

Conditions for water permit CRC011987 (Bellfield Land Company - Quailburn)				
Status of Consent: <u>renewal</u>				
Catchment: <u>Quailburn</u>				
Expiry date sought – 35 years				
No.	Proposed Condition	ECan Comments	Meridian comments	Applicant further comments
1	Water shall only be taken from the Quailburn at or about map reference NZMS 260 H39:646-364 at a rate not exceeding 140 litres per second, with a volume not exceeding 12,096 cubic metres per day and 1,920,662 cubic metres between 1 July and the following 30 June of which 362,880 cubic metres is stock water	Agreed		
2	Water shall be used for the spray irrigation and stock water of 190 hectares of crops and pasture as described in the application, on the area of land shown in attached plans "CRC012047" which forms part of this consent. <u>There shall be a 5 metre setback from any permanently flowing waterways within the irrigation area marked on Plan CRC 0011987</u>	No conditions proposed that specify minimum setback distances of irrigation areas from surface water bodies. These should be specified in a condition e.g., minimum of 20 metres. Previous comments in July 2010 provided to the applicant that reference to "non-milking dairy cows" can be deleted as now specifies sheep and beef cattle		Agreed (except for the recent addition of non-milking dairy cows). Not proposing to "exclude milking dairy cows". Refer to Penman Addendum report para 140 & 67. Consider IO suggestion met by defining stock. <u>The irrigation area here is defined and without surface water bodies within the defined area – so no need for this condition in this case – the applicant could comply with this condition – but imposition of this condition is not justified</u>
4	The consent holder shall take all practicable steps to: 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.	Agree		
5	Whenever the combined flow (expressed in Litres per second) of Quail Burn at Hen Burn Rd NZMS 260 H39:6553-3542 and the abstracted flows relating to Government Race (CRC991473, CRC991474, CRC991475) and this permit, as estimated by the Canterbury Regional Council	Still recommend graph and those included by applicant appear suitable.		We have now added Dave Boraman graph below which may have not been available to IO at time of writing comments and we consider this should be used.

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	<p>a) Is equal or greater than 410 litres per second the maximum rate at which water is taken shall not exceed 140 litres per second.</p> <p>b) is less than 410 litres per second, and greater than or equal to 100 litres per second, a sharing regime that limits the combined rate of abstraction to ensure that the flow in the Quailburn at Henburn Road, is equal to or greater than 100 litres per second</p> <p>c) is at any flow, water may be taken at a flow not exceeding 20L/s for stockwater.</p> <p>OR provided that the Canterbury Regional Council, in consultation with a Water Users Committee representing, but not limited to, surface water and hydraulically connected groundwater users, who are subject to the above minimum flow, has determined upon a water sharing regime which limits the total daily abstraction from the resource as referred to in (a) and (b) above then the taking of water in accordance with that determination shall be deemed to be in compliance with condition <5> of this consent.</p>			
6	<p>a) A fish exclusion device shall be installed, operated and maintained on the intake to ensure that fish are prevented from passing into the intake.</p> <p>b) The fish exclusion device shall be positioned to avoid the entrapment of fish at the point of abstraction, and to minimise the risk of fish being damaged by contact with the fish screening device.</p> <p>c) The fish exclusion device shall be designed or supplied by a person with experience in freshwater ecology and fish screening techniques, who shall ensure that the performance criteria specified in clauses (a) and (b) of this condition are achieved, and that the device is designed in accordance with best practice, as outlined in the document Fish Screening: Good Practice Guidelines for Canterbury, NIWA Client Report 2007-092, October 2007.</p> <p>d) Prior to the installation of the fish screen, a report containing final design plans that demonstrate that the fish screen will meet the performance criteria specified in clauses (a) and (b) of this condition, and an operation and maintenance plan for the fish screen, shall be provided to Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager.</p> <p>e) Before the taking of any water in terms of this permit, a certificate shall be provided to Canterbury Regional Council, by a person with experience in freshwater ecology and fish screening techniques, to certify that the design plans and operation and maintenance plan for the fish screen will meet performance criteria as outlined in this condition, and that the fish screen has been installed in accordance with the details provided to Canterbury Regional Council in accordance with clause (d) of this condition.</p> <p>f) The fish screen shall be maintained in good working order.</p>	Agreed		

	Records shall be kept of all inspections and maintenance, and those records shall be provided to Canterbury Regional Council upon request.			
7		No landscape conditions have been provided by the applicant. Please refer to evidence of Chris Glasson for recommended mitigation measures (paragraph 183 of Report 5 and paragraph 75 of Chris Glasson's addendum s42A report).		Disagree conditions are required. This land has been irrigated for many years so is part of the existing landscape. The pump shed (already installed) is set back from the road, near the base of the hill and is within the District Council jurisdiction. Suggest utilising the recommendations of applicants and Andrew Craig's evidence.
8	<p>The consent holder shall, within six months of the commencement date of this consent at the point of take:</p> <p>a.</p> <p>(i) install a water meter(s) that has an international accreditation or an equivalent New Zealand calibration endorsement suitable for use with an electronic recording device, from which the rate and the volume of water taken can be determined to within an accuracy of plus or minus five percent at a location(s) that will ensure the total take of water from [specify] is measured; and</p> <p>(ii) install a tamper-proof electronic recording device such as a data logger that shall record (or log) the flow totals every 15 minutes and have the capacity to hold at least one season's (as specified in conditions (3) and (4(a))) data of water taken as specified in clause (b) (i), or which is telemetered, as specified in clause (b)(ii).</p> <p>b. The water meter and recording device(s) shall 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 shall:</p> <p>(i) store the entire season's data in each 12 month period from 1 July to 30 June in the following year, which shall be downloaded and stored in a commonly used format and provided to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; or</p> <p>(ii) 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> <p>c. The measuring device shall be installed at a site likely to retain a stable rating (i.e. a man-made channel, concrete, steel or fibreglass pipe). Installation shall be in accordance with ISO 1100/1-1981 or equivalent and be undertaken by a suitably qualified person.</p> <p>d. 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>e. 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>	Agreed – the meter should be located on the take point rather than the divert.		<u>Note for consistency purposes we consider that all consents should be configured in this manner</u>

	f. All practicable measures shall be taken to ensure that the water meter and recording device(s) are at all times fully functional and have an accuracy standard of 10%.			
9	(a) The water meter installed in accordance with Condition <8> shall be an electromagnetic or ultrasonic meter; or (b) The consent holder shall, within six months of the commencement date of this consent install or make available an easily accessible straight pipe(s) at a location where the total water take is passing through, with no fittings or obstructions that may create turbulent flow conditions, of a length at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system, to allow the Canterbury Regional Council to conduct independent measurements.	Agreed		
10	Within one month of the installation of the measuring or recording device(s), specified in conditions <8> or any subsequent replacement measuring or recording device(s), or at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that: (a) the measuring and recording device(s) is installed in accordance with the manufacturers 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 <8>.	Agreed		
11	At five yearly intervals or at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying that: (a) the water meter(s) is measuring the rate of water taken as specified in condition <10> and (b) the tamper-proof electronic recording device is operating as specified in condition <10>	Agreed		
12	The consent holder shall, prior to exercising this consent, install a water meter measuring device at (map reference NZMS 260 H39:6553-3542) in the Quailburn that will enable the determination of the continuous rate of flow in the reach of the waterbody to within an accuracy of 10 percent. (a) The measuring device shall, as far as is practicable, be installed at a site likely to retain a stable relationship between flow and water level. The measuring device shall be installed in accordance with the manufacturer's instructions. (b) 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 15 minutes, and have the capacity to hold at least one season's data of water taken as specified in clauses (d)(i) and (d)(ii), and which is telemetered, as specified in clause (d)(iii). (c) The recording device(s) shall: (i) be set to wrap the data from the measuring device 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	Agree		

	<p>shall then download and store and provide to the Canterbury Regional Council in a format and standard specified in the Canterbury Regional Councils form for Water Metering Data Collection; and be readily accessible to be downloaded by the Canterbury Regional Council or by a person authorized by the Canterbury Regional Council: RMA Compliance and Enforcement Manager; and</p> <p>(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.</p> <p>(d) The measuring and recording devices described in clauses (a) and (c) shall be available for inspection at all times by the Canterbury Regional Council.</p> <p>All data from the recording device described in clause (c), and the corresponding relationship between the water level and flow (b), shall be provided to the Canterbury Regional Council annually in the month of June, and shall be accessible and available for downloading at all times by the Canterbury Regional Council.</p>			
13	<p>The consent holder shall within a period of 5 years from the commencement date of this consent, convert to spray irrigation and advise the Canterbury Regional Council as to the staging of any conversion.</p> <p>Any rights to continue border dyke irrigation shall cease 5 years from the date of this consent</p> <p>The consent holder shall advise the Canterbury Regional Council of the completion of conversion prior to the commencement and use of the new spray system.</p> <p>For the avoidance of doubt, any conditions requiring testing as a precursor to the exercise of consent shall, with respect to the exercise of this replacement consent, occur prior to the next irrigation season following the commencement date.</p>	This should be split into clauses (a) to (d).		<u>Agreed. In this particular case some conversion has already occurred</u>
	<u>Nutrient Loading</u>			
	<u>For the purposes of interpretation of the following conditions Quailburn Downs Station shall be defined as the areas in certificates of title and Pastoral Lease numbers OT6A/767-8 which total 2194hectares</u>		<u>Note title numbers and areas have been done by computer search and will be verified by applicant</u>	
14	<p>The consent holder shall prepare once per year <u>and not less than one month prior to the commencement of the irrigation season</u>, an Overseer[®] nutrient budgeting model report, and shall prepare, at least once per year, a report of the annual farm nutrient loading for the Quailburn Downs using the model Overseer[®] (AgResearch model version number 5.4.3 or later</p>	When exactly do these have to be done? Need to specify dates.		
15	A copy of the report prepared in accordance with condition xx shall be given to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, upon request.	Condition number? Condition xx = 14?		<u>Agreed – but preference to leave final conditions numbering to be determined on grant</u>
16	Following conversion the consent holder shall not commence annually irrigation under this consent unless the annual (1 July to 30 June) nutrient loading (the nutrient discharge allowances (NDAs))as	Essential to define “Quailburn Downs” by reference to an area (22,000 ha), legal		

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	<p>estimated in accordance with condition XX from Quailburn Downs shall not exceed 8,761 kg of nitrogen and 240 kg of phosphorus.</p> <p>The NDAs shall be complied with at the earlier of the first full year (1 July to 30 June) following completion of the irrigation conversion or 5 years from the commencement of consent.</p>	<p>description and/or a map, otherwise there is a risk that authorised nutrient load would be double.</p> <p>The first clause of the proposed condition only requires compliance for commencement to occur, i.e., subsequent compliance would not be required. This is not appropriate. The condition should require ongoing compliance with the NDA.</p> <p>Needs to be "The annual (01 July to 30 June) nutrient loading (NDA) estimated in accordance with condition X, shall be less than..."</p> <p>Nutrient loads larger than needs plus buffer approach suggested by Christian Whata in ROR to address surplus nutrient issue.</p> <p>The final clause appears to be an attempt to broaden the compliance requirement but is missing some words and is not clear.</p>		<p><u>The condition requires compliance and verification annually</u></p> <p><u>The nutrient loadings taken off the table forwarded to us as the last version of the needs plus buffer</u></p> <p><u>Not opposed to this wording</u></p> <p><u>There is no attempt to broaden wording. The nutrient loadings for properties have been determined on what the applicants will need following the implementation of their irrigation plans. In the case of conversions it is accepted that conversion of their existing border dyke systems will "release" nutrients for the larger applicants to take up. However, this applicant, as an existing irrigator will not immediately convert – but has a 5 year time frame.</u></p>
17	<p>Overseer Modelling:</p> <p>Where Overseer, or Overseer modelling, is referred for the purposes of determining compliance with the NDA limits associated with activities on the property it shall undertaken by an independent person with an Intermediate or Advanced Sustainable Nutrient Management Certificate issued by Massey University or an equivalent qualification.</p>			
18	<p>Farm Environmental Management Plan</p> <ol style="list-style-type: none"> 1. The Farm Environmental Management Plan prepared for the Quailburn Downs and supplied to Environment Canterbury on an annual basis within two months of the irrigation season on request 2. The consent holder shall implement, and update annually the Farm Environmental Management Plan (FEMP) for Quailburn Downs. The FEMP shall include <ol style="list-style-type: none"> (b) Verification of compliance with NDA's by farm nutrient modelling using the model Overseer® (AgResearch model version number 5.4.3 or later). (c) When undertaking the modelling outlined in clause (b), the consent holder shall use either weather records collected 	<p>Condition is missing some wording. It appears to be some form of statement rather than a requirement. A final FEMP should be submitted prior to making a decision.</p> <p>A FEMP including verification of NDA compliance is not the same as an actual requirement to comply with the NDA.</p>		<p><u>Final FEMPS have been sent to Ecan: Com: Phillips -Warnock</u></p>

	<p>concentration, date and location of application, climatic conditions, mode of application and any report of the fertiliser contractor regarding the calibration of the spreader.</p> <p>3. For land based spreading of fertiliser an independent fertiliser spreading contractor shall be used to spread any fertiliser on the property except as provided for by clause (b) below.</p> <p>(a) Where an independent fertiliser spreading contractor is used the consent holder shall keep a record of the contractor used which can be supplied to the Canterbury Regional Council upon request.</p> <p>(b) Where the applicant's own fertiliser spreaders are used, the consent holder shall test and calibrate the fertiliser spreaders at least annually, and every 5 years the fertiliser spreader will be certified by a suitably qualified person in accordance with 'The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07' or any subsequent updates and the results of testing shall be provided to the Canterbury Regional Council upon request.</p> <p>4. Nitrogen fertiliser shall not be applied to land between 31st May and 1st September in any year except for the use of nitrification inhibitors</p> <p>5. All fertiliser brought onto the property which is not immediately applied to the land is stored in a covered area that incorporates all practicable measures to prevent the fertiliser entering waterways.</p> <p>6. Applications of nitrogen fertiliser shall not exceed 50 kg nitrogen / hectare per application.</p> <p>7. If liquid fertilisers, excluding liquid effluent, are stored on-site for more than three working days, the consent holder shall ensure that the fertiliser is stored in a bunded tank, at least 110% of the volume of the tank to avoid any discharge to surface or groundwater and such that it is also protected from vehicle movements.</p> <p>8. Fertiliser filling areas shall not occur within 50 metres from a water course, spring or bore.</p>	<p>via a consent condition and enforced when they cannot. Therefore recommend deletion unless specific and enforceable components could be separated out and applied.</p> <p>Not clear what use could be made of "a record of the contractor".</p>		<p><u>The issue was to avoid requirement for calibration to occur for every separate spreading operation – where it is not within applicant's control to request calibration.</u></p> <p><u>Subclause 2 requirements for record keeping and calibration record the information. Ecan may wish this information to be supplied upon request</u></p>
20	<p>Irrigation Infrastructure</p> <p>1. The consent holder shall ensure that all new (not on the property at the time of commencement of this consent) irrigation infrastructure is designed and certified by a suitably qualified independent expert holding National Certificate in Irrigation Evaluation Level 4, and installed in accordance with the certified design.</p> <p>(a) Copies of certified design documents shall be provided to the Canterbury Regional Council upon request.</p> <p>(b) All irrigation infrastructure shall be tested within 12 months of the first installation of the new irrigation infrastructure and afterwards every five years in accordance with the</p>	<p>Issued by who? NZWETA? What certified design? Certified by who?</p> <p>This code of practice is not written as an enforceable document, which means that this condition could not be enforced, doesn't provide any assurance about effects and is therefore not necessary. Retention may give an impression that aspects of irrigation design can be controlled via conditions and enforced when they cannot.</p>		<p><u>NZQA</u></p> <p><u>This clause provides a cross check on water efficiency requirements in that the certification parameters of the design could not be signed off unless the irrigation "as built" structures meet the efficiency parameters – Applicants consider it appropriate that a check within first 12</u></p>

	<p>'Irrigation Code of Practice and Irrigation Design Standards, Irrigation NZ, March 2007' (code of practice) by a suitably qualified independent expert.</p> <p>(c) The expert shall prepare a report within two months of the testing, outlining their findings and shall identify any changes needed to comply with the code of practice.</p> <p>(d) Any changes needed to comply with this code of practice shall be implemented within five years from the date of the report. A copy of the report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, within three months of the report being completed.</p> <p>2. If existing irrigation infrastructure is being used, the consent holder shall obtain an evaluation report prepared by a suitably qualified person, on the following terms:</p> <p>(a) The evaluation shall determine the system's current performance in accordance with the Code of Practice for Irrigation Evaluation.</p> <p>(b) This report shall be obtained within three months of the first exercise of the consent.</p> <p>(c) Any recommendations identified in the report shall be implemented within five years from the date of receipt of the report.</p> <p>A copy of the report shall be forwarded to the Canterbury Regional Council within 3 months of the report being completed.</p>	<p>Therefore recommend deletion unless specific and enforceable components could be separated out and applied.</p> <p>Why not the person referred to above?</p>		<p><u>months should be a condition</u></p>
		<p>No fertigation - backflow prevention condition <u>Gravity fed system therefore not required.</u></p>		
21	<p>Subdivision</p> <p>The NDAs shall be recalculated if there is a sale or transfer of any part, but not the whole, of the total farm area specified in Appendix [should be Appendix A]*. The recalculated NDAs shall replace the NDAs specified in condition 12. The recalculation of the NDAs shall be undertaken and certified using Overseer, completed and provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager together with a copy of the full Parameter report, within one month of the sale or transfer.</p>	<p>No Appendix A provided. Condition 12 does not specify the NDA. Suggest add after "The recalculated NDAs..." "...shall be undertaken to accurately redistribute the NDA between the resultant properties and...". Also need to add: "The new NDAs may be recalculated on any <u>apportionment</u>, as long as the total of all the NDAs does not exceed the NDAs of the parent title as set out in condition X.</p>		<p><u>Agreed to altered wording</u></p>
22	<p>Soil Management</p> <p>(a) The consent holder shall use, where practicable, direct drilling as the principal method for establishing pastures; and</p> <p>(b) On the irrigation area the consent holder shall, where practicable, sow and irrigate all cultivated areas as soon as possible following ground disturbance.</p>	<p>Agree</p>		
23	<p>The water quality of the Quailburn Stream shall be monitored as follows:</p> <p>(a) Location:</p>	<p>Needs to clearly state when this should start.</p> <p>A map should be provided to show locations. Full</p>		

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	<p>Map reference:H39: 646-364 co-ordinates immediately upstream of all irrigation takes on Quailburn Stream</p> <p>Map reference: H39: 655-354 co-ordinates downstream of the discharge</p> <p>Note: Unless otherwise agreed the coordinates for Quailburn Stream monitoring shall be as specified – but provided the two characteristics of the monitoring points are adhered to (being upstream of all intakes and downstream of all intakes) then within those parameters the consent holder may vary the actual coordinates with the prior agreement of Ecan so as to more appropriately monitor the localised river effects arising from the exercise of this take consent</p> <p>(b) Water quality variables to include: (a)dissolved inorganic nitrogen (b)dissolved reactive phosphorous (c)Dissolved oxygen (d) conductivity (e)conductivity (f) turbidity; (g) periphyton biomass as chlorophyll a per square metre;(h) ecoli</p> <p>(c) This monitoring may be carried out on an individual basis, or may be prepared in collaboration with other consent holders, or on a collective basis by a suitable independent body appointed by all relevant consent holders in the sub catchment.</p> <p>(d) Frequency of monitoring: Quarterly during the months of November, February, May and August in each year</p> <p>(e) Methods: The methods of sampling and analysis shall be those that are generally accepted by the scientific community as appropriate for monitoring river water quality and periphyton biomass. The methods of sampling shall be documented and made available to the Canterbury Regional Council on request.</p> <p>(f) The water quality monitoring shall be undertaken by a suitably qualified and/or experienced person who demonstrates that they understand the appropriate methods to use for surface water quality sampling, including preservation of samples. That person shall certify in writing that each batch of samples has been sampled and preserved in accordance with generally accepted scientific methods. A copy of those certifications and the person's qualifications shall be provided to the Canterbury Regional Council on request.</p> <p>(g) The laboratory undertaking analyses shall be accredited for those analyses by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has Mutual Recognition Agreement with IANZ.</p> <p>The results of all sampling shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager by 30 May each year. This shall include copies of reports from the laboratory that undertook the analyses.</p>	<p>eight digit map references preferable. Ideally map reference s should also include current NZTopo map references.</p> <p>Don't consider that a secondary approval is appropriate, but an alternative approach would be to state "at or about" to give some flexibility. Locations should be specific to the irrigation areas.</p> <p>phosphorus E. coli</p>		<p><u>Map is in the FEMP and has been supplied</u></p>
24	<p>The initial monitoring shall be carried out in the first calendar year following the grant of consent using the methodology set out above to determine the environmental trigger levels for condtion 21 which shall either be the trigger levels set out below or the initial annual average sample results for DIN/DRP levels whichever is the higher</p>	<p>What initial monitoring? Where is this specified? Are some proposed conditions missing or is this</p>		<p><u>As this is an existing consent the monitoring which Boraman reported on will be continuining – I have phrased this as initial monitoring – rather than pre-irrigation monitoring because that would be</u></p>

		left over from an earlier conceptual approach?		misleading for existing irrigators
25	<p>(a) If the monitoring undertaken in accordance with condition 20 shows that the average sample result for any of the two Quailburn Stream monitoring sites located at H39: 646-364 and H39: 655-354 (as shown on the attached map (Appendix E), over the annual period (November to August test results as above) in any year is greater than 0.14 mg/l of DIN; or 0.006 mg/l DRP; or 90 mg chl a/ m² (early warning trigger) but does not exceed 0.18 mg/l of DIN; or 0.007 mg/l DRP; or 120 mg chl a/ m²), (OR if the initial monitoring shows that the DIN/DRP levels are higher than the ANZECC guidelines then initial actual annual average sample results shall be substituted for the trigger levels) (environmental standard trigger), the consent holder shall prepare a report into the cause of the breach of the early warning trigger. The report shall be prepared by an expert review panel consisting of two qualified and experienced independent scientists. One of the scientists shall be nominated by the Canterbury Regional Council, and the other shall be appointed by the consent holder.</p> <p>(b) The report shall:</p> <ul style="list-style-type: none"> i. include the experts' conclusion on whether the exceedence(s) were as a result of natural influences, one off events, or in whole or part by nutrient loss associated with the irrigation authorised by this consent; and ii. include an assessment as to whether there is likely to be a continuation of the monitored results; iii. be completed by 30 July following the sampling; and iv. be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling. <p>(c) If the authors of the report prepared in accordance with clauses (a) and (b) conclude, after considering all the relevant available information, including on-site monitoring, sub-catchment monitoring, and catchment resource consent compliance and audit reports made available by the Canterbury Regional Council, that the cause of the breach of the early warning trigger was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent, or if the report concludes that it is unlikely that there is a trend towards exceedence of the environmental standard trigger pertaining to the Quailburn Stream monitoring sites, then no further action needs to be undertaken by the consent holder, and no nutrient load reductions and investigations shall be required, if.</p> <p>(d) If the monitoring undertaken in accordance with condition 20 shows that the average sample result for any of the two Quailburn Stream monitoring sites, located at H39: 646-364 and H39: 655-354 (as shown</p>	<p>What initial monitoring?</p> <p>Should clarify "If both authors of the report..."</p> <p>No Appendix E provided.</p> <p>Needs to be a compounding requirement for continuing breach e.g., "The NDA reduction shall compound on any currently reduced NDA."</p>		<p>It specifies the plural – if only one concludes then the applicant is not meeting condition</p>

<p>on the attached map (Appendix E), over the period December to April is greater than 0.14 mg/l of DIN; or 0.006 mg/l DRP; or 90 mg chl a/ m² (early warning trigger) but does not exceed 0.18 mg/l of DIN; or 0.007 mg/l DRP; or 120 mg chl a/ m² (environmental standard trigger), then the property nutrient load (NDA), as specified in condition 19, shall be reduced by 5% x Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the total authorised irrigation area developed for irrigation at the time of the exceedence under this resource consent divided by the total farm area (being 190 hectares on a total farm area of 2,200 ha)</p> <p>(e) Unless the experts conclude that the exceedence was caused by an event or activity other than nutrient loss associated with the irrigation authorised by this consent or if the experts conclude that it is unlikely that there is a trend towards exceedence of the environmental standard trigger pertaining to the Quailburn Stream monitoring sites, then the consent holder shall prepare a Remedial Action Plan.</p> <p>(f) The Remedial Action Plan shall set out the methods and timeframes for altering and/or adapting farm land use practices to ensure that the exceedence in the early warning trigger pertaining to the Quailburn Stream monitoring site, is returned <u>as soon as practicable</u> to and maintained below the average sample results of 0.14 mg/l of DIN; or 0.006 mg/l of DRP; or 90 mg chl a/ m² (early warning trigger) for the Quailburn Stream monitoring site, over the period December to April.</p> <p>(g) The Remedial Action Plan shall be prepared by a suitably qualified and experienced person using <u>Overseer or an equivalent method to demonstrate</u> that the actions to be undertaken will achieve the necessary nutrient reductions <u>as soon as practicable</u>;</p> <p>i. If the Remedial Action Plan outlined in clauses (e) and (f) is prepared in collaboration with other consent holders who are required to prepare a Remedial Action Plan for this sub catchment the Remedial Action Plan shall be deemed to comply with this condition</p> <p>ii. Any actions required by the Remedial Action Plan shall be incorporated into the consent holders FEMP. The amended FEMP shall be immediately implemented.</p> <p>iii. The consent holder shall provide the Canterbury Regional Council with the Remedial Action Plan and an amended FEMP upon request.</p> <p>If a required reduction in nutrient load is in effect under clause (d) and monitoring for that period shows that the average sample results for the Quailburn Stream monitoring site over the period December to April is less than 0.14 mg/l of DIN; or 0.006 mg/l of DRP; or 90 mg chl a/ m² (early warning trigger), then for the subsequent season no property NDA reduction shall be required under this condition.</p>	<p>Should be ...”both conclude...”</p> <p>Need to add “as soon as practicable” after “... is returned...”.</p> <p>“approved” should be deleted and the sentence changed to “...using Overseer or an equivalent method...” Change “show” to “demonstrate”. Add “as soon as practicable” after “...reductions...”</p> <p>Needs a condition number.</p>		<p>Comment as above</p> <p>Agreed see tracked changes</p> <p>See tracked changes</p>
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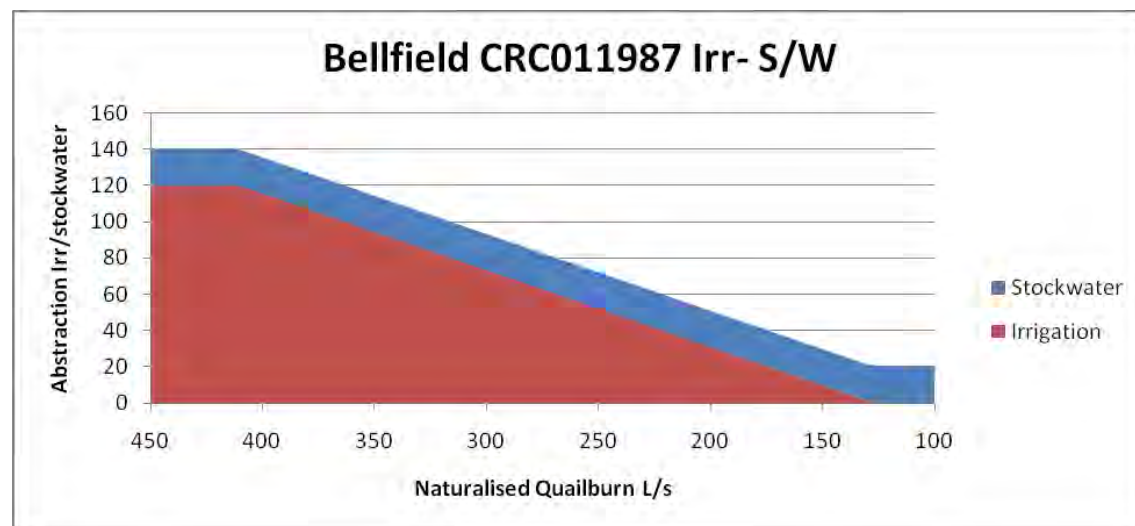
Deleted: approved methods, such as Overseer[®] to show

26	<p>Monitoring of Ahuriri Arm of Lake Benmore and Lower Lake Benmore</p> <p>The water quality of the Ahuriri Arm of Lake Benmore and Lower Lake Benmore shall be monitored <u>from the commencement of consent</u> as follows:</p> <p>(a) Locations:</p> <p style="padding-left: 20px;">Ahuriri Arm, Map reference: NZMS 260 [] (NZTopo50 CA16:7828-7366) (as shown on the attached map (Appendix F))</p> <p style="padding-left: 20px;">Lower Lake Benmore, Map reference: NZMS 260 H39:8802-2371 (NZTopo50 CA16:7808-6205) (as shown on the attached map (Appendix F))</p> <p>(b) Depths: depth integrated 0-10m, 25m, 50m</p> <p>(c) Water quality variables: (a) total nitrogen; (d) ammonia; (e) nitrate; (f) nitrite; (g) total Kjeldahl nitrogen; (h) total phosphorus; (i) dissolved reactive phosphorus; (j) Secchi disc depth; (k) chlorophyll a.</p> <p>(d) Calculated key water quality variable: Trophic Lake Index (TLI), using the following equations:</p> <p style="padding-left: 20px;">(i) $TLc = 2.22 + 2.54 \log(\text{chlorophyll } a)$</p> <p style="padding-left: 20px;">(ii) $TLp = 0.218 + 2.92 \log(\text{total phosphorus})$</p> <p style="padding-left: 20px;">(iii) $TLn = -3.61 + 3.01 \log(\text{total nitrogen})$</p> <p style="padding-left: 20px;">(iv) $TLI = \frac{\sum (TLc + TLp + TLn)}{3}$</p> <p>(a) Frequency of monitoring: Once per month from 01 December to 30 April each year, with a minimum of three weeks between sampling.</p> <p>(b) Methods: The methods of sampling and analysis shall be those that are generally accepted by the scientific community as appropriate for monitoring lake water quality. The methods of sampling shall be documented and made available to the Canterbury Regional Council on request.</p> <p>(c) The water quality monitoring shall be undertaken by a suitably qualified and/or experienced person that demonstrates that they understand the appropriate methods to use for lake water quality sampling, including depth integrated sampling, and preservation of samples. That person shall certify in writing that each batch of samples has been sampled and preserved in accordance with generally accepted scientific methods. A copy of those certifications and the person's qualifications shall be provided to the Canterbury Regional Council on request.</p> <p>(d) The laboratory undertaking analyses shall be accredited for those analyses by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has Mutual Recognition Agreement with IANZ.</p>	<p>Needs to clearly state when this should start.</p> <p>Incorrect map reference.</p> <p>Correct spelling is "Kjeldahl"</p> <p>Condition numbering error, (a) should be (e)...</p>	<p><u>From commencement of consent</u></p> <p><u>See tracked changes</u></p> <p><u>agreed</u></p>	
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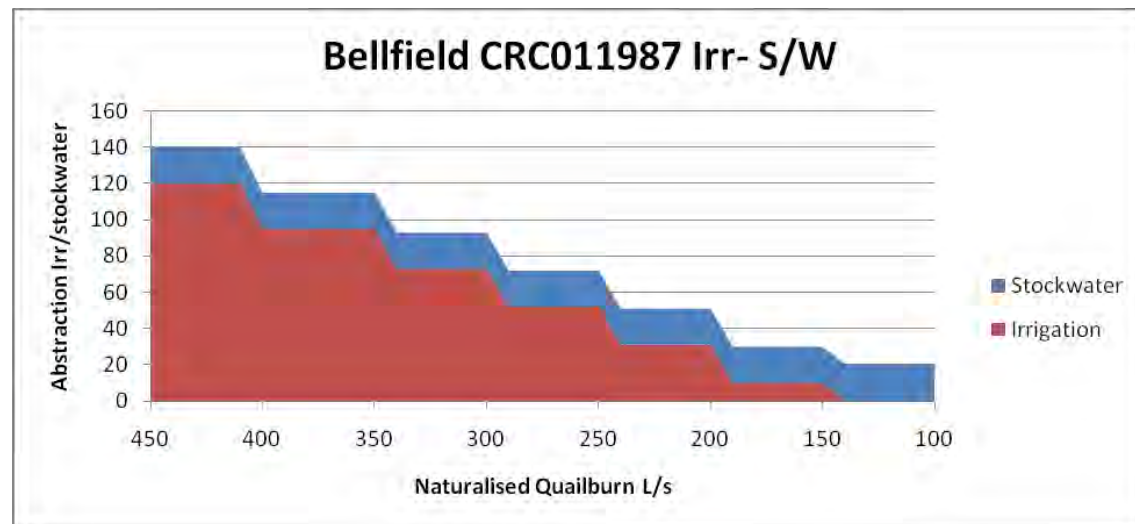
	(e) The results of all sampling including calculated average summer TLI shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager by 30 May each year. This shall include copies of reports from the laboratory that undertook the analyses.			
27	<p><i>Advice Note: It is anticipated that all consent holders subject to this condition would coordinate and cooperate together to ensure that the lake water quality monitoring is undertaken and the costs of that monitoring is shared between those consent holders. The Canterbury Regional Council will provide resources to facilitate that coordination and the costs of that facilitation will be recoverable from the relevant resource consent holders as a cost of supervising and administering the resource consents.</i></p> <p><i>Any non-compliance with water quality monitoring requirements would be a matter for all relevant consent holders.</i></p>	<p>This should be an advice note to the previous condition and not have a condition number.</p> <p>Advice note needs clarifying: "...matter for all relevant consent holders, jointly and severally."</p>	<p><u>Agreed but do not agree that individual liability should attach to this consent holder for all payments and for reasons already stated that is a commercial matter</u></p>	
28	<p>Trigger Response Condition:</p> <p>(a) If the monitoring undertaken in accordance with condition (xx) shows that the average TLI for the 1 - 10 m depth integrated samples for the Ahuriri Arm site over the period December to April is greater than 2.75 (early warning trigger) but does not exceed 3.0 (environmental standard trigger), then the property nutrient loads, as specified in condition (xx), shall be reduced temporarily by 5% x the Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area developed for irrigation under this resource consent divided by the total farm area being 190 hectares on a total farm area of 2,200 ha</p> <p>(b) If the monitoring undertaken in accordance with condition (28) shows that the average TLI for the 1 - 10 m depth integrated samples over the period December to April is greater than 2.75 but does not exceed 3.0, then a report into the cause of the breach of the early warning trigger shall be prepared by a person with an appropriate post-graduate science qualification, by 30 July following the sampling. A copy of this report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.</p> <p>(c) If a reduction in nutrient loading is required under any part of this condition and monitoring in the period that that reduction applies shows that the average TLI for the 1 – 10 m depth integrated samples for the monitoring site over the period December to April continues to be greater than 2.75 but does not exceed 3.0 then there shall be a further property nutrient load reduction of 5% x IPF for the subsequent irrigation season.</p> <p>(d) The above nutrient load reductions and investigation</p>	<p>Reporting officer recommendation was for an early warning trigger of 2.8 on the basis that existing data indicates current summer mean TLI could be as high as 2.9. Refer to Second Addendum S42A of Dr Freeman.</p> <p>There is no condition 28. Needs to refer to both monitoring sites.</p> <p>Reference to TLI of 2.75 incorrect.</p> <p>Condition number reference incorrect.</p>		

	<p>(condition 29 (a)-(c)) shall not be required if a two person expert panel with one expert nominated by the Canterbury Regional Council both conclude after considering all the relevant available information including catchment resource consent compliance, FEMP compliance monitoring pertaining to this consent and audit reports made available by the Canterbury Regional Council, that the cause of the breach of the early warning trigger was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent.</p> <p>(e) If a required reduction in nutrient load is in effect under this condition and monitoring for that period shows that the average TLI for the 1 – 10 m depth integrated samples for the monitoring site over the period December to April is less than 2.75, then for the subsequent season the full NDA for the property, as specified in condition (17) shall be restored.</p> <p>(f) If the monitoring undertaken in accordance with condition (28) shows that the average TLI for the 1 - 10 m depth integrated samples for the Ahuriri Arm monitoring site over the period December to April is greater than 3.0 (environmental standard trigger), then the property nutrient load, as specified in condition (17), shall be reduced by 10% x Irrigation Proportion Factor (IPF) for the irrigation season subsequent to the monitoring period. The IPF shall be the proportion of the area authorised for irrigation under this resource consent divided by the total farm area, as specified in Appendix C.</p> <p>(g) If the monitoring undertaken in accordance with condition (28) shows that the average TLI for the 1 - 10 m depth integrated samples over the period December to April is greater than 3.0 for either the Ahuriri Arm or the Lower Benmore monitoring sites, then a report into the cause of the breach of the environmental standard trigger shall be prepared by a person with an appropriate post-graduate science qualification, by 30 July following the sampling. A copy of this report shall be provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, by 30 August following the sampling.</p> <p>(h) If a reduction in nutrient loading is required under any part of this condition and monitoring in the period that that reduction applies shows that the average TLI for the 1 – 10 m depth integrated samples for the Ahuriri Arm monitoring site over the period December to April continues to be greater than 3.0 then there shall be a further property nutrient load reduction of 15% x IPF for the subsequent irrigation season and rising to 20% for any further irrigation season</p> <p>(i) The above nutrient load reductions and investigation (condition 30 (a)-(c)) shall not be required if a two person expert panel with one expert nominated by the Canterbury Regional Council both agree that the cause of the breach of</p>	<p>Needs to refer to both monitoring sites. Reference to condition 17 is incorrect. Should refer to a re-written condition currently unnumbered between conditions 12 and 13. Reference to TLI of 2.75 incorrect. Condition number references incorrect.</p> <p>Reference to condition 17 is incorrect.</p> <p>No Appendix C provided</p> <p>Condition number reference incorrect.</p> <p>10%, 15% 20% reduction approach would mean a relatively slow response, compared to a standard 20% reduction approach.</p> <p>Condition number reference incorrect.</p> <p>Condition clause number?</p>		
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	<p>the environmental standard was unlikely to have been caused in whole or in part by nutrient loss associated with the irrigation authorised by this consent.</p> <p>If a required reduction in nutrient load is in effect under this condition and monitoring for that period shows that the average TLI for the 1 – 10 m depth integrated samples for the Ahuriri Arm monitoring site over the period December to April is less than 3.0, then for the subsequent season no property nutrient load reduction shall be required under this condition.</p>			
29	<p>The Canterbury Regional Council may, once per year, on any of the last 5 working days of March or July serve notice of its intention to review the conditions of this resource consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the resource consent and which it is appropriate to deal with at a later stage, including</p> <p>(a) any cumulative adverse effect on a waterway arising from abstractions; and</p> <p>amending the flow in the Quailburn Stream and tributaries at which abstraction is required to be reduced or discontinued as set out in condition 5.</p>	Agree		
30	<p>The lapsing date for the purposes of section 125 shall be [between 5 years and 5 years three months, date set for each quarter].</p>	From when?	<p><u>As a renewal this consent will be exercised forthwith – statutory timeframe is acceptable</u></p>	



Sharing Scenario



Managed Scenario

Conditions for discharge permit CRC012733(Bellfield Land Company Limited - Quailburn)		
Expiry date sought – 35 years		
No.	Proposed Conditions	ECan Comments
1	<p>(a) Water shall only be discharged from the irrigation and stock water race into Quailburn & Cookers Pond at or about map reference NZMS 260 H39:648-362 and H39:650-347as shown on Plans “CRC012733”</p> <p>(b) The water shall be unused irrigation and stock water and shall contain no containinants.</p> <p>Water shall only be discharged at a rate not exceeding 140 litres per second.</p>	Agreed
2	<p>(a) All practicable measures shall be undertaken to avoid erosion of the bed or banks of Quailburn and Cookes Pond occurring as a result of the discharge.</p> <p>(b) In the event of any erosion occurring to the bed or banks of the unnamed water channel, as a result of the discharge, the consent holder shall be responsible for rectifying the situation as soon as practicable.</p>	Agreed
3	The discharge shall not occur in a manner likely to cause erosion of, or instability to, the banks or bed of Quailburn and Cookes Pond; or reduce the flood-carrying capacity of the waterway	Agreed
4	The discharge, after reasonable mixing, shall not cause a change in the colour or a reduction of the clarity of the receiving water body.	Agreed
5	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 the consent and which it is appropriate to deal with at a later stage.	Agreed

6	The lapsing date for the purposes of section 125 shall be [between 5 years and 5 years three months, date set for each quarter].	Agreed
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Plan "CRC011987

