

# **Site Visit File Note**



Environment Southland is the brand name of Southland Regional Council  
Cnr North Rd & Price St, Private Bag 90116  
DX YX20175, Invercargill New Zealand  
Phone 03 211 5115 Fax 03 211 5252  
Tollfree (Southland only) 0800 76 88 45  
Email [service@es.govt.nz](mailto:service@es.govt.nz)  
Website [www.es.govt.nz](http://www.es.govt.nz)

## File Note

**From:** Emily Allan, Consents Officer  
**Date:** 23 April 2018  
**File Reference:** APP-20181247  
**Subject:** *Site Visit – Friday 20 April 2018*

### Site visit attended by:

Aurora Grant – ES Acting Consent Manager

Emily Allan – ES Consent Processing Officer

Quinton Scandrett – Consultant acting on behalf of White Waters for the resource consent process.

Alastair Gibson – Farm consultant (bank appointed)

Hans Vernooij – Representative of White Waters Ltd

**Time:** Met at the dairy shed at 11am on Friday 20 April 2018

Meeting started with all parties sitting around the dining room table and discussing the consent application to highlight the current concerns. The areas highlighted are:

- High rate irrigation – which is inconsistent with policy;
- Sensitive location – hill country/bedrock, and Upuk is natural state waters catchment with the whitestone also sensitive (although not natural state waters);
- Previous consents expired – therefore not part of the existing environment;
- Not enough storage currently on site with brief discussion of DESC, with regards to volumes irrigated and hours in the shed. Quinton indicated that this DESC will be redone.

We also discussed the possibility of public notification, and what this would mean with regards to timeframes and what the next steps are for notification.

Alastair also raised the possible variation application to discharge White Waters effluent to the neighbouring property. I explained that I had not seen the variation application as it has not been written yet so couldn't provide much guidance but we discussed the possibility generally. Aurora highlighted the issue of nature and scale for it to be a variation or if a new consent would be required.

Alastair highlighted that the immediate concern for White Waters was getting the discharge lawfully consented so that Fonterra could resume picking up the milk.

We then went out to have a look at the farm effluent system.

We first walked through the shed to see the sandtrap and little sump on either side of the dairy shed yard. We then walked over the paddock to see the pump sump. There was some discussion here regarding the pump, and if this was sized appropriately and what mitigations were in place. Hans said that there was no level alarm for this sump. We also looked back up to the shed and talked about the sewage and effluent from the calving barn. Hans said that there was porter loos in place until the new septic tank system is operational, and no human sewage goes into the pond. Alastair also asked about grey water, and Quinton responded by saying that this would be better treated through the septic tank system, rather than the pond. The calving pad effluent does go into the effluent pond system, so needs to be accounted for in the DESC.

We then got into cars and drove up to the effluent tank. The tank was approximately  $\frac{3}{4}$  full, with a well-established sludge crust on top. At the tank we looked over the nearest paddocks and discussed the topography and the discharge methodology. Quinton mentioned that they could discharge the sludge from the top of the pond as a permitted activity under Rule 38, although Aurora raised concerns over this due to the abatement notice in place. Aurora also asked how they would dry the sludges before discharge to ensure consistency with the permitted activity rule. Aurora suggested that they discuss this with the compliance team prior to discharge to ensure that they do not breach the abatement notice and highlighted how risky discharging this sludge could be. We looked at the site where the new klip tank would go, and I mentioned that they could pull this activity out of the application to be processed separately if they wanted to keep this moving. We asked about the timeframes discussed in the application for building the new tank (application stated that the new tank will be operational by Aug 2018) and Quinton was confident they could meet this timeframe. Quinton also mentioned the possibility of building a earth pond, rather than a tank but said if they built a pond they would not be able to meet the Aug 2018 deadline. Alastair raised concerns about

pulling out this activity as this would result in spending money on building the tank before they knew if they could discharge from it. Emily and Aurora walked around the outside of the tank, and could see no holes, cracks or defects although there did look like some historic overflow near the effluent entry point. Hans also pointed out the high level alarm.

We then got back into the cars and drove to the boundary of the property to see more of the topography and to overlook the neighbouring sheep farm, which is likely the area proposed in the variation application. Due to the saturated ground and rolling topography, care was needed when driving to make sure the vehicles did not become stuck in the mud.

At the conclusion of the site visit we discussed next step. I said that I would hopefully have a s92(1) further information request out to Quinton either Tuesday or Thursday next week (by 26 April 2018 at latest) and Quinton would hopefully have a variation application to me by Thursday next week. Arrived back in the office by 3.30pm.

A handwritten signature in black ink, appearing to read 'Emily Allan', written in a cursive style.

Emily Allan

23 April 2018

# **Further Information Request**

Our reference: APP-20181247  
Enquiries to: Emily Allan  
Email: Emily.allan@es.govt.nz

2 May 2018

White Waters Ltd  
893 Kakapo Road  
RD 2  
Te Anau 9672



Dear Hans,

***Request for Further Information under Section 92(1) of the Resource Management Act 1991 - Application for a new FDE discharge permit and water permit for an existing dairy farm and a land use consent to construct effluent storage.***

Thank you for lodging an application to discharge dairy shed effluent and calving barn effluent to land, to take and use groundwater and to construct new effluent storage at 893 Kakapo Road, RD2, Te Anau. I require further information before a determination can be made on your application.

Please provide<sup>[1]</sup>, in accordance with Section 92(1) of the Resource Management Act, the following information:

**Effluent Storage**

1. Confirmation that the calving barn effluent is piped to the effluent storage pond. This information is needed as the application states that there are no additional sources of effluent, other than the dairy shed, although on the site visit it was indicated that the calving barn effluent is piped to the pond.
  - a. If this is included in the effluent pond system, could you please provide a revised Massey Pond Calculation to include this effluent source.
2. Confirmation that domestic wastewater and greywater is not piped to the effluent storage pond. This is important as it was clear from the site visit that the separate septic system for the dwelling is not currently installed, and there was discussion at the site visit about the possibility of including wastewater, greywater or both in the effluent storage pond. Therefore, I need to be clear moving forward with the application what you are intending to include in the effluent storage pond.
  - a. If this is included in the effluent pond system, could you please an assessment of effects, including cultural effects, for this discharge to land and provide a revised Massey Pond Calculation to include this effluent source.
3. Confirmation of the volume of the proposed Kliptank that you are applying to install as

multiple figures were used in the application.

4. How will the irrigation volumes included in the Massey Pond Calculation be achieved using the proposed effluent irrigation system? This is important as I am concerned that the number of effluent loads proposed via slurry tanker is unrealistic and impractical to achieve. This information is needed to assess the uncertainty in the proposed effluent irrigation system.
5. A Massey Pond Calculation for 470 cows using the existing storage on site. This is important to show that the existing storage is sufficiently sized for the reduced cow numbers proposed as a mitigation measure in the application until the new effluent storage tank is installed.

#### **Discharge to land**

6. The technical specifications of the pump, located in the sump to the north of the dairy shed. This information is needed to determine that the pump is sufficiently sized to transfer the effluent from this sump to the effluent storage pond. This is important to determine that the proposed effluent transfer system is practical and will move the effluent from the sump uphill to the effluent storage pond to be discharged as outlined in the application.
7. In the application it is proposed that the slurry tanker will be depth tested. Please explain why it is appropriate to wait 3 months for this test to happen. I am concerned that there could be a 3 month period when the Applicant will not know what depth they are discharging effluent at. Please also outline any measures you will use in the interim, before this test has been completed, to ensure depth of effluent application does not exceed the proposed consent limit of 5mm depth.
8. Why is the discharge of effluent at 5mm depth appropriate in wet conditions as stated on page 4 of the application and does wet conditions mean when soil moisture is at field capacity?
9. A discussion of alternatives with regards to effluent irrigation methods, including low rate pods, travelling irrigator, and umbilical system. This is important to support the use of only a slurry tanker as proposed in the application.
10. Will the discharge to land have any effects on the freshwater springs which are located through the discharge area? What mitigation measures/management measures are proposed to mitigate these effects?

I require this information in order to determine the potential effects of the activities that have been applied for. The determination of the application is postponed until receipt of this information.

Under Section 92A of the RMA you have until 15 working days from the date of this request, which we calculate to be Monday 21 May 2018, to either provide the information, tell the Council, in writing, either that you agree to provide the information or that you refuse to provide the information.

If you refuse to provide the information requested, or if you do not respond to this request, the Council may decline the application on the grounds that it has inadequate information to determine the application.

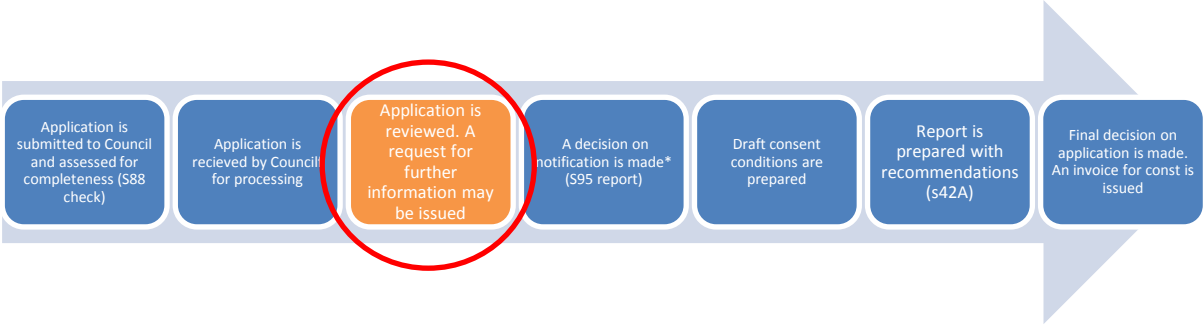
Please contact me if you have any questions regarding this request.

Yours sincerely



Emily Allan  
**Consents Officer**

Your application is here in the consent process:



\*If your application is assessed as needing to be limited or publically notified, you will be contacted regarding the process for these pathways.

CC: Dairy Green Ltd c/- Quinton Scandrett, PO Box 5003, Waikiwi, Invercargill 9843



# **Further Information Response**

# Dairy Green Ltd

Practical Engineering Solutions  
Consents, Effluent, Stock water, Irrigation  
Design through to Installation  
*Irrigation NZ Accredited Designer*

10 May 2018

Emily Allan  
Consents Office  
Environment Southland

[Emily.allan@es.govt.nz](mailto:Emily.allan@es.govt.nz)

Dear Emily

## **White Waters Ltd – Request For Further Information**

The following information is provided as requested under Section 92(1) of the RMA 1991.

### **Effluent Storage:**

A revised DESC scenario has been run to replace the scenario that was provided by RD Agritech with the application. Low rate irrigation has been included as an application method. It is proposed to purchase 2 low rate sprinklers and utilise the existing dairy shed transfer pump to apply effluent direct when soil moisture conditions allow. Hydrants will be installed along the existing 90 mm transfer line between the dairy shed pump sump and existing storage structure. One sprinkler will be run at a time and can be linked from a hydrant via drag hose. Each sprinkler can easily be changed between either manually or an indexing valve could be used. The drag hose will allow the most suitable areas of each paddock to be targeted for application.

1. An allowance has been included in the DESC for the small volume of effluent collected while the covered calving pad is in use during spring. A PVC pipe will be installed before it is used next to connect the calving pad to the dairy shed pump sump to allow collection.
2. Waste water and or greywater will not be mixed with or stored in the effluent system, an on site waste water system will be used. Portaloo toilets are currently used until a septic tank system is in place.
3. As determined by the DESC the existing Hynds Mega Pond on farm has sufficient storage volume. As such can you please put the land use consent application on hold for 1 month while the information request is processed.

4. The amended DESC inputs have allowed for low rate application and slurry tanker application, the DESC has also been amended with the irrigation volumes changed to achievable numbers that reflect on farm effluent management practices.
5. N/A, the amended DESC results in sufficient storage for the proposed maximum consented cow numbers.

**Discharge to land:**

6. Both dairy shed sump pumps have identical specifications. They are Mono positive displacement pumps, with a 3 phase 4.5 kW motor, flow rate per hour is 11,000 L up to 100 m head. The pumps have a pressure switch fitted and are automatedly operated. The pump sump holds 25,000 L plus freeboard, effluent volumes generated daily in the dairy shed are up to 24,000 L and over a 2 – 3 hour period. The total head from the pump sump to the storage structure is less than 40 m allowing for friction loss with an open discharge.
7. The application has asked for time to complete an application depth test. The slurry tanker had an application depth test carried out following the granting of the now expired consent approx. 5 years ago in 2013. It was determined that a tractor speed of 10 km/hr resulted in less than 5 mm depth applied per pass. If the depth needs to be tested again and within a 3 month time period, permission will likely be needed from Environment Southlands compliance division to allow effluent application to occur due to the current abatement notice and provided there is a suitable soil moisture deficit to do so.
8. Effluent will only be applied if a suitable soil moisture deficit is available relative to the application method used and depth to be applied. At no time will effluent application occur to soils at field capacity or if effluent application could result in soils reaching field capacity.
9. As discussed during the on farm meeting on the 20<sup>th</sup> April 2018 it is proposed to consent low rate application, slurry tanker and an umbilical system as application methods. There is a plan in place to install low rate application and the umbilical system will be used as required or as a contingency method. This will provide flexibility with effluent application to suit seasonal variations in weather and soil moisture conditions.
10. The proposed effluent application methods provide the most practical means of avoiding irrigating the soil around any springs, seepages and drainage depressions. The best topography and soil types can be specially targeted for application. As such, along with deferred storage the application of effluent will not have any negative effect on the groundwater/surface water within the effluent receiving area.

Yours faithfully

**Quinton Scandrett**  
**Agricultural & Engineering Consultant**

---

# **Section 95 Report**



# Recommendation and decision on notification of resource consent application(s) under sections 95-95G of the Resource Management Act 1991 (RMA)

## Summary

I recommend the application is processed on a publicly notified basis. This is because:

- The application does not meet current standards for mitigating the effects of effluent discharge to land;
- The application is inconsistent with policies in both the Regional Water Plan and the proposed Southland Water and Land Plan on water quality;
- The application is likely to have effects that are more than minor on water quality.

## The application

### Particulars

Applicant:	White Waters Ltd
Application reference:	APP-20181247
Site address or location:	893 Kakapo Road, RD 2, Te Anau
New consent(s) for new activity(ies) (s88)	<input checked="" type="checkbox"/> s124 rights of continuance do not apply – Previous permits expired 26 June 2017
New consent(s) for existing activity(ies) (s88)	<input type="checkbox"/>
Change to conditions of existing consent(s) (s127)	<input type="checkbox"/>

### The proposal

The Applicant is applying to replace Discharge Permit AUTH-301177 and Water Permit AUTH-302514-01, which expired on 26 July 2017. The application is for new discharge and water permits to replace the previous expired permits, with no increase in cow numbers or proposed water volume. The following consents have been applied for:

- a Discharge Permit to discharge farm dairy effluent from up to 599 dairy cows to land during the milking season (25 August to 31 May) via slurry tanker (primary irrigation method), low rate pods and umbilical system; and
- a Discharge Permit to discharge calving pad effluent to land from up to 5 cows during August, September and October each year via the above effluent discharge system; and
- a Water Permit to abstract and use up to 40,000 litres of groundwater per day for stock drinking and shed wash down water.

The applicant is not applying to increase cow numbers, or the farm boundary. Therefore, the application does not trigger rule 22 in the proposed Southland Water and Land Plan notified version or rule 20 in the proposed Southland Water and Land Plan decision version. This farm is permitted to be a dairy farm, and the use of land for dairy farming is outside the scope of this application which is solely about the discharge of effluent to land, and the water take from a groundwater aquifer.

A site visit was undertaken (refer to file note). At this site visit, it was clear the effluent system for this site is not consistent with current standards. The effluent storage tank is located a significant distance up-hill from the dairy shed which requires effluent to be regularly pumped to this secondary location. The setup of the effluent system requires a higher level of management to operate effectively and this increases the risks of discharging effluent via the proposed system.



*Figure 1: Photo of effluent storage tank looking out over property. The dairy shed is located down past the trees.*



Figure 2: The pump sump near the dairy shed. This has been included in the revised Massey Pond Calculator as additional effluent storage.

The applicant has provided a revised Massey Pond Calculator with the further information response dated 15 May 2018. I have concerns regarding this revised calculation as identified below in section 3.3 of this report.

The application was initially lodged with a land use consent to construct effluent storage as one of the activities. With the third point on the further information request response dated 15 May 2018, the applicant has ‘pulled’ this component of the application out into a separate application and asked for this activity to be put ‘on hold’. As a result of this request, I do not consider the land use consent for effluent storage as part of this s95 report on notification.

<b>Water permit</b>	
Relevant rule(s)	RWP: Rule 23(c) – restricted discretionary activity; pSWLP: Rule 54(a) - permitted activity.
Source of water (bore or watercourse)	Existing bore – D43/0108
Groundwater zone/name of watercourse	Te Anau in both RWP and pSLWP
Aquifer type (for groundwater takes)	Terrace
Rate of take (L/s)	2
Freshwater storage onsite? How much?	Yes – 100m <sup>3</sup>
Daily volume (m <sup>3</sup> /day)	40 m <sup>3</sup> from bore water + 15 m <sup>3</sup> from Kakapo Rural water supply scheme.
Consistent with 120 L/cow/day? (estimate of efficient use for shed and stock water use)	Less than 120 L/cow/day (approx. 92 L/cow/day)

Yearly volume (m <sup>3</sup> /year)	21,000
Discretionary allocation (m <sup>3</sup> /year)	123,000,000 (RWP) and 118,250,000 (pSLWP)
Amount currently allocated (m <sup>3</sup> /year and % of discretionary allocation)	3,501,614 (RWP) and 3,960,345 (pSLWP) 3% (RWP) and 3.3% (pSWLP)
<b>FDE discharge permit</b>	
Relevant rule(s)	RWP: Rule 50(d) – Restricted Discretionary activity; pSWLP (notified version): Rule 35(d) – non-complying activity.
Cow numbers	599 cows – consistent with previous permit
Stocking rate (cows/ha)	2.6
Winter milking proposed?	No
Other sources of effluent?	Calving pad
Effluent disposal area (ha)	103.5
Irrigation method	Slurry tanker (primary irrigation method) + low rate pods and umbilical system as contingency methods.
Application rate and depth	Slurry tanker to depth per application of 5mm
Storage available (m <sup>3</sup> )	1,100
Massey pond calculator 90% storage requirement (m <sup>3</sup> )	<ul style="list-style-type: none"> <li>• 2,885m<sup>3</sup> (original lodged with application on 6 April 2018)</li> <li>• 1,107 m<sup>3</sup> (revised with further information response on 15 May 2018)</li> </ul>
Monitoring proposed?	No surface or groundwater monitoring proposed

Overall, the application is a non-complying activity.

## Public notification consideration

### 1. Is notification mandatory?

<b>1.1</b>	<b>Has the applicant requested that the application be publicly notified? (s95(3)(a))</b>	<input type="checkbox"/> Yes	Application must be publicly notified. Go to 10.2
		<input checked="" type="checkbox"/> No	Go to 1.2
<b>1.2</b>	<b>Was further information, or commissioning of a report, requested under s92?</b>	<input checked="" type="checkbox"/> Yes	Go to 1.3
		<input type="checkbox"/> No	Go to step 2.1
<b>1.3</b>	<b>If yes, was the request refused, or did the applicant fail to respond or fail to provide the information by the deadline?</b>	<input type="checkbox"/> Yes	Public notification is required by s95C. Go to 10.2
		<input checked="" type="checkbox"/> No	Go to step 2.1

### 2. Is notification precluded?

<b>2.1</b>	<b>Is each activity subject to a rule or NES that precludes public notification?</b>	<input type="checkbox"/> Yes	Rule(s): enter rule Go to 4.1
		<input checked="" type="checkbox"/> No	Go to step 2.2
<b>2.2</b>	<b>Is each activity a controlled activity?</b>	<input type="checkbox"/> Yes	Application must not be publicly notified unless there are special circumstances. Go to 4.1



	<input checked="" type="checkbox"/> No	Go to 2.3
<b>2.3 Is each activity a residential activity and a discretionary activity or a restricted discretionary activity?</b>	<input type="checkbox"/> Yes	Application must not be publically notified unless there are special circumstances. Go to 4.1
	<input checked="" type="checkbox"/> No	Got to 3.1

### **3. Is notification required?**

<b>3.1 Are any of the activities subject to a rule or NES that requires notification?</b>	<input type="checkbox"/> Yes	Application must be publicly notified. Go to 10.2
	<input checked="" type="checkbox"/> No	Go to 3.2
<b>3.2 Will the activity have, or is it likely to have, adverse effects on the environment that are more than minor? (see Note)</b>	<input checked="" type="checkbox"/> Yes	Application must be publicly notified. Complete 3.3 and go to 10.2
	<input type="checkbox"/> No	Complete 3.3 and go to 4.1.

**Note:** In forming this opinion (a) to (e) apply:

- (a) we must disregard any effects on persons who own or occupy the land on which the activity will occur or any land adjacent to that land (section 95D(a));
- (b) we may disregard an adverse effect of the activity if a rule or NES permits an activity with that effect (subject to Policy 36 of the pSWLP) (95D(b));
- (c) in the case of a restricted discretionary activity, we must disregard any adverse effects that do not relate to the matters over which the rule or NES restricts discretion (95D(c));
- (d) we must disregard trade competition and the effects of trade competition - 95D(d); and
- (e) we must disregard any effect on a person who has given written approval - 95D(e)

### **3.3 Reasons adverse effects on the environment are less than minor / minor / more than minor**

#### **3.3.1 What is the Existing Environment?**

##### ***The existing environment***

Is important to understand what the existing environment is so that we have a baseline from where to begin assessing the effects of the activity *on the environment* (as required by Section 104). Case law helps to define what should be included within the existing environment and what should not, and is discussed here.

The Environment Court in *Port Gore Marine Farms* took the approach that "... we need to bear in mind that we must imagine the environment, for the purposes of Section 104(1)(a) of the Act, as if the three marine farms were not actually in it."<sup>1</sup> The approach taken in *Sampson* came to the same conclusion and the Court stated that for consents which are granted for a defined term and may not be renewed, "... the existing environment must be determined as the environment that might exist if the existing activity, to which the ... consents relate, were discontinued."<sup>2</sup>

Additionally, the approach taken in *Ngati Rangī Trust* is of the same vein and the Court outlined "I therefore agree that the approach taken... in *Port Gore Marine Farms Ltd v Marlborough District Council* was the approach which the Environment Court should have adopted in the present case"<sup>3</sup>. This was based on information from *Environmental and Resource Management Law* which states "... the existing

<sup>1</sup> *Port Gore Marine Farms v Marlborough District Council* [2012] NZEnvC 72. Paragraph 140.

<sup>2</sup> *D R Sampson & Others v Waikato Regional Council* RMA741/99, RMA745/99, A178/2002

<sup>3</sup> *Ngati Rangī Trust v Manawatu-Wanganui Regional Council* [2016] NZHC 2984. Paragraph 64.

environment cannot include, in the context of a renewal application, the effects caused by the activities for which the renewal consents are sought...”<sup>4</sup>.

The assessment of effects in this report has used the approach to the ‘existing environment’ taken in the case law above, that the environment does not include existing activities for which consent is sought, nor the effects arising from it.

### 3.3.2 The Physical Environment

#### **Property Location**

The property is 227 hectares of land which is generally described as undulating and is located approximately 11km north-east of Te Anau. Dale Road forms the north-eastern boundary of the property and Kakapo Road is the south-eastern boundary of the property. There are three unnamed tributaries of the Whitestone River running through the discharge area. The property is permitted under the proposed plan to be a dairy farm, and this forms part of the existing environment. However, the discharge and water permits expired in July last year with no s124 rights and are no longer part of the existing environment. Therefore, this is considered a new discharge of effluent to land and a new water take.

The property is predominantly located within the Whitestone River catchment (89%), with a small proportion in the Upukerora River catchment (11%). The Whitestone River flows into the Mararoa River which is a tributary of the Waiau River. The Upukerora River flows to Lake Te Anau which is considered a statutory acknowledgement area under schedule 58 of the Ngai Tahu Claims Settlement Act 1998. Lake Te Anau (Te Ana-au) has high cultural significance to local iwi.

#### **Soils**

The soils within the effluent area are outside the mapped coverage for Topoclimate and Smaps. Site investigations were undertaken prior to the previous consent application in 2012. The applicant has concluded in section 1.2 of the application (page 6) that the dominant soil types on the property are Te Anau and Kakapo with a small area of Otanomomo soils. The Te Anau soils have a landscape classification of Category C or D depending on the slope of the land, and the Kakapo soils have a landscape classification of Category C or B depending on the slope of the land.

Soils	Dominant Soil Type	Vulnerability Factors		
		Structural Compaction	Nutrient Leaching	Waterlogging
	Te Anau	Minimal	Severe	Slight
	Kakapo	Slight	Slight	Severe
	Otanomomo	Minimal	Slight	Severe

#### **Soil descriptions**

The Te Anau soils are characterised by good drainage, moderate water holding capacity and high organic matter content. The Kakapo and Otanomomo soils are characterised by poor drainage, and slow permeability with high organic matter content.

#### **Farm Dairy Effluent (FDE) Classification (Effluent Discharge)**

The FDE categories as within the effluent disposal area are Category A (Artificial drainage or coarse soil structure), Category B (Impeded drainage or low infiltration) and Category C (sloping land).

#### **Physiographic Zones**

<sup>4</sup> *Ngati Rangī Trust v Manawatu-Wanganui Regional Council* [2016] NZHC 2984 citing Derek Nolan *Environmental and Resource Law* (5<sup>th</sup> ed. Lexis Nexis, Wellington, 2015) at 610.

The property is located within the Bedrock/Hill Country physiographic zone.

Physiographic Zone	Variant			
	No Variant	Overland Flow	Deep Drainage	Artificial Drainage
Bedrock/Hill Country	✓	✓	-	-

The Bedrock/Hill Country physiographic zone is generally land with bedrock or glacial till found near the surface, located below 800m above sea level. There are no significant areas of groundwater. Mostly consisting of rolling to steep land, which has high rainfall zone due to its elevation. Contaminant loss to the dense network of branching streams is the main concern in this zone. Water quickly flows down-slope through wet soils and as overland flow to nearby streams following high or prolonged rainfall. Nitrogen, phosphorus, sediment and microbes are all carried with water, particularly during late autumn and winter. Because of the features of this the main risk for this site in regards to water quality is to surface water quality in the Upukerora River and the Whitestone River.

The key contaminant pathways when taking into account the properties of the physiographic zones are through overland flow.

***Effluent Discharge to Land Summary***

When combining the FDE classification with the information provided from the applicant on soils, physiographics zones, and topography, the predominant risk for this property associated with the discharge of effluent to land is contaminant loss through overland flow on the property to surface water.

***Surface Water***

The property is located within the mid to lower reaches of both the Upukerora River and the Whitestone River catchments with unnamed tributaries of the Whitestone River flowing through the proposed discharge area.

Quality

The applicant has assessed water quality in the Upukerora River and the Whitestone River on page 7 of the application.

The nearest surface water quality sites available are the Whitestone River at Hillside Manapouri Road, approximately 22km downstream of the farm, and the Upukerora River at Te Anau Milford Road, approximately 9.3km downstream of the farm. Due to the distance from these water quality monitoring sites to the proposed farm, it is unlikely that the data will show trends which can be traced back to this farm specifically although generally for both Rivers there is no discernible trend in water quality observed.

The New Zealand Freshwater Fish Database has indicated that there are galaxias and Upland Bully located near the farm location in the Whitestone River, with Gollum galaxias observed just upstream. This database also indicates that the Upukerora River near the mouth to Lake Te Anau has Trout, Salmon and Common Bully present. Gollum galaxias are considered nationally vulnerable in the New Zealand Threat Classification System (NZTCS).<sup>5</sup>

***Groundwater***

The property is within the Te Anau Groundwater Management Zone under both the RWP and pSLWP. This zone is classed as a terrace unconfined aquifers in the plans. The groundwater in the area is assumed to predominantly be recharged from rainfall recharge and discharge to Lake Te Anau and the Waiau River.

---

<sup>5</sup> **Conservation status of New Zealand freshwater fish**, 2013. Jane M. Goodman, Nicholas R. Dunn, Peter J. Ravenscroft, Richard M. Allibone, Jacques A.T. Boubée, Bruno O. David, Marc Griffiths, Nicholas Ling, Rodney A. Hitchmough and Jeremy R. Rolfe 2014. *New Zealand Threat Classification Series 7*. 12 p.

### Quantity

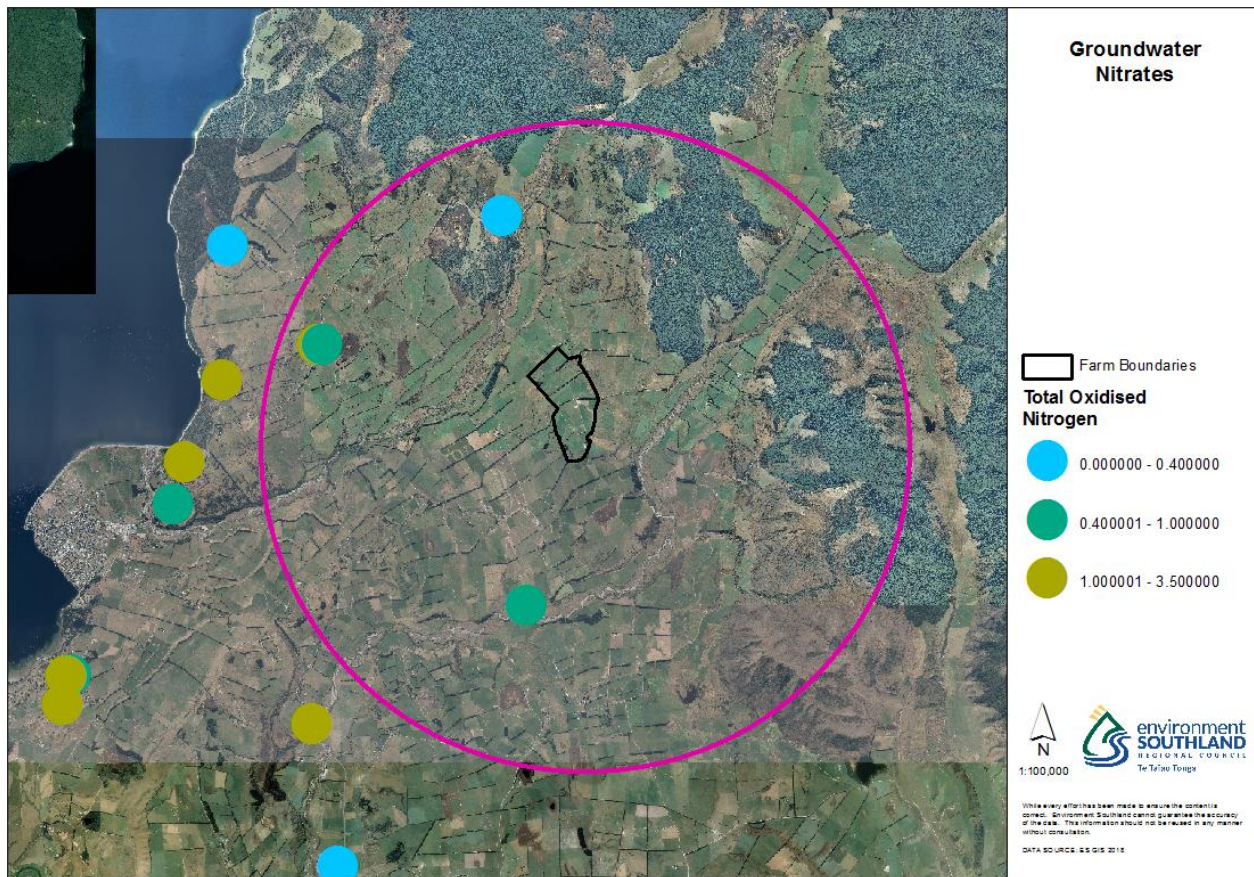
Recharge to the Te Anau Groundwater Management Zone is predominantly from rainfall recharge.

Groundwater allocation is low in the Te Anau Groundwater Management Zone, with the zone having a preliminary allocation of 123,000,000 m<sup>3</sup>/year (RWP) and 118,250,000 m<sup>3</sup>/year (pSLWP) (Land Surface Recharge of 255,800,000 m<sup>3</sup>/year) under the RWP. Cumulative allocation from the groundwater zone, including this application is 3,501,614 m<sup>3</sup>/year (RWP) and 3,960,345 m<sup>3</sup>/year (pSLWP), about 3% (RWP) and 3.3% (pSLWP) of the preliminary allocation and 1% of the land surface recharge as assessed under the RWP.

### Quality

Groundwater quality is generally good in the Te Anau Groundwater Management Zone, although it does vary according to the source aquifer and location.

There is no recent groundwater data specific for this site in the ES groundwater nitrate monitoring database. The monitoring points available close to the site (within a 7.5km radius of the dairy shed) predominantly reflect data NO<sub>3</sub>-N between 0.34 – 1.38 mg/L. There is a point approximately 15km south east of the site which reflects NO<sub>3</sub>-N of 6.3 mg/L. This highlights the generally low of groundwater nitrogen results in the area. See the map below for more information.



### **3.3.3 Adverse effects of the proposed activities on the environment**

#### Discharge of effluent to land

Potential adverse effects of discharging dairy shed and calving pad effluent onto land include contamination of groundwater and contamination of surface waterways.

When applied to soils in an appropriate manner, the effluent can act as a nutrient fertiliser. The proposed storage capacity (identified in the mitigation measures below) may allow for the scheduling of effluent irrigation based on soil moisture deficits, which would decrease the potential for nutrient loss to water<sup>6</sup>. Over application or application at the wrong time, when soils are at field capacity, would likely accelerate the loss of those nutrients out of the root zone and into surface water via overland flow or artificial drainage networks.

The Applicant has proposed to use good management practices to minimise adverse effects arising from the activity. These measures are:

- adherence to standard Council buffer distances between the discharge area and nearby waterways to reduce the risk of overland flow of effluent into waterways. A 20 metres buffer will be in place from any internal waterways;
- use of low depth irrigation;
- use of an effluent storage tank.

These three mitigation measures listed above are significant factors for determining the effects of the proposed discharge activity. A discharge of effluent to land that is appropriately mitigated is likely to have less than minor effects. Although, for this application it is my conclusion that the mitigation measures above are not sufficient to minimise the effects to water quality resulting from the discharge of dairy shed and calving pad effluent to land.

The first mitigation measure (buffer distances) is not sufficient for the risks for this site. The primary contaminant pathway for the proposed effluent discharge area is overland flow, although there are additional risk factors which uniquely apply to this site. These factors include the presence of freshwater springs throughout the proposed discharge area and the sensitive nature of the Upukerora and Whitestone Rivers. Therefore, I conclude that this is not a suitable mitigation measure.

The second mitigation measure (low depth irrigation) is appropriate for the site and is consistent with academic literature<sup>7</sup> for minimising the effects of effluent discharge to land. Policy direction is to promote low rate irrigation as well as low depth irrigation. Low rate irrigation is the speed to which the effluent is discharged, with higher speeds requiring a greater level of management and increased risk if an error occurs. When viewing this second mitigation measure through the lens of the plan, it is my view that this mitigation measure is partially effective at minimising effects on water quality from the discharge of effluent to land. Provided the other mitigation measures were appropriate, it is my view that this partial mitigation measure would increase the level of effects resulting from the discharge from less than minor to minor. The applicant is applying to discharge effluent primarily through a slurry tanker which is considered high rate, although it can discharge effluent to a low depth. The applicant has also amended the application through the further information response dated 15 May 2018 to include a low rate effluent pods system and a high rate umbilical system as secondary systems. I do not believe that the inclusion of the low rate pods in the amended application is sufficient to alleviate the concerns with the proposed system as these have not yet been purchased, and the site has not been plumbed to accommodate this method of effluent discharge. The inclusion of the low rate pods is a token gesture and no practical steps have been undertaken to implement this method of effluent discharge to land.

The third mitigation measure (deferred storage) is appropriate for the site, but I am uncertain that the Applicant can meet this mitigation measure. This uncertainty arises with the initial Massey Pond

---

<sup>6</sup> 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.

<sup>7</sup> <sup>7</sup> 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.

Calculation provided with the application and the revised Massey Pond Calculation provided with the further information response on 15 May 2018. The Massey Pond Calculator was developed by Massey University Fertiliser and Lime Research Centre, in conjunction with Horizons and Dairy NZ to account for the farm system and climatic variations that impact the quantity of storage required on a dairy farm. The Calculator incorporates 30 years of rainfall data, soil moisture deficit data, and evapotranspiration for the region, and states the maximum storage required over the 30 year period to ensure adequate deferred storage for a farm. Environment Southland uses this tool to determine appropriate storage capacity to allow for deferred effluent irrigation until soil moisture capacity is available. Our standard practice is to apply the 90% value in the Massey Pond Calculator, as this allows some flexibility into the model. The use of the Massey Pond Calculator 90% value allows for a standardised approach to effluent storage volumes for each arm, while taking farm system and climatic variations into account. This tool is important for the application assessment, as deferred irrigation capacity is a key mitigation measure for the discharge of effluent to land. The initial Massey Pond Calculation for this farm submitted with the application had a 90% of 2,885m<sup>3</sup>. As a result of this calculation, the application applied to construct additional effluent storage as this 90% value was significantly higher than the current storage volume available on farm. The revised Calculation provided with the further information response has a 90% value of 1,107m<sup>3</sup> which is significantly reduced from what was initially proposed in the application. The changes between the two calculations are:

- Changes to the minimum effluent area to be discharged, with higher area available in the revised calculation.
- Changes to the milking season dates, with the initial calculation starting milking on the 20 August and the revised calculation starting on the 25 August each year.
- Changes to monthly cow numbers, with the revised calculation having significantly lower cow numbers modelled.
- Changes to the wash volumes used in the shed with the initial calculation based on 42.5L/cow and the revised calculation based on 40 L/cow.
- Changes to include the calving pad in the revised calculation as per discussions on the site visit.
- Changes to the rates and depths to be irrigated with the revised calculation having lower rates and depths, as well as volumes discharged.
- Changes to the revised calculation to include irrigating effluent between 1 June to 10 June each year.
- Changes to the revised calculation with regards to yard area and diversion dates (matched to changes in milking season) and shed roof area.
- Changes to the size of the existing storage tank on site.
- The inclusion of the pump sump in the revised calculation as available storage.
- Changes to the emergency storage available with the initial calculation including 5 days storage, and the revised calculation having no emergency storage.

There is very little discussion with the further information response to support these proposed changes to the storage requirements for the site. I am also aware that the Massey Pond Calculation does not take the freshwater infiltration from the springs into the effluent storage system into account. Therefore, I conclude that despite the revised Massey Pond Calculation, it is unlikely that there is sufficient deferred storage available on site. Deferred irrigation is essential as it allows for the irrigation of effluent only when there is soil moisture capacity for the nutrient to be up-taken by pasture growth. Irrigating on saturated soils would like significantly increase the effects of the discharge on water quality.

It is my view that the use of high rate irrigation methods for the discharge of effluent to land increases the effects of the activity to minor. However, the uncertainty that the pond is suitable to be used to defer effluent irrigation is much more significant. Therefore, I conclude that the effects resulting from the discharge of effluent to land are likely to be more than minor.

### ***Water Quantity***

The rate of abstraction is less than 2 litres per second. The Applicant has freshwater storage tanks for stock water and shed washdown to ensure this abstraction rate can be met. At this rate of abstraction stream depletion effects do not need to be considered under the policies of the Regional Water Plan, and due to the proximity to the nearest surface waterway effects on stream depletion are unlikely. The abstraction is also unlikely to cause any significant effects on neighbours' bore water supplies.

The Applicant is taking a reasonable amount of water for dairy activities (92 litres per cow per day), and is consistent with the recommended volume for dairy shed washdown and stock drinking water.

The groundwater zone has a preliminary allocation of 123,000,000 m<sup>3</sup>/year (RWP) and 118,250,000 m<sup>3</sup>/year (pSWLP). Cumulative allocation from the groundwater zone, including this application is approximately 1% (RWP) of the mean annual land surface recharge. The Applicant will require 40 m<sup>3</sup> per day during the milking season. This equates to 21,000 m<sup>3</sup> per year.

No adverse environmental effects are anticipated as a result of the taking of water as proposed. Recommended conditions of consent will require that the abstraction of water is metered and the results reported to Council.

### ***Soil Health***

The effluent disposal field will be 103.5 hectares. This figure 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 and also more than 8 hectares per 100 cows as recommended in the Best Practice Guidelines Booklet<sup>8</sup>.

There are three soil types in the disposal area. The predominant risk for the soils is waterlogging. When topography and physiographic zones are taken into account, the main risk factor for the property for the discharge of effluent is overland flow, or flow through preferential pathways. The mitigation measures that address this is the use of a low depth effluent discharge system, and deferred effluent irrigation until soil moisture conditions are suitable using on-site soil moisture probes.

Provided the effluent is applied at the appropriate depth, soil health and available nutrients should be maintained and enhanced. However, the concerns raised above in the section on water quality with regards to rate and depths for this site and the ability to defer irrigation until soils have capacity, the effects on soil health are likely to be minor.

### ***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 be little risk of adverse effects from odour and spray drift on surrounding land owners and occupiers.

#### **3.3.4 Adverse effects that have been disregarded**

No effects of the discharge of effluent to land or water take have been disregarded. The on-going use of land for dairy farming is permitted and is outside the scope of this application. Therefore, no effects have been considered regarding the wider effects of dairy farming, only the discharge of effluent to land and the take and use of groundwater.

---

<sup>8</sup> Farm Dairy Effluent, Best Practise Guidelines (2007), Environment Southland

### **3.3.5 Planning provisions (policies and objectives) relevant to adverse effects**

The significance of effects of an activity is determined by examining the effects through the lens of our policy documents, all of which are governed by the Resource Management Act 1991 (RMA). The key objectives and policies from Council's regional plans which relate to the potential adverse effects of the proposed discharge are detailed below. The relevant operative plan is the Regional Water Plan, and the relevant proposed plan is now the decisions version of the proposed Southland Water and Land Plan which was notified on 4 April 2018. On and from that date, the pSWLP is amended in accordance with the Council's decision (see clause 10(5) of Schedule 1 of the RMA). This means that on 4 April 2018, the notified version of the pSWLP is replaced by the decisions version of the pSWLP. Accordingly, the decisions version of the pSWLP is the relevant document which must be considered under section 104(1)(b)."

A policy assessment has been included in the application. I have reviewed this assessment and also examined the relevant planning documents. The key planning document is the decision version of the proposed Southland Water and Land Plan, as more weight is being placed on this plan than the operative Regional Water Plan. This weighting decision is based on where the proposed plan is in the schedule 1 planning process. The key policies of the proposed Southland Water and Land Plan are for the integrated management of land and water, to minimise the environmental effects from farming activities, and no reduction in the quality of freshwater.

#### *Effluent discharge*

The key policies of the proposed plan for this activity are Policies 13, 16 and 17. Policy 17 seeks to avoid adverse effects on water quality, and avoid as far as practicable other adverse environmental effects of the operation of, and discharges from, effluent management systems. The application is clear that it wants to discharge effluent via high rate slurry tanker to a low depth of 5mm on rolling topography and hill country, including areas over 7 degrees in slope, which has a high number of springs, seepages and drainage depressions. I do not believe that the mitigation measures proposed in the application will adequately avoid the significant adverse effects on water quality resulting from the discharge of effluent to land as directed by Policy 17(1) and Policy 17(2)(c). It is my view that the application is inconsistent with Policy 17(1) and Policy 17(2)(c).

The key policies in the Regional Water Plan for the dairy shed effluent discharge activity is Policy 42, which seeks to avoid adverse effects on water quality by matching effluent management to the receiving environment risk, and Policy 31A which requires that discharges onto land are matched to risk. I do not consider the management of the proposed effluent discharge is matched to the level of risk with regards to the sloping land and the proximity to groundwater/surface water as identified in Policy 31A(b)(g) and (h). Therefore, I also do not believe that the adverse effects of the discharge of effluent to land in this sensitive location will be avoided. The use of the word 'avoid' provides strong policy direction.

#### *Groundwater abstraction*

The key policies relating to the water abstraction activity are Policies 21, 28, 29, 30 and 31 of the Regional Water Plan, and Policy 20 and 22 of the proposed Southland Water and Land Plan. The policies of the operative plan relate to managing groundwater abstractions to avoid significant effects on long term aquifer storage volumes, existing users, surface water and associated habitats, and groundwater quality. The policies of the proposed plan are for the management and allocation of water resources.

The abstraction would not result in allocation limits being met or exceeded, the proposed volume is reasonable for the proposed use, and the abstraction will be metered, which is consistent with these policies.



### Conclusion

- The proposed groundwater abstraction activity is consistent with the policies of both the proposed and operative plans.
- The discharge of effluent to land is inconsistent with Policy 17(1) and Policy 17(2)(c) in the pSLWP and Policy 31A and Policy 42 in the RWP.

In summary, the proposal is inconsistent with the policies of the operative Regional Water Plan and the proposed Southland Water and Land Plan. Although full weight is not yet given to the proposed plan, it does have significant weight as it contains stronger provisions than the operative plans, and it implements the National Policy Statement for Freshwater Management, which is a higher order document.

### 3.3.6 Conclusion: significance of adverse effects on the environment

I hold no concerns with regards to the abstraction and use of groundwater in this location. The application is consistent with the relevant provisions. The proposed volume is in line with best practice volumes, represents an efficient use of water, the take will be metered, and the taking of the water should not result in the over allocation of the waterbody. Mitigations proposed by the Applicant should ensure that all potential adverse effects are appropriately avoided, remedied or mitigated.

The mitigation measures included in the application to discharge effluent to land are low depth effluent discharge, deferred effluent irrigation storage and observing appropriate buffer distances as recommended by Council. The primary effects identified are to water quality, soil health and odour. However, the adverse effects of the effluent discharge activities on the existing environment will be more than minor due to the insufficient mitigation measures proposed and the sensitivity of the location.

Overall, the potential effects from the proposed discharge of effluent to land on water quality are likely to be more than minor.

## 4. Special circumstances and public notification

<b>4.1 Do special circumstances exist in relation to the application that warrant the application being publicly notified?</b>	<input type="checkbox"/> Yes	Application must be publicly notified. Explain reasons in 4.2 and go to 10.2
	<input type="checkbox"/> No	Explain reasons in 4.2. If each activity is a controlled activity go to 10.1. Otherwise go to 5.1

### 4.2 Reasons why special circumstances do or do not exist

N/A – public notification is required by section 3.3

## Affected Parties and Limited Notification

### 5. Protected Customary Rights Group or Customary Marine Title group

<b>5.1 Is the activity in the coastal environment, within an area where it may adversely affect a protected customary rights group(s) or a customary marine title group(s) (see s95G)?</b>	<input type="checkbox"/> Yes	Go to 5.2
	<input checked="" type="checkbox"/> No	Go to 6.1
<b>5.2 May the activity have adverse effects on a</b>	<input type="checkbox"/> Yes	The customary rights group(s) is

protected customary right carried out in accordance with the requirements of Part 3 of the Marine and Coastal Area (Takutai Moana) Act 2011?

No

an affected customary rights group(s). Application must be limited notified on them. Record in 5.3 and go to 6.1 Go to 6.1

**5.3 Adversely affect a protected customary rights group(s) or a customary marine title group(s):**

N/A

**6. Statutory Acknowledgement Areas**

<b>6.1</b>	Is the activity on or adjacent to, or may it affect, a statutory acknowledgement area?	<input type="checkbox"/> Yes	Go to 6.2
		<input checked="" type="checkbox"/> No	Go to 7.1
<b>6.2</b>	Are the adverse effects on Te Rūnanga o Ngāi Tahu minor or more than minor?	<input type="checkbox"/> Yes	Include TRONT in 8.2 and go to 6.3
		<input type="checkbox"/> No	Go to 6.3

**6.3 Reasons why adverse effects on Te Rūnanga o Ngāi Tahu are less than minor, minor or more than minor:**

N/A – public notification is required by section 3.3

**7. Is limited notification precluded?**

<b>7.1</b>	Is each activity subject to a rule, NES or regulation that precludes limited notification?	<input type="checkbox"/> Yes	Go to 9.1
		<input checked="" type="checkbox"/> No	Go to 8.1

**8. Are any people adversely affected?**

<b>8.1</b>	Are the adverse effects on a person minor or more than minor (but not less than minor)?	<input checked="" type="checkbox"/> Yes	Go to 8.2
		<input type="checkbox"/> No	Go to 8.3

**8.2 Person(s) considered to be adversely affected (complete and go to 8.3)**

Person	Effect on person (see Note)	Reasons why effect is minor or more than minor	Has written approval been provided?
--------	-----------------------------	--	-------------------------------------

**Note:** In forming this opinion (a) to (c) apply:

- (a) We may disregard an adverse effect of the activity on the person if a rule or an NES permits an activity with that effect; and
- (b) We must, if the activity is a controlled activity or a restricted discretionary activity, disregard an adverse effect of the activity on the person if the effect does not relate to a matter for which a rule or a national environmental standard reserves control or restricts discretion; and

- (c) Must have regard to every relevant statutory acknowledgement made in accordance with an Act specified in Schedule 11.

**8.3 Reasons why no other person is considered to be adversely affected**

If it is considered that the effects of this application identified above are not more than minor as concluded in section 3.3, then it is considered that the effects of the discharge of effluent to land are likely to produce effects that are minor. This is for the following reasons:

- There is an inherent risk to surface water quality and groundwater quality, due to the soil types, land drainage and characteristics of the property when taking into account the limited volume of deferred effluent storage and the use of a slurry tanker as the primary irrigation method of this topography;
- The policy direction of the relevant planning documents have strong wording in regards to the level of effects on water quality that are acceptable from these activities and therefore (taking into account weighting) any effects are likely to be minor.

The following parties are considered to be affected for the purposes of Section 95B:

- TRONT
- TAMI
- Fish and Game
- DOC

All of the above parties have been considered to be affected by the adverse effects on surface water quality due to the contaminant flow pathways to the surface waterways and the presence of freshwater springs throughout the proposed discharge area. These parties have been considered to be affected by the potential effects of the discharge of contaminants to surface water, in terms of effects on water quality, aquatic and fish habitat and on cultural and spiritual values associated with water.

In regards to the water permit no adjoining land owners have been considered as affected parties.

Whilst the discharge permit relates to a new discharge area (as the previous discharge area is no longer part of the existing environment) I do not consider that the adjoining land owners will be affected by the new discharge area. This is because effluent should not be sprayed within 20m of the property boundary, therefore the Applicant will be complying with Council’s regulations for appropriate buffers, and the adjoining land owners should not be affected by the spray drift and odour relating to the effluent discharge activity.

**9. Special Circumstances – Limited Notification**

<b>9.1 Are there special circumstances that warrant limited notification of any other persons?</b>	<input type="checkbox"/> Yes	Application must be limited notified to those persons and any other affected persons. Go to 9.2
	<input checked="" type="checkbox"/> No	Go to 10

**9.2 Reasons special circumstances exist and persons to be notified**

N/A

## Recommendation and decision

### 10. Officer's recommendation

10.1	The application be processed non-notified	<input type="checkbox"/>
10.2	Public notification is recommended	<input checked="" type="checkbox"/>
10.3	The application be placed on hold while the applicant tries to obtain written approvals from the affected persons	<input type="checkbox"/>
10.4	Limited notification is required. Persons to be served notice are those listed in 8.2	<input type="checkbox"/>



Emily Allan  
Consents Officer

Date: 24 May 2018

### Decision under Delegated Authority

11.1	I agree with the recommendation	<input checked="" type="checkbox"/>
11.2	The application will be processed non-notified	<input type="checkbox"/>
11.3	The application will be publicly notified	<input checked="" type="checkbox"/>
11.4	The application shall be placed on hold while the applicant tries to obtain written approvals from the affected persons	<input type="checkbox"/>
11.5	The application will be limited notified. The parties to be served notice are those listed in section 8.2	<input type="checkbox"/>

This decision is made under delegated authority by:



Joanna Gilroy  
Acting Consents Manager

Date: 24 May 2018