Good afternoon,

Please find attached, on behalf of Fonterra Co-operative Group Limited, briefs of evidence on the proposed Plan Change 7 to the Canterbury Land and Water Regional Plan of:

- Brigid Buckley
- Gerard Willis
- Neil Thomas

Nga mihi,

Kirsty

KIRSTY JACOMB
SOLICITOR
CHAPMAN TRIPP

D: +64 3 353 0398
F: +64 3 365 4587

LEGAL ADMINISTRATOR: Suzette Bouwer | D: +64 3 353 0396
www.chapmantripp.com

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Statement of evidence of Gerard Matthew Willis

Dated: 17 July 2020

REFERENCE: BG Williams (ben.williams@chapmantripp.com)
STATEMENT OF EVIDENCE OF GERARD MATTHEW WILLIS

My full name is Gerard Matthew Willis.

I am a director of Enfocus Ltd, a resource management consultancy based in Auckland. I have practiced as a planner and resource management specialist for the past 30 years.

Qualifications and experience

I hold a Bachelor of Regional Planning (Hons) degree from Massey University and am a full member of the New Zealand Planning Institute (NZPI).

I am an accredited decision-maker under the Ministry for the Environment’s Making Good Decisions Programme. In 2017 I was awarded the NZPI national award for Best Regional or District Plan. In 2018 I received the Commonwealth Association of Planners’ award of Excellence for Outstanding Planning Achievement in the Commonwealth.

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.

Since 2001, I have been a planning and environmental consultant, establishing my own practice in 2002. In that capacity I have acted for a number of district and regional councils on planning issues and provided advice to companies, iwi trusts and government agencies. Of note, over recent years, I have advised five different regional councils on the development of regional policy statements and/or regional plans (in whole or part).

I have also been, and continue to be, involved in reform of freshwater management at the national level:

7.1 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.

7.2 In 2010 I was engaged by MfE to assist in the New Start for Freshwater Programme with specific involvement in water governance issues.

7.3 In 2013 I was engaged by MfE to draft amendments to the National Policy Statement for Freshwater Management (NPSFM), including the incorporation of the National Objectives Framework.
7.4 In 2016 I was engaged by MfE to provide independent comment on the workability of the proposed changes to the NPSFM.

7.5 In 2018 I was contracted to MfE on a part time basis as a member of the cross-agency Water Taskforce, established to implement the Government’s water reform programme.

8 My relevant experience also involves the preparation of planning evidence in relation to water quantity and/or quality matters in respect of Horizons One Plan, Variation 6 and Plan Change 1 to Environment Waikato’s Regional Plan, Proposed Change 6A to the Otago Regional Plan, the Gisborne Regional Freshwater Plan, the Southland Regional Water and Land Plan, Plan Changes 9 and 10 to the Bay of Plenty Natural Resources Plan, the Northland Regional Plan, the Wellington Natural Resources Plan and, in Canterbury, the Proposed Hurunui and Waiau Rivers Regional Plan, the Canterbury Land and Water Regional Plan (CLWRP), including Variations (now Plan Changes) 1 and 2 and Plan Changes 3 and 5 to the CLWRP.

9 I am familiar with proposed Plan Change 7 (PC7) to the CLWRP to which these proceedings relate.

**SCOPE OF EVIDENCE**

10 This evidence addresses the provisions of PC7 as they affect the milk processing operations at Fonterra’s Clandeboye manufacturing site.

11 Accordingly, consistent with Fonterra submission, this evidence addresses Part B (those provisions that apply in the Orari-Temuka-Opihi-Pareora sub-region) of PC7 only, namely:

11.1 The groundwater allocation provisions of Part B that have particular consequences for the ability to replace Clandeboye groundwater takes. These are:

   (a) Policies 14.4.7, 14.4.8, 14.4.9  14.4.21 and 14.4.25;

   (b) Rules 14.5.7-14.5.11; and

   (c) Table 14(zb).

11.2 The nutrient management provisions of Part B that effect the management of nutrient losses from land used for the disposal of Clandeboy’s industrial wastewater. These are:

   (a) Policies 14.4.18, 14.4.19 and 14.4.20B; and

   (b) Table 14 (zc).
I have included a marked-up version of the proposed amendments to PC7 that are relevant to Fonterra submissions in my evidence. This mark-up shows the proposed PC7 provisions in underlined font with my suggested amendments in underlined red font. Any text in underlined blue font is that proposed by the section 42A report (s42A Report) that I support.

Although this is not a Court hearing, I have read the Environment Court’s Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise, except where I state I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

EXECUTIVE SUMMARY

This evidence supports the section 42A Report’s proposal for a single ‘A’ groundwater allocation limit of 71.1Mm\(^3\)/yr for the Orari-Opihi Groundwater Allocation Zone (GAZ).

I also support a single RDA rule controlling groundwater takes. However, I consider that amendments are required to the s42A Report’s proposed Rule 14.5.9 to:

15.1 Clarify which applications would be non-complying or prohibited; and

15.2 Ensure that replacement, non depleting groundwater takes are not made non-complying by virtue of operating within an over allocated surface water zone.

In my assessment, whether the Orari-Opihi GAZ is regarded as over-allocated is determinative of the consent status of Fonterra’s Clandeboye’s groundwater take permits (and all other groundwater permits). However, that is a matter of considerable lack of clarity. I support a mechanism to be clearer about how the determination of “over-allocation” of groundwater is made.

I also comment on the important issues of how any over-allocation of groundwater should be phased out and on the concept of ‘swapping’ direct or high surface water depleting groundwater takes for non-depleting takes. I do not, however, offer specific solutions to those issues as I consider them out of scope of Fonterra’s submission and/or I have not been asked to provide solutions because they are outside of Fonterra’s direct interests.
I consider that minor wording changes should be made to nutrient management policies to:

18.1 Ensure that CLWRP Strategic Policies 4.38D and 4.38E can be, and are, applied to allow the Equivalent Baseline GMP approach to be taken in the implementation of Policy 14.4.20. This can be achieved by a simple advisory note.

18.2 Allow the duration of land use consent to be set beyond 10 years, where necessary to synchronise with the expiry/duration of relevant industrial wastewater discharge consents.

18.3 Ensure that the required reduction in N loss from farming activities on land used for industrial wastewater disposal is consistent with that applying to farming activities on other land. That can be achieved by clarifying that the 30% reduction obligation under Policy 14.4.28 (which applies to industrial discharges) relates to N load, not N loss.

**RELEVANT PLANNING INSTRUMENTS AND OTHER PRELIMINARY MATTERS**

19 The key planning instruments relevant to the consideration of PC7 are listed in Appendix B of the s42A Report. My assessment of the relevant instruments accords with that set out in the s42A report. My interpretation of those planning instruments and their application to PC7 also accords with that of the s42A report unless otherwise stated in this evidence.

20 Of direct relevance to Fonterra’s interests, PC7 must "give effect" to the NPSFM and the New Zealand Coastal Policy Statement (NZCPS). Environment Canterbury must also give effect to the Canterbury Regional Policy Statement (CRPS). PC7 will also be an integral part of the CLWRP. For those reasons, I consider those instruments the most relevant to the planning assessment and hence feature most in the planning analysis that follows.

**GROUNDWATER TAKE POLICIES**

**Clandeboye’s groundwater takes**

21 Groundwater is abstracted from eight bores to supply the manufacturing (mostly cleaning and sanitation) needs of the Clandeboye manufacturing site.

22 Clandeboye’s 2018/19 annual take was 5,260,091m$^3$ (5.26Mm$^3$/yr). Its 2019/20 average daily take (as at 22 June) was 14,631m$^3$.

23 I understand that Fonterra’s fundamental concern is that it should be able to replace the groundwater take consents upon their expiry.
to allow for the continued operation of the regionally significant Clandeboye milk processing site.

24 I understand from the evidence of Ms Buckley that Fonterra will always look to reduce its water needs as part of continuous improvement processes, and to play its part in community-wide efforts to phase out over-allocation. However, there are limits to the reductions possible while maintaining production capability and health and hygiene standards. For planning purposes, clarity is also needed on the level of reductions (if any) that might be required as part of future reconsenting processes.

25 As noted in the evidence of Ms Buckley, Clandeboye plays a strategic role in the Fonterra’s national and South Island processing system. Some redundancy in production capacity (and hence consented water take) needs to be retained, not only to ensure that Clandeboye can “cover” for production disruption and staged shut-downs at other South Island manufacturing sites, but also to be able to process excess milk arriving from the North Island to be processed at times of peak production.

Fonterra takes and stream depletion
26 As part of the process of preparing evidence for this hearing, Fonterra commissioned pump tests of one of its main bores supplying groundwater to the Clandeboye. The results of those tests are reported in the evidence of Mr Thomas.

27 As Mr Thomas reports, the tests confirm that the groundwater take from that bore (considered representative of all Fonterra’s bores) has a low stream-depleting effect using the scale included in section 9 of the CLWRP (see paragraph 47 of Mr Thomas’ evidence).

State of groundwater allocation
28 The Clandeboye bores are located within the Orari-Opihi Groundwater Allocation Zone (GAZ).

29 The state of allocation within the Orari-Opihi GAZ seems to be a matter of some complexity. In terms of groundwater abstraction permits granted, and the simple aggregation of those permitted volumes, I understand that the GAZ is regarded as ‘overallocated’. However, in terms of how those abstractions are accounted for, I understand that the GAZ is not overallocated. That is because groundwater takes that are high, direct or moderate stream depleting, although regarded as groundwater takes, are partially accounted for against the surface water allocations rather than the groundwater allocation (in the proportions set out in Schedule 9 of the CLWRP).
This is illustrated in Table 1 below.

Table 1 – Existing groundwater allocation in the Orari-Opihi GAZ

<table>
<thead>
<tr>
<th>Existing CLWRP allocation limit (Mm$^3$/yr)</th>
<th>Volume of consented ‘groundwater take’ (Mm$^3$/yr)</th>
<th>Volume of groundwater take accounted for against SW allocation (Mm$^3$/yr)</th>
<th>Volume of groundwater take accounted for against GW allocation (Mm$^3$/yr)</th>
<th>Groundwater allocation potentially available in the groundwater accounts (assuming no double counting) (Mm$^3$/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>71.1</td>
<td>85.2</td>
<td>43.8</td>
<td>41.4</td>
<td>27.5</td>
</tr>
</tbody>
</table>

Accordingly, it is my opinion that the Orari-Opihi GAZ can only be regarded as ‘over-allocated’ if there is double-counting of the overall level of groundwater abstraction. I fully accept that the surface water in the Orari FMU is over-allocated. I note that this opinion is consistent with that of Mr Thomas. Reducing the volume of stream-deleting groundwater takes and/or swapping direct or high depleting takes (essentially shallow takes) for low depleting (generally deeper) groundwater takes are an important means to reduce that surface water over-allocation.

Confusion arises, however, because both Section 32 Report and the s42A Report state that the Orari-Opihi GAZ is ‘over-allocated’. In making that claim, the distinction between the volumes granted though groundwater take permits and the accounting of the take is not made. I do note (as the Fonterra submission does) that the Section 32 Report, in particular, is not entirely clear on this point. It states at page 231, that “the T allocation limit has been determined from the current Orari-Opihi allocation limit which is currently not allocated”. That appears to be an acknowledgement that there is groundwater within the existing 71Mm$^3$/yr limit “not allocated” (or perhaps better described as not accounted for against the groundwater allocation limit). I understand that remark to refer to the 27.5Mm$^3$/yr allocation that is allowed for within the groundwater allocation and consented but accounted for against the surface water allocation (as indicated in the far right-hand column of Table 1 above).

The key point here is that whether the Orari-Opihi GAZ is (or will, going forward) be considered by Ecan to be under allocated, over-allocated or fully (but not over) allocated is critical to understanding
the implications of proposed policies and rules. Lack of clarity on this fundamental point has hampered my ability to propose planning solutions to issues raised in Fonterra’s submission.

**Policy 14.4.7a and Table 14(zb)**

Policy 14.4.7 states:

*Groundwater in the Orari-Temuka-Opihi-Pareora sub-region is managed through establishing A and T Allocation limits, the purpose of which is to:*

a. provide for all existing lawfully established groundwater abstractions (the A Allocation limit); and

b. provide for the abstraction of groundwater in circumstances where an existing lawfully established surface water permit or stream depleting groundwater permit with a direct, high or moderate stream depletion effect will be surrendered (the T Allocation limit).

The A allocation limit is set out in Table 14(zb) as 43.8Mm$^3$/yr, being the existing volume of groundwater take currently accounted for against the groundwater allocation (see Table 1 above). The T allocation is set at 27.3Mm$^3$/yr, being the balance of the 71.1Mm$^3$/yr total groundwater allocation that is currently consented as a groundwater take but accounted for against the surface water allocation limit.

While that makes sense when the distinction between consents granted and take accounting is understood, Policy 14.4.7 reads as a ‘factual fiction’ since the A allocation does not provide for ‘all existing groundwater takes’ which, as noted above, total 85.2Mm$^3$/yr. More accurately, it provides for all existing groundwater takes that are currently accounted for against the groundwater allocation.

Even the A and T allocations added together (71.1Mm$^3$/yr) do not provide for ‘all existing groundwater takes’ – they provide for the existing take accounted for against the groundwater allocation and some of the consented groundwater volume currently accounted for against the surface water allocations.

Accordingly, the Fonterra submission suggests that Policy 14.4.7a is confusing and unhelpful. I agree with that assessment.

**Policy 14.4.7b (Swap provisions)**

Part b of Policy 14.7 provides for the so-called ‘swap’ provisions. The idea is that abstractors can ‘swap’ their existing surface water or surface water depleting groundwater take permits for low surface water-depleting groundwater take permits that are then accounted for purely against groundwater allocation.
40 The swap provisions aim to address over allocation of *surface* water (ie. the benefits that accrue from this approach accrue to surface water bodies). The groundwater allocation remains as it has been at 71.1Mm$^3$/yr but more groundwater takes are accounted for against the groundwater allocation and surface water depletion is reduced.

41 As I have noted above, in principle I agree that swap provisions can be an effective way to reduce over-allocation (of surface water).

**Policy 14.4. 8**

42 Policy 14.4.18 deals, specifically, with the T allocation and how that allocation may be accessed. It reads:

*Only consider granting applications for resource consent for the abstraction of groundwater from the T Allocation Limit set out in Table 14(zb) in circumstances where:*

a. *the consent applicant holds a lawfully established surface water and/or stream depleting groundwater permit that will be surrendered if the application for resource consent is granted;* and

b. *the abstraction of groundwater, in combination with all other abstractions, will not cause the T Allocation Block limits in Table 14(zb) to be exceeded;* and

c. *the proposed volume has been calculated taking into consideration records of past use for the permit that will be surrendered;* and

d. *an assessment provided as part of the application for resource consent demonstrates that the abstraction has a low stream depletion effect.*

43 The Fonterra submission sought that, if the A allocation is amended to provide for all lawfully established existing groundwater takes (whether or not surface water$^1$ depleting), the Policy 14.4.8 should be retained.

44 However, if the A allocation is to be retained at 43.8Mm$^3$/yr then Fonterra sought that it also have access to the T allocation (which it would not otherwise have if its existing groundwater takes are not high, direct or moderate surface water depleting takes).

45 Fonterra’s submission sought this on the basis that, at that time, it was not clear on the extent to which its groundwater takes were surface water depleting. As noted above, it has since been confirmed the Fonterra’s Clandeboye takes are low depleting. Again, the point of the Fonterra submission was to ensure its existing take permits could be replaced on reasonable terms. (That is, without being subject to non-complying consent status, and/or severe short or long term take reductions).

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$^1$ Note the submission refers to “groundwater depleting” in error. In the context of this point being made this should be read as meaning *surface* water depleting.
Reducing consented allocation to 71.1Mm³/yr

46 As noted above, an apparent issue is that the current 85.2Mm³/yr total volume of consented groundwater take is well above the 71.1Mm³/yr groundwater allocation limit.

47 While it is clear that a phase down of surface water depleting groundwater takes is necessary, it is not clear that the aquifer itself is, or will be regarded, as being “overallocated” and if it is, what the means of, or timeframe for, reducing the level of groundwater take from 85.2Mm³/yr to 71.1Mm³/yr might be.

48 Nevertheless, on the assumption that there is over-allocation (or ground or surface water) to be phased out, I understand that the Section 14-specific policies need to be read in conjunction with those set out in Section 4 of the CLWRP. On that basis, I understand that Policy 4.50 would apply. That policy would require that replacement consents are granted for only 90% of the previously consented rate of take and annual or seasonal volume. Furthermore, because a 10% reduction would only achieve an 8.5Mm³/yr reduction (rather than the full 14.1Mm³/yr paper over allocation) further reduction might, presumably, be required at some point.

49 Based on the evidence of Ms Buckley, I understand that 10% less water for Clandeboye would impose operational constraints and reduce the capacity of Clandeboye. I also understand that, while a certain level of further efficiency/reduction may be possible, Fonterra is concerned about the potential effect on its operations of long term reduction requirements of a scale necessary to fully phase out surface and groundwater over-allocation.

Section 42A Report recommendations

50 The s42A Report recommends deleting the swap provisions and reverting to a single groundwater allocation of 71.1Mm³/yr. It does so on the basis that a 43.8Mm³/yr A allocation would be well over-allocated by existing takes and that a 27.4 Mm³/yr T allocation would “allow further abstraction beyond the current allocation” (s42A Report, para 11.14). I understand that to mean that it would enable more parties (notably existing surface water abstractors) to access already ‘over-allocated’ groundwater. Both those outcomes would be inconsistent with the Canterbury RPS and the regional wide objectives and policies of the CLWRP.

51 While I do not necessarily agree that problems identified by the s42A Report authors are insurmountable, I do support the reversion to a single allocation block. That will provide a simpler regime and

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2 I note that the application of this policy would still not allow the overallocation to be completely phased out in a single consent replacement cycle. After all existing permits are replaced the level of allocation would only reduce to 76.68Mm³/yr – still more than 5Mm³/yr above the allocation limit.
avoid many of the issues and uncertainties identified in Fonterra’s submission.

Accordingly, in broad terms, I support the s42A Report’s corresponding recommendation to delete Policies 14.4.6, 14.4.6A, 14.4.7, 14.4.8 and 14.4.9 and have a simplified groundwater take rule structure focused on a single restricted discretionary activity (RDA) rule (with cascading non complying and prohibited rules).

However, there are, in my opinion, two inter-related matters associated with the rules as proposed by the s42A Report that lack clarity.

**Clarification sought of s42A Report’s Rules**

The start of Rule 14.4.9 as proposed by the s42A Report states:

**The taking and use of groundwater is a restricted discretionary activity, provided the following conditions are met:**

1. For stream depleting groundwater takes with a direct or high stream depletion effect, the take, in addition to all existing consented takes does not result in an exceedance of any minimum flow in Tables 14(h) to (za); and

2. The take:
   a. will replace a lawfully established take affected by the provisions of Section 124-124C of the RMA, and the rate, seasonal or annual volume of the take, in addition to all existing consented takes, does not exceed the allocation limits in Tables 14(h) to 14(zb); or
   b. will not replace a lawfully established take affected by the provisions of Section 124-124C of the RMA, and the rate, seasonal or annual volume of the take, in addition to all existing consented takes, does not exceed the allocation limits in Tables 14(h) to 14(zb); and

3. Unless the proposed take is the replacement of a lawfully established take affected by the provisions of sections 124-124C of the RMA, the bore interference effects on any groundwater abstraction other than an abstraction by or on behalf of the applicant are acceptable, as determined in accordance with Schedule 12.

Rule 14.4.10 states:

The taking and using of groundwater that does not comply with one or more of conditions 2a or 3 of Rule 14.5.9 is a non-complying activity.

Rule 14.4.11 states:

The taking and using of groundwater that does not comply with one or more of conditions 1 or 2b of Rule 14.5.9 is a prohibited activity.
The first point of uncertainty is whether the ‘or’ does in fact mean or. As I would read Rule 14.4.9 (as recommended in the s42A report) an applicant need only meet one or other of 2a or 2b to qualify as a RDA (assuming other parts of the rule can be complied with).

However, somewhat confusingly, Rule 14.4.10 suggests that if an application cannot comply with 2a (i.e. it is not a replacement take within the allocation limit) the application becomes non-complying. Similarly, Rule 14.4.11 implies that an application is not a new take within the allocation limit it is prohibited.

It appears that what is meant is that replacement takes in a GAZ or surface water zone that is overallocated are non-complying activities, while a new take in a GAZ or surface water zone that is over-allocated is a prohibited activity.

Assuming I am correct about the intent, the matter could be clarified if Rule 14.4.10 was to be amended as follows:

The taking and using of groundwater that will replace a lawfully established take affected by the provisions of Section 124-124C of the RMA that does not comply with one or more of conditions 2a or 3 of Rule 14.5.9 is a non-complying activity.

Similarly, rule 14.4.11 should be amended to read:

The taking and using of groundwater that will not replace a lawfully established take affected by the provisions of Section 124-124C of the RMA that does not comply with one or more of conditions 1 or 2b of Rule 14.5.9 is a prohibited activity.

Groundwater take consent status determined by state of surface water allocation.

While the issues identified above can be easily resolved, the bigger issue is that the s42A Report’s Rule 14.5.9 appears to have the status groundwater takes being determined by the state of surface water allocation (Table 14 (h) to (za) set out surface water limits). While I accept that that might be appropriate in respect of surface water depleting takes, I do not consider it appropriate for non-depleting takes. If there is no (or low as defined) hydrological connection between surface water flows and ground water takes, then coupling the two in the way Rule 14.45.9 does is not necessary or appropriate. As I understand it, it would mean, for example, that every replacement groundwater take in the Orari-Opihi GAZ would be a non-complying activity.

Accordingly, I suggest that section 2 of the rule be amended as follows:

2. The take:
a. will replace a lawfully established take affected by the provisions of Section 124-124C of the RMA, and the rate, seasonal or annual volume of the take, in addition to all existing consented takes, does not exceed:
   i. the allocation limits in Tables 14(h) to 14(zb) where the take is direct, high or moderate surface water depleting;
   ii. the allocation limits in Table 14(za) where the take is low surface water depleting; or

b. will not replace a lawfully established take affected by the provisions of Section 124-124C of the RMA, and the rate, seasonal or annual volume of the take, in addition to all existing consented takes, does not exceed:
   i. the allocation limits in Tables 14(h) to 14(zb) where the take is direct, high or moderate surface water depleting;
   ii. the allocation limits in Table 14(za) where the take is low surface water depleting; or

Clarification of the status of groundwater allocation

The second to matter of uncertainty relates to the current allocation status of the GAZ. Even with the role of surface water allocation clarified as above, the state of groundwater allocation remains determinative (as it should) of consent status for non-depleting groundwater takes.

As noted earlier, it seems to me that this matter is subject to a considerable degree of uncertainty. While 85Mm$^3$ is currently allocated through groundwater take permits, 41.8Mm$^3$ is recorded against the groundwater allocation limit (with the balance recorded against the surface water allocation) and, as noted by Mr Thomas (paragraph 33 of his evidence), 70.18Mm$^3$ is the level of groundwater allocation recorded in a 2018 ECan report. Whether, or at what point, ECan will consider the GAZ fully or over-allocated is obviously a critical factor in understanding the actual and potential impact on Clandeboye and the appropriateness of the proposed regulatory framework. What the level of groundwater allocation is considered to be, potentially affects:

65.1 the activity status of replacement groundwater takes (i.e. whether it would be either RDA or non-complying); and

65.2 the point when Policy 4.50 will apply (and hence when abstractors can expect to receive only 90% of their previous takes on replacement); and

65.3 the degree of take and use *reduction* beyond the 10% required by Policy 4.50 as may be required to fully phase out over-allocation.

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Abstractors, particularly large capital-intensive abstractors such as Clandeboye, need a clear 'line of sight' on these matters so that they can plan for necessary operational change and/or capital investment in a logical and efficient way. Publishing the allocation status on the ECAn website would greatly assist.

PC7 is silent on how allocation levels are determined in instances, as we have in the Orari-Opihi GAZ, where there is a high proportion of stream depleting takes, a high level of accounting against surface water allocations, and a high level of uncertainty as to the degree of stream depletion occurring from the majority of takes (bearing in mind that the low, moderate, high and direct classifications provided in the resource consent inventory are modelled rather than measured and assumptions about the extent of depletion occurring may change as a result of information supplied as part of replacement consent processes).

Additional provisions required to those recommended in the s42A Report

In my opinion, it would be helpful if a policy was included within PC7 that indicates how groundwater allocation levels against the 71.1Mm³ allocation are to be determined.

Such a policy might be as follows:

When determining whether groundwater allocation limits of Table 14(zb) are exceeded, the regional council will take into account:

- a. the proportion of groundwater take that is regarded as stream depleting in accordance with Schedule 9; and
- b. The level of groundwater take that is recorded against the relevant surface water limits of Tables (h) to (za); and
- c. The level of uncertainty about the level of stream depletion and the need for precaution in ensuring sustainable groundwater limits are not exceeded.

In my opinion, the approach to determining allocation status should lead to the conclusion that the Orari-Opihi GAZ is fully, but not over-allocated at current allocation levels (ie. the time PC7 was notified) but that reductions are required to help phase down to surface water allocation limits.

The other matter to consider is how responsibility for reducing takes ought to apply where there is over-allocation (if, and when, that is confirmed to occur). In my opinion, because the over-allocation is essentially over-allocation of surface water (albeit by, in part, groundwater takes) there is a strong argument that responsibility for reducing that over-allocation should be weighted toward abstractors with direct or high stream depleting takes (rather than...
across all groundwater abstractors). Hence, I would support a policy and/or matter of discretion that provided ECAn with the ability to impose reduction obligations that reflected such an approach (in a way that prevails over Policy 4.50). That said, I consider that such provisions would be outside the scope of Fonterra’s submission and, accordingly, I do not propose any such provisions here.

72 Finally, returning to the issue of swaps. As noted by Mr Thomas, Fonterra’s Clandeboye take has been confirmed as low depleting following bore test. Hence, swap provisions are not of direct interest to Fonterra and accordingly, I have not been asked by Fonterra to investigate how the approach might be retained in the management regime.

73 Nevertheless, I would point out that it seems to me entirely possible (and appropriate) to include a separate rule that allows, despite rule 14.5.9, any consent for groundwater to access to the block A allocation provided an existing direct or high depleting groundwater consent is surrendered. That could be done as an RDA rather than being a non-complying activity as it would be under rule 14.5.9. Restricting such a rule to surface water depleting groundwater takes (rather than surface water takes) would mitigate the risk of any further over-allocation.

OTHER GROUNDWATER POLICIES

74 Fonterra also submitted on Policies 14.4.21 and 14.4.25.

Policy 14.4.21

75 Policy 14.4.21 requires immediate review of groundwater permits with a direct or high stream depletion effect – a process designed to impose new flow and allocation regimes on those reviewed permits.

76 Fonterra has recently undertaken pump tests for all its Clandeboye bores. The results (as reported in the evidence of Mr Thomas) demonstrate that, according to the Schedule 9 criteria, the takes are not direct or high stream-depleting. I also note in that the Resource Consent Inventory¹ the Fonterra takes are considered moderate (although Mr Thomas’ evidence finds that that classification is incorrect). On that basis, I consider that it is highly unlikely that Fonterra’s Clandeboye site will be affected by Policy 14.4.21. On that basis I do not comment further on Policy 14.4.21 and I understand that Fonterra no longer wishes to pursue this submission point.

Policy 14.4.25

77 Policy 14.4.25 has been amended by PC7 to apply to groundwater takes within the conjunctive use zone (Clandeboye’s takes are from

¹ Vattala, D, Resource Consent Inventory for Orari and Pareora Canterbury Water Management Strategy Zone, April 2019.
within that zone) and to direct that groundwater consents will be subject to the surface water minimum flow conditions in accordance with Table 14(h) unless the application for consent demonstrates that the extent of stream depletion is not direct, high or moderate.

78 The Fonterra submission stated that it is unnecessary and inappropriate to apply minimum flow restrictions on groundwater takes with ‘moderate’ stream depleting effect. I understand from the evidence of Mr Thomas that lag times associated with groundwater takes with moderate stream depleting effect are such that applying minimum flow restrictions typically has little, if any, benefit in protecting ecosystem health at times of low flow.

79 I also note that the policy is inconsistent with Schedule 9, Table S9.1, which specifically identifies ‘moderate’ stream depletion effects as not being subject to minimum flow restrictions. The relevant excerpt from this table is provided below. Note, this part of the table is in the operative CRLWP and is unchanged by PC7.

<table>
<thead>
<tr>
<th>Stream depletion effect</th>
<th>Amount to be included in the surface water allocation limit</th>
<th>Amount allocated from the groundwater zone</th>
<th>Pumping schedule</th>
<th>Subject to surface water minimum flow restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>The stream depletion effect estimated using the pumping schedule; and 50% of the annual volume</td>
<td>50% of the annual volume</td>
<td>150 days continuous steady pumping required to deliver the annual volume</td>
<td>No</td>
</tr>
</tbody>
</table>

80 The s42A Report recommends no change on the basis that the surface and groundwater resources in this Zone are considered to be overallocated and that the Zone Committee process identified further refinement of the groundwater provisions. It also notes that on a case by case basis field testing could demonstrate that stream depletion is not occurring and infers that minimum flow restrictions might, in those circumstances, not be imposed.

81 I do not agree with the reasoning of the s42A Report. The fact there may be overallocation (that is, more water abstracted over a year than the allocation limit allows for) is not a reason to impose minimum flow restrictions on moderately connected groundwater takes. Doing so will not address overallocation. Limits on allocable takes and control over minimum flows serve different purposes. The only relevant issue here is whether imposing minimum flow restrictions on moderately stream-depleting groundwater takes will assist in managing low surface water flow conditions (i.e. reduce the period at which surface waters are at or below minimum flows).
The evidence of Mr Thomas is that due to the delay (lag) in a reduction in a moderately stream-depleting groundwater take impacting on surface water flows, imposing a minimum flow will not materially assist in managing effects resulting from low surface water flow conditions. Hence, the policy has a potentially high cost on groundwater abstractors, but with little if any benefit for surface waters or surface water abstractors. Accordingly, I do not consider that it would be consistent with Section 32 of the Act to include Policy 14.4.25 as currently proposed.

I support the proposed rewording as set out in the Fonterra submission as follows:

In the Orari Freshwater Management unit all permits for groundwater takes from the Orari Catchment within the conjunctive use zone and where the screen is less than 30 m deep shall have minimum flow conditions in accordance with the environmental flow and allocation regime set out in table 14(h), unless the application for resource consent demonstrates that the take will not have a direct or high or moderate degree of stream depletion effect as determined through field testing in accordance with Schedule 9 consistent with the minimum flow sites and allocations in Table 15.

**NUTRIENT MANAGEMENT**

**Clandeboye’s waste water disposal farms and existing consents**

Fonterra currently holds five resource consents to discharge to land within the proposed Rangitata Orton High Nitrogen Concentration Area. These include consents for discharge of industrial wastewater, sewage effluent and DAF sludge. All such discharges contain nitrogen.

Separate consents are held to discharge stormwater to open drains (after treatment). Fonterra also holds a land use consent to use land for a farming activity on the Fonterra owned Orton and Boyd blocks being the location of DAF sludge disposal.

Industrial (process) wastewater disposal onto neighbouring farms has been common practice across the dairy industry for some time. Consents such as those described above, that set limits on the N application (loading) to land is similarly common practice. However, the increasingly separate regulation of farming, and the regulation of diffuse discharge of N from farms (below root zone leaching), has meant that waste disposal farms are now effectively subject to two separate regulatory regimes. In such cases issues can arise where the two regimes are not compatible or consistent.
Further the regulatory approach to this issue has varied both within and between regions. Even within Canterbury different approaches have been taken in different sub-regions.

**Fonterra’s submission**

Fonterra’s submission raised three issues in relation to the nutrient management provisions of Section 14.

First, that farms that are used to dispose of industrial wastewater will not have nutrient input and nutrient loss characteristics that are the same as a farm that does not receive such inputs and, accordingly, Fonterra is not confident that the use of the Farm Portal to calculate the Baseline GMP Loss Rate for such farms will do so in a robust and reliable manner. The submission sought that the concepts of the Equivalent Baseline GMP and Equivalent Good Management Practice Loss Rate (which effectively allow Loss rates to be determined without using the Portals’ input proxies) be acknowledged as relevant to such situations. This point was made principally in relation to Policies 14.4.19 and 14.4.20B.

Second, that the requirement in Policy 14.4.19 to limit consent durations for farming activities that are required to reduce N losses below baseline GMP (or consented loss rates) to 10 years was not appropriate when applied to consents for farms that were used to dispose of industrial wastewater.

Third, that the reference to reducing nitrogen ‘losses’ in Policy 14.4.28 (requiring a 30% reduction from point source discharges) was unhelpful and potentially confusing since the loss on N from those farms is managed by a land use consent for farming that is subject to quite a different set of requirements (i.e. not a 30% loss reduction).

**Use of Equivalent Baseline GMP and Equivalent Good Management Practice Loss Rate**

As noted above, the use of the alternative to the Farm Portal is supported by Fonterra (although one small wording change was proposed to Policy 14.4.20B, this is of no great consequence). The s42A Report recommends deleting Policy 14.4.20B and 20C on the basis that they merely duplicate region-wide policies 4.38D and 4.38E and that the existing regionwide policies should be read in conjunction with the Section 14 policies. I agree that that would be the correct planning approach in general terms.

However, I note that the introductory statement to the Strategic Policies of Section 4 of the CLWRP (of which 4.38D and 4.38E are part) states:

*Where the Plan contains Policies in Section 4 and in the relevant sub-region Section on the same subject matter, the more specific sub-region Policy will take precedence, except*
94 I consider that Policies 14.4.20 could be considered the “more specific” and be argued to prevail over policies 4.38D and 4.38E meaning that, in the absence of Policies 14.4.20B and 14.4.20C, the concepts of Equivalent Baseline GMP and Equivalent Good Management Practice Loss Rate could be argued to not apply in the Orari-Temuka-Opihi-Pareroa sub-region.

95 Even if that is not the case, I note that the CLWRP is a large and complex document and I think it would be useful for all plan users to understand the relevance of region-wide policies 4.38D and 4.38E when considering Section 14 policies 14.4.20B and 14.4.20C.

96 For that reason, I consider that, at the very least, a note be included to follow Policy 14.4.20 which states:

**Note: Strategic Policies 4.38D and 4.38E apply, as appropriate, to the application of Policy 14.4.20**

**Consent duration for farm properties receiving industrial waste water**

97 The s42A Report states (at para 12.186):

*We recognise that limited consent durations may influence system investment decisions over this time, but to exempt industrial discharges from the limit and continue aligning all other dischargers in plan review cycles may result in an unfair burden being placed on those other operations.*

98 The s42A Report recommends the 10-year duration limit for farming activities be retained (although relocates it from Policy 14.4.19 to Policy 14.4.18)

99 In my opinion, the rationale set out in the s42A Report in response to Fonterra’s submission misses the key point. As noted above, for Fonterra’s Clandeboye site to discharge industrial waste water to land used for farming both a discharge consent and a land use consent are required.

100 In simple terms, the discharge consent controls the application rate to land while the land use consent controls the leaching loss from land. From an operational perspective, both are of equal importance because either one can be a controlling factor of whether or to what extent that manufacturing site can operate.

101 Nitrogen reduction obligations are associated with both types of consents. The discharge consent must, under policy 14.4.28, decrease N by 30% (from current consented levels) by 2035. The
land use consent must, under Policy 14.4.20, reduce N leaching (from GMP Baseline) by 5% by 2030 and 10% by 2035.

However, it is not, as the s42A Report suggests, a question of ‘exempting the industrial discharges’. Industrial discharges are not the subject of Policy 14.4.19. That policy relates purely to consents for farming activities. Hence, the industrial discharge consent could be granted (subject to a 30% reduction in N from the currently consented amount under Policy 14.4.28) for a period exceeding the 10 years that applies to farming activities. I am not aware of any policy in the CLWRP that would guide the duration of a replacement discharge consent associated with Clandeboye. Policy 4.11 of the CLWRP does not seem to me to apply since it is clearly intended to apply in the period prior to plan change introducing sub regional limits being notified. To my knowledge, there is no policy within PC7 that would apply to such a discharge consent.

Accordingly, this means that, upon replacement, the discharge consents for Clandeboye could well be issued for periods beyond ten years, potentially perpetuating a lack of alignment and synchronisation of discharge and land use consents that are obviously closely inter-related.

In my opinion, a practical approach would be to allow farming activity consents for properties that receive industrial wastewater to be granted for a period that allows synchronisation with the discharge consent duration. In Clandeboye’s case that would be 2036. Upon replacement, the duration of the two inter-related consents can be co-ordinated and appropriate review clauses added to the farming consent as appropriate to recognise any new reduction targets that may be required of other farming consents.

My proposal could be given effect to by a further addition to Policy 14.4.18 as follows:

Water quality is improved in the Orari, Opihi and Timaru Freshwater Management Units by:

a. requiring additional reductions of nitrogen losses in defining the Rangitata Orton High Nitrogen Concentration Area, Fairlie Basin High Nitrogen Concentration Area and Levels Plain High Nitrogen Concentration Area within which targeted reductions of nitrogen in accordance with Table 14(zc) are required; and

b. avoiding the grant of any resource consent that will result in the nitrogen loss calculation from a farming activity exceeding the Baseline GMP Loss Rate, except where Policy 14.4.20 applies; and

c. unless d applies, limiting the duration of any resource consent for a farming activity that is required to make further reductions in nitrogen loss (beyond Baseline GMP Loss Rates or consented nitrogen loss rates) to no more than ten years; and
d. the duration of a resource consent for a farming activity that is required to make further reductions in nitrogen loss (beyond Baseline GMP Loss Rates or consented nitrogen loss rates), may be for greater than 10 years if the farming activity is undertaken on land used for industrial or trade waste disposal activities and a period greater than 10 year would allow for the alignment of land use and discharge consents.

Policy 14.4.28 and nitrogen ‘losses’

Policy 14.4.18 reads:

Assist in achieving water quality targets in the Rangitata Orton High Nitrogen Concentration Area by requiring, in addition to Policy 14.4.19, point source discharges of nitrogen from industrial or trade waste disposal activities to reduce nitrogen losses by 30% below current consented rates by 1 January 2035.

Importantly, Fonterra does not oppose the suggestion that point source discharges (including its own discharges of wastewater to land) should reduce the N load by 30%. I understand that its submission was made to ensure that there was no future uncertainty as to what reduction requirement applies to the land use consent and what reduction requirement applies to the discharge consent. Reference to ‘loss’ in that context appears to ‘muddy the water’.

Fonterra notes that the N ‘loss’ resulting from its wastewater, whey and sewage discharges to land is effectively capped by the land use consent it holds for farming the land used for wastewater disposal. As noted earlier, N loss is managed by the land use (farming) consent. The discharge consent manages N load. For example, the Fonterra’s wastewater discharge consent CRC156512 imposes a load limit (ie. the maximum applicable application to land) of 600kg N per hectare per year. Its land use consent CRC173213 imposes a loss limit of the Nitrogen Baseline (being 24kg N/ha/yr on one site and 30kg N/ha/yr on another)5.

Hence, imposing on discharge consents a 30% reduction in loss makes little sense and creates in conflict with the over-riding land use nutrient management regime that requires a 5% reduction in N loss by 2025 and a 10% reduction in N loss by 2030 for non-dairying properties (see Table 14zc).

It seems to me that if the wording in Policy 14.4.28 was allowed to stand there would be uncertainty as to what reduction target applies.

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5 These two consents are attached.
In my opinion, the simple solution is as proposed in the Fonterra submission. That is, to replace the word ‘loss’ with the work ‘load’ in Policy 14.4.28 as shown below.

*Assist in achieving water quality targets in the Rangitata Orton High Nitrogen Concentration Area by requiring, before 1 January 2035, in addition to Policy 14.4.4918, point source discharges of nitrogen from industrial or trade waste disposal activities to reduce nitrogen losses load by a minimum of 30% below the rate authorised at 20 July 2019 current consented rates by 1 January 2035.*

This would mean that the discharge of nitrogen to land associated with Clandeboye’s wastewater would decrease from 600 to 420kg N/ha/yr while the N loss rate associated with the farming activity would decrease by (at least) 10% over the same period – consistent with the extent of reduction required of other non-dairy farming activities. In my opinion, that is an entirely appropriate outcome for the catchment.

The s42A Report acknowledges the submission but does not discuss its merits. It proposes no change in response to the Fonterra submission point. As discussed above, I do not agree with the s42A Report on this matter and consider that it may have overlooked the key point of the submission.

Dated: 17 July 2020

Gerard Willis
RESOURCE CONSENT CRC156512
Pursuant to Section 104 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO: Fonterra Limited (Clandeboye)

A DISCHARGE PERMIT: to discharge up to 15,000 cubic metres per day of dairy plant wastewater to land.

TRANSFER DATE: 13 Apr 2005

EXPIRY DATE: 21 Nov 2036

LOCATION: Various Properties, CLANDEBOYE

SUBJECT TO THE FOLLOWING CONDITIONS:

1. The discharge shall only consist of processing losses and by-products from the manufacture of cheese and milk products, and plant wastewater from the washing down of equipment, tanks, pipes and tankers, diluted with fresh water, stormwater, and other constituents as contained and described in the resource consent application and the accompanying assessment of environmental effects.

2. The combined volume of wastewater to be discharged to land as a consequence of this consent shall not exceed a maximum of 15,000 cubic metres per day, nor shall the 10 day rolling average of the volume of wastewater discharged exceed 14,000 cubic metres per day.

3. On Lots 1, 2, 3 and part of Lot 4 of DP22969, commonly known as the Aker block, wastewater shall only be applied within the hatched area as shown on plan number 187259 prepared by Eliot Sinclair & Partners Ltd, dated June 1999, attached to this determination as Appendix "A".

4. During the hours of 0800 to 2400, the wastewater shall not be applied within 600 metres of the Davidson dwelling when the mean wind direction is in the range of plus or minus 20 degrees of a line from any portion of the irrigator, which is closer than 600 metres to that dwelling.

5. A representative sample of wastewater shall be taken at monthly intervals from the wastewater storage tanks and analysed for the following parameters:
   a. total nitrogen;
   b. nitrate nitrogen;
   c. chemical oxygen demand;
   d. biochemical oxygen demand;
   e. sodium;
   f. calcium;
   g. magnesium;
   h. potassium;
   i. total phosphorus;
   j. chloride;
k. conductivity; and
l. pH.

The results of the analyses shall be provided to the Canterbury Regional Council on a monthly basis.

6 The discharge shall be by spray irrigation and the wastewater shall be applied as uniformly as practicable over the disposal area.

7 There shall be no discharge within 20 metres of any surface water, well or bore, or in any other place or at such a rate that the discharge is likely to enter surface water or flow onto any neighbouring property.

8 a. The wastewater shall be discharged at an application rate that minimises ponding on the ground surface.
   b. There shall be no surface ponding of wastewater 24 hours after disposal.

9 The areal nitrogen loading rates of the discharge wastewater shall not exceed 600 kilograms of nitrogen per hectare per year on the land subject to this permit.

10 The consent holder shall monitor each of the following groundwater wells:
   a. Mackle well at or about map reference NZMS 260 K38:805-682;
   b. Aker well K38/0356;
   c. Johnson well at or about map reference NZMS 260 K38:851-6565;
   d. Grant well K38/0106;
   e. Taylor well at or about map reference NZMS 260 K38:852-669;
   f. Clandeboye School Residence well at or about map reference NZMS 260 K38:805-653;
   g. Brown (Orton) well at or about map reference NZMS 260 K38:844-660;
   h. Poulter well at or about map reference NZMS 260 K38:850-647;
   i. Moffitt well at or about map reference NZMS 260 K38:813-703;
   j. Brown residence well at or about map reference NZMS 260 K38:820-672; and
   k. Davidson residence well at or about map reference NZMS 260 K38:824-668, at monthly intervals for the following parameters:
      i. pH;
      ii. conductivity;
      iii. nitrate nitrogen;
      iv. total phosphorus;
      v. COD; and
      vi. chloride.

The results shall be provided to the Canterbury Regional Council on a monthly basis.

11 The consent holder shall monitor the Davidson residence well, at or about map reference NZMS K38:824-668, at four monthly intervals for the following determinands:
   i. pH;
   ii. electrical conductivity;
   iii. total dissolved salts;
   iv. alkalinity;
   v. free carbon dioxide;
   vi. calcium;
   vii. magnesium;
   viii. total hardness;
   ix. sodium;
x. potassium;
xi. nitrate-nitrogen;
xii. chloride
xiii. sulphate;
xiv. boron;
xv. total iron;
xvi. total manganese;
xvii. total copper;
xviii. total zinc; and
xix. faecal coliforms.

In the event that any determinand exceeds the guideline values for aesthetic determinands in the New Zealand Drinking Water Standards 2000, the consent holder shall also test for that determinand on a monthly basis, which testing shall continue until the determinand meets the guidelines for the six consecutive months. The results for testing under this condition shall be provided to the Canterbury Regional Council and to the owners of the Davidson property on a four monthly or monthly basis as appropriate.

12 The consent holder shall monitor the following wells at monthly intervals for iron:
   a. Moffit well at or about map reference NZMS 260 K38:813-703;
   b. Brown (Orton) well at or about map reference NZMS 260 K38:844-660; and
   c. Poulter well at or about map reference NZMS 260 K38:850-647.

   The results shall be provided to the Canterbury Regional Council on a monthly basis.

13 Representative samples of surface water shall be taken from Rhodes Stream at monthly intervals from the following sites:
   a. Upstream Boundary Doone Block at or about map reference NZMS 260 K38:798-673
   b. Rolleston Road bridge at or about map reference NZMS 260 K38:808-655.

   The samples shall be analysed for:
   i. pH;
   ii. dissolved reactive phosphorous;
   iii. nitrate-nitrogen;
   iv. ammonia-nitrogen; and
   v. chloride.

   The results shall be provided to the Canterbury Regional Council on a monthly basis.

14 If, in the opinion of the Canterbury Regional Council, as a consequence of the exercise of this consent, the quality of water in any existing domestic supply well within two kilometres down-gradient in terms of groundwater flow of the wastewater disposal sites, does not comply with the Ministry of Health’s New Zealand Drinking Water Standards 2000, then the consent holder upon request of the property owner or occupier shall provide to that property a potable water supply which complies with that standard.

15 Notwithstanding condition (14), if the water supply to the dwelling on the Davidson property does not meet the Ministry of Health’s New Zealand Drinking Water Standard 2000, or any
subsequent standards for drinking water issued by the Ministry of Health, the consent holder shall provide a potable water supply to that property which supply shall at all times meet the water standards referred to herein. The supply to the property shall be from the well known as the Brown well (well number K38/0063) or from an on-site source. If the supply is from the Brown well then the consent holder (at the consent holder’s cost in all things) shall procure a grant of a registered legal easement in favour of the registered proprietor for the time being of the Davidson property and to be appurtenant to that property for the taking of water from the well and its conveyance to that property. If such easement cannot be procured then the supply to the Davidson property shall be provided from an on-site source. The Brown well is owned by Anchor Products Limited (now NZMP Limited). That company which is a party to the consent order, consents to this arrangement.

16 If, in the opinion of the Canterbury Regional Council, as a consequence of the exercise of this consent, the average of five consecutive monthly samples of water in any domestic supply well within two kilometres down-gradient in terms of groundwater flow of the wastewater disposal sites, exceeds any Guideline Values for aesthetic determinands, contained in the Ministry of Health’s New Zealand Drinking Water Standards 2000, then the consent holder upon request of the property owner or occupier shall provide to that property a sufficient quantity of potable water which complies with those guideline values.

17 The following soil variables shall be measured annually, in May or June each year, for samples from at least six sampling sites within the area of land irrigated with wastewater on each of the: Orton Farm, Stratford Block, Cochrane Block and McArthur Block, and for samples from at least three sites within the area irrigated with wastewater on each of the Doone Block and Aker Block. The sites shall be representative of the land used for wastewater irrigation at each block, and the samples shall be taken from the same sites each year:
   a. sodium;
   b. exchangeable sodium percentage;
   c. phosphorus retention index;
   d. phosphorus;
   e. calcium;
   f. magnesium;
   g. potassium;
   h. carbon; and
   i. pH.

The results shall be provided to the Canterbury Regional Council on an annual basis.

18 The laboratory carrying out analyses required under this consent under conditions (5), (10), (11), (12), (13) and (17) shall be accredited for this analyses by an independent body to a standard equivalent to ISO Guide 25.

19 The consent holder shall supply to the Canterbury Regional Council a report on the exercise of this consent over each 12 month period, 1 July to 30 June. The report shall be supplied by no later than the first working day of August in each year. The report shall include the following records:
   a. daily wastewater volumes discharged onto land;
   b. location of wastewater application, paddock identification, rate and depth of application, and the areal nitrogen loading rate;
   c. analysis and interpretation of wastewater quality;
   d. analysis and interpretation of groundwater quality from the monitoring bores;
   e. analysis and interpretation of soil monitoring parameters;
f. analysis and interpretation of surface water quality monitoring; and

g. a record of the date and duration of any contribution from site stormwater and run-off collection to the wastewater discharge system.

This report shall include an interpretation of the monitoring results undertaken by a competent person qualified to carry out such investigations.

20 The Canterbury Regional Council may annually, on any of the last five working days in the months of March and September for five years from the commencement of the consent and thereafter annually, on any of the last five working days in the month of September, serve notice of its intention to review the conditions of the consent for the purpose of:

a. dealing with any adverse effect on the environment which may arise from the exercise of the consent which was not foreseen at the time of granting and is therefore more appropriate to deal with later; or

b. requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or

c. requiring compliance with any relevant rule of an operative Regional Plan; or

d. reviewing the frequency of monitoring and the determinands monitored under conditions (10), (11), (12), (13) and (17).

21 The consent holder may apply under section 127 of the Resource Management Act 1991 for a change or cancellation of Conditions (2), (9) and (13) of this consent, any time after two years after the commencement of the consent.

22 This consent shall not be exercised concurrently with CRC981563 on any land which is the subject of this consent.

23 Charges, set in accordance with section 36 of the Resource Management Act 1991, shall be paid to the Canterbury Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of its functions under section 35 of the Act.

Issued at Christchurch on 20 April 2015

Canterbury Regional Council
Pursuant to Section 104 of the Resource Management Act 1991

The Canterbury Regional Council (known as Environment Canterbury)

GRANTS TO: Fonterra Limited

A LAND USE CONSENT (S9): To use land for a farming activity.

COMMENCEMENT DATE: 02 Aug 2018

EXPIRY DATE: 30 Jun 2025

LOCATION: Orton Farm & Boyd Block, Clandeboye

SUBJECT TO THE FOLLOWING CONDITIONS:

1. The use of land for farming shall only be within the area shown on Plan CRC173213, attached to and forming part of this consent.

2. The consent holder shall maintain a Farm Environment Plan (FEP) in accordance with Appendix CRC173213, which forms part of this consent; and
   a. on farm practice shall be in accordance with the FEP at all times; and
   b. the FEP shall be updated as necessary to reflect any changes in the farming operation over time; and
   c. a copy of the FEP shall be provided to the Canterbury Regional Council, Attention: Regional Leader - Monitoring and Compliance on request.

3. The Farm Environment Plan (FEP) shall include under the "Management Area: Nutrients" an Objective and Target as follows:

   Objective: To meet a consented nitrogen loss limit of the Nitrogen Baseline.

   Target: Nitrogen losses from farming activities are maintained at or below the consented nitrogen loss limits.

Definitions:

The Nitrogen Baseline means the discharge of nitrogen below the root zone as modelled with the current version of OVERSEER® as represented by the Nitrogen Baseline OVERSEER® input files provided with the application, which was 24 kg N/ha/yr for the part of the farm within the orange nutrient allocation zone and 30 kg N/ha/yr for the part of the farm within the red nutrient allocation zone, when calculated using OVERSEER® version 6.2.3.
The Nitrogen Baseline OVERSEER® input files reflect clause A of the Nitrogen Baseline definition, as defined below, and were inputted into the model in accordance with the OVERSEER® Best Practice Data Input Standards. They can be updated to reflect the current OVERSEER® Best Practice Data Input Standards, but must still describe the same activity.

Clause A: “the discharge of nitrogen below the root zone, as modelled with OVERSEER®, (where the required data is inputted into the model in accordance with OVERSEER® Best Practice Data Input Standards)” “averaged over a 48 month consecutive period in the years of the period of 2009 – 2013 inclusive, and expressed in kg per hectare per annum, except in relation to Rules 5.46 and 5.62 where it is expressed as a total kg per annum from the identified area of land”

The determination of whether a farm meets a nitrogen loss limit will be made using the nitrogen loss from the most recent year, modelled using OVERSEER®. If the most recent year exceeds the limit, then the average nitrogen loss from last four years may be used to determine whether the limit is met. Where a nitrogen discharge limit changes (i.e. the introduction of reductions from a certain date), then the option of using the average of the last four years will only apply to those recent years which were subject to the same nitrogen discharge limit. For example if a limit changed in 2022, then in the year 2022, there are no recent year to average over. In the same example, then in the year of 2023, the average nitrogen loss of the 2022 and 2023 years could be used. This determination shall be made using the current version of OVERSEER®.

Advice Note: To assist the FEP auditor and the Consent Holder this Objective and Target has been inserted into Appendix CRC173213 attached to this consent.

Advice Note 2: Please note that nitrogen baseline has been calculated as the average nitrogen loss from the properties identified in Condition 1.

Advice Note 3: This property is located within the Orari and Rangitata-Orari Nutrient Allocation zones.

The Farm Environment Plan (FEP) prepared in accordance with Conditions (2) and (3) above:

a. shall be audited within 12 months of the grant of this consent. Subsequent audits shall be undertaken within the timeframes specified in Part C of Appendix CRC173213; and

b. shall be audited in accordance with Part C of Appendix CRC173213. A copy of the audit data shall be provided to the Canterbury Regional Council in accordance with the requirements of the Canterbury Certified Farm Environment Plan (FEP) Auditor Manual.
If a Farm Environment Plan (FEP) is required under Condition (3), the farm shall be managed:

a. to achieve and maintain a Farm Environment Plan audit grade of B grade at the minimum, as assigned in accordance with Part C of Appendix CRC173211A; or

b. should the FEP be assigned a C or D grade:

An annual report shall be provided to Council with the following information:

i. The name of the FEP auditor(s);

ii. A summary of the audit performance grading;

iii. A summary of the reasons for any farm receiving a C or D grade;

iv. A summary of the actions taken to address C or D grade to lift the grade to an A or B within 12 months;

v. The progress achieved for previously identified issues, if applicable;

vi. The total annual loss of nitrogen from all properties to which the consent applies over the reported year; and

vii. The annual average nitrogen loss to water for each property to which the consent applies.

The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of:

a. dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage;

b. ensuring that the provisions of Appendix CRC173213 relating to the FEP audit grading system and timeframes are still appropriate; or

c. enabling the standards set by a regional plan to be met when a regional plan has been made operative which sets rules relating to minimum standards of water quality.

If this consent is not exercised before 30 September 2023, it will lapse in accordance with Section 125 of the Resource Management Act 1991.

Issued at Christchurch on 23 August 2018

Canterbury Regional Council
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Map Created by Environment Canterbury on 18/01/2018 5:53:23 p.m.
The Farm Environment Plan shall apply to the area of land specified in Consent Condition 1.

Definitions: the following definitions apply:
- **Management Area** – means the areas of farm management practices as set out below:
  a. Nutrients
  b. Irrigation
  c. Cultivation and soil structure
  d. Animal Effluent and Solid Animal Waste
  e. Waterbodies – (riparian areas, drains, rivers, lakes, wetlands)
  f. Point sources – offal pits, farm rubbish pits, silage pits etc.
  g. Water use (excluding water associated with irrigation) – stock water and washdown water
- **Objective** – means the overarching outcome sought in relation to each Management Area
- **Target** – means a measureable, auditable statement that contributes to achievement of the Objective in each Management Area

Part A – Farm Environment Plans
The Farm Environment Plan can be based on the material set out in Part B or Farm Environment Plan template and guidance material that has been approved in writing by the Chief Executive of the Canterbury Regional Council. Any Farm Environment Plan based on an approved template shall also include the following components set out in Part B:
1. Nutrients Objective 2 and Target 1; and
2. Section 6.

Part B – Farm Environment Plan Default Content
The plan requirements will apply to:
- a plan prepared for an individual property or farm enterprise; or
- a plan prepared for an individual property which is part of a collective of properties, including an irrigation scheme, principal water supplier, or an Industry Certification Scheme.

The plan shall contain as a minimum:
1. Property or farm enterprise details
   a. Physical address
   b. Description of the ownership and name of a contact person
   c. Legal description of the land and farm identifier
2. A map(s) or aerial photograph at a scale that clearly shows:
   a. The boundaries of the property or land areas comprising the farm enterprise.
   b. The boundaries of the main land management units on the property or within the farm enterprise.
   c. The location of permanent or intermittent rivers, streams, lakes, drains, ponds or wetlands.
   d. The location of riparian vegetation and fences adjacent to water bodies.
   e. The location on all waterways where stock access or crossing occurs.
f. The location of any areas within or adjoining the property that are identified in a District Plan as “significant indigenous biodiversity”.

g. The location of any critical source areas for phosphorus or sediment loss for any part of the property including any land within the High Runoff Risk Phosphorus Zone.

h. The location of flood protection or erosion control assets, including flood protection vegetation.

i. Public access routes or access routes used to maintain the rivers, streams, or drains.

3. A list of all Canterbury Regional Council resource consents held for the property or farming enterprise.

4. (A) An assessment of the adverse environmental effects and risks associated with the farming activities and how the identified effects and risks will be managed, including irrigation, application of nutrients, effluent application, stock exclusion from waterways, offal pits and farm rubbish pits.

(B) A nutrient budget which shows, for the property or farming enterprise:

i. The Nitrogen Baseline; and

ii. The nitrogen loss calculation.

5. A description of how each of the following objectives and targets for each Management Area, where relevant, will be met and the specific actions that will be implemented to attain the targets.

5A. Management Area: Nutrients

Objective 1: Use nutrients efficiently and minimise nutrient losses to water.

Targets:

1A. Available nitrogen loss mitigation measures (excluding those associate with irrigation, fertiliser or effluent management) are implemented.

2. Phosphorus and sediment losses from farming activities are minimised.

3. Manage the amount, timing and application of fertiliser inputs and DAF sludge application to match the predicted plant requirements and minimise nutrient losses.

4. Store and load fertiliser and DAF sludge to minimise the risk of spillage, leaching and loss into water bodies.

Objective 2: To meet a consented nitrogen loss limit of the Nitrogen Baseline.

Target:

1. Nitrogen losses from farming activities are maintained at or below consented nitrogen loss limits.

Definitions

The Nitrogen Baseline means the discharge of nitrogen below the root zone as modelled with the current version of OVERSEER® as represented by the Nitrogen Baseline OVERSEER® input files provided with the application, which was 24 kg N/ha/yr for the part of the farms within the orange nutrient allocation zone and 30 kg N/ha/yr for the part of the farms within the red nutrient allocation zone, when calculated using OVERSEER® version 6.2.3.
The Nitrogen Baseline OVERSEER® input files reflect clause A of the Nitrogen Baseline definition, as defined below, and were inputted into the model in accordance with the OVERSEER® Best Practice Date Input Standards. They can be updated to reflect the current OVERSEER® Best Practice Data Input Standards, but must still describe the same activity.

Clause A: “the discharge of nitrogen below the root zone, as modelled with OVERSEER®, (where the required data is inputted into the model in accordance with OVERSEER® Best Practice Data Input Standards)” “averaged over a 48 month consecutive period in the years of the period of 2009 – 2013 inclusive, and expressed in kg per hectare per annum, except in relation to Rules 5.46 and 5.62 where it is expressed as a total kg per annum from the identified area of land”

The determination of whether a farm meets a nitrogen loss limit will be made using the nitrogen loss from the most recent year, modelled using OVERSEER®. If the most recent year exceeds the limit, then the average nitrogen loss from last four years may be used to determine whether the limit is met. Where a nitrogen discharge limit changes (i.e. the introduction of reductions from a certain date), then the option of using the average of the last four years will only apply to those recent years which were subject to the same nitrogen discharge limit. For example if a limit changed in 2022, then in the year 2022, there are no recent year to average over. In the same example, then in the year of 2023, the average nitrogen loss of the 2022 and 2023 years could be used. This determination shall be made using the current version of OVERSEER®.

5B. **Management Area: Irrigation**

**Objective:** The amount and timing of irrigation is managed to meet plant demands, minimise risk of leaching and runoff and ensure efficient water use.

**Targets:**
1. New irrigation systems are designed and installed in accordance with industry codes of practice and standards.
2. The performance of irrigation systems is assessed annually and irrigation systems are maintained and operated to apply irrigation water at their optimal efficiency.
3. The timing and depth of irrigation water applied takes into account crop requirements and is justified through soil moisture monitoring or soil water budgets and climatic information.
4. Staff are trained in the operation, maintenance and use of irrigation systems.
5. Irrigation is managed to take into account timing of DAF sludge applications.

5C. **Management Area: Cultivation and Soil Structure:**

**Objective:** The physical and biological condition of soils is maintained or improved in order to minimise the movement of sediment, phosphorus and other contaminants to waterways.

**Targets:**
1. Farming activities are managed so as to not exacerbate erosion.
2. Farming practices are implemented that optimise infiltration of water into the soil profile and minimise run-off of water, sediment loss and erosion.
3. DAF sludge application is managed in such a way that run-off and soil degradation are minimised.
5D. **Management Area:** Animal Effluent and Solid Animal Waste

**Objective:** Animal effluent, solid animal waste and DAF sludge are managed to minimise nutrient leaching and run-off.

**Targets:**
1. Effluent systems meet industry Codes of Practice or an equivalent standard.
2. The timing and rate of application of effluent, solid animal waste and DAF sludge to land is managed so as to minimise the risk of contamination of groundwater or surface water bodies.
3. Sufficient and suitable storage is available to enable animal effluent and wash-down water to be stored when soil conditions are unsuitable for application.
4. Staff are trained in the operation, maintenance and use of effluent and DAF sludge storage and application systems.

5E. **Management Area:** Waterbodies (wetlands, riparian areas, drains, rivers, lakes)

**Objective:** Wetlands, riparian areas and the margins of surface waterbodies are managed to avoid damage to the bed and margins of the water body, and to avoid the direct input of nutrients, sediment, and microbial pathogens.

**Targets:**
1. Stock are excluded from waterbodies in accordance with regional council rules or any granted resource consent.
2. Vegetated riparian margins of sufficient width are maintained to minimise nutrient, sediment and microbial pathogen losses to waterbodies are minimised.
3. Farm tracks, gateways, water troughs, self-feeding areas, stock camps wallows and other farming activities that are potential sources of sediment, nutrient and microbial loss are located so as to minimise the risks to surface water quality.
4. Mahinga kai values are protected as a result of measures taken to protect and enhance water quality and stream health.

5F. **Management Area:** Point Sources (offal pits, farm rubbish pits, silage pits)

**Objective:** The number and location of pits are managed to minimise risks to health and water quality.

**Targets:**
1. All on-farm silage, offal pit and rubbish dump discharges are managed to avoid direct discharges of contaminants to groundwater or surface water.

5G. **Management Area:** Water-use (excluding irrigation water)

**Objective:** To use water efficiently ensuring that actual use of water is monitored and efficient.

**Target:**
1. Actual water use is efficient for the end use.

The plan shall include for each objective and target in section 5 above:

a. detail commensurate with the scale of the environmental effects and risks;
b. a description of the actions (and a timeframe within which those actions will be completed) that will be implemented to achieve compliance with the objectives, targets and Good Management Practices.
c. the records required to be kept for measuring performance and attainment of the targets and objectives.

6. Nutrient budgets shall be:
   a. prepared by a suitably qualified person using the current version of the Overseer nutrient budget model, or equivalent model approved by the Chief Executive of Environment Canterbury,
   b. prepared for each of the identified land management units and the overall area of land specified in Consent Condition 1; and
   c. prepared for the upcoming 12 months. At the end of each 12 month period the modelling shall be revised, if necessary, to accommodate any differences between the projected modelling and actual farm practise, to calculate the average annual amount of nitrogen loss to water from the subject land.

Part C – Farm Environment Plan Audit Requirements

The Farm Environment Plan must be audited by a Certified Farm Environment Plan Auditor who is independent of the farm being audited (i.e. is not a professional adviser for the property) and has not been involved in the preparation of the Farm Environment Plan.

The Farm Environment Plan audit shall assess the performance of the farming activity occurring on the property against the objectives and the associated targets (including timeframes) specified in the Farm Environment Plan. The auditor shall determine the level of confidence they have that each objective has been achieved. This level of confidence shall be categorised into the following:
1. High = The objective has probably been achieved;
2. Medium = The objective has possibly been achieved; or
3. Low = It is unlikely that the objective has been achieved.

The audit shall record the justification for each level of confidence assessment, including noting the evidence, or lack of, used to make the determination. Where an objective has received a Medium or Low level of confidence, the audit shall include the required actions for the farm to meet the objective. Where an objective has received a Medium level of confidence (and the farm has received no Lows), the audit shall also determine whether or not the farm is on-track to achieve the objectives.

The audit shall record the overall audit grade based on the results of the level of confidence assessment as follows:
1. A grade = All Highs;
2. B grade = One or more Mediums and no Lows, but on-track to achieve the objectives;
3. C grade = One or more Mediums and no Lows, but not on-track to achieve the objectives; or
4. D grade = Any Lows.

The grade of the previous audit sets the timeframe until the next audit is required as follows:
1. A grade = 3 years;
2. B grade = 2 years;
3. C grade = 12 months; or
4. D grade = 6 months.

Exceptions to the timeframes for repeat audits apply in the following circumstances:
1. Where an audit grade of A or B has been achieved, but where the manager of the farm changes or the farm system changes, then an audit shall be undertaken within 12 months of the change.

A change in the farm system means whole farm operation conversions, including but not limited to, converting between dairy support, dairy platform, sheep & beef and cropping; and also any introduction of a new stock type to the farm, e.g. deer or wintering dairy cows. Changes such as, varying the type of crop grown or varying the relative proportions of stock types do not constitute a farm system change.

2. Where a farm is subject to Farm Environment Plan audit requirements under a nutrient discharge consent held by an irrigation scheme, the audit frequency specified in the irrigation scheme’s consent shall prevail over the timeframes set out above.

3. Where a farm is subject to a Farm Environment Plan audit as part of an ISO Accredited audit programme, then the audit frequency for an A or B grade shall be consistent with that of the ISO accredited audit programme for a ‘passed’ audit under the programme.