
in the matter of: the Resource Management Act 1991

and: submissions in relation to **plan change 3** to the proposed Canterbury Land and Water Regional Plan

and: **Dairy Holdings Limited**
Submitter

Statement of evidence of Colin Glass

Dated: 18 November 2015

REFERENCE: JM Appleyard (jo.appleyard@chapmantripp.com)
BG Williams (ben.williams@chapmantripp.com)

STATEMENT OF EVIDENCE OF COLIN GLASS

INTRODUCTION

- 1 My name is Colin Glass.
- 2 I hold the position of Chief Executive, for Dairy Holdings Limited (*DHL*), a position I have held for over 15 years.
- 3 Previously I held the positions of General Manager and Chief Financial Officer of the NZX listed company Tasman Agriculture Ltd for five years and the General Manager of Tasman Farms Limited with Tasmanian dairy farming interests for 7 years. I have been involved with both the New Zealand and Australian dairy industries over that time.
- 4 I am a qualified Chartered Accountant and hold a Commerce Degree in Farm Management, and a Post Graduate Diploma in Accountancy and Corporate Finance from Lincoln University. I was raised on a mixed farming and dairy property at Methven, and from employment on a number of farming properties prior to my 'professional life,' I have an extensive, hands-on practical knowledge of farming.
- 5 Before commencing the position with Tasman Agriculture Limited, I was employed as a chartered accountant with Price Waterhouse in Christchurch for four years.
- 6 I have been directly involved in numerous resource consent and plan change proposals since the formation of DHL - many of which have directly addressed matters relating to nutrients (this includes both 'Variation 1' and 'Variation 2' to the proposed Canterbury Land & Water Regional Plan). I also have a very good understanding of dairy farm systems and how dairy farms ultimately run on a day-to-day basis.
- 7 I am authorised to provide this evidence on behalf of DHL.

SCOPE OF EVIDENCE

- 8 In my evidence I provide:
 - 8.1 an overview of DHL and its farm system;
 - 8.2 an outline DHL's operations in the South Coastal Canterbury and its irrigation systems;
 - 8.3 a discussion of the potential impacts of plan change 3 (*PC3*) on DHL's operations (with a focus on wintering); and

8.4 a discussion on the importance of the farm enterprise/nutrient users group regime to DHL.

- 9 At the outset it is perhaps useful to emphasise that much of the relief sought by DHL is consistent with that both sought and accepted by the Hearing Commissioners that heard Variation 1. DHL considers that the final decision on Variation 1 struck an appropriate overall balance between viable farming activities and environmental protection (albeit in a zone where the pressure on water quantity and water quality is generally much greater). The relief accepted in Variation 1 includes a workable and effective farm enterprise regime/nutrient users group regime to allow the 'sharing' of nutrients between properties.
- 10 The one difference between Variation 1 and what is now proposed under PC3 is that Variation 1 does not include different regimes for farm enterprises and nutrient users groups – both are effectively treated under the same label of 'farming enterprises'.
- 11 More recently DHL has sought or continued to support the same relief as was approved in Variation 1 in the context of Variation 2. Although decisions in respect of Variation 2 are still to be released and I am not in any way wishing to pre-empt what those decisions might be, it is worth noting that the Hearing Panel as comprised for Variation 2 was the same Hearing Panel that heard Variation 1. I am also not aware of any submitter seeking relief that was contrary to that supported/sought by DHL in respect of farming enterprises under Variation 2.
- 12 Overall, what DHL is now seeking in the context of PC3 is simply consistency where possible with final provisions of Variation 1 and Variation 2. Although DHL in itself has fewer farming interests in the South Canterbury area it is very keen to ensure that the same workable plan regime applies to all its farming operations in Canterbury.

OVERVIEW OF DHL

DHL's operations

- 13 DHL is a New Zealand registered company with 100% of its farming assets in the South Island of New Zealand. It is the largest closely-held dairy farming business in the country.
- 14 Its farming interests are all held through wholly owned subsidiary entities however for ease of reference I simply refer to these as 'DHL' in my evidence.

- 15 For the 2015/16 season DHL is operating 58 dairy units on ~13,797 effective hectares, milking 46,000 cows and is on target to produce approximately 16.26 million kilograms of milk solids. DHL farms employ approximately 340 people in its operations.
- 16 In addition, DHL owns or leases:
- 16.1 4 large scale special purpose heifer grazing blocks covering a total area of ~1,361 ha that rear and grow out around 7,500 heifer calves and 8,000 in-calf heifers each year;
 - 16.2 14 grazing and dry stock blocks covering ~3,703 ha that are utilised for carryover cows and winter grazing; and
 - 16.3 1 bull unit (a farm with an area of 271ha) that supplies 1,200 service bulls to the dairy farms.
- 17 DHL's farms are principally located in the Canterbury, Springs Junction (West Coast), Waitaki, and South Otago/Southland regions.
- 18 The general 'DHL farm system' is based on research conducted through Ruakura and more recently the Lincoln University Dairy Farm that provides the base system for successful and profitable dairy farming. This system was initially promoted by Dr Campbell McMeeken and subsequently by Dr Arnold Bryant, continues to be supported in higher comparable stocking rate systems¹ by DairyNZ.
- 19 In simple terms, the company is focused on achieving consistent and repeatable levels of profitability predicated on simple, pasture based management systems. For DHL, this means a relatively low input system that has:
- 19.1 a reduced reliance on supplementary feed being brought on to farm;
 - 19.2 centralised wintering of non-lactating cows and replacement young stock raising;

¹ Comparable stocking rate is a measure used within the industry to measure effective stocking rate relative to the amount of feed cows consume. In this regard 'cows per hectare' is often an inadequate description of this balance, and can be misleading when comparing farms which vary in the amount of brought in feed/ha, or have different breeds (e.g. Holstein -Friesian versus Jersey). Comparable stocking rate, along with other indicators, improves the estimation of the balance between annual feed supply and feed demand.

Comparative Stocking Rate is calculated as:

$$\frac{\text{Average lwt (kg/cow) x no. cows/ha}}{\text{total feed (t DM/ha)}}$$

- 19.3 careful nutrient budgeting and fertiliser applications that are aimed at producing maximum pasture (with minimum fertiliser being 'lost' in the system); and
- 19.4 lower stocking rates (on a per hectare basis) but a higher comparable stocking rate (in terms of the stocking rate relative to the feed available) than those which might typically be seen on other farms within the same relevant area where systems with increased supplementary feeding are adopted.
- 20 Generally, the DHL farm system results in milk solid production that is about 100 kg lower than what might be seen on the majority of farms in the same area. This again is a reflection of a farm system that is intended to provide a high level of resilience and good levels of profitability relative to the inputs prescribed.
- 21 From a nutrient management perspective it is however important to understand that other than changes to modernise older irrigation systems (if they have not already occurred), there are fewer opportunities for DHL to improve (i.e. reduce) nutrient loss without drastic changes through, for example, cutting stock numbers.

SOUTH COASTAL CANTERBURY ZONE – IRRIGATION SYSTEMS

- 22 DHL only has three dairy properties within the South Coastal Canterbury area (compared to, for example, 12 in the Hinds Plains area and around 22 in the Selwyn Waihora area) - these are shown in **Figure 1** (the properties in **red** being those owned by DHL).
- 23 Two of these properties ('Cantley' and 'Sunrise') are wholly irrigated by the Morven Glenavy Ikawai (MGI) Scheme. The third property ('Retell') is able to access both MGI Scheme water and surface water from the Waikakahi Stream.
- 24 DHL also leases a large dryland wintering support property in Waihaorunga.

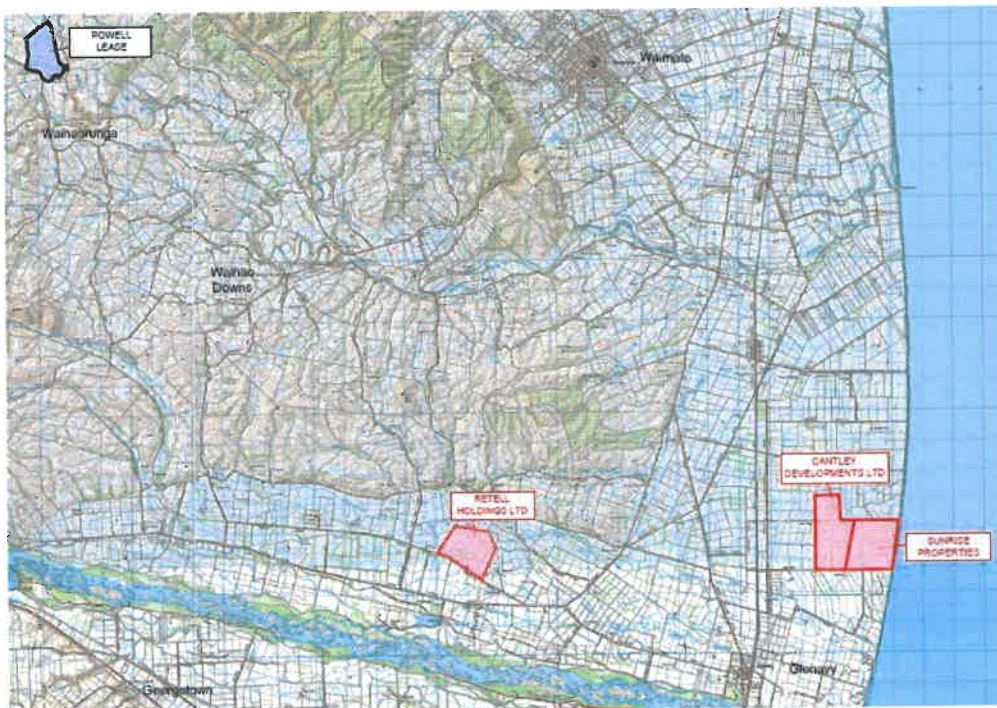


Figure 1: DHL farming properties in the South Coastal Canterbury Area

- 25 The Cantley and Sunrise properties have until recently been border-dyke irrigated. The Retell property has historically been irrigated by a combination of border-dyke and spray.
- 26 DHL is now well advanced in a programme (as recorded in its 5 year business plan) of irrigation system improvements. This programme is being undertaken for all of its Canterbury properties (along with associated dwelling and dairy shed upgrades), and in simple terms involves:
- 26.1 upgrading both borderdyke systems and already 'improved' Rotorainer properties to high efficiency centre pivots with sprinklers in corners etc;
 - 26.2 lowering the application rates on Rotorainers and reducing return times (so land is irrigated more often with 'smaller' applications of water, increasing overall efficiency); and
 - 26.3 de-commissioning deeper ground water bores (where applicable) and changing to water sourced from surface water schemes (where such water is available).
- 27 DHL initially prioritised irrigation system upgrades in the Selwyn Waihora zone (where DHL owns a much larger number of properties and saw, consistent with the notification of Variation 1 prior to

Variation 2 and PC3, an even more pressing need for system upgrades across the catchment).

- 28 Upgrades on DHL's South Coastal Canterbury properties (in addition to those that have already occurred) are now largely completed, with four centre pivot irrigators being installed and commissioned in the 2015 spring.
- 29 The cost of this programme is significant and DHL will require 'multiple millions' to see the programme through to completion (as a part of the programme DHL, for example, installed 25 pivots in the 2015 spring, 19 pivots last year and 10 the year before that. In this regard, it has been DHL's experience to date that the upgrading border-dyke irrigation systems to pivot irrigation (with sprinklers in corners) has generally required DHL to outlay around \$5,000 per hectare depending on the farm configuration (along with further costs to reflect the change in farm system and stocking etc).

FARM NUTRIENT LOSS/MITIGATION

- 30 All of DHL's dairy farming properties are located in the Morven Sinclairs area. In accordance with the advice note to Table 15(p) I understand that the MGI Scheme is not proposed to have its own nitrogen load, but rather *"the sum of each individual property's baseline makes up the total scheme load limit"*.
- 31 At an individual property level the apparent absence of water quality concerns means that for DHL, no reductions (or requirement to comply with maximum caps or flexibility caps that have been set for other areas) arises for its dairy properties.
- 32 This is not the position for its Waihaorunga wintering property, which falls within the Waihao-Wainono Area – meaning it will need to meet the maximum caps set out in Table 15(n) by 1 January 2030.
- 33 Although I do not comment on the specific application of Table 15(n) to the Waihaorunga lease property, I note that from my experience elsewhere I expect that a number of wintering properties will find the limits as set out (20 to 35 kg N/ha/yr) challenging. Especially, for properties with shallow soil types and lower water holding capacities.
- 34 In this regard, it is important to understand that short of taking animals elsewhere (i.e. making it 'someone else's problem'), there are more limited mechanisms by which the nutrient loss from wintering can be reduced.

- 35 Potential practices such as restricted autumn grazing and winter housing are very capital intensive and in DHL's experience could only be funded by increases in stock numbers, stocking rate and significantly increased production which, at least to some extent, would defeat the purpose of building such structures (if the purpose is to reduce N-loss).
- 36 It is however worth making the following general comments:
- 36.1 the number of cows that are wintered in a catchment is generally a reflection of the number of cows that are ultimately milked in a catchment. It is important to look at both together as viable wintering operations are critical to a successful and viable dairy operation. This has special relevance to the proposed farm enterprise regime / nutrient user group regime I discuss later in my evidence; and
- 36.2 wintering systems differ in the area of crop required to feed each cow over the winter, stocking density, urinary nitrate concentration, and the extent of overlap of urine patches – all of which affect the intensity of nitrate leaching. In this regard, it is DHL's experience (informed by work provided by the South Island Dairying Development Centre (*SIDDC*) and elsewhere²) that although a lower yielding crop might on its face provide less losses of nitrogen per hectare, on a per cow basis it is necessary to have a larger area available for support operations – so ultimately a whole of catchment approach is required; and
- 36.3 consistent with the need to look at the 'big picture' it is important that if dairying is enabled within an area then dairying support also needs to be enabled. The alternative could potentially see cows taken out of the catchment for wintering purposes which will only lead to unintended environmental pressures in other catchment(s).
- 37 Certainly from DHL's perspective, I consider it may be difficult to make significant reductions in nutrient loss for some individual wintering properties (provided the relevant wintering property is already using fertiliser sensibly).
- 38 In terms of dairy platforms themselves I have not commented on them in my evidence (other than noting that DHL's are all located in the Morven Sinclairs area where it appears reductions are not required). In terms of those dairy farms located elsewhere (and not owned by DHL) that will in-time be required to comply with the

² See for example, *SIDDC*, Lincoln University Dairy Farm, Focus Day notes, 11 July 2013

maximum caps, I understand that caps were intended to accommodate most 'sensible' farming operations, so on that basis the sought outcomes might well be achievable without too much effort on most properties. It is however imperative that the limits and compliance are informed by the best inputs available otherwise, as is consistent with DHL's experience; significant differences can arise through input errors and inconsistencies in terms of how data is derived.

- 39 In terms of compliance, DHL is also concerned that any use of OVERSEER in PC3 does not appear to be supported by a mechanism that allows the relevant compliance limit to be recalculated (using the same inputs) should another version of OVERSEER be released. Based on DHL's experience, a change in the version of OVERSEER can cause a significant change in 'the numbers' even where nothing on farm has changed.

FARM ENTERPRISE REGIME AND NUTRIENT USER GROUP

- 40 DHL has a particular interest in the provisions in PC3 relating to farm enterprises and nutrient user groups. As I noted earlier in my evidence PC3 has split these two concepts out whereas Variation 1 and Variation 2 treat both together (as a 'farm enterprise' regime).
- 41 DHL already has what is effectively a farm enterprise/nutrient user group consent in the Selwyn Waihora Zone (CRC143288), and has sought similar relief through the Hinds Plains process.
- 42 This consent has been a critical component in the conversion of DHL's remaining borderdyke properties to spray and the management of nutrients more generally by DHL.
- 43 Although it is likely to have lesser relevance to DHL in the South Coastal Canterbury area (given the limited number of its properties and the fact the Morven Sinclairs area is not required to 'reduce'), as a general management approach DHL is seeking to manage nutrient losses at a group level. This allows, for example, wintering on dryland to be supported through the farm enterprise regime so that the full effects of nutrient loss can be managed in an integrated manner.
- 44 How nutrient loss reductions are applied to DHL is also of particular importance to the company. Having moved nutrients between properties that form part of the farming enterprise or nutrient user group and potentially undertaken changes on a property in reliance on that having occurred, it is critical that any reduction regime is applied at the level of the farming enterprise or nutrient user group (as might apply).

- 45 The alternative would see a property having to make reductions from its original and no longer relevant individual nitrogen baseline. This could effectively – but unintentionally – see a property being penalised twice which would have a more significant adverse impact on the relevant individual property.
- 46 DHL accordingly supports the provisions made in the decisions version of Variation 1 in relation to the farming enterprises and considers those provisions are equally relevant to Variation 2 and PC3.
- 47 This includes Policy 11.4.15A which was included in specific response to the same DHL submissions points in Variation 1:
- 11.4.15A(1) Enable 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 (whether or not the parcels are held in single, multiple, or common ownership).
- (2) Enable 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; 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 is not exceeded.
- 48 The inclusion of an equivalent Policy to 11.4.15A is particularly important for PC3 (as it was for Variation 1 and Variation 2) to provide guidance on not only establishment – but also on what is to happen following disestablishment (which might occur when a farm is sold or a property owner decides for whatever reason to no longer be in the farming enterprise regime).
- 49 In this regard, in reliance on the farming enterprise regime and nutrient user group regime farmers will often make changes to their irrigation infrastructure and farming systems. Were their interest in the farming enterprise to cease then in many cases it might be impossible to revert back to the position that existed prior to the establishment of the group.

CONCLUSION

- 50 DHL is generally supportive of the vision for PC3 and the extent it seeks to enable viable farming within the South Coastal Canterbury area.
- 51 The farm enterprise regime and nutrient user group regime is of particular interest to DHL. DHL is very supportive of continuing provision being made to farm enterprises and nutrient users groups but considers it critical that if reductions are applied, they are able to be applied at the level of the farming enterprise or nutrient user group (as might apply).
- 52 It is also not clear to me whether the, now split, farm enterprise / nutrient user group regime really adds anything to the achievement of the outcomes envisaged under PC3.

Dated 18 November 2015

Colin Glass

Record Number: CRC143288
Record Type: New Consent
Permit Type: Land Use Consent
Record Holder: Dairy Holdings Limited
Record Status: Issued - Active
File Number: CRC143288
Previous Record(s):
Next Record(s):
Location: Rakaia-Selwyn groundwater allocation zone
Description: to use land for farming and to use water



Customer Services
 P. 03 353 9007 or 0800 324 636

PO Box 345
 Christchurch 8140

P. 03 365 3828
 F. 03 365 3194
 E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Key Dates:

Event	Date
Commencement Date	11 Jun 2014
Given Effect To	15 Dec 2014
Lapses	11 Jun 2019
Expires	11 Jun 2019

Workflow (Only shows if workflow has open tasks):

Task Name	Task Status	Task Status Date
Record Lodgement	Completed - Ready for s88	22 Nov 2013
Complete s88 Check	Completed - Accept Application	05 Dec 2013
Audit Application	Completed	10 Jun 2014
Complete Recommendation	Completed - No Peer/App Review	10 Jun 2014
Make Notification Decision	Completed - Non Notified	11 Jun 2014
Notify and Issue Final Decision	Completed - NonNtfd Grant	11 Jun 2014
Make Non Notified Final Decision	Completed	11 Jun 2014
Finalise Application	Completed	11 Jun 2014
Manage Objection Period	In Objection Period	
Compliance Audit Check		
Manage Objection Period	In Process - Objection Period	

Conditions:

No	Text
1	Water shall only be used for irrigation, and the use of land for farming shall only occur, on properties within Nutrient Management Group - CRC143288 (NMG-CRC143288).
2	Properties within NMG-CRC143288 at the date of issue of this consent are listed in Schedule One, which forms part of this consent.
3	Properties may be added to or removed from NMG-CRC143288 provided that: <ol style="list-style-type: none"> a. the entire property is within the "command area" shown on Plan CRC143288, which forms part of this consent; b. the areas to be farmed on the property to be added do not overlap with a Community Supply Protection Zone as shown on Plan CRC143288; c. prior to the change occurring, the consent holder shall provide an updated list of the properties within NMG-CRC143288, including plans showing the area of each property, to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager; d. the property is not farmed pursuant to another consent to use land for farming; e. no more than 10,000 hectares are within NMG-CRC143288 at any one time; and f. prior to the addition of a property, the consent holder shall provide to the

	<p>Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager:</p> <ol style="list-style-type: none"> i. a Farm Environment Plan (FEP) for that property, prepared in accordance with Schedule Two, which forms part of this consent; ii. the nitrogen baseline calculation for that property, including all of the modelling inputs and outputs; and iii. the confirmation that the owner of the property consents to joining NMG-CRC143288. <p>For the purposes of this condition the nitrogen baseline calculation is defined as the annual average nitrogen loss to water, as modelled with OVERSEER®, or equivalent model approved by the Chief Executive of Environment Canterbury, averaged over the period of 01 July 2009 – 30 June 2013, and expressed in kg. The current version of OVERSEER® shall be used and the inputs shall be updated where relevant to reflect the current Overseer Best Practice Data Input Standards, but they must still describe the same baseline scenario.</p>
	<p>Use of land</p>
<p>4</p>	<p>The average annual nitrogen loss to water calculated for the properties within NMG-CRC143288 shall not exceed the nitrogen baseline for those properties.</p> <p>For the purposes of this condition:</p> <ol style="list-style-type: none"> a. the average annual nitrogen loss to water shall be calculated on a four year rolling average basis and in accordance with Schedule Two; and b. the nitrogen baseline shall be determined using the formula $X + Y - Z$, where the variables are described as follows: <ul style="list-style-type: none"> - X is the average annual nitrogen loss to water calculated using the current version of OVERSEER® when the Original Inputs are used. The Original Inputs are those which describe the baseline scenario in the consent application for those properties listed in Schedule One. The inputs shall be updated to where relevant to reflect the current OVERSEER® Best Practice Data Input Standards, but they must still describe the same baseline scenario. - Y is the average annual nitrogen loss to water calculated for the nitrogen baseline for the properties added to NMG-CRC143288, in accordance with Condition 3. - Z is the average annual nitrogen loss to water calculated using the current version of OVERSEER® for the properties removed from the NMG-CRC143288 using the Original Inputs as described above. <p>Advisory Note: When OVERSEER® version 6.1.1 is used X equals 376,337 kg.</p>
<p>5</p>	<p>A Farm Environment Plan shall be prepared in accordance with Schedule Two for each property within NMG-CRC143288. For properties listed in Schedule One the Farm Environment Plan shall be completed prior to 1 January 2015. The Farm Environment Plan shall be updated as necessary and on farm practice shall be in accordance with the Farm Environment Plan. A copy of the Farm Environment Plan shall be provided to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager on request.</p>

6	<p>The Farm Environment Plan(s):</p> <ol style="list-style-type: none"> a. shall be audited by a Farm Environment Plan Auditor to determine the compliance of the Farm Environment Plan with the provisions of Schedule One and on farm practice with the provisions of the Farm Environment Plan; b. audits shall be undertaken in accordance with Part C of Schedule One. A copy of the audit shall be provided to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager within two months of the audit being completed; and c. audits shall occur annually, except that following three consecutive audits graded as fully compliant, the audit frequency shall reduce to at least once every three years. However, if an audit is graded as non-compliant or the manager of the farm changes, then the audit frequency reverts to annual.
7	<p>The consent holder shall prepare an annual report including:</p> <ol style="list-style-type: none"> a. a record of the audit compliance grading for each property audited during the previous 12 months; b. the annual average nitrogen loss to water for each property within NMG-CRC143288, calculated in accordance with Schedule Two; and c. a calculation of the current nitrogen baseline in order to determine compliance with Condition 4. <p>A copy of the annual report shall be provided to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager by 31 August each year.</p>
	<p>Use of water</p>
8	<p>Where water is used under this consent concurrently with other consents to use water for irrigation of the same land then the maximum combined application rate shall not exceed 0.7 litres per second per hectare (6.05 millimetres per day).</p> <p>Advisory note: Properties within NMG-CRC143288 may use water pursuant to this consent only or may use water pursuant to a separate consent to use water. This condition only applies when water is used concurrently pursuant to this consent and a separate consent on the same land.</p>
9	<p>The consent holder shall before the first use of water pursuant to this consent:</p> <ol style="list-style-type: none"> a. <ol style="list-style-type: none"> i. install a water meter(s) that has an international accreditation or equivalent New Zealand calibration endorsement, and has pulse output, suitable for use with an electronic recording device, which will measure the rate and the volume of water used to within an accuracy of plus or minus five percent as part of the pump outlet plumbing, or within the mainline distribution system, at a location(s) that will ensure the total volume of water used pursuant to this consent, and the volume of water used for irrigation of the same land pursuant to any separate consent (where condition 8 applies), is measured; and ii. install a tamper-proof electronic recording device such as a data logger(s) that shall time stamp a pulse from the flow meter at least once every 60 minutes, and have the capacity to hold at least one season's data of water use as specified in clauses (b)(i) and (b)(ii), or which is telemetered, as specified in clause (b)(iii).

	<p>b. The recording device(s) shall:</p> <ul style="list-style-type: none"> i. be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and ii. store the entire season's data in each 12 month period from 1 July to 30 June in the following year, which the consent holder shall then download and store in a commonly used format and provide to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; or iii. shall be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder. No data in the recording device(s) shall be deliberately changed or deleted. <p>c. The water meter and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.</p> <p>d. The water meter and recording device(s) shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.</p> <p>e. All practicable measures shall be taken to ensure that the water meter and recording device(s) are fully functional at all times.</p>
10	<p>Within one month of the installation of the measuring or recording device(s), or any subsequent replacement measuring or recording device(s), and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, Attention: Regional Manager, RMA Monitoring and Compliance, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:</p> <ul style="list-style-type: none"> a. the measuring and recording device(s) has been installed in accordance with the manufacturer's specifications; and b. data from the recording device(s) can be readily accessed and/or retrieved in accordance with clauses (b) and (c) of condition (9).
11	<p>The consent holder shall take all practicable steps to:</p> <ul style="list-style-type: none"> a. ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and b. avoid leakage from pipes and structures; and c. avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.
	<p>General</p>
12	<p>The consent holder shall ensure that each property within NMG-CRC143288 shall maintain detailed records of fertiliser application rates, location and crop type (including winter feed/forage crops), cultivation methods, stock units by reference to type and breed, and all other inputs to the Overseer, or equivalent, nutrient budgeting model. A copy of these</p>

	records shall be provided to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager on request.
13	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 dealing with any adverse effect on the environment which may arise from the exercise of this consent.

