

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of proposed Variation 2 to the Proposed
Canterbury Land and Water Regional Plan -
Section 13 Ashburton

**STATEMENT OF PRIMARY EVIDENCE OF GERARD MATTHEW WILLIS FOR
FONTERRA CO-OPERATIVE GROUP LIMITED AND DAIRYNZ LIMITED**

15 MAY 2015

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1. INTRODUCTION

- 1.1 My full name is Gerard Matthew Willis. I am a Director of Enfocus Ltd, a resource management consultancy based in Auckland. I have practised as a planner and resource management specialist for the past 25 years.

Qualifications and experience

- 1.2 I hold a Bachelor of Regional Planning (Hons) degree from Massey University and am a full member of the New Zealand Planning Institute.
- 1.3 My previous experience includes working in policy and regulatory planning roles in local government both in New Zealand and in the United Kingdom. I also spent a considerable part of my early career in central government roles including as a senior policy analyst at Ministry for the Environment ("MfE") and environment adviser to the Minister for the Environment.
- 1.4 Since 2001, I have been a planning and resource management consultant, establishing my own practice in 2002. In that capacity I have acted for a number of district and regional councils, public and private companies and government agencies. The scope of consulting commissions has been broad ranging. Of note, over recent years, I have advised three different regional councils on the development of regional policy statements and/or regional plans.
- 1.5 I have also been involved in reform of freshwater management at the national level:
- (a) I was previously engaged by MfE under the Sustainable Water Programme of Action to advise on alternatives to first-in-first served allocation regimes and on barriers to tradable permits.
 - (b) In 2010 I was engaged by MfE to assist in the Fresh Start for Freshwater Programme with specific involvement in water governance issues.
 - (c) In 2013 I was engaged by MfE to draft amendments to the National Policy Statement on Freshwater Management 2011 as part of the development of the National Policy Statement on

Freshwater Management 2014 ("**NPSFM**"), including the incorporation of the National Objectives Framework.

- 1.6 I have previously been engaged by MfE to assist in the development of several other national policy statements and national environmental standards.
- 1.7 My relevant experience also involves the preparation of evidence for hearings in relation to water quantity and/or quality matters in respect of Horizons One Plan, Variation 6 to Environment Waikato's Regional Plan, Proposed Change 6A to the Otago Regional Plan and, in Canterbury, the Proposed Hurunui and Waiau Rivers Regional Plan and the Canterbury Land and Water Plan ("**CLWP**"), including for the proposed Variation 1 to the CLWP.

Background

- 1.8 My involvement in the proposed Variation 2 to the CLWP - Section 13 Ashburton ("**Variation 2**") commenced in September 2014 following its public notification. I was initially engaged to assist with the preparation of a submission on behalf of Fonterra. I was subsequently engaged by Fonterra to assist with preparing further submissions. In my capacity as independent planning adviser I worked with staff from Fonterra and DairyNZ. On occasion I also participated in meetings with other primary sector interests as they worked to develop a whole-of-primary-sector understanding of, and position on, key aspects of Variation 2. This assignment followed from my involvement providing planning advice to Fonterra in relation to Variation 1 to the CLWP.
- 1.9 I am familiar with the provisions of Variation 2 to which these proceedings relate. In preparing my evidence I have reviewed the relevant parts of the section 32 Report and the section 42A Report. I have also read the supporting documentation of the Council, including in particular the following:
 - (a) Hinds Plains Modelling for the Limit Setting Process, Report No.R13/93, Scott, L, September 2013.
 - (b) Economic Impact Assessments of the Hinds Water Quality Limit Setting Process, Report No. R14/82, AgReserach Ltd, June 2014.

- 1.10 I have also read the evidence of Mr Neal, Ms Hayward, Dr Fairgray, Dr Bell and Dr Brown.

Code of Conduct

- 1.11 I have read the Code of Conduct for expert witnesses contained in the Environment Court's Practice Note as updated in 2014 and agree to comply with it. In that regard, I confirm that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

2. SCOPE OF EVIDENCE

- 2.1 In the course of preparing my evidence, I have undertaken a planning assessment of the provisions of Variation 2 in light of the submissions and further submissions of DairyNZ and Fonterra.

- 2.2 My evidence is structured as follows:

- (a) Relevant planning instruments.
- (b) The existing environment in the Hinds/Hekeao Plains Area and the required policy response.
- (c) The nutrient outcomes sought by Variation 2 and the DairyNZ and Fonterra submissions.
- (d) Existing nitrate-nitrogen concentrations in the Lower Hinds/Hekeao Plains Area and discrepancies in modelling.
- (e) The target load for the Lower Hinds/Hekeao Plains Area.
- (f) An approach to allocating that target load.
- (g) An evaluation of allocation regimes.
- (h) Proposed changes to policy and rule wording.
- (i) Submissions by other parties.
- (j) Transfer of water permits.

(k) Other issues.

- 2.3 I have included a mark-up of proposed amendments to Variation 2, as **Appendix 2** of my evidence. This mark-up shows the Council Officers' recommendations from the section 42A Report with my suggested amendments.

3. EXECUTIVE SUMMARY

- 3.1 The Hinds/Hekeao Plains Area is a highly modified environment and is over-allocated for nitrogen. There is a need to reduce average nitrate nitrogen concentrations in shallow groundwater from 13.2mg/L (including an allowance for lag effects) to 6.9mg/L. This requires a reduction in nitrogen discharge from farming activities of ~30% (on the basis that the managed aquifer recharge ("**MAR**") provides additional dilution). Fonterra agrees with that reduction target and other surface water quality limits and objectives of Variation 2.
- 3.2 The Council has set a load limit of 3400 tonnes N/yr based on an existing modelled load of 4500 tonnes N/yr. There are, however, discrepancies in the modelling (see the evidence of Ms Hayward). Fonterra has modelled the current load at 6508 tonnes N/yr. A 30% reduction from that would mean a target load of 4579 tonnes N/yr.
- 3.3 On that basis, reference to a target load of 3400 tonnes in policies and in Table 13(g) (which is linked rules) is inappropriate. Due to uncertainties the target load should be expressed as a proportion (70%) of the existing load.
- 3.4 The key issue addressed in this evidence is how that target load should be allocated amongst existing and future activities. There is little policy guidance on allocation. Accordingly, the appropriateness of allocation regimes is assessed in this evidence largely by reference to planning principles of efficiency, equity/fairness and social durability.
- 3.5 Variation 2 allows for increases in nitrogen discharge on 30,000ha of land (which includes land within consented irrigation schemes yet to receive water and the balance apparently on a first-in-first-served basis). The "headroom" allowing for these increases, while still achieving an overall reduction in nitrogen discharge, is to come from dairy farms (-45% by

2035) and dairy support farms (-25% by 2035). Economic modelling by Dr Fairgray shows that this allocation will cost 2.5% of local GDP by 2035 and \$650 million for the 20-year period (in NPV terms).

- 3.6 DairyNZ/Fonterra have proposed an alternative allocation. That allocation allows low leaching farms to increase nitrogen discharge within a 15kg N/ha/yr "Tier 1 flexibility cap" as a permitted activity. 17 tonnes is also set aside for medium nitrogen discharges (those in the 15-20kg range) to increase their discharges to 20kg N/ha/yr (as restricted discretionary activities) – referred to as the "Tier 2 flexibility cap". Any further increases are limited to the estimated 15,000ha of land within consented irrigation schemes yet to receive water. Headroom for this regime is provided by all farms discharging >20kgs N/ha/yr reducing their discharges by 36% by 2035 as restricted discretionary activities. This proposal also includes a slight deferment of the first commitment period from 2020 to 2025. Dr Fairgray has modelled the cost of the DairyNZ/Fonterra allocation proposal at 2.0% of local GDP by 2035 and \$232 million for the 20-year period (in NPV terms¹).
- 3.7 Both the DairyNZ/Fonterra proposal and the Council's proposal would deliver a 9.2mg/L nitrate nitrogen concentration below the root zone by 2035.
- 3.8 It is my planning opinion that the DairyNZ/Fonterra proposal scores more highly against the three planning principles and is more appropriate.
- 3.9 The detailed planning provisions required to give effect to this proposal are included in **Appendix 3**.
- 3.10 Some matters raised by the Fonterra submission have been adequately addressed by recommendations of the Section 42A Report (the "**Officers' Report**"). These are discussed in section 17 of this evidence. Other matters are not being pursued and/or no technical evidence has been prepared in support of them. These are listed in **Appendix 4**.
- 3.11 The conclusion set out in Section 18 outlines how the proposal contained in this evidence satisfies the relevant steps of the consideration process.

¹

The NPV costs quoted in this executive summary are based on a discount rate of 5%.

4. RELEVANT PLANNING INSTRUMENTS

- 4.1 The key planning instruments relevant to the consideration of the Variation are listed in **Appendix 1** to this evidence. In short, my assessment of the relevant instruments accords with that set out in the Officers' Report. Generally my interpretation of those planning instruments and their application to Variation 2 also accords with that of the section 42A Report unless otherwise stated in this evidence.
- 4.2 Of direct relevance to Fonterra's interests, Variation 2 must "give effect" to the NPSFM.² Environment Canterbury must also give effect to the Canterbury Regional Policy Statement ("**CRPS**"). Variation 2 will also be an integral part of the CLWP. For those reasons, I consider those instruments the most relevant to the planning assessment and hence feature most in the planning analysis that follows.³
- 4.3 I also acknowledge that the Ngai Tahu Settlement Act 1998 and the statutory acknowledgment of Hinds/Hekeao under that Act.
- 4.4 Finally, I am conscious that Variation 2 has been developed to implement the Ashburton Zone Implementation Plan ("**ZIP**") and its Addendum. Although there is no requirement at law for Variation 2 to give effect to the ZIP Addendum that instrument has been developed with broad community discussion specifically to set the direction on managing issues of over allocation and, in my opinion regard should be had it. This does not mean that it must be followed in all respects. Certainly Part 2 of the Resource Management Act 1991 ("**Act**") and statutory planning instruments must prevail in the event of conflict.

5. THE EXISTING ENVIRONMENT IN HINDS/HEKEAO PLAINS AREA

- 5.1 The Hinds/Hekeao Plains Area (in particular the Lower Hinds/Hekeao) is a highly modified environment. As noted in the evidence of Mr Brown, 60% of the land area of the catchment is used for dairy or dairy support. Another 33% is used for other forms of agriculture. Much of this is

² Variation 2 must also give effect to the New Zealand Coastal Policy Statement but given the lack of estuaries along the Hinds Plain coast this is of less relevance to issues raised by Fonterra.

³ Variation 2 must also not be inconstant with the Water Conservation (Rangitata River) Order 2006 and the National Conservation (Rakaia River) Order 1988. However, Fonterra's interests in Variation 2 do not affect those instruments and hence they are not addressed here.

intensive agriculture (in particular dairy, dairy support and cropping). In the lower catchments these intensive land uses are enabled through historic land drainage and, throughout the catchment, by irrigation – which has increased considerably over the past 20 years. Five irrigation schemes exist in the Hinds Plains Area (three of which are supplied by the Rangitata Diversion Race) the largest being Mayfield Hinds, Valetta and Barhill Chertsey. There is also a significant amount of irrigation supplied from groundwater bores.

- 5.2 As a result of this intensive land use and draw on water, average nitrogen concentrations in groundwater (and in surface waters) are elevated in the Lower Hinds/Hekeao Plains Area, averaging around 10.9 mg/L in shallow groundwater.⁴ The CLWP accordingly identifies the majority of the Lower Hinds Plains Area as being within the red nutrient allocation zone, meaning that water quality outcomes are not met (or it is "over-allocated" for nitrogen relative to the limit set for annual average nitrate nitrogen (5.65mg/L) in Schedule 8 of the CLWP).
- 5.3 Similarly, the Valetta groundwater zone (that area north of the Hinds River) is over-allocated in terms of consented groundwater abstraction. Some water remains able to be allocated from the adjacent (to the south) Mayfield Hinds groundwater allocation zone although full allocation is approaching.

6. REQUIRED POLICY RESPONSE

National Policy Statement for Freshwater Management

- 6.1 In managing the land and water resources of the Hinds/Hekeao Plains Area, Environment Canterbury must (under section 55(1) of the Act) give effect to the NPSFM by:
- a) Maintaining or improving overall quality of freshwater by:
 - i. establishing freshwater limits in accordance with Policies CA1-CA4; and
 - ii. setting freshwater limits to ensure freshwater objectives are met (or targets such that the freshwater objectives will be met over time); and

⁴ Refer evidence of Ms S Hayward, paragraph 4.18.

b) In terms of water quantity, avoid any further over-allocation of freshwater and phasing out existing over-allocation by:

- i. Establishing freshwater objectives in accordance with CA1-CA4; and
- ii. Set environmental flows and/or levels (being a type of limit).

6.2 Although Environment Canterbury must give effect to the NPSFM (under section 55 of the Act) and must implement the NPS "as promptly as reasonable" (under NPSFM Policy E1 (b)), it has until 31 December 2025 (or 2030 if extended) for implementation to be fully completed. In other words, it may be reasonable to implement aspects of the NPSFM in the context of Variation 2 but other aspects can wait a further plan change process (provided a staged implementation has been adopted).

6.3 I understand Environment Canterbury has not fully implemented the NPSFM in the sense that the process for establishing freshwater objectives prescribed in Policies CA1-CA4 has not been followed in full and hence Environment Canterbury has adopted a staged implementation programme.

6.4 Furthermore, achieving the freshwater objectives needs to be phased cognisant of the economic cost involved and may extend beyond the timeframes for implementing the NPSFM specified in Policy E1. This is made clear in the Preamble of the NPSFM which states:

Where changes in community behaviours are required, adjustment timeframes should be decided based on the economic effects that result from the speed of change. Improvements in freshwater quality may take generations depending on the characteristics of each freshwater management unit.

6.5 Those issues aside, Variation 2 does, as required, give effect to the NPSFM in that it establishes freshwater objectives and sets freshwater limits and targets to set freshwater management on course to avoid further allocation and remove over-allocation within the catchment.

Canterbury Regional Policy Statement

6.6 In my opinion planning provisions that address over-allocation are also required to give effect to various policies of the CRPS, including, in particular, Policies 7.3.6, 7.3.7 and 7.3.4 (2).

6.7 Policy 7.3.6(2) states:

Where water quality is below the minimum water quality standard set for that water body, to avoid any additional allocation of water for abstraction from that water body and any additional discharge of contaminants to that water body, where any further abstraction or discharges, either singularly or cumulatively, may further adversely affect the water quality in that water body:

- (a) until the water quality standards for that water body are met; or*
- (b) unless the activities are undertaken as part of an integrated solution to water management in the catchment in accordance with Policy 7.3.9, which provided for the redress of water quality within the water body within a specified timeframe.*

6.8 Policy 7.3.7 states:

To avoid, remedy or mitigate adverse effects of changes in land uses on the quality of freshwater (surface or ground) by:

- 1) identifying catchments where water quality may be adversely affected, either singularly or cumulatively, by increases in the application of nutrients to land or other changes in land use; and*
- 2) controlling changes in land uses to ensure water quality standards are maintained or where water quality is already below the minimum standard for the water body, it is improved to the minimum standard within an appropriate timeframe.*

6.9 Policy 7.3.4(2) states:

Where the quantum of water allocated for abstraction from a water body is at or exceeds the maximum amount provided for in an environmental flow and water allocation regime:

- 1) Avoid and additional allocation water for abstraction or any other action which would result in further over-allocation;*
- 2) Set a timeframe for identifying and undertaking actions to effectively phase out over-allocation; and*
- 3) Effectively addresses any adverse effects of over-allocation in the interim.*

7. NUTRIENT OUTCOMES SOUGHT BY VARIATION 2 AND THE FONTERRA SUBMISSION

- 7.1 The freshwater outcomes established for the Hinds Plains Area rivers are set out Table 13(a) of Variation 2 with nitrate toxicity targets in Table 13(j). The outcomes for groundwater (expressed in Variation 2 as "targets") are set out in Table 13(k). Fonterra's submission supports the outcomes, limits or targets set out in those three tables.

- 7.2 Based on my understanding of the NPSFM and the evidence of Ms Hayward, I support the nitrate toxicity limits/targets⁵ for rivers of Table 13(j) and the nitrate nitrogen target for groundwater of Table 13(k). In my opinion they are set at an appropriate level given the context within which they are applied.
- 7.3 The nitrate toxicity limits/targets are consistent with the "*numeric attribute states*" set out in Appendix 2 to the NPSFM. That is, the limits that apply to Hill-fed Upland rivers correspond to Attribute State A of the NPSFM (being high conservation value systems). The limits/targets for the Hill-fed Lower rivers correspond to Attribute State B of the NPSFM while the targets for the Spring-fed Plains correspond with Attribute State C and the national bottom line.
- 7.4 The national bottom line target for Spring-fed Plains is appropriate given its current state and (generally) increasing trends in median nitrate nitrogen concentrations in those rivers (as illustrated in Appendix 1 of Ms Hayward's evidence). Furthermore, as noted by Ms Hayward (paragraph 4.7) the flow of many of these streams appears to be sourced from nitrate enriched groundwater meaning that:
- (a) there is sense in setting common groundwater and Spring-fed Plains nitrate targets; and
 - (b) a 6.9mg/L target for Spring-fed Plains will itself be challenging given that average shallow groundwater concentrations are currently 10.9mg/L (meaning a 37% reduction is required to achieve the target) and may rise to 13.2mg/L with an expected lag effect in nitrogen loss to groundwater (meaning a 48% reduction will be required to achieve the target).
- 7.5 The groundwater target of 6.9mg/L is a slight increase from the CLWP limit of 5.65mg/L but still well below the Maximum Acceptable Value ("**MAV**") for drinking water standards of 11.3mg/L. 6.9mg/L was considered an acceptable outcome by the Ashburton Zone Committee when developing the ZIP. Ms Hayward explains (at paragraph 4.13 of her evidence) that this target provides a moderate level of confidence that

⁵ I describe these as limits/targets as I assume they are limits where they are not already exceeded (such as, for example, in the Hill-fed Upland rivers) and targets where they are currently exceeded (such as in the Spring-fed Plains streams).

the average nitrate concentrations will likely comply with the drinking water standards MAV most of the time.

7.6 My understanding is that the ZIP Addendum and Variation 2 intends that the nitrate nitrogen target of 6.9mg/L in groundwater be met by a combination of:

- (a) a reduction in nitrogen loss below the root zone from agricultural activities (limited to dairy and dairy support). This is to reduce nitrate nitrogen concentration to an average of 9.2mg/L; and
- (b) increased dilution in groundwater achieve by managed aquifer recharge ("**MAR**"). This will reduce nitrate nitrogen concentrations by a further 2.3mg/L to an annual average of 6.9mg/L.

7.7 I support the proposition that groundwater concentrations should be reduced to 6.9mg/L by 2035 as per the proposal in Variation 2 and I note that Fonterra's submission also supports that fundamental outcome.

8. EXISTING NITRATE NITROGEN CONCENTRATIONS IN THE LOWER HINDS/HEKEAO PLAINS AREA AND DISCREPANCIES IN MODELLING

8.1 Although Fonterra's submission is in agreement with Variation 2 on the surface and groundwater outcomes, limits and targets, it disagrees with the proposed level of reductions in nitrogen discharge required from farming activities to achieve those limits and targets.

8.2 My understanding is that Environment Canterbury's monitoring indicates current average groundwater nitrate nitrogen concentrations of 10.9 mg/L. Accounting for the lag effect the "existing" groundwater nitrate concentration could reach up to 13.2mg/L. That means there must be an improvement of ~30% to achieve a concentration of 9.2mg/L (9.2mg/L being the target that applies to the reduction in nitrogen loss below the root zone from farming activities). That translates to a ~30% reduction required in the current nitrogen load.⁶

⁶ The derivation of the 30% reduction requirement is explained in the evidence of Ms Hayward.

- 8.3 Environment Canterbury has modelled the current nitrogen load in the manner described by Ms Hayward. That modelling gave a current load of ~4500 tonnes.
- 8.4 For the reasons described in the evidence of Ms Hayward, DairyNZ commissioned Aqualinc to remodel the existing nitrogen load. While I understand the approach used was very similar to Environment Canterbury's, a key difference was that the Aqualinc modelling adjusted for a deficiency in the way the current version of OverseerTM deals with drainage associated with irrigation.⁷
- 8.5 As noted in Appendix 3 of Ms Hayward's evidence the latest Aqualinc modelling (shown as scenario DNZ/Overseer6.2)⁸ resulted in a current N load of over 6,500 tonnes (and an associated *modelled* nitrogen drainage concentration below the root zone of 13.9mg/L).⁹
- 8.6 This discrepancy is important because the modelled current load is used as the basis to determine the *target* load that farming activities must comply with in order to achieve the 9.2mg/L nitrate nitrogen concentration target (assuming MAR contributes the remaining improvements to achieve the ultimate 6.9mg/L groundwater nitrate nitrogen target).

9. THE TARGET LOAD FOR THE LOWER HINDS/HEKEAO PLAINS AREA (POLICIES 13.4.11 AND 13.4.12 AND TABLE 13(G))

- 9.1 The target load specified in the plan is 3,400 tonnes of nitrogen per year. This is included in Policy 13.4.12, Policy 13.4.13 and Table 13(g). This target load represents an approximately 25% reduction from Environment Canterbury's modelled existing nitrogen load of 4,500.¹⁰ However, it

⁷ See the evidence of Dr P Brown. Other differences included updated land use data (which included higher levels of dairy) and an improved assessment of the extent of irrigation.

⁸ This denotes that it uses an approximation of the new version of OverseerTM by applying a drainage adjustment factor.

⁹ As explained by Ms Hayward, the modelled root zone concentration is higher than that likely to be *measured* (in the order of 13.2mg/L after accounting for the lag effect). The discrepancy in the Overseer model concentration below the root zone and the monitored concentration in groundwater concentrations can be explained in part by modeling uncertainty as well as a likely dilution of the shallow groundwater by losses of low nitrate water from irrigation and stock water races as explained in the evidence of Dr Brown.

¹⁰ Although this is not the reduction required from farming activities because the load target includes provision for land use change and intensification which means that farming land use would collectively need to reduce nitrogen loss by approximately 28%.

represents a 48% reduction from the 6,508 current load modelled by Aqualinc.

- 9.2 The Officers' Report acknowledges (paragraphs 9.141 and 9.142) an issue with the way modelling has been undertaken (using a version of Overseer™ that will be replaced because of its deficiencies in addressing drainage from irrigated properties). It notes that a whole-of-region solution may be on the way but that in any event:

It is noted that the relevant numbers of 144 and 3400 tonnes are not referenced particularly through any rules, and would require future modelling processes to identify whether the limits and targets were being met. On this basis, while supported through the CWMS, the load limits provide little value with respect to Variation 2.

- 9.3 I understand that to mean that although the numbers might be unreliable "it does not really matter", as they do not have an instrumental role in the Variation. If that interpretation is correct, then, with respect to the Officer, I do not agree.

- 9.4 As already noted, the 3,400 tonnage figure is included in two key policies (13.4.12 and 13.4.13) and in Table 13(g). It is also referenced in Rule 13.5.17.

- 9.5 That rule states as matter of discretion 2:

The ability to meet the nitrogen load target for farming activities in Table 13(g).

- 9.6 I understand that to mean that in determining whether consent should be granted and what conditions to impose Environment Canterbury will have regard to whether the 3,400 tonne target is likely to be met. I would expect applicants would need to supply information to demonstrate whether that criterion can be met as part of a resource consent application.

- 9.7 Given that the 3,400 tonne target appears likely to be incorrect,¹¹ and is significantly lower than the load modelled by Aqualinc, reference to the load limit in these numerical terms could lead to an unrealistic test being applied to resource consent applications.

¹¹ Based on Aqualinc modelling of the existing load using the DNZ/Overseer 6.2 model as discussed in the evidence of Dr Brown and Ms Hayward.

- 9.8 For that reason, I consider it inappropriate to reference the catchment load in specific tonnage terms at this time. My understanding is that the key issue is the nitrate nitrogen concentration in groundwater and that a 30% reduction in the catchment nitrogen load is required to achieve that required nitrate nitrogen concentration.
- 9.9 For that reason, I support Fonterra's submission when it seeks to express the catchment nitrogen load target as a *proportion of the current load*. The submission seeks to express that load in Policies 13.4.12 and 13.4.13 as *70% of the catchment load contributed by farming activities as at 1 October 2014*.¹²
- 9.10 Fonterra's proposed Table 13(g) uses alternative wording to achieve the same thing when it expresses the target load as:
- A x 0.7 where A = the nitrogen load modelled to be occurring for the year 1 July 2013 to 30 June 2014 using the latest version of OverseerTM and the Overseer Best Practice Input Standards*¹³
- 9.11 In my opinion that establishes an enduring policy position that remains appropriate regardless of future changes in OverseerTM while at the same time ensuring that the 9.2mg/L nitrate nitrogen concentration groundwater target will be met.

10. ALLOCATING THE LOWER HINDS/HEKEAO PLAINS AREA TARGET LOAD

- 10.1 As noted above, based on the modelling and evidence of Dr Brown (and as reported in Appendix 3 of Ms Hayward's evidence), the best current understanding of the catchment's current nitrogen load is 6,500 tonnes. Seventy per cent of that load is 4,579 tonnes.
- 10.2 The next, and critical, planning question is how should the load that can be made available without compromising freshwater objectives be allocated amongst current (and potentially future) land use activities? That is, who should take a cut from their current loss and how much, and who (if anyone) should get *more* allocation than they currently have and how much?

¹² Although on reflection the words "contributed by farming activities" are unnecessary.

¹³ Fonterra's submission also proposed a footnote advising that the modeled load would be made available on Environment Canterbury's website and updated when new versions of Overseer were released.

Variation 2's proposed allocation

- 10.3 While few specific numbers are available, I understand that Variation 2 includes:
- (a) An allocation of 214 tonnes of nitrogen for land use change and intensification on up to 30,000ha (this is additional to the current nitrogen loss from that land).
 - (b) An allocation (at 2035) to land currently in dairy farming that is 45% less than the existing nitrogen loss at GMP from that land.
 - (c) An allocation (at 2035) to land currently in dairy support that is 25% less than existing nitrogen loss at GMP from that land.
 - (d) An allocation to land uses other than dairy and dairy support equal to the existing loss at GMP from that land.
- 10.4 Overall, this will achieve (based on the DNZ/Overseer 6.2 modelled data presented in Appendix 3 of Ms Hayward's evidence) a 29% reduction in current nitrogen load and a 30% reduction in the average nitrate nitrogen concentration in groundwater.

DairyNZ/Fonterra's proposed allocation

- 10.5 The allocation proposed by DairyNZ/Fonterra has evolved throughout this process as discussions with other primary sector interests have progressed and better modelling data has become available. Accordingly, some of the positions expressed in the primary submission have been superseded by further submissions supporting or opposing other submitters.
- 10.6 DairyNZ/Fonterra propose:
- (a) An allocation of 122 tonnes of nitrogen for land use change and intensification on up to 15,000ha¹⁴ (this is *additional* to the current nitrogen loss from that land).
 - (b) An allocation (at 2035) to all farming activities that have a nitrogen loss greater than 20kg N/ha/yr that is 36% *less* than the existing nitrogen loss at GMP from that land. (This will mostly

¹⁴ The derivation of this area is discussed in the evidence of Ms Hayward at paragraph 6.11.

affect dairy and dairy support although some other high nitrogen discharges may be caught).

- (c) An allocation to all land uses that have a nitrogen loss less than 15kg N/ha/yr that is equivalent to the tonnage that would result from all those properties leaching up to a maximum 15kg N/ha/yr. This equates to 331 tonnes N/yr, including 65 tonnes N/yr *additional* to the current nitrogen loss from this land. (This is likely to benefit non dairy farming activities).
- (d) An allocation of an *additional* 17 tonnes of nitrogen to land uses that have a nitrogen baseline between 15kg N/ha/year and 20kg N/ha/year that will allow them to increase their nitrogen loss to a maximum of 20kg N/ha/year.

- 10.7 Overall, the DairyNZ/Fonterra allocation proposal will achieve a 30% reduction in annual nitrogen load and a commensurate 30% reduction in nitrate nitrogen concentration in groundwater.
- 10.8 For convenience, the two proposals are summarised in Table 1 below. This draws on data presented in Table 1 of Ms Hayward's evidence. How the DairyNZ/Fonterra proposal is achieved through the rule framework is discussed in detail Section 14 of this evidence and shown in full in **Appendix 2.**

Table 1 – Comparison of the Variation 2 and Fonterra nitrogen load allocation proposals

	Variation 2			DairyNZ/Fonterra Proposal		
Farming activities (>5 ha) from 2017	Rule effect	Allocation (tonnes)	Rule refs	Rule effect	Allocation (tonnes)	Rule refs
Farming activities leaching <20kg N/ha/yr	Permitted at nitrogen baseline	397	13.5.16	Permitted at nitrogen baseline or if <15kg N/ha/yr	331 (266t baseload 65t additional)	Amended Rule 13.5.16
				May increase up to 20kg (as an RDA) N/ha/yr if: (a) >15kg N/ha/yr: and; (b) cumulative increase does not exceed 17 tonnes	148 (131t baseload 17t additional)	Amended Rule 13.5.17
				Sub total	479 (82t additional)	
Farming activities leaching >20kg N/ha/yr	RDA and must reduce discharge by 45% by 2035	3,389	13.5.17 in conjunction with Table 13(h)	RDA and must reduce discharge by 36% by 2035	3,639	Amended Rule 13.5.17 & amended Table 13(h)
Land use change and intensification	Provision for land use change/intensification that does not exceed 27kgs N/ha/yr. Limited to 30,000ha	810 (596 baseload, 214 additional)	13.5.14, 13.5.21 and 13.5.22 in conjunction with the limits set in Table 13(i).	Provision for land use change/intensification (up to 27kgs N/ha/yr) limited to land within the command area of a consented irrigation scheme that was not receiving water at the date of notification (modelled at 15,000ha).	461 (339t baseload, 122t additional)	Deletion of Rule 13.5.14 & amended Table 13(j)
Total		4596			4,579	

Timeframes for reductions

- 10.9 The other major difference between the allocation proposal of Variation 2 and that of DairyNZ/Fonterra relates to the timeframes for phasing-in the required reductions.
- 10.10 The phase-in proposed by Variation 2 is set out in Table 13(h). It proposes four incremental stages being 2020, 2025, 2030 and 2035. Uniform (10%) reductions are required between each of the dates (but some "front loading" in the initial years with an initial 15% reduction required by 2020 for dairy farming). This means an ambitious 15% reduction requirement in the first 5 years (plus any reduction required to get to GMP) and a more moderate 10% for each 5 year period thereafter.
- 10.11 The DairyNZ/Fonterra proposal would see just three stages with the 15% reduction required by 2025 (rather than 2020). The full 36% reduction would be required by 2035 and an interim target of 25% for 2030. This represents less "front loading" of reduction obligation. The reasons for this difference and the modelling of its effect, are explained in section 13 of this evidence.
- 10.12 This is shown in Table 2 below.

Table 2 – Proposed reduction staging

Variation 2 Proposal				
Land use	2020	2025	2030	2035
Dairy Farm	15%	25%	35%	45%
Dairy Support	10%	15%	20%	25%
Other farming activities	0%	0%	0%	0%

DairyNZ/Fonterra Proposal				
Land use	2020	2025	2030	2035
All farming activities >20kgs/ha/yr	-	15%	25%	36%

11. AN APPROACH TO THE EVALUATION OF ALLOCATION OPTIONS

- 11.1 In my opinion, resource allocation is currently an under-developed field of planning practice. While case law is very clear about the approach to be taken when there are competing resource consent applications for a resource of limited quantity (essentially "first in first served"), I am aware of very little guidance on how a plan (or plan change or variation) ought to allocate resource capacity where that capacity is already over-allocated.
- 11.2 A key issue is that regard is whether, if reductions are being imposed across the board, new resource users should, at the same time, be able to take more of that resource. Or whether a subset of existing resource users should be entitled to more resource in a general redistribution of that resource.

Matters relevant under the Act

- 11.3 The Act itself contains several provisions that are relevant to this matter. Section 5(2) defines sustainable management as meaning:

... managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while"

- 11.4 I understand this to mean that having sustained, safeguarded and avoided, remedied or mitigated in accordance with Section 5(2)(a) to (c) through (amongst other things) the setting of limits, the available resource should be managed (which I take to include "allocated") to enable people's broad needs to be met. This includes not just their economic needs but also their social and cultural needs.
- 11.5 Section 7(b) refers to *"the efficient use and development of natural and physical resources"*. Efficient use can have many meanings depending upon the context but I understand it to encompass the notion of economic or allocative efficiency. That is, to achieve a distribution of resources across uses that yields the greatest benefit to society (usually expressed in terms of production or economic return from, in this instance, a given catchment).
- 11.6 The notion of efficiency is also central to section 32 of the Act. This requires, in respect of any proposal, the preparation of *"an assessment*

report that assessing the efficiency and effectiveness of the provisions in achieving the objectives".

- 11.7 Again, it is my understanding that in the context of allocation decisions such as that raised by Variation 2, there must be consideration of the extent to which that allocation achieves the most for people and the community that it can. That is, no alternative allocation would make the community better off.

Policy guidance in statutory instruments

- 11.8 The NPSFM refers to over-allocation in the context of water quality in Objective A2 (where it requires improvement where over-allocation exists). In Policy A1 it refers to "avoiding over-allocation". Policy A2 refers to specifying targets and implementing methods to assist the improvement of water quality to meet those targets. It does not, however, provide direction on the matters that are relevant to determining the distribution of available resource amongst competing resource users. The concept of "efficient allocation" is referred to but only in the context of water quality (Objective B4 and Policies B2 and B3).
- 11.9 The CRPS similarly contains no direction on this matter.
- 11.10 The CLWP contains many objectives and policies relevant to limit setting but few of direct relevance to allocating within those limits. Those that are relevant include Objectives 3.5 and 3.12.
- 11.11 Objective 3.5 states:
- Land uses continue to develop and change in response to socio-economic and community demand.*
- 11.12 This means that allocation should (to the extent possible) provide for existing uses to change rather than be locked in to a single, potentially low value, use (or farm system).
- 11.13 Objective 3.12 states:
- When setting and managing within limits regard is had to community outcomes for quality and quantity.*
- 11.14 This appears to give recognition to community derived preferences, for example, those expressed in the ZIP Addendum.

- 11.15 The Vision and Principles of the CWMS do not appear to provide guidance relevant to the question of allocating available nutrient load amongst competing uses.

Relevant planning principles

- 11.16 In confirming the tests to apply to the question of what is the most appropriate allocation of available nitrogen load, the above statutory considerations will be paramount. However, in my opinion there are at least three planning principles that will be relevant.
- 11.17 The first of these is *efficiency*. That is discussed above and is not repeated here.
- 11.18 The second planning principle is *fairness and equity*. What is fair and equitable is not always straightforward and indeed a fair allocation might be different to an equitable allocation. A fair allocation for example might be argued to occur when all landholders are granted an equal per hectare allocation of what is a public "free" resource. However, an equitable allocation might take other factors into consideration. For example, an equitable allocation might take into account the starting positions of farming activities, the amount of investment committed and the variability in how the costs might fall. (For example the marginal cost of mitigating a tonne of nitrogen might be much higher on one property than on another). Similarly, it might take into account the legitimacy of expectation the land user had when committing to invest, and/or the reductions that might have already been "voluntarily" made by a landowner. Another relevant factor will be whether a landholder holds a legal right that cannot be fairly extinguished such as a consent that may be held by an irrigation company in respect of an irrigation command area.
- 11.19 The third planning principle is *social durability*. This means that, ideally, we want planning policies (and allocation regimes) that can succeed without interference and amendment over the long term. This will be most likely when those policies enjoy a high degree of support or at least acceptance. A key consideration then will be what regime keeps the most people the most happy.
- 11.20 These principles, when applied to assessing the merits of an allocation regime, may be in direct conflict with one another. The "best" allocation regime will seldom be determined by a clear-cut mathematical equation.

Rather, the most appropriate allocation regime will be the one that scores best against all these matters in an overall assessment based on the particular facts of the situation. It is not a science but a judgement.

12. EVALUATION OF THE ALLOCATION REGIMES

- 12.1 The following evaluation is structured around the three planning principles outlined above. Relevant statutory considerations are commented on where appropriate.

Efficiency

- 12.2 The economic costs and benefits of both Variation 2 and the proposed DairyNZ/Fonterra nitrogen load allocation proposals are analysed and reported in the evidence of Dr Fairgray.¹⁵ Under the smoothed scenario modelled by Dr Fairgray the cost to the Ashburton economy would reach \$67.9 million for the 2035 year. The cost arising from the DairyNZ/Fonterra proposal would reach \$54.2 million for the same year. Both proposals would generate positive impacts in the early years of implementation but the Fonterra/DNZ proposal would have the larger positive impacts (due largely to the longer initial commitment period). In terms of Ashburton's GDP, the Variation 2 proposal would cost 2.5% the local GDP by 2035 (i.e. the economy would be 2.5% smaller in 2035 than would otherwise be the case). The DairyNZ/Fonterra proposal would cost 2.0% of GDP. Throughout the 20-year phased down period to 2035 the Fonterra proposal would have an annual cost less in GDP terms than Variation 2, as illustrated by Figure 4 of Dr Fairgray's evidence.
- 12.3 In net present value terms, the Fonterra proposal would cost \$232 million at a 5% discount rate compared with Variation 2's \$650 million at the same discount rate.¹⁶

¹⁵ The economic benefits of Variation 2 have also been assessed by AgResearch for Environment Canterbury (Report No. R14/82). However, I prefer the analysis of Dr Fairgray because his analysis is based on more recent, and in some case more accurate, information about existing land use, irrigated area, drainage and likely lag durations (as detailed in the evidence of Dr Brown). Furthermore, the AgResearch report was based on the farm systems modeling reported in Report No. R13/109 (by Macfarland Rural Business Ltd) (MRB). In his evidence Mr Neal has identified a number of deficiencies with that MRB modelling related largely to unrealistic assumptions (See Table 1 of Mr Neal's evidence).

¹⁶ The discount rate makes a significant difference to the costs but at all rates shown by Dr Fairgray (in his Table 6) the Fonterra proposal is less costly.

- 12.4 On the basis that the two allocation proposals would achieve the same outcome in terms of nitrate nitrogen concentration in groundwater, the DairyNZ/Fonterra proposal must, therefore be considered the most efficient of the two proposals evaluated. (That is, the desired benefit is derived with the least cost. Or, put another way, the available load is allocated in such a way as to yield the greatest benefit to the local community when the benefit is measured in GDP terms).

Equity

- 12.5 A key feature of the DairyNZ/Fonterra proposal is the use of what is referred to as a "flexibility cap". In essence, the flexibility cap is simply a trigger point (level of discharge) at which the ability to discharge nitrogen ceases. The term is applied by DairyNZ/Fonterra at two levels, which may be described as tier 1 and tier 2. These correspond to low and moderate nitrogen dischargers respectively.

Tier 1 flexibility cap (N loss less than 15kg N/ha/yr)

- 12.6 The inclusion of the tier 1 flexibility cap is designed to recognise that some farms could have, but did not, increase their nitrogen loss under past planning regimes and existing higher leaching farms in effect benefit from that decision. Such farms are now constrained in the land use choices available to them. That constraint is imposed because of others' capture of the available assimilative capacity (load). By providing for a flexibility cap, there is some redress for that situation. The "headroom" enabling the flexibility cap (65 tonnes N/yr) within the target load is effectively provided by those higher leaching farms making larger reductions than they would otherwise need to. The flexibility will enable low leaching farms to make farm system changes or just minor adjustments in farm practices that may be critical for them maintaining viability.

Tier 2 flexibility cap (N loss between 15kg and 20kg N/ha/yr)

- 12.7 A tier 2 flexibility cap is proposed for those "medium" leaching farms leaching between 15 and 20kg N/ha/yr. The idea behind this cap is that there will be some (generally arable and mixed) farms in this leaching band that may need to change their system by, for example, changing the type of arable or forage crop, to remain viable. Because different crops have different nitrogen leaching rates such minor system change may not

be viable long term under the nitrogen baseline rule. Allowing flexibility up to 20kg N/ha/yr for all farms is not possible within the target load but some small allowance (17 tonnes) for farms in this category offers at least some flexibility to modify farm systems. In that sense it is a compromise to ensure the allocation regime provides something for all modest to low leaching farms whilst maintaining nitrogen leaching reductions required on high leaching farms at a manageable level. It is not aimed at enabling further dairy expansion.

- 12.8 The other dimension of the DairyNZ/Fonterra allocation regime that is based on concern for equity is the limitation of land use change and intensification to that area that is within the command area of an irrigation scheme, consented as at 1 October 2014, that was not irrigated prior to October 2014. In my opinion, the regime needs to provide for land use change and intensification on that area of land anticipated to be subject to land use change and intensification in land use consents granted in association with irrigation consents (this is consistent with section 30(4)(a) of the Act). For the purpose of modelling, this area has been estimated at 15,000ha.¹⁷ To provide for further, currently unconsented, land to be intensified (as Variation 2 does by providing for 30,000ha of intensification) can only occur at the expense of existing farms.
- 12.9 The concept of a flexibility cap appears consistent with the desire for land uses to be able to develop and change as expressed in Objective 3.5 of the CLWP.

Land uses required to make reductions

- 12.10 The final equity consideration relates to the types of land uses that need to make reductions in their nitrogen discharges. Variation 2 requires differentiated reduction obligations being 45% for dairy, 25% for dairy support and 0% for other farming activities (regardless of the existing level of nitrogen discharge).
- 12.11 Fonterra's submission is that allocation should be "land use neutral". In other words, the burden of reductions should relate to the level of nitrogen discharge leaching, not on the type of farming being undertaken. I agree with that principle. In practice, the burden will fall almost

¹⁷ The estimation of 15,000 hectares is explained in the evidence of Ms Hayward

exclusively on dairy and dairy support but, in my opinion, it would be inequitable to exempt other uses that had similarly high N leaching.

- 12.12 For similar reasons I do not support differentiating between dairy and dairy support. I also note that Variation 2 does not propose a definition of "dairy support". The absence of a definition is likely to lead to many interpretation difficulties as to whether a property faces reduction obligations or is effectively exempt. A key issue will likely be how much of a farm needs to be devoted to supporting dairying (growing feed, wintering cows etc) before it is regarded as a dairy support farm.
- 12.13 These reasons lead me to support the rule requiring nitrogen loss reductions applying to all farming activities over a specified nitrogen discharge rate.

Social durability

- 12.14 The final consideration is social durability. On this point it is worth noting that the ZIP Addendum did not recommend that the required reduction be allocated 45% to dairy and 25% to dairy support.
- 12.15 It noted only that:

Best available scientific information currently suggests this improvement is in the order of a 45% reduction from current practices for high leaching land uses. However, a more robust estimate of this percentage improvement will be determined once the Matrix of Good Management Practices (MGM) has been developed¹⁸.

- 12.16 Dr Brown and Ms Hayward have undertaken a more robust estimate and have and concluded that a 36% reduction is required across all high leaching activities. The key point, however, is that the ZIP Addendum did not express a community agreement on how the required reduction was allocated *amongst* high leaching farming activities (i.e. that dairy and dairy support should have differentiated targets or that other land uses ought to be exempt).
- 12.17 Similarly the ZIP Addendum did not propose that 30,000ha of land use change/intensification be allowed through increased irrigation. Rather, it referred to the irrigated area being increased "*by up to 30,000 ha from current irrigated land*" (my emphasis).

¹⁸

Ashburton ZIP Addendum 4 March 2014, page 25.

- 12.18 By contrast, as I understand it the series of discussions held across the agricultural sector since Variation 2's publication have resulted in broad agreement to the allocation regime described above. In that sense, the DairyNZ/Fonterra regime seems likely to offer a much more socially durable approach than that imposed by Variation 2.

13. EFFECTIVENESS OF ALLOCATION REGIMES

- 13.1 As discussed earlier, based on the evidence of Ms Hayward, either allocation regime will achieve the desired groundwater concentration by 2035. The medium to long-term effectiveness is therefore the same.
- 13.2 As already noted, the one difference is that the DairyNZ/Fonterra allocation proposal does delay the first target date by five years so that the first 15% reduction in nitrogen discharge is required by 2025 rather than 2020 as under Variation 2's proposal.
- 13.3 The key reasons for this are to reduce costs and allow the sector time to identify and implement lower cost mitigation options than those that may be currently available.
- 13.4 The first of these advantages is demonstrated by the evidence of Dr Bell. That evidence reports modelling of the cost of Variation 2 in terms of farming activities' foregone EBIT. Also modelled is the DairyNZ/Fonterra proposal and a third scenario being the DairyNZ/Fonterra proposal applied over a four-stage reduction schedule (on an equal -9% per 5-year period basis).
- 13.5 Dr Bell reports that Variation 2's nitrogen discharge reduction regime would cost farmers \$262 million in EBIT compared with achieving GMP only.
- 13.6 The DairyNZ/Fonterra proposal, by comparison, was modelled to cost \$240 million in aggregate EBIT terms when modelled assuming a four stage reduction similar to that of Variation 2. But when modelled on the basis of the three-stage reduction schedule proposed the modelled cost reduced to \$188 million. This represents a saving of \$74 million relative to that proposed by Variation 2.
- 13.7 Dr Fairgray has modelled the broader economic cost of the DairyNZ/Fonterra proposal when applied over four equal stages (-9% per

5 year period). That modelling found that the four-stage process would cost \$415 million at a discount rate of 5% in NPV terms compared with \$232 million for the three-stage reduction schedule proposed in Fonterra's submission¹⁹.

- 13.8 On that basis the three-stage approach that removes the "front loading" (15% plus GMP in the first 5 years) for dairy farms and instead has a slight deferment of the first commitment period seems preferable.
- 13.9 There will likely be some deferred benefit from this delay but provided the transition to the first reduction target of 15% is smooth (rather than being achieved all at year nine of the ten year period)²⁰ the lost benefit should be marginal. It is worth recalling that the DairyNZ/Fonterra target is 9% lower than that of Variation 2. Hence the difference in the proportion of the 2035 target achieved by 2025 is not significantly different between the Variation 2 and DairyNZ/Fonterra proposals (55% of the target achieved by 2025 according to Variation 2, and 45% by 2025 according to the DairyNZ/Fonterra proposal).

14. NITROGEN MANAGEMENT IN THE LOWER HINDS: PROPOSED CHANGES TO POLICY AND RULE WORDING

Policy 13.4.12

- 14.1 Policy 13.4.12 simply sets out the target nitrogen load. As discussed in Section 9 of this evidence, due to uncertainty in the current load this is best expressed as a proportion of the current load²¹. That issue aside, the nitrogen load is, in any event, also set out in the Policy 13.4.13. In my opinion, rather than repeating the load limit requirement, it would be preferable if Policy 12.4.12 focused on the freshwater objective that is sought. That is, the nitrate nitrogen concentration as set out in Table 13(k). In doing this it will be important to note the role of managed aquifer recharge as reductions from farming activities are not, by themselves expected to achieve the 6.9mg/L concentration target. I propose the following wording:

¹⁹ See Table 6 of Dr Fairgray's evidence.

²⁰ Fonterra's submission does not seek an interim 2020 target between 0% and 15% but such a mid-point (7-8%) 2020 target might assist to ensure a smooth transition.

²¹ See Fonterra's primary submission point V2 pLWRP-768.

13.4.12 Improve water quality in the Lower Hinds/Hekeao Plains Area by reducing the discharge of nitrogen from farming activities ~~achieve a target load of 3400 tonnes of nitrogen per year to~~, in association with managed aquifer recharge, achieve the nitrate nitrogen target of Table 13(k) by 2035.

- 14.2 This amendment differs from Fonterra's submission (which merely sought the substitution of "3,400 tonnes" with "*70% of the catchment load*"). However, as there ought to be no difference in effect (only greater transparency of intent) I consider the change to be within scope.

Policy 13.4.13

- 14.3 For the reasons already discussed, in my opinion, the reference to 3,400 tonnes in Policy 13.4.13 should be replaced by a reference to "*70% of the catchment load*".
- 14.4 I acknowledge that the reduction being referred to in this policy is a reduction *from that that could be reasonably anticipated by adopting good management practice*. Although it is not in Fonterra's submission, I support the inclusion of clarification to that effect. That would be consistent with the approach adopted by the Commissioners in the decision on Variation 1.
- 14.5 Similarly, the 70% reduction that we can expect at the specified date will be dependent on the consenting of restricted discretionary activities which may, in recognition of individual circumstances, vary somewhat in the rate of reduction achieved. Hence I would support inclusion of the words "in the order of 70%" to reflect that reality. I note that this too would be consistent with the approach adopted by the Commissioners on Variation 1.
- 14.6 In addition, however, changes are required to give effect to the flexibility caps described in paragraphs 10.6 to 10.9 and fully describe the approach reflected in the proposed rules.
- 14.7 Those amendments include:
- (a) Deleting reference to "baseline land uses" from part (a) to reflect the fact that the allocation regime allows minor increases from low leaching farming activities (although good management practices are required).²²

²² See Fonterra primary submission point V2 pLWRP-779

- (b) Signal the three-tier allocation approach (<15kg N/ha/yr, between 15-20kg N/ha/yr and >20kg N/ha/yr).²³
- (c) Make the allocation regime "activity neutral".²⁴
- (d) Amend the required reductions to 30% for the catchment achieved through a standard 36% across all farming activities leaching >20kg N/ha/yr.²⁵
- (e) Adjust the dates to make it clear when the reductions (scale backs) are to commence and when the reduction target is to be achieved by.
- (f) Provide the decision-making criteria to assist in the assessment of restricted discretionary consent applications (and in particular the discretion exercised over the nitrogen loss rates to be applied). I note here that the matters proposed in the Fonterra primary submission are similar to the matters identified by Commissioners as relevant in their decision on Variation 1. In my opinion the wording accepted by Commissioners in that decision would have similar effect and would be equally appropriate to apply to Variation 2. I have including that wording in Appendix 3.²⁶
- (g) Amending the reference to 30,000ha being available for land use change and intensification and reference instead to "*land within the command area of irrigation schemes consented at 1 October 2014 that was not supplied with water from that scheme at 1 October 2014*".²⁷

Rule 13.5.14

- 14.8 In accordance with the allocation regime discussed in broad terms above, this rule provides for a certain amount of land use change or

²³ Consequential to changes sought to rules.

²⁴ See Fonterra primary submission point V2 pLWRP-779 and Fonterra further submission supporting the submission of the Hinds Plains Water Partnership (56730 V2 pLWRP-340 and 351) in relation to Policy 13.4134(b) and Table 13(h) respectively.

²⁵ See Fonterra's primary submission on Policy 13.4.13 accepting that the threshold initially proposed by Fonterra was 25kgs N/ha/yr not 20.

²⁶ See Fonterra primary submission for scope (modified in light of decision on Variation 1).

²⁷ See Fonterra further submission in relation to Dairy Holdings Ltd 53683 V2 pLWRP-987. Note also that for the purpose of modeling the effect of the DairyNZ/Fonterra proposal this area was estimated as 15,000ha.

intensification to occur on land that is not within an irrigation scheme command area provided that nitrogen leaching would be less than or equal to 27kg N/ha/yr. The amount of land on which this land use change or intensification could occur is 30,000ha minus that area "*supplied by water from a Principal Water Supplier or that is within the command area of an irrigation scheme which was not irrigated with water prior to 1 October 2014*".

- 14.9 In effect the rule caters for land use change on land that had no legitimate planning expectation (since the notification of the CLWP) of intensification.
- 14.10 Fonterra's further submission²⁸ supported the submission of Ravensdown, which sought deletion of the rule. Fonterra opposes this rule on the basis that providing for some land to increase its nitrogen discharge (allowing conversion to dairy) would increase the burden on those (largely dairy) farms needing to reduce their nitrogen discharge (by necessitating a larger reduction than would otherwise be required to return collective nitrogen loss to the target load).
- 14.11 I support that submission. Essentially DairyNZ/Fonterra's proposed allocation regime reallocates the load that would be available for the activities consented under Rule 13.4.15 (allowing an increase in nitrogen discharge to 27kgs N/ha/yr) to low (<15kg N/ha/yr) and moderately low (15-20kg N/ha/yr) discharging farms and to existing high dischargers who will need to reduce a little less. As noted above, this is justified on economic, equity and social grounds.
- 14.12 Consequential amendments are also made to Rules 13.5.15, 13.5.16 and 13.5.17 to remove reference to this rule. A further consequential amendment is made to Table 13(i) to ensure that only land within irrigation schemes consented prior to notification of the variation can take advantage of the ability to increase nitrogen discharge to 27kg N/ha/yr.

Rule 13.5.16

- 14.13 Rule 13.5.16 provides for permitted activities after 1 January 2017. As proposed, the rule limits permitted activity status to those farms that remain at their nitrogen baseline and which have a nitrogen discharge

²⁸ C15C/10476-02. Further submission in support of Ravensdown Fertiliser Co-operative Limited submission number 56708 V2 pLWRP-754.

less than 20kg N/ha/yr (and which adopt the scheduled good management practices and prepare and implement a farm environment plan).

- 14.14 For the reasons outlined above, I support some limited flexibility for those farms with a low nitrogen discharge to make minor increases to their nitrogen discharges. As noted above, this would be achieved through the plan providing for a "flexibility cap". I propose that this be achieved by adding the following additional first condition to Rule 13.5.16:²⁹

1 The nitrogen loss calculation for the property does not exceed 15kg N/ha/yr; or

Rule 13.5.17

- 14.15 Rule 13.5.17 provides for farming activities as restricted discretionary activities. To provide the tier 2 "flexibility cap" for those farms in the 15-20kg N/ha/yr band, as already discussed, I propose that the conditions of Rule 13.5.17 include another matter as follows:³⁰

1 The nitrogen loss calculation for the property at 1 October 2014 was greater than or equal to 15kg N/ha/yr and does not increase above 20kg N/ha/yr; or

- 14.16 I note that the aggregate amount of increase that will be allowed by this rule is limited to 17 tonnes (less than 0.5 percentage of the target load). This limitation is achieved by the reference in the rule to the matters of Policy 13.4.13 as matters of discretion. That policy, as I propose it to be amended, includes reference to the 25 tonne aggregate limit.
- 14.17 Another amendment I propose to this rule is in response to the amendment to the sub-regional boundary between the "Ashburton Sub Regional Chapter" and "Central Canterbury Alpine Rivers Sub Regional Chapter". This boundary amendment was made so that the sub region boundary aligns with the western boundary of the Mayfield Hinds Groundwater Allocation Zone.³¹
- 14.18 The effect of this boundary change is to bring within the Ashburton Sub region an area of land that was previously zoned "Green" for nutrient

²⁹ See Fonterra's further submission supporting the Hinds Plains Land and Water Partnership submission proposal for a flexibility cap (56730 V2 pLWRP - 324)

³⁰ See Fonterra's further submission supporting the Hinds Plains Land and Water Partnership submission (56730 V2 pLWRP - 324)

³¹ The Green zoned area now within the Ashburton Sub Region is shown in the map included as **Appendix 3**.

management by the CLWP. Because these areas were, until the date of notification of Variation 2, zoned Green, they were able to increase their nitrogen discharge by 5kg N/ha/yr as a permitted activity under Rule 5.58(2)(c). I have no evidence on the extent to which any of the 17 farms within this area have taken the opportunity to increase their discharge by the allowed 5kgs N/ha/yr. However, it does not seem unreasonable to assume that at least some may have done so.

- 14.19 That being that case, in my opinion it is appropriate for such farms to have the status of restricted discretionary activities under Rule 13.5.17 of Variation 2. If they are not provided for within that rule they would fall to be prohibited activities under Rule 13.5.20 (because they could not comply with condition 2 of Rule 13.5.17).
- 14.20 Being restricted discretionary activities would not mean that they are exempt from the required reductions in nitrogen discharge, only that they start those reductions from a slightly higher (up to 5kg N/ha/yr) starting point.
- 14.21 In that respect, I note that the approach I propose is not dissimilar to the approach taken by the Commissioners on Variation 1 to the CLWP.³²
- 14.22 To achieve the planning result outlined above I propose the following additional condition be added to Rule 13.5.17:³³
4. The property is within that area shown as Green on the LWRP Planning Maps and the nitrogen loss calculation for the property does not exceed the nitrogen baseline plus 5kgs per hectare per annum, whichever is greater; and
- 14.23 In my opinion, for the same reason, a corresponding amendment should be made to Rule 13.5.18 (which addresses farm enterprises as discretionary activities).
- 14.24 A change has also been made to Policy 13.4.13 to ensure that this increase in baseline is recognised in the consent process. This will also mean that the exception can be limited to those farms that did lawfully increase their nitrogen discharge rather than being a windfall gain for those who had the opportunity but did not exercise it when they could

³² In that instance, a policy (11.4.12A) was included that provided some potential for difficulties with baseline calculations in the early years of implementation to be addressed through a consenting framework (rather than attempting to provide for the exceptional circumstance through a permitted activity rule).

³³ See Fonterra's primary submission point V2 pLWRP-792.

have. This is achieved by adding a further at matter to be taken into account in determining the appropriate GMP discharge at 1 January 2017. This would read as follows:

(vii) The nitrogen baseline for the property and any lawful increase in the nitrogen discharge that occurred prior to 1 October 2014.

- 14.25 Fonterra's submission also proposed a change that would commit council to using an expert farm systems advisory panel to review consent applications. While I support that idea in principle, I do not consider that it would be appropriate to require through the regional plan that the Council use such a process. In my opinion, it would be preferable for Fonterra to take this matter up with the council outside of the statutory plan-making process as a matter of plan implementation. I believe that is the approach taken with the implementation of Horizons One Plan.
- 14.26 Incidental amendments are proposed to Tables 13(g) and 13(i) to give effect to these changes to nutrient management policies and rules. A marked-up version containing my proposed amendments to Variation 2 is attached as **Appendix 2** to my evidence.

15. SUBMISSIONS OF FISH AND GAME

- 15.1 Fish and Game has sought the following amendment to the rule framework:

"Delete rules 13.5.8 to 13.5.24 and replace with rules that achieve the following outcomes and have the following types of controls:

Require farms to comply with a sustainable nitrogen leaching rate which is based on allocating the total allowable load of nitrogen as set out in amended table 13(g) on either a flat per hectare allocation of nitrogen leaching or a nitrogen leaching allowance per hectare based on an allocation on a land use capability class basis. Or some other methodology which achieves efficient use of natural resources."

- 15.2 It is unclear to me exactly what the Fish and Game proposal is since it includes three allocation options to achieve the target load:

- (a) Equal allocation (on a per hectare basis).
- (b) Allocation based on land use classification ("**LUC**").³⁴
- (c) "Some other methodology" that achieves efficient use of natural resources.

- 15.3 In my opinion, equal allocation would likely be disruptive and inequitable to existing land uses because it does not recognise existing investment and legitimately established land uses. I am not aware of any economic analysis of this approach that have found that equal allocation would deliver the least cost approach to achieve the desired water quality outcome.
- 15.4 Similarly, I have seen no evidence that allocation based on the LUC leaching rates suggested as an example by Fish and Game would, if complied with in the Hinds/Hekeao Plains Area, result in the target load being met. I understand that the theory of LUC leaching rates is that they are not derived from the target load but from a completely different basis.³⁵ Therefore they are unlikely to be the end point of allocation but merely a starting point from which reductions will be required (as indeed acknowledge in the Fish and Game submission).
- 15.5 Certainly the LUC leaching rates suggested by Fish and Game could be modified (and decreased over time if necessary) so that they delivered the target load. However, if that were to be done, the allocation would not be on the basis of LUC/natural capital. Some other basis would have to be applied to determine the reductions from the LUC rates. What that basis would be is not clear from the submission and hence I cannot comment further on it.

16. TRANSFERS OF WATER PERMITS

- 16.1 Variation 2 prohibits the transfer of surface or groundwater take permits under Rules 13.5.33 and 13.5.34. There is though a disconnection between these rules and the associated policy (Policy 13.4.16). That policy states:

³⁴ Fonterra made a further submission opposing Fish and Game's request for an LUC allocation regime.

³⁵ I understand this to be the amount of dry matter that can be produced (and hence stocking rates possible) on different classes of land without external inputs and the leaching rates that would result from those theoretical stocking rates.

Improve flows in spring-fed waterbodies and the Lower Hinds River/Hekeao to meet economic, cultural, social and environmental outcomes in the Hinds/Hekeao Plains Area by requiring adherence to flow and allocation limits, limiting the volume and rate of abstraction on replacement water permits to reasonable use calculated in accordance with method 1 in Schedule 10 and prohibiting increased use arising from the transfer of consented volumes of water within surface water catchments and the Valetta Groundwater Allocation Zone.

- 16.2 The key words used are "prohibiting the increased use arising from the transfer of consented volumes". I understand and support the proposition that transfers should not be allowed in a fully allocated catchment/zone where that would enable consented but previously un-used (or seldom used) water to be used (or used more frequently) leading to an effective increase in the water used and greater impacts on water availability (flows and levels) and quality. Hence, setting aside for the moment whether the plan can prohibit a transfer, I support the policy.
- 16.3 However, in my opinion that policy should be given effect to through rules that allow for transfer of permits where it can be assured there will be no increase in use, and prohibit (to the extent possible) the transfer of volumes that were previously unused. That is not the effect of rules 13.5.33 and 13.5.34. Those rules prohibit all transfers outright.³⁶
- 16.4 The Officers' Report does not support Fonterra's submission on this matter and recommends only that change necessary to make the rules consistent with the wording used by Commissioners in their decision on Variation 1.
- 16.5 Fonterra's proposal was to delete the rules meaning that the matter of transfers would default to Rule 5.133 of the CLWP. Transfers are a restricted discretionary activity under that rule, with the ability (under matter of discretion 7) for reductions to be required in over allocated catchments/groundwater zones.
- 16.6 An alternative option would be to design a discretionary activity rule that enables the transfer of that volume of water actually used in recent years. I did consider relying on the concept of *reasonable use* calculated according to method 1 of Schedule 10. However, that method contains insufficient guidance on the key issue of the period within which water may have been used in the past.

³⁶

Accepting the Rule 13.4.34 only applies to the Valetta Groundwater Allocation Zone.

- 16.7 For that reason, I propose a rule that allows for the transfer of water based on the annual volume used on average over the period of the nitrogen baseline calculation (2009-2013), or the annual average over the most recent four year period, whatever is the lesser volume. This will ensure that takes cannot be artificially inflated in order to allow for transfer. The most that could be used would be that volume used on average over the baseline period or a lower volume if reductions have been required since that time. Although the rule could result in a greater take in a single year than might have otherwise occurred, over four-year period the volume of abstraction and use ought to be the same as occurred without the transfer. Such a rule is included in Appendix 3.

17. OTHER ISSUES

Introduction

- 17.1 Fonterra's primary submission sought wording changes to the introductory narrative to provide greater recognition of the importance of the Hinds/Hekeao Plains Area for agriculture and food production. Other submitters made a similar point providing wording similar to that suggested by Fonterra. The Officers' Report acknowledged the point but preferred the wording of other submitters over that suggested by Fonterra. I agree that the wording suggested by the Officers' Report is appropriate and satisfies Fonterra's submission.

Definition of Good Management Practice Nitrogen Loss Rates

- 17.2 Fonterra's primary submission sought deletion of the definition of *Good Management Practice Nitrogen Loss Rates* on the basis that no such rates currently exist. I support that submission and note that the Officers' Report recommends deleting that term and making corresponding changes to policies as a consequential change. I agree with that recommendation for the reasons given in the Officers' Report (paragraphs 9.89 to 9.93).
- 17.3 A further change is, however, required if the Commissioners accept the alternative modelling numbers and allocation regime outlined in the DairyNZ/Fonterra evidence. These changes relate to the second paragraph on page 2 which refers to the basic scheme of the allocation regime proposed in the Plan. The marked-up version attached as

Appendix 2 makes consequential changes to align the introduction with the policy framework proposed in this evidence.

Dairy Effluent Disposal Guidance (Schedule 24a)

- 17.4 Fonterra's primary submission noted that Schedule 24a includes reference to the application, separation distances, depth, uniformity and intensity of dairy effluent disposal be checked annually in accordance with Section 4 "Land Application" in the Dairy NZ Farm Dairy Effluent Design Standard [2013].
- 17.5 The document referred to does not contain information regarding self-assessment of effluent systems as seemed intended by this provision.
- 17.6 The Officers' Report accepts that the reference is incorrect and has proposed that the Schedule refer to Section 4 of the '*Land Application*' in the guideline "*A Farmers Guide to Managing Farm Dairy Effluent – A Good Practice Guide for Land Application Systems*" [2013].
- 17.7 I agree with that amendment and note that Commissioners agreed to the same amendment in their decision on Variation1.

Provisions/submission points not the subject of evidence

- 17.8 Fonterra's submission addresses a number of provisions that are not discussed in this evidence. These are, by and large, matters on which there is currently insufficient technical evidence for me to base a sound planning opinion. Some matters Fonterra has decided to not to pursue further. They are listed in **Appendix 4**.
- 17.9 In a small number of cases amendments are proposed in **Appendix 2** that are not discussed here. These are considered technical in nature and aimed solely to improve the workability of the plan.

18. CONCLUSION

- 18.1 Fonterra's submission and further submission raised a wide range of issues. Throughout the process those issues have narrowed and now focus largely on those provisions addressing the allocation of the nitrogen load.

- 18.2 Key planning issues are:
- (a) How much nitrogen load is there to allocate while achieving the desired (and agreed) water quality objective?
 - (b) How is that load best allocated amongst different land uses and between current and future activities?
- 18.3 My planning evidence is that, based on the technical evidence reviewed, the allocation regime proposed by DairyNZ/Fonterra is preferable to that included in Variation 2.
- 18.4 In my opinion, the DairyNZ/Fonterra proposal:
- (a) Does respond to a legitimate planning issue being how to get the best outcome for the community from the available resource.
 - (b) Is within the scope of its primary and further submissions.
 - (c) Is one of only two options currently scoped with enough detail, and supported by enough technical evidence, to evaluate (the other being that included in Variation 2).
 - (d) Is not contrary to relevant instruments (given that relevant instruments contain little policy guidance on this matter).
 - (e) Would not have any actual or potential adverse effect on the environment that is different from the Variation 2 proposal.
 - (f) Would not result in limits prescribed in section 30(4) of the Act and in particular does not seek to allocate resource that is allocated by existing resource consents.
 - (g) Is more efficient than the option included in Variation 2 because it achieves the same outcome at less cost (or achieves more local GDP from the available resource relative to Variation 2).
 - (h) Is at least as effective as Variation 2 in achieving the objective of returning groundwater nitrate concentrations below the root zone to 9.2 mg/L by 2035.
 - (i) Is characterised by less uncertainty than Variation 2 because it is based on improved catchment modelling.

- (j) For all the above reasons, the DairyNZ/Fonterra proposal is a more appropriate approach and the provisions in the proposal (as set out in **Appendix 3**), the more appropriate provisions.

Gerard Matthew Willis

15 May 2015

APPENDIX 1 - Relevant Planning instruments

1. New Zealand Coastal Policy Statement 2010
2. National Policy Statement for Freshwater Management 2014
3. Resource Management (National Environment Standard for Sources of Human Drinking Water) Regulations 2007
4. Water Conservation Orders
 - The Water Conservation Order (Rangitata River) Order 2006
 - The Water Conservation (Rakaia River) Order 1988
5. Canterbury Regional Policy Statement 2013
6. Vision and Principles of the Canterbury Water Management Strategy
7. Proposed Canterbury Land and Water Regional Plan
8. Fish and Game Management Plans
 - North Canterbury Fish and Game Management Plan, 2011
 - Central South Island Fish and Game Management Plan 1999
9. Iwi Management Plans
 - Kati Huirapa Iwi Management Plan 1992
 - Te Rununga o Ngai Tahu Freshwater Policy (1999)

APPENDIX 2 – Marked up Version of Variation

Proposed Variation 2 to the Proposed Canterbury Land and Water Regional Plan - Section 13 Ashburton

Version Showing Officer s42A Report
Recommendations as red "Tracked Changes"
and Recommendations of Gerard Willis for
DairyNZ/Fonterra as blue "Tracked Changes"

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Upper Hinds/Hekeao Plains Area

Lower Hinds/Hekeao Plains Area

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Part 4: Amendments to Section 16 – Schedules

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Part 1: Scope of the Variation

This Variation proposes changes to the proposed Canterbury Land and Water Regional Plan in accordance with Policies 4.9 and 4.10 of the proposed Canterbury Land and Water Regional Plan and Appendix 2 to the Canterbury Regional Policy Statement 2013.

Additions have been made to Section 13 'Ashburton' of the proposed Canterbury Land and Water Regional Plan for the Hinds/Hekeao Plains Area. The Variation introduces changes to describe the limits, targets, time frames and additional policies and rules to address over-allocation of water quantity and water quality for the Hinds/Hekeao Plains Area as required by the objectives and strategic policies of the proposed Canterbury Land and Water Regional Plan. The changes proposed achieve the purpose of the Resource Management Act 1991.

Variation 2 also includes minor consequential changes to two region-wide rules, and an amendment to the boundary between Sub Regional Sections 12 and 13 of the Proposed Canterbury Land and Water Regional Plan so that the amended boundary of Section 13 aligns with the boundary of the Mayfield-Hinds Groundwater Allocation Zone.

All the rules in Variation 2 have immediate legal effect under section 86B of the Resource Management Act 1991 from the date of notification.

Part 2: Amendments to Region-Wide Rules

Additions to the text are shown underlined.

Deletions to the text are shown as ~~strike through~~.

Amend Rule 5.124 as follows:

5.124 The taking and use of surface water from a river or lake that does not meet ~~condition 2 or 3 in Rule 5.123~~ one or more of the conditions of Rule 5.123 excluding condition 1 is a non-complying activity.

Amend Rule 5.129 as follows:

5.129 The taking and use of groundwater that does not meet one or more of the conditions of ~~1 and 4 in Rule 5.128~~ excluding conditions 2 and 3 is a non-complying activity.

Part 3: Amendments to Section 13 - Ashburton

Additions to the text are shown underlined.

Deletions to the text are shown as ~~strike through~~.

After the first paragraph on page 13-1 insert following text:

Within this section there are policies and rules for water quantity in the Hakatere/Ashburton River catchment, and policies and rules for water quality and quantity in the Hinds/Hekeao Plains Area. For all other areas within this section only the region-wide policies and rules apply.

After map on page 13-1 insert the following text:

The following sustainable water management priority outcomes for the Hakatere/Ashburton River catchment have been identified by the Ashburton Zone Committee:

Before heading 13.1 on page 13-2 insert the following text:

The Hinds/Hekeao Plains Area consists of the Hinds River/Hekeao catchment, and the plains between the Rangitata and Hakatere/Ashburton Rivers. The Upper Hinds/Hekeao Area includes the foothills and basins that drain into the north and south branches of the Hinds River/Hekeao. The Lower Hinds/Hekeao Plains Area contains the middle and lower reaches of the Hinds River/Hekeao as it flows out across the Canterbury Plains and contains more than 30 spring-fed lowland water bodies by the coast. Many of the water bodies in the Lower Hinds/Hekeao Plains Area are the remnants of what was once an expansive wetland.

~~For Ngāi Tahu water is taonga. The wetlands of the Lower Hinds/Hekeao Plains Area supported a rich and varied mahinga kai resource. The cultural significance of the Hinds River/Hekeao is recognised by its Statutory Acknowledgement status.~~

~~The Hinds/Hekeao Plains Area today is highly modified. Drainage of the wetland area east of State Highway began in the 1850s allowing the establishment of one of Canterbury's most productive agricultural areas. An artificial channel, cut in the 1860s-1870s, created a permanent outlet for the river to flow to the sea. A small hapua (lagoon) is present at the river mouth, although this is blocked to the sea most of the time. Many of the Artificial drains, stock water races and modified channels which replaced the wetlands and waterways, provide substitute habitats for a variety of fish and invertebrate species.~~³⁷

~~The Hinds/Hekeao Plains Area was historically, and is currently, an important area for food production. It currently provides significant employment in the area, both on-farm and in processing and servicing industries. The social and economic wellbeing of the community is reliant on the agricultural industry and it is important that it is retained so that the communities can thrive.~~³⁸

³⁷

³⁸

V2 pLWRP-416 – Director General of Conservation.

V2 pLWRP-471 – Barrhill Chertsey Irrigation, V2pLWRP-941 – Dairy Holdings, V2pLWRP-607 – Horticulture NZ, V2pLWRP-815 – Fertiliser Association of NZ, V2pLWRP-541 – Dairy NZ, V2pLWRP-739 – Fonterra.

Agricultural development, however, has had a significant impact on the cultural, ecological and recreational values and opportunities of the area. Today drainage remains a primary function of many of the lowland water bodies, however they continue to be a taonga and source of mahinga kai for Ngāi Tahu and support significant ecological and recreational values.

For Ngāi Tahu water is taonga. The wetlands of the Lower Hinds/Hekeao Plains Area supported a rich and varied mahinga kai resource. The cultural significance of the Hinds River/Hekeao is recognised by its Statutory Acknowledgement status.³⁹

There are a number of irrigation schemes in the Hinds/Hekeao Plains Area. There are also individual surface and groundwater takes throughout the area. Agriculture now makes up 98 percent of land use in the Hinds/Hekeao Plains Area. The availability of plentiful clean water has been one of the critical ingredients to the economic success of the area.

Water resources are now showing signs of stress. Nitrogen concentrations in 2013/14 year average around 11 milligrams of nitrogen per litre in shallow wells, and are increasing while water availability is decreasing. These trends have not only had an adverse effect on cultural and ecological values but have also adversely affected the reliability of supply for users.

During 2013 and 2014 the Ashburton Zone Committee engaged with the local community and stakeholders to develop a package of actions (the 'Solutions Package') that was considered the most effective in protecting cultural values and opportunities to gather mahinga kai safely, maintaining water quality and quantity in the Upper Hinds/Hekeao Plains Area, and improving water quality and quantity in Lower Hinds/Hekeao Plains Area while also sustaining a healthy economy and community.

The Committee's Solutions Package consists of four main parts with both regulatory and non-regulatory recommendations: catchment scale actions (e. g. on-farm mitigation measures, managed aquifer recharge, and increased irrigation area); local scale actions (e. g. riparian fencing , planting , and well head protection); investigations, monitoring and review of the Solutions Package; and community engagement. The Committee's Solutions Package is fully outlined in the Ashburton Zone Implementation Programme Addendum 2014. This section of the Plan includes policies and rules that reflect the regulatory recommendations in the Ashburton Zone Implementation Programme Addendum 2014 [modified to take account of improved catchment modelling](#).

~~The Solutions Package requires a 45 percent reduction in nitrogen losses from farming activities in the Lower Hinds/Hekeao Plains Area by 2035.~~ All farming activities are to operate at good management practice by 2017. ~~High nitrogen leaching farms Dairy and dairy support farms~~ are then required to further reduce nitrogen loss rates by ~~45 and 25~~ 36 percent ~~respectively~~, by 2035. Change in land use or land use intensification is provided for on ~~a maximum of 30,000ha~~ land within the command area of irrigation schemes consented prior to 1 October 2014 provided the nitrogen loss is no more than 27 kilograms of nitrogen per hectare per annum.

In conjunction with managed aquifer recharge, on-farm mitigation is anticipated to reduce the concentrations of nitrogen in shallow groundwater in Lower Hinds/Hekeao Plains Area to 6.9 milligrams of nitrogen per litre

³⁹

Consequential amendment for clarification – paragraph shifted.

and achieve the 80 percent protection level for aquatic species in the lowland spring-fed streams and the 90 percent protection level for the Lower Hinds River/Hekeao.

In the Upper Hinds/Hekeao Plains Area water quality is to be maintained through adoption of good management practices to minimise losses of sediment, phosphorus and microbial contamination and increases in nitrogen losses are restricted to achieve a 99 percent protection level for aquatic species in the hill-fed streams.

The Solutions Package also includes actions to improve flows in the lowland streams and the Hinds River/Hekeao. Provision is made for switching from surface water or hydraulically connected groundwater to deep groundwater. New abstractions of surface water or groundwater from the Valetta and Mayfield-Hinds Groundwater Allocation Zones, beyond domestic and stock needs and community supplies, is prohibited while allocation limits are not being met. Transfers of surface water consents and groundwater consents within the Valetta Groundwater Allocation Zone are also prohibited while limits are not being met. The Solutions Package also includes the establishment of a Hinds Drains Working Party to develop and recommend revised allocation limits and minimum flows for the spring-fed plains rivers in the Lower Hinds/Hekeao Plains Area by no later than 2020.

Insert new heading:

13.1A: DEFINITIONS

Insert the following table and text under new '13.1A: Definitions' heading:

For the Hinds/Hekeao Plains Area the following definitions apply in addition to the definitions contained in Section 2.9

Definitions

Word	Definition
<u>Adaptive Management Conditions</u>	<u>means a condition or conditions on a resource consent to take groundwater that specifies an annually variable volume dependent on the annually assessed volume of the groundwater resource in a zone.</u>
<u>Augmenting</u>	<u>means the addition of water to surface water or groundwater specifically for the purpose of reducing the concentration of nitrate nitrogen in groundwater or increasing flows in lowland streams.</u>
<u>Baseline Land Use</u>	<u>means the land use, or uses, on a property between 1 July 2009 and 30 June 2013 used to determine the property's 'nitrogen baseline' as defined in section 2.9 of this Plan.</u>
<u>Good Management Practice Nitrogen Loss Rates</u>	<u>means nitrogen loss rates (in kilograms per hectare per annum) from property to water for different soils, rainfall and farm type operating at good management practice.⁴⁰</u>
<u>Hinds/Hekeao Plains Area</u>	<u>means the area identified as the 'Hinds/Hekeao Plains Area' on the</u>

⁴⁰

V2pLWRP-122 – NZPork, V2pLWRP-545 - Dairy NZ, V2pLWRP-750 – Fonterra.

	<u>planning maps.</u>
<u>Lower Hinds/Hekeao Plains Area</u>	<u>means the area identified as the 'Lower Hinds/Hekeao Plains Area' on the planning maps.</u>
<u>Lower Hinds River/Hekeao</u>	<u>means the Hinds River/Hekeao in the Lower Hinds/Hekeao Plains Area.</u>
<u>Upper Hinds/Hekeao Plains Area</u>	<u>means the area identified as the 'Upper Hinds/Hekeao Plains Area' on the planning maps.</u>

13.3 IWI MANAGEMENT PLANS THAT APPLY TO THE HINDS PLAINS AREA

Delete heading and text:

~~13.3 Freshwater Outcomes~~

~~See Objectives in section 3, Policies 4.1, 4.2, 4.3 and 4.4.~~

Insert a new heading and following text:

13.3 Iwi Management Plans that apply to the Hinds Plains Area

Te Rūnanga o Ngāi Tahu Freshwater Policy Statement 1999

Iwi Management Plan of Kati Huirapa for the area Rakaia to Waitaki July 1992

AMEND POLICIES 13.4.5 AND 13.4.6

Amend Policies 13.4.5 and 13.4.6 as follows:

13.4.5 To address over-allocation of surface water in the Hakatere/Ashburton catchment and the LowerHinds/Hekeao Plains Area, enable an applicant to take deep groundwater provided the applicant holds a lawfully established surface water take or stream depleting groundwater take for an equal or greater rate and volume than is sought from the deep groundwater, and the surface water take or stream depleting groundwater take is surrendered.

13.4.6 The water resulting from any surrendered surface water and stream depleting groundwater takes in the Hakatere/Ashburton River catchment and in the Hinds/Hekeao Plains Area⁴¹ will not be reallocated and will be left in the river until such time as the catchment is no longer over allocated and in the Hinds/Hekeao Plains Area will not be reallocated and will be left in the river.

INSERT POLICIES 13.4.9 TO 13.4.19

INSERT POLICIES 13.4.9 TO 13.4.19 AS FOLLOWS AT THE END OF SECTION '13.4 POLICIES':

13.4.9 Improve the overall water quality in the Hinds/Hekeao Plains Area by:

- (a) establishing two management areas the Upper Hinds/Hekeao Plains Area and Lower Hinds/Hekeao Plains Area;
- (b) improving management of nitrogen⁴², microbial contaminants, microbes⁴³, phosphorus and sediment in both areas;

⁴¹ V2 pLWRP – 988 Synlait Farm.

⁴² V2pLWRP-597 – Dairy NZ, V2pLWRP-752 – Fonterra.

⁴³ V2pLWRP-419 – Director General of Conservation.

- (c) ~~preventing restricting~~⁴⁴ increases in nitrogen losses in the Upper Hinds/Hekeao Plains Area; and
- (d) ~~reducing overall nitrogen losses by 4530 percent in the Lower Hinds/Hekeao Plains Area~~⁴⁵ and
- (e) ~~adopting the use of managed aquifer recharge to augment groundwater and/or surface water.~~
- 13.4.10 Reduce discharges of ~~microbial contaminants microbes~~⁴⁶, phosphorus and sediments in the Hinds/Hekeao Plains Area by:
- (a) ~~excluding intensively farmed stock cattle, pigs and deer~~⁴⁷ from drains in addition to the region-wide stock exclusion rules; and
- (b) ~~implementing the farm practices in Schedule 24a; or~~
- (c) ~~preparing and implementing Farm Environment Plans, in accordance with Schedule 7~~⁴⁸.
- 13.4.14A Recognise the cultural significance of the Hekeao/Hinds River to Ngāi Tahu and enable Ngāi Tahu to exercise kaitiakitanga and mahinga kai in the catchment through:
1. ~~Continual improvement in the flows in lowland streams and springs over time;~~
 2. ~~Continual reductions in the concentrations of nitrogen in groundwater over time;~~
 3. ~~Minimising the potential discharge of contaminants into water through land use practices, riparian management, and waterway and drain maintenance; and~~
 4. ~~Encouraging the protection or restoration of natural wetland areas and other mahinga kai.~~⁴⁹
- 13.4.11 Maintain water quality in the Upper Hinds/Hekeao Plains Area by capping discharges of nitrogen at 114 tonnes of nitrogen per year and requiring all farming activities to maintain reduce current phosphorus losses
- 13.4.12 Improve water quality in the Lower Hinds/Hekeao Plains Area by reducing the discharge of nitrogen from farming activities ~~achieve a target load of 3400 tonnes of nitrogen per year to, in association with managed aquifer recharge, achieve the nitrate nitrogen target of Table 13(k) by 2035.~~
- 13.4.13 Farming activities ~~and including~~⁵⁰ farming enterprises in the Lower Hinds/Hekeao Plains Area, whether or not they are supplied with water by an irrigation scheme or a principal water supplier, achieve a target load ~~in the order of 70% of catchment load contributed by farming activities as at 1 October 2014 of 3400 tonnes of nitrogen per year annum year~~⁵¹ by 2035 through⁵¹:
- (a) requiring, ~~from 1 January 2017, all existing farming activities to discharge no more nitrogen than the loss rate that could reasonably be expected from the implementation of meet~~ good management practices, ~~nitrogen loss rates~~⁵² from 1 January 2017, ~~calculated on the baseline land uses; taking into account;~~
- (i) ~~The type of farming activity; and~~

44 V2pLWRP-731 – Ravensdown.

45 V2pLWRP-597 – Dairy NZ.

46 V2pLWRP-420 – Director General of Conservation.

47 V2 pLWRP-472 – Fish and Game.

48 V2 pLWRP 472 – Fish and Game.

49 V2pLWRP-183 - Nga Rūnanga and Te Rūnanga O Ngāi Tahu.

50 Consequential amendment from farm enterprises recommendations.

51 Consequential to amendment to Policy 13.4.13(b).

52 V2pLWRP-123 – NZ Pork.

- (ii) The drainage characteristics of the soil; and
 - (iii) The climatic conditions and topography of the property; and
 - (iv) The type of irrigation system used (if any); and
 - (v) Whether the practices set out in Schedule 24 have been fully adopted; and
 - (vi) The nitrogen baseline for the property and the level of any enduring reductions in nitrogen loss already achieved relative to that baseline.
 - (vii) The nitrogen baseline for the property and any lawful increase in the nitrogen discharge that occurred prior to 1 October 2014.
 - (b) enabling, from 1 January 2017, farming activities with a nitrogen loss rate, after adoption of good management practices;
 - i. of less than 15kg of nitrogen per hectare per annum to increase nitrogen loss to a maximum of 15kg of nitrogen per hectare per annum; and
 - ii. of between 15kg of nitrogen per hectare per annum and 20kg of nitrogen per hectare per annum, to increase the discharge of nitrogen to a maximum of 20kgs of nitrogen per hectare per annum provided the aggregate increase in nitrogen from these farming activities does not exceed 25 tonnes of nitrogen per annum.
 - (bc) requiring, from 1 January 2020⁵³, time framed further reductions from those properties with a nitrogen loss calculation exceeding 20 kg per hectare per annum, beyond those set out in (a) for dairy farming and dairy support⁵⁴ of:
 - (i) from 1 January 2020, dairy 15% and dairy support 10% reductions
 - (ii) from 1 January 2025, dairy 25% and dairy support 15% reductions
 - (iii) from 1 January 2030, dairy 35% and dairy support 20% reductions
 - (iv) from 1 January 2035, dairy 45% and dairy support 25% reductionsfrom 1 January 2020, in accordance with Table 13(h); and⁵⁴
 - (ed) determining the extent and timing of nitrogen loss reductions to be achieved on individual farm properties from 1 January 2017 by having regard to the following matters when considering whether the individual circumstances of each farm property justify a departure from the nitrogen loss reductions schedule of Table 13(h) set out in 13.4.13(c) above:
 - i. The nitrogen baseline for the property and the level of any enduring reductions already achieved relative to that baseline; and
 - ii. The implications on achieving the catchment nitrogen load target in Table 13 (g) by 2035.
 - iii. The capital and operational costs of making nitrogen loss reductions and the benefit (in terms of maintaining a farm's financial sustainability) of spreading that investment over time.
 - iv. The nature, sequencing, measurability and enforceability of any steps proposed to achieve the nitrogen loss rate reductions.

⁵³

⁵⁴

V2pLWRP-304 – Hind Plains Land and Water Partnership.
V2pLWRP-637 – RDRML, V2pLWRP-821 – Fertiliser Association of NZ.

(ed) enabling, ~~by way of resource consent process, land use intensification or changes in land use~~ increases in nitrogen losses, ~~beyond that for the baseline land use~~⁵⁵ ~~on a maximum of 30,000 hectares of land, on land within the command area of irrigation schemes consented at 1 October 2014,~~ provided the nitrogen loss calculation is limited to no more than 27 kg per hectare per year.

13.4.13A (1) Enable the establishment of farming enterprises in circumstances where, for the purpose of nutrient management, the total farming activity does not exceed the aggregate of the nitrogen baselines of all the parcels of land used in the enterprise, and any time-framed reductions set out in Policy 13.4.13 are achieved (whether or not the parcels are held in single, multiple, or common ownership).

(2) Enable the disestablishment of farming enterprises, by which each parcel of land formerly used in the enterprise does not exceed either:

(a) the individual nitrogen baseline of the land in that parcel, following any time-framed reductions set out in Policy 13.4.13; or

(b) a nitrogen baseline limit to be determined so that the aggregate of the baselines of all the parcels formerly used in the enterprise, following any time-framed reductions set out in Policy 13.4.13, is not exceeded.⁵⁶

13.4.14 Improve flows in spring-fed waterbodies and/or decrease nitrate nitrogen concentrations in the Hinds River/Hekeao spring-fed waterbodies and groundwater in the Lower Hinds/Hekeao Plain Area by enabling managed aquifer recharge and targeted stream augmentation, where:

(a) adverse effects on cultural values, including those associated with unnatural mixing of water are ~~satisfactorily~~⁵⁷ avoided ~~as the first preference, and where avoidance is not practicable, they are remedied or mitigated~~⁵⁸;

(b) adverse effects on the availability and quality of community drinking water supplies are avoided;

(c) adverse effects on fish passage are avoided or mitigated;

(d) inundation of existing wetlands is avoided, remedied or mitigated through scheme design, construction and operation;

(e) there is no net loss, ~~including through inundation~~⁵⁹, of significant ~~biodiversity~~ habitat of indigenous biodiversity; and

(f) adverse effects on people and property from raised groundwater levels and higher flows are avoided ~~as the first preference, and where avoidance is not practicable, they are remedied or mitigated~~⁶⁰.

(g) ~~significant adverse effects on farming activities and rural production existing as at 1 October 2014 are avoided.~~

⁵⁵ V2pLWRP-1316 – Ravensdown (noted that recommendation is only similar to decision sought by Ravensdown).

⁵⁶ V2-pLWRP – 992 Dairy Holdings.

⁵⁷ V2pLWRP-566 – Dairy NZ.

⁵⁸ V2pLWRP-649 – RDRML.

⁵⁹ V2pLWRP-274 – Te Rūnanga o Arowhenua and Te Rūnanga o Ngāi Tahu.

⁶⁰ V2pLWRP-649 – RDRML.

- 13.4.15 Enable catchment restoration activities that protect springheads; protect, establish or enhance planted riparian margins; create, restore or enhance wetlands; and target removal of fine sediment from water ways.
- 13.4.16 Improve flows in spring-fed waterbodies and the Lower Hinds River/Hekeao to meet economic, cultural, social and environmental outcomes in the Hinds/Hekeao Plains Area by requiring adherence to flow and allocation limits, limiting the volume and rate of abstraction on replacement water permits to reasonable use calculated in accordance with ~~method 1 in~~⁶¹ Schedule 10 and prohibiting increased use arising from the transfer of consented volumes of water within surface water catchments and the Valetta Groundwater Allocation Zone.
- 13.4.17 Until such time as the Valetta Groundwater Allocation Zone limits in Table 13(f) are no longer exceeded apply adaptive management conditions upon replacement of any groundwater permits that have previously been subject to adaptive management conditions on the same or similar terms as the pre-existing conditions.
- 13.4.18 In the Lower Hinds/Hekeao Plains Area, with the exception of the Lower Hinds River/Hekeao, ~~and until 30 June 2020~~, any water permit granted to replace an existing water permit will be subject to the minimum flow and allocation limits in Table 13(e) until there is a collaboratively developed flow and allocation regime that has been included in the plan through a Schedule 1 RMA process.
- 13.4.19 ~~After 1 July 2020 a minimum flow of 50% 7DMALF and an allocation limit of 20% 7DMALF will be applied to all water permits granted to abstract surface water from the waterbodies listed in Table 13(e), or to abstract groundwater with a direct, high or moderate stream depletion effect on those waterbodies, unless there is a collaboratively developed flow and allocation regime that has been included in this Plan through a Schedule 1 RMA process.~~

⁶¹ V2 pLWRP-160 Hydrotrader, V2 pLWRP-179 Irrigation NZ, V2 pLWRP-236 Synlait Milk, V2 pLWRP-276 Nga Rūnanga and Te Rūnanga o Ngāi Tahu, V2 pLWRP-295 Federated Farmers, V2 pLWRP-305 HPLWP, V2 pLWRP- 295 Federated Farmers, V2 pLWRP-410 Mayfield Hinds Irrigation, V2 pLWRP-693 Valetta Irrigation, V2 pLWRP- 1003 Farm, V2 pLWRP-1094 Eiffelton Community Irrigation Scheme.

13.5 Rules

Insert the following under '13.5: Rules'

The following index identifies region-wide rules that are modified by the Hinds/Hekeao Plains Area rules introduced into this section.

Topic		Region-wide Rule	Additions to Region-wide Rules⁽¹⁾	Sub-regional Rules that prevail over Region-wide Rules	New Sub-regional Rules
<u>Pest Control and Agrichemicals</u>		<u>5.22</u>	<u>13.5.7</u>		
<u>Nutrient Management⁽²⁾</u>	<u>Red, Lake Zone, Orange, Green or light Blue</u>	<u>5.41-5.59</u>		<u>13.5.8-13.5.20</u>	
	<u>Irrigation Scheme</u>	<u>5.60-5.62</u>		<u>13.5.21-13.5.23</u>	
	<u>Incidental Nutrient Discharges</u>	<u>5.63-5.64</u>		<u>13.5.24-13.5.25</u>	
<u>Stock Exclusion</u>		<u>5.68-5.71</u>	<u>13.5.26</u>		
<u>Sediment Removal from Rivers and Streams</u>					<u>13.5.27-28</u>
<u>Small and Community Water takes</u>		<u>5.111</u>		<u>13.5.29</u>	
<u>Take and use Surface Water</u>		<u>5.123-5.126</u>	<u>13.5.30</u>		-
<u>Take and use of Groundwater</u>		<u>5.128-5.132</u>	<u>13.5.30</u>		<u>13.5.31-13.5.32</u>
<u>Transfer of Water Permits</u>		<u>5.133-5.134</u>		<u>13.5.33-13.5.34</u>	
<u>Augmenting Groundwater or surface water</u>					<u>13.5.35-13.5.37</u>

1 Additional conditions or matter of discretion to region-wide rules that apply to the Hinds/Hekeao Plains Area only.

2 Hinds/Hekeao Plains Area rules cover nutrients, sediment and microbial contaminants.

HINDS/HEKEAO PLAINS AREA

Insert the following rules and associated headings and text after Rule 13.5.6 in '13.5 Rules':

Pest Control and Agrichemicals

Rule 13.5.7 applies as an addition to Region-wide Rule 5.22 in the Hinds/Hekeao Plains Area.

13.5.7 Within the Hinds/Hekeao Plains Area, Region-wide Rule 5.22 shall include the following condition:

1. For discharges to surface water, excluding to surface water within land in private ownership⁶² signs are erected at all public access points within 2km of the discharge location at least 48 hours prior to commencement of the discharge, and shall remain in place for at least 48 hours following the discharge. Signs shall include the following information:
 - (a) The name of the agrichemical discharged, the date and time the discharge will commence and a description of the application area; and
 - (b) A warning to avoid contact with surface water, and to avoid collection of shellfish or mahinga kai; and
 - (c) A contact name and phone number for the person carrying out the discharge.

*Note: for all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013*⁶³

Nutrient Management, Sediment and Microbial Contaminants

Rules 13.5.8 to 13.5.20 prevail over Region-wide Rules 5.41 to 5.59 (Nutrient Management - Red, Orange and Green Zones) in the Hinds/Hekeao Plains Area.

UPPER HINDS/HEKEAO PLAINS AREA

13.5.8 Despite any of Rules 13.5.9 to 13.5.12 the use of land for a farming activity in the Upper Hinds/Hekeao Plains Area is a permitted activity provided the following conditions are met:

1. The property is less than 5 hectares; and
2. The nitrogen loss calculation for the property does not exceed 20 kg per hectare per annum or the nitrogen baseline, whichever is the greater.

13.5.9 The use of land for a farming activity in the Upper Hinds/Hekeao Plains Area is a permitted activity, provided the following conditions are met:

1. The nitrogen loss calculation for the property does not increase above the nitrogen baseline; and either
2. The practices in Schedule 24a are being implemented and the information required is recorded in accordance with Schedule 24a, and supplied to the Canterbury Regional Council on request; or
3. A Farm Environment Plan has been prepared and implemented in accordance with Schedule 7 Part A, and supplied to Canterbury Regional Council on request.

13.5.10 The use of land for a farming activity as part of a farming enterprise in the Upper Hinds/Hekeao Plains Area is a discretionary activity, provided the following conditions are met:

⁶²

V2-pLWRP-311 – Federated Farmers.

⁶³

V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.

1. The aggregated⁶⁴ nitrogen loss calculation for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming⁶⁵ the farming enterprise does not increase above the aggregated nitrogen baseline for those parcels of land⁶⁶; and
2. The farming enterprise is solely in the Upper Hinds/Hekeao Plains Area; and
3. A Farm Environment Plan for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming the farming enterprise⁶⁷ has been prepared in accordance with Schedule 7 Part A.

13.5.11 The use of land for a farming activity that does not comply with conditions 2 or 3 of Rule 13.5.9 or condition 3 of Rule 13.5.10 is a non-complying activity.

13.5.12 The use of land for a farming activity that does not comply with condition 1 of Rule 13.5.9 or condition 1 or 2 of Rule 13.5.10 is a prohibited activity.

LOWER HINDS/HEKEAO PLAINS AREA

13.5.13 Despite any of Rules 13.5.15 to 13.5.20 the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity provided the following conditions are met:

1. The property is less than 5 hectares; and
2. The nitrogen loss calculation for the property does not exceed 20 kg per hectare per annum or the nitrogen baseline, whichever is the greater.

~~13.5.14 Despite any of Rules 13.5.15 to 13.5.20 the use of land for a farming activity or farming enterprise in the Lower Hinds/Hekeao Plains Area is a discretionary activity, provided the following conditions are met:~~

- ~~1. The future⁶⁸ nitrogen loss calculation for the area of land subject to any application for resource consent made under this rule will be less than or equal to 27 kg per hectare per annum for the activity applied for; and~~
- ~~2. The area of land subject to the application, in addition to the⁶⁹ total area of the land subject to any existing⁷⁰ resource consent granted under this Rule and any area of land subject to Row B of Table 13(i) does not exceed 30,000 hectares; and~~
- ~~3. The farming activity or farming enterprise is solely in the Lower Hinds/Hekeao Plains Area; and~~
- ~~4. A Farm Environment Plan has been prepared in accordance with Schedule 7 Part A; and~~
- ~~5. The Farm Environment Plan identifies the area of land subject to any application for a resource consent made under this Rule.⁷¹~~

⁶⁴ CI16 – minor amendment to improve certainty (recommendation consistent with Variation 1)

⁶⁵ Consequential amendment to 13.5.18.

⁶⁶ Consequential amendment to 13.5.18.

⁶⁷ Consequential amendment to 13.5.18.

⁶⁸ V2pLWRP-245 – Synlait Milk, V2pLWRP-576 – Dairy NZ, V2pLWRP-653 – RDRML, V2pLWRP-789 – Fonterra, V2pLWRP-1013 – Synlait Farms.

⁶⁹ CI 16 – minor clarification.

⁷⁰ CI 16 – minor clarification.

13.5.15 Until 1 January 2017, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity, provided the following conditions are met:

1. The nitrogen loss calculation for the property, ~~excluding any area of land subject to a resource consent granted under Rule 13.5.14~~, does not increase above the nitrogen baseline; and either
2. The practices in Schedule 24a are being implemented and the information required is recorded in accordance with Schedule 24a, and supplied to Canterbury Regional Council on request; or
3. A Farm Environment Plan has been prepared and is being implemented in accordance with Schedule Part A, and supplied to Canterbury Regional Council on request.

13.5.16 From 1 January 2017, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity, provided the following conditions are met:

1. ~~The nitrogen loss calculation for the property does not exceed 15kg of nitrogen per hectare per annum; or~~
- ~~12.~~ The nitrogen loss calculation for the property does not exceed 20 kg per hectare per annum; and ~~t~~The nitrogen loss calculation for the property, ~~excluding any area of land subject to a resource consent granted under Rule 13.5.14~~, does not increase above the nitrogen baseline; and ~~in either case -~~
3. The practices in Schedule 24a are being implemented and the information required is recorded in accordance with Schedule 24a, and supplied to Canterbury Regional Council on request; or
4. A Farm Environment Plan has been prepared and is being implemented in accordance with Schedule Part A, and supplied to Canterbury Regional Council on request.

13.5.17 From 1 January 2017, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a restricted discretionary activity, provided the following conditions are met:

1. ~~The nitrogen loss calculation for the property at 1 October 2014 was greater than or equal to 15kg of nitrogen per hectare per annum and does not increase above 20kg of nitrogen per hectare per annum; or~~
- ~~12.~~ The nitrogen loss calculation for the property is greater than 20 kg per hectare per annum; and ~~t~~The nitrogen loss calculation for the property, ~~excluding any area of land subject to a resource consent granted under Rule 13.5.14~~, does not increase above the nitrogen baseline; and ~~in either case -~~
- ~~34.~~ ~~The property is within that area shown as Green on the LWRP Planning Maps and the nitrogen loss calculation for the property does not exceed the nitrogen baseline plus 5kgs per hectare per annum, whichever is greater; and~~
45. A Farm Environment Plan has been prepared in accordance with Schedule 7 Part A.

The exercise of discretion is restricted to the following matters:

1. The quality of, compliance with and auditing of the Farm Environment Plan; and
2. The ~~nitrogen loss rates to be applied to the property, including any staged reductions ability to meet the nitrogen load target for farming activities set out in Policy 13.4.13 in Table 13(g); and~~⁷²
3. ~~From 1 January 2017 the Good Management Practice Nitrogen Loss Rates to be applied for the baseline land uses; and~~⁷³
4. ~~The matters listed in Policy 13.4.13 Any nitrogen loss rates to be applied in accordance with Table 13 (h); and~~⁷⁴
5. The potential benefits of the activity to the applicant, the community and the environment.

13.5.18 The use of land for a farming activity as part of a farming enterprise in the Lower Hinds/Hekeao Plains Area is a discretionary activity, provided the following conditions are met:

1. The farming enterprise is solely in the Lower Hinds/Hekeao Plains Area; and
2. The ~~aggregated~~⁷⁵ nitrogen loss calculation for ~~the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming~~⁷⁶ the farming enterprise, excluding any area of land subject to a resource consent granted under Rule 13.5.14, does not increase above the ~~aggregated~~ nitrogen baseline ~~for those parcels of land~~⁷⁷; and
3. A Farm Environment Plan ~~for the parcels of land held in single or multiple ownership (whether or not held in common ownership) forming the farming enterprise~~⁷⁸ has been prepared in accordance with Schedule 7 Part A

13.5.19 The use of land for a farming activity that does not comply with any of conditions 2 or 3 in Rule 13.5.15, conditions 3 or 4 of Rule 13.5.16, condition 3 of Rule 13.5.17, or a farming enterprise that does not comply with condition 3 of Rule 13.5.18, is a non-complying activity.

13.5.20 The use of land for a farming activity that does not comply with condition 1 of Rule 13.5.15, condition 2 of Rule 13.5.16, condition 2 of Rule 13.5.17 or conditions 1 or 2 of Rule 13.5.18 or a farming enterprise that does not comply with any of the conditions of Rule 13.5.14, is a prohibited activity.

Irrigation Schemes

Rule 13.5.21 and 13.5.23 prevail over Region-wide Rules 5.60, 5.61 and 5.62 in the Hinds/Hekeao Plains Area.

⁷² Consequential amendment to Policy 13.4.13.
⁷³ V2pLWRP-632 – Horticulture NZ.
⁷⁴ V2pLWRP-192 – Irrigation NZ, V2pLWRP-325 – Federated Farmers.
⁷⁵ CI16 – minor amendment to improve certainty (recommendation consistent with Variation 1).
⁷⁶ V2pLWRP-1316 – Eiffelton Community Irrigation Scheme.
⁷⁷ V2pLWRP-1316 – Eiffelton Community Irrigation Scheme.
⁷⁸ V2pLWRP-1316 – Eiffelton Community Irrigation Scheme, V2pLWRP-992 – Dairy Holdings Ltd, V2pLWRP- 793 – Fonterra, V2pLWRP-580 – Dairy NZ.

13.5.21 Despite Rules 13.5.13 to 13.5.20, the use of land for a farming activity in the Lower Hinds/Hekeao Plains Area is a permitted activity, provided the following condition is met:

1. The property is irrigated with water from an irrigation scheme or a principal water supplier, and the irrigation scheme or principal water supplier holds a discharge consent granted under Rule 5.61, Rule 5.62 or Rule 13.5.22.

13.5.22 Except as provided in Rules 13.5.24 and 13.5.25 the discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water in the Lower Hinds/Hekeao Plains Area that would otherwise contravene s15(1) of the RMA is a discretionary activity, provided the following conditions are met:

1. The applicant is an irrigation scheme or a principal water supplier, or the holder of the discharge permit will be an irrigation scheme or a principal water supplier; and
2. The nitrogen loss calculation for the total area of the land will not exceed the nitrogen load calculated in accordance with Rows A and/or B in Table 13(i); and
3. The total area of the land subject to any resource consent granted under Rule 13.5.14 and any area of land subject to Row B of Table 13(i) does not exceed 30,000 hectares.

Notification

Pursuant to section 95A and 95B of the RMA an application for resource consent under this rule will be processed and considered without public or limited notification.

Note that limited notification to affected order holders in terms of section 95F of the RMA will be necessary, where relevant under section 95B(3) of the RMA.

13.5.23 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA that does not meet one or more of the conditions in Rule 13.5.22 is a prohibited activity.

Note:

If the applicant is not an irrigation scheme or a principal water supplier, or the holder of the discharge permit will not be an irrigation scheme or a principal water supplier, then the discharge is assessed under Rules 13.5.24 and 13.5.25.

Incidental Nutrient Discharges

Rule 13.5.24 and 13.5.25 prevail over Region-wide Rules 5.63 and 5.64.

13.5.24 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA is a permitted activity, provided the following condition is met:

1. The land use activity associated with the discharge is authorised under Rules 13.5.8 to 13.5.20.

13.5.25 The discharge of nutrients onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene s15(1) of the RMA and does not meet condition of Rule 13.5.24 is a non-complying activity.

Stock Exclusion

Rules 5.68, 5.69, 5.70 and 5.71 (Stock Exclusion) apply in the Hinds/Hekeao Plains Area. Rule 13.5.26 applies as an addition to Rules 5.68, 5.69, 5.70 and 5.71.

13.5.26 Within the Hinds/Hekeao Plains Area any reference to the bed of a lake, river or wetland in Rules 5.68, 5.69, 5.70 and 5.71 also includes a drain, but does not include any sub-surface drain, ~~stormwater swale or other artificial watercourse which is ephemeral in nature or drain that does not have water in it~~⁷⁹.

Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁸⁰

Sediment Removal from Rivers and Streams

Rules 13.5.27 and 13.5.28 are new rules

13.5.27 Within the Hinds/Hekeao Plains Area the taking and use of water from a river and the disturbance of the bed of a river to remove fine sediment less than 2 mm in diameter for the sole purpose of habitat restoration is a restricted discretionary activity provided the following conditions are met:

- 1 A management plan has been prepared that includes the location, ~~timeframe~~⁸¹ and method of sediment removal, management and disposal, erosion control methodology, an inventory of sensitive ecological habitats and species, and an assessment of the environmental risks including effects downstream; and**
- 2. The activity does not occur when the river is at or below the minimum flow in Table 13(d) or 13(e); and**
- 3. Following removal of fine sediment any abstracted water is returned to the river not more than 250 m from the point of take; and**
- 4. The maximum instantaneous rate of water abstraction shall not exceed 50% of the flow in the stream to the site being remediated; and**
- 5. The activity does not take place on a site listed as an archaeological site on the New Zealand Archaeological Association Site Recording Scheme website; and**
- 6. The activity is not undertaken within a Community Drinking Water Protection Zone as listed in Schedule 1; and**
- 7. The activity is undertaken at a distance greater than 50 m from any lawfully established surface water intake.**

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V2 pLWRP-1195 – Terralea Partnership.

V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.

V2 pLWRP 451 – Director General of Conservation.

The exercise of discretion is restricted to the following matters:

1. The content and adequacy of the management plan; and
2. The location, method and timing of sediment removal with respect to the life stage and habitat of sensitive ecological communities including fish and invertebrates; and
3. The adverse effects of the activity on downstream water quality, flows and significant habitats of indigenous fauna and flora; and
4. The effect of the activity on reliability for any authorised surface water take; and
5. The volume and rate at which water is abstracted and returned to the river, **including the effects of erosion, bank stability and waterway capacity**⁸²; and
6. Any adverse effects on mahinga kai, wāhi tapu or wāhi taonga; and
7. The benefits of the activity to the community and the environment.

Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁸³

13.5.28 Within the Hinds/Hekeao Plains Area the taking and use of water from a river and the disturbance of the bed of a river to remove fine sediment less than 2 mm in diameter for the sole purpose of habitat restoration that does not meet one or more of the conditions in Rule 13.5.27 is a discretionary activity.

Notes:

In addition to the provisions of this Plan and any relevant district plan, any activity which may modify damage or destroy any pre 1900 archaeological sites is subject to the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014. An archaeological authority is required from Heritage New Zealand Pouhere Taonga to modify, damage or destroy any archaeological site, whether recorded or not in the New Zealand Archaeological Association Site Recording Scheme website.

For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁸⁴

Small and Community Water Takes

Rules 5.112, 5.113, 5.114 and 5.115 apply in the Hinds/Hekeao Plains Area. Rule 13.5.29 prevails over Rule 5.111.

13.5.29 Within the Lower Hinds/Hekeao Plains Area Region-wide Rule 5.111 does not apply.

Take and Use of Ground and Surface Water

⁸² V2 pLWRP 1084 – Ashburton Hinds Drainage Rating District Liaison Committee.
⁸³ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.
⁸⁴ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.

Region-wide Rules 5.123, to 5.127 'Surface Water' and Rules 5.128 to 5.132 'Groundwater' apply in the Hinds/Hekeao Plains Area. Rule 13.5.30 applies as an addition to Rules 5.123 and 5.128. Rules 13.5.31 and 13.5.32 are additional rules in the Valetta and Mayfield-Hinds Groundwater Allocation Zones.

*Note: Nothing in this Plan affects an individual's right to take water in accordance with section 14(3)(b) of the RMA.*⁸⁵

~~13.5.30 — Within the Hinds/Hekeao Plains Area Region-wide Rules 5.123 and 5.128 shall include the following additional condition:~~

- ~~1. — If the proposed take is the replacement of a lawfully established take, the annual volume and maximum rate of take has been calculated in accordance with method 1 in Schedule 10.~~⁸⁶

13.5.31 The taking and use of groundwater within the Valetta and Mayfield-Hinds Groundwater Allocation Zones that will substitute an existing surface water or groundwater permit with a direct, high or moderate stream depletion effect is a restricted discretionary activity provided that the following conditions are met:

1. The ~~use of~~ groundwater ~~take will is be abstracted~~⁸⁷ on the same property as the existing resource consent and there is no increase in the ~~proposed~~ annual volume; and
2. The groundwater take will not have a direct or high stream depletion effect; and
3. The bore interference effects are acceptable, as determined in accordance with Schedule 12.

The exercise of discretion is restricted to the following matters:

1. Whether the volume and abstraction rate of water to be taken and used is reasonable for the proposed use assessed in accordance with ~~method 1 in~~⁸⁸ Schedule 10; and
2. The timing of the surrender of the existing surface water or groundwater permit or permits; and
3. The effects the take has on any other authorised abstraction, including interference effects as indicated by a ~~Step~~ ~~Aquifer~~⁸⁹ Test undertaken in accordance with the requirements of Schedule 11 and well interference calculated in accordance with the method in Schedule 12; and
4. Where the take is less than 2 km from the coast, whether salt-intrusion into the aquifer or inland movement of the salt water/fresh water interface is prevented; and

⁸⁵ V2 pLWRP-163 Hydrotrader, V2 pLWRP-953 E Winchester, V2 pLWRP-261 Synlait Milk, V2 pLWRP-349 Federated Farmers, V2 pLWRP-334 HPLWP, V2 pLWRP-1057 and 1059 Eiffelton Community Irrigation Scheme, V2 pLWRP-585 and 586 Dairy NZ, V2 pLWRP-1133 Longbeach Estate.

⁸⁶ V2 pLWRP – 164 Hydrotrader, V2 pLWRP – 194 Irrigation NZ, V2 pLWRP – 267 Synlait Milk, V2 pLWRP – 350 Federated Farmers, V2 pLWRP – 411 Mayfield Hinds Irrigation, V2 pLWRP – 695 Valetta Irrigation, V2 pLWRP – 954 E Winchester, V2 pLWRP – 1023 Synlait Farm, V2 pLWRP 1101– Eiffelton Irrigation.

⁸⁷ V2 pLWRP – 339 HPLWP, V2 pLWRP – 352 Federated Farmers, V2 pLWRP – 587 Dairy NZ, V2 pLWRP – 800 Fonterra, V2 pLWRP – 391 Mayfield Hinds Irrigation, V2 pLWRP – 679 Valetta Irrigation, V2 pLWRP – 1062 and V2 pLWRP – 1102 Eiffelton Irrigation, V2 pLWRP – 1126 P Everest, V2 pLWRP – 1080 Ashburton Hinds Drainage.

⁸⁸ V2 pLWRP – 165 Hydrotrader, V2 pLWRP – 268 Synlait Milk, V2 pLWRP – 412 Mayfield Hinds Irrigation, V2 pLWRP – 696 Valetta Irrigation.

⁸⁹ V2 pLWRP – 165 Hydrotrader, V2 pLWRP – 268 Synlait Milk, V2 pLWRP – 412 Mayfield Hinds Irrigation, V2 pLWRP – 696 Valetta Irrigation.

5. The protection of groundwater from contamination, including the prevention of backflow of water or contaminants.

13.5.32 The taking and use of groundwater that does not meet one or more of the conditions of Rule 13.5.31 is a prohibited activity.

Transfer of Water Permits

Rules 13.5.33 and 13.5.34 prevail over Region-wide Rules 5.133 and 5.134 in the Hinds/Hekeao Plains Area

13.5.33 The temporary or permanent transfer, in whole or in part, (other than to the new owner of the site to which the take and use of water relates and where the location of the take and use of water does not change) of a water permit to take or use surface water within the Hinds/Hekeao Plains Area ~~must not under section 136 of the RMA be approved, in the same way as if it were~~⁹⁰ ~~a prohibited~~ is a discretionary activity provided the following conditions are met:

1. The volume of water to be transferred for annual take and use does not exceed the greater of:

- a) the annual average volume taken and used over the period 01 July 2009 – 30 June 2013 ; and
- b) the annual average volume taken and used over the four-year period immediately preceding the application to transfer the water permit.

2. In the case of a partial transfer, the total volume taken and used in all locations under the permit shall not exceed the volume described in 1 above.

13.5.33A Despite Rule 11.5.33, the temporary or permanent site-to-site transfer, in whole or in part, of a water permit to take or use water for gravel extraction (and ancillary activities) is to be considered as if it is a discretionary activity, provided the following conditions are met:

1. The water continues to be used only for gravel extraction and ancillary activities.⁹¹

13.5.34 The temporary or permanent transfer, in whole or in part, (other than to the new owner of the site to which the take and use of water relates and where the location of the take and use of water does not change) of a water permit to take or use groundwater within Valetta Groundwater Allocation Zone ~~must not under section 136~~

⁹⁰ CI16 – minor amendment for consistency with Variation 1.
⁹¹ V2 pLWRP-145 - Fulton Hogan.

~~of the RMA be approved, in the same way as if it were is⁹² a prohibited activity, is a discretionary activity provided the following conditions are met:~~

~~1. The volume of water to be transferred for annual take and use does not exceed the greater of:~~

- ~~c) the annual average volume taken and used over the period 01 July 2009 – 30 June 2013 ; and~~
- ~~d) the annual average volume taken and used over the four-year period immediately preceding the application to transfer the water permit.~~

~~2. In the case of a partial transfer, the total volume taken and used in all locations under the permit shall not exceed the volume described in 1 above.~~

13.5.34A Despite Rule 11.5.34, the temporary or permanent site-to-site transfer, in whole or in part, of a water permit to take or use water for gravel extraction (and ancillary activities) is to be considered as if it is a discretionary activity, provided the following conditions are met:

- 1. The water continues to be used only for gravel extraction and ancillary activities⁹³**

Augmenting Groundwater or Surface Water

Rules 13.5.35 to 13.5.37 are new rules that apply in the Hinds/Hekeao Plains Area

13.5.35 The taking and use of surface water or groundwater in the Lower Hinds/Hekeao Plains Area for the sole purpose of augmenting surface water or groundwater to reduce concentrations of nitrate nitrogen in surface water or groundwater and/or increase flows in lowland streams is a discretionary activity.

Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013⁹⁴

13.5.36 The discharge of water into water or onto land in circumstances where it may enter water and the water may contain contaminants, for the purpose of augmenting groundwater or surface water within the Hinds/Hekeao Plains Area is a restricted discretionary activity, provided the following conditions are met:

- 1. The discharge is part of a trial for investigative purposes and the duration of the trial will not exceed years; and**
- 2. The activity does not take place on a site listed as an archaeological site; and**
- 3. The discharge is not within a Community Drinking Water Protection Zone as set out in Schedule 1; and**
- 4. The discharge is not within 100 m of any well used to supply potable water; and**

⁹² CI16 – minor amendment for consistency with Variation 1.

⁹³ V2 pLWRP-145 - Fulton Hogan.

⁹⁴ V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.

5. The discharge is for the purpose of reducing the concentration of nitrate nitrogen in surface water or groundwater or increasing flows in lowland streams for ecological or cultural benefits.

The exercise of discretion is restricted to the following matters:

1. The location, method and timing of the discharge to groundwater or surface water; and
2. The adequacy of the scheme design, construction, operation, monitoring, reporting; and
3. The appropriateness of integration with existing or planned infrastructure and water conveyance systems; and
4. Any adverse effects on people and property from raised groundwater levels and reduced drainage capacity in the drainage system; and
5. Any adverse effects on water quality in the receiving aquifer or river, significant habitats of indigenous flora and fauna; and
6. Any adverse effects on sites or values of importance to Ngāi Tahu from moving water from one catchment or water body to another; and
7. Any adverse effects on sites or areas of wāhi tapu, wāhi taonga or mahinga kai; and
8. The potential benefits of the activity to the community and the environment

*Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013*⁹⁵

13.5.37 The discharge of water into water or onto land in circumstances where it may enter water and the water may contain contaminants, for the purpose of augmenting groundwater or surface water in the Hinds/Hekeao Plains Area that does not meet one or more of the conditions of Rule 13.5.36 is a discretionary activity.

*Note: For all activities in or near waterways, refer also to the Canterbury Flood Protection and Drainage Bylaw 2013*⁹⁶

Insert a new heading and text as follows:

13.6: Freshwater Outcomes

The following table sets out the fresh water outcomes, in combination with Policies 4.3 and 4.4, for the Hinds/Hekeao Plains Area that are to be **maintained where the outcomes are already met, or achieved by 2035 where they are not currently met.**⁹⁷ The achievement of these outcomes will be through a combination of the implementation of this Plan along with implementation of the recommendations of the Ashburton Zone Implementation Programme Addendum: Hinds Plains Area, 2014.

For all other areas in the Ashburton section see policies 4.3, 4.4 and Tables 1a or 1b.

⁹⁵

V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.

⁹⁶

V2 pLWRP-1084 – Ashburton Hinds Drainage District Liaison Committee.

⁹⁷

V2 pLWRP 393 – Fish and Game.

Insert Table 13(a) as follows after new heading '13.6 Freshwater Outcomes'.

Table 13(a): Freshwater Outcomes for Hinds/Hekeao Plains Area Rivers

Management Unit	River	Ecological health indicators			Macrophyte indicators		Periphyton indicators			Siltation indicator	Microbial indicator	Cultural Indicator
		QMCi [min Score 80% of samples in a 5yr period] ⁹⁸	Dissolved oxygen [min saturation %]	Temperature [max] (°C)	Emergent Macrophytes [max cover of bed] (%)	Total Macrophytes [max cover of bed] (%)	Chlorophyll a [max biomass] (mg/m ³)	Filamentous algae > 20mm [max cover of bed] (%)	Cyanobacteria [max cover of bed] (%)	Fine sediment, 2 mm diameter [max cover of bed] (%)	Microbial indicator for contact recreation [SEF ⁹⁹ FG]	
Hill-fed – Upland	Upper Hinds River/Hekeao	6	90	20	No value set	No value set	50	10	15 20	20 15	Good	Freshwater mahinga kai
Hill-fed - Lower	Lower Hinds River/Hekeao	6	90	20	No value set	No value set	200	30	15 50	50 15	Good-Fair	species are sufficiently abundant
Spring-fed Plains	Including but not limited to: <u>Blees Drain</u> <u>Flemington Drain</u> <u>Parakanoi Drain</u> <u>Windermere Drain</u> <u>Boundary Drain</u> <u>Stormy Drain</u> <u>Spicers Creek</u> <u>Dawson Drain</u> <u>Home Paddock Drain</u> <u>Deals Drain</u> <u>O'Shaughnessys Drain</u> <u>Taylors Drain</u> <u>Northern Drain</u> <u>Griggs Drain</u> <u>Dobsons Drain</u> <u>Twenty One Drain</u> <u>Crows Drain</u> <u>Harris Drain</u> <u>Yeatmans Drain</u> <u>Oakdale Drain</u>	5	70	20	30	50	200	30	20 50	50 20 ¹⁰⁰	No value set	for customary gathering, water quality is suitable for their safe harvesting, and they are safe to eat.

98

C116 – minor correction to make consistent with Variation 1.

99

C116 – minor correction of a typo.

100

V2pLWRP-213 – Ashburton DC, V2pLWRP-593 – Dairy NZ, V2pLWRP-708 – RDRML, V2pLWRP-805 – Fonterra, V2pLWRP-1058 – CDHB.

	McLeans Swamp Road Drain Montgomerys Drain Pyes Drain											
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Key:
QMCI = Quantitative Macroinvertebrate Community Index
SFRG = Suitability for Recreation Grade – from Microbiological water quality guidelines for Marine and Freshwater Recreational Areas 2003¹⁰¹

Footnotes:
(1) Upstream of the Rangitata Diversion Race siphon on both North and South branches of the Hinds River.¹⁰²
(2) In reaches with gravel or hard bottom substrates; in all other areas "no value set".¹⁰³

¹⁰¹ CI16 – minor correction to make consistent with Table 1a.
¹⁰² V2 pLWRP 981 – Upper Hinds Plains Land User Group.
¹⁰³ CI16 – minor correction to make consistent with Variation 1.

Delete headings ~~13.6 Allocation Limits~~ and ~~13.6.1 Environmental Flow and Allocation Limits~~

Replace with new headings **13.7: Environmental Flow and Allocation and Water Quality Targets/Limits** and

13.7.1 Environmental Flow and Allocation Limits

Amend the number of table 'Table 12: Hakatere/Ashburton River Catchment Environmental Flow and Allocation Limits' to 'Table 13(b): Hakatere/Ashburton River Catchment Environmental Flow and Allocation Limits'.

Amend the number of table 'Table 13: Hakatere/Ashburton River Restriction Regime' to 'Table 13(c): Hakatere/Ashburton River Restriction Regime'.

Insert Table 13(d) and Table 13(e) as follows at the end of new section heading '13.7.1 Environmental Flow and Allocation Limits'.

Table 13(d) Hinds River/Hekeao Environmental Flow and Allocation Limits

River	Minimum flow sites	Topo 50 Map reference	Minimum flow (L/s)		Allocation (L/s)	Restriction regime ⁽¹⁾	
			1 October 2014 – 30 June 2020	From 1 July 2020		1 October 2014 – 30 June 2020	From 1 July 2020
South Branch	Not applicable	Not applicable	No minimum flow		32	No restriction regime	
North Branch	Not applicable	Not applicable	No minimum flow		0	No restriction regime	
Lower	Poplar Road	BY20:9080-1949	700	770	1522	No restriction regime	1973

1 Flows at which pro-rata restrictions start (l/s)

Table 13(e): Lower Hinds/Hekeao Plains Area Environmental Flow and Allocation Limits

Spring-fed Plains Rivers ⁽¹⁾	Minimum flow sites	Topo 50 Map reference	1 October 2014 – 30 June 2020	
			Minimum flow (L/s)	Allocation (L/s) ⁽²⁾
Blees Drain	Lower Beach Road	BY21:0132-2104	As per existing minimum flow and partial restriction conditions on existing resource consents	349
Flemington Drain	Lower Beach Road	BY21:0112-2059	As per existing minimum flow and partial restriction conditions on existing resource consents	547
Parakanoi Drain	Lower Beach Road	BZ21:9575-1779	As per existing minimum flow and partial restriction conditions on existing resource consents	588
Windermere Drain	Lower Beach Road	BZ21:9425-1670	As per existing minimum flow and partial restriction conditions on	690

			<u>existing resource consents</u>	
<u>Boundary Drain</u>	<u>Trigpole Road</u>	<u>BZ20:8982-1672</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>987</u>
<u>Stormy Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8764-1178</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>436</u>
<u>Spicers Drain</u>	<u>Lower Beach Road</u>	<u>BY21:0012-2019</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>184</u>
<u>Dawson Drain</u>	<u>Twenty One Drains Road</u>	<u>BY21:9773-1919</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>35</u>
<u>Home Paddock Drain</u>	<u>Poplar Road</u>	<u>BZ21:9443-1679</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>333</u>
<u>Deals Drain</u>	<u>Poplar Road</u>	<u>BZ21:9273-1599</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>347</u>
<u>O 'Shaughessys Drain</u>	<u>Poplar Road</u>	<u>BY20:9123-1969</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>426</u>
<u>Taylors Drain</u>	<u>At corner Hinds River Road and Newpark Road</u>	<u>BY20:9033-2189</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>513</u>
<u>Northern Drain</u>	<u>Surveyors Road</u>	<u>BY20:8863-2164</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>634</u>
<u>Griggs Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:9173-1479</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>100</u>
<u>Dobson Drain</u>	<u>Twenty One Drains Road</u>	<u>BZ20:8953-1449</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>447</u>
<u>Twenty One Drain</u>	<u>Twenty One Drains Road</u>	<u>BZ20:8933-1299</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>351</u>
<u>Crows Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8603-1059</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>314</u>
<u>Harris Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8504-0979</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>260</u>
<u>Yeatmans Drain</u>		<u>BZ20:8588-1048</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>72</u>
<u>Oakdale¹⁰⁴ Drain</u>	<u>Rangitata Mouth Road</u>	<u>BZ20:8276-1004</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>190</u>
<u>McLeans Swamp Road Drain</u>	<u>Windermere cut off</u>	<u>B Y20:8673-2799</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	
<u>Moffats Drain</u>	<u>Boundary Road</u>		<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>353</u>
<u>Montgomerys Drain</u>	<u>At confluence with</u>	<u>BZ21:9223-1569</u>	<u>As per existing minimum flow and</u>	<u>125</u>

	<u>Hinds River</u>		<u>partial restriction conditions on existing resource consents</u>	
<u>Pyes Drain</u>	<u>Lower Beach Road</u>	<u>BZ20:8893-1249</u>	<u>As per existing minimum flow and partial restriction conditions on existing resource consents</u>	<u>381</u>

1 The drains referred to in this column are considered to be modified watercourses for the purposes of the Resource Management Act 1991.

2 Existing rates of allocation

Delete heading **13.6.2 Groundwater Allocation Limits** and replace with new heading **13.7.2: Groundwater Allocation Limits/Targets**

Amend table number and heading of '**Table 14: Ashburton Groundwater Limits**' to '**Table 13(f): Ashburton Section Groundwater Limits/Targets**'.

Amend the A allocation limit from 148 (million m³/yr) to 122.25 (million m³ /yr) for the Mayfield-Hinds Groundwater Allocation Zone.

Delete heading **13.6.3 Catchment Nutrient limits and Allowances**

Replace with the following new heading and text:

13.7.3: Water Quality Limits and Targets

In the Hinds/Hekeao Plains Area the water quality limits and targets in Table 13(g) are additional limits and targets to the region-wide limits in Schedule 8. In the Hinds/Hekeao Plains Area the water quality limits in Tables 13(j) and 13(k) prevail over the region-wide limits in Schedule 8. Rules 13.5.14, 13.5.17 and 13.5.22 use Tables 13(h), and 13(i) to manage activities to achieve the limits/targets for the Hinds/Hekeao Plains Area. For all other areas covered by the Ashburton section refer to Schedule 8.

Insert Tables 13(g), 13(h), 13(i), 13(j), 13(k) as follows after new heading '**13.7.3 Water Quality Limits and Targets**'.

Table 13(g): Hinds/Hekeao Plains Area Targets or Limits for Nitrogen Losses from Farming Activities

Area	Nitrogen Load (tonnes/year)	Limit/Target
Upper Hinds/Hekeao Plains Area	114	Limit
Lower Hinds/Hekeao Plains Area	<p>3400 – The load shall be calculated by multiplying A by 0.70 where:</p> <p>A = the nitrogen load modeled to be occurring for the year 1 July 2013 to 30 June 2014 using the latest version of Overseer™ and the Overseer Best Practice Input Standards*</p>	Target to be met by 2035

Table 13(h): Required Nitrogen Loss Rates Beyond Good Management Practice¹⁰⁵

Land-use	2020	2025	2030	2035
Dairy Farm	15% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses	25% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses	35% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses	45% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses
Dairy Support	10% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses	15% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses	20% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses	25% Reduction from good management practice nitrogen loss rates calculated based on the baseline land uses
Other farming activities	0%	0%	0%	0%

Table 13(i): Irrigation Scheme or Principal Water Supplier Load Calculator

Row	Land Area (hectares)	Prior to 31 December 2016	From 1 January 2017	From 1 January 2020	From 1 January 2025	From 1 January 2030	From 1 January 2035
A	Land supplied with water from a	The tonnage of nitrogen per year shall be	The tonnage of nitrogen per year shall be calculated	The tonnage of nitrogen per year shall be calculated	The tonnage of nitrogen per year shall be calculated	The tonnage of nitrogen per year shall be calculated by	The tonnage of nitrogen per year shall be calculated

	Principal Water Supplier or that is within an irrigation scheme command area which was irrigated with <u>scheme</u> ¹⁰⁶ water prior to 1 October 2014	calculated by multiplying: A x B; where A = The number of hectares irrigated with scheme water. B = The Nitrogen Baseline.	by multiplying: A x B; where A = The number of hectares irrigated with <u>scheme water</u> . B = <u>The Good Practice Nitrogen-Loss Rates-loss rates that could reasonably be expected from implementing good management practices</u> ¹⁰⁷ for the baseline land use.	by multiplying: A x B x C; where A = The number of hectares irrigated with <u>scheme water</u> . B = <u>The Good Practice Nitrogen-Loss Rates loss rates that could reasonably be expected from implementing good management practices for the baseline land use. C = The 2020 percentage reductions in Table 13(h) Policy 13.4.13</u> ¹⁰⁸	by multiplying: x B x C; where A = The number of hectares irrigated with <u>scheme water</u> . B = <u>The Good Practice Nitrogen-Loss Rates-loss rates that could reasonably be expected from implementing good management practices for the baseline land use. C = The 2025 percentage reductions in Table 13(h) Policy 13.4.13</u>	multiplying: A x B x C; where A = The number of hectares irrigated with <u>scheme water</u> . B = <u>The Good Practice Nitrogen-Loss Rates-loss rates that could reasonably be expected from implementing good management practices for the baseline land use. C = The 2030 percentage reductions in Table 13(h) Policy 13.4.13</u>	by multiplying: A x B x C; where A = The number of hectares irrigated with <u>scheme water</u> . B = <u>The Good Practice Nitrogen-Loss Rates-loss rates that could reasonably be expected from implementing good management practices or the baseline land use. C = The 2035 percentage reductions in Table 13(h) Policy 13.4.13</u>
B	Land supplied with water from a Principal Water Supplier or that is within the <u>an irrigation scheme command area of an irrigation scheme that held a land use consent for the scheme on 1 October 2014 and which was not irrigated with water</u>	The tonnage of nitrogen per year shall be calculated by multiplying the land area (in hectares) to be irrigated by 27 kg /N/ha/yr. (Example: 100 ha x 27 kg /N/ha/yr = 2.7 tonnes of nitrogen per year).					

¹⁰⁶

¹⁰⁷

¹⁰⁸

	prior to 1 October 2014	
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Table 13(j): Limits/Targets¹⁰⁹ for the Hinds/Hekeao Plains Area surface waterbodies⁽¹⁾

Surface Waterbody type	Type	Measurement	Target to be met by 2035 Nitrate-nitrogen concentration (mg/L)
Hill-fed Upland	Nitrate toxicity	Annual median	1.0
		Annual 95th percentile	1.5
Hill-fed Lower	Nitrate toxicity	Annual median	3.8
		Annual 95th percentile	5.6
Spring-fed Plains	Nitrate toxicity	Annual median	6.9
		Annual 95th percentile	9.8

1. Waterbodies are to meet both (annual and median and 95th percentile) limits/targets

Table 13(k): ~~Limits~~ **Targets**¹¹⁰ for Groundwater

Contaminant	Measurement	Target to be met by 2035
Nitrate-N	Annual average concentration	6.9 mg /L
<i>E. coli</i>	Annual median concentration	< 1 organism/100 millilitres
Other contaminants ⁽¹⁾	Any sample	<50% MAV ⁽²⁾

1. **Other contaminants of health significance as listed in NZ Drinking-water Standards*

2. ***Maximum acceptable value (as listed * above)*

Amend section number ~~13.7 Flow Sensitive Catchments~~ to **13.8 Flow Sensitive Catchments**

Amend section number ~~13.8 High Naturalness Water Bodies~~ to **13.9 High Naturalness Water Bodies**

13.10 SCHEDULES

Insert new heading and text as follows:

13.10 Schedules

Schedules 1 to 23 apply in the Hinds/Hekeao Plains Area. Additions apply to Schedule 7.

Schedule 7 - Farm Environment Plan

Within the Hinds/Hekeao Plains Area Part B clause 5(a) shall also include the following:

- Achieve the ~~loss rates that could reasonably be expected from implementing good management practices~~ **Good Management Practice Nitrogen Loss Rates**¹¹¹ from 2017.
- In Lower Hinds/Hekeao Plains Area further reduce the nitrogen loss rate from 2020 in accordance with **Policy 13.4.13 Table 13(h)**.¹¹²

¹¹⁰

V2pLWRP-711 – RDRML.

¹¹¹

V2pLWRP-271 – Synlait Milk, V2pLWRP-809 – Fonterra, V2pLWRP-598 – Dairy NZ, V2pLWRP-1028 – Synlait Farms.

¹¹²

Consequential amendment to Policy 13.4.13.

Part 4: Amendments to Section 16 - Schedules

Additions to the text are shown underlined.

Deletions to the text are shown as ~~strike through~~

Insert a new Schedule 24a – Farm Practices as follows:

SCHEDULE 24A- FARM PRACTICES

(a) Nutrient Management:

- (i) A nutrient budget based on soil nutrient tests has been prepared, using OVERSEER in accordance with ~~the latest version of the~~¹¹³ OVERSEER Best Practice Data Input Standards ~~[2013]~~¹¹⁴, or an equivalent model approved by the Chief Executive of Canterbury Regional Council ~~and is reviewed annually.~~¹¹⁵
- (ia) Where a material change in the land use associated with the farming activity occurs (being a change exceeding that resulting from normal crop rotations or variations in climatic or market conditions) the nutrient budget shall be prepared at the end of the year in which the change occurs, and also three years after the change occurs;
- (ib) Where a material change in the land use associated with the farming activity does not occur, the nutrient budget shall be prepared once every three years;
- (ic) An annual review of the input data used to prepare the nutrient budget shall be carried out by or on behalf of the landowner for the purposes of ensuring the nutrient budget accurately reflects the farming system. A record of the review shall be kept by the landowner¹¹⁶
- (ii) Fertiliser is applied in accordance with the Code of Practice for Nutrient Management [2007].
- (iii) Records of soil nutrient tests, nutrient budgets and fertiliser applications are kept and provided to the Canterbury Regional Council upon request.

(b) Irrigation Management:

- (i) All irrigation systems installed or replaced after 1 October 2014 meet the Irrigation New Zealand Piped Irrigation Systems Design Code of Practice [2013], Irrigation New Zealand Piped Irrigation Systems Design Standards [2013] and the Irrigation New Zealand Piped Irrigation Systems Installation Code of Practice [2013].

¹¹³

V2pLWRP-23 – Terralea Partnership.

¹¹⁴

V2pLWRP-911 – Fertiliser Association of NZ.

¹¹⁵

V2pLWRP-770 – Ravensdown, V2pLWRP-911 – Fertiliser Association of NZ.

¹¹⁶

V2pLWRP-177 – Ballance Agri-Nutrients.

- (ii) The irrigation system application depth and uniformity are self-checked annually in accordance with the relevant Irrigation NZ Pre-Season Checklist and IRRIG8Quick Irrigation Performance Quick tests for any irrigation system operating on the property.
- (iii) Irrigation applications are undertaken in accordance with property specific soil moisture monitoring, or a soil water budget, or an irrigation scheduling calculator. Soil monitoring means monitoring soil moisture using either volumetric or tension based methodology.
- (iv) Records of irrigation system application depth and uniformity checklists, irrigation applications, soil moisture monitoring or soil water budget or irrigation scheduling calculator results and rainfall are kept and provided to the Canterbury Regional Council upon request.
- (c) Winter grazing of intensively farmed stock:
- (i) Winter grazing means grazing of stock between 1 May and 30 September. This is usually associated with break feeding behind temporary fencing.
- (ii) For all winter grazing of intensively farmed stock adjacent to any river, lake, artificial watercourse (excluding irrigation canals or stock water races) or a wetland, a 3m vegetative strip (measured from the edge of the bed of the river, lake, artificial watercourse, or wetland) from which stock are excluded, is maintained around the water body.
- (d)¹¹⁷ Cultivation:
- (i) Cultivation means the preparation of land for growing pasture or a crop and the planting, tending and harvesting of that pasture or crop, but excludes:
- direct drilling of seed;
 - no-tillage practices;
 - re-contouring of land; and
 - forestry.
- (ii) For all cultivation adjacent to any river, lake, artificial watercourse (excluding irrigation canals ~~or~~ stock water races ~~or ephemeral drains~~)¹¹⁸ or a wetland, a 3m uncultivated vegetative strip (measured from the edge of the bed of the river, lake, artificial watercourse, or wetland) is maintained around the water body.
- (e) Collected Animal Effluent:
- (i) Collection, storage and treatment systems for dairy effluent installed or replaced after 1 October 2014 meet the Dairy NZ Farm Dairy Effluent Design Standard and Code of Practice [2013].
- ~~(iii) The application, separation distances, depth, uniformity and intensity of dairy effluent disposal is checked annually in accordance with Section 4 'Land Application' in the Dairy NZ Farm Dairy Effluent Design Standard [2013]. The animal effluent disposal system application separation distances, depth, uniformity and intensity are self-checked annually in accordance with Section 4 'Land Application' in the guideline "A Farmer's Guide to Managing Farm Dairy Effluent - A Good Practice Guide for Land Application Systems" [2013].~~¹¹⁹

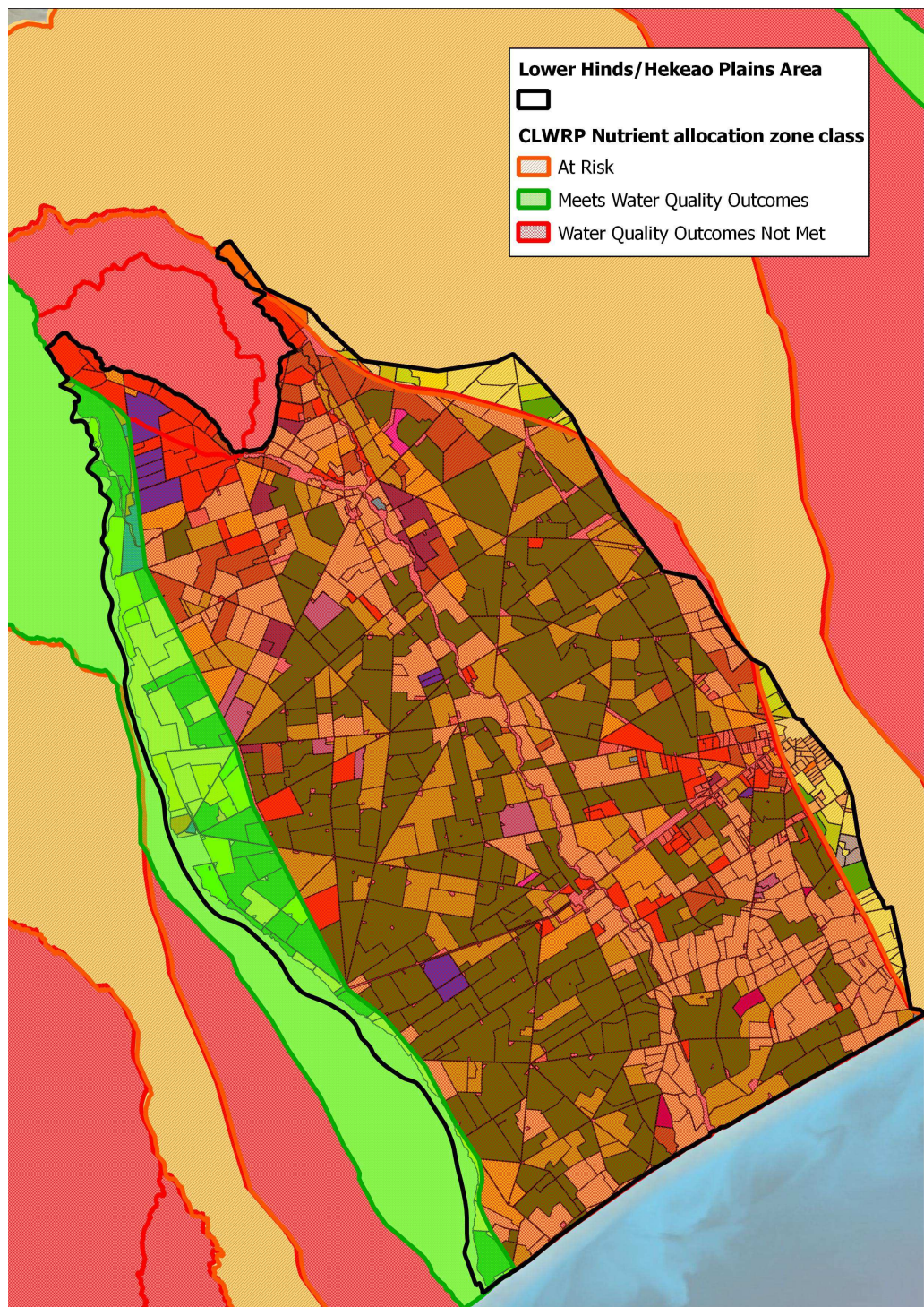
¹¹⁷ This was included in the notified variation as "(b)" in error.

¹¹⁸ V2pLWRP 1083 - Ashburton Hinds Drainage Rating District Liaison Committee.

¹¹⁹ V2pLWRP-810 – Fonterra, V2pLWRP-599 – Dairy NZ.

(iii) Records of the application, separation distances, depth, uniformity and intensity of dairy effluent disposal, in accordance with (e)(ii) above, are kept and provided to the Canterbury Regional Council upon request.

APPENDIX 3 – ZONE BOUNDARY CHANGES



APPENDIX 4- FONTERRA SUBMISSION POINTS NOT ADDRESSED IN THIS EVIDENCE

Submission ref (V2 pLWRP -)	Provision	Relief sought	Comment
781	13.4.13	Inclusion of commitment to use an expert farm systems advisory panel	Considered a matter for implementation
779 (in part)	13.4.14 A	Requirement for consultation	Considered a matter for implementation
783	13.5.8	Deletion of condition 2 (Upper Hinds)	Insufficient evidence available to support position
784	13.5.9	Deletion of condition 1 (Upper Hinds)	Insufficient evidence available to support position
785	13.5.10	Deletion of Rule (Upper Hinds)	No longer appropriate given other matters not being pursued.
786	13.5.11	Amendment to rule references (Upper Hinds)	No longer necessary due to amendment no longer being pursued
787	13.5.12	Deletion (Upper Hinds)	No longer appropriate given other matters not being pursued.
	New proposed rule 13.5.13A	Stock drinking water takes as a permitted activity	No longer sought
803	13.5.36	Sought deletion of the words "for ecological or cultural benefits"	Minor point