19/RC/39

The Hearing Panel

13 May 2019
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-20181750
M & C Adams for the M J Adams Trust
Compiled by Alex Erceg, Consents Officer

Hearing:	The hearing is scheduled to commence at 9.00 am on Monday, 13 May 2019 in the Council Chambers, Environment Southland, corner of Price Street and North Road, Waikiwi, Invercargill.
Application:	M & C Adams for the M J Adams Trust have applied to: • use land for farming; • discharge agricultural effluent to land; • use groundwater for dairy shed operations and stock drinking water.
Notification:	The application was publicly notified on 15 January 2019 and three submissions to the application were received, two in opposition and one neutral.
Recommendation:	I recommend that the application is refused for the reasons that are detailed in this report.

Executive Summary

The application is a proposal for a dairy farm in which the cow numbers and the milking platform are expanding above what was authorised as at 3 June 2016.

The application proposes to increase cow numbers and land, consequently triggering Rule 20 of the proposed Southland Water and Land Plan. This plan sets out very clear and directive policies, as does the Regional Water Plan. The key objectives of both the operative Regional Water Plan and the proposed Southland Water and Land Plan is to maintain water quality where it is not degraded, or improve water quality in areas where it is degraded. The proposed plan takes a "hold the line" approach to freshwater quality, while freshwater objectives are developed for the region.

The applicants have offered some mitigations or offsetting for their proposal, however, despite these, I do not consider that the effects of the proposal will be less than minor or achieve the key objectives of the and policies of the plan.

In my view, the key issues that the hearing commissioners need to consider when making the decision on the proposal are:

- issues with using Overseer as a modelling tool;
- effects arising from the change in land use on the Eastern Block;
- effects on surface water quality;
- offsetting of effects;
- off-site effects;
- cumulative effects; and
- the effluent storage system does not meet the permitted activity criteria.

The following highlights areas of agreement for this proposal and areas that I do not consider there to be any issues with. These are:

- the assessment of the existing environment and that the state of the existing environment;
- the applicants' assessment of the topography on the property;
- effects on groundwater quality and quantity from the proposed take (including stream depleting effects);
- the change in intensive winter grazing practices from what is currently occurring will have positive effects on an isolated basis on the Northern Block;
- soil health; and
- odour.

Overall I recommend that the application be declined.

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 M & C Adams for the M J Adams Trust. 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 Alex Erceg. I am a Consents Officer employed by the Southland Regional Council. I have been employed by the Council as a consents officer since 10 September 2018.

I hold the qualifications of Bachelor of Environmental Management and a Certificate in Sustainable Nutrient Management in New Zealand Agriculture. I also hold a Student Membership with the New Zealand Planning Institute.

I have been involved with the application since 25 March 2019, subsequent to the decision on notification being made. I have also visited the site.

For completeness, I have read the Environment Court Code of Conduct and agree to abide by it.

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 dated 5 October 2018;
- further information provided under Section 92(1) of the RMA dated 7 December 2018 and 3 April 2019;
- Resource Management Act 1991;
- National Policy Statement for Freshwater Management 2014;
- Southland Regional Policy Statement 2017;
- Regional Water Plan for Southland 2010;
- Proposed Southland Water and Land Plan (decisions version) 2018;
- Te Tangi a Tauria (Iwi Management Plan) 2008;
- Surface Water Quality Technical Comment dated 16 April 2019.

2. The application

2.1 The proposed activities

The application is for a suite of resource consents associated with the operation and expansion of a dairy farm. The proposal includes:

1. a discharge permit to discharge dairy shed effluent from up to 1,150 cows to land via a low rate pod system, high rate travelling irrigator system and high rate slurry tanker;
2. a water permit to take and use up to 126,500 litres of groundwater per day for stock water and dairy shed use; and
3. a land use consent to use land for farming where:
   (a) dairy cow numbers have increased above what was authorised as at 3 June 2016; and
   (b) the land area of the dairy platform is greater than at 3 June 2016.

Particulars of the Proposal

Table 1, taken from the application, summarises matters relevant to the applicants' proposal.

Table 1: Summary of application

Property Details		
Property address	1570 Otautau Nightcaps Road, R D 1, Otautau	
Property owner(s)	M & C Adams	
Legal Description	Existing Milking Platform	
	Pt Section 21 WAIRIO SD	SL172/151
	Section 132 WAIRIO SD	SO 1783
	Section 131 WAIRIO SD	SL40/84
	Section 338 WAIRIO SD	SL2A/232
	Closed Road Wairio Survey District	SL152/238
	Section 1 Survey Office Plan	SL172/151
	Northern Block	
	Pt Section 17 WAIRIO SD	SL163/103
	Eastern Block	
	Pt Section 124 WAIRIO SD	SL11A/263
	Lot 1 DP 13608	SL11A/263
Property area (ha)	Existing Property Area = 327.9 ha	Proposed Property Area = 487.8 ha
Change in scale/intensity/farm boundary?	Increase in land area Increase in cows from 1,000 to 1,150 cows Increase in groundwater take	

Discharge Permit Details:		
Replacement of permit no.	AUTH-302700-01-V1	
Number of dairy cows	Existing Number: 1,000 cows	Proposed Number: 1,150 cows
Stocking rate (cows/ha)	Existing Stocking Rate: 3.0 cows/ha	Proposed Stocking Rate: 2.4 cows/ha
Type of milking shed	64 bale rotary shed	
Winter milking?	No milking between 20 June and 20 July other than slipped cows	
Wintering barn?	No	
Feed pad/standoff pad?	No	
Other sources of effluent?	200 m^3 vat stand, tanker stand and other concreted areas (existing silage pad and new underpass not linked to effluent pond)	
Greenwash?	Yes – treated effluent from pond is reused to wash yard	
Effluent treatment	Weeping wall	
Storage available (m^3)	8,511 m^3 pond providing 6,136 m^3 of pumpable storage	
Storage required (m^3)	4,752 m^3 (as per attached dairy effluent storage calculator)	
Disposal area (ha)	245 ha (quoted in the s42A report for APP-302700-01-V1 and there will be no increase from current consented area)	
Irrigator proposed	Briggs Travelling Irrigator and low rate pods. Slurry tanker may be used on rare occasions, such as desludging the pond.	
Application rate and depth	10 mm/hr rate and 15 mm average depth per application	
Monitoring proposed	No monitoring proposed	

Water Permit Details:		
Replacement of permit no.	AUTH-302700-03	
Freshwater Management Unit	Aparima Freshwater Management Unit	
Average rate of take over 24 hrs (L/s)	1.7 L/s (max capacity of the pump is 2.9 L/s)	
Daily volume (L)	126,500 L/day	
Allocation per cow (L/cow/day)	110 L/cow/day (greenwash used)	
Location of point of take	Bore/well D45/0318 NZTM2000: 1217413E 489531N	
Freshwater storage onsite?	4 x 30,000 L tanks	
Yearly volume (m^3/year)	46,172.5 m^3/yr	
Groundwater Zone	Upper Aparima (RWPS)	Upper Aparima (PSWLP)
Discretionary allocation limit for groundwater zone (m^3/year)	93,000,000	41,060,000
Amount currently allocated from groundwater zone, including current permit (m^3/year)	3,520,272	4,077,723
Percentage Currently Allocated	4%	10%
Land Use Consent (use land for dairying)		
Area of new blocks (ha)	159.9 ha	
Use of land pre-May 2016	Northern Block – intensive winter grazing Eastern Block – sheep breeding and finishing unit	
Proposed use of land	Dairy platform for milking of 1,150 cows On-site wintering of up to 1,200 cows 37 ha of fodder beet and 12 ha of summer turnips grown	

Current and proposed farm system

The current system consists of operations occurring on three separate blocks:

- the dairy platform (~328 ha) is the current milking platform for the applicants. Operation of a dairy farm here, absent the additional cows and land in the proposal, is a permitted activity. The discharge to land on the platform of collected dairy shed effluent from 1,000 cows is authorised by a resource consent. The discharge area covers the entire dairy platform (less standard buffers) (~245 ha);
- the Northern Block (~100ha) is a run-off block where the applicants winter grazes milking age dairy cows. There is also a third party commercial winter grazing operation occurring on the property;
- the Eastern Block (~60 ha) is currently a sheep breeding and finishing unit. The applicants have utilised the Eastern Block for grazing cows since early 2018, subsequent to the applicants taking ownership of the property in December 2017. The application does not state how many cows have been grazed on the block or what the nature of the grazing was. Young stock have been grazed at third party graziers.

The proposed farm system seeks to combine all three blocks into one landholding. This also includes an increase of milking cows by 150. The applicants will graze 1,200 cows on site, over the entire landholding, and will cease the commercial winter grazing operation that currently takes place on the Northern Block. The discharge area will not change as a result of the proposal. Young stock will continue to be grazed at a third party grazier.

Effluent System

The effluent system as described in the application is as follows.

Dairy shed effluent (also known as farm dairy effluent or FDE) is collected at the dairy shed where it is then gravity-fed to two clay lined sludge beds and a weeping wall system. After flowing through this system, the effluent then seeps into the clay lined effluent storage pond.

The effluent storage pond was built in 2014 by Nightcaps Contracting. The pond supplies sufficient storage for the effluent produced from 1,150 cows milked twice a day to enable deferred irrigation.

The applicants also use a greenwash system, which allows a portion of the effluent produced to be recirculated and be used for dairy shed wash down. This aids in reducing water usage, and also decreases effluent storage requirements.

Irrigation System

The applicants utilise a high rate travelling irrigator and low rate pods as their primary systems for irrigating the collected dairy shed effluent to land. The applicants have demonstrated that the travelling irrigator is capable of achieving their proposed application rate with an instantaneous rate of 10 mm/hr with an application depth of 15 mm.

The applicants also wish to include a high rate slurry wagon in their discharge permit as a contingency measure.

3. Effects and Issues

3.1 Description of the affected environment

The application describes the existing environment in detail. This description is not in dispute and is accepted, however for clarity and as it is a key issue for this application, I have outlined the degraded state of the receiving environment in this report. The following section will outline exactly what is considered to be the affected environment.

Catchment-scale environment

The site spans three catchments - the Wairio Stream catchment, Waicolo Stream catchment and the Opio Stream catchment. These are part of the wider Aparima River catchment and all three drain into the Otautau Stream and then into the Aparima River.

The Aparima River flows into the Jacobs River Estuary at Riverton. The estuary has been documented as suffering from eutrophication and sedimentation since 2007[1]. The estuary has been identified as being excessively muddy with elevated nutrient loads as well as the presence of nuisance macro-algal growths.

Surface Water Quality

Table 2 summarises the surface water quality from Land Air Water Aotearoa at the Otautau Stream Waikouro Monitoring Site, which is the nearest downstream monitoring site. Surface water quality here is degraded and is classified as being in the worst 25% of all lowland rural sites for every indicator except for Total Oxidised N, which is in the worst 50%.

Table 2: State of water surface water quality at Waikouro

	State	NOF Band Annual Median	Trend
E. Coli	In the worst 25% of all lowland rural sites	D – high risk of infection to waders/boaters	Indeterminate
Clarity	In the worst 25% of all lowland rural sites	N/A	Indeterminate
Total Oxidised N	In the worst 50% of all lowland rural sites	A – unlikely to be effects on sensitive species	Indeterminate
Ammoniacal N	In the worst 25% of all lowland rural sites	A – 99% species protection level. No observed effect on any species tested.	N/A
Dissolved Reactive P	In the 25% of all lowland rural sites	N/A	Indeterminate

The generally poor quality of surface water here may be explained by the physiographic characteristics of the area (described further below). These characteristics suggest that land use impacts on water quality are primarily from bacteria, sediment and phosphorous transported directly to waterbodies by overland flow or sub-surface drainage.

[1]https://www.es.govt.nz/Document%20Library/Research%20and%20reports/Estuarine%20reports/jacobs_river_estuary_2012_2013_fine_scale_monitoring_of_highly_eutrophic_arms_web.pdf

Groundwater Quality

The property sits within the Upper Aparima Groundwater Management Zone. The groundwater quality in this zone is generally good, although there are some hotspots which have elevated levels of nitrates. Groundwater nitrate levels within the vicinity of the property (Figure 1) ranges from what is classified as pristine/pre-European to that associated with moderate to high land use impacts.

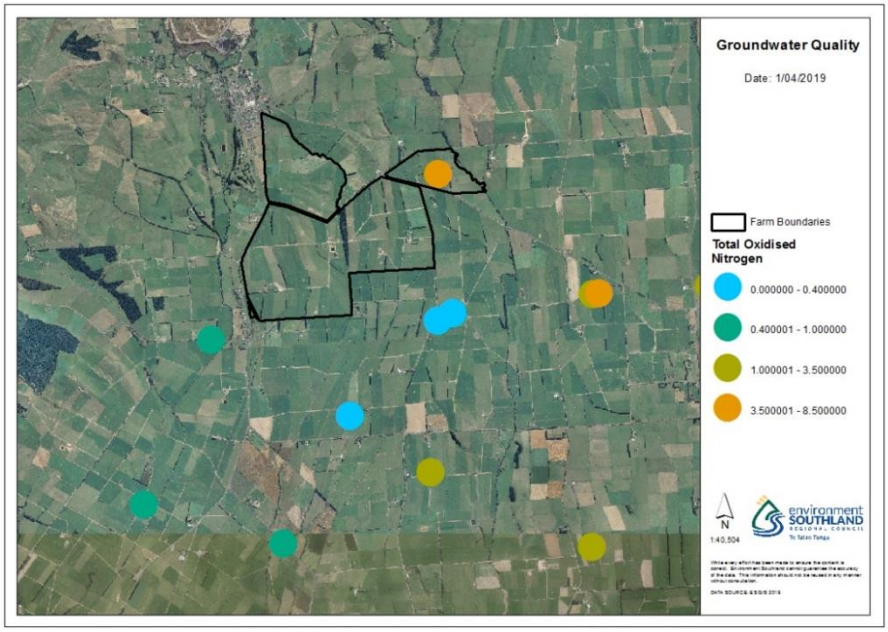

Figure 1: Groundwater Quality – Nitrate concentrations

Local environment: the subject landholding

The proposed landholding consists of three blocks of land. These blocks are located next to each other and will form a contiguous block if the application is granted.

Figure 2: The proposed landholding

The existing dairy platform is subject to a current discharge permit (AUTH-302700-01-V1), which authorises the discharge of agricultural effluent from up to 1,000 cows, and a water permit (AUTH-302700-03), which authorises the abstraction and use of 110,000 litres per day of groundwater for a dairy operation.

The Northern Block has been utilised as a run-off block for the applicants. The applicants have wintered 940 of their own dairy stock on the property. An additional 530 cows have been intensively winter grazed on the block as part of a commercial operation by a third party.

The Eastern Block was used as a sheep block prior to its purchase by the applicants in December 2017, as discussed earlier in the report.

The Northern and Eastern Blocks will be incorporated into the dairy platform and the landholding under the proposal.

Soils and Physiographic Zones on the subject site

Vulnerability of the subject land to effects of farming and effluent irrigation can be examined by reference to soil types, physiographic zones and to FDE land classifications. These are summarised in Table 3.

- **Soil classifications**
  The soil types within the proposed landholding have a slight to moderate risk of nutrient leaching and a moderate to severe risk of waterlogging. As such, the main contaminant pathway is artificial drainage and overland flow, with the main risk being to surface waterbodies.

- **Physiographic zones**
  The proposed Southland Water and Land Plan introduced the concept of physiographic zones, which are spatial zones defined by their geological, topographical, soil, and climate characteristics. Physiographic zones provide an understanding of why land use impacts upon water quality vary between locations with similar land uses.

  The physiographic zones on the property are Gleyed, Lignite Marine Terraces and Bedrock/Hill Country. The zones indicate that the main contaminant pathways on this property will be via artificial drainage and overland flow, with the main risk being transfer of contaminants directly to surface waterbodies. This is an important point, as these surface water bodies <u>are already degraded</u>**.**

  The Gleyed and Lignite Marine Terraces physiographic zones both have denitrifying potential, and the Bedrock/Hill Country zone does not have any significant areas of groundwater. Therefore surface water is most at risk from the proposed activity.

- **FDE land classification**
  The FDE risk categories for the discharge area are Category A, which identifies artificial drainage as the main contaminant pathway and Category C, where due to the sloping nature of the land, overland flow would be the main contaminant pathway. However, the applicants dispute that the dairy platform has sloping land.

The applicants have not provided any further analysis of this as part of this application. I note that Council systems identify that there is no slope greater than 7° on the dairy platform, and therefore I agree with their assessment.

Table 3: Soils, physiographic zones and FDE land classifications on the property showing vulnerability factors

Soils	**Soil Type**	**Vulnerability Factors**		
		Structural Compaction	**Nutrient Leaching**	**Waterlogging**
	Aparima + Pukemutu	Moderate	Moderate	Moderate
	Ohai + Aparima	Slight	Slight	Severe
	Makarewa	Moderate	Slight	Severe
Physiographic Zones	**Physiographic Zone**	**Variant Type**		
		No Variant	**Overland Flow**	**Artificial Drainage**
	Gleyed	√	√	
	Bedrock/Hill Country		√	√
	Lignite-Marine Terraces		√	√
FDE Land Classification (Discharge Area)	Category A – Artificial Drainage or Coarse Soils Structure Category C – Sloping Land			

Groundwater Quantity

There are no quantity allocation issues for the groundwater zone related to the proposal (Table 4).

Table 4: Groundwater availability and allocation

Groundwater Zone	**Upper Aparima (RWP)**	**Upper Aparima (proposed Southland Water and Land Plan)**
Discretionary Allocation	93,000,000	56,930,000
Amount Currently Allocated	3,599,024	4,156,475
Mean Annual land Surface Recharge	185,900,000	N/A
Percentage Currently Allocated (%)	3.9	7.3

3.2 Actual and potential effects – effects not in contention

Effects to be considered **(Section 104(1)(a))**

Consideration of the following effects is required:

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

Effects not in contention

The assessment of environmental effects provided with the application has provided an assessment of the following effects. The applicants have provided a number of good management practices and mitigations to address the below effects, and the provision of them is not in dispute.

Effects on Groundwater Quality

The soil types and physiographic zones where the property is located indicate that effects on groundwater from the proposed activities are acceptable. The Gleyed zone and Lignite-Marine Terraces have denitrifying potential and the contaminant pathways on the property are overland flow and artificial drainage.

The Bedrock/Hill Country contaminant pathways provide minimal risk to groundwater. The applicants have also proposed a number of good management practices such as deferred irrigation and only applying effluent when there is a soil moisture deficit. The applicants have provided application rates which match the level of risk. It is considered there is some risk to groundwater, however, this is significantly less than the risk to surface water for this location.

Effects on water quantity (including stream depleting effects)

The application is for abstraction from a groundwater management zone with a significant amount of unused allocation, and therefore over-allocation will not occur as a result of the proposed activity. The rate of take is less than 2 litres per second and therefore stream depletion effects are not expected to arise from the exercise of the proposed activity.

Soil health

The effluent disposal field will be 245 hectares. This is more than the area needed to meet the minimum requirement of 4 hectares per 100 cows, which is calculated to achieve a maximum loading of 150 kg of nitrogen/hectare/year from effluent irrigation. It is also more than the 8 hectares per 100 cows as recommended in the Best Practice Guidelines Booklet[2] .

[2] Farm Dairy Effluent, Best Practice Guidelines (2007), Environment Southland

There are several different soils in the disposal area with the predominant risks for contaminant losses to the environment being via artificial drainage and overland flow. The main risk factor for the property for the discharge of effluent is artificial drainage to surface waterways and overland flow to surface waterways. The application details ways in which these effects will be mitigated through the use of good management practices such as deferred irrigation and only applying effluent when there is a soil moisture deficit. The applicants have also provided irrigation depths which match the level risk.

Provided the effluent is applied at the appropriate rate and depth effluent can act as a fertiliser providing nutrients to aid pasture growth and therefore soil health and available nutrients should be maintained and enhanced.

Odour

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

Effluent storage facilities can cause problems with odour, however, the closest dwelling on another property is located over 700 metres from the effluent storage facility and the facility is located more than 700 metres from the property boundary. A recommended condition of consent requires that there are no significant adverse effects on surrounding landowners and occupiers as a result of odour from the storage facility.

3.3 Actual and potential effects – key issues

I have a number of concerns relating to the proposed activities. These issues relate to effects on water quality, including potential for contamination of surface water. The following issues are discussed below:

1. effects arising from the change in land use on the Eastern Block;
2. offsetting of effects;
3. transfer of effects to an off-site location; and
4. cumulative effects.

- **Issue 1: Effects arising from the change in land use on the Eastern Block**

  The Eastern Block is currently used for sheep grazing, which the application proposes to now use for activities associated with dairy farming, including grazing of dairy cows and intensive winter grazing. Treated in isolation, contaminant losses into the environment from this block will increase if consent is granted. The Eastern Block sits wholly in the Opio Stream catchment, whereas the existing dairy platform is mostly within the Waicolo Stream catchment, with a very small portion platforming the Opio Stream catchment.

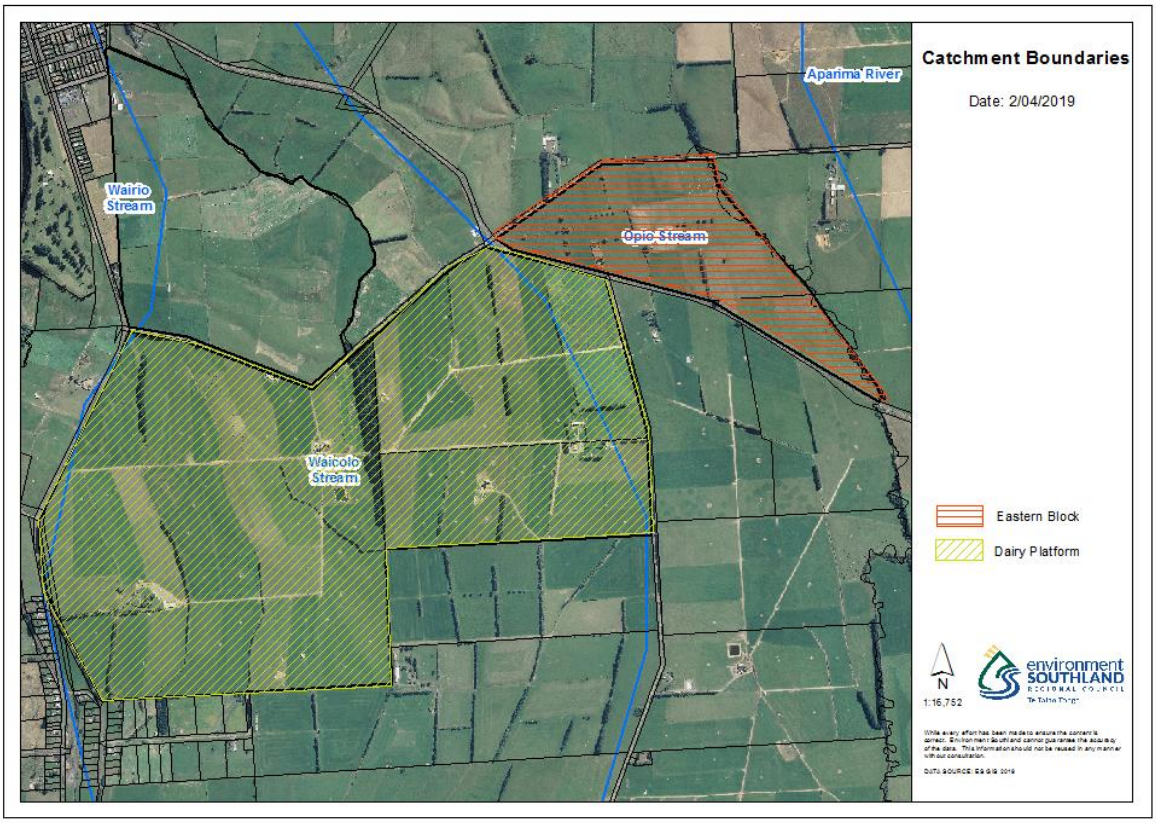

Figure 3: Affected Catchments

The proposed land use change will lead to an increase in losses on the Opio Stream catchment. It is important to note that these losses have not been present in this catchment previously, as the existing dairy platform has not been part of this catchment to the scale it is now proposed to be. The Eastern Block has no open surface waterways running through the property, however the Opio Stream flows along the eastern boundary of the block, and will be the immediate receiving environment for the contaminant losses from the block.

The Eastern Block sits within the Gleyed physiographic zone, with a large portion having no variant and a small portion in the north western corner of the block having an overland flow variant. Soils in this zone are poorly drained and almost always have subsurface artificial drainage (or "tile drains"), which provide the main contaminant pathway. The tile drains have not been mapped for this block therefore it is not known to what extent the transfer of contaminants will occur. However, tile drains are known to be present through much of Southland and are a characteristic of the Gleyed physiographic zone.

In my opinion the main risk associated with intensification of land use in this block is the contamination of surface water via overland flow and artificial drainage.

This block will also be used for intensive winter grazing under the proposal. The soils on this block are prone to waterlogging which leads to pugging of the soil. Intensive winter grazing incurs concentrated nutrients to isolated patches in dung and urine spots. Over the period intensive winter grazing is undertaken, uptake of these nutrients is slow, which can cause an increase in losses. Intensive winter grazing of dairy cows has not been undertaken on this block previously.

I anticipate that for this block to support the change in land use and ongoing use for these activities, capital fertiliser inputs (at least in the short term) will need to be applied. These additional nutrients will be needed to ensure sufficient pasture production for the intended use of the block. I note that this block will not be incorporated into the existing discharge area. Even with the use of good management practices for fertiliser application, capital fertiliser inputs will likely add to the loss of nutrients from the block via overland flow and subsurface artificial drainage.

The contaminants of most concern are phosphorus, sediment and microbes, which cause sedimentation of the receiving surface waterbodies, growth of nuisance plants and human and animal health effects. Increases in sediment and nutrients can cause a decrease in dissolved oxygen and turbidity, which in turn, can lead to eutrophication of the waterbody. There are also the cumulative effects, which will be discussed further below.

Due to the denitrifying potential of the Gleyed Physiographic Zone, Nitrogen losses are not the most significant area of concern on this block provided timings of fertiliser are when nutrient uptake is maximised. However, during the wetter winter months when intensive winter grazing is proposed nitrogen from urine and dung patches would likely reach waterways via overland low and artificial drainage.

The applicants have provided Overseer budgets to predict the losses from the proposed scenario, however the Eastern Block has **not** been modelled separately, so it is not possible to quantify what the increase in contaminant losses may be if the land use changes from sheep farming to dairy farming and intensive winter grazing. Nevertheless I expect that contaminant losses into surface water from this block will increase if consent is granted.

In my view the environmental effects arising from this change will be more than minor effect when compared to the effects of the current land use. The application does not assess what these effects are likely to be in detail, especially at block detail. The application does not provide adequate measures to avoid, remedy or mitigate these effects, rather the application relies on 'offsetting' these effects over the entire landholding.

- **Issue 2: Offsetting of effects / spreading effects over the landholding**

Note: The terms offsetting of effects and spreading effects over the landholding are used interchangeably over this report.

The Overseer budgets supplied in the application predict that nutrient losses will decrease as a result of the proposed activity. This is largely due to the "offsetting" of effects by assessing the nutrient losses across the landholding, within increases in some areas and decreases in others. As the landholding is expanding there is a larger area to spread nutrient loads over. As policy directs me to consider all effects, I do not consider it to be appropriate to accept that offsetting effects or exporting effects to another location, landholding or catchment results in a less than minor effect from the proposed activity.

As a result of the proposed expansion of the dairy farming, intensive winter grazing will now be spread over the entire landholding, rather than confined to the Northern Block. As a consequence the effects of the activity are now spread over all three blocks. The dairy platform and the Eastern Block have not been subject to intensive winter grazing. As a result,

losses from these blocks, especially the Eastern Block will increase, whilst the effects on the Northern Block will decrease. It is accepted that this has a localised positive effect on the Northern Block, however this results in an adverse effect on the existing dairy platform and the Eastern Block and cumulative effects. This is especially significant to the Eastern Block, which is in a different catchment to the Northern Block, as the effects of Intensive winter grazing are now being exported to a different catchment.

A commercial winter grazing activity (for 530 cows approximately) on the Northern Block will also cease as a result of the expansion. The 530 cows will now have to be wintered in another location, outside of the applicants' control, and therefore this effect has also been exported elsewhere. The displacement of current activities from the proposed new blocks creates "head room" in the nutrient budget for the landholding, which the applicants now propose to occupy with the new additional dairy farming. When considering this with regard to Policy 39[3] (refer Section 3.4) and having consideration of all the effects of the proposed activity. I consider that the effects of displacing the commercial winter grazing activity should be considered as an effect of the application.

When considering the proposal as a whole, although localised effects are being spread out, the increase in cow numbers results in greater effects overall. These effects are largely considered in the section on cumulative effects later in this report. It is important, however, to highlight that although effects are being offset, there is still a resulting increase effects from the increased number of cows. This is especially prevalent when considering the effects from dung and urine patches, and the introduction of more concentrated nutrient loads as a result.

- **Issue 3: Transfer of effects to an off-site location**

When viewing the proposed activities broadly, a consequence of the applicants' proposal will be that new, additional or further intensified wintering of animals may occur elsewhere. The same may be the case for the sheep farming. Losses will increase from a change of land use on land not previously used for dairy farming operations, and the exact effects of that has not been adequately identified or assessed for the proposal. The applicants have attempted to model the effects resulting from the cessation of the commercial intensive winter grazing, however, Overseer does not provide certainty (discussed later on in this report) of the losses, nor does it illustrate or define the effects of such losses on the receiving environment.

The applicants also graze young stock[4] off-farm from weaning until they are due to calf. They will be intensively winter grazed at a third party grazier outside of the applicants' landholding. The effects of this have not been assessed by the applicants in the proposal. It is unknown what physiographic zones or soil types this activity will occur on, therefore it is near impossible to determine the severity of the effects of this activity. I note that this also creates head room in the applicants' Overseer budget, as the losses from this activity will not occur from the applicants' landholding, nor has it been considered.

- **Issue 4: Cumulative Effects**

The main contaminant pathways for the property are overland flow and artificial drainage, therefore cumulative effects on the surface waterbodies and sensitive areas within the catchment is of most concern. The Overseer budget assumes that 60% of the land is mole

[3] Policy 39 – Proposed Southland Water and Land Plan

[4] Young Stock is defined as Rising 1 year and Rising 2 year olds

and/or tile drained, of which no map was supplied with the application. Phosphorus, sediment and microbial contaminants are of most concern as a significant portion of the proposed landholding has denitrifying potential. Nitrogen still poses a risk however largely when losses from urine and dung patches occur.

The property sits across multiple catchments, of which all are a part of the wider Aparima catchment. All surface waterbodies on the property flow into smaller streams before discharging into the Otautau Stream and then into the Aparima River. The Aparima River flows into the New River Estuary at Riverton. As discussed earlier, surface waterbodies within the receiving environment are considered to be degraded. The estuary has been identified as being excessively muddy with elevated nutrient loads as well as the presence of nuisance macro-algal growths.

Contaminant losses to surface waterbodies can have ecological health implications, result in nuisance plant growth and lead to eutrophication. Diffuse, non-point discharges from agricultural land use is a major contributor to nutrient loadings in Southland[5] . It is difficult to quantify the contaminant load from a property and determine how much the site will contribute to the cumulative effects within the receiving environment.

The introduction of the Eastern Block into the landholding will have significant cumulative effects on the immediate receiving environment within Opio Stream catchment. The proposed activities have not previously occurred on that block, and therefore the previous effects from previous land uses would have contributed smaller nutrient loads to the cumulative loads on the sub-catchment. The cumulative load on the sub-catchment will now increase as a result of the activity, especially in the short-term. As this block has not been modelled in Overseer, what that loading will be is unknown.

I have noted that the entire catchment sits on the Gleyed (No Variant) physiographic zone, unlike the applicants' property, which is subject to other physiographic zones as well as overland flow variants.

The landholding sits largely within the Waicolo Stream catchment. As a result of this proposal, the dairy farm will now have the biggest peak milking herd within the Waicolo Stream catchment. When considering cumulative effects, it is at the most risk of contributing to the cumulative load of the catchment.

3.4 Other Matters

Effluent Storage System

The applicants' effluent storage system consists of two sludge beds and a weeping wall system, and a clay-lined effluent pond. The use of land for the maintenance and use of existing clay-lined agricultural effluent storage facilities is a permitted activity provided the structures have:

- been certified by a suitably qualified person in accordance with Appendix P of the proposed Southland Water and Land Plan within the last three years as having no visible cracks, holes or defects that would allow effluent to leak from the structure; and
- the structure meets the relevant pond drop test criteria in Appendix P.

[5] Aqualinc, Assessment of form mitigation options and land use change on catchment nutrient contamination loads in the Southland region,2014

The applicants have not demonstrated that either the sludge beds or the effluent pond are in line with the permitted activity rule of Rule 32D of the proposed Southland Water and Land Plan, as described above.

The clay-lined effluent pond was built in 2014 and is therefore approximately five years old. In order to meet the permitted activity criteria, the aforementioned certification would need to be applied. As this information was not supplied, I am also unable to determine the adverse effects of the use of land by the effluent facilities, as there is no evidence that the structures are structurally sound and not leaking.

The use of the structures is also not covered by Section 20A of the Resource Management Act 1991, as due to the intensification of the activity, the effects of the activity are not the same or similar in character or intensity. There is also no certainty that the effluent structures are not leaking.

Nutrient Budget

Modelling nutrient losses through Overseer is a helpful tool that aims to quantify the nutrient losses from a farming activity. A model, however, comes with a level of uncertainties, especially when modelling for a proposed scenario, as inherently the inputs are based on assumptions and proposed inputs. Although Overseer quantifies the losses, this does not necessarily correlate to what the actual environmental effect of those losses will be, nor does it actually identify what those effects will be[6] . Also Overseer assumes that good management practices are being undertaken on-farm, and therefore mitigation measures that go beyond this must be employed in order to mitigate the effects of the proposed losses. The intent of Overseer is to provide outputs from farm-level nutrient models that form a basis in which nutrient stress on waterbodies can be investigated. However, a model is a simplification of reality.

"*Overseer cannot estimate the environmental impacts of these nutrient losses, because these often occur far beyond the farm boundary in distant receiving waterbodies*" [7].

The Overseer model assumes average and constant management and site characteristics which allows for the nutrient flows on farm to be compared. In a farming situation this is, however, problematic for the fluid nature of a farming activity, especially when land use is changing and/or intensifying. As Overseer uses annual averages, it also does not account for climate variation such as overly wet, or in contrast overly dry, years. Overseer provides an overarching view at block (and farm) scale, and does not account for the variation of landscape, soil and topography types within that block (and/or farm). This simplifies the complex processes that can be occurring within this block. The applicants' site has several soil types, and physiographic zones with different variants which may not be accurately accounted for on a wider scale. Uncertainty within the model itself is also unavoidable. On average, this uncertainty for nutrient losses can equate to up to 30% over and above what is calculated[8].

[6] Overseer and regulatory oversight; Models, uncertainty and cleaning up our waterways, Parliamentary Commissioner for the Environment (December 2018).
[7] Overseer and regulatory oversight; Models, uncertainty and cleaning up our waterways, Parliamentary Commissioner for the Environment (December 2018), page 29.
[8] Overseer and regulatory oversight; Models, uncertainty and cleaning up our waterways, Parliamentary Commissioner for the Environment (December 2018).

One important point to note is Overseer cannot "*accurately model situations when farm management is changing, which happens, for example, when a land use is changing*"[9].

3.5 Effects that must be Disregarded (Section 104(2))

Policy 39 of the proposed Southland Water and Land Plan states:

> "When considering any application for resource consent for the use of land for a farming activity, the *Southland Regional Council should consider all adverse effects of the proposed activity on water quality, whether or not this Plan permits an activity with that effect*".

As such, **all effects** related to the use of land for farming and the associated activities undertaken as part of the entire farming operation have been considered, and **no effects have been disregarded**.

3.6 Conclusion

The applicants have applied to increase cow numbers and the size of their dairy platform. Alongside this the applicants have proposed a number of good management practices and mitigations. When looking through the lens of the policies and objectives of the regional plans, the adverse effects arising from the proposed activity are expected to be more than minor. It is especially considered that cumulative effects and localised effects, specifically with regard to the Eastern Block, arising from the proposal will be at a level which is more than minor.

4. Procedural Matters

4.1 Regional Planning framework

Resource consents for the above activities are required under the Regional Water Plan (2010) (RWP) and the proposed Southland Water and Land Plan (Decisions Version) (2018) (proposed Southland Water and Land Plan).

RWP

- The abstraction of groundwater is a **restricted discretionary activity** under **Rule 23(c)(i)**; and
- The discharge of dairy shed effluent is a **non-complying activity** under **Rule 50(d).**

Proposed Southland Water and Land Plan

- The abstraction of groundwater is a **discretionary activity** under **Rule 54(d)**;
- The discharge of dairy shed effluent is a **discretionary activity** under **Rule 35(c)**; and
- The use of land for farming is a **discretionary activity** under Rule **20(e).**

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

[9] Overseer and regulatory oversight; Models, uncertainty and cleaning up our waterways, Parliamentary Commissioner for the Environment (December 2018).

Overall, the application is considered to be a **non-complying activity**.

When considering a **non-complying activity**, the Council may only, in accordance with Section 104D, grant a resource consent for the activity if it is satisfied that the adverse effects of the activity are minor or the application is for an activity that will not be contrary to the objectives and policies of the relevant plan or proposed plan. If the application passes the "gateway" tests in Section 104D, under Section 104B the Council may grant or refuse consent for a non-complying activity, and if it grants the application, may impose conditions under Section 108 of the RMA.

4.2 Further information request

Further information was requested from the applicants on 1 November 2018. The requested information included:

- quantification of the effectiveness of the mitigation measures and good management practices identified for the landholding that are specific to reducing phosphorus losses under the proposed scenario;
- an explanation of how certain we can be that phosphorus losses will decrease, as has been described in the application;
- confirmation of the practices (good management and mitigation measures) already in place for P and those which will be implemented going forward (including the timeframes that they will be implemented within).

An additional further information request was issued on 25 March 2019. The requested information included confirmation that the winter grazing inputs in the overseer budget are accurate and representative of the current and proposed activities.

The above information was provided by the applicants (attached).

4.3 Notification and Submissions

The application was publicly notified on 15 January 2019. This was for the following reasons:

- the adverse effects from the proposed activity were considered to be more than minor; and
- the likelihood that more than minor effects occurring is high.

The above decision to publicly notify the application was made under Section 95A(2) of the RMA.

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

1. Public Health South on behalf of the Southern District Health Board – *Neutral*
2. Te Ao Marama Inc – *Oppose and wishes the application be declined*
3. Lawrence T Cameron - *Oppose*

4.4 Statutory Considerations

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 proposed Southland Water and Land Plan;
- relevant provisions of the National Policy Statements and National Environmental Standards;
- Part 2 of the RMA.

Section 108 provides for consent to be granted subject to conditions and sets out the kind of conditions that may be imposed.

The assessment of the actual and potential effects of the activity on the environment and the description of the receiving environment have been assessed previously in the report and will not be repeated under the following sections.

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

Council is currently operating under three Regional Plans – the Regional Effluent Land Application Plan (RELAP), Regional Water Plan (RWP) and the proposed Southland Water and Land Plan (proposed Southland Water and Land Plan). The RELAP does not apply to this application.

The proposed Southland Water and Land Plan was notified by the Consent Authority on 3 June 2016 and decisions on the proposed Plan were notified in June 2018. The proposed Southland Water and Land Plan is subject to appeal, however, it has legal effect under Section 104(1)(b) regard must, subject to Part 2 of the Act, be had to the provisions of any proposed plan. The relevant provisions of both plans are detailed below and are considered in turn.

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

Key Policies: Proposed Southland Water and Land Plan

I consider that the policies below are of the most significance in relation to the proposed activities. Therefore I have separated them from the groupings below in order to highlight their significance.

Policy 16

1. *Minimising the environmental effects (including on the quality of water in rivers, coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands, and groundwater) from farming activities by:*
   - (a) *strongly discouraging the establishment of new dairy farming or new intensive winter grazing activities in close proximity to sensitive waterbodies identified in Appendix Q;*
   - (b) *strongly discouraging applications to establish new, or further intensify existing dairy farming of cows or intensive winter grazing activities where the effects on the quality of water, including cumulatively, of groundwater, waterbodies, coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands cannot be avoided or fully mitigated or in areas where water quality is already degraded to the point of being over-allocated.*
2. *Requiring all farming activities, including existing activities, to:*
   - (a) *either implement a Management Plan, as set out in Appendix N, or be listed on the Environment Southland Register of Independently Audited Self-Management Participants;*
   - (b) *actively manage sediment run-off risk from farming and hill country development by requiring setbacks from waterbodies, riparian planting, limits on areas or duration of exposed soils and the prevention of stock entering surface waterbodies;*
   - (c) *manage collected and diffuse run-off and leaching of nutrients, microbial contaminants and sediment through the identification and management of higher risk physiographic zones on a regional scale, and critical source areas within individual properties.*

Comment

Policy 16 provides very clear direction to Council when assessing applications. The proposed activities are consistent with **point 2** of the policy, and as the application satisfies the requirements of that part of the policy. **Point 1(a)** is not relevant to this application, as the proposed site is not in close proximity to sensitive waterbodies. However the cumulative effects from the proposed activity may affect such waterbodies present in the receiving environment. **Point 1(b)** is of the most significance and clearly states that applications to further intensify existing dairy farms or intensive winter grazing should generally be declined where the effects on the quality of water, including cumulatively, of waterbodies, lagoons and tidal estuaries cannot be avoided or fully mitigated in areas where water quality is already degraded to the point of being over allocated. The waterbodies and tidal estuaries within the receiving environment are already degraded. **Point 1(b)** is the proposed Southland Water and Land Plan's key method for giving effect to the National Policy Statement for Freshwater Management 2014 in respect of farming activities in Southland. This is a directive policy that dictates a clear outcome.

In my opinion, the mitigations provided do not fully mitigate nor avoid the adverse effects of the proposal. As mentioned earlier in the report, the directives of the policies in the Plan take a "hold the line" approach in respect of freshwater quality, where the onus is on the applicants to ensure their operations do not further degrade their receiving environments. I would interpret this hold the line approach to clearly anticipate that any further intensification should be declined, unless the adverse effects, including cumulatively are fully avoided or mitigated. In respect of this application, the actual and potential adverse effects on freshwater quality are not. While I accept that the applicants have implemented/proposed a number of measures to mitigate and/or avoid effects, I consider that the application does not avoid or mitigate all adverse effects on freshwater quality. The proposed activities are contrary to the directives of the policy.

Policy 39 *Application of the permitted baseline*

When considering any application for resource consent for the use of land for a farming activity, the Southland Regional Council should consider all adverse effects of the proposed activity on water quality, whether or not this Plan permits an activity with that effect.

Comment
This policy provides direction to Council for assessing applications. The interpretation taken is that when considering the proposed activities all adverse effects on water quality are to be considered, and activities that are permitted to be occurring in the environment are not considered as part of the existing environment. This provides a wide scope for assessing applications and draws in the off-site activities and does not provide for the off-setting of effects. When considering the application through the lens of this policy, as previously mentioned, the adverse effects especially cumulative effects will be more than minor.

Regional Water Plan

Policies from the Regional Water Plan and proposed Southland Water and Land Plan which have less relevance to this application or that align with the proposal are discussed further below.

Water Quality

Policy 1 *Surface water body classes and apply water quality standards established under any WCO.*
This policy seeks to recognise the different characteristics of certain water body classes when managing discharges to ensure the management of various waterbodies depending on their existing water quality.

Policy 3 *Water quality and zone of reasonable mixing.*
This policy directs that there is no reduction in water quality, whereby no discharges to surface waterbodies that result in a reduction in water quality beyond the zone of reasonable mixing are allowed**.**

Policy 4 *Surface waterbodies outside of Natural State Waters.*
This policy seeks to ensure that for surface waterbodies of Natural State Waters, point and non-point source discharges are managed to meet or exceed water quality standards.

Policy 7	*Prefer discharges to land over discharges to water.* This policy prefers discharges to land over a discharge directly to water.
Policy 13	*Avoid the point source discharge of raw sewage, foul water and untreated agricultural effluent to water.* This policy directs the point source discharge of untreated effluent to water, of which there is none proposed under this activity.
Policy 13A	*Transitional policy relating to the establishment of new dairy farms.* This policy asks that it is recognised that the establishment of new dairy farms poses a risk to water quality.
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.* This policy seeks to avoid, remedy or mitigate the adverse effects arising from point and non-point source discharges to ensure that there is no deterioration in groundwater quality.

Comment

The above policies all seek to avoid discharges directly to water, which is not proposed in the application. They also seek to recognise the different characteristics of the waterbodies and ensure that there is no reduction in water quality.

The applicants operate largely at good management practice, and have proposed a number of mitigation measures to ensure there is no reduction in water quality. It should be noted that the surface waterbodies in the receiving environment are degraded, and there should be no further degradation as a result of the proposed activity occurring.

It is noted that this is not a "new" dairy farm, but rather an expanded dairy farm. I believe Policy 13A is relevant and also provides an important consideration, as the expansion of the current dairy farming activity will also pose a risk to water quality. There are a number of factors to consider under this policy such as the need for resource consent to manage the risk posed, also the identification of the risk and the mitigations provided to address the risk as well as the timeframes for when these measures will be implemented. The application includes a description of the mitigations and good management practices and has identified which have already been implemented.

When considering the landholding as a whole, contaminant losses are expected to decrease from the proposed activity when compared to the current activity, however, isolated losses, such as those from the Eastern Block, will increase the risk of a reduction in the water quality within the Opio Stream. On a wider scale, addition of the contaminant loadings from the proposed activity to the cumulative loading of the relevant catchments, in particular the Aparima River parent catchment are also at risk of causing a reduction in water quality.

The soil types have a small risk of nutrient leaching and the physiographic zones have denitrifying potential. Accompanied with the applicants already implemented and proposed good management practices and mitigations, it is not expected that a deterioration in groundwater quality will occur. The risk to groundwater is not a significant one associated with this application.

Overall, the application is generally consistent with the above policies. There are some concerns relating to the water quality of surface waterbodies, especially when considering non-point source discharges and there contribution to the catchment contaminant loadings when taking into account cumulative effects.

Water Quantity

Policy 21	*Reasonable use*
Policy 22	*Installation of water measuring devices.*
Policy 23	*Review conditions on all new water permits.*
Policy 28	*To manage groundwater abstraction to avoid significant adverse effects.*
Policy 29	*Stream depletion effects*
Policy 30	*Staged management approach to allocating groundwater and recognise and assess the different characteristics of aquifer types.*

Comment
The application is not from an over-allocated groundwater zone and the proposed groundwater take will not result in any over-allocation. Consent conditions will require that the water take is metered, and abstraction records provided to Council. The water take is also in line with reasonable and efficient use of water and is for less than 2 l/s therefore stream depletion effects are not expected.

The proposed activities are consistent with the above policies.

Land and Soils

Policy 31A	*Match the level of management that is required for discharges of contaminants onto or into land to the level of environmental risk.* This policy seeks to match the level of management that is required for the discharge of effluent to the level of environmental risk.
Policy 31C	*Manage discharges of contaminants onto or into land to avoid, remedy or mitigate the listed (refer to full policy) adverse effects.* This policy seeks to manage the discharge of contaminants onto or into land to mitigate adverse effects on landscape features such as soil quality and amenity values.
Policy 31D	*Encourage the beneficial reuse of materials and promote discharges of materials onto or into land.* This policy encourages the beneficial reuse of materials and promote discharges onto or into land to maximise the reuse of the nutrients contained in the discharge.

Comment
When assessing the application against the above policies, there are a number of risk factors to consider. It is noted that the applicants use a high rate irrigator as their primary method of discharging effluent, and the property does consist of Category C or Sloping Land. Although, the level

of evidence required by the Plan to demonstrate that the FDE risk category is incorrect has not been provided, I accept the applicants' assessment that sloping land is not as prevalent on the property as indicated on Council systems, therefore reducing the risks associated with the discharge of effluent.

The applicants have provided application rates and depths that match the level of risk for all risk categories present, including sloping land. Council provides standardised buffer distances from certain risk locations such as waterways which the applicants have stated they will abide by, as well as matching the management of effluent to the level of risk aids in mitigating adverse effects. The size of the proposed discharge area is sufficiently sized to ensure that the effluent can act as a fertiliser, with the nutrients being available for uptake by vegetation cover, ensuring soil health and sufficient pasture production.

Overall, the application is consistent with the above polices. There is the management of contaminants appropriate for the level of risk as well as the reuse of the nutrients within the discharges.

Agricultural Effluent

Policy 41	*Adverse effects of agricultural effluent ponds.* This policy seeks to avoid adverse effects resulting from agricultural effluent ponds.
Policy 42	*Avoid adverse effects on water quality and other adverse effects associated with the application of FDE to land by matching FDE management to receiving environment risk.* This policy seeks to avoid adverse effects on water quality and other adverse environmental effects associated with the discharge of effluent.

Comment

The applicants' effluent pond was suitably designed and constructed with a resource consent. The pond is also suitably located in terms of buffer distances. However, as part of this application the applicants have not provided evidence that the clay lined pond, now five years old, is still structurally sound and not leaking. Therefore I am unable to say with certainty that adverse effects from the ongoing use and maintenance of the structure will not have any adverse effects on water quality until such evidence that the pond is structurally sound and not leaking has been provided.

The applicants have proposed to match the management of effluent to the level of risk aids in mitigating adverse effects. The size of the proposed discharge area is sufficiently sized to ensure that the effluent can act as a fertiliser, with the nutrients being available for uptake by vegetation cover, ensuring soil health and sufficient pasture production.

I do not consider that the proposed activities are contrary to the above polices, and determine that the activity is generally consistent with the above policies. There is a need, however, for the applicants to demonstrate that the adverse effects from the ongoing use and maintenance of the effluent pond are avoided by way of providing certification that pond is structurally sound and not leaking.

Proposed Southland Water and Land Plan

Ngai Tahu

Policy 1 *Enable Papatipua Runanga to effectively undertake their Kaitiaki responsibilities in freshwater and land management through the methods listed in the Policy*.

Policy 2 *Take into account Iwi Management Plans.*

Policy 3 *To manage activities that adversely affect Taonga species identified in Appendix M.*

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 has submitted on the application.

Physiographic Zone

Policy 6 *In the Gleyed, Bedrock/Hill Country and Lignite-Marine Terraces physiographic zones, avoid, remedy, or mitigate adverse effects on water quality from contaminants, by:*

1. *requiring implementation of GMPs to manage adverse effects on water quality from contaminants transported via artificial drainage and lateral drainage;*
2. *having particular regard to adverse effects on water quality from contaminants transported via artificial drainage and lateral drainage when assessing resource consent applications and preparing or considering management plans.*

Comment
The physiographic zones relate to the classification of land and risks to water quality based on factors including soil types, landscape classification, climate, and topography and water chemistry. These have been developed to better understand Southland's water and why it is better quality in some areas than others.

Policy 6 encompasses managing the risks associated with the physiographic zones across the entire farming activity. In assessing the actual and potential effects of the discharges to land and those discharges which may affect water quality, and the adverse effects from the land use, the applicants have, in part, addressed the factors listed in the above policies and the factors which contribute to the classification of the land into certain zones.

The applicants have implemented good management practices and have proposed a wide range of good management practices and mitigations to mitigate adverse effects. The applicants have also had regard to the contaminant pathways, in particularly artificial drainage and overland flow associated with the site.

The application and the proposed activities are generally consistent with the above policy and have given regard to the direction of this policy. The effectiveness, however, of the good management

practices and mitigation measures to avoid, remedy or mitigate adverse effects on water quality is hard to quantify.

Water Quality

Policy 13 *Recognise that the use and development of Southland's land and water resources, including for primary production, enables people and communities to provide for their social, economic and cultural wellbeing and manage land use activities and discharges (point source and non-point source) to enable the achievement of Policies 15A, 15B and 15C.*

Policy 14 *Prefer discharges to land, rather than direct discharges to water.*

Policy 15A *Maintain water quality where standards are met*

Where existing water quality meets the Appendix E Water Quality Standards or bed sediments meet the Appendix C ANZECC sediment guidelines, maintain water quality including by:

1. *avoiding, remedying or mitigating the adverse effects of new discharges, so that beyond the zone of reasonable mixing, those standards or sediment guidelines will continue to be met; and*
2. *requiring any application for replacement of an expiring discharge permit to demonstrate how the adverse effects of the discharge are avoided, remedied or mitigated, so that beyond the zone of reasonable mixing those standards or sediment guidelines will continue to be met.*

Policy 15B *Improve water quality where standards are not met*

Where existing water quality does not meet the Appendix E Water Quality Standards or bed sediments do not meet the Appendix C ANZECC sediment guidelines, improve water quality including by:

1. *avoiding where practicable and otherwise remedying or mitigating any adverse effects of new discharges on water quality or sediment quality that would exacerbate the exceedance of those standards or sediment guidelines beyond the zone of reasonable mixing; and*

2. *requiring any application for replacement of an expiring discharge permit to demonstrate how and by when adverse effects will be avoided where practicable and otherwise remedied or mitigated, so that beyond the zone of reasonable mixing water quality will be improved to assist with meeting those standards or sediment guidelines.*

Comment

It is important here to make a determination as to whether or not water quality standards are met, as this dictates whether or not the losses from the proposed activity are at such a scale that water quality is maintained, or whether the losses need to be mitigated to an extent where water quality is improved. The quality of the water in the Otautau Stream and Aparima River, for most parameters,

exceeds the guidelines defined in the Plan, and therefore water quality needs to be improved to meet the guidelines.

The applicants have offered mitigations in an attempt to mitigate the adverse effects. It is hard to quantify the effectiveness of these mitigations and when considering cumulative effects, it is difficult to determine with certainty whether or not water quality will actually improve as a result of the proposed activities occurring. The applicants' nutrient budget demonstrates that losses over the entire landholding will decrease. However, it is expected that losses will increase from the new use of the Eastern Block, and the effect of this expansion is not known and has not been quantified.

The application is consistent with these policies as it demonstrates how and when adverse effects will be avoided, but the effectiveness of such actions is uncertain. This is largely when considering the overall farming activities as opposed to just the discharge of effluent.

Effluent Management

Policy 17

1. *Avoid adverse effects on water quality, and avoid as far as possible other adverse environmental effects from the use of effluent management systems.*

2. *Manage agricultural effluent systems and discharges from them by:*

   (a) designing, constructing and locating systems appropriately;
   (b) maintaining and operating agricultural effluent systems in accordance with best practice guidelines;
   (c) avoiding any surface run-off/overland flow, ponding or contamination of water resulting from the application of agricultural effluent to pasture;
   (d) avoiding the discharge of raw sewage and untreated agricultural effluent to water.

Comment
This application proposes to discharge of effluent over a large area, therefore using the nutrients from the effluent and applying it to land to be used as a fertiliser. This reduces the chance of run-off when effluent is discharged appropriately. The effluent system was appropriately constructed, however no evidence has been provided to show that the clay lined pond is structurally sound or is not leaking.

Water Quantity

Policy B7 — *Policy B7 of the NPS for Freshwater 2014*

Policy 20 — *Management of Water Resources*

Policy 21 — *Allocation of water*

Policy 22 — *Management of the effects of groundwater and surface water.*

Policy 23 — *Manage stream depletion effects resulting from groundwater takes with a daily average rate of take exceeding 2 litres per second which are classified as having a Riparian, Direct, High or Moderate hydraulic connection.*

Comment
The application is not from an over allocated groundwater zone and the proposed groundwater take will not result in any over allocation. Consent conditions will require that the water take is metered, and abstraction records provided to Council. The water take is also in line with reasonable and efficient use of water and is for less than 2 l/s therefore stream depletion effects are not expected. The proposed activities are consistent with the above policies.

Freshwater Management Unit

Policy 44	*Implementing Te Mana o te Wai*
Policy 45	*Priority of FMU policies and rules*
Policy 46	*Identified FMUs*

Comment
The above provisions relate to the identification of Freshwater Management Units (FMU) and the subsequent development of polices and rules. As part of this process it is likely that water quality and quantity limits will be set for each unit. This is part of the process of addressing water quality and the direction provided by the NPS for Freshwater Management 2014. The site is located within the Aparima FMU.

Conclusion

The proposed activities have been considered against the relevant policies of the Regional Water Plan and the proposed Southland Water and Land Plan. The key policies in both plans relate to water quality and the maintenance and improvement of it. The application is not contrary to the policies of the plans, however, I consider it is inconsistent with certain policies.

In this policy assessment greater weight has been given to the provisions of the proposed Southland Water and Land Plan because it has been through the hearing process, has more specific policies and direction and gives effect to the most recent National Policy Statement for Freshwater Management, whereas the Regional Water Plan and the Regional Effluent Land Application Plan did not. As such, it is considered appropriate that greater weight is placed on the proposed Southland Water and Land Plan.

4.6 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 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 fresh waterbodies; protecting the significant values of wetlands; and improving the quality of fresh water in waterbodies 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 application is not inconsistent with the above policies. The proposal will implement good management practices and the applicants have proposed a number of mitigations to mitigate the adverse effects from the proposed activities. The effects of the FDE discharge are not in contention and are not expected to give rise to adverse effects provided the applicants adhere to the proposed good management practices and mitigations as well as consent conditions.

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
The application is from a lowly allocated groundwater management zone. Adverse effects from the proposed groundwater abstraction are considered to be negligible, and it is not expected that effects that are more than minor will occur.

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
Iwi have not been involved with this application, however, they were involved with the development of the regional plans. Te Ao Marama Inc has submitted on the application.

4.7 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.

The activity is 15 km north of a registered drinking-water supply that provides water to more than 501 people. The Southland District Council takes water from the Aparima River at Otautau for >501 people.

The proposed activity is not expected to adversely affect the registered drinking water supply, as all surface waterbodies running through and adjacent to the property all flow into the Aparima River downstream of the water supply.

4.8 Section 104 Matters – Value of Investment and Positive Effects

Value of investment of the existing consent holder if an application affected by Section 124 (Section 104(2A))

The proposal includes an application for the replacement of discharge and water permits for a dairy operation. The applicants have put significant investment into the site. There have been recent upgrades in infrastructure and purchases of new blocks of land.

Positive Effects

It is important to consider the positive effects of the proposal, the largest of which relates to the Northern Block.

The Northern Block has been subject to a commercial intensive winter grazing operation prior to its purchase by the applicants. The Northern Block has areas where the topography of land is sloping and during intensive winter grazing there is a significant risk of overland flow of contaminants, especially sediment, phosphorus and microbes. There is an open surface waterway which runs through this area. The applicants are proposing better paddock selection for intensive winter grazing on the Northern Block, as well as spreading the intensive winter grazing over the entire landholding. This allows for pasture renewal and aids in maintaining soil health. Better paddock selection will also decrease the risk of run-off of contaminants in high risk areas.

4.9 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 applicants' reasons for the proposed choice; and

(c) any possible alternative methods of discharge, including discharge into any other receiving environment.

The applicants have taken into account the nature of the discharge and sensitivity of the receiving environment. This is shown through the use of multiple discharge methods including low rate pods, travelling irrigator, umbilical system and slurry wagon. They have also proposed matching rates and depths of discharge to the farm dairy effluent risk categories. The applicants have demonstrated their existing effluent storage pond will provide sufficient deferred storage. The applicants have provided additional methods of discharge to allow for contingency should a failure of other systems arise.

The applicants have identified that a discharge to land over a discharge to water is preferred.

Deferring the discharge of effluent is a key good management practice and mitigation measure to address the risk of the event driven losses of nutrients to surface waterways.

A possible alternative for the discharge of effluent to land is the discharge of effluent to water. This is inconsistent with the policies of regional plans. The applicants have proposed the use of low rate irrigation systems, of which the alternatives are high rate options, of which slurry tanker and umbilical have been included as contingency measures to account for the failure of other systems. There have also not been any improvements in technology which would achieve a better environmental result than the current system.

4.10 Section 107 restrictions 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.

If carefully managed, the proposed effluent discharge should not give rise to the effects on surface water listed in Section 107.

While operating under their previous consent the applicants did not give rise to any adverse effects as per Section 107.

4.11 Part 2 of the Resource Management Act 1991

The Council is currently operating under an operative plan, which was approved prior to relevant National Planning Standards taking effect and a proposed plan which is still subject to appeal. Taking into account case law direction from the *King Salmon* Supreme Court decision and *Davidson* Court of Appeal decision, I consider that it is appropriate to refer to Part 2 of the RMA when assessing this application.

This means that the matters in Part 2 can provide guidance as to how the provisions of the RMA or provisions in planning instruments should be applied in the event of a conflict. Section 5 states the purpose of the RMA and Sections 6, 7 and 8 are principles intended to provide additional guidance as to the way in which the purpose is to be achieved.

The application of Section 5 involves an assessment of whether a proposal will promote the sustainable management of natural and physical resources. The enabling and managing functions

found in Section 5(2) should be considered of equal importance and taken as a whole. Sections 6, 7 and 8 provide further context and guidance to the constraints found in Section 5(2)(a), (b) and (c). The commencing words to these sections differ, thereby establishing the relative weight to be given to each section.

In relation to the matters outlined in Section 5 it is considered that this application is generally consistent with the purpose and the principles of the Act, as set out in Section 5. This is the promotion of the sustainable management of natural and physical resources. Proposed consent conditions will ensure that any potential adverse effects of the activities will be avoided, remedied or mitigated. However, I consider that reference to Section 5 is of limited assessment when assessing the application against Policy 16 of the proposed Southland Water and Land Plan. That policy has been prepared in accordance with the RMA, gives effect to the National Policy Statement for Freshwater Management and is clear and directive. I consider that reference to Part 2 cannot justify an outcome contrary to the clear intention of that key policy.

All of the Part 6 matters have been covered within the various Council planning instruments, of which the application is generally consistent with and not contrary to. There is only one matter of national importance, as outlined in Section 6 of the Act that needs to be recognised and provided for in the context of this application. This is the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga. However, the area is not part of Statutory Acknowledgment Area under the Ngai Tahu Claims Settlement Act 1996 and there are no known areas of cultural importance within the site. Te Ao Marama Inc has submitted in opposition to the application on the grounds that water quality is already degraded and there is a need to avoid further degradation.

To provide completeness for this report, it is my view that the application is generally consistent with the RMA. There are some concerns with regards to Part 2 relate to Section 6(e), due to the submission received from local iwi in opposition based on the high importance of the area on cultural values. I also consider the application to be contrary to Section 7(f), as the assessment of effects concludes that the proposed activities, especially when cumulative is likely to result in adverse effects on water quality.

5. Recommendations

5.1 Whether to grant

The activities applied for have been considered together, and as such the highest consent test applies. The application is therefore considered as a **non-complying activity**.

Under Section 104D the Council cannot grant consent unless it is satisfied that either the adverse effects will be minor or the application will not be contrary to the objectives and policies of the relevant proposed and operative plans. If the application passes either one of these “gateways”, the application falls to be considered under Section 104 of the RMA and can be granted or refused. If the Council grants the application, it may impose conditions under Section 108 of the RMA.

The above report outlines the effects of the proposed activity, both adverse as well as positive. When considering this application through the lens of the policies of the regional plans, specifically the proposed Southland Water and Land Plan, it is considered that adverse effects resulting from the activity will be more than minor, especially when considering the cumulative effects on water quality.

Policy 39 of the proposed Southland Water and Land Plan provides a very broad scope when assessing application for the use of land for farming. It directs Council to consider all the effects that may impact on water quality. It is noted and recognised that the proposal includes areas where there will be positive effects. However, this is on a localised scale, such as the Northern Block as discussed in Section 4.8. When assessing the application as a whole while there is a reduction in adverse effects in one localised area, there are also increases in adverse effects on another localised area.

Having regard to all of the effects of the proposal, I conclude that the adverse effects from the proposed activity will be more than minor.

Because the effects of the activities have been assessed as having a more than minor effect on the environment, the application must meet the second of the gateway tests. In order to meet the second test, the application must not be contrary to the policies and objectives of the relevant operative and proposed plans.

Both plans seek to avoid degradation of freshwater quality. The proposed plan in particular takes a "hold the line" approach, and directs that where water quality is already degraded the proposed activities must result in an improvement in water quality. The proposed plan directs that if an application does not avoid or mitigate effects on water quality, it should generally be declined.

The application is consistent with a majority of the policies and objectives as it does demonstrate how and when adverse effects will be avoided, but the effectiveness of such actions is uncertain. This is largely when considering the overall farming activities as opposed to just the discharge of effluent. As such, the resulting activity itself may not result in the improvement of the water quality, and sufficient evidence has not been provided to ascertain with certainty that such improvements in water quality will occur.

As I have determined that in my opinion the adverse effects on water quality will be more than minor, largely in relation to cumulative effects, I do not consider that the proposal sufficiently avoids or mitigates its adverse effects.

As such, I conclude that the proposed activities are contrary to the objectives and policies of the Regional Plans.

Therefore, the application does not meet the gateway tests for non-complying activities as set out in Section 104D (1)(a) of the RMA.

If, however, the application were considered to pass one of the gateway tests, it would fall to be considered under section 104 of the RMA. Given my conclusion on the actual and potential effects of the proposal and the clear direction in the proposed Southland Water and Land Plan, I consider that the application is not worthy of consent under section 104.

Subject to new or contrary evidence being presented at the hearing I recommend that under Sections 104, 104D of the RMA that consent is refused.

Alex Erceg
Consents Officer

Michael Durand
Consents Manager

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