result from the exercise of this consent;
- (b) Inform the adaptive management regime set out in the ~~Consents~~consent including any requirements for avoiding adverse ecological effects; and
- (c) Contribute information to the ~~Independent Water Effect Review Panel's reviews in combination with proposed and current groundwater monitoring~~Annual Environmental Monitoring Report required in accordance with Condition 17MC.

~~29MC.15MC.~~ The Wetland Monitoring Plan must include the following information:

- (a) The wetland monitoring site selection criteria (in accordance with Schedule 2) and approach including the use of baseline monitoring and paired reference sites. If possible, for the Area of Interest, the reference site will be similar wetlands at

no/negligible risk from effects associated with the water take and are less likely to be subject to confounding effects for example, localised drainage ditch management or pine forestry harvesting/afforestation. Each Area of Interest shall have at least one monitoring and paired reference site, unless no wetlands have been identified within or adjacent to the Area of Interest.

- (b) Ecological indicators to be monitored including, but not limited to, the following:
- i) Water levels within the selected wetlands and associated surface water bodies, for example through the use of piezometer(s). Water Level monitoring must be continuous using a transducer and be located at least 100 m away from the surface water features such as drains;
 - ii) Wetland monitoring through the use of:
 - (1) Ministry for the Environment. (2022). *Wetland Delineation Protocols*. Wellington: Ministry for the Environment., or subsequent amendments, vegetation plots and associated photo-points at the wetland boundary to determine whether the wetland boundary has increased, stayed the same, or decreased within monitored wetlands (relative to the baseline); and

Advice Note:-

This will be in general but not strict accordance with the Wetland Delineation Protocols because determination of wetland presence and extent is based on species composition and relative abundance for the “potential” wetland as a whole rather than on one or more “representative” plots.

- (2) Wetland condition monitoring in general accordance with Table 5 of Clarkson et al. (2004) *The Handbook for Monitoring Wetland Condition. Coordinated Monitoring of New Zealand Wetlands*. Ministry for the Environment Sustainable Management Fund Project 5105., to assist with the characterisation and interpretation of potential changes over time; and
 - (3) Hydrological characteristics assessment in accordance with the Ministry for the Environment. (2021). *Wetland delineation hydrology tool for Aotearoa New Zealand*. Wellington: Ministry for the Environment., or subsequent amendments.
- iii) Detail on how the monitoring is to be undertaken, noting that:
- (1) Baseline monitoring of wetland vegetation condition at all sites must be undertaken in January and February prior to commencement of Stage 2 annual volumes.
 - (2) Annual vegetation monitoring must be undertaken at least for the first five years (in the same months) following the consent holder's commencement ~~of any consent holder in the Group~~ of Stage 2 volumes.
 - (3) Biannual wetland condition monitoring must be undertaken at least for the first four years following commencement of anythe consent ~~holder in the Group accessingholder's~~ Stage 2 volumes.

30MC.16MC. Annual vegetation monitoring and bi-annual wetland condition monitoring must continue for the duration of consent unless these requirements are amended in accordance with the following:

- (a) ~~Within six months~~ following completion of the first 5 year's wetland monitoring, the ~~Consent Holders~~consent holder requests ~~the Independent Water Effects Review Panel~~a suitably qualified wetland ecologist to review the annual and biannual vegetation monitoring programmes (and frequency) to assess whether they remain fit for purpose and the level of monitoring commensurate with risk, and to either confirm that the current monitoring and methodologies should continue or recommend changes prior to the next irrigation season; and
- (b) The consent holder provides any recommendations to the Council for certification and upon certification the Wetland Monitoring Plan is amended by the ~~Group~~consent holder accordingly; and
- (c) Any recommended changes that reduce monitoring requirements ~~may only be~~are implemented through a change to these consent conditions under section 127 of the Act.

Annual Environmental Monitoring Report

~~31MC.17MC.~~ Following review and recommendations from the Independent Water Effects Review Panel under condition 32MC, the GroupThe consent holder must by 30 September each year provide an Annual Environmental Monitoring Report to the Council for certification. The purposes of the Report are to:

- (a) Provide a summary of the monitoring undertaken over the previous irrigation season and to assess the results of monitoring against Condition 1MC;
- (b) Report on any issues apparent with the monitoring and any improvements that could be made with respect to the monitoring;
- (c) Identify any recommended changes (that may include additions) to monitoring locations, parameters or protocols; and
- (d) Assess whether the observed effects of the groundwater takes are consistent with the assumptions and predictions contained in the Model Report.

~~32MC.18MC.~~ An Annual Environmental Monitoring Report must include:

- (a) Irrigation water use data held by the Groupconsent holder, including instantaneous take rate, daily volume, cumulative seasonal volume, timing of application, and depth where water is abstracted from;
- (b) All monitoring and any survey data collected in accordance with ~~the consents~~this consent, including under the Groundwater Monitoring and the Wetland Monitoring Plans;
- (c) An analysis of monitoring and any survey data in respect of observed effects on the environment, including analysis against the matters set out in Condition ~~48MC~~35MC(d)(ii) – (vi) and:
 - i) Evaluation of whether the observed effects of the groundwater takes are consistent with the assumptions and predictions contained in the Model Report.
 - ii) Evaluation of whether observed (surface) effects may be caused, or contributed to, by drawdown in the shallow aquifer, drawing upon consideration of paired reference site data for wetlands and potential surface drainage effects.

- iii) Evaluation of whether repeated breaching of triggers occurs over a number of years, indicating a change in frequency of drawdown in the shallow aquifer that could be due to abstraction.
- (d) Any recommended changes to monitoring locations, parameters, or frequencies as a result of (c) above, which may include:
 - i) Recommendations for additional monitoring to assess effects on wetlands identified in the Wetland Inventory Report, monitoring of surface water bodies hydrologically connected to wetlands (which may include stream flow monitoring);
 - ii) Any other additions to the monitoring programme.
- (e) The timeframe for implementation of the recommendations in (d) above; and
- (f) Any other recommendations consistent with the purposes of ~~the~~an Annual Environmental Monitoring Report.

~~33MC.19MC.~~ The Group consent holder must commission ~~the Independent Water Effects Review Panel~~an appropriately qualified hydrologist and/or ecologist to review the Annual Environmental Monitoring Report and to provide an independent opinion and recommendations on the matters set out in Condition ~~31MC.18MC.~~ For this purpose:

- (a) The Group consent holder must provide to the Panel expert(s) all data and information set out in Condition ~~31MC.18MC.~~ and any other data or information used in the drafting of the Annual Environmental Monitoring Report;
- (b) The Group consent holder must allow at least 40 working days for the ~~Panel's expert~~Panel expert review, from the date of providing all such data and information to the Panel expert(s); and
- (c) The ~~Independent Water Effects Review Panel expert(s)~~ may utilise any other relevant data collected by other agencies or individuals.

~~34MC.20MC.~~ Any opinions and recommendations from the ~~Independent Water Effects Review Panel expert(s)~~ must be incorporated into the Annual Environmental Monitoring Report or be set out in an addendum to that Report.

~~35MC.21MC.~~ If, as a result of its review of all monitoring data, the ~~Independent Water Effects Review Panel expert(s)~~ considers that an effect on surface waterbody(s) may be being caused, or contributed to, by drawdown in the shallow aquifer as a result of the exercise of this consent then:

- (a) the Group consent holder must provide to Council high resolution aerial imagery (a minimum of 3.3 cm GSD (ground sample distance = resolution)) prior to the next irrigation season to enable like for like comparisons to be made against existing baseline imagery (unless the Panel expert(s) recommends in ~~its~~their opinion that such imagery would not assist in assessing effects across wetlands within or in close proximity to an Area of Interest); and
- (b) the Panel expert(s) may recommend actions to achieve Condition 1MC, which may include a recommendation for a reduced level of abstraction for all or some of the consent holders of the Group or any other Aupōuri sub aquifer area Group that was formed as part of the same consent application process.

~~36MC.22MC.~~ A copy of the certified Annual Environmental Monitoring Report must be circulated to DOC as soon as practicable after it is provided to the Council. The certified Annual Environmental Monitoring Report is otherwise not to be provided to any other party or made publicly available, unless the Council~~the following parties as soon as practicable:~~

- (a) ~~Iwi and DOC~~Has first obtained the consent holder's agreement to this in writing (such consent not to be unreasonably withheld); and
- (b) ~~Any other party upon request~~Is complying with a legal/statutory obligation to disclose the Report.

~~37MC.23MC.~~ Following the certification of an Annual Environmental Monitoring Report and prior to the commencement of the following irrigation season, if recommendations in the Annual Environmental Monitoring Report:

- (a) Include additional or increased monitoring of ~~the Group's consents~~this consent, then such recommendations must be implemented by the Group consent holder within the certified timeframes at its cost, and any Monitoring Plan must be amended by the Group consent holder and provided to the Council for certification;
- (b) Include reduced monitoring, then such recommendations may only be implemented through a change to these consent conditions under section 127 of the Act;
- (c) Include a reduced level of abstraction for all or some of the consent holders of the Group or any other Aupōuri sub aquifer area Group that was formed as part of the same consent application process, then Council may initiate a review of all or any of the relevant Group consents under section 128 of the Act in accordance with such recommendations.

Staged Implementation and Monitoring Programme Review

~~38MC.24MC.~~ Any Consent Holder wishing~~If the consent holder wishes~~ to proceed to the next Stage, it must commission ~~the Independent Water Effects Review Panel and Irrigation Efficiency Review Panel~~an appropriately qualified expert (or experts) to undertake a Staged Implementation and Monitoring Programme Review and provide the findings to the Council for certification a minimum of three months prior to the anticipated commencement of the next Stage. If more than one consent holder in the Group wishes to proceed to the next Stage at the same time, then the review may be undertaken jointly.

~~39MC.25MC.~~ The purpose of the Staged Implementation and Monitoring Programme Review is to assess whether Condition 1MC is being met at the current level of abstraction and whether Condition 1MC will be met at the next stage of abstraction.

~~40MC.26MC.~~ The Review must provide:

- (a) 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 a dune lake or wetland;
- (b) An assessment of whether water is being used in an efficient manner;
- (c) Recommendations, based on the assessment of monitoring data, on whether:
 - i) Any additional monitoring is required;

- ii) Any reduction in consented abstraction quantities is appropriate, in relation to either environmental effects and/ or efficient water use;
- iii) To advance to the next stage of abstraction or to remain at the current level of abstraction, or to reduce the level of abstraction; or
- iv) There is a need to change any trigger level to make this more precautionous, and if so, the recommended amendments to the trigger level.

~~(d) — Where advancement to the next stage of abstraction is recommended, priority shall be given to AUT.039859.01.01 Te Aupōuri Commercial Development Ltd if it is seeking to proceed to the next stage unless following that order would contravene condition 38MC.~~

~~41MC.27MC.~~ In undertaking a Staged Implementation and Monitoring Programme Review, the ~~Independent Water Effects Review Panel~~expert(s) may consider and utilise any other relevant data collected by other agencies or individuals, and may require the consent holder to update the Model Report to incorporate such data.

~~42MC.28MC.~~ The consent holder cannot proceed to the next stage except in all respects in accordance with the recommendations in a certified Staged Implementation and Monitoring Programme Review.

~~43MC.29MC.~~ Any consent holder proceeding to the next stage must implement recommendations of a certified Staged Implementation and Monitoring Programme Review, and:

- (a) If the recommendations require additional or increased monitoring of the consent(s), then such recommendations must be implemented within the certified timeframes at the consent holder(s) cost, and any Monitoring Plan must be amended and provided to the Council for certification within 20 working days of certification of the Staged Implementation and Monitoring Programme Review report.
- (b) If the recommendations include reduced monitoring, such recommendations may only be implemented through a change to these consent conditions under section 127 of the Act.
- (c) If the recommendations include a reduced level of abstraction, then Council may initiate a review of the consent(s) under section 128 of the Act in accordance with such recommendations.

Breaching of Trigger Levels

~~44MC.30MC.~~ In the event of a TL0 exceedance:

- (a) The Council will notify the consent holder in writing within 24 hours, or as soon as practicable, from when the TL0 exceedance became known.
- (b) The ~~Water User~~consent holders in the Group must meet to discuss voluntary measures to conserve ground water. Any voluntary agreements reached must be documented and provided to the Council.

~~45MC.31MC.~~ In the event of a TL1 or TL1B exceedance:

- (a) The Council will inform all consent holders in the Group in writing within 24 hours, or as soon as practicable, of the exceedance becoming known.

- (b) Within 24 hours of receiving notice from the Council of the exceedance, each consent holder in the Group must reduce their daily groundwater extraction rate by at least 25% of the current average daily quantity. For the purposes of this condition, “Current average daily quantity” must be calculated using the previous month’s water use records, except if the exceedance occurs within one month of a consent holder first taking water for irrigation purposes within a hydrological season, in which case the average shall be calculated using the water use records for this period only.
- (c) If the exceedance is of a salinity indicator in a bore listed in Schedule 1 that is not continuously monitored, then the sampling of the monitoring bore(s) in exceedance must increase to a weekly frequency for four weeks from receiving the Council’s notice of the exceedance. Weekly monitoring must continue until:
 - i) Three consecutive samples in an individual monitoring bore are below TL1 trigger level thresholds established for that piezometer; or
 - ii) The Council directs it can revert to a monthly basis.
- (d) If groundwater levels continue to decline in relation to the TL1 or TL1B after 3 weeks (21 days) following the implementation of Condition ~~44MC31MC~~(b), then at that point the consent holders’ abstraction must be reduced by 50% of the current average daily quantity (being extracted prior to the first exceedance of the trigger level, as calculated for Condition ~~44MC31MC~~(b) above).
- (e) If after four weeks (28 days) following the first exceedance of trigger level there is no improvement in groundwater quality (salinity indicators) or groundwater levels, the consent holders of the Group must commission ~~the Independent Water Effects Review Panel~~appropriate experts to undertake a Groundwater Trigger Exceedance Report in accordance with Conditions ~~47MC34MC~~ and ~~48MC35MC~~.

~~46MC.32MC.~~ In the event of a TL2 exceedance:

- (a) Conditions ~~44MC(31MC)~~(a) – (d) will apply, except that the daily groundwater extraction rate must be reduced by 50% of the current average daily quantity (being extracted prior to the first exceedance of a TL1 or TL1B, as calculated for Condition ~~44MC31MC~~(b) above).
- (b) If groundwater levels continue decline in relation to the TL2 after 21 days following the reduction in abstraction, then at that point the consent holders’ abstraction must be reduced by 75% of the current average daily quantity (being extracted prior to the first exceedance of a TL1 or TL1B exceedance, as calculated for Condition ~~44MC31MC~~(b) above).

NRC, AAWUG and TACDL drafting

~~47MC.33MC.~~ A Consent Holder operating under water take reductions can resume daily extraction to previous authorised levels when:

- (a) Recovery to TL1 occurs; or
- (b) For water level or salinity indicator exceedances of TL2 in bores that are continuously monitored, recovery to at least TL2 is shown by at least one week of continuous monitoring and the levels resumed abstraction (if any) are in accordance with a certified Groundwater Trigger Exceedance Report; and

- (c) For salinity indicator exceedances of TL2 in individual bores identified in condition 44MC(c), recovery to at least TL2 is shown by at least three consecutive weekly manual samples in the individual bore and the levels of resumed extraction (if any) are in accordance with a certified Groundwater Trigger Exceedance Report; and
- (d) For any water level exceedances of TL1B, recovery to TL1B is shown by at least one week of continuous monitoring and the levels of resumed abstraction (if any) are in accordance with a certified Groundwater Trigger Exceedance Report.

DOC Drafting

33MC. A Consent Holder operating under water take reductions due to an exceedance of TL1 can resume daily extraction to previous authorised levels when recovery to TL1 occurs.

[New] A Consent Holder operating under water take reductions due to an exceedance of TL2 can resume extraction:

- (a) For water level or salinity indicator exceedances of TL2 in bores that are continuously monitored where:
 - i), recovery to at least TL2 is shown by at least one week of continuous monitoring; and
 - ii) the levels of resumed abstraction (if any) are in accordance with a certified Groundwater Trigger Exceedance Report; and
- (b) For salinity indicator exceedances of TL2 in individual bores identified in condition 44MC(c) where:
 - i), recovery to at least TL2 is shown by at least three consecutive weekly manual samples in the individual bore; and
 - ii) the levels of resumed extraction (if any) are in accordance with a certified Groundwater Trigger Exceedance Report.

[New] A Consent Holder operating under water take reductions due to an exceedance of TL1B can resume extraction where:

- (c) For exceedances of TL1B that occur below the median groundwater level¹ recovery to TL1B is shown by at least one week of continuous monitoring; and
- (d) For exceedances of TL1B that occur above the median groundwater level, the levels of resumed abstraction (if any) are in accordance with a certified Groundwater Trigger Exceedance Report.

Groundwater Trigger Exceedance Report

~~48MC~~34MC. The purpose of a Groundwater Trigger Exceedance Report is to recommend a programme of actions for the recovery to TL1 and TL1B levels.

~~49MC~~35MC. The Groundwater Trigger Exceedance Report must:

¹ As established and certified under a Groundwater Monitoring Plan under conditions 20MC- 23AMC

- (a) Identify the production bores in the area of effect, review all of the available monitoring data collected in the affected area (including quantity of water abstracted) and establish, to the extent practicable, why the exceedance has occurred;
- (b) Set out any requirements for increased monitoring of the exceedance;
- (c) Recommend actions to end the trigger exceedance, which could include:
 - i) A staged reinstatement of abstraction to pre-exceedance rates and volumes;
 - ii) Reduced level of abstraction for all or some of the consent holders of the Group or any other Aupōuri sub aquifer area Group that was formed as part of the same consent application process;
 - iii) Suspension of abstraction by all or some of the consent holders of the Group or any other Aupōuri sub-aquifer area Group that was formed as part of the same consent application process;
 - iv) Testing of domestic/stock water supplies in bores that are utilising the Aupōuri Aquifer and are potentially impacted by saline intrusion; or
 - v) Other remedial measures such as providing temporary water supply to any parties who have had to reduce or cease abstraction as a result of the exceedance.
- (d) The ~~Independent Water Effects Review Panel~~experts engaged to prepare a Groundwater Trigger Exceedance Report must consider the following matters when preparing ~~a Groundwater Trigger Exceedance~~that Report:
 - ~~i) Where a staged reinstatement of abstraction is proposed, priority shall be given to Water Permit AUT.039859.01.01 Te Aupōuri Commercial Development Limited unless such an approach would not result in the most direct pathway to ending a trigger level exceedance;~~
 - ~~ii)i)~~ ii)i) Preceding climatic conditions and Seasonal climate change (natural vs affected by abstractions);
 - ~~iii)ii)~~ iii)ii) The rate of decline in water levels and comparing water level recession rates before and after pumping;
 - ~~iv)iii)~~ iv)iii) Timing of the exceedance in relation to the Irrigation Season;
 - ~~v)iv)~~ v)iv) The frequency of low water levels, rate of decline, duration of declines; and
 - ~~vi)v)~~ vi)v) Comparing the water level responses in the Indicator bores to other shallow bores or wetland water levels and assessing whether there have been any recent changes to allocation.

~~50MC.36MC.~~ The Groundwater Trigger Exceedance Report must be provided to the Council for certification.

~~51MC.37MC.~~ The consent holder must implement and comply with the Groundwater Trigger Exceedance Report once it is certified by the Council.

~~52MC.38MC.~~ If a recommendation is made in a certified Groundwater Trigger Exceedance Report prepared for another Aupōuri sub aquifer area Group that was formed as part of the same consent application process that abstraction of water be reduced by one or more consent holders that are part of this Group, then the consent holder ~~(s) in this Group~~ must implement the recommended reduction.

~~53MC.39MC.~~ Council will provide written notification to the consent holder(s) of the requirement to reduce the abstraction of water in accordance with Condition ~~51MC387MC~~ and the amount of reduction that is required.

~~54MC.40MC.~~ A consent holder that has been required to reduce the abstraction of water in accordance with Condition ~~51MC387MC~~ can resume daily extraction to previous authorised levels when the requirements of Condition ~~46MC332MC~~ have been met.

General

~~41MC.~~ For the purposes of Conditions 19MC, 24MC and 35MC(d), the consent holder may (but is not required to) engage the same hydrological and/or ecological experts as have been appointed to the Independent Water Effects Review Panel established in accordance with the consent conditions for the Northern and Middle Aupōuri sub aquifer area Groups that were formed as part of the same consent application process.

~~42MC.~~ In complying with these conditions (for example, preparing a Groundwater Monitoring Plan), the consent holders in the Group may act either individually or jointly together with any other consent holder(s) within the Group.

SCHEDULE 1: MONITORING REQUIREMENTS AND TRIGGER LEVELS

Southwestern Group Groundwater Monitoring Requirements and Trigger Levels

Objectives and Types of Monitoring

Shallow monitoring bores are screened in the upper levels of the unconfined sand aquifer. Deep groundwater monitoring bores are screened in the shellbed aquifer

The objective of shallow groundwater monitoring (by monitoring type) is to identify:

- 1. Potential effects of deep groundwater abstraction on shallow groundwater levels as an indicator of potential effects on hydraulically connected surface waters (*Indicator, Wetland*)
- 2. Increased risk of saline intrusion in shallow aquifers (*Sentinel*)
- 3. Sub-regional trends in shallow groundwater levels (*Additional water level*)

The objective of deep (shellbed) groundwater monitoring (by monitoring type) is to identify:

- 1. Increased risk of saline intrusion in the shellbed aquifer (*Sentinel, Saline Intrusion*)
- 2. Effects of deep groundwater abstraction on long-term groundwater storage volumes (*Additional water level*)

Monitoring involves three separate sets of parameters depending on monitoring type:

- 1. Either continuous telemetered (GL_{CT}), continuous (GL_C) or monthly manual (GL_M) monitoring of groundwater levels
- 2. Continuous monitoring of electrical conductivity (EC)
- 3. Quarterly monitoring of key chemical indicators of saline intrusion (SI), which are EC, Chloride, Sodium and Total Dissolved Solids.

Schedules of the monitoring bores and requirements are set out in Table 1 below. The locations of the monitoring bores and productions bores are shown in Figure 1 below.

Methodology for establishing Baseline Values

The following methodology must be used for establishing Baseline Values for groundwater levels:

- (a) Where >10 years period of water monitoring data is available within a reasonable proximity to a proposed monitoring bore (being 2,000m) and at a similar depth (+/- 10m), Baseline Values may be based upon that existing data.
- (b) When >10 years of monitoring data is unavailable within a reasonable proximity to a proposed monitoring bore (being 2,000m) and at a similar depth (+/- 10m), Baseline Values will be established utilising the model and through monitoring for a period sufficient to establish relative level of groundwater at that location, being:
 - i. at least 3 months monitoring data.
 - ii. at least 6 data points (either directly or from a nearby monitoring bore) in winter when pumping is not operational.

Trigger Level Methodology

TL0, TL1, TL1B and TL2 must be established in accordance with the following methodology:

- (a) TL0 for groundwater level measurements must be set at the lowest 25th percentile of Baseline Values.
- (b) TL1:
 - i. TL1 for groundwater level measurements must be set at the lowest 5th percentile of Baseline Values; and
 - ii. TL1 for electrical conductivity must be within 1 mS/m of the maximum measured Baseline Values and an equivalent basis is to be used for any other water chemistry TL1 limits.
- (c) TL1B: TL1B provides for a maximum seasonal decline. It is only operational when groundwater level recedes below the median groundwater level at the Lake Heather shallow groundwater monitoring bore and is calculated annually, as follows:
 - i. Maximum water level recorded at any time in the Lake Heather continuous monitoring bore after 1 July, but before the end of the hydrological year, minus 0.72m. Note: the maximum water level may be recorded after the start of the hydrological year.

DOC wording

- (c) TL1B: TL1B provides for a maximum seasonal decline. It is calculated annually, as follows:
 - i. Peak water level recorded at any time in the Browne continuous monitoring bore after 1 July, but before the end of the hydrological year, minus 0.95m.

“Peak water level” must be determined by monitoring water levels from the start of the hydrological year until a recession occurs indicating peak water level has been reached (i.e. being the maximum level identified since the start of that hydrological year).

In the unlikely event that water levels increase above the previously adopted peak before the end of the same hydrological year, TL1B may be re-calculated from the new peak water level and the revised TL1B applied from that date.

Note: *TL1B is triggered when the groundwater level decline in any given year is greater than the calculated 95th percentile of historical maximum annual declines (0.95m).*

NRC, AAWUG and TACDL wording

- (c) TL1B: TL1B provides for a maximum seasonal decline. TL1B is calculated on an annual basis (under condition 23AMC) by recording the “peak water level” after 1 July at the Browne shallow groundwater monitoring bore and subtracting 0.95m.

“Peak water level” must be determined by monitoring water levels from the start of the hydrological year (1 July) until a recession occurs indicating peak water level has been reached (i.e. being the maximum level identified since the start of that hydrological year).

TL1B is only operational in the lower half of the hydrograph. For TL1B to be triggered:

- i. The Browne shallow groundwater monitoring bore must have receded more than 0.95m from Peak Water Level in the hydrological year; and
- ii. The water level in the Browne shallow groundwater monitoring bore must be below the median groundwater level determined on the historical record for this site.

Note: The historical maximum annual decline is calculated as the 95th percentile of seasonal declines (0.95m).

(d) TL2 for groundwater level measurements must:

- i. for indicator monitoring sites, be set at the lowest 3rd percentile of Baseline Values; and
- ii. for sentinel monitoring sites, be based on the Ghyben-Herzberg water level limit required to protect against sea-water intrusion.

(e) TL2 for water quality parameters must:

- i. for inland monitoring bores, be set at the smallest exceedance of the baseline range that results from the following criteria:
 - The median electrical conductivity value + 50%;
 - An increase of 20 mS/m in the electrical conductivity above the maximum Baseline Values; or
 - For parameters other than electrical conductivity, be based on a change of a similar scale to the two preceding points, or any smaller increases required to ensure that Condition 1MC is complied with.

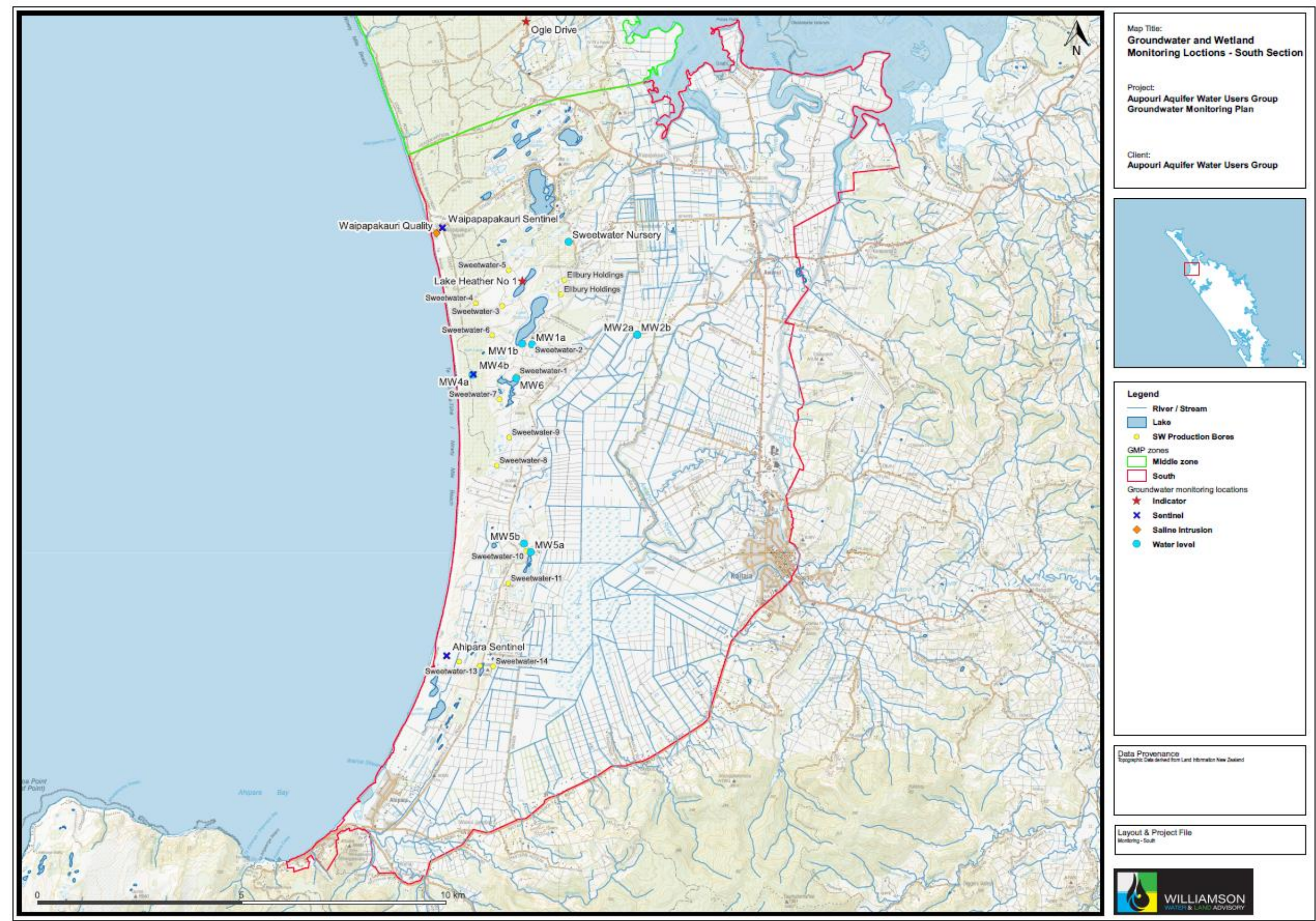
Table 1 (below) identifies the monitoring bores for which Trigger Levels must be set in accordance with the methodology above (where applicable).

Schedule of Groundwater Level Monitoring and Trigger Levels

Table 1. Groundwater Level and Saline Intrusion Monitoring Bores

Monitoring Bores										
Bore Details	Bore Owner	Continuous (NZTM)		Depth (m)	Status	Monitoring Type	Monitoring Mode	Target Aquifer	Parameter	Monitoring Description
		Easting	Northing							
Shallow										
Lake Heather No 1 (shallow)	NRC	1617605	6121325	29	Existing	Indicator	Continuous Telemetered	Unconfined	GL _{CT}	Extended period (>30 years) of manual readings currently. Continuous monitoring and reporting (telemetry) of shallow groundwater levels in an area with highest potential for effects on shallow groundwater. Groundwater level trigger levels established.
Waipapapakauri Sentinel (shallow)	NRC	1616020	6121100	TBC	Proposed	Sentinel	Continuous Telemetered	Unconfined	GL _{CT} , EC	Continuous monitoring and reporting (telemetry) of shallow groundwater levels and EC, seawards of an area of concentrated abstraction. Groundwater level and EC trigger levels established.
MW1a	Private	1617843	6119772	13.3	Existing	Additional water level	Monthly Manual	Unconfined	GL _M	Existing compliance monitoring site (10 years). Continued monitoring of monthly groundwater levels.
MW2a	Private	1620419	6120014	15.0	Existing	Additional water level	Monthly Manual	Unconfined	GL _M	Existing compliance monitoring site (10 years). Continued monitoring of monthly groundwater levels.
MW4a	Private	1616386	6119031	25.0	Existing	Additional water level	Monthly Manual	Unconfined	GL _M	Existing compliance monitoring site (10 years). Continued monitoring of monthly groundwater levels.
MW5a	Private	1617811	6114690	6.0	Existing	Additional water level	Monthly Manual	Unconfined	GL _M	Existing compliance monitoring site (10 years). Continued monitoring of monthly groundwater levels.
MW6	Private	1617451	6118946	14.4	Existing	Additional water level	Monthly Manual	Unconfined	GL _M	Existing compliance monitoring site (10 years). Continued monitoring of monthly groundwater levels.
Ahipara Sentinel	Private	TBC	TBC	TBC	TBC	Sentinel	Continuous Telemetered	Unconfined	GL _{CT} , EC _C	Note: Installation of a sentinel bore is <u>only</u> required if bores to abstract water are installed on the southern part of Te Rarawa Farms’ property. Continuous monitoring and reporting (telemetry) of shallow groundwater levels and EC, seawards of an area of concentrated abstraction. Groundwater level and EC triggers established.
Deep										
Lake Heather No 1 (deep)	NRC	1617605	6121325	105	Existing	Additional water level	Continuous Telemetered	Shellbed	GL _{CT}	Extended period (>30 years) of manual readings currently. Continuous monitoring and reporting (telemetry) of deep groundwater levels in an area with highest potential for effects. Groundwater level trigger levels established
Waipapakauri Sentinel (deep)	NRC	1616020	6121100	TBC	Proposed	Sentinel	Continuous Telemetered	Shellbed	GL _{CT} , EC _C	Continuous monitoring and reporting (telemetry) of shellbed groundwater levels and EC, seawards of an area of concentrated abstraction. Groundwater level and EC trigger levels established.
MW4b	NRC	1616404	6119040	92.0	Existing	Sentinel	Continuous Telemetered	Shellbed	GL _{CT} , EC _C	Continuous monitoring and reporting (telemetry) of shellbed groundwater levels and EC seawards of an area of concentrated abstraction. Groundwater level and EC trigger levels established.
Sweetwater Nursery	Private	1618734	6122288	82.0	Existing	Additional water level	Monthly Manual	Shellbed	GL _M	Extended period (>15 years) of manual readings currently. Continued monthly monitoring of groundwater levels to characterise long-term trends.
Waipapakauri Quality	Private	1615500	6122500	TBC	Existing	Saline Intrusion	Quarterly Quality	Shellbed	SI	Manual monitoring and quarterly water quality sampling in an existing bore, primarily focussed on saline intrusion potential.
MW1b	Private	1617597	6119793	94.0	Existing	Additional water level	Monthly Manual	Shellbed	GL _M	Existing compliance monitoring site (10 years) Continued monitoring of monthly groundwater levels.
MW2b	Private	1620422	6120015	59.0	Existing	Additional water level	Monthly Manual	Shellbed	GL _M	Existing compliance monitoring site (10 years) Continued monitoring of monthly groundwater levels.
MW5b	Private	1617644	6114898	61.0	Existing	Additional water level	Monthly Manual	Shellbed	GL _M	Existing compliance monitoring site (10 years) Continued monitoring of monthly groundwater levels.
Ahipara Sentinel	Private	TBC	TBC	TBC	TBC	Sentinel	Continuous Telemetered	Shellbed	GL _{CT} , EC _C	Note: Installation of sentinel bore <u>only</u> required if development occurs on southern part of Te Rawara Farms property Continuous monitoring and reporting (telemetry) of shellbed groundwater levels and EC, seawards of an area of concentrated abstraction. Groundwater level and EC triggers established

Figure 1. Locations of Monitoring and Production Bores



Production Bore Monitoring and Trigger Levels

Baseline and Ongoing Monitoring

For a period of 12 months beginning six months after the commencement of the consent, sampling for salinity indicators in any of the production bores listed in Table 2 below that are operational will be undertaken at 6-weekly intervals².

After the initial 12-month monitoring period, monthly water level monitoring will be undertaken in any of the production bores listed in Table 2 that are operational during the winter months (nominally May to September).

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

Trigger Level Criteria

EC trigger levels will be established in all operational production bores listed in Table 2 below.

During the initial 12-month monitoring period EC trigger levels will be no greater than:

- TL1 – Departure exceeding 25% of the EC value from the initial monitoring round
- TL2 – Departure exceeding 37.5% of the EC value from the initial monitoring round

Long-term EC triggers for individual production bores will be established following the initial 12-month monitoring period based on an assessment of spatial and temporal variation in EC observed during the initial period, in a manner consistent with EC trigger levels established in the sentinel monitoring bores.

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.

Table 2. Monitoring and Trigger Levels – Production Bores

Bore Name (NRC ID)	Depth (m)	Target aquifer	Parameter*	Units	Frequency	Trigger Levels	
						TL1	TL2
Sweetwater 1	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 2	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 3	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 4	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 5	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 6	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 7	TBC	Shellbed	GL	mASL	Monthly	NA	NA

² This frequency applies to the initial 12-month monitoring period for the establishment of baseline information. The frequencies specified in Table 2 are for ongoing monitoring specifications.

Bore Name (NRC ID)	Depth (m)	Target aquifer	Parameter*	Units	Frequency	Trigger Levels	
						TL1	TL2
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 8	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 9	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 10	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 11	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 12	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 13	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
Sweetwater 14	TBC	Shellbed	GL	mASL	Monthly	NA	NA
			EC	mS/m	Monthly	TBC	TBC
			EC	mS/m	Monthly	TBC	TBC
Notes:							
* Purpose key: GL = Groundwater Level; EC = Electrical Conductivity.							
NA = Not applicable							

SCHEDULE 2: WETLAND MONITORING PLAN – MONITORING SITES

The primary criteria for selecting monitoring sites for the wetland monitoring plan shall be the level of hydrological risk associated with proposed water takes. Level of risk shall take into account wetland types (for example, whether swamps, marshes, fens or riverine systems as distinct from wetlands more likely to be rainfall-fed such as bogs, pakihi/gumlands).

The secondary criteria shall include:

- Spatial representativeness of the monitoring site network across the predicted drawdown area.
- Selection of high-risk or reference wetland sites that also have high biodiversity values (all else being equal).

Paired reference sites will be at no/negligible risk from effects associated with the water take and are less likely to be subject to confounding effects, for example, localised drainage ditch management or pine forestry harvesting/afforestation.

Water level monitoring from dipwells /piezometers must be continuous using a transducer and be located at least 100 m away from surface water features such as drains.

SCHEDULE 3: AREAS OF INTEREST

[To be included]

SCHEDULE 4: BOUNDARIES OF NORTHERN, MIDDLE AND SOUTH-WESTERN GROUPS

[To be included]