15/RC/86

environment SOUTHLAND
Te Taiao Tonga

The Hearing Panel

15 January 2016
9.00 am

Staff Report for Hearing

The recommendation in the staff report represents the opinion of the writer and it is not binding on the Hearing Panel. The report is evidence and has no greater weight than any other evidence that the Panel will hear and consider.

Hearing of Application – APP-20158099
Schrader Mains Limited

Compiled by Joanna Gilroy, Senior Consents Officer

Hearing: The hearing is scheduled to commence at 9.00 am on Friday, 15 January 2016 in the Council Chambers, Environment Southland, corner of Price Street and North Road, Waikiwi, Invercargill.

Application: Schrader Mains Limited has applied to establish a new dairy farm, to discharge effluent to land, to install a bore and to construct an effluent pond.

Notification: The application was publicly notified on 18 September 2015 and three submissions were received. Two parties wanted to be heard.

Executive Summary: This is an application for discharge permit, water permit and land use consents relating to the establishment of a new dairy farm. As outlined in this report the key issues and areas of agreement are:

1. the application in part is to convert land to establish a new dairy farm. Consent is required for the establishment only, not the ongoing use of land for dairy farming. At present, after a farm is established, then the consent can be surrendered;
2. the receiving environment is sensitive. This is not in dispute by any of the parties;
3. the key issue is the effect of the proposed losses of nitrogen and phosphorus below the root zone, as modelled by Overseer;
4. the losses of nitrogen and phosphorus as modelled could be acceptable in the receiving environment, as there could be a reduction in the net loss of these contaminants from the site. However, this relies on best practice being applied at all times, the effects being as stated in the application and being able to include suitable conditions to the permits to control this;
5. all of the consents could be granted if the activity occurs exactly as modelled. However, the mechanism to ensure this is not clear.

1. Introduction

1.1 Status and purpose of this report

This report has been prepared under Section 42A of the Resource Management Act 1991 (RMA) to assist in the hearing of the application for resource consent made by Schrader Mains Limited. Section 42A allows local authorities to require the preparation of such a report on an application for resource consent and allows the consent authority to consider the report at any hearing.

The purpose of the report is to assist the Hearing Panel in making a decision on the application.

1.2 About the author

My name is Joanna Gilroy. I am a Senior Consents Officer employed by the Southland Regional Council. I have been employed by the Council as a consents officer since October 2012.

I hold the qualifications of a Bachelor of Arts with a Major in Geography and Minor in History and Masters of Planning (Distinction), both from the University of Otago.

I have been involved with the application since it was lodged and received by Council. I have also visited the site.

1.3 Information relied on in preparation of this report

In preparation of this report I have had regard to the following documents:

- resource consent application
- further information requested under Section 92(1) of the RMA
- technical review of the application completed under Section 92(2) of the RMA
- Resource Management Act 1991
- National Policy Statement on Freshwater 2014
- Regional Policy Statement 1997
- Proposed Regional Policy Statement, 2012 (notified version)
- Regional Water Plan 2010
- Regional Effluent Land Application Plan 1998
- Te Tangi a Tauria (Iwi Management Plan) 2008
- Waituna Lagoon Technical Report 2011 and Action Plan 2015

2. The application and procedural matters

2.1 The proposed activities

Applicant:	Schrader Mains Limited
Application:	To establish a new dairy farm; to discharge stand off pad/feed pad effluent and dairy shed effluent to land via a low rate system; to install a bore; to construct an effluent pond and to take and use groundwater.

Site address or location: 514 Rimu Seaward Downs Road

Legal description: Sections 7 and 49 Block II Oteramkia Hundred, Lot 1 DP 12478 and Part Sections 5-6 Block II Oteramika Hundred

Map Reference: NZTM 2000 1264644E, 4851103N

The applicant proposes to:

- convert a 110 hectare dairy grazing (young stock and wintering) operation to dairying;
- discharge dairy shed and feed pad/stand off pad effluent to land via a low rate Larrel Smart Hydrant System;
- take and use 36.2 cubic metres per day of groundwater from a new bore. This water is to be used for dairy shed washdown and stock drinking water for 306 cows;
- construct a synthetically lined effluent pond;
- construct a bore.

The following tables summarise matters relevant to this application:

Property Details:-	
Catchment	Waituna Creek
Total Farm Area (ha)	110 ha 103 ha (effective)
Replacement Consents? Increase in area/cow numbers?	New – conversion

Water Permit Details:-	
Source of water (bore or watercourse)	Bore
Groundwater zone/name of watercourse	Waihopai
Aquifer type (for groundwater takes)	Lowland
Rate of take (L/s)	2
Freshwater storage onsite? How much?	Capacity constrained pump Tanks at shed
Daily volume (litres)	36,720
Consistent with 120 L/cow/day? (estimate of efficient use for shed and stock water use)	Yes
Yearly volume (m^3/year)	13,402
Discretionary allocation (m^3/year)	54,100,000
Amount currently allocated (m^3/year and % of discretionary allocation)	2,875,166 (5.3 %)

Discharge Permit Details:-	
Cow numbers	306
Stocking rate (cows/ha)	2.97
Winter milking proposed?	No
Other sources of effluent?	Stand of/feed pad
Effluent disposal area (ha)	93
Size of disposal area consistent with 4ha/100 cows minimum and 9ha/100 cows best practice?	Yes
Irrigation method	Low rate – Larral system (can be pulsed)
Application rate and depth	Rate of 1mm/hour when pulsed Rate of 10mm/hour and depth 10mm/hour (non pulsed system)
Storage available (m^3)	940
No. days storage? (90 days for high rate and 60 days for low rate systems recommended)	61
Massey pond calculator 90% storage requirement (m^3)	834

Land Use Consent Details:- Pond	
Pond Designer	R D Agritech
Contractor	Not specified
Drawings from engineer supplied	Yes and reviewed by Technical Services Engineer
Method of sealing pond	Synthetic
Location complies with standard buffers	Yes

Land Use Consent : - Conversion			
Activity Status	Discretionary		
Soil Versatility Rating	10		
Farm Plan Category	1		
Nutrient Budget	Current	Proposed	Difference
N Loss to water (kg/ha/yr)	35	29	-4 kg/ha/yr
P Loss to water (kg/ha/yr)	0.4	0.6	+ 0.2 Kg/ha/yr

Land Use Consent Details:- Bore	
Legal description	Lot 1 DP 12478
Map reference	N: 4851096 E: 1264657 (NZTM)
Nearest bore	F46/0856(200 metres)

2.2 Regional Planning framework

Resource consents for the above activities are required under the Regional Water Plan for Southland and the Regional Effluent Land Application Plan.

Regional Water Plan

- The conversion of the land to dairy farming is a **discretionary activity** under Rule 17A.
- The taking and using of groundwater is a **discretionary activity** under Rule 23.
- The construction of the effluent pond is a **restricted discretionary activity** under Rule 49 (a).
- The construction of the bore is a **controlled activity** under Rule 22.

Regional Effluent Land Application Plan

- The discharge of the dairy shed and stand off/feed pad effluent to land is a **discretionary activity** under Rule 5.4.6.

An application for resource consents was lodged with Environment Southland in accordance with these … requirements (attached).

Overall, the application is considered to be a **discretionary** activity. Under Section 104B the hearing panel may grant or refuse consent for a **discretionary activity**, and if it grants the application, may impose conditions under Section 108 of the RMA.

2.3 Further information request

Further information was requested from the applicant on the 29 July 2015. The requested information included:

- a discussion about the use of site specific soil moisture monitoring;
- the number of concrete pads on the site and whether or not they would be used to stand-off and/or feed stock;

- a map reference for the bore and water take;
- a discussion of why effluent was to be discharged to land all year round;
- clarification of cow numbers;
- status of the kale in the Overseer budget;
- potential for contaminants to be mobilised by tile drains; and
- an assessment of the application against the hearing decision version of the Proposed Regional Policy Statement.

… The above information was provided by the applicant (attached).

2.4 Notification and Submissions

The application was publically notified on 18 September 2015. This was for the following reasons:

- Waituna Lagoon (the receiving environment) is an internationally significant environment that is sensitive to any changes to the surrounding land use;
- the risk of harm resulting from any adverse effects that may or may not occur is significant; and
- Council has no certainty about what the effects of the activities on the receiving environment are likely to be.

The above decision to publically notify the application was made under Section 95A(4) of the RMA. This section means that the consent authority considered that the above reasons surmounted to special circumstances.

… Three submissions were received. These are included in the appendices, and are summarised as follows:

- ***Fish and Game New Zealand, Southland Region***

  Fish and Game New Zealand, Southland Region has submitted in opposition to the application and seeks that it is declined. They requested to be heard. However, the submitter has stated that if the Hearing Panel is of a mind to grant consents that:

  - the duration of the discharge permit should be limited to 10 years. This matches the duration of the consent to the level of risk of adverse environmental effects;
  - cows should be wintered out of Waituna.

  In seeking that the application is declined the submitter identifies the values of the Waituna Lagoon, highlights the catchment's sensitivity, its importance as a brown trout fishery and spawning ground for indigenous fish and shellfish species and highlights its recreational use.

  The submitter also references the Waituna wetland's designation as a Ramsar Wetland of International Importance, as a scientific reserve, as a Statutory Acknowledgement Area under the Ngai Tahu Claims Settlement Act 1998 and as a significant wetland in Southland in Appendix B of the Regional Water Plan for Southland.

  The submitter highlights that the subject site comprises of artificially drained land and impeded drainage. The risks associated with these land types is the ability of the drainage systems to rapidly transport nutrients to water bodies or for contaminants to flow overland to waterways.

  The submitter highlights the rapid decline in the condition of the Waituna Lagoon and its now degraded condition. The submitter further refers to the recommendations from the Lagoon

Technical Group (LTG) that it is necessary to significantly reduce current nutrient and sediment inputs from the catchment to ensure the long-term viability of the lagoon, equating to a 50% reduction for both nitrogen and phosphorous.

The submitter believes that the proposal is in contravention of various sections of the Act, policies of the New Zealand Coastal Policy Statement and Regional Council plans and policies.

- ***Department of Conservation***

The Department of Conservation is neutral on the application and does not support or oppose it. They do not want to be heard.

The basis of the submission is concerns about the cumulative effects of land use and discharges on ground and surface water quality, wetlands and ecosystems. The submitter highlights the status of the Waituna Lagoon as part of the Awarua Wetland complex, which is a Ramsar wetland of international importance, and part of the Waituna Wetlands Scientific Reserve, which contains significant indigenous biodiversity values of aquatic and terrestrial flora and fauna. The submitter identifies that the water quality of the lagoon and its associated ecological values are under threat from nutrient leaching and run-off from intensive land uses in the catchment that flow into the Waituna Lagoon.

The submitter highlights that the Waituna catchment is considered to be over-allocated in terms of water quality. The submitter considers that any proposal to convert new dairy farming in this catchment should involve management practices to limit as far as practicable the loss of nutrients to water from that activity and that the introduction of additional dairy cows into the catchment will not risk further detrimental effects on the catchment.

The submitter acknowledges that the applicant proposes to adopt a considerable number of good management practices. However, given that the application relies heavily on modelling showing that there will be no significant increase in nutrient loss from the property following conversion, that the applicant should be held to these management practices that are inherent to the modelling and to the practices set out in the management plan. The submitter wants the conditions of any granted consent to reflect this. The submitter also requests a short consent duration for the permits.

- ***Te Ao Marama Inc***

Te Ao Marama Inc has submitted on behalf of Te Runanga o Waihopai and Te Runanga o Ngai Tahu. The submitter clarifies that the submission should be accorded the status and weight due to the tribal collective, Ngai Tahu Whanui, which it represents. They wish to be heard.

The submission states that the Waituna Lagoon is of immense cultural significance to both Nga Runanga and to Te Runanga o Ngai Tahu as a whole and highlights its Statutory Acknowledgement status. It is also a part of the internationally recognised Awarua wetland complex.

The submitter understands that the Waituna Lagoon is under pressure and is in real risk of changing from an aquatic plant dominated system to an algae dominated system – identified as "flipping". The submitter comments that to avoid "flipping" a number of groups have been initiated to implement actions on the ground.

Te Ao Marama Inc requests that the application be declined, but, if the Hearing Panel is minded to grant the application, stringent conditions need to be imposed which will ensure water quality within the catchment improves.

The applicant provided written approval from the following parties. These parties are adjoining landowners:

- R and H Botting;
- P H Phiskie;
- H and G Amtick;
- Joan Walker;
- A Lawson for Glendoroch Farms Limited;
- W Van Rossum for Van Rossum Limited;
- D K Morton.

2.5 Section 99 pre-hearing meeting

A pre-hearing meeting for the application was held on 12 November 2015, and was chaired by Michael Durand, Team Leader Consents. His report, as per Section 99(5) is attached.

At the pre-hearing meeting it was established that the following were points of agreement between the applicant, submitters and the Council:

- the receiving environment, which includes Waituna Creek and Waituna Lagoon, is sensitive;
- that if the farm is established as set out in the application and that best practice measures are employed then it appears that the conversion will result in a net reduction in nitrogen lost below the root zone of the site when compared to the losses from the existing on-site activities;
- further explanation of the measures to be employed to reduce the losses of phosphorus from the property would be useful;
- that Overseer assumes best practice methods for nitrogen, but not for phosphorus. Therefore, it is likely that further measures offered by the applicant may mean that the conversion results in a net reduction in losses of phosphorus from the site.

The point of disagreement between Council and the applicant and submitters was:

- whether conditions addressing the ongoing operation of a site (section 9 land use activities) can be added to, and effectively enforced by, a discharge permit that authorises the ongoing discharge of effluent to land only (section 15 discharge activity).

3. Assessment

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. Section 104(1) of the Resource Management Act, 1991, states:

> *(1) When considering an application for a resource consent and any submission received, the consent authority must, subject to Part 2, have regard to:*
> *(a) any actual and potential effects on the environment of allowing the activity; and*
> *(b) any relevant provisions of:*
> *(i) a national environmental standard:*
> *(ii) other regulations:*

(iii) a national policy statement:
(v) a regional or proposed regional policy statement:
(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

Those matters which are relevant for this application are discussed in the following sections as follows:

- description of the receiving environment;
- assessment of the actual and potential effect of the activity on the environment;
- relevant provisions of the Regional Water Plan and the Regional Effluent Land Application Plan;
- relevant provisions of the Southland Regional Policy Statement;
- relevant provisions of the National Policy Statements and National Environmental Standards;
- Part 2 of the RMA.

3.1 Description of the affected environment

The subject site is a 110 hectare stock grazing block at 514 Rimu-Seaward Downs Road, Waituna. The site is bounded by Rimu-Seaward Downs Road to the north and Badwit Road to the west. The township of Woodlands lies to the north west of the site. The adjoining land use is agricultural.

The subject site is currently used as a dairy grazing (young stock and cow wintering) and beef unit. Kale is grown on 17 hectares of the site. The site has been modified from its natural state, with tile drains in the paddocks, waterways being fenced, areas of planting along waterways and shelterbelts along the majority of the paddocks. Overseer has been used to model the nutrient losses from the current use of the site. These losses are shown in the table below:

Overseer Block	N loss to water (kg/ha/yr)	P loss to water (kg/ha/yr)
Pastoral - Woodlands	26	0.3
Pastoral - Dacre	17	0.5
Kale	95	0.4
Non-productive	3	0.1
Whole farm	35	0.4

The subject site is located in an area identified as being of concern in regard to the intensification of land use and the effects of this intensification on ground and surface water quality. This is due to the location of the property within the Waituna Creek catchment and wider Waituna Lagoon catchment. As part of the application a comment on the sensitivity of the receiving environment has been included. This comment is included in the application.

Waituna Lagoon is a part of the internationally recognised Awarua Wetland complex. The lagoon and surrounding wetland area are designated as a RAMSAR wetland of international importance. A key commitment under the RAMSAR Convention is to maintain and enhance the ecological health of the wetland. The catchment of the lagoon is small and is intensively farmed. Long-term monitoring shows that the water quality within the lagoon and the surrounding catchments has declined. The primary concerns are the loss of nutrients and sediments from surrounding land use activities.[1] In the Strategy and Action Plan for Waituna released in 2015 it was recognised that a significant cause of the unstable state of the lagoon is *"…the quantity of nutrients and sediment, through the development and intensification of productive agricultural systems in the catchment."*[2]

[1] Strategy and Action Plan for Waituna, August 2015.
[2] Strategy and Action Plan for Waituna, August 2015 page 9.

There is one internal waterway on the site. This is McMillan Creek, which is a tributary of the Waituna Creek. The Waituna Creek subsequently runs along the southern boundary of the property. McMillan Creek has areas of planting down one side, with the other open to provide for drainage maintenance by the Consent Authority.

The subject site is located within the Waituna Creek catchment. There is a Council SOE water quality monitoring site 5 kilometres downstream of the site. Data from SOE sites is collected in order to characterise the state of the waterbodies, so that they can be compared to a set of national indicators. These results show that when compared to other SOE sites across New Zealand, the water quality in the Waituna Creek is amongst the most polluted 25% of like sites for elevated phosphorous and nitrogen levels. In its application the applicant has provided information around water quality within the receiving environment. A copy of the table provided in the application is shown below:

Table 1: Summary SOE Results against RWP Standards

Parameter	ES Standard	Min*	Median*	Max*	Samples breeched* (%)	Trend Magnitude* (% per year)
Waituna Creek 1m upstream of Waituna Road						
Dissolved Reactive Phosphorous (mg/L)	**<0.010**	0.005	0.015	0.057	30	Improving (9.3%)
Nitrate Nitrite Nitrogen (mg/L)	**<1.7**	0.400	1.65	4.40	49	Deteriorating (3.2%)
Unionised ammonia (mg/L)	**<0.344**	0.0150	0.046	0.166	0	No Trend
Visual clarity (m)	**>1.3**	0.05	1.08	3.00	33	No Trend
Faecal bacteria (CFU/100 ml)	**<1,000**	33	500	110,000	25	No Trend
Water temperature (°C)	**<23**	4.7	10.9	15.6	0	N/A

The combined catchment input to the lagoon was modelled by the Waituna Lagoon Technical Working Group in 2011. This modelling was based on inputs from Waituna, Carran and Moffat Creeks. This is shown in the table below:

Table 2: Combined Catchment Nutrient Inputs (T/yr) based on ES Monitoring Data. Page 18 Waituna Lagoon Guidelines

Year	TN Load (t/yr)	Nitrate-N Load (t/yr)	Ammonia-N Load (t/yr)	TP Load (t/yr)	DRP Load (t/yr)
2002	151	100	5.3	6.3	1.9
2003	194	137	10.0	8.3	2.6
2004	238	142	8	6.1	2.4
2005	167	105	6.3	2.9	1.1
2006	339	172	14.8	22.8	4.7
2007	171	128	8.4	5.7	1.6
2008	209	160	3.3	3.0	1.4
2009	296	151	12.6	22.6	2.1
2010	390	220	13.7	21.5	0.0
Mean 2002-2010	240	146	9.2	11.00	3.0
Mean 2002-2005	188	121	7.4	5.9	2.0
Mean 2006-2010	281	166	10.5	15.1	3.8

The groundwater resources within the Waituna catchment have been divided into three zones. The subject site is located within the Northern Waituna Zone, which covers the northern section of the Waituna Creek catchment. This area is characterised by thick, stoneless brown soils which buffer groundwater quality from the effects of land use due to cation exchange and chemical sorption processes. Shallow groundwater quality in this area shows little impact from land use with the main risk to water quality being from artificial drainage. Groundwater that is sourced from the tertiary aquifers can contain high iron concentrations due to the mudstone and lignite geology.

The soils, FDE land classification and risk to water quality for the entire property comprise of the following:

Soils	**Soil Type**	**Vulnerability Factors**		
		Structural Compaction	**Nutrient Leaching**	**Waterlogging**
	Dacre	Moderate	Slight	Severe
	Woodlands	Moderate	Slight	Moderate
FDE land classification	70% Category B – Impeded drainage 30% Category C - Sloping Land			
Groundwater nitrate levels	60% 'Moderate to high land use impacts' (3.5-8.5 mg/l) 40% 'Minor to moderate land use impacts' (1.0-3.5 mg/l)			

According to Topoclimate soil maps, the disposal area is located on Dacre and Woodlands soils. The Dacre soil runs along the margins of McMillan Creek, which runs through the site. This soil has a silty loam texture profile, is poorly drained and has very limited aeration in the root zone. These characteristics mean that this soil type is severely vulnerable to waterlogging and typically has a high level of bypass flow. Combined with the sloping nature of the land that the Dacre soil is located on, there is risk that if effluent is not applied in an appropriate manner that it could flow overland to the waterway, or through the soil profile and into the waterway via the network of drains.

Woodlands soils are present on the rest of the site. This is Woodlands undulating soil. Characteristics of this soil type include a silty loam texture profile, imperfect drainage and limited aeration in the root zone. These characteristics mean that this soil type has a high level of vulnerability to waterlogging and a medium level of bypass flow. The land that the Woodlands soil is located on is classified as artificially drained. This represents the vulnerability of the soils to waterlogging, with tile and mole drains likely to have been added to the site to reduce the level of waterlogging. However, this means that there are pathways for contaminants to use to enter waterways.

As well as the above classification the site is located within the Waihopai groundwater management zone. Generally groundwater quality within the Waihopai groundwater zone complies with limits set in the Drinking Water Standards for New Zealand (DWSNZ). However, there may be areas where nitrate concentrations exceed in the DWSNZ due to localised contamination including poor well-head protection. The groundwater in the area of the property has been modelled as having very low denitrification potential, due to its geology, sediment geochemistry and geomorphology. Water will be taken from a new bore in this management zone.

The applicant is proposing to construct an agricultural effluent pond on the site. The pond will be constructed in the middle of the site and will comply with the standard buffer distances from infrastructure and waterways.

3.2 Actual and potential effects (Section 104(1)(a))

Consideration of the following effects is required:

- effects on water quality, including potential for contamination of groundwater and surface water,
- soil health;
- effects on water quantity (including stream depleting effects);
- odour;
- cumulative effects

Water Quality

The applicant has provided an assessment of the effects of the discharge and conversion on ground and surface water quality. However, beyond the modelled losses provided by Overseer, this is primarily a qualitative assessment. They have also outlined the measures that they propose to take to address effects arising from the activity.

Effluent Discharge

Potential adverse effects of discharging effluent onto land include contamination of groundwater and contamination of surface waterways. The main risk area for the receiving environment, as a result of the activity is to surface water quality. This risk is acknowledged by the applicant in the application.

The level of risk to surface water quality on the property from the discharge of effluent correlates to the soil types and the landscape classification of the site. The site is predominantly classified as having impeded drainage (approximately 70%). When combined with the slow permeability rate of the Woodlands soils, which dominates the effluent disposal area, there is the possibility of effluent being transported to waterways on the property and the wider catchment through subsurface drainage (tiles and mole drains). This is where the drains act as a short circuit for contaminants and water to open drains and creeks. Tile and mole drains, when coupled with the overlaying land use are regarded as contributors of nitrogen and phosphorus loads to waterbodies.[3] As per the technical review sought by Council (appended), this drainage network serves to intercept excess soil-moisture that would otherwise drain to the shallow unconfined aquifer. The applicant has not discussed excluding the area of tiles drains from the effluent disposal area as part of the application. However, the location of the known tiles and mole drains has been provided (see map in application).

With regard to the discharge to land permit, it is event-driven losses from the subject site, as well as events relating to the over application of effluent which are of concern for water quality. This is because the tiles, as discussed above, serve as preferential pathways for contaminants to enter waterways on the property. In this case the waterway is a tributary of Waituna Creek, which flows into the Waituna Lagoon.

In the absence of site specific surface water quality monitoring samples and broader modelling, it is hard to assess the effect of the discharge activity on surface water quality. However, from the soil types and land classification it can be inferred that there is a level of risk to surface water quality on the property if effluent is not applied in accordance with acknowledged best practice methods.

[3] Monaghan, R. "The influence of land use, soil properties and seasonal factors on contaminant accumulation and loss from farming systems to water." Report Prepared for Environment Southland, October 2014, page 1.

The level of risk to groundwater quality, as a result of the application of effluent for this specific site is classified as low to moderate. This reflects the soils on the property. The background levels of nitrates in the groundwater do not reflect a degree of vulnerability to nitrate accumulation.

The effects of dairy shed and standoff pad/feed pad effluent discharge to land represents a proportion of the overall loss of nutrients from a dairy farm activity. The modelled outputs for the effluent block are shown in the table below.

Table 3: Nutrient budget for N and P loss to Water (per block) for the converted site

Overseer Block	N loss to water (kg/ha/yr)	P loss to water (kg/ha/yr)
Pastoral - Woodlands	28	0.3
Pastoral - Dacre	17	0.5
Kale	82	0.4
Non-productive	3	0.1
Effluent - Woodlands	32	0.3
Whole farm	29	0.6

The applicant has proposed mitigation measures that could be adopted to minimise adverse effects on water quality arising from the activity. These measures are in line with, but do not extend beyond best practice for the discharge of effluent to land and include:

- use of low rate effluent irrigation;
- ability to defer the disposal of effluent until soil moisture conditions is suitable. This is due to the proposed installation of an effluent pond. Application when soils are at field capacity would likely accelerate the loss of nutrients out of the root zone and into surface water via artificial drainage networks;
- not discharging effluent to land when soil moisture conditions are suitable. The applicant is proposing to install site specific soil moisture monitoring so they will know when conditions on their property and on their soils are suitable to receive effluent;
- not irrigating within 20 metres of waterways. This is in accordance with Council's standard buffers for the distance between an effluent disposal area and a waterway. The intent behind the buffer is to decrease the potential for effluent to enter into waterways.

The use of the above mitigation measures is consistent with the approach of encouraging best practice. The applicant states that provided that the proposed mitigation measures are adopted and adhered to, then adverse effects from the discharge of dairy shed effluent on water quality should be avoided as far as practicably possible.

Please note that the discharge permit covers the discharge of effluent from the dairy shed, not the discharge from urine patches and the cows in the paddocks. Further, the above are mitigation measures specific to the discharge of effluent via the effluent disposal system. Other mitigation measures employed by the applicant relate to the effects of the conversion and are discussed below.

Conversion

The key direction within the Regional Water Plan in respect of the conversion relates to water quality. In particular, the Council must assess the application having regard to the direction provided in Policy 13A and the risks in relation to water quality associated with the application.

The applicant has concluded that the property has a Category 1 rating. This rating is based solely on the suitability of the soils on the site to be used for intensive pasture. It is not a reflection of the suitability of the wider receiving environment for dairy farming, or the vulnerability of this environment.

Overseer Modelling

The applicant has modelled predicted nutrient losses using Overseer Software. With regard to nitrogen this programme assumes that best practice will be followed at all times. However, for phosphorus the use of best practice methods is not assumed. The budget presents a whole farm loss of 29 kg/ha/yr of nitrogen to water and 0.6 kg/ha/yr of phosphorus. The results of this modelling are shown in Table 3. The applicant has also provided some commentary around how the modelled nutrients would be lost. This is predominantly through phosphorus bound to soil particles entering surface waterbodies and by fertiliser and effluent being washed off land creating overland flow.

Please note that the outputs from the budget are modelled and not measured, and that the proposed losses are based on how the applicant intends to operate the farm. Concerns were raised in Council's technical review of the application about the status of the kale crop used in the Overseer budgets. This was raised because the "current" grazed paddock losses are lower on a per hectare basis, but a large kale crop leaching at 95 kgN/ha/yr essentially matches the grazed paddock losses. However, a kale crop is traditionally rotational. In response to this concern, the applicant stated that the reduction in kale is due to it proposing to winter fewer cows on the property (if the consent is granted). As a result, less feed needs to be grown on site.

Table 3 shows a modelled decrease in nitrogen lost below the root zone as a result of the conversion. However, there is a modelled increase in phosphorus below the root zone. The applicant states that these figures will result in water quality in the receiving environment being enhanced when compared to the current land use. However, the modelled increase of phosphorus below the root zone is of concern. This is because of the vulnerability of the wider receiving environment to increased levels of phosphorus and sediment. However, at the pre-hearing meeting the applicant stated that there are other measures which can be employed and that will be offered, which may mean that the likely phosphorus losses below the root zone will be less than those modelled by Overseer. It is my understanding that these measures will be offered by the applicant by way of proposed consent conditions.

It is important to note that no target nitrogen or phosphorus losses for properties or catchments have been set in the Water Plan. I note that the Overseer information in the application states that the "average NZ farm" losses are 24-42 kg N/ha/year.

Mitigation Measures

The conversion rating mentioned above determines the level of conversion environmental plan which is submitted and the type of mitigation measures the application should be employing. In this case, the applicant should be employing all relevant Tier 1 and 2 mitigation measures. However, the applicant has decided to prepare a category 3 conversion plan. This plan employs all relevant Tiers 1 and 2 and other property specific mitigation measures. The intent of this plan is to manage the conversion of the site, not the ongoing operation of the site as a dairy farm.

The applicant's plan includes:

- a Nutrient Management Plan;
- a Wintering Management Plan;
- wintering the majority of stock off site (60%);
- optimum soil test P;
- stock exclusion from streams;

- tracks and lanes away from waterways;
- limiting N Fertiliser use;
- grass buffer strips;
- strategic winter grazing of forage crops;
- restricted grazing of cropland and pasture;

The mitigation measures described above were part of the supporting information when Rule 17A was notified and are aimed at mitigating effects on water quality. Each measure has a varying degree of effectiveness in terms of nitrogen, phosphorus and bacterial mitigation. Because the soil types on the property are vulnerable to waterlogging the fact that not all of the cows will be wintered off (90 to remain on site) is a concern. However, the use of a feed/stand off pad in this period is being promoted by the applicant.

The applicant has stated that the adverse effects from the proposed activity (the change in land use) should be no more than minor. This is likely to be the case if best practice is followed at all times, the farm is established as per the application and that all mitigation measures offered by the applicant are implemented. As such, uncertainty exists about the cumulative effects of the activity on the receiving environment as the applicant's conclusion that the activity (the conversion) will improve water quality in the wider catchment is based on the onsite activities occurring exactly as proposed.

The current planning framework, as established by Rule 17A means that once the conversion is complete (i.e. the farm is established) that the ongoing **use** of the land for dairy farming cannot be controlled. This is because Rule 17A relates to the once-off **establishment** of a dairy farm. It does not relate to the ongoing use of the land as a dairy farm.

Whilst the applicant has proposed a range of ongoing measures to address how the farm will be operate and to mitigate effects of nitrogen and phosphorus losses on the receiving environment, there are issues around how these would be consented and controlled. This is because the only consent which authorises discharges from dairy farm operations is the farm dairy effluent discharge permit. This permit authorises the discharge of effluent generated in the dairy shed and any other identified structures onto land through the effluent management system (reticulation, pond etc). It does not control the discharge of dung and urine from cows in the paddocks and it does not control the ongoing use of the land.

The above results in the scenario whereby once a conversion is complete, the land use consent can be surrendered and the measurers offered by the applicant (such as wintering most of the cows off the property, limiting N inputs and crop size) can no longer be controlled by way of a consent. In this instance it is likely that the applicant will offer draft conditions where there is a crossover of land use, farm management and discharge controls. The ability of these conditions to control the effects of the activity in the long-term (conversion and use of the land for dairying) is unknown at this time. However, Council does have concerns about the suitability and legality of adding land use controls onto a discharge permit, and the enforceability of such conditions.

Water Quantity

The daily abstraction applied for is 36,720 litres per day. The rate of abstraction is 120 litres per cow per day, which is consistent with the Council's standard estimate for dairy operations, for combined shed and stocking drinking water permits. At this rate of abstraction, stream depletion effects do not need to be considered under the policies of the Regional Water Plan. The abstraction is also unlikely to cause more than minor effect on neighbours' bore water supplies.

The water will be abstracted from a lowland aquifer within the Waihopai groundwater management zone, which has a preliminary allocation of 54,100,000 m^3/year. Cumulative allocation from the groundwater zone, including this application, is 2,875,166 m^3/year, about 5.3% of the preliminary allocation and 0.8 % of the mean annual land surface recharge.

The installation of a bore/well can provide a pathway for contaminants to enter the aquifer, or to move between aquifers. In the case of an artesian bore, poor headworks can result in excess run-off, depleting the groundwater resource. Good construction methods can avoid or minimise these adverse effects.

No adverse environmental effects are anticipated as a result of the taking of water as proposed.

Bore

The installation of a bore/well can provide a pathway for contaminants to enter the aquifer, or to move between aquifers. In the case of an artesian bore, poor headworks can result in excess run-off, depleting the groundwater resource. Good construction methods can avoid or minimise these adverse effects.

Effluent Pond

The applicant is installing a new effluent pond. Due to the installation of this pond, the applicant will be able to store and apply effluent to land when the soil-water deficit is sufficient to avoid direct drainage of the effluent. The pond will have a volume of 940 m^3. This volume is slightly above the 90% volume for the property as determined by the Massey Effluent Pond Calculator.

There is a significant risk to water quality and public health if deficiencies in the design and construction of an agricultural effluent pond results in a discharge to groundwater or surface water. Appropriate design and construction standards are contained in the *Environment Southland Code of Practice for Design and Construction of Agricultural Effluent Ponds*. To ensure these standards are met, agricultural effluent ponds need to be properly designed by persons with experience in the design and oversight of construction of this type of pond. In addition, the construction of a pond requires an experienced contractor with adequate heavy equipment. The storage pond design has been reviewed by Mr Young, Council's Technical Services Engineer, and he is satisfied that the pond will be constructed in accordance with the Code of Practice.

The recommended buffer distances of 100 metres from water abstraction points and 50 metres from any surface water body, artificial watercourse or coastal marine area have been met therefore decreasing the potential viral and bacterial risks to surface and groundwater associated with agricultural effluent ponds.

Odour

As long as the effluent is applied in accordance with the specified application rates and depths, and appropriate buffers are maintained, then there should little risk of adverse effects from odour and spray drift on surrounding land owners and occupiers.

Ponds can cause problems with odour, however, the closest dwelling on another property is located well over 200 metres from the effluent storage pond and the pond is located more than 50 metres from the property boundary.

Monitoring (Future)

It is recognised that the site is vulnerable to the overland flow and preferential flow of contaminants into waterways. Despite this, the sampling of water bodies up to four times a year is not considered an effective way of monitoring the effects of this activity on surface water quality. Sampling may still be undertaken if there is an incident on the property. However, it is understood that the applicant will be proposing a monitoring programme as part of its draft conditions. Whether or not this monitoring programme will be suitably robust depends on the proposed frequency of monitoring and how the monitoring will occur.

Recent research has shown that the only meaningful way of monitoring losses from a dairy farm is with continuous monitoring, as a significant proportion of the annual load can be lost in individual rainfall events. The chances of detecting these events through quarterly or even monthly surface water monitoring are unlikely.

Consideration of Alternatives

The applicant has identified alternative effluent disposal systems. These included K-line pods and a travelling irrigator. However, it chose its proposed system because it considers it to have less adverse effects on the environment than the alternatives, is consistent with Council's policies and guidelines, and it is more reliable and simple than other systems. The alternatives considered by the applicant are ones which are used on other farms. However, the reasons why it has not utilised these systems are suitable.

Cumulative Effects

The modelled losses for the property, as shown by Overseer, has resulted in the change in land use being promoted as the only land use that will enhance water quality within the Waituna catchment. However, there is still a degree of uncertainty about the effects of the activities on this sensitive receiving environment. This is because the assessment of effects is based on a model, although this model is regarded as the main tool in the tool box for assessing and determining the effects of an activity such as a conversion. Uncertainty also exists about the cumulative effects of the activity on the receiving environment as the conclusion that the activity will improve water quality in the wider catchment is based on the activities occurring exactly as proposed. Therefore, I consider that there is a degree of uncertainty as to whether or not the proposed conversion and discharge would enhance or improve water quality in either the Waituna Creek catchment or the wider Waituna Lagoon catchment.

Conclusion as to Effects

It is acknowledged that the applicant has provided a detailed analysis of the state of water quality in the catchment, a discussion of the reasons for poor existing surface water quality and the potential contribution of human land use activity to water quality. I have considered the information provided in the original application, the further information response and the technical review and I consider that the applicant has provided an assessment of effects which outlines what the likely effects of the activities maybe. It is how to consent and manage these effects which is the main area of concern.

3.3 Relevant provisions of the relevant regional plan objectives, policies and rules (Section 104(1)(b)(v))

Regional Water Plan

The objectives and policies of the Regional Water Plan that are relevant to this application have been grouped according to topic.

Water Quality

Objective 3	*To maintain and enhance the quality of surface water bodies.*
Objective 4	*To manage discharge of contaminants and encourage best environmental practise to improve water quality in surface water bodies as classified in the plan.*
Objective 8	*Maintain groundwater quality in aquifers that already meet the drinking water standard, and enhance the groundwater quality in aquifers degraded by land use and discharge activities to ensure general compliance with the drinking water standards for NZ 2000, by the year 2010.*
Policy 1	*Recognise the different characteristics of the surface water body classes when managing discharges and apply water quality standards established under any Water Conservation Order.*
Policy 4	*For surface water bodies outside Natural State Waters, manage point source and non-point source discharges to meet or exceed the water quality standards referred to in Rule 1 and specified in Appendix G "Water Quality Standards".*
Policy 6	*Use non-regulatory methods, to maintain and enhance surface water and groundwater quality, and to avoid, remedy or mitigate adverse effects on soil quality.*
Policy 7	*Prefer discharges to land over discharges to water where this is practicable and the effects are less adverse.*
Policy 13	*Avoid the point source discharge of raw sewage, foul water and untreated agricultural effluent to water.*
Policy 25	*To avoid, remedy or mitigate the adverse effects arising from point source and non-point source discharges so that there is no deterioration in groundwater quality after reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources.*
Policy 13A	*Establishment of new dairy farms*

Comment

Policy 13A is particularly relevant to this application as it relates to the establishment of new dairy farms and recognises the risks to water quality associated with that. It also establishes that these risks are to be managed by requiring a resource consent and by requiring the documentation of risks and measures to avoid or mitigate them in a Conversion Environmental Plan. This policy does not relate to the ongoing use of land for dairy farming.

As directed by Policy 13A the applicant has recognised the level of risk to water quality through the development of a Conversion Environmental Plan. This plan outlines measures that will be employed to avoid and mitigate adverse effects on water quality. In this instance, the applicant has proposed a range of Tiers 1 and 2 mitigation measures, as well as property specific ones in order to manage any adverse effects.

The key consideration with regard to Policy 13A is whether or not the measures provided in the Conversion Environmental Plan adequately mitigate or avoid any adverse effects of the establishment of the farm on water quality. The application is considered to be consistent with this policy. This is because the applicant has prepared a CEP which recognises the effects of the activity (the establishment of the farm) and outlines how these are to be managed. Key measures for managing the effects of the conversion on water quality are the nutrient management plan and winter grazing plans. However, once the farm is established these plans and other mitigation measures are no longer enforceable as they sit with the conversion consent. Therefore, the applicant's intent to only winter 90 cows on the site and to limit its crop size (key drivers of reduced losses) will be able to be disregarded after the farm is established. It is likely that the applicant will offer conditions on the discharge permit to address submitters' concerns about this. As stated above, Council holds some concerns about this approach.

Objective 3 relates to the maintenance and enhancement of water quality for specific values. The explanation to this policy is that a key priority is that water quality does not degrade further and where it is degraded, it is improved so the relevant uses and values can be supported. In this case, the values associated with the Waituna Creek and Waituna Lagoon relate to those for lowland waterbodies. These values include bathing, trout and/or native fish, stock drinking water, Ngai Tahu values and natural character and healthy aquatic values. The application for the conversion has been presented in a way that it may result in the maintenance and enhancement of these values. However, this is only if the applicant is held to everything in its application. Because of the issues associated with this, the application is only partly consistent with this provision.

Objective 4 is to manage the discharge of contaminants and encouragement of best practice to improve water quality, in particular improve levels of nitrate and phosphorus. In this case the activity may result in improved levels of nitrogen and phosphorus in the receiving environment.

Objective 8 requires groundwater quality to meet the Drinking Water Standards. Groundwater quality currently meets these standards. The activity may result in groundwater quality continuing to meet this standard.

Water Quantity

Objective 5	*To have sufficient water to support current and future generations.*
Objective 6	*Provide for the national importance of the existing hydro-electric generation in the Waiau catchment.*
Objective 7	*Maximise the efficiency of water use.*
Objective 9	*To ensure that the total volume and rate of groundwater abstraction is sustainable.*
Policy 14	*While recognising the positive effects resulting from the use and development of water resources, manage the taking, use, damming or diversion of surface water so as to avoid where practicable, remedy or mitigate significant adverse effects.*

Policy 21	*To ensure that the rate of abstraction and abstraction volumes specified on water permits to take and use water are no more than reasonable for the intended end use.*
Policy 22	*Require, where appropriate, the installation of water measuring devices on all new permits to take and use water.*
Policy 23	*Impose a condition enabling the review of consent conditions in accordance with Sections 128 and 129 of the Resource Management Act 1991 on all new permits to take and use water.*
Policy 26	*Adverse effects of bores and wells*
Policy 28	*To manage groundwater abstraction to avoid significant adverse effects.*
Policy 29	*Manage the stream depletion effect of any groundwater abstraction with a rate of take exceeding 2 litres per second and minimise the cumulative stream depletion effect of groundwater.*
Policy 30	*Use a staged management approach to allocate groundwater for abstraction in Southland, and recognise and assess the different characteristics of the following aquifer types when managing groundwater abstraction.*
Policy 31	*Limit the cumulative interference effect of any new groundwater abstraction.*

Comment

The application is consistent with the above provisions. This is because the proposed volume is in line with Best practice volumes, the water take will be metered and the taking of the water should not result in the over allocation of the groundwater zone.

The installation of the bore is consistent with the above. The design and construction will be in accordance with the appropriate standards.

Wetlands

Objective 2	*Maintain water quality.*
Objective 4	*Gradual improvement in surface water quality parameters.*
Policy 38	*avoid, remedy or mitigate the adverse effects of activities on wetlands through an integrated management approach with the Southland territorial authorities.*
Policy 39	*Use non-regulatory methods to promote best management practices in relation to retaining or enhancing natural values of wetlands.*
Policy 40	*encourage the maintenance and restoration of existing wetlands and the creation of new wetlands.*

Comment

The application is generally consistent with the above provisions. This is because it is likely the granting of the application may result in the enhancement of water quality in the Waituna Lagoon.

Agricultural Effluent

Policy 41	*Avoid adverse effects on water quality, and avoid as far as possible other adverse environmental effects, associated with the location, design, construction, operation and maintenance of agricultural effluent ponds*

Comment

Policy 41 seeks to avoid adverse effects from agricultural storage ponds. This can be achieved by appropriate siting, construction, operation and maintenance. The location of the pond complies with all of Council's standard buffers. The effluent pond application is consistent with this policy.

Regional Effluent Land Application Plan

The objectives and policies of the Regional Effluent Land Application Plan that are relevant to this application have been grouped according to topic.

Soil Health and Fertility

Objective 4.1.1	*Ensure life supporting capacity of soil is safeguarded.*
Policy 4.2.1	*Sustainability of the soil ecosystem.*
Policy 4.2.2	*Utilise land treatment of effluent where it can be undertaken in a sustainable manner and without significant adverse effects.*

Comment

The proposed discharge is consistent with the above objective and policies regarding effluent discharges to land. Large agricultural effluent disposal areas are recommended to avoid excessive build-up of nutrients, including potassium concentrations in pasture that can affect stock health. The proposed effluent disposal area is larger than the best practice recommendation of 8 hectares per 100 cows.

Water Quality

Objective 4.1.2	*Ensure water quality and its life supporting capacity is safeguarded.*
Policy 4.2.3	*Avoid where practicable, remedy or mitigate adverse effects on water.*

Comment

Objective 4.1.2 aims to ensure that water quality and its life-supporting capacity is safeguarded from the adverse effects of discharges of effluent onto, or into land. The applicant has assessed the risk of this in its application. It is considered that the application is consistent with the matters raised in the objective and policy, as the discharge of effluent to land may result in the safeguarding of water quality. Further, the application is only partly consistent with Policy 4.2.3, as the only way to avoid adverse effects of the activity on water quality is to adhere to a set of proposed mitigation measures and any consent conditions.

Other

Objective 4.1.4 and Policy 4.2.9	*Ensure amenity values are not adversely affected by effluent disposal.*
Objective 4.1.5 and Policy 4.2.8	*Recognise and provide for relationship Takata Whenua.*
Policy 4.2.4	*Adopt a precautionary approach to the discharge of effluent onto or into land where there are uncertainties regarding adverse effects.*
Policy 4.2.7	*Good practice and maintenance.*

Comment

The consideration of Te Tangi a Tauri (Iwi Management Plan) and the notification of TRONT and TAMI are consistent with the above.

The applicant is proposing to adopt a variety of good practice systems on the property. This is consistent with Policy 4.2.7.

Policy 4.2.7 advocates for a precautionary approach to the granting of consent for activities relating to land where there is uncertainty of the effects of the activity. There is a degree of uncertainty about the cumulative effects of the activity. It is likely that as long as the activity is carried out exactly as applied for that it will be consistent with this provision.

3.4 Relevant provisions of the Southland Regional Policy Statement (Section 104(1)(b)(v))

Regional Policy Statement

The following objectives and policies in the Regional Policy Statement are of particular relevance to this application:

Takata Whenua

Objective 1.1	*To protect wahi tapu from the adverse effects of resource use activities.*
Objective 1.2	*To recognise the importance of wahi tapu, wahi taoka, mahika kai and the customary use of water to Kai Tahu.*
Objective 1.3	*To incorporate Maori cultural and traditional spiritual values where appropriate into resource management decision making processes.*
Objective 1.4	*To have particular regard to the concept of kaitiakitanga in relation to managing the use, development and protection of natural and physical resources.*
Policy 1.2	*Recognise "Te Whakatau Kaupapa O Murihiku" as a Kai Tahu resource management reference planning document for the region.*

Comment

Te Tangi a Tauira (Iwi Management Plan) has been considered. In this instance, Te Ao Marama Inc and Ngai Tahu may have been involved in the development of the consent conditions through discussions with the applicant. They were also involved in the pre-hearing meeting.

Water Quantity

Objective 4.1	*To sustain the quantity of the region's water resources so as to meet the needs of a range of uses, including the reasonably foreseeable needs of future generations and safeguard the life-supporting capacity of water and related ecosystems.*
Objective 4.2	*To manage the use and development of water and land resources so as, wherever practicable, to maintain and enhance flow regimes.*
Objective 4.3	*To ensure the taking, use, damming and diversion of water does not compromise environmental standards established for the region.*
Objective 4.4	*To achieve the efficient use of water extracted from water bodies.*
Objective 4.5	*To recognise the relationship of Maori with water.*
Policy 4.3	*Manage abstraction of water and the transferability of permits on the basis of the effects of that abstraction, or transfer, taking into account the standards set for the water body and the use to which the water is to be put.*
Policy 4.4	*Encourage the conservation of water and its efficient allocation and use.*
Policy 4.5	*In considering resource consents, local authorities shall assess the effects of land use and development on the quantity and sustainability of water in water bodies and provide for any adverse effects to be avoided wherever practicable, or remedied or mitigated.*
Policy 4.6	*Manage the region's water resources in ways that recognise and provide for the values that Maori place on water.*

Comment

The application is consistent with the above provisions. This is because the proposed volume is in line with Best practice volumes, the water take will be metered and the taking of the water should not result in the over allocation of the groundwater zone.

Water Quality

Objective 5.1	*To sustain the quality of the region's water resources so as to meet the needs of a range of uses, including the reasonably foreseeable needs of future generations and safeguard the life-supporting capacity of water and related ecosystems.*
Objective 5.2	*To ensure that in the use and development of water and land resources, and the discharge of contaminants, water quality is maintained and wherever practicable enhanced.*
Objective 5.3	*To ensure the taking, use, damming, diversion of water and the discharge of contaminants into water does not compromise water quality standards established for the region.*
Objective 5.4	*To recognise the relationship of Maori with water.*
Policy 5.5	*In considering resource consents, local authorities shall assess the effects of land use and development on ground water and surface water quality, including both point and non-point source discharges, and provide for any adverse effects to be avoided, remedied or mitigated.*

Policy 5.8	*Manage the region's water resources in ways that recognise and provide for the values that Maori place on water.*

Comment

The application is for a new discharge permit. The discharge of effluent to land from the cows may result in effects on water quality stemming from the point source discharges of effluent. As stated above, the discharge permit does not cover the discharge of effluent directly from cows in the paddocks.

Objective 5.1 discusses the safeguarding of water quality. As proposed, the application appears to be the only option for the land that would achieve this objective. Therefore, on face value, the application is generally consistent with this objective. This is only the case if all of the mitigation measures offered by the applicant are adopted, best practice is followed and the farm is established as per the application. Included in this is the adoption of the other measures to reduce phosphorus losses offered at the pre-hearing meeting to address the modelled increase in phosphorus losses below the root zone.

Objective 5.2 refers to land development and use and avoiding or mitigating effects on water quality, so is particularly relevant to the land use consent for the conversion. The applicant has adopted mitigation measures in its CEP and for its discharge permit. However, there is an issue as a CEP is intended to only manage the effects of the development of the land, not the use of land for farming. As such I only consider the application to be partially consistent with this provision.

Policy 5.5 specifically refers to non-point source discharges which may affect water quality, which is an important consideration when assessing the potential cumulative effects of the establishment of the farm and the effluent discharge. The application quantifies the point and non-point discharges in the Overseer budget. Measures to avoid, remedy and mitigate effects of the discharge and conversion are also offered. However, the ability to manage the ongoing effects of the activity is dependent on the ability to ensure that these measures are adhered to in the long-term, beyond the initial establishment phase of the farm. Thus, the application is only considered to be partly consistent with this provision.

Lakes, Rivers and Wetlands

Objective 6.1	*To protect the natural character, heritage values and outstanding natural features of lakes, rivers and wetlands in the region.*
Objective 6.2	*To recognise and provide for the relationship of Maori and their culture and traditions with lakes, rivers and wetlands.*
Policy 6.1	*Protect the listed (refer to full policy) wetland ecosystems from inappropriate subdivision, use and development.*
Policy 6.4	*Consult with the takata whenua and provide for Maori cultural and traditional spiritual values in relation to the use and management of lakes, rivers and wetlands.*
Policy 6.6	*Enhance the water quality, amenity and instream values of lakes, rivers and wetlands and promote bank stability. Riparian Management.*
Policy 6.11	*Manage the effects of activities that could adversely impact on the quality and quantity of water in rivers and lakes used for public and rural water supplies, and the structures used to draw such waters.*

Comment

Waituna Lagoon is recognised as a regionally and internationally significant wetland complex. The protection and enhancement of this wetland is recognised and provided for in the above provisions. It is likely that the granting of the application would be consistent with the above provisions, in particular Policies 6.1 and 6.6. This will only be the case if all of the mitigation measures offered by the applicant are adopted, best practice is followed and the farm is established and operated as per the application. Included in this is the adoption of the other measures to reduce phosphorus losses offered at the pre-hearing meeting to address the modelled increase in phosphorus losses below the root zone.

Soils

Objective 8.1	*To promote the sustainable management of all soils.*
Objective 8.2	*To avoid, wherever practicable, adverse effects arising from sedimentation and nutrient runoff from land into water bodies.*
Objective 8.3	*To encourage land management techniques that avoid, wherever practicable, adverse effects on air quality.*
Objective 8.4	*To avoid contamination of soils.*
Objective 8.5	*To avoid, remedy or mitigate any adverse effects of the use or development of land on wahi tapu, wahi taoka and archaeological sites.*
Policy 8.1	*Maintain and enhance Southland's soil resource by avoiding, remedying or mitigating the adverse effects of activities.*
Policy 8.2	*Provide for the sustainable management of the most versatile soils of the region.*
Policy 8.4	*Recognise and provide for Maori cultural and traditional spiritual values and consult the takata whenua, when making statutory decisions on soil issues and preparing a Regional Sustainable Land Management Plan.*
Policy 8.5	*Promote land use practices which avoid the contamination of soils.*

Comment

In regard to the suitability of the soils on the site the application and activity is consistent with the above provisions. The method of discharge follows current practice and a storage pond will be available to defer irrigation until soil conditions are suitable.

3.5 Relevant provisions of the Proposed Southland Regional Policy Statement 2012 (Section 104(1)(b)(v))

The following objectives and policies in the Proposed Regional Policy Statement are of particular relevance to this application:

Tangata Whenua

Objective TW.1	*The principles of the Treaty of Waitangi/Te Tiriti o Waitangi are taken into account in a systematic way through effective partnerships between tangata whenua and local authorities, which provide the capacity for tangata whenua to be fully involved in council decision-making processes.*
Objective TW.2	*All local authority resource management processes and decisions take into account iwi management plans.*
Objective TW.3	*Mauri and wairua are sustained or improved where degraded, and mahinga kai and customary resources are healthy, abundant and accessible to tangata whenua.*
Objective TW.4	*Wāhi tapu, wāhi taonga and sites of significance are appropriately managed and protected.*
Objective TW.5	*Māori are able to develop and use their land and resources and provide for their social, economic and cultural wellbeing, in a manner that is sustainable.*
Policy TW.1	*Consult with, and enhance tangata whenua involvement in local authority resource management decision-making processes, in a manner that is consistent with the principles of the Treaty of Waitangi/Te Tiriti o Waitangi.*
Policy TW.2	*Actively foster partnerships and relationship agreements between local authorities and tangata whenua.*
Policy TW.3	*Take iwi management plans into account within local authority resource management decision making processes.*
Policy TW.4	*When making resource management decisions, ensure that local authority functions and powers are exercised in a manner that recognises and provides for: traditional Māori uses and practices relating to natural resources; the ahi kā relationship of tangata whenua with and their role as kaitiaki of natural resources; mahinga kai and access to areas of natural resources used for customary purposes; mauri and wairua of natural resources; places, sites and areas with significant spiritual or cultural historic heritage value to tangata whenua; Māori environmental health and cultural wellbeing. recognises that only tangata whenua can identify their relationship and that of their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga.*
Policy TW.5	*Assist and enable the use and development of Māori land and resources, in a manner that is sustainable.*

Comment

Te Tangi a Tauira, and the views of Te Runanga o Ngai Tahu and Te Ao Marama Inc have been taken into account in assessing the application. Te Ao Marama Inc on behalf of Ngai Tahu, submitted on the application.

Water Quality

Objective WQUAL.1	*Water quality in the region: safeguards the life-supporting capacity of water and related ecosystems; safeguards the health of people and communities; is maintained, or improved in accordance with freshwater objectives formulated under the NPS for FM 2014; is managed to meet the reasonably foreseeable social, economic and cultural needs of future generations.*
Objective WQUAL.2	*Halt the decline and enhance water quality in lowland water bodies and coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands in accordance with freshwater objectives formulated in accordance with the NPS 2014.*
Policy WQUAL.1	*Identify values of surface water, groundwater, and water in coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands, and formulate freshwater objectives in accordance with the NPS for FM 2014; and Manage discharges and land use activities to maintain water quality, or improve it, to ensure freshwater objectives are met.*
Policy WQUAL.2	*In managing water quality, particular regard will be had to the following contaminants: nitrogen; phosphorus; sediment; microbiological contaminants.*
Policy WQUAL.3	*Identify and protect the significant values of wetlands and outstanding freshwater bodies.*
Policy WQUAL.4	*Improve water quality by: identifying water bodies that are not meeting freshwater objectives; specifying targets to improve water quality within these water bodies and implementing management frameworks to meet the targets within defined timeframes taking into account; the values supported by the water body/ies; national or legislative standards and requirements; the benefits and costs associated with achieving improvement in water quality.*
Policy WQUAL.6	*Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of water resources.*
Policy WQUAL.7	*Prefer discharges of contaminants to land over discharges of contaminants to water, where: a discharge to land is practicable; the adverse effects associated with a discharge to land are less than a discharge to water.*
Policy WQUAL.8	*Avoid the direct discharge of sewage, wastewater, industrial and trade waste and agricultural effluent to water unless these discharges have undergone treatment.*
Policy WQUAL.9	*Where practicable, manage the siting and operation of activities that result in point source discharges of contaminants to land to ensure that adverse effects on groundwater, surface water and coastal water quality are avoided, remedied or mitigated.*
Policy WQUAL.11	*Integrate the management of land use, water quality, water quantity, coast and air, and the use, development and protection of resources wherever possible to achieve the freshwater objectives formulated in accordance with Policy WQUAL.1.*

Policy WQUAL.12 *Continue to improve knowledge and understanding of water resources, and the relationship of land use activities with water quality values in water bodies, in Southland to promote the sustainable management of water.*

Comment

Of the above provisions, the key considerations are Objective WQUAL.2 and Policy WQUAL.2, Objective WQUAL.1 and Policy WQUAL.1, and Policies WQUAL.4 and WQUAL.6. The application is also generally consistent with the other listed provisions.

Objective WQUAL.1 establishes water quality goals for the region. As stated above, if the applicant is held to operating in accordance with the application and all of the proposed measures it is likely that the activity may result in water quality being managed in a way that meets the reasonably foreseeable needs of future generations and may safeguard the life-supporting capacity of water and related ecosystems, in particular Waituna Lagoon. However, this is very finely balanced and this conclusion very much relies on the ability to hold the applicant to operating exactly as stated in the application and that the results of the modelling provided by Overseer are correct and true.

Objective WQUAL.2 is of relevance, as it directs decision makers and applicants to have specific regard to water quality within lowland waterbodies and lagoons. It directs that water quality within these bodies shall be improved and any decline in water quality shall be halted. In this case, Waituna Lagoon and Waituna Creek are classified as lowland water bodies. The evidence provided by the applicant that water quality within these bodies will be improved is the Overseer budgets and water quality comment. Therefore, the application is generally consistent with this provision. However, as above, this is very finely balanced and this conclusion very much relies on the ability to hold the applicant to operating exactly as stated in the application.

Policy WQUAL.1 relates to the overall management of water quality within Southland. The key section of this policy is subsection (b), which relates to the management of discharges and land use activities in order to maintain or improve water quality. The application may result in the maintenance and improvement of water quality. This may only be achieved if the modelling, as shown by Overseer, is taken to be what will actually occur as a result of the activity. It also relies on the ability to control the ongoing use of land for dairy farming. As discussed earlier, the ability to do this is limited and the use of land use controls on a discharge permit is potentially the only way for this to occur. Council has concerns about this approach.

Policy WQUAL.2 is also relevant. This policy directs that in managing water quality particular regard is had to the levels of contaminants, including nitrogen and phosphorus. In this case, whilst the modelled losses from Overseer indicate that the activity may result in reduced levels of nitrogen in ground and surface water, it may also result in increased levels of phosphorus. To address this, in the pre-hearing meeting the applicant discussed other best practice measures which could be employed to reduce the levels of phosphorus. It is understood that these will be included in the applicant's evidence in the form of proposed conditions. As above, it is considered that the application is generally consistent with this policy, but this conclusion is predicated on the basis that there is the ability to hold the applicant to all of the measures offered in its application. However, there are issues associated with this.

The subject site is located in a catchment where the receiving environment includes Waituna Lagoon. As such, Policy WQUAL.3 needs to be considered. Based on the available information the activities may result in the protection of values associated with this area.

Policy WQUAL.6 sets out that the use, development or protection of water resources can result in social, economic and cultural benefits. In this case, I believe that the application has been presented as

the only way that the use and development of the site and associated water resources will result in social, economic and cultural benefits. Therefore, the application is regarded as being consistent with this provision.

Policy WQUAL.4 relates to improving catchment water quality. This is to be achieved by identifying waterbodies that are not meeting freshwater objectives. With regard to Waituna Lagoon this has not been documented in any regulatory documents such as the Regional Water Plan or Proposed Policy Statement. However, in the Strategy and Action Plan for Waituna (2015), the Lagoon Technical Working Group 2011 report and other publically available Council reports and documents[4] the issues relating to high levels of contaminants, including nitrogen and phosphorus in the lagoon is recognised. As stated above, the applicant has presented the conversion as the only option for the site in terms of contributing to the improvement of water quality at the catchment scale. It is recognised that the applicant has good intentions for the site, but there are issues around how to reconcile land use controls onto a discharge permit, which must be addressed for this to actually be the case.

In summary, the proposed activity is generally consistent with water quality objectives and policies in likely maintaining and potentially enhancing water quality in the area. However, this is finely balanced and is based on the ability to manage the ongoing use of the land for dairy farming. At present, Council does not have this ability as the land use consent for the conversion solely relates to the establishment of the farm, after which the consent can be surrendered. Therefore, consideration needs to be given to the suitability and applicability of adding land use and farming controls to a discharge permit. This may be the best way to ensure that the effects of the activity are no more than minor (as stated by the applicant) and to ensure consistency with the above provisions. However, there is the concern that any such conditions on the discharge permit would be ultra vires, unenforceable and very much directing how the applicant can farm. The latter is an approach which Council has concerns about.

Water Quantity

Objective WQUAN.1 *Flows, levels and allocation regimes of surface water and groundwater in the region are developed in accordance with the NPS for FM 2014 to: safeguard the life-supporting capacity of water, catchments and related ecosystems; support the maintenance or improvement of water quality in accordance with Policy WQUAL.1; meet the needs of a range of uses, including the reasonably foreseeable social, economic and cultural needs of future generations; comply with limits or targets set to achieve freshwater objectives.*

Policy WQUAN.2 *Avoid over-allocation of surface water and groundwater, and resolve any historical instances of over-allocation, while recognising the special provisions made for the Waiau catchment.*

[4] Including but not limited to:

- Publication Waituna: What's all the fuss about?' http://www.es.govt.nz/media/11944/waituna-whats-all-the-fuss-about.pdf
- Southlands Water 2010: Lakes and Lagoons Technical Report. http://www.es.govt.nz/media/13926/our_ecosystems_-_technical_report_for_lakes_and_lagoons.pdf
- Our Health Southland Water 2010: Part 1. Environment Southland and Te Ao Marama Inc 2010.
- Roberston, B1, Stevens, L1, Schallenberg, M2., Robertson, H3., Hamill, K4., Hicks, A3., Hayward, S5., Kitson, J6., Larkin, G6., Meijer, K6., Jenkins, C6., Whaanga, D7., 2011. *Interim Recommendations to Reduce the Risk of Waituna Lagoon Flipping to an Algal-Dominated State.* Prepared by the Lagoon Technical Group, 26th May 2011; Wriggle Coastal Management1, University of Otago2, Department of Conservation3, Opus International Consultants4, DairyNZ5, Environment Southland6, Te Ao Marama Incocporated7.
- Robertson, B., and Stevens, L., 2012. *Guidance Document: Nutrient Load Criteria to Limit Eutrophication in Three Typical New Zealand Estuary Types – ICOLL's, Tidal Lagoon and Tidal River Estuaries.* Prepared for Environment Southland by Wriggle Coastal Management, August 2012.
- Scanes, P., 2012. *Nutrient Loads to Protect Environmental Values in Waituna Lagoon, Southland, New Zealand.* Prepared for Environment Southland, May 2012.
- Stevens, L., and Robertson, B., 2007. *Waituna Lagoon 2007: Broad Scale Habitat Mapping and Historical Sediment Coring.* Prepared for Environment Southland by Wriggle Coastal Management, October 2007.
- Waituna Catchment Loads, Report Prepared for Environment Southland. NIWA April 2012

Policy WQUAN.3	*Recognise the finite nature of water resources and catchments and identify management regimes in accordance with the NPS for FM 2014.*
Policy WQUAN.6	*Ensure that any water taken from surface water or groundwater is used efficiently. Where fresh water bodies are approaching full allocation, consider establishing management provisions to maximise the benefits of using any available water.*
Policy WQUAN.7	*Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of water resources.*
Policy WQUAN.8	*Integrate the management of land use, water quality, water quantity and use and development of resources wherever possible.*
Policy WQUAN.9	*Continue to gather information on Southland's water resources and effects of land use change on flows and levels of surface water and groundwater, to assist with the sustainable management of water and the ongoing development and implementation of water management regimes.*

Comment

The application is consistent with the above provisions. This is because the proposed volume is in line with Best practice volumes, the water take will be metered and the taking of the water should not result in the over allocation of the groundwater zone.

Rural Land and Soils

Objective RURAL.1	*Achieve sustainable use of Southland's rural land resource, in respect of: agriculture and primary sector activities; subdivision, use and development activities; earthworks and vegetation clearance activities; the use of soil resources; mineral extraction activities; and on-site wastewater systems.*
Objective RURAL.2	*Safeguard the life-supporting capacity, mauri and health of soils in rural areas, and prevent or minimise soil erosion and sedimentation from land use soil disturbance.*
Policy RURAL.1	*Recognise that use and development of Southland's rural land resource enables people and communities to provide for their social, economic and cultural wellbeing.*
Policy RURAL.2	*Manage subdivision, land use change and land development activities in rural areas of Southland, in a way that maintains or enhances rural amenity values and character.*
Policy RURAL.3	*Manage land development activities on steep, mid-altitude and high-altitude land to prevent or minimise the effects of erosion and sedimentation, and minimise changes in catchment water yield.*
Policy RURAL.4	*Avoid loss of high value soils from productive use, through inappropriate subdivision, use and development.*
Policy RURAL.5	*The effects of rural land development shall be sustainably managed and land management practices encouraged.*

Comment

The application is largely consistent with objectives and policies for sustainable rural land use activities. This application has been considered with regard to environmental, economic, social and cultural values. The farm is within a rural area, and adjoins an established farm. The CEP and application outlines mitigation measures to be adopted to manage the vulnerabilities of the soils on the site.

The key provision is Policy RURAL 5. All of the matters listed in this policy have been considered by the applicant, with the effluent disposal are being chosen in order to minimise soil compaction. The applicant has also proposed mitigation measures in their CEP that will address the factors listed within this policy, primarily soil health.

Infrastructure

Policy INF.2 *Avoid, remedy or mitigate the adverse effects of infrastructure on the environment.*

Comment

The application for land use consents for the effluent pond and bore is consistent with the above.

3.6 Relevant provisions of national policy statements (Section 104(1)(b)(iii))

National Policy Statement for Freshwater Management (NPSFM) 2014

The NPSFM supports improved freshwater management in New Zealand. It does this by directing regional councils to establish objectives and set limits for fresh water in their regional plans.

The following objectives and policies in the National Policy Statement for Freshwater Management (NPSFM) 2014 are of particular relevance to this application:

Water Quality

Objective A1 *To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and the health of people and communities, in sustainably managing the use and development of land, and of discharges of contaminants.*

Objective A2 *The overall quality of fresh water within a region is maintained or improved while protecting the significant values of outstanding freshwater bodies; protecting the significant values of wetlands; and improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.*

Policy A3 *By regional councils imposing conditions on discharge permits to ensure the limits and targets specified pursuant to Policy A1 and Policy A2 can be met; and where permissible, making rules requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant entering fresh water.*

Policy A4 *When considering any application for a discharge the consent authority must have regard to the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and on the health of people and communities as affected by their secondary contact with fresh water. the extent to which it is feasible and dependable that any more than minor*

adverse effect on fresh water, and on any ecosystem associated with fresh water, and the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided. This policy applies to the following discharges (including a diffuse discharge by any person or animal) a new discharge or a change or increase in any discharge.

Comment

The discharge element of the application is generally consistent with Objective A1. This is because the discharge is to land, the applicant has adopted current practice for the effluent management system and mitigation measures have been included in the application The conversion element of the application is generally consistent with this objective as a Conversion Environmental Plan (CEP) has been submitted with the application. This plan outlines all the mitigation measures that the applicant will be taking in order to avoid and mitigate any effects on the life-supporting capacity of freshwater resources.

The proposal is generally consistent with Objective A2. This is where the overall water quality of a region is to be maintained or improved, whilst improving water quality in water bodies that have been degraded by human activities to the point of being over allocated and to protect the significant values of wetlands. This clause is important as the Waituna Creek catchment and the Waituna Lagoon (a significant wetland) are showing evidence of significant water quality issues. However, these water bodies have not been classified as being over allocated in the Regional Water Plan.

Based on the information contained in the application, it is likely that if all of the mitigation measures offered by the applicant are adopted, if best practice is followed and the farm is established as per the application that the activities may result in the maintenance of water quality. This also includes the adoption of the other measures to reduce phosphorus losses offered at the pre-hearing meeting. It may also mean that water quality is improved. However, as stated above, the ability to do this when the applicant will be able to farm in a materially different way once the conversion is complete and the land use consent is surrendered is uncertain. On the balance it is considered that if conditions can be prepared and adhered to which can address these concerns that the application is generally consistent with this provision.

Policies A2, A3 and A4 require the Council to set objectives and limits to assist in the improvement of water quality in waterbodies. At present, no catchment nutrient loading limits or limits for specific water bodies have been set by Council. The objectives associated with these policies seek to specifically protect the life-supporting capacities and ecosystems of fresh water bodies. Policy A4 has been inserted in the Regional Water Plan.

Water Quantity

Objective B1 — *To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water.*

Objective B3 — *To improve and maximise the efficient allocation and efficient use of water.*

Policy B5 — *By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a freshwater management unit that are authorised to be taken, used, dammed or diverted does not over-allocate the water in the freshwater management unit.*

Policy B6 — *By every regional council setting a defined timeframe and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in the freshwater management unit is reduced to the level set to give effect to Policy B1.*

Policy B7 — *When considering any application the consent authority must have regard to the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem and the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided. This policy applies to any new activity and any change in the character, intensity or scale of any established activity –that involves any taking, using, damming or diverting of fresh water or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity.*

Comment

Policies B5 and B7 concern water quantity and seek to protect the life-supporting capacity of the fresh water resources. This application seeks to abstract groundwater and Objective B3 requires the efficient use of this fresh water resource. The proposed take is regarded as an efficient and reasonable use of water as it is consistent with Council's standard volume for dairy farms.

The application is consistent with Objectives B1 and B2 and Policies B1, B4 and B5. This is because the taking of the water will not result in the over allocation of the groundwater zone and will still enable the resource to be sustainably managed.

Integrated management

Objective C1 — *To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.*

Policy C1 — *By every regional council managing fresh water and land use and development in catchments in an integrated and sustainable way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects.*

Comment

Policy C1 requires integrated management of freshwater and land use. The management practices described in the CEP supplied with the application, give effect to this policy. However, once the conversion is complete this plan becomes null and void. The further implementation of this policy is limited through the consent process.

Tāngata whenua roles and interests

Objective D1 — *To provide for the involvement of iwi and hapū, and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.*

Policy D1	*Local authorities shall take reasonable steps to involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region; work with iwi and hapū to identify tāngata whenua values and interests in fresh water and freshwater ecosystems in the region; and reflect tāngata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.*

Comment

Te Ao Marama Inc, on behalf of Ngāi Tahu, has submitted on the application. Consideration of Te Tangi a Tauira and the involvement of Ngāi Tahu are consistent with Objective D1 and Policy D1.

3.7 Relevant provisions of National Environmental Standards and other regulations (Section 104(1)(b)(i) and (ii))

National Environmental Standard for Sources of Human Drinking Water Regulations 2007

This NES is relevant to any application for a discharge permit. These regulations aim to reduce the risk of drinking water sources being contaminated. Regulations 7 and 8 only apply to an activity that has the potential to affect a registered drinking-water supply that provides no fewer than 501 people with drinking water for not less than 60 days each calendar year.

As this activity is not upstream of a registered drinking-water supply, the regulations have not been considered for this application.

Resource Management (Measurement and Reporting of Water Takes) Regulations 2010

Accurate, complete and current water information is a critical building block in establishing a water management system in which water is effectively allocated and efficiently used. The regulations apply to holders of water permits (resource consents) which allow fresh water to be taken at a rate of 5 l/s or more.

As the proposed take it less than 5 l/s then the regulations do not apply.

3.8 Any other matters considered relevant and reasonably necessary to determine the application (Section 104(1)(c))

Te Tangi a Tauira

Te Tangi a Tauira is the Iwi Management Plan for Southland. The policies relevant to this application are:

Farm Effluent Management (Section 3.5.1)

Policy 4	*Sustain the life supporting capacity of soils for future generations.*
Policy 7	*Require soil risk assessments prior to consent for discharge to land, to assess the suitability and capability of the receiving environment. Effluent should be applied at rates that match the ability of land to absorb it.*
Policy 8	*Require best practice for land application of managing farm effluent, in order to minimise adverse effects on the environment.*

Policy 9	*Tile drainage map.*
Policy 11	*Avoid any surface run-off/overland flow, ponding, or contamination of water resulting from the application of dairy shed effluent to pasture.*
Policy 13	*Require the establishment of appropriate buffer zones between discharge activities and waterways. The size of buffer zones should reflect local geography.*
Policy 14	*Require the establishment of buffer zones of at least 100m between discharge activities and bores.*
Policy 15	*All spray drift, as a product of spray irrigation of effluent, must be managed and contained within the boundaries of the consent area.*

Comment

The application is consistent with Policy 14, as the applicant is proposing to adhere to a buffer of 100 metres between any water abstraction point and the disposal area. It is also consistent with Policy 13 with buffers of 20 metres proposed between the disposal area and any waterways. The proposed buffer distances from property boundaries also align with the intent of Policy 15.

Best practice methods for the application of effluent have also been proposed by the applicant. These are consistent with Policy 8. The application has also based the proposed effluent application rate and depth on the soil types present on the property. Therefore, the application is consistent with Policy 7.

The applicant states that surface runoff and/or overland flow, ponding or contamination from water will be avoided due to the proposed mitigation measures offered as part of the discharge permit application. However, it is believed that the application is only partly consistent with the matters raised in Policy 11.

The farm map provided indicates the presence of tile drains. However, these have not been excluded from the disposal area.

Earthworks (Section 3.5.8)

Policy 1	*Consent applicants who are undertaking earthworks may be required to enter into Accidental Discovery Protocol.*
Policy 2	*Any activity involving earthworks that has the potential to modify, damage or destroy a wahi tapu or archaeological site will require one or more of the listed assessments(see list in this section of Te Tangi a Tauira) pre resource consent.*

Comment

This policy outlines the use of the accidental discovery protocol to be used for activities undertaking earthworks. The building of effluent storage pond and bore will require earthworks during some point during the construction phase. Typically an accidental discovery protocol is included as part of the conditions of the land use consents in the event of a discovery, or suspected discovery, of a site of cultural importance.

Water Quality (Section 3.5.13)

Policy 4	*Avoid compromising water quality as a result of water abstractions*
Policy 5	*Avoid the use of water as a receiving environment for the discharge of contaminants. Generally, all discharge must be first to land*
Policy 6	*Avoid impacts on water as a result of inappropriate discharge to land activities*

Comment

The applicant states that it will avoid effects of the discharge on the receiving environment through the utilisation of the proposed mitigation measures. Therefore, the application for the discharge is consistent with this provision.

The application is consistent with Policies 4 and 5. This is because the applicant is proposing to install a bore that will have well head protection and a back flow prevention device. Further, the primary receiving environment for the effluent discharge is proposed to be land.

Water Quantity - Abstractions (Section 3.5.14)

Policy 1	*Adopt the precautionary principle when making decisions on water abstraction resource consent applications, with respect to the nature and extent of knowledge and understanding of the resource.*
Policy 4	*In the Southland Plains region, the preference of Ngai Tahu ki Murihiku is for water takes from bores, as opposed to surface water abstractions.*
Policy 11	*Avoid excessive drawdown of aquifer levels as a result of groundwater abstractions, and to ensure that abstractions do not compromise the recovery of groundwater levels between irrigation seasons.*
Policy 16	*Encourage the installation of appropriate measuring devices on all existing and future water abstractions, to accurately measure, report, and monitor volumes of water being abstracted, and enable better management of water resources.*
Policy 17	*Advocate for durations not exceeding 25 years on resource consents related to water abstractions.*
Policy 18	*Require, where necessary, a consent condition providing for a review of the volumes able to be abstracted from the bores on the basis of the observed seasonable recovery of groundwater levels.*

Comment

The application is consistent with the above provisions. This is because the proposed volume is in line with Best practice volumes, the water take will be metered and the taking of the water should not result in the over allocation of the groundwater zone.

Waituna Lagoon Technical Group Report 2011 and Action Plan 2015

In 2011, a report was prepared by the Lagoon Technical Group. This report is on interim recommendations to reduce the risk of Waituna Lagoon flipping. Members of the Technical Group include Environment Southland, Te Ao Marama Inc, DairyNZ, Department of Conservation, OPUS and the University of Otago. The report and the science in it was peer revised by Professor David Hamilton of the University of Otago. It is a publically available document, which is recognised by Environment Southland. This report is a consideration under Section 104(1)(c), as it is a relevant matter which is reasonably necessary to consider the application. The report will help the decision makers to establish the facts about the receiving environment.

In this report it was established that there was a high chance of the lagoon "flipping" due to excessive inputs of contaminants including nitrogen, phosphorus and sediment from the intensification of land use in the catchment. The report states that evidence of a problem includes:

- stream nutrient inputs of N and P increased between 2001 to 2011;
- lagoon nutrient levels were at eutrophic levels;
- deteriorating trends in Total Phosphorous concentrations;
- Sediment anoxia;
- levels of native alga decreased;
- Ruppia cover had decreased.

The broad goals of the report for lagoon health are:

- reduced nutrient and sediment concentrations in the inflows and lagoon;
- decreased biomass of phytoplankton and macroalgae;
- increased distribution, abundance and health of *Ruppia* in the lagoon;
- improved sediment oxygenation and reduced sedimentation in the lagoon; and
- maintenance or improvement of ecological, recreational and cultural values (e.g. fish, birds, wetland fringing vegetation).

In order to achieve the above, the report recommends that the total nitrogen and total phosphorus levels entering into the lagoon need to be reduced by approximately 50%. This is to return the lagoon back to the levels of 1995. Whilst it is acknowledged that a catchment wide response may be an appropriate long-term approach the granting of this specific consent is unlikely to enable this reduction, especially the levels of Phosphorus.

The granting of the application (as long as the activities are carried out exactly as proposed) may contribute to the goals set out for the lagoon.

The 2011 document is supported by an August 2015 Action Plan. This Action Plan was prepared by DOC, Te Ao Marama Inc and Environment Southland. Assistance was also provided from local landowners and Fonterra. This plan establishes a vision for the lagoon, what has happened so far to address water quality issues and key actions proposed for the future. This report is attached.

…

3.9 Section 105 matters relevant to discharge or coastal permits

Section 105 matters need to be considered as the application is for a discharge that would contravene Section 15. Under Section 105, the consent authority must have regard to:

(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects;

(b) the applicant's reasons for the proposed choice; and
(c) any possible alternative methods of discharge, including discharge into any other receiving environment.

The nature of the discharge is farm dairy effluent from the wash down of a dairy shed and a standoff/feed pad. In 2000, a literature review[5] established the mean chemical concentration in farm dairy effluent of: nitrogen (400 mg I^{-1}), phosphorus (70 mg I^{-1}), and potassium (370 mg I^{-1}).The effluent also contains other nutrients, such as phosphorus, and gut organisms.

When applied to soils in an appropriate manner effluent can act as a nutrient. The proposed storage capacity could allow for the scheduling of effluent irrigation based on soil moisture deficits, decreasing the potential for nutrient loss to water[6]. The application states that the sensitivity of the receiving environment was considered when deciding on the application method, rate and scale.

The applicant's reasons for the choice are detailed in the application and assessment of environmental effects. In summary, the type of discharge has been chosen as it is best practice, is suitable for the farm, is reliable, and has minimal effects on the environment. Discharging farm dairy effluent to an alternative receiving environment (i.e. surface water or off-site) is considered unsustainable

3.10 Section 107 restriction on grant of certain discharge permits

The potential for the effects listed under Section 107(1) of the Resource Management Act are discussed in the application. Section 107(1) states that a discharge permit should not be approved if, after reasonable mixing, the contaminant is likely to give rise to adverse effects. The application is not for a discharge to water permit. Therefore, contaminants should not be directly discharged to water.

3.11 Part 2 of the Resource Management Act 1991

This application is consistent with the purpose and the principles of the Act, as set out in Section 5. The proposed activities will have no more than minor adverse effects on the ability of the receiving environment to meet the reasonably foreseeable needs of future generations, or on the life-supporting capacity of the land or any ecosystem associated with it. Proposed consent conditions may ensure that any potential adverse effects of the activities will be avoided, remedied or mitigated.

There are no matters of national importance, as outlined in Section 6 of the Act that may be affected by the proposed activities. The application is also consistent with Section 7 of the Act, with particular regard given to the maintenance and enhancement of the quality of the environment. With regard to Section 8 of the Act, the proposed activities are not inconsistent with the principles of the Treaty of Waitangi.

4. Recommendations

4.1 Whether to grant

I hold no concerns about the granting of the water permit and the land use consents to construct a bore and an effluent pond. However, to grant these without the accompanying discharge and land use consents would be purely speculative. A discussion on whether or not it is appropriate to grant these

[5] Longhurst, R. D., A. H. C. Roberts, and M. B. O'Connor. "Farm dairy effluent: a review of published data on chemical and physical characteristics in New Zealand." New Zealand Journal of Agricultural Research 43.1 (2000): 7-14.
[6] Houlbrooke, D. J., et al. "A review of literature on the land treatment of farm-dairy effluent in New Zealand and its impact on water quality." New Zealand Journal of Agricultural Research 47.4 (2004): 499-511.

other consents is provided below. This discussion outlines two paths which this application could follow.

The effects of the conversion of the subject site to dairying and the discharge of farm dairy effluent to land need to be considered carefully. This is because the application is one where the effects of the conversion and effluent discharge are concerning, especially within such as sensitive receiving environment. The sensitivity of this receiving environment is not in dispute. Therefore, my recommendation on the application is finely balanced. This is because despite the work that the applicant has put into preparing their application and the offered mitigation measures, much of the ability to control the effects of the activity relate to the ability to offer suitable conditions as per Section 108 of the RMA. Further, the suitability of the activity in such a sensitive receiving environment is one which is not encouraged or discouraged by the relevant policies and objectives.

The applicant has prepared an application where the conversion of the land to dairying farming is modelled to be a better environmental outcome for the site and the receiving environment than the existing onsite activities. It is also likely that the granting of the consents would lead to social and economic benefits for the applicant. It is stated in the application that as long as the activity is undertaken in accordance with the mitigation measures offered in the application then the effects of the activity on the receiving environment will be no more than minor. I tentatively agree with this conclusion. However, I do hold serious concerns about the ability to ensure that the activities will be carried out exactly how the application has stated they will be, that all mitigation measures will be used long-term and that the activity will be undertaken in accordance with all of the assumptions used in the Overseer model. It is these concerns which mean that my recommendation on the application is finely balanced and is only a tentative recommendation for the granting of the consents.

Another reason for a tentative recommendation relates to the ability of the Consent Authority to control the ongoing effects of the activities as applied for. As stated within this report, the land use consent for the conversion relates to the "establishment of a new dairy farm". Consequently, any land use consent granted under this rule covers only the establishment of the farm and the effects of the conversion of the farm. Once the farm is operating and the consent holder has done everything in its application that it said it would in "establishing" the farm (fencing, planting and construction of the shed and feed pad) then the consent can be surrendered. This is because the "use of land for dairying" is a permitted activity under the Regional Water Plan (only through the absence of a rule).

Due to this situation any measures offered by applicant, including the ones for this application which relate to mitigating, remedying or avoiding the ongoing effects of the use of the land for dairy farming on water quality are ones which cannot be enforced beyond the initial establishment phase of the dairy farm. In this instance, this could mean that measures relating to the area of land cropped, the type of crop planted, the amount of nitrogen added as fertiliser and the wintering of most of the cows off the farm could no longer be controlled. These are understood to be key drivers of how the application can contribute to the potential maintenance and enhancement of water quality within Waituna Creek and Waituna Lagoon.

In order to ensure that the effects are those that are set out in the application and that the activity will result in the suggested improvement and enhancement of water quality, the Hearing Panel needs to turn its mind to adding land use controls and farm management controls to a permit, which controls the discharge of effluent. Essentially, the panel must consider whether or not it is willing to consider the applicant's preparedness to have conditions that relate more to a Section 9 activity (on going land use) on a Section 15 permit. I understand that the applicant will be offering conditions which show this preparedness.

In the past and currently, the above approach is one that sits uncomfortably with Council and has been met with much opposition from previous applicants. This is because:

- the conversion rule is clear that it relates to the effects of the establishment of the dairy farm only;
- the issues associated with constructing conditions to control how someone farms, when this changes on a yearly basis depending on climate, new approaches and also financial issues;
- the legality of adding land use controls and farm management controls to a discharge permit (they could be ultra vires);
- the enforceability of such conditions is questionable; and
- the fact that some of the activities which may be conditioned are currently permitted, whether it be by way of a rule or the absence of a rule.

The above are reasons as to why the application is so finely balanced and why my recommendation to grant the consents is tentative. This is because the suitability of granting the consents rests solely on the cross-pollination of conditions onto permits which they are not typically on and to control the use of land in an ongoing way which Council's plans do not anticipate, nor support.

In the absence of the above conditions relating to the ability to ensure that the conversion as well as the farm is operated in accordance with the application then I do not consider that the effects of the activities will be as described in the application. If the Hearing Panel agrees with this then I consider that the application should be declined.

Joanna Gilroy
Senior Consents Officer

Hilary Lennox
Consents Manager

RECOMMENDATIONS IN COUNCIL REPORTS ARE NOT TO BE CONSTRUED
AS COUNCIL POLICY UNLESS ADOPTED BY COUNCIL