

GLEN EYRIE DOWNS – WATER TAKE, USE AND INTAKE STRUCTURE

WATER TAKE CONDITIONS

CRC040835

1. Consent is granted for a term expiring on the 30th of April 2025.
2. Water shall only be taken and / or diverted from Lake Ohau located at or about map reference NZMS 260 H38:621-522 on the property referred to as Glen Eyrie Downs.
3. Water for irrigation shall only be taken between 1 September and the following 30 April and only in accordance with the maximum rate, daily volume (being from 12.01am to 11.59pm) and annual volume (measured between 1 July and the following 30 June) set out in Table A.

Table A – Maximum Rates & Volumes

Year	Maximum rate of abstraction (litres / second)	Maximum Daily Volume (cubic metres / day)	Maximum Annual Volume (cubic metres / year)
1 September 2009 to 30 April 2010	1,200 l/s	103,190 m ³ /day	12,285,500 m ³ /annum
1 September 2010 to 30 April 2011	1,200 l/s	103,190 m ³ /day	12,285,500 m ³ /annum
1 September 2011 to 30 April 2012	1,200 l/s	103,190 m ³ /day	12,285,500 m ³ /annum
1 September 2012 to 30 April 2013	1,200 l/s	103,190 m ³ /day	12,285,500 m ³ /annum
1 September 2013 to 30 April 2014 and every year thereafter	1,200 l/s	103,190 m ³ /day	12,285,500 m ³ /annum

4. Water allocated in Table A of Condition (3) shall be used only for the spray irrigation of **pasture and crops** to irrigate **2,068** hectares within a command area of **2,135** hectares on the area of land at or about H39:628-457.
- 4a. Water for stockwater supply shall be taken between 1 July and the following 30 June and only in accordance with a maximum rate of **27 litres per second**, maximum daily volume of **490** cubic metres per day (being from 12.01am to 11.59pm), and a maximum annual volume of **122,500** cubic metres per annum (measured between 1 July and the following 30 June).
5. The taking of water in terms of this consent shall cease for a period required by the owner and/or operator of the Waitaki Power Scheme, where the owner and/or operator considers it necessary to undertake maintenance on, to ensure

the structural integrity and safety of, or to avoid risk or compromise to the operation of, the Waitaki Power Scheme.

Advice Note:

Any transfer or variation of this consent or its conditions that alters the volume or location of the take (or any replacement application) is likely to require the approval from the holder of the consents to operate the Waitaki Power Scheme.

Advice Note:

The Waitaki Power Scheme means the works including hydraulic control structures, dams, canals, water diversions, penstocks, spill weirs, spill gates, bypass valves, sluice gates, power stations and generating plant, associated ancillary land and structures and resource consents and other rights held by Meridian Energy to utilise the waters and tributary inflows of Lakes Tekapo, George Scott, Pukaki, Ohau, Ruataniwha, Benmore, Aviemore and Waitaki to generate electricity.

Lake Level

6. Abstraction shall cease whenever the lake level is below 519.45 metres above mean sea level.

Metering

7. The consent holder shall, before the first exercise of this consent:
 - (a) (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 Lake Ohau is measured; and
 - (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).
 - (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:
 - (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
 - (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.

- 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.
8. The water meter and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.
9. 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.
10. 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 $\pm 5\%$.
11. The consent holder shall, within one month of any water meter and recording device(s) being installed, or within one month of any water meter and/or recording device(s) being replaced, and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, 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 water meter and recording device(s) has been installed in accordance with the manufacturers specifications; and
 - (b) data from the recording device can be readily accessed and/or retrieved in accordance with conditions 7 and 8.
12. The water allocated for irrigation and stockwater in conditions 4 and 4a will be metered, recorded and reported separately to the Canterbury Regional Council in accordance with conditions 7, 8, 9, 10 and 11.
13. The Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) shall be informed immediately on first exercise of this consent by the consent holder.

WATER USE

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1. Water for irrigation shall only be used on or applied to land that is subject to a memorandum of encumbrance that complies with the requirements of the agreement entitled "*Agreement in Relation to the Allocation of Water for Irrigation*" between Meridian Energy Limited and the Mackenzie Irrigation Company Limited dated the 31st of October 2006.
2. The consent holder shall, six months prior to this consent being exercised, provide to the Canterbury Regional Council a certificate from the Consent Holder's solicitor certifying that the memorandum of encumbrance provided for in Condition 1 is registered on the computer registers for the land shown on Plan x, and any other evidence of registration as the Canterbury Regional Council may require (if any).
3. 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.
 - (d) If the irrigation system used to distribute water taken in terms of this permit is used to distribute effluent, fertiliser or any other added contaminant, a backflow preventer manufactured in accordance with AS 2845.1 (1998) or the American Society of Sanitary Engineers standards shall be installed within the pump outlet plumbing or within the mainline, to prevent the backflow of water into the bore.
 - (e) The backflow preventer shall be tested to the standard set out in AS 2845.3 (1993) or an equivalent method within one month of its installation and annually thereafter by a suitably qualified person. A test report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two weeks of each inspection.

Farm Management Standards

4. The Nutrient Discharge Allowance for Glen Eyrie Downs shall be:

Node Point	Total N Discharge from this Farm (kg/year)	Total P Discharge from this farm (kg/year)
Wairepo groundwater	38,139	2,344
Wairepo Creek surface water	66,968	1,724
Quail Burn surface water (periphyton)	65,727	3,172
Quail Burn groundwater	64,900	3,792
Quail Burn surface water (ANZECC)	69,656	2,758

Ahuriri River at Ahuriri Arm of Lake Benmore (periphyton)	67,175	1,931
Ahuriri River at Ahuriri Arm of Lake Benmore (ANZECC)	72,054	3,792
Ahuriri Arm of Lake Benmore	50,030	1,621

Nutrient losses from the farm shall be monitored at each node point by the consent holder in accordance with condition 5, to verify that nutrient losses remain below the specified allowance.

5. Monitoring of compliance with the Nutrient Discharge Allowance at each node identified in condition 4 shall be undertaken by the consent holder by:
 - (a) annual use of OVERSEER, or an approved equivalent, with relevant details from the farm management diary, to estimate annual nutrient losses; and
 - (b) continuous monitoring of nutrient losses using approved monitoring methods and annual analysis of the data to calculate the annual nutrient loss at farm scale.
6. The consent holder shall prepare a nutrient budget annually for Glen Eyrie Downs. A nutrient budgeting tool will be used to determine fertiliser requirements and inputs from non-fertiliser sources of nutrients. Records shall be maintained throughout the year (including farm management practices and associated data) that will be used as input to the approved method of nutrient budgeting.
7. The consent holder shall ensure that fertiliser is applied in accordance with 'The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07'. Fertiliser spreaders shall be tested and calibrated by the consent holder at least annually, and every 5 years by an appropriately qualified independent auditor.
8. The consent holder shall ensure that all new irrigation infrastructure shall be designed and accredited by a qualified professional, and installed in accordance with the accredited design. The design shall take into account the specific requirements of Glen Eyrie Downs soil types.
9. If existing irrigation infrastructure is being used, the consent holder shall obtain an evaluation report prepared by a certified irrigation evaluator. The evaluation shall determine the system's current performance in accordance with the Code of Practice for Irrigation Evaluation 2005. This report shall be obtained within three months of the first exercise of the consent. Any recommendations identified in the report shall be implemented within 12 months from the date of receipt of the report. A copy of the report shall be given to the Canterbury Regional Council: attention the Compliance and Enforcement Manager.
10. The consent holder shall ensure that all irrigation infrastructure shall be tested and calibrated by the consent holder once during the first year and then every 5

years in accordance with the Code of Practice for Irrigation Evaluation 2005 by a certified irrigation auditor. The irrigation auditor shall prepare a report outlining its findings and recommendations. Any recommendations identified shall be implemented within 12 months from the date of receipt of the report. A copy of the report shall be given to the Canterbury Regional Council: attention the Compliance and Enforcement Manager.

11. The consent holder shall maintain records for Glen Eyrie Downs in relation to the type of crop, cultivation methods, nutrient inputs and yields. Such records are to be used as inputs to the OVERSEER model.
12. The consent holder shall ensure that no outdoor stock grazing occurs between 1 April – 31 October in any year and during that period all stock shall be housed in barn/cubicle systems with feed supplied.
13. The consent holder shall ensure that nitrogen fertiliser is not be applied to land between 31st May and 1st September in any year.
14. The consent holder shall ensure that once every three years soil testing is undertaken to account for all sources of nutrients, including applied effluents and soil reservoirs and shall achieve the following standards:
 - (a) Representative average soil concentrations of Olsen P shall not exceed 23 mg phosphorous per kilogram of soil (dry weight).
15. The consent holder shall ensure that all fertiliser brought onto the property and stored in a covered area that incorporates all practicable measures to avoid accidental spillages of fertiliser entering waterways.
16. The consent holder shall identify within the property a fertiliser filling area, the identified fertiliser area shall be at least 50m from a watercourse, spring or bore and will have no drains that discharge to clean water or that can discharge straight to ground.
17. If liquid fertilisers are used, the consent holder shall ensure that the fertiliser is stored in a bunded tank to avoid any discharge to surface or groundwater and such that it is also protected from vehicle movements.
18. The consent holder shall ensure that a no grazing riparian margin of at least 5 metres shall be maintain adjacent to all surface water bodies on the property.
19. The consent holder shall ensure that stock are excluded from entering all surface water bodies on the property by fencing and or other effective means.
20. The consent holder shall ensure that all riparian margins identified in condition 18 are planted with appropriate plant species to achieve nutrient stripping requirements. The planting shall consist of, but not limited to:
 - (a) Trees and shrubs along the outer zone of the riparian planted area; and
 - (b) Sedges, flaxes, indigenous grasses along the stream margin.

- 20(a) To achieve the obligations set out in condition 20 a planting plan shall be prepared by the consent holder, having taken advice from an appropriately qualified ecologist in order to assist in the preparation of this Plan. This plan shall be submitted to the Canterbury Regional Council for certification prior to giving effect to this consent.
21. The consent holder shall implement a monitoring and maintenance programme to ensure the planting undertaken in condition 20 is successful. The monitoring and maintenance programme shall consist of:
- (a) Three monthly monitoring for mortality of any plants during the first year post implementation of the farm system, and then six monthly for a period of two years. Any gaps in the vegetation cover will be replaced.
 - (b) Six monthly monitoring for visible woody weeds (eg gorse, broom, pines). Any woody weeds detected within the riparian buffer zone shall be removed. Once full vegetation cover required by condition 20 has been achieved monitoring for woody weeds can be reduced to annually.
 - (c) Monitoring specified in (a) and (b) shall continue until 90% vegetation cover has been achieved.

Farm Environmental Management Plan (FEMP)

22. The consent holder shall prepare for the approval of the Canterbury Regional Council a FEMP as is required to give effect to this consent. The objectives of the FEMP are to:
- (a) ensure the proposed farm system for Glen Eyrie Downs can meet the nutrient requirements set out in condition 4 above, and
 - (b) identify and mitigate other farm specific environmental risks that are unique to Glen Eyrie Downs and the farm management system that is proposed for this property.
23. The FEMP shall set out the approach to farm management, monitoring and mitigation that will be implemented by the consent holder to address the actual and potential effects on water quality arising from nutrient runoff.
24. The FEMP shall include use of OVERSEER or an alternative industry standard to model current and proposed (without additional mitigation) farming systems on Glen Eyrie Downs to determine the nutrient reduction required, and changes to farm management practices or farm systems.
25. The FEMP shall include a Farm Environmental Risk Assessment (FERA) for the identification and mitigation of site specific environmental risks and triggers unique to Glen Eyrie Downs.
26. The FEMP for Glen Eyrie Downs shall include an on-farm monitoring plan describing the location, frequency and parameters to be monitored and the 'triggers' if applicable to require a specific mitigation task to be adopted. On farm monitoring and mitigation by the consent holder shall be in general accordance with Table 1 below.

Table 1: On-Farm Monitoring

On-farm	Location	Frequency	Measured parameters to be included	Triggers	Mitigation
Soil	All blocks in rotation	1 in 3 years	Standard suite of soil nutrients, pH, C, N and organic matter	Olsen P of 23	Reduce or stop addition of P fertiliser to area and monitor.
Soil	All blocks	Annually	Surface and subsoil compaction	Compaction, surface capping	Remove compaction with appropriate tool.
Soil	All blocks	Annually	Runoff from tracks and centre pivot tracks and overland flow through riparian margins	Runoff occurring	Immediately review current runoff mitigation options for pivot tracks. Introduce further runoff removal infrastructure. Runoff through riparian margins should be attenuated through placement of temporary barriers or detention pits for large volumes until source of runoff can be identified and addressed.
Effluent	All blocks receiving effluent	Regularly throughout spreading season	Total N, nitrate, ammonia, dissolved reactive phosphorus, BOD	NA	
Effluent	All blocks receiving effluent	Record each time effluent is spread	Application depth	200kg/ha effluent N including solid fraction	Store solid fraction until exportation can be arranged. Export enough of solid fraction to maintain application at less than 200kg.
Water	On farm bore	2x per year at mid depth of aquifer	Total Nitrogen, nitrate, ammonia, total Kjeldahl nitrogen, total phosphorus, dissolved reactive phosphorus	>2mg/l nitrate-N from current modelled baseline conditions	If groundwater analysis indicates an exceedence of 2mg/l above current modelled baseline, the N application to land should be reduced or stock withheld for longer until a root cause analysis can be conducted.
Water	Entry and exit of Wairepo	Monthly for first couple of years to	Total Nitrogen, nitrate, ammonia, total Kjeldahl nitrogen, total phosphorus, dissolved reactive phosphorus,	No significant decrease in water quality	If comparative surface water analysis indicates a decrease in surface water quality across the property, the degrade determinands should be

		Creek and Serpentine Creek and main tributary on property boundaries	establish patterns	suspended solids	identified, as these will indicate the likely cause of the contamination, while a full root cause analysis is undertaken. If the determinands suggest effluent, then effluent irrigation should cease on the implicated pivots. If the analyses indicate stock encroachment, the stock should be withheld from the connected paddocks.
Water	Irrigation application		Annually in house and 1 in 5 years by an independent	Application uniformity	Optimisation of the irrigator performance will be performed at the time of testing.
Fertiliser	Fertiliser application		Annually in house and 1 in 5 years by an independent	Application uniformity	Optimisation of the spreader performance will be performed at the time of testing.
Pasture	Ground cover all blocks		2 x per year	% Ground cover	Soil nutrient and compaction testing should be performed to identify possible causes.
				>80%	>80%

27. The consent holder shall engage an expert Environmental Scientist to review the FEMP for Glen Eyrie Downs prior to its approval by the Canterbury Regional Council. The expert reviewer shall be nominated and appointed by agreement between the consent holder and the Canterbury Regional Council. The expert reviewer shall prepare a report detailing their findings, and this report shall be part of the documentation submitted to the Canterbury Regional Council.
28. The FEMP for Glen Eyrie Downs and review shall be prepared and submitted to the Canterbury Regional Council six months prior to giving effect to this consent.
29. The consent holder may without changing the objectives of a FEMP seek the approval of the Canterbury Regional Council for any necessary amendment to such a plan on the following terms:
 - (a) The review shall be undertaken in consultation with and be approved by the Canterbury Regional Council.
 - (b) Such review is necessary to give effect to the purpose of the FEMP for Glen Eyrie Downs.
30. The consent holder shall pay all actual and reasonable costs of the Canterbury Regional Council in connection with the review of the FEMP for Glen Eyrie Downs prior to its approval.

Advice Note:

Council approval will be forthcoming to be within 90 working days of receipt of the Farm Environmental Management plan or plans.

31. Adherence to the FEMP shall apply to Glen Eyrie Downs and to any subsequent landholdings resulting from the subdivision of that property so long as that landholding relies on this consent.
32. The consent holder shall implement the FEMP from the date on which water is abstracted to give effect to this consent and henceforth, adhere to the requirements of the FEMP required by condition 22 for the duration of this consent.
33. The FEMP for Glen Eyrie Downs shall include an annual independent auditing process with inputs from the farm operator and other interested parties, such as: the Department of Conservation, Ngai Tahu and New Zealand Fish and Game, to demonstrate that the management practices and mitigation measures planned for the farm are being implemented. The annual auditing process shall include (where appropriate) the following measures:
 - (a) Check the storage of silage for visible signs of discharge and destination of silage liquor
 - (b) Check fertiliser storage and filling area
 - (c) Audit of farm OVERSEER nutrient budget and submission of compliance with thresholds
 - (d) Fertiliser spreader and irrigation testing and calibration 1 in 5 years

- (e) Reconciliation of fertiliser, effluent and soil records with nutrient budget and fertiliser recommendations/
 - (f) Submission and brief interpretation of soil, water quality, supplement and machinery calibration tests, including trigger exceedances.
 - (g) Submission of example irrigation schedules.
 - (h) Annual quadrat testing for % ground cover, submission broad findings.
 - (i) Annual soil compaction survey, submission broad findings and remedials.
 - (j) Annual wet weather survey, submission broad findings and remedials.
 - (k) Annual fertiliser spreader and irrigation testing and calibration.
 - (l) Self certification for application of fertiliser according to code of practice
 - (m) Submission of proof of "approved handler" status.
34. The annual auditing process shall include the preparation of a report to be submitted to the Canterbury Regional Council. The consent holder shall engage an expert Environmental Scientist to review the report prior to its submission to the Canterbury Regional Council. The peer review documentation shall be submitted to Canterbury Regional Council as part of the annual audit report.

Sub-catchment Monitoring and Mitigation

35. Prior to the exercise of this consent the consent holder shall prepare a sub catchment monitoring plan with respect to the necessary off farm monitoring as outlined in the Table 2 below. This plan may be prepared in collaboration with other consent holders in the sub catchment in order to better achieve integrated management. The plan shall specify any pre-implementation monitoring required to confirm baseline conditions, and the required frequency of post implementation monitoring. It shall specify an appropriate methodology for conducting all off farm monitoring. This monitoring plan shall be reviewed and confirmed as being appropriate to meet its purpose by an appropriately qualified Environmental Scientist, prior to being submitted to Canterbury Regional Council for certification. Once certified, the consent holder shall implement this plan and shall continue the monitoring for the duration of the consent.

Table 2 – Sub Catchment Monitoring

	Monitoring Type	Parameter to be measured	Sites to be monitored	Frequency of monitoring
Groundwater	Quality	Total nitrogen, nitrate, ammonia, total Kjeldahl nitrogen, total phosphorous, dissolved reactive phosphorous	All groundwater monitoring bores at mid aquifer depth.	Quarterly. If after 2 years there is consistency between the quarterly samples this can be reduced to twice a year.
	Quality	Total nitrogen, nitrate, ammonia, total Kjeldahl nitrogen, total phosphorous, dissolved reactive phosphorous, suspended solids, pH, and temperature.	All sub catchment nodes	Monthly
Surface water	Quantity	Flow assessed when water quality sampling occurs.	All sub catchment nodes	Monthly with water quality sampling.
	Clarify FRE3	Flow	Stony River, Wairepo Creek, Tekapo River, Greys River	Continuous until FRE3 has been clarified
	Establish that FRE3 is sufficient to remove nuisance algal growths	Periphyton biomass before and after a FRE3 flow event	All sub catchment nodes	One off
	Ecology	Benthic invertebrates, periphyton, macrophytes, and fish. Canada geese (if deemed required in consultation with Fish and Game) and mammalian predators (if deemed required in consultation with Department of Conservation)	All major watercourses on farms.	Annually for macroinvertebrates, macrophytes and fish. Monthly from November – April for periphyton. Birds in consultation with Fish and Game. Mammalian predators in consultation with Department of Conservation.

36. The consent holder shall be levied on an annual basis in order to meet the costs inherent in conducting the Upper Waitaki Catchment monitoring outlined in Table 3. This monitoring may be carried out (i) on a collective basis by a suitable body appointed by all consent holders in the Upper Waitaki Catchment and approved by the Canterbury Regional Council or (ii) by the Canterbury Regional Council. All necessary costs associated with this monitoring shall be met by the consent holders on a proportional basis.

Advice Note:

Where costs are to be met on a proportional basis, this means that an individual consent holder shall meet costs according to a ratio which accounts for the proportion of land irrigated by that consent holder as a percentage of all land irrigated in the Upper Waitaki Catchment.

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Table 3 – Upper Waitaki Catchment Monitoring

	Monitoring Type	Parameter to be measured	Sites to be monitored	Frequency of monitoring
Lakes Tekapo, Pukaki and Ohau	Quality	Vertical profile of temperature, dissolved oxygen, pH, total nitrogen, total phosphorous, ammonia, nitrate, nitrite, total Kjeldahl nitrogen, dissolved reactive phosphorous, Secchi depth, Chlorophyll-a	Lake Tekapo, Pukaki and Ohau	Quarterly
	Lake sediment	Total nitrogen, total phosphorous		Annually
	Ecology	Benthic invertebrates, macrophytes, fish and phytoplankton.		Annually Phytoplankton quarterly
Lake Benmore, Lake Ruataniwha, and Wairepo Arm	Quality	Vertical profile of temperature, dissolved oxygen, pH, total nitrogen, total phosphorous, ammonia, nitrate, nitrite, total Kjeldahl nitrogen, dissolved reactive phosphorous, Secchi depth, Chlorophyll-a	Lake Benmore, Ahuriri Arm, Northern Arm, and near Benmore Dam, Lake Ruataniwha and Wairepo Arm of Lake Ruataniwha.	Monthly
	Lake sediment	Total nitrogen, total phosphorous		Every 3 years
	Ecology	Benthic invertebrates, macrophytes, fish and phytoplankton.		Annually Phytoplankton quarterly
Lake Aviemore and Lake Waitaki	Quality	Vertical profile of temperature, dissolved oxygen, pH, total nitrogen, total phosphorous, ammonia, nitrate, nitrite, total Kjeldahl nitrogen, dissolved reactive phosphorous, Secchi depth, Chlorophyll-a	Lake Aviemore near dam and Lake Waitaki near dam	Quarterly
	Lake sediment	Total nitrogen, total phosphorous		Every 3 years
	Ecology	Benthic invertebrates, macrophytes, fish and phytoplankton.		Annually Phytoplankton quarterly

37. If the monitoring undertaken in accordance with the sub catchment monitoring plan in condition 35 indicates that the nodal readings of Nitrogen and Phosphorous have reached 75% of the value specified in Table 4, then the sampling frequency at that site shall be increased to weekly.
38. If the increased monitoring undertaken in accordance with condition 37 determines that the average of any five of those consecutive weekly results exceeds 75% of the value specified in Table 4 then a report shall be prepared by an appropriately qualified Environmental Scientist and provided to the Canterbury Regional Council within one month of the receipt of such results. The purpose of the report shall be determine whether or not the cause of the exceedance is likely to be because of natural influences, or land use practices. The report shall include an assessment of:
- (a) the likely reasons for the observed increase in nutrient levels, including likely source and contributors (natural sources, or land use influences);
 - (b) the likelihood that the threshold in Table 4 will in fact be exceeded by land use practices; and
 - (c) shall identify the best practicable remedial or management measures considered necessary to ensure the threshold is not exceeded by land use practices.

Table 4 – Sub Catchment Threshold Total N and Total P

	Total N	Total P

39. If the monitoring and reporting undertaken in accordance with condition 38 determines that the consent holder is either solely or partly responsible for the increase in observed nutrient levels measured in the sub catchment, the consent holder shall be responsible for implementing (either wholly or partly, depending on the degree of culpability) the remedial measures outlined in the report prepared in accordance with condition 38(c). Monitoring shall continue on a weekly basis in accordance with condition 37 until such time as the results of that monitoring show that the nodal readings of Nitrogen and Phosphorus have returned to level below 75% of the value specified in Table 4.
40. If the monitoring undertaken in accordance with the sub catchment monitoring plan in condition 35 indicates that the nutrient values outlined in the Table 4 above have been exceeded then:
- (a) The sampling frequency at that site shall be increased to weekly and;
 - (b) If the average of any five of those consecutive weekly results exceeds the thresholds in Table 4 above then a report shall be prepared by an appropriately qualified Environmental Scientist and provided to the Canterbury Regional Council within one month of the receipt of such results. The report shall include an assessment of the likely reasons for the observed increase in nutrient levels, including likely source and contributors.

41. If the monitoring and reporting undertaken in accordance with condition 40(b) determines that the consent holder is either solely or partly responsible for the threshold exceedance then:
 - (a) the annual allocation of water to the consent holder shall reduce by 5% for the irrigation season that is current or which commences subsequent to the identification of the exceedance; and
 - (b) the consent holder shall prepare on either a collective or individual basis a Remedial Action Plan, for the certification of Canterbury Regional Council.
42. The Remedial Action Plan shall prescribe the methods for altering and/or adapting farm practices on one or more of the farms within the affected sub catchment to ensure that the exceedance in water quality standards at the affected site are returned to a level that is below the thresholds identified in Table 4. The Remedial Action Plan shall be verified by an appropriately qualified Environmental Scientist prior to being submitted to Canterbury Regional Council for certification.
43. Once the Remedial Action Plan prepared in accordance with condition 41 has been certified by the Canterbury Regional Council, the consent holder shall implement any necessary changes to on farm management practices required by the Remedial Action Plan. The consent holder shall update their FEMP (if necessary) to include the changes in farm management to be adopted in accordance with condition 42.
44. The consent holder shall continue to monitor water quality at the affected site on a weekly basis, and if the monitoring shows that the threshold limits in Table 4 are not exceeded for a period of two consecutive months then the 5% reduction can be lifted and weekly monitoring can cease. If this monitoring indicates that the thresholds in Table 4 continue to be exceeded the annual allocation of water to the consent holder shall reduce by an additional 5% for every week that the thresholds are exceeded until monitoring shows that these thresholds are achieved.
45. Should the measures undertaken in accordance with condition 44 fail to achieve compliance with the thresholds in Table 4, the Canterbury Regional Council shall review the consent in terms of section 128 of the Resource Management Act 1991.

WORKS IN THE BED OR BANKS OF LAKES AND RIVERS

CRC040836

1. The works shall be limited to:
 - (a) The construction, maintenance and use of an irrigation pump station and intake on the shoreline and lake bed of Lake Ohau at or about NZMS 260 H38:621-522; and
 - (b) The construction, maintenance, and use of a pipeline underneath Maori Creek at or about NZMS 260 H38:617-512.

2. Excavation shall not exceed a depth of 3 metres below the level of the natural lake or river bed prior to excavation.
3. If further excavation at the site in the active lake or river bed is not to occur within seven days following the last working at the site, then the following shall occur:
 - (a) All deposits of gravel, sand and other natural material shall be levelled to the natural bed level;
 - (b) The excavation area shall be reshaped and formed to a state consistent with the surrounding natural river bed.
4. Prior to commencing excavation, a copy of this resource consent shall be given to all persons undertaking activities authorised by this consent.
5. Prior to giving effect to this consent, the consent holder shall obtain any necessary easements from Land Information New Zealand associated with the occupation of Lake Ohau.

Accidental Discovery Protocol

6. The consent holder shall ensure that the following procedure is adopted in the event that koiwi (human remains) or taonga (cultural artefacts) are unearthed or are reasonably suspected to have been unearthed during the course of construction and other activities.
 - (a) Immediately as it becomes apparent, or is suspected by workers at the site that koiwi or taonga have been uncovered, all activity at the site will cease.
 - (b) The plant operator will shut down all machinery or activity immediately, and leave the area and advise his or her supervisor of the occurrence.
 - (c) The supervisor shall take steps to immediately to secure the area in a way that ensures that koiwi or taonga remain untouched as far as possible in the circumstances and shall notify the consent holder.
 - (d) The Project Manager will notify the New Zealand Police (in the case of koiwi) and the relevant runanga representatives that it is suspected that koiwi and/or taonga have been uncovered at the site.
 - (e) The runanga representatives will contact the appropriate kaumatua to act on their behalf in this matter in order to guide and advise the consent holder as to the appropriate course and the consent holder will immediately advise the consent holder of the identity of such kaumatua.
 - (f) The consent holder shall ensure that representatives on its behalf are available to meet and guide kaumatua and police (as appropriate) to the site, assisting with any requests they may make.
 - (g) If the kaumatua are satisfied that the koiwi or taonga are of Maori origin the kaumatua will decide how they are to be dealt with and will communicate its decision to the consent holder, New Zealand Police and such other parties as are considered appropriate.
 - (h) Activity on site shall remain halted until the Police and the kaumatua have given approval for operations to recommence.
 - (i) The consent holder shall ensure that kaumatua are given the opportunity to undertake karakia and such other religious or cultural ceremonies and

activities at the site as may be considered appropriate in accordance with tikanga Maori (Maori custom and protocol).

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Erosion Protection

7. Works shall not cause erosion of the banks and bed of Lake Ohau or Maori Creek.
8. Erosion controls shall be installed on all earthworks to prevent sediment from flowing into any surface water body.
9. Works shall not be undertaken in any manner likely to cause erosion of or instability to, the banks or bed of Lake Ohau or Maori Creek; or reduce the flood-carrying capacity of the waterway.

Sediment Control

10. All practical measures shall be taken to minimise the disturbance of the beds of Lake Ohau and Maori Creek.
11. The consent holder shall adopt the best practicable options to:
 - (a) Minimise soil disturbance and prevent soil erosion;
 - (b) Prevent sediment from flowing into any surface water; and
 - (c) Avoid placing cut or cleared vegetation, debris, or excavated material in a position such that it may enter surface water.
12. At least 20 working days prior to the commencement of the works, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Enforcement and Compliance Manager an Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to the following:
 - (a) a locality map; and
 - (b) detailed drawings showing the type and location of erosion and sediment control measures, on-site catchment boundaries, and off-site sources of run-off; and
 - (c) drawings and specifications of all designated erosion and sediment control measures with supporting calculations; and
 - (d) a programme of works, which includes but is not limited to a proposed timeframe for the works;
 - (e) a schedule of inspections and maintenance of erosion and sediment control measures; and
 - (f) details of when the erosion and sediment control measures are to be established and decommissioned; and
 - (g) measures to ensure that there is no tracking of mud or earth onto the surrounding road network, including the provision of shaker ramps and/or wheel washes where appropriate; and
 - (h) measures to be undertaken should erosion and sediment control measures fail and result in contamination of any watercourse or water body.

13. The ESCP shall be prepared in general accordance with the Environment Canterbury Erosion and Sediment Control Guidelines 2007 (ECAN ESC Guidelines).
14. The ESCP shall be communicated to all persons undertaking activities authorised by this consent and a copy of the ESCP shall be kept on site at all times.
15. The Erosion and Sediment Control Plan and any revisions of that document shall be submitted to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager for certification that the Erosion and Sediment Control Plan meets all the requirements of the conditions of this consent.
16. No activities authorised by this consent shall commence or be undertaken other than in full compliance with the Erosion and Sediment Control Plan that has been certified by or on behalf of the Canterbury Regional Council RMA Compliance and Enforcement Manager in terms of condition 12.
17. Prior to any construction or maintenance works being carried out in the period 1 September to 1 February, the consent holder shall ensure that:
 - (a) a suitably qualified and independent person inspects the proposed area of works, no earlier than eight working days prior to any works being carried out, and locates any bird breeding sites of birds listed in Appendix A;
 - (b) the person carrying out the inspection prepares a written report that identifies all the located bird breeding or nesting sites and provides copies of that report to the consent holder and the Canterbury Regional Council;
 - (c) the name and qualifications of the person carrying out the inspection are provided to the Canterbury Regional Council with the report;
 - (d) any person carrying out works authorised by this consent are informed of any bird breeding or nesting sites located; and
 - (e) where work ceases for more than 10 days, the site will be re-inspected for bird breeding and nesting sites in accordance with parts (a) to (d) of this condition.

Appendix A – list of bird species

South Island Pied Oystercatcher
 Black Stilt
 Pied Stilt
 Wrybill
 Banded Dotterel
 Black-fronted Dotterel
 Grey warbler
 Fantail
 Bellbird
 Silvereve
 Spur-winged Plover
 Paradise Shelduck

Grey Duck
 NZ Shoveler
 Grey Teal
 NZ Scaup
 Black-billed Gull
 Red-billed Gull
 Caspian Tern
 White-fronted Tern
 Black-fronted Tern
 White-winged Black Tern
 Australasian Bittern
 Marsh Crake
 Spotless Crake
 Cormorant/shag colonies
 Or any other bird species deemed by a suitably qualified person to require protection.

18. The consent holder shall ensure that no construction or maintenance work is undertaken within 100m of any bird breeding or nesting sites as identified in accordance with condition 16.
19. To prevent the spread of Didymo or any other aquatic pest, the consent holder shall ensure that activities authorised by this consent are undertaken in accordance with the Biosecurity New Zealand's hygiene procedures.
20. The consent holder shall ensure that during construction:
 - (a) All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.
 - (b) There shall be no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river.
 - (c) Fuel shall be stored securely or removed from site overnight.
21. The consent holder shall ensure that works do not prevent the passage of fish, or cause the stranding of fish in pools or channels.
22. The consent holder shall ensure that machinery shall be free of plants and plant seeds prior to use in the waterbody.

Upon Completion

23. All disturbed areas outside the lake or river bed shall be stabilised and revegetated with similar species to those found in the intermediate vicinity of the particular site following completion of the works.
24. All spoil and other waste material from the works shall be removed from site on completion of works.

Fish Screens

25. The consent holder shall ensure that water is abstracted using a gallery intake and shall be designed to prevent native and exotic fish species from entering the system.

Or alternatively if a piped system is used:

25. The consent holder shall ensure that:
- (a) Water shall only be taken when a fish screen with a maximum mesh width and height size of 3 millimetres or slot width and height of 2 millimetres is operated and maintained across the intake to ensure that fish and fish fry are prevented from passing through the intake screen.
 - (b) The fish screen shall be positioned to ensure that there is unimpeded fish passage to and from the waterway and to avoid the entrapment of fish at the point of abstraction, and to minimise the risk of fish being damaged by contact with the screen face.
 - (c) The fish screen shall be designed and installed to ensure that:
 - i. the majority of the screen surface is oriented parallel to the direction of water flow.
 - ii. where practicable, the screen is positioned in the water column a minimum of 300 millimetres above the bed of the waterway and a minimum of one screen radius from the surface of the water.
 - iii. the approach velocity perpendicular to the face of the screen shall not exceed 0.06 metres per second if no self-cleaning mechanism exists, or 0.12 metres per second if a self-cleaning mechanism is operational.
 - iv. the sweep velocity parallel to the face of the screen shall exceed the design approach velocity.
 - (d) The fish screen shall be designed or supplied by a suitably qualified person who shall ensure that the design criteria specified in condition 25(a)–(c)(iv) of this consent is achieved. Prior to the installation of the fish screen, a report containing final design plans and illustrating how the fish screen will meet the required design criteria, and an operation and maintenance plan for the fish screen shall be provided to Environment Canterbury, Attention: RMA Compliance and Enforcement Manager.
 - (e) A certificate shall be provided to Environment Canterbury by the designer or supplier of the fish screen to certify that the fish screen has been installed in accordance with the details provided to Environment Canterbury in accordance with condition 25(a) of this consent.
 - (f) The fish screen shall be maintained in good working order. Records shall be kept of all inspections and maintenance, and those records shall be provided to Environment Canterbury upon request.