Otago Regional Council

Otago Regional Council

Section 42A Staff Recommending Report

Water Permit Application RM19.312
Queensbury Ridges Limited

The recommendation in the staff report represents the opinion of the writers and it is not binding on the Hearing Commissioners. The report is evidence and will be considered along with any other evidence that the Hearing Commissioners will hear.

Ethan Glover
Consultant Consents Officer

06 August 2020

Executive Summary

Queensbury Ridges Limited has applied for multiple water permits (RM19.312.01-03) to take and use water from the Albert Burn, Schoolhouse Creek and the Clutha River/Mata-Au. These permits would replace 7 existing Deemed and Water Permits and provide for a new supplementary allocation take. The Applicant has sought a consent term of 25 years for all permits.

The key issues for this application are the monthly and seasonal allocations, irrigation area and the consent duration.

After assessing the actual and potential effects of the proposed activity and the provisions of the relevant planning documents and submissions, the activity is considered to have minor adverse effects that can be appropriately mitigated. Therefore, the recommendation of this report is to **approve** the applications subject to the recommended conditions of consent.

The recommendation of the reporting officer is that these applications for the take and use of surface water is granted for a period of **15 years**.

OTAGO REGIONAL COUNCIL DEEMED PERMIT REPLACEMENT SECTION 42A REPORT

ID Ref:	**A1372251**
Application No(s):	**RM19.312.01-03**
Prepared For:	**Hearing Commissioner**
Prepared By:	**Ethan Glover, Consultant Consents Officer**
Date:	**06 August 2020**

Subject: **Section 42A Recommending Report – Deemed and Water Permit replacements by Queensbury Ridges Limited for water permits to take and use water from the Albert Burn, Schoolhouse Creek and the Clutha River, Queensberry, Central Otago**

Summary of Recommendation

Queensbury Ridges Limited has applied for resource consent to replace multiple deemed and water permits to take and use surface water from the Albert Burn, Schoolhouse Creek and the Clutha River/Mata-Au. After assessing the actual and potential effects of the applications, considering submissions, and considering all of the matters in section 104 of the Resource Management Act 1991, the recommendation of this report is to grant for a duration of 15 years subject to the recommended conditions of consent.

1. Purpose

This report has been prepared under Section 42A of the Resource Management Act 1991 ("**RMA**" of "**the Act**") to assist in the hearing of the applications for resource consent made by Queensbury Ridges Limited. Section 42A enables local authorities to require the preparation of 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 applications.

The report assesses the application in accordance with Sections 104 and 104B of the Resource Management Act 1991 and makes a recommendation as to whether the application should be granted, and a recommendation on the duration of the consent and appropriate conditions.

This report contains the recommendations of the Consent Officer and is not a decision on the application. The recommendations of the report are not binding on the Hearing Commissioner. The report is evidence and will be considered along with any other evidence that the Hearing Commissioner will hear.

2. Report Author

My name is Ethan Glover. I am a Consultant Consents Officer for the Otago Regional Council.

I hold the qualifications of a Bachelor of Science with First Class Honours from the University of Otago. I am an employee of Mitchell Daysh Limited and an Associate Member of the New Zealand Planning Institute. I have experience preparing and processing resource consent applications relating to freshwater, port operations, land uses and subdivision.

I have read and understand my obligations in terms of the Environment Court's Code of Conduct for Expert Witnesses contained in the Practice Note 2014. I confirm that the issues addressed in this report are within my area of expertise. I confirm that I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

I have been involved with the Queensbury Ridges Limited application since it was lodged on 24 October 2019.

3. Summary of the Application

3.1 Overview

Applicant: Queensbury Ridges Limited ("**the Applicant**")

Applicant's agent: Will Nicolson (LandPro Limited)

Site address or location:
RM19.312.01: Albert Burn, approximately 800 metres (m) upstream of the Luggate-Cromwell Road, State Highway 6.
RM19.312.02: Schoolhouse Creek, approximately 550 m upstream of the Luggate-Cromwell Road, State Highway 6.
RM19.312.03: Clutha River/Mata-Au, approximately 400 m upstream of the Albert Burn confluence.

Legal descriptions at points of take:

RM19.312.01: Section 1 Survey Office Plan 300501 (source, weir), Lot 1 DP 516051 (ponds).

RM19.312.02: Section 1 Survey Office Plan 300501 (source), Lot 1 DP 516051 (ponds).

RM19.312.03: Lot 1 DP 511969 (source), Lot 1 DP 516051 (ponds).

Legal descriptions for use:
Section 37 BLK IX Tarras SD, Section 45 BLK IX Tarras SD, Section 46 BLK IX Tarras SD, Lot 1 DP 347117, Lot 1 DP 511969, Lot 3 DP 22096, Section 1 Survey Office Plan 300501, Lot 1 DP 516051, Lot 2 DP 516051, Lot 4 DP 466903, Lot 1 DP 22096, Lot 4 DP 368189, Lot 2 DP 532869, Lot 1 DP 532869, Lot 4 DP 35805, Lot 5 DP 358051, Lot 6 DP 358051, Lot 7 DP 358051, Lot 8 DP 358051, Lot 3 DP 368189, Lot 1 DP 368189, Lot 1 DP 22567, Lot 2 DP 358051, Lot 18 DP 358051, Lot 17 DP 358051, Lot 2 DP 439756, Lot 1 DP 439756, Lot 1 DP 525499, Lot 15 DP 358051, Lot 6 DP 511969, Lot 14 DP 358051, Lot 5 DP 511969, Lot 13 DP 358051, Lot 4 DP

511969, Lot 12 DP 358051, Lot 3 DP 511969, Lot 11 DP 358051, Lot 2 DP 511969, Lot 8 DP 511969, Lot 9 DP 358051.

Map references:
RM19.312.01: NZTM 2000 E1308734 N5028107 (source), NZTM 2000 E1308763 N5028101(weir), NZTM 2000 E1309031 N5026817, NZTM 2000 E1309200 N5026561 (ponds)
RM19.312.02: NZTM 2000 E1308644 N5027281 (source), NZTM 2000 E1309031 N5026817, NZTM 2000 E1309200 N5026561 (ponds)
RM19.312.03: NZTM 2000 E1310827 N5027786 (source), NZTM 2000 E1309031 N5026817, NZTM 2000 E1309200 N5026561 (ponds)

Consents sought:
RM19.312.01: Water permit to take and use surface water in a non-consumptive manner and as both primary allocation and supplementary allocation from the Albert Burn and to retake and use water from a weir and two storage ponds.
RM19.312.02: Water permit to take and use surface water as primary allocation from Schoolhouse Creek and to retake and use water from two storage ponds.
RM19.312.03: Water permit to take and use surface water from the Clutha River/Mata-Au and to retake and use water from two storage ponds for the purpose of irrigation, frost fighting and stock drinking water.

Purpose of takes: Irrigation, stock water supply and frost fighting

Deemed permits: 2002.348.V1, 2002.349.V1, 2002.351.V1, 2002.352.V1, 2002.353.V1, 2002.354.V1

Water Permits: 2003.591.V2

Information requested: Further information was requested from the Applicant on 22 November 2019 in relation to the configuration of the points of take, damming, and the Schoolhouse Creek water race infrastructure (including proposed upgrades and metering). A response satisfying this request was received on 6 December 2019.

Notification decision: The application was approved, under delegated authority, to be processed on a limited-notified basis on 20 April 2020.

Site visit: I undertook a site visit on 9 July 2020. Will Nicolson and Richard Somerville were in attendance.

3.2 Key Issues

I believe that the key issues with this application are:

- The monthly and seasonal allocations;
- The increase in irrigation area; and
- The consent duration.

3.3 Description of Application

This application seeks to take surface water from the Albert Burn, Schoolhouse Creek and Clutha River/Mata-Au ("**Clutha River**") for the purposes of irrigation, stock drinking water and frost fighting. The Applicant's command area encompasses approximately 963 hectares (ha) of the terraces between the flanks of the Pisa Range and the Clutha River. While approximately only

393 ha of this area is currently reliant on the water sought by this application, the Applicant is proposing to increase the irrigable area to the southwest of the command area by approximately 100 ha. The rates of take and allocation volumes sought by the Applicant are indicated in Table 1 below. A description of each proposed take is provided below.

Table 1: Proposed rates of take and maximum volumes sought.

Water body	**Rate of take (L/s)**	**Monthly Volume (m^3/month)**	**Annual Volume (m^3/year)**
Albert Burn	103 (supplementary allocation of up to 150 L/s when Albert Burn flows >224 L/s)	270,684*	3,248,208*
Schoolhouse Creek	31.5	82,782*	993,384*
Clutha River	273	717,444*	8,609,328*
Total		**828,230**	**4,264,356**

*denotes the theoretical maximum based on constant taking at the proposed rate. These values are not those sought by the Applicant.

Albert Burn Take

The proposal seeks to take surface water from the Albert Burn in a non-consumptive manner and as both primary and supplementary allocation. Water will be abstracted from the Albert Burn via a gravity fed pipe that will convey water to a small holding pond and weir located outside of the natural bed at NZTM 2000 1308749E 5028096N. The pond is approximately 7 m wide and 9.5 m long with an average depth of 0.75 m, holding an estimated volume of 50 m^3. Water will be abstracted from the pond as both primary allocation and supplementary allocation by water overtopping the weir and entering an intake structure and distribution pipes. Excess water will be discharged back to the Albert Burn channel by overflowing the intake structure.

The intake from the pond currently feeds two pipes with diameters of 200 millimetres (mm) and 300 mm, respectively. The 200 mm pipe conveys water via gravity to irrigate land on the top side of State Highway 6 while the 300 mm pipe conveys water to a tank farm for storage. Both the 200 mm and 300 mm pipes are metered separately near the tank farm for which a Water Metering Exemption has been provided (WEX0293). Figure 1 below provides an overview of the proposed configuration.

The intake from the pond is covered by a grate to prevent the ingress of debris and fish, and to limit the amount of water abstracted. The Applicant seeks a primary allocation rate of 103 L/s and proposes to upgrade the Albert Burn intake and pipes to allow only up to 150 L/s to be abstracted. As such, the Applicant seeks to take an additional 47 L/s from the Albert Burn as supplementary allocation (i.e. up to a total of 150 L/s) when Albert Burn flows are in excess of 224 L/s. This supplementary minimum flow will be determined by a flow meter that will be installed immediately above the point of take.

The Applicant has the ability to plug the primary intake pipe to the pond outside of the irrigation season to ensure that all Albert Burn flows bypass the pond and follows the natural channel.

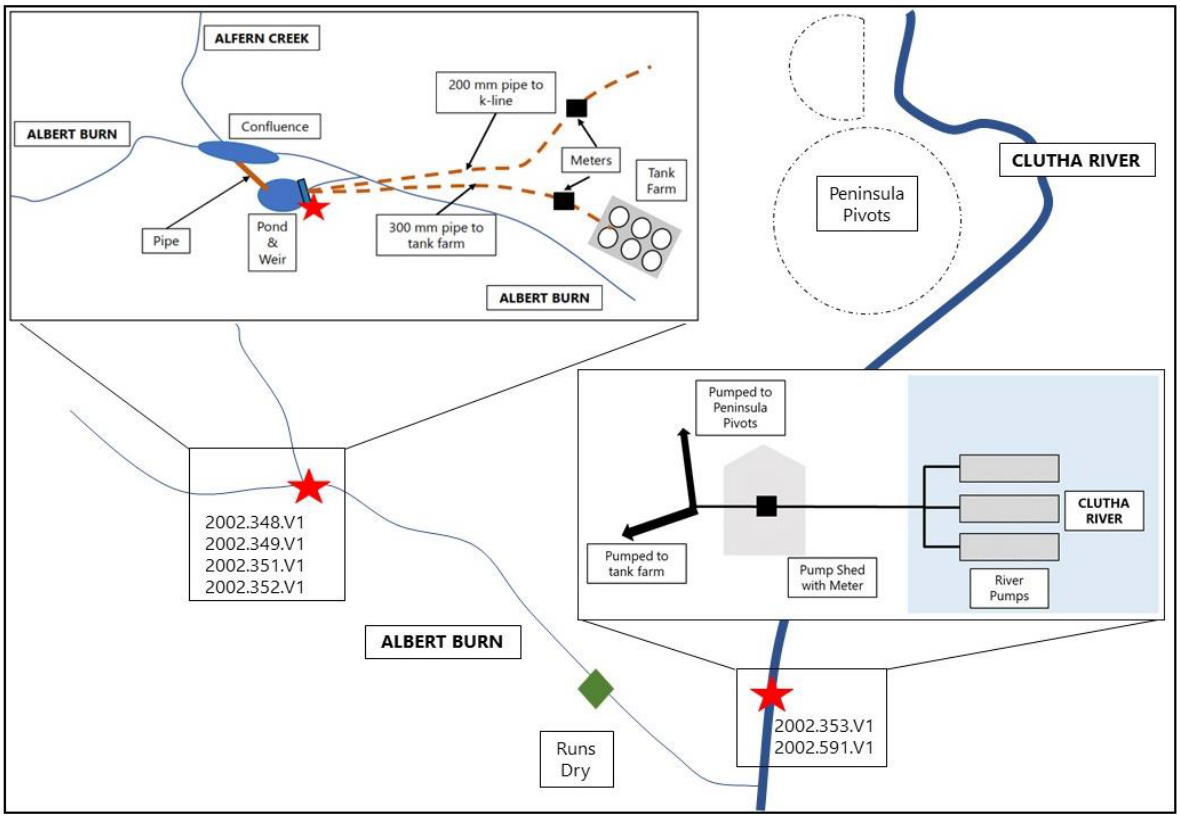

Figure 1: Schematic showing the irrigation infrastructure for the Albert Burn and Clutha River water takes.

Schoolhouse Creek Take

The proposal seeks to decommission the existing water race and take surface water as primary allocation from the main stem of Schoolhouse Creek at a rate of up to 31.5 L/s via a new intake structure. Water will be piped to the tank farm and used for irrigation, stock drinking and frost fighting.

Abstractions from Schoolhouse Creek have not been recorded historically, but the Applicant proposes to install a telemetered water meter at or near the point of take as part of the new intake structure.

Clutha River Take

Abstraction from the Clutha River is proposed at a rate of up to 273 L/s from a small side channel off the main stem. Water will be abstracted via three pumps set as an array and will be used to supply two pivot irrigators located within the northern part of the property. Water will also be pumped from this location to the tank farm on an as-required basis, typically when Albert Burn flows are low. All Clutha River water is metered at the point of take.

Figure 1 provides an overview of the infrastructure configuration. The Clutha River abstractions will work together with the Albert Burn and Schoolhouse Creek abstractions as an integrated system. When flows in the Albert Burn and Schoolhouse Creek are high, the Applicant will utilise

this water to fill storage tanks and irrigate all available land via gravity feed. When flows in the Albert Burn substantially decrease and the water stored in the tank farm declines, the Clutha River abstraction will increase in order to replace the water shortfall at the tank farm. The Clutha River abstraction will automatically cease when the tank farm reaches capacity.

All takes will have the ability to supply water to the storage ponds outlined in Table 2 that have previously been supplied by the Schoolhouse Creek water race. The Applicant intends to install reticulation to from the tank farm to provide for this. Water will be abstracted from the ponds and used for irrigation and stock drinking water.

Table 2: Location and dimensions of storage ponds that will be supplied by reticulation.

Pond	Inlet Location (NZTM Co-ordinates)	Outlet Location (NZTM Co-ordinates)	Approximate dimensions
Pond 1	E1309049 N5026888	E1309031 N5026817	width 40 m, length 68 m, depth 2 m (estimated volume 5,500 m^3).
Pond 2	E1309193 N5026571	N/A (diffuse seepage)	width 25 m, length 40 m, depth 1 m (estimated volume 1000 m^3)

3.4 Details of Deemed Permits Being Replaced

The Applicant is seeking to replace Deemed Permits 2002.348.V1, 2002.349.V1, 2002.351.V1, 2002.352.V1, 2002.353.V1, 2002.354.V1 and Water Permit 2003.591.V2, which all expire on 01 October 2021. The rates of take, monthly, and annual volumes provided for by each of the existing permits is set out in Table 3.

This application was lodged with the Council at least six months before the expiry date. In accordance with Section 124 of the Act, the Applicant may continue to operate under the above deemed permits and water permits until a decision on this application is made and all appeals are determined.

Where different deemed permits feature water takes in the same or similar locations, the Applicant proposes to combine these into a single permit with a combined rate of take. This is the case for the Clutha River and Albert Burn takes. This approach is considered appropriate, given the water takes can be traced to a common point in the waterways.

Table 3: Rates and volumes provided for by current permits.

Permit being replaced	Water body	Rate of take (L/s)	Monthly Volume (m^3)	Annual Volume (m^3)
2002.348.V1	Albert Burn	83.3	218,912.4	2,626,948.8
2002.349.V1	Albert Burn	14.15	37,186.2	446,234.4
2002.351.V1	Albert Burn	27.8	73,058.4	876,700.8
		55.6	146,116.8	1,753,401.6

2002.352.V1	Albert Burn	28.3	74,372.4	892,468.8
		28.3	74,372.4	892,468.8
2002.353.V1	Clutha River	83.3	218,912.4	2,626,948.8
2002.354.V1	Schoolhouse Creek	55.6	146,116.8	1,753,401.6
2003.591.V2	Clutha River	190	492,480	2,547,000
Totals	Albert Burn	237.45	624,018.6	7,488,223.2
	Schoolhouse Creek	55.6	146,116.8	1,753,401.6
	Clutha River	273.3	711,392.4	5,173,948.8
	Total	**566.35**	**1,481,527.8**	**14,415,573.6**

3.5 Application Documents

The Applicant has provided the following documentation with the application:

- *Resource Consent Application Form 1*
- *Resource Consent Application Form 4*
- *Assessment of Environmental Effects prepared by LandPro Ltd, dated 8 October 2019*
- *Abstraction Records – Albert Burn*
- *Abstraction Records – Clutha River*
- *Response to further information, dated 6 December 2019*
- *Albert Burn Fisheries Values and Residual Flows – Water Ways Consulting Ltd, dated November 2019*

4. Notification and Submissions

4.1 Notification Decision

Council made the decision to process the application on a limited notified basis under Section 95B of the RMA on the 20 April 2020 (report reference A1333167). Notice of the decision was served on the Applicant and affected parties on the 23 April 2020 and the submission period closed on the 4 June 2020.

The following persons were determined to be adversely affected and were notified:

Person	Reasons why they are adversely affected
Department of Conservation on behalf of the Director General of Conservation (DoC)	Schoolhouse Creek supports a significant population of Clutha flathead galaxia identified as nationally vulnerable in Schedule 1AA. DoC, who represent the Director General of Conservation have a statutory responsibility to manage native freshwater fish habitats. Council's RSU have noted that with a visual residual flow provided below the proposed water take, the effects on native fish values will not be more than minor. The proposal may still have a minor adverse effect on the conservation values of Schoolhouse Creek.

Contact Energy Limited	The Applicant is proposing to take up to 23,587m^3 of water per day from the main stem of the Clutha River. This volume far exceeds the quantity that is permitted under the RPW (1,000m^3 per day). The proposal may have a minor adverse effect on electricity generation. The proposed takes from the Albert Burn and Schoolhouse Creek are not considered to have an effect on electricity generation as these waterways are naturally ephemeral.
Te Ao Marama Incorporated on behalf of Waihopai	The consumptive take of water may have a minor adverse effect on the kohanga values of Schoolhouse Creek and adverse effects on the mauri of both Schoolhouse Creek and the Albert Burn.
Aukaha on behalf of Kati Huirapa Runaka ki Puketeraki and Te Runanga o Otakou	The consumptive take of water may have a minor adverse effect on the kohanga values of Schoolhouse Creek and adverse effects on the mauri of both Schoolhouse Creek and the Albert Burn.

4.2 Submissions Received

Submissions were received by the following persons:

- Department of Conservation ("**DoC**")
- Contact Energy Limited ("**Contact Energy**")
- Aukaha (on behalf of Kati Huirapa Runaka ki Puketeraki and Te Runanga o Otakou)

Department of Conservation

DoC submitted in opposition to the application and requested to be heard. They sought for the application to be declined unless the following relief was provided:

- That a Council prehearing meeting is held to address matters of concern with submitters and the Applicant, with agenda items including residual flows and fish screening/structures; and
- That a residual flow be set on Schoolhouse Creek that provides for a visual surface residual flow downstream of the point of take at NZTM Grid reference E1309017 N5027188 as recommended on page 18 in the ORC notification report dated 13 June 2020; and
- Fish screening, structures, piping, and salvage provisions are detailed in the consent conditions, including fish salvage where appropriate, intake structure geometry upstream and downstream, fish screen aperture size, sweep and approach velocities as appropriate.

The Schoolhouse Creek residual flow condition, as recommended by Council's Resource Science Unit ("**RSU**") (refer **Appendix 1**), was agreed to by the Applicant prior to notification as stated in the notification recommendation. The remainder of the issues in DoC's submission have since been resolved, resulting in a suite of conditions proffered by the Applicant. In a letter to Council dated 20 July 2020 (refer **Appendix 2**) DoC advised that their position on the application was now neutral and that they no longer wished to be heard in respect of their submission.

The proffered conditions referred to in **Appendix 2** have been amended for compliance purposes and recommended on the relevant permit (refer Conditions 7, 8 and 9 on the attached draft water permit RM19.312.02 (**Appendix 3**)). While I do not consider the intent of the conditions to have changed, confirmation was sought from DoC and the Applicant as to the appropriateness of the

recommended conditions. The Applicant since confirmed that the conditions were appropriate, however, at the time of writing this report, confirmation on DoC's position had not been obtained. This will be provided to the Hearing Commissioner in due course.

DoC also noted that additional authorisations may be required under the Freshwater Fisheries Regulations 1983. As such, an advice note to this effect has been included on the Schoolhouse Creek water permit (RM19.312.02).

Contact Energy Limited
By way of submission on the application, Contact Energy provided conditional written approval, requesting to be heard only if the following conditions were not adopted:

1. *The Applicant accurately verifies the actual locations of the take of water from the Clutha Mata-Au and advises the Otago Regional Council of their geographic position; and*
2. *No water shall be taken from the Clutha Mata-Au between 1 May and 31 August in any*
   calendar year.
   At all other times the taking of water authorised by this consent must cease when:
   i) the combined flow levels in the following rivers are below 250 cubic metres per second:
   - *Clutha Mata-Au at Cardrona (NIWA Hydrological Recording Site No. 75282) plus ten cubic metres per second, less the mean Hawea River flow as measured at the Camp Hill site (NIWA Hydrological Recording Site No.75287); and*
   - *Kawarau River at Chards Road (NIWA Hydrological Recording Site No. 75262);*
   - *Nevis River at Wentworth (Site No. 75265);*
   - *Manuherikia River at Ophir (NIWA Hydrological Recording Site No. 75253); and*

   ii) the level of Lake Hawea is at or below 338.2 metres above datum (based on a 3 hour rolling average) as measured at Hawea Dam site (NIWA Hydrological Recording Site no. 75288).

The Applicant has since fulfilled Condition 1 above and agreed to proffer Condition 2 to the satisfaction of Contact Energy. Contact Energy subsequently confirmed the withdrawal of their request to be heard in respect of the application (refer **Appendix 4**). Condition 2 above has been included in the relevant draft water permit (refer Condition 8 or RM19.312.03 in **Appendix 3**).

Aukaha on behalf of Kati Huirapa Runaka ki Puketeraki and Te Runanga o Otakou)
Aukaha submitted in opposition to the application and requested to be heard. They raised concerns with the current regional planning framework and noted that they would not oppose an amended application or any consent subject to the following conditions:

- That the term of consent be no longer than 6 years;
- That at least 50% of the flow natural in the waterway is left in the waterway;
- That a fish screen is installed over the intake structure at the points of take; and
- That the water take is metered and results recorded and reported via telemetry.

Aukaha's submission is discussed further throughout this report.

5. Description of the Environment

5.1 Description of the Site and Surrounding Environment

The application provides a detailed description of the site and surrounding environment. That description is adopted here.

5.2 Description of Surface Water Body

Albert Burn
The Albert Burn flows from the steep eastern face of the Pisa Range towards the Clutha River. The headwaters originate at an elevation of around 1,395 m above sea level towards the northern end of the Pisa Range. Several small tributaries (including Alfern Creek) join the Albert Burn before it crosses the Queensbury Terraces and joins the Clutha River.

Albert Burn flows are not currently monitored and there are no historic flow records. Landpro Ltd conducted stream gauging in January 2019 which indicated that the lower reach of the Albert Burn naturally dries in the summer. This view is supported by Council's RSU who consider the Albert Burn to be hydrologically similar to the neighbouring Schoolhouse Creek, which is naturally ephemeral. Council's RSU estimated MALF at 23 L/s in accordance with NIWA's Shiny model. The MALF records provided by the Shiny model are consistent with those from the neighbouring Schoolhouse Creek catchment that are based on historic flow data.

While records from the New Zealand Freshwater Fish Database ("**NZFFD**") are sparse, these show that brown trout is the only fish species recorded in this catchment. A thorough survey of the Albert Burn and Alfern Creek led by Richard Allibone (Waterways Consulting Ltd) was supplied by the Applicant as further information to the consent application. This revealed the instream values are confined to a stunted and relatively disconnected population of brown trout.

The Applicant is the only water user on the Albert Burn and no recreational uses are supported.

Schoolhouse Creek
Schoolhouse Creek is similar in nature to the Albert Burn, although it drains a smaller catchment. The headwaters of the creek originate at approximately 1,220 m above sea level, with the channel winding down the steep eastern face of the Pisa Range before opening out onto an unconfined channel on the Queensberry terraces. After passing under SH6, Schoolhouse Creek is piped under a centre pivot before flowing over an area of farmland to join the Clutha River.

The Regional Council ("**ORC**") has had a flow recorder established upstream of the Applicant's take since 2014. Based on approximately six seasons of flow recording, 7-day MALF was calculated to be 12 L/s.

Schoolhouse Creek has been the subject of over 20 fish surveys from 1995 through to 2010, all of which were conducted by DoC. From the extensive fish surveys and historic observations, RSU note that it is highly unlikely that Schoolhouse Creek would flow much further than State Highway

6 and would not often connect with the Clutha River. Therefore, the natural character of this stream is described as ephemeral.

NZFFD records confirm the presence of Clutha flathead galaxias in the upper reaches of the creek and a relatively static population of brown trout has also been observed over the years. Given the small size class of the brown trout surveyed and the ephemeral nature of the Schoolhouse Creek, it is likely that this an isolated resident population cut off from the Clutha River fishery.

There are also records of introduced brown trout in the lower reaches of Schoolhouse Creek and in the Applicant's water race. However, DoC has led a trout removal project to protect the Schoolhouse Creek population of Clutha flathead galaxias. The status of that project is believed to be successful, with no brown trout observed during recent fishing surveys, and Clutha flathead galaxias re-establishing throughout the lower reaches.

The Applicant is the only water user on Schoolhouse Creek and no recreational uses are supported.

Clutha River
The proposed take is located on a small side channel off the main stem of the Clutha River. The closest ORC flow monitoring station is located approximately 30 km upstream of the take point where MALF is reported to be 121 m^3/s. For the reach of the Clutha River in the vicinity of the proposed take, NIWA's Shiny model estimates MALF at 84.6m^3/s.

Numerous fish surveys are listed in the NZFFD, however only a select few have been undertaken in the vicinity of the proposed point of take. NZFFD records confirm the presence of brown trout, upland bully, common bully and longfin eel. The Applicant also notes that a presence of rainbow trout and salmon are assumed in the vicinity of the take.

The Clutha River supports various recreational values including kayaking and boating and is important for electricity generation.

5.3 Schedule 1 of the Regional Plan: Water

Schedule 1A of the Regional Plan: Water for Otago ("**RPW**") outlines the natural and human use values of Otago's surface water bodies. The Schoolhouse Creek, Albert Burn and Clutha River are identified as having the following values:

Albert Burn
- No Schedule 1A values

Schoolhouse Creek
- Absence of aquatic pest plants identified in the Pest Plant Management Strategy for the Otago Region.
- Presence of indigenous fish species threatened with extinction.

Clutha River
- Large water body supporting high numbers of particular species, or habitat variety, which can provide for diverse life cycle requirements of a particular species, or a range of species.

- Gravel/rock bed composition of importance to resident biota.
- Presence of significant fish spawning areas for trout and salmon.
- Presence of significant areas for development of juvenile trout and salmon.
- Presence of riparian vegetation of significance to aquatic habitats.
- Presence of indigenous fish species threatened with extinction.
- Significant presence of trout, salmon and eel.
- Presence of a significant range of indigenous waterfowl threatened.

Schedule 1AA of the RPW identifies Otago resident native freshwater fish and their threat status. Schoolhouse Creek and the Clutha River (tributaries) are known to provide habitat for the Clutha flathead galaxiid (*Galaxias* sp. D.), which are listed as "nationally vulnerable" within this schedule, although it is understood this species is now nationally critical[1].

Schedule 1B of the RPW identifies water takes used for public supply purposes (current at the time the RPW was notified in 1998), while Schedule 1C identifies registered historic places which occur in, on, under or over the beds or margins of lakes and rivers. The Clyde Water Supply (at G42:199521) and Cromwell Water Supply (at G41:120670) are listed in Schedule 1B within the Clutha River. There are no 1C values in the RPW listed in close proximity to the proposed activity.

Schedule 1D of the RPW identifies the spiritual and cultural beliefs, values and uses associated with water bodies of significance to Kai Tahu. The Clutha River (between Alexandra and Lake Wanaka) is identified as having the following values:

- ***Kaitiakitanga:*** *the exercise of guardianship by Kai Tahu, including the ethic of stewardship.*
- ***Mauri:*** *life force.*
- ***Waahi tapu and/or Waiwhakaheke:*** *sacred places; sites, areas and values of spiritual values of importance to Kai Tahu.*
- ***Waahi taoka:*** *treasured resource; values, sites and resources that are valued.*
- ***Mahika kai:*** *places where food is procured or produced.*
- ***Kohanga:*** *important nursery/spawning areas for native fisheries and/or breeding grounds for birds.*
- ***Trails:*** *sites and water bodies which formed part of traditional routes, including tauraka waka (landing place for canoes).*
- ***Cultural materials:*** *water bodies that are sources of traditional weaving materials (such as raupo and paru) and rongoa (medicines).*

Schoolhouse Creek and the Albert Burn are not specifically mentioned in Schedule 1D.

5.4 Schedule 2 of the Regional Plan: Water

The provisions of Schedule 2A-2D do not apply to this application.

5.5 Regionally Significant Wetlands

No Regionally Significant Wetlands will be affected by the take or use. The closest is the Bendigo Wetland located a minimum of 7 km downstream from the take point on the Clutha River.

[1] Dunn et al., 2017. Conservation status of New Zealand freshwater fishes, 2017.

6. Status of the Application

Operative Regional Plan: Water for Otago

Resource consent is required under the RPW. The taking and use of surface water originally applied for prior to 28 February 1998 as existing primary allocation from catchments not listed in Schedule 2A of the RPW is a ***restricted discretionary*** activity under Rule 12.1.4.5 of the RPW. The matters to which the Council has restricted discretion are listed in Rule 12.1.4.8 of the RPW. This rule applies to the two primary allocation water takes from the Albert Burn and Schoolhouse Creek.

Restricted Discretionary Activity Rule 12.1.4.5

Taking and use of surface water as primary allocation applied for prior to 28 February 1998 in catchments not listed in Schedule 2A:

(i) This rule applies to the taking of surface water, as primary allocation, in catchment areas not listed in Schedule 2A, if the taking was the subject of a resource consent or other authority:
  (a) Granted before 28 February 1998; or
  (b) Granted after 28 February 1998, but was applied for prior to 28 February 1998; or
  (c) Granted to replace a resource consent or authority of the kind referred to in paragraph (a) or (b).

(ii) Unless covered by Rule 12.1.1A.1, the taking and use of surface water to which this rule applies is a restricted discretionary activity. The matters to which the Otago Regional Council has restricted the exercise of its discretion are set out in Rule 12.1.4.8.

(iii) Unless covered by Rule 12.1.1A.1, the taking and use of surface water in the Waitaki catchment to which this rule applies is a restricted discretionary activity provided that by itself or in combination with any other take, use, dam, or diversions, the sum of the annual volumes authorised by resource consent, does not exceed the allocation to activities set out in Table 12.1.4.2. The matters to which the Otago Regional Council has restricted the exercise of its discretion are set out in Rule 12.1.4.8.

(iv) Takes to which this rule applies will not be subject to a minimum flow condition until the minimum flow has been determined by investigation and added to Schedule 2A by a plan change.

Note: If a minimum flow has been determined for a catchment previously not listed in Schedule 2A, and that minimum flow has been set by a plan change, the catchment will then be listed in Schedule 2A and Rule 12.1.4.2 or Rule 12.1.4.4 will apply.

Rule 12.1.4.8 Restricted Discretionary Activity considerations

In considering any resource consent for the taking and use of water in terms of Rules 12.1.4.2 to 12.1.4.7 and 12.2.3.1A, the Otago Regional Council will restrict the exercise of its discretion to the following:

(i) The primary and supplementary allocation limits for the catchment; and
(ii) Whether the proposed take is primary or supplementary allocation for the catchment; and
(iii) The rate, volume, timing and frequency of water to be taken and used; and
(iv) The proposed methods of take, delivery and application of the water taken; and
(iv) The source of water available to be taken; and
(vi) The location of the use of the water, when it will be taken out of a local catchment; and
(vii) Competing lawful local demand for that water; and
(viii) The minimum flow to be applied to the take of water, if consent is granted; and
(ix) Where the minimum flow is to be measured, if consent is granted; and
(x) The consent being exercised or suspended in accordance with any Council approved rationing regime; and
(xi) Any need for a residual flow at the point of take; and

(xii) Any need to prevent fish entering the intake and to locate new points of take to avoid adverse effects on fish spawning sites; and
(xiii) Any effect on any Regionally Significant Wetland or on any regionally significant wetland value; and
(xiv) Any financial contribution for regionally significant wetland values or Regionally Significant Wetlands that are adversely affected; and
(xv) Any actual or potential effects on any groundwater body; and
(xvi) Any adverse effect on any lawful take of water, if consent is granted, including potential bore interference; and
(xvii) Whether the taking of water under a water permit should be restricted to allow the exercise of another water permit; and
(xviii) Any arrangement for cooperation with other takers or users; and
(xix) Any water storage facility available for the water taken, and its capacity; and
(xx) The duration of the resource consent; and
(xxi) The information, monitoring and metering requirements; and
(xxii) Any bond; and
(xxiii) The review of conditions of the resource consent; and
(xxiv) For resource consents in the Waitaki catchment the matters in (i) to (xxiii) above, as well as matters in Policies 6.6A.1 to 6.6A.6.

In addition to the above, the application also seeks to take surface water from the Albert Burn as supplementary allocation. As such, Rule 12.1.4.7 is also relevant. There is no existing supplementary allocation from the Albert Burn catchment and the Applicant is proposing to take water above the natural mean flow.

Restricted Discretionary Activity Rule 12.1.4.7
Taking and use of surface water as supplementary allocation in any catchment other than a Schedule 2B catchment:
(i) This rule applies to the taking of surface water as supplementary allocation for any catchment area, except for any Schedule 2C catchment as set out in clause (ii) below, subject to the minimum flow set in paragraph (iii) below.
(ii) This rule does not apply to the taking of any surface water that is in addition to the first supplementary allocation provided for by Schedule 2B, for any catchment area in Rule 12.1.4.3.
(iii) The taking of surface water as supplementary allocation for any catchment is subject to a minimum flow which is not less than either:
(a) 50% of the natural flow at the point of take, or, if a resource consent so provides, not less than 50% of the natural flow at a point specified in the resource consent; or
(b) The natural mean flow at the point of take, or, if a resource consent so provides, not less than the natural mean flow at a point specified in the resource consent,
as the Otago Regional Council determines in granting a resource consent.

(iv) Unless covered by Rule 12.1.1A.1, the taking and use of surface water to which this rule applies is a restricted discretionary activity, and is subject to Rule 12.1.4.9. The matters to which the Otago Regional Council has restricted the exercise of its discretion are set out in Rule 12.1.4.8.
(v) Unless covered by Rule 12.1.1A.1, the taking and use of surface water in the Waitaki catchment to which this rule applies is a restricted discretionary activity provided that by itself or in combination with any other take, use, dam, or diversions, the sum of the annual volumes authorised by resource consent, does not exceed the allocation to activities set out in Table 12.1.4.2 and is subject to Rule 12.1.4.9. The matters to which the Otago Regional Council has restricted the exercise of its discretion are set out in Rule 12.1.4.8.
(vi) This rule shall affect the exercise of any resource consent which was either:
(a) Granted before 28 February 1998; or
(b) Granted after 28 February 1998 but was applied for prior to 28 February 1998,

for the taking of surface water where a condition on the consent requires the take to be suspended at a minimum flow higher than that which would be set by Schedule 2A.

(vii) The conditions of all such resource consents will be reviewed under Sections 128 to 132 of the Act to enable the minimum flows in paragraph (iii)(a) or (iii)(b) of this rule to be met, the volume and rate of take to be measured in accordance with Policy 6.4.16 and the taking to be subject to Rule 12.1.4.9, as soon as practicable after the Plan becomes operative.

Note: If a minimum flow has been determined for a catchment previously not listed in Schedule 2A, and that minimum flow has been set by a plan change, the catchment will then be listed in Schedule 2A and Rule 12.1.4.2 or Rule 12.1.4.4 will apply.

The proposed take from the Clutha River is exempt from primary allocation in accordance with Policy 6.4.1 and is therefore considered as a ***discretionary activity*** under Rule 12.1.5.1.

Discretionary Activity Rule 12.1.5.1
Except as provided for by Rules 12.1.1.1 to 12.1.4.7, the taking and use of surface water is a discretionary activity.

Retakes of water are required to be considered on the respective water permits being themselves a take and use of surface water. I consider the retakes to be part of the take and use activities provided for by the respective rules above. For that reason, the retake points are specified on each of the draft water permits in **Appendix 3**. Likewise, the taking of water for non-consumptive purposes as part of the Albert Burn take needs to be considered on the water permit being itself a take and use of water. This can be considered under the primary and supplementary allocation rules as this water forms part of the respective primary and supplementary take and use from the Albert Burn. As I consider this component of the take to meet the definition of "non-consumptive take" under the RPW, I consider that that measurement of this component of the take is not required.

It is noted that the application originally sought resource consent for the damming of water behind the Albert Burn weir. However, following the receipt of further information and subsequent discussions with the Applicant, it was determined that the damming of water in the Albert Burn weir was a ***permitted activity*** in accordance with Rule 12.3.2.1. Rule 12.3.2.1 also applies to the Schoolhouse Creek ponds.

Permitted Activity Rule 12.3.2.1
Unless prohibited by Rules 12.3.1.1 to 12.3.1.4, the damming or diversion of water is a permitted activity, providing:

(a) The size of the catchment upstream of the dam, weir or diversion is no more than 50 hectares in area; and

(b) In the case of damming, the water immediately upstream of the dam is no more than 3 metres deep, and the volume of water stored by the dam is no more than 20,000 cubic metres; and

(c) In the case of diversion, the water is conveyed from one part of any lake or river, or its tributary, to another part of the same lake, river or tributary; and

(d) No lawful take of water is adversely affected as a result of the damming or diversion; and

(e) Any damming or diversion within a Regionally Significant Wetland was lawfully established prior to 2 July 2011; and

(f) There is no change to the water level range or hydrological function of any Regionally Significant Wetland; and

(g) There is no damage to fauna, or New Zealand native flora, in or on any Regionally Significant Wetland; and

(h) The damming or diversion does not cause flooding of any other person's property, erosion, land instability, sedimentation or property damage; and
(i) The damming or diversion is not within the Waitaki catchment.

While full details of the proposed Schoolhouse Creek intake structure are not yet available, it is anticipated that the structure will comply with permitted activity requirements of Rule 13.2.1.4. Failing this, an additional land use consent may be required.

Permitted Activity Rule 13.2.1.4
The erection or placement of any flow or level recording device, outfall or intake structure or navigational aid structure, that is fixed in, on or under the bed of any lake or river, or any Regionally Significant Wetland, is a permitted activity, providing:
(a) The structure does not exceed 2 square metres in area provided that in respect of any flow or level recording device any catwalk to the nearest bank shall be excluded from the area calculation; and
(b) The structure, or its erection or placement, does not cause any flooding or erosion; and
(c) The Otago Regional Council is notified of the location and nature of the structure, at least seven working days prior to commencing the erection or placement; and
(d) Except in the case of a navigational aid, or the sight board of any gauge, any visible part of the structure is of a neutral colour to blend in with the surroundings; and
(e) The structure is maintained in good repair; and
(f) The site is left tidy following the erection or placement.

The proposed activity also involves the discharge of overflow from the Albert Burn pond and weir back to the Albert Burn. Likewise, some overflow from Pond 2 is discharged to an unnamed tributary of the Clutha River. The unnamed tributary is noted as being located within the same catchment as Schoolhouse Creek in Schedule 16 of the RPW. Therefore, both discharges comply with the following permitted activity rule.

Permitted Activity Rule 12.C.1.1
The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in a contaminant entering water, is a permitted activity, providing:
(a) The discharge does not result in flooding, erosion, land instability or property damage; and.
(b) There is no discharge of water from one catchment to water in another catchment; and
(c) The discharge does not change the water level range or hydrological function of any Regionally Significant Wetland; and
(d) When the discharge, including any discharge from a drain or water race, enters water in any lake, river, wetland or the coastal marine area; the discharge:
    (i) Does not result in:
        (1) A conspicuous change in colour or visual clarity; or
        (2) A noticeable increase in local sedimentation, in the receiving water (refer to Figure 5); and
    (ii) Does not have floatable or suspended organic materials; and
    (iii) Does not have an odour, oil or grease film, scum or foam; and
(e) When the discharge enters water in any drain that goes to a lake, river, wetland, or the coastal marine area, the discharge:
    (i) Does not result in:
        (1) A conspicuous change in colour or visual clarity; or
        (2) A noticeable increase in local sedimentation, in the lake, river, wetland or the coastal marine area (refer to Figure 6); and
    (ii) Does not result in the production of conspicuous floatable or suspended organic materials in the drain at the first of:
        (1) The downstream boundary of the landholding where the discharge occurs; or

(2) Immediately before the drain enters a river, lake, wetland or the coastal marine area; and

(iii) Does not have an odour, oil or grease film, scum or foam; and

(f) When the discharge enters water in any water race5 that goes to a lake, river, wetland, or the coastal marine area, the discharge:

(i) Does not result in:

(1) A conspicuous change in colour or visual clarity; or

(2) A noticeable increase in local sedimentation, in the water race (refer to Figure 7);

(ii) Does not result in the production of conspicuous floatable or suspended organic materials in the race at the first of:

(1) The downstream boundary of the landholding where the discharge occurs; or

(2) Immediately before the race enters a river, lake, wetland or the coastal marine area; and

(iii) Does not have an odour, oil or grease film, scum or foam; and

(g) From 1 April 2020, the discharge also complies with 12.C.1.1A.

While, the proposed primary and supplementary takes from the Albert Burn and Schoolhouse Creek are restricted discretionary activities under the RPW, the proposed take from the Clutha River is a discretionary activity. As all proposed takes form part of an integrated irrigation system and are inextricably linked to some of the irrigation areas, it is appropriate that these applications are bundled. Application of the bundling principle means that consent is required for a **discretionary** activity under the RPW.

Proposed Plan Change 7 (Water Permits)

Proposed Plan Change 7 (Water Permits) ("**PPC7**") was notified for submissions on 18 March 2020. In accordance with Section 86B(3)(a), the rules of PPC7 had immediate legal effect from the date of notification.

PPC7 provides an interim regulatory framework for the assessment of applications to renew deemed permits expiring in 2021, and any other water permits expiring prior to 31 December 2025. It also establishes a requirement for short duration consents for all new water permits.

For applications to renew deemed permits expiring in 2021, and any other water permits expiring prior to 31 December 2025, PPC7 establishes a controlled activity consenting framework for short duration consents which comply with the controlled activity conditions. PPC7 also establishes a non-complying consenting framework for consents where a longer duration is proposed or where the application fails to meet one or more of the controlled activity conditions.

As the application seeks a consent term longer than six years and proposes to increase the land area under irrigation, the application does not achieve the conditions pertaining to Rule 10A.3.1 under PPC7. Therefore, resource consent is required in accordance with Rule 10A.3.2

10A.3.1 Controlled activity: Resource consent required

10A.3.1.1 Despite any other rule or rules in this Plan;

a. any activity that is currently authorised under a Deemed Permit; or

b. the take and use of surface water (including groundwater considered as surface water under policy 6.4.1A (a), (b) and (c) of this Plan) that is currently authorised by an existing water permit where that water permit expires prior to 31 December 2025;

is a controlled activity provided the following conditions are met:

i. *The consent duration sought is no more than six years; and*

ii. *The deemed permit or water permit that is being replaced is a valid permit; and*

iii. *The application demonstrates that the total land area under irrigation does not exceed that irrigated in the 2017-2018 irrigation season, if the abstracted water is used for irrigation; and*

iv. *The rate of take shall be no more than the average maximum rate of take limit recorded during the period 1 July 2012 – 30 June 2017 and calculated in accordance with the method in Schedule 10A.4; and*

v. *Any existing residual flow, minimum flow, or take cessation condition (whichever is applicable) is included in the application for resource consent; and*

vi. *The volume of water taken shall be no more than the average maximum of the daily volume limit, or monthly volume limit, or annual volume limit (whichever one or more are applicable) recorded during the period 1 July 2012 – 30 June 2017, and calculated in accordance with the method in Schedule 10A.4.*

10A.3.2 Non-complying activity: Resource consent required

10A.3.2.1 Despite any other rule or rules in this Plan:

a. *any activity that is the replacement of an activity authorised under a Deemed Permit; or*

b. *the take and use of surface water (including groundwater considered as surface water under policy 6.4.1A (a), (b) and (c) of this Plan) that is the replacement of a take and use authorised by an existing water permit where that water permit expires prior to 31 December 2025;*

that does not meet any one or more of the conditions of Rule 10A.3.1.1 is a non - complying activity.

As the application was received prior to the notification of PPC7, in accordance with section 88A of the Act, the application retains the discretionary activity status determined under the RPW. Notwithstanding this, the rules in PPC7, in addition to the objectives and policies, are still a relevant consideration when assessing the application under section 104(1)(b) as a relevant provision of a proposed plan. This is discussed further in Section 7.15.

Overall, the application is considered to be a **discretionary** activity.

All relevant permitted activity rules are complied with.

7. Section 104 Evaluation

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. These matters are subject to Part 2, the purpose and principles, which are set out in Sections 5 to 8 of the Act.

The remaining matters of Section 104 to be considered when assessing an application for a resource consent are:

(a) the actual and potential effects on the environment of allowing the activity;

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;

(b) any relevant provisions of a national environmental standard, other regulations, a national policy statement, the Regional Policy Statement (RPS), the Regional Plan: Water (RPW); and

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

7.1 S104(1)(a) – Actual and potential effects on the environment of allowing the activity

Section 104(1)(a) of the RMA requires the council to have regard to any actual and potential effects on the environment of allowing the activity. This includes both the positive and the adverse effects.

As a discretionary activity, the Council's assessment is unrestricted and all actual and potential effects of this application must be considered.

Positive effects

The proposal will have the following positive effects:

- Enable primary production through irrigation;
- Provide for the viability of horticulture through irrigation resulting in less moisture stress for crops at critical growing times;
- The proposal will maintain business surety and provide economic benefits to the local community and economy;
- Provide social benefits by supporting the families and workers who directly rely on the businesses that the water take provides for;
- Support the health and well-being of animals by providing stock drinking water; and
- Provide for the monitoring of flows in the Albert Burn.

Adverse effects

In considering the adverse effects, the Consent Authority:

- may disregard an adverse effect where the plan permits an activity with that effect (s104(2)); and
- must disregard those effects on a person who has provided written approval (s104(3)(a)(ii)).

The taking of surface water up to 100 L/s and 1,000 m^3 per day from the main stem of the Clutha River is a permitted activity in accordance with Rule 12.1.2.2 of the RPW. While the adverse effects of this activity may be disregarded in accordance with s104(2), the proposal seeks to take water from the Clutha River far in excess of the permitted activity limits. As such, the application of the permitted baseline in respect of Rule 12.1.2.2 will not be material to the conclusion regarding adverse effect. Likewise, the Applicant can take and use water for domestic and stock drinking purposes in accordance with Rule 12.1.2.1. However, this rule is subject to the condition that the take does not have an adverse effect on the environment. As Rule 12.1.2.1 does not allow any adverse effects, I do not consider there to be a permitted baseline in respect of this rule. In accordance with s104(3)(a)(ii), the effects of the proposal on Contact Energy must be disregarded on the basis of their written approval to the application.

The assessment of adverse effects undertaken for the purpose of s95A identified and evaluated the adverse effects of the activity. This assessment is adopted for the purposed of s104(1)(a) and is discussed here in relation to the submissions received.

Effects on Instream Values

Albert Burn
The application provides an assessment of the instream values that is consistent with that provided by Council's RSU. Due to the naturally ephemeral nature of the Albert Burn and the limited ecological and natural character values supported, RSU have not recommended that a residual flow be imposed. While the Applicant has not proposed a permanent residual flow, they have proposed to maintain a surface water connection between the point of take and the Clutha River between 1 April and 15 November. I consider this to be appropriate mitigation given the limited ecological and natural character values. While the proposed mitigation does not entirely address the relief sought by Aukaha in their submission (that 50% of the natural flow to remain in the waterway), no specific rationale for this is provided in their submission. If evidence can be presented that supports the imposition of a permanent residual flow on the Albert Burn, then this should be considered.

The Applicant has proposed that the current fish screen be maintained. The fish screening has been inspected and is considered appropriate and consistent with the recommendations of Council's RSU (refer **Appendix 1**). Appropriate conditions have been recommended to ensure the maintenance of the existing fish screening which provides for the relief sought by Aukaha in respect of fish screening.

Schoolhouse Creek
Schoolhouse Creek is abundant with Clutha flathead galaxias, a nationally critical indigenous species, with the upper reaches clearly being an important habitat for native fish. Schoolhouse Creek is also naturally ephemeral, and it is likely that this has allowed the population of critical fish to thrive. The application provides for this population by maintaining a visual residual flow over an area of known habitat for these critical fish. The Applicant has also proposed that appropriate fish screening will be installed on the intake to prevent the ingress and entrapment of fish.

While the visual connected residual flow does not fully provide for the relief sought in Aukaha's submission, this is considered appropriate in this instance. The proposed residual flow and fish screening conditions have been endorsed by DoC and will ensure that adverse effects on the population of galaxias are avoided. Such fish screening also provides for the relief sought by Aukaha in respect of fish screening.

Clutha River
The Applicant has sought a maximum rate of take of 273 L/s from the Clutha River. The Applicant has proposed that the current fish screens be maintained on the intake infrastructure. The existing fish screens have been inspected and are considered to provide appropriate screening in line with RSU's recommendation (**Appendix 1**). A recommended condition has been imposed on the draft permit that requires these screens to be maintained as proposed by the Applicant. With appropriate fish screening provided, the effects of the Clutha River take on aquatic ecosystems

will be entirely acceptable. Such fish screening also provides for the relief sought by Aukaha in respect of fish screening.

Overall, the adverse effects of the proposed takes on instream values will be appropriately avoided, remedied or mitigated to an acceptable level.

Effects on Cultural Values

The Applicant provides an assessment against the provisions of the Kai Tahu ki Otago Natural Resources Management Plan ("**NRMP**") that is adopted here. As the application seeks a 25 year consent term, an appropriate volume of water based on efficient use and proposes fish screening on all takes, the application is considered to be broadly consistent with the NRMP. Likewise, these attributes of the application are consistent with the provisions of The Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008 - The Cry of the People, Te Tangi a Tauira.

As indicated above, Schoolhouse Creek supports a significant population of nationally critical fish and may have kohanga value to Runanga. I consider that the Applicant's proposed mitigation will provide for appropriate protection of the kohanga values of Schoolhouse Creek.

As the proposal seeks to take water from the Albert Burn and Schoolhouse Creek at rates greater than the MALF, the proposal may adversely affect the mauri of the water. However, as both of these waterways are naturally ephemeral, I do not consider these effects to be unacceptable. Furthermore, promoting ephemerality may be of benefit to the galaxias population and the kohanga values within Schoolhouse Creek.

Cultural effects on the main stem of the Clutha River are considered to be negligible as the volume of water sought is significantly less than the overall volumes in the river at the point of take and the intakes will employ appropriate fish screening. Notwithstanding the consent term, the Clutha take provides for the relief sought in Aukaha's submission.

Cumulative Effects

Rule 10A.3.2.1 of PPC7 stipulates that the assessment of effects must include a robust assessment of the adverse cumulative effects on the ecology and hydrology of the surface water body (and connected waterbodies). I do not consider this to be a more onerous test than would otherwise be required, including for notification purposes. However, for completeness, I provide an assessment of the cumulative effects below.

As the Applicant is the only water users in the Albert Burn and Schoolhouse Creek catchments, there are no adverse effects related to cumulative water takes. Likewise, while Contact Energy raised concerns around the cumulative effects of abstraction from the Clutha River, the Applicant's adoption of Contact Energy's recommended conditions appropriately mitigates this effect.

Given that the proposal seeks to take water from the Albert Burn and Schoolhouse Creek at rates that exceed MALF, reduction in groundwater recharge is expected below the points of take. This can result in cumulative effects on surface flows an therefore the natural character and cultural values of the waterway. **Appendix 5** provides an assessment of the effects on the groundwater resource. While the application is expected to reduce groundwater recharge, this is not expected

to have an adverse effect on surface flows. Therefore, I do not consider there to be a cumulative effect associated with the reduction in groundwater recharge.

Summary
Taking into consideration the positive environmental effects above and the assessment of adverse effects undertaken for notification purposes and discussed above, with the recommended mitigation, actual and potential effects on the environment are considered to be minor and acceptable.

7.2 Available Water Allocation

The RPW provides for the taking of surface water by defining allocation quantities able to be taken, while providing for water body levels.

Primary allocation is defined by Policy 6.4.2(b) of the RPW:

> *"To define the primary allocation limit for each catchment, from which surface water takes and connected groundwater takes may be granted, as the greater of:*
> *(a) That specified in Schedule 2A, but where no limit is specified in Schedule 2A, 50% of the 7-day mean annual low flow; or*
> *(b) The sum of consented maximum instantaneous, or consented 7-day, takes of:*
> *(i) Surface water as at: 19 February 2005 in the Welcome Creek catchment; or 7 July 2000 in the Waianakarua catchment; or 28 February 1998 in any other catchment; and*
> *(ii) Connected groundwater as at 10 April 2010,*
> *less any quantity in a consent where:*
> *(1) In a catchment in Schedule 2A, the consent has a minimum flow that was set higher than that required by Schedule 2A.*
> *(2) All of the water taken is immediately returned to the source water body.*
> *(3) All of the water being taken had been delivered to the source water body for the purpose of the subsequent take.*
> *(4) The consent has been surrendered or has expired (except for the quantity granted to the existing consent holder in a new consent).*
> *(5) The consent has been cancelled (except where the quantity has been transferred to a new consent under Section 136(5).*
> *(6) The consent has lapsed."*

The 7-day mean annual low flow (MALF) for the Albert Burn and Schoolhouse Creek have been calculated by the Council's RSU and are reported in Table 4 below. In accordance with Policy 6.4.2(a), total theoretical primary allocation is also reported in Table 4. The current paper allocation of these waterways is also calculated in accordance with Policy 6.4.2(b).

Table 4: Primary allocation determination

Waterway	Mean Annual Low Flow (MALF) (L/s)	Theoretical Primary Allocation (L/s)	Current Paper Allocation (L/s)	Allocation Status
Albert Burn	23	11.5	237.45	Fully Allocated
Schoolhouse Creek	12	6	55.6	Fully Allocated

While the status of the Albert Burn and Schoolhouse Creek catchments are fully-allocated, because the consents that this application seeks to replace were originally granted prior to 28 February 1998, and because the Applicant has applied to replace this consent within the statutory

timeframes given in Section 124 of the Act, the proposed takes will retain their primary allocation status.

In addition to the primary allocation sought, the Applicant proposes to take water from the Albert Burn as supplementary allocation in accordance with Policy 6.4.10, however, no increase in the overall monthly or annual allocation is sought. While there is no existing supplementary allocation from the Albert Burn, the proposed primary and supplementary allocations are less than the current primary paper allocation. As such, the application seeks to take a volume less than the total volume of water defined as the primary allocation limit by Policy 6.4.2(b)(i). Overall, including the proposed supplementary allocation, less water than was consented at 28 February 1998 is being sought. The proposal will therefore reduce overall allocation in the Albert Burn and Schoolhouse Creek catchments.

In accordance with Policy 6.4.1 of the RPW, the allocation quantities defined by Policy 6.4.2 do not apply to the Clutha River because of the large volumes of water available to be taken.

7.3 Historical Water Access

To assist in the reduction of primary allocation under Policy 6.4.2(b), Policy 6.4.2A allows only water that has been historically accessed under previous consents to be considered to be granted as primary allocation (except in the case of a registered community drinking water supply where an allowance may be made for growth that is reasonably anticipated).

The Council is able to control the rate, volume, timing or frequency of take, or a combination of these. The Council could grant less water than has been taken under existing consents if it is satisfied on the evidence that the lesser quantity would:

(a) reflect only the water actually taken and the pattern of taking established under the existing consent; and/or

(b) minimise conflict between those taking water; and/or

(c) address the underutilisation of water allocated under the existing consent, including any underutilisation arising from;

- *(i) inefficient and inappropriate practices; and/or*
- *(ii) consent holders retaining authorisation for more water than is actually required for the purpose of use.*

Council have water use records for the Albert Burn and Clutha River permits that that date back to 2013 but do not hold records for the Schoolhouse Creek permit. A summary of the monitoring data provided is illustrated in Figures 3 and 4 below.

Water meters WM0235 and WM0236 together measure the total abstraction from the Albert Burn under permits 2002.348.V1, 2002.349.V1, 2002.351.V1, 2002.352.V1 (refer Figure 3). For the purpose of this analysis, these meters have been combined.

Water meter WM0237 measures the combined abstraction from the Clutha River under permits 2002.353V1, 2003.591.V2 (refer Figure 4).

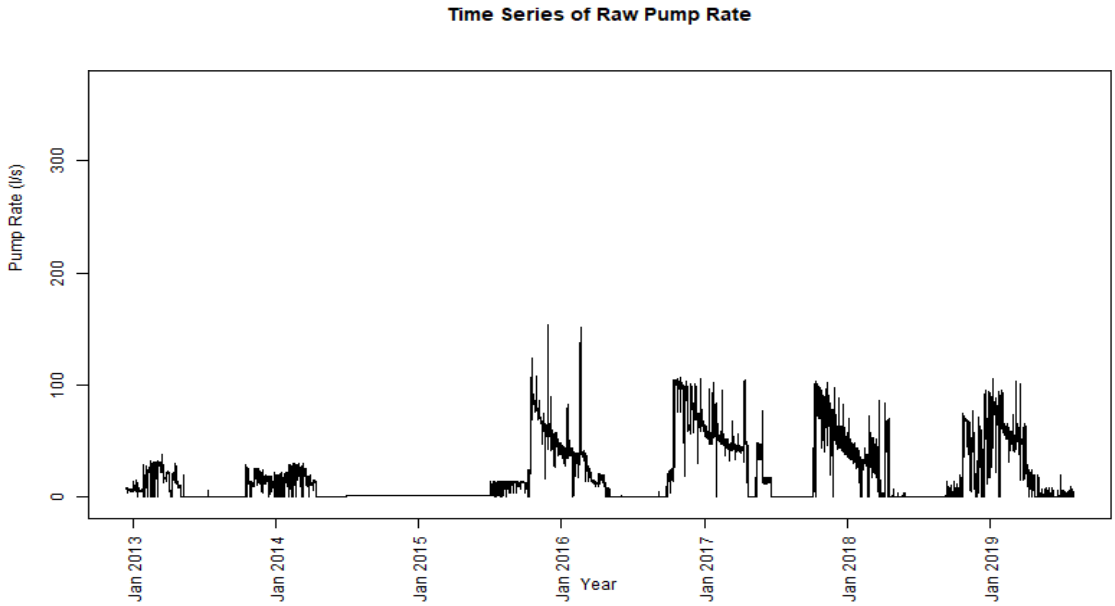

Figure 3: Raw pump rate for WM0235 and WM0236

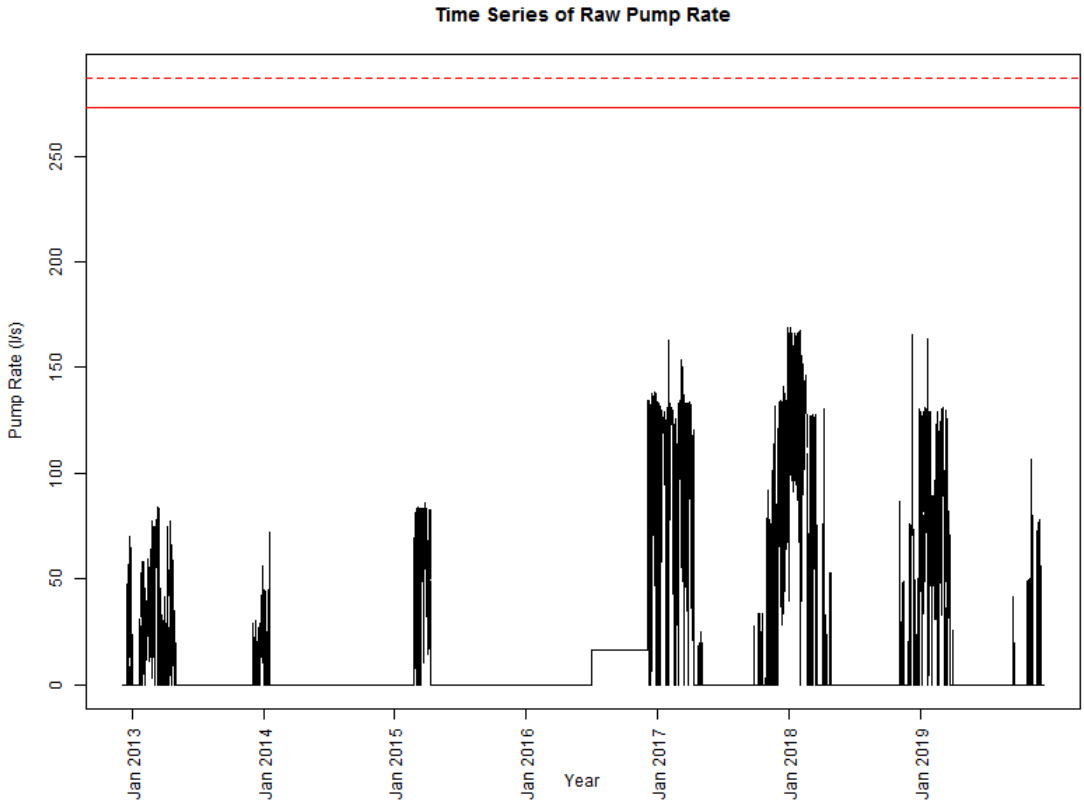

Figure 4: Raw pump rate for WM0237.

The Applicant's historic water use has been calculated by Council's Senior Resource Management Analyst. This analysis is attached to the report as **Appendix 6**. The patterns of historic use are consistent with irrigation and stock drinking supply. Table 5 below demonstrates the historic use.

Table 5: Historic use

Deemed Permits	Water body	Maximum Average Hourly Rate of Take (L/s)	Maximum Daily Volume (m^3/month)	Maximum Monthly Volume (m^3/month)	Maximum Annual Volume (m^3/year)
2002.348.V1, 2002.349.V1, 2002.351.V1, 2002.352.V1	Albert Burn	154	8,925	214,318	1,183,765
2002.354.V1	Schoolhouse Creek	31.5[2]	2,721[3]	47,303[4]	378,427[5]
2002.353V1, 2003.591.V2	Clutha River	169	13,200	332,000	1,273,570
Total historic use[6]	All takes	241	21,061	491,443	2,836,127
Total applied for	All takes	407.5 (454.5 with supplementary)	-	828,230	4,264,356

The rate of take sought as primary allocation from the Albert Burn, being 103 L/s, is less than the maximum historic use and is consistent with the volume typically accessed in the early part of the irrigation season (refer Figure 3). The rate sought if therefore consistent with Policy 6.4.2A. The Schoolhouse Creek historic use has been inferred from water race gauging and contains an element of uncertainty. However, I consider the proposed rate of take and the volumes derived above to be consistent with Policy 6.4.2A and the explanatory text associated with this policy[7]. It is recommended that the monthly and annual historic use values are adopted as the volumetric limits on the respective primary allocation permits.

It is noted that Policy 6.4.2.A does not apply to the Clutha River take and this water is exempt from primary allocation. Nonetheless, the values in Table 5 provide an indication of the Applicant's historic use of the Clutha Take and the scheme overall. It is recommended that the additional water required to achieve the reasonable use be allocated to the Clutha River permit (RM19.312.03). I discuss reasonable use in Section 7.4 and revisit this is section 7.15 below.

7.4 Efficiency of Water Take and Use

7.4.1 Irrigation

[2] Based on gauging rather than monitoring results.
[3] Based on constant taking at the maximum rate.
[4] Based on the seasonal volume and an 8 month irrigation season.
[5] Based on the average gauged flow of 18L/s for an 8 month irrigation season.
[6] The sum of all instantaneous, daily and monthly use data. N.B. maximums from individual takes do no always align with the scheme maximums.
[7] "*Where there is limited or no such data available, any relevant supporting evidence may be presented, for example a description of existing circumstances and use*."

Policy 6.4.0A of the RPW requires that the quantity of water granted to take is no more than that required for the purpose of use taking into account the local climate, soil, crop or pasture type and the efficiency of the proposed water transport, storage and application system. The Council commissioned a report by Aqualinc Research Ltd (Aqualinc) entitled *"Water Requirements for Irrigation Throughout the Otago Region*", dated October 2006, to assess water volumes required to efficiently irrigate pasture and crops. This report was updated in July 2017.

Aqualinc developed a water-balance computer model that was used to estimate soil moisture levels over a 42-year period. This model takes into account the local climate, the types of soils, crop types and the irrigation system. The irrigation strategy meets a specific irrigation objective, being that production levels were to be maintained close to maximum for most of the time, and that even in the driest of conditions sufficient water would still be available to sustain plant growth.

The land area of the Otago region was divided into four main zones (Central and Lakes District, Coastal and South Otago, Maniototo and North Otago) based on geographical distribution and climatic conditions; primarily evapotranspiration and temperature. These four zones are further divided into rainfall sub-zones using mean annual rainfall ("**MAR**"), as irrigation demand is primarily dependent on rainfall.

The soil type of an area and the rooting depth of a crop or pasture affect plant available water ("**PAW**"). PAW is the amount of water that a soil can store that is available for plants to use. Six soil PAW classes have been specified and soil data for each site can be obtained from the S-Map database (Landcare, 2014), the New Zealand Fundamental Soil Layer ("**NZFSL**") (Landcare 2000) or a site-specific soil investigation.

This information is used to calculate the Applicant's water requirement over monthly and seasonal periods. The monthly volume outlined in Aqualinc is the estimated peak monthly usage for any one month in an irrigation season but is not intended to be used for every month over the course of the season i.e. seasonal volume does not equal the monthly volume multiplied by the months in the irrigation season. Commonly, the peak monthly rate is used for one to two months in an irrigation season; however, this is dependent on variables such as rainfall, climate and crop growth.

A seasonal limit on the volume of water has been given to reflect that less water is required during the 'shoulder' of the irrigation season. Aqualinc provides recommended seasonal volumes based on an average year; a one and two year drought (80th percentile); a one in ten year drought (90th percentile); and a maximum situation. For Otago it is considered that a one in ten year drought or 90th percentile is the most appropriate when considering efficient water use.

For the purpose of calculating water requirements on the Applicant's property, the take is located in the Central & Lakes District with a MAR of 550 mm/yr and PAW values of between 40 and 120 mm depending on soil type within the command area.

The seasonal volume of 4,010,467 m^3 applied for by the Applicant is equal to the 100th percentile seasonal volume recommended by Aqualinc for the proposed irrigation area, being up to 490 ha of various crops. For reasons discussed later in this report, I recommend that the allocation of water to new irrigation areas is avoided. Therefore, monthly and seasonal volumes for the current irrigation area of 393 ha have been calculated. Aqualinc recommends a monthly volume of

616,438 m^3 and a 90th percentile seasonal volume of 2,875,400 m^3 as efficient volumes for the existing 393 ha irrigation area. This recommendation adopts these values as efficient volumes for the intended use.

The recommended maximum allocation limits from Aqualinc discourage water being wasted during a dry year. However, in an average year when soil moisture levels are higher, use of the recommended allocation limits from Aqualinc could result in over-irrigation and wastage. In order to avoid water being wasted in an average year, a condition of consent is recommended to ensure that there is no runoff of irrigation water on-site and off-site, there is no leakage from pipes and structures and the use of water onto non–productive land is avoided.

7.4.2 Frost Fighting

The Council does not have published recommendations for water requirements for frost protection in the Otago region. The Council uses the recommendations by Environment Bay of Plenty (EBOP) of 2.5 to 3.0 mm of water per hour per hectare (usually applied for up to 10 hours), up to a maximum of 30 days per year. The Applicant has sought frost fighting water based on the maximum frost fighting duration of 10 hours per event, up to 7 days per month and 9.5 days per year. This is equivalent to 12,000 m^3 per event, 84,000 m^3 per month and 114,000 m^3 per year.

Based on the EBOP recommendations the volumes sought by the Applicant are considered to be efficient and appropriate for the intended purpose. It is recognised that the Clutha River take is the only take with sufficient capacity to supply water at this rate. While stored water can be used to provide for high rate usage, the Applicant does not have sufficient storage to sustain a frost fighting event. In reality, frost fighting is likely to utilise multiple sources of water.

It is recommended that a condition is imposed that requires the Applicant to record the duration and volume of water used during each frost event in order to obtain a better understanding of frost fighting requirements for this location in order to ensure efficiency of resource use.

7.4.5 Stock Water Supply

The Applicant currently farms a variety of stock including dairy cows, beef cattle and sheep. Based on water requirements per head of animal, Table 6 below summarises the daily volume of water that is considered reasonable for consumption by the Applicant's stock.

Table 6: Total stock numbers and water requirements per day

Animal	Total number	Water requirements per head per day (L)	Total water requirements per day (L)
Dairy cow	3820	70	267,400
Beef cattle	507	45	22,815
Sheep	6480	5	32,400
Total			**322,615**

Based on these calculations, the Applicants' proposed daily abstraction volume of 320 m^3/day is considered to be an efficient use of water.

7.4.6 Total efficient volumes

I consider the volumes in Table 7 to be indicative of efficient water use for the continued irrigation of 393 ha and the required stock drinking and frost fighting. On the basis of the exclusion of approximately 100 ha of undeveloped irrigation area and the adoption of Aqualinc's 90th percentile seasonal volumes for irrigation, the total recommended volumes are less that what has been applied for. The recommended volumes are however, greater than the volumes used historically (refer Table 5).

Table 7: Total stock numbers and water requirements per day

Use	Maximum monthly volume (m^3)	Maximum annual volume (m^3)
Frost Fighting	84,000	114,000
Irrigation water not required when frost fighting	-10,500[8]	-14,250[7]
Stock Drinking	9,733	75,299
Irrigation of 393 ha	616,438	2,875,399.2
Total	**699,671**	**3,050,488**

7.5 Efficiency of Water Transport, Storage and Application System

The Applicant utilises a combination of k-line, pivot, spray and drip irrigation which are considered to be efficient means of water application and the Applicant's historic use suggests these systems have been operated according to best practice. Considering the proposed upgrade of the Schoolhouse Creek intake and to a piped reticulation, the Applicant's conveyance infrastructure is also considered to be efficient. As some storage is provided in unlined open ponds that are prone to seepage, I consider that upgrading of these ponds would be beneficial and would be considered appropriate in the context of a long consent. I return to the matter of consent term below.

7.6 Alternative Water Sources

The RPW promotes the management of water in a way that enables continued access to suitable water, ensuring communities can provide for their social, cultural and economic wellbeing, now and for the future. It achieves this by requiring consideration of whether the applied for source of water is the nearest practicable given the proposed location of use including whether the take and use of the water is an efficient use of the water resource, whether there is another practically available and accessible water source, and the wider benefits (economic, social, environmental and cultural) of taking from the water source applied for compared to taking water from other sources (Policy 6.4.0C).

The proposal utilises water from multiple sources which provides resilience to the scheme and reduces pressure on a single waterway. The water is proposed to be used locally and will mostly

[8] 1500m^3 per frost fighting day based on 40 ha of vineyard and orchard.

utilise existing infrastructure. While groundwater abstraction is an available alternative, the Applicant already operates multiple groundwater bores for the purpose of irrigating other parts of the command area that are not subject to this application. New infrastructure would be required to establish new groundwater bores whereas the Albert Burn and Clutha take infrastructure is long established. Any changes to the existing points of take would require considerable further investment. While efficiency issues warrant further investment in the Schoolhouse Creek abstraction infrastructure, the other points of take operate efficiently. Given this information, the proposed sources of water are considered to be the nearest practicable sources.

7.7 S104(1)(ab)

I am not aware of any relevant measure proposed by the Applicant under section 104(1)(ab) relating to the offset or compensation for adverse effects.

7.8 S104(1)(b) Relevant Planning Documents

The relevant planning documents in respect of this application are:

- The National Environmental Standard for Sources of Human Drinking Water
- Resource Management (Measurement and Reporting of Water Takes) Regulations 2010
- The National Policy Statement for Renewable Electricity Generation
- The National Policy Statement for Freshwater Management
- The Operative Regional Policy Statement, Proposed Regional Policy Statement and Partially Operative Regional Policy Statement
- The Regional Plan: Water for Otago
- Proposed Plan Change 7 (Water Permits) ("**PPC7**")

7.9 National Environmental Standard for Sources of Human Drinking Water

Regulations 7 and 8 of the National Environmental Standard for Sources of Human Drinking Water (NES) need to be considered when assessing water permits that have the potential to affect registered drinking water supplies that provide 501 or more people with drinking water for 60 or more calendar days each year.

There are no registered drinking water supplies in the vicinity or that will be affected by the proposed abstractions.

7.10 National Policy Statement Freshwater Management (NPSFM)

The National Policy Statement for Fresh Water Management 2014 (amended 2017) ("**NPS-FM**") provides a National Objectives framework to assist regional councils and communities to plan for freshwater objectives more consistently and transparently. The NPS-FM also directs how Regional Councils are to manage freshwater through their planning documents, and in the consideration of resource consent applications.

The Council has decided to progressively implement the policies in the NPS-FM in accordance with Policy E1, as set out in its Progressive Implementation Programme. The Council's Progressive Implementation Programme provides that the Council will carry out a plan review to

the RPW to implement the policies in the NPS-FM (including establishing freshwater management units, freshwater objectives, and attributes in accordance with Policy CA), to be notified by December 2023.

The objectives and policies in the NPS-FM are relevant when considering an application to replace a deemed permit.

Objective AA1 is to consider and recognise Te Mana o te Wai in the management of fresh water. Referring to the Environment Court's interim decision on the Southland Regional Water and Land Plan, I consider Te Mana o te Wai to mean the need to provide for the health of the waterways. In this case the issue of residual flows is most relevant to the health of the waterways. In section 7.1, I discussed the need to impose residual flows and have specifically considered the relief sought in the submission of Aukaha in respect of the retention of the 50% of the natural flow in the waterways. On the basis of the natural flow regimes and the values supported by Albert Burn and Schoolhouse Creek, I am of the opinion that the seasonal residual flow proposed for the Albert Burn and a permanent residual flow proposed for Schoolhouse Creek are appropriate mitigation measures. While neither residual flow retains 50% of the natural flow, having regard to the holistic wellbeing of these waterways, I do not consider the application to degrade this to an extent that is unacceptable.

With respect to the Clutha River, MALF at this point of take is estimated at 84.6m^3/s and the Applicant's proposed abstraction only represents 0.32% of this. Therefore, the relief sought by Aukaha in respect of flow retention will be upheld by the Clutha River take. In addition, the conditions agreed to with Contact Energy will ensure that Clutha River water is not abstracted at times of low flow. This will ensure that the wellbeing of the Clutha River is not jeopardised and Te Mana o te Wai is upheld.

Part B of the NPS-FM relates to water quantity. Objective B2 is particularly important in the case of over-allocated catchments as allocation is not fully addressed in the RPW. Objective B2 seeks to "avoid any further over-allocation of fresh water and phase out existing over-allocation".[9] If a particular catchment is considered to be over allocated, and the Council was to grant a new permit for the same volume as authorised under the current deemed permit, the decision would not avoid further over allocation in line with Objective B2. The decision to grant a new permit with the same volume in circumstances where the catchment is currently over allocated would not phase out existing over allocation.

The catchments to which this application relates do not have allocation limits defined in accordance with the NPS-FM. However, the Albert Burn and Schoolhouse Creek are likely to be over-allocated. In relation to all takes, the Applicant has applied to take the same or less allocation as provided for by the existing permits (based on both the instantaneous rates and seasonal volumes). As detailed in Section 7.3 of this report, historic use shows that the annual allocations that have been accessed historically are less than previously consented. Subject to the recommended conditions that impose the historically accessed allocations and the rates of take that are sought, the application will be consistent with Objective B2 of the NPS-FM as the take

[9] The NPSFM defines over-allocation as:
the situation where the resource: a) has been allocated to users beyond a limit; or b) is being used to a point where a freshwater objective is no longer being met. This applies to both water quantity and quality.

will not cause any further over-allocation to occur and will aid in phasing out existing over-allocation.

As the RPW is not an NPS-FM compliant plan, Objective B1 (safeguarding the life supporting capacity, ecosystem processes and indigenous species in sustainably managing the taking of freshwater), Objective B3 (improve and maximise the efficient allocation and use of water) and Objective B4 (protect significant values of wetlands and outstanding freshwater bodies) require consideration. It is considered that the proposed volumes of water, the efficient use of water, and the recommended consent duration will result in the activity being consistent with these Objectives.

Policies in the NPS-FM are also relevant to this application. In particular, Policies B5 and B7. These policies are important as there is clear direction that decisions must not result in future overallocation. As an NPS-FM compliant allocation has not yet been set for the Albert Burn, Schoolhouse Creek or the Clutha River, these policies require a precautionary approach to be taken in relation to any consents granted. In this case if the application is granted as recommended, it will significantly reduce existing primary allocation in these catchments and avoid the allocation of water to new irrigation areas. Along with limiting the irrigation area, the recommendation of a 15 year term with suitable review conditions is considered to be an appropriately precautionary approach.

Aukaha raised concerns with the current planning framework not giving effect to the NPS-FM. The notification of PPC7 is a step towards addressing this issue. While the provisions of PPC7 cannot be afforded full weight, the recommended consent term is consistent with PPC7 and is considered an appropriate response to the issue.

7.11 National Policy Statement on Renewable Electricity Generation

The National Policy Statement on Renewable Electricity Generation ("**NPS-REG**") came into effect on 13 May 2011 and has the objective of recognising the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities. The most relevant policies to this proposed take are:

- Policy A which relates to recognising the benefits of renewable electricity generation activities including maintaining electricity generation; and
- Policy B which relates to the practical implications of achieving New Zealand's target for electricity generation from renewable resources and requires decision makers to have regard to even minor reductions in the generation output of existing renewable generation activities.

The Clyde and Roxburgh power stations use water from the Clutha River catchment to generate renewable electricity. The proposed takes are located above the Clyde and Roxburgh hydro dams and on the basis of the volume sought to be taken from the Clutha River, Contact Energy were considered an affected party to the application as the adverse effects on electricity generation were considered to be minor. Contact Energy submitted in support of the application subject to conditions. The Applicant since resolved with Contact Energy to proffer conditions relating to the abstraction from the Clutha River. With these conditions imposed, I consider that the application is consistent with the NPS-REG.

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

Accurate, complete and current water information is a critical building block in establishing a water management system in which water is effectively allocated and efficiently used.

The regulations apply to holders of water permits (resource consents) which allow fresh water to be taken at a rate of 5 litres/second or more, specifically:

- Regulation 8 - Permit holder must provide records and evidence to regional council

The Applicant has already installed appropriate water meters on both the Albert Burn and Clutha River takes. The Applicant has proposed consent conditions to ensure that monitoring of the water take is consistent with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010. This recommendation has adopted these conditions with some modifications for compliance consistency.

The Regulations require the meters to be installed at the location from which water is taken but give the Council unlimited discretion to approve an alternative location that is *as near as practicable* to the point of take. Due to a lack of telemetry available at the Albert Burn intake site, the Applicant's monitoring devices are situated approximately 400 m from the point of take at NZTM 2000 E1309128 N5028030 and NZTM E1309114 N5028006, respectively. The Applicant has obtained an exemption right (WEX0293) that provides for the monitoring of the Albert Burn take at these locations.

While the Schoolhouse Creek abstraction is currently non-compliant due to the lack of required water metering, the proposed upgrade to the Schoolhouse Creek intake will allow for an appropriate water meter to be installed prior to the exercise of the consent. A common condition on this permit will ensure that monitoring and reporting requirements are consistent with the other permits.

The recommended conditions will ensure ongoing compliance with the Regulations and wholly satisfy the relief sought in respect of monitoring by Aukaha in their submission.

7.13 Regional Policy Statement, Proposed Regional Policy Statement and Partially Operative Regional Policy Statement

The Regional Policy Statement for Otago (RPS) provides an overview of Otago's resource management issues, and ways of achieving integrated management of natural and physical resources. The provisions of Chapter 6 (Water) are relevant to this application. The taking of water is consistent with the policies of the RPS, provided that it is done in a conservative manner that does not adversely affect instream biota, natural character, or other lawful water users. It is noted that the RPW gives full effect to the provisions of the RPS, therefore given the applications are consistent with the provisions of the RPW, it is also consistent with the RPS.

The proposed Regional Policy Statement (pRPS) was notified on 23 May 2015 and a decision was released 1 October 2016. Significant weight can be given to the pRPS as it is substantially through the statutory process. The pRPS was made partially operative on the 14th of January 2019 (PO-RPS), with the exception of all provisions and explanatory material in Chapter 3: Otago has high

quality natural resources and ecosystems. The provisions that are the subject of court proceedings and are not made operative are shaded in grey below. Full consideration is given to the operative provisions of the PORPS. Weighted consideration is given to the provisions that have not been made operative in conjunction with the remaining operative provisions of the RPS, outlined above.

The relevant provisions of the pRPS/PORPS include:

- *Provide for the economic wellbeing of Otago's people and communities by enabling the resilient and sustainable use and development of natural and physical resources (Policy 1.1.1)*
- *Provide for social and cultural wellbeing and health and safety by recognising and providing for Kāi Tahu values; taking into account the values of other cultures; taking into account the diverse needs of Otago's people and communities; avoiding significant adverse effects of activities on human health; promoting community resilience and the need to secure resources for the reasonable needs for human wellbeing; promoting good quality and accessible infrastructure and public services (Policy 1.1.2)*
- *Achieve integrated management of Otago's natural and physical resources (Policy 1.2.1)*
- *Taking the principles of Te Tiriti o Waitangi into account including by involving Kāi Tahu in resource management processes implementation, having particular regard to the exercise of kaitiakitaka and taking into account iwi management plans (Policy 2.1.2)*
- *Managing the natural environment to support Kāi Tahu wellbeing (Policy 2.2.1)*
- *Recognise and provide for the protection of sites of cultural significance to Kāi Tahu including the values that contribute to the site being significant (Policy 2.2.2)*
- *Enable Kāi Tahu relationships with wāhi tupuna by recognising that relationships between sites of cultural significance are an important element of wāhi tupuna and recognising and using traditional place names (Policy 2.2.3)*
- *Enable sustainable use of Māori land (Policy 2.2.4)*
- *Safe guard the life-supporting capacity of fresh water and manage fresh water to:*
    - *Maintain good water quality and enhance water quality where it is degraded*
    - *Maintain or enhance aquatic ecosystem health, indigenous habitats and indigenous species and their migratory patterns*
    - *Avoid aquifer compaction and seawater intrusion*
    - *Maintain or enhance, as far as practicable:*
        - *Natural functioning rivers, lakes, wetlands, their riparian margins and aquifers,*
        - *Coastal values supported by freshwater*
        - *The habitat of trout and salmon unless detrimental to indigenous biological diversity*
        - *Amenity and landscape values of rivers, lakes and wetlands*
    - *Control the adverse effects of pest species, prevent their introduction and reduce their spread*
    - *Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion*

- *Avoid, remedy or mitigate adverse effects on existing infrastructure that is reliant on fresh water (Policy 3.1.1)*

- *Manage the allocation and use of fresh water by undertaking all of the following:*
  - *Recognising and providing for the social and economic benefit of sustainable water use*
  - *Avoiding over-allocation, and phasing out existing over-allocation*
  - *Ensuring the efficient allocation and use of water (Policy 3.1.3)*
- *Manage for water shortage by*
  - *Encouraging land management that improves moisture capture, infiltration, and soil moisture holding capacity.*
  - *Encouraging collective coordination and rationing of the take and use of water when river flows or aquifer levels are lowering, to avoid breaching any minimum flow or aquifer level restriction to optimise use of water available for taking*
  - *Providing for water harvesting and storage, subject to allocation limits and flow management, to reduce demand on water bodies during periods of low flows (Policy 3.1.4)*
- *Identify and protect outstanding freshwater bodies (Policy 3.2.13 & 3.2.14)*
- *Identify and protect the function and values of wetlands (Policy 3.2.15 & 3.2.16)*
- *Apply an adaptive management approach, to avoid, remedy or mitigate actual and potential adverse effects that might arise and that can be remedied before they become irreversible (Policy 5.4.2)*
- *Apply a precautionary approach to activities where adverse effects may be uncertain, not able to be determined, or poorly understood but are potentially significant or irreversible (Policy 5.4.3)*

The continued use of water will enable the Applicant to continue to irrigate their land and high value crops, resulting in their own economic wellbeing as well as that of the wider community. Cultural and Kai Tahu values have been considered and both Aukaha and Te Ao Marama Incorporated, on behalf of the local Runanga, were considered affected parties in accordance with Section 95E of the Act. Only Aukaha submitted in opposition to the application and their submission has been given due consideration and has informed the recommendations made in this report.

Effects on freshwater values have been considered in Section 7.1 of this report, and the proposal will maintain these values. The seasonal volumes sought have been compared with the Aqualinc recommendations and are considered an efficient use of water for the intended purpose of use. Water sought as primary allocation does not exceed what has historically been taken, and the recommended reduction in the primary allocation and utilisation of supplementary allocation is considered a positive environmental change. The use of review conditions is consistent with the above framework, specifically the adaptive management approach directed by Policy 5.4.2.

Overall, the application as amended by the recommended conditions, is generally consistent with the provisions of both the operative and proposed RPS.

7.14 Regional Plan: Water for Otago

Objective and Policy Assessment

Relevant policies from the RPW are considered below:

Policy 5.4.2 *In the management of any activity involving surface water, groundwater or the bed or margin of any lake or river, to give priority to avoiding, in preference to remedying or mitigating:*

(1) Adverse effects on:
- *(a) Natural values identified in Schedule 1A;*
- *(b) Water supply values identified in Schedule 1B;*
- *(c) Registered historic places identified in Schedule 1C, or archaeological sites in, on, under or over the bed or margin of a lake or river;*
- *(d) Spiritual and cultural beliefs, values and uses of significance to Kai Tahu identified in Schedule 1D;*
- *(e) The natural character of any lake or river, or its margins;*
- *(f) Amenity values supported by any water body; and*

(2) Causing or exacerbating flooding, erosion, land instability, sedimentation or property damage.

Policy 5.4.3 *In the management of any activity involving surface water, groundwater or the bed or margin of any lake or river, to give priority to avoiding adverse effects on:*
- *(a) Existing lawful uses; and*
- *(b) Existing lawful priorities for the use, of lakes and rivers and their margins.*

Policy 5.4.4 *To recognise Kai Tahu's interests in Otago's lakes and rivers by promoting opportunities for their involvement in resource consent processing.*

Policy 5.4.8 *To have particular regard to the following features of lakes and rivers, and their margins, when considering adverse effects on their natural character:*
- *(a) The topography, including the setting and bed form of the lake or river;*
- *(b) The natural flow characteristics of the river;*
- *(c) The natural water level of the lake and its fluctuation;*
- *(d) The natural water colour and clarity in the lake or river;*
- *(e) The ecology of the lake or river and its margins; and*
- *(f) The extent of use or development within the catchment, including the extent to which that use and development has influenced matters (a) to (e) above.*

Policy 5.4.9 *To have particular regard to the following qualities or characteristics of lakes and rivers, and their margins, when considering adverse effects on amenity values:*
- *(a) Aesthetic values associated with the lake or river; and*
- *(b) Recreational opportunities provided by the lake or river, or its margins.*

The proposed activity will avoid adverse effects on the values of the Clutha River/Mata Au as specified in Schedules 1A 1AA, 1B, 1C and 1D. While adverse effects on the natural character an amenity values of the Albert Burn may not be avoided at times of low flow during the irrigation season, I do not consider these values to be significant or the effects to be unacceptable. Additionally, the granting of supplementary allocation that is constrained by the overall monthly and annual volumes of all permits combined will reduce the frequency with which abstraction can occur during low flows under primary allocation. While supplementary allocation can itself have an adverse effect on flow variability, the proposed rate of supplementary taking is not expected to affect significantly alter the Albert Burn hydrograph. As such, high flows will not be affected and adverse effects on channel morphology will be avoided. To that extent, the natural character of the Albert Burn will be maintained.

The imposition of a residual flow on the Schoolhouse Creek will appropriately avoid adverse effects on the listed values in Schedule 1A, notably, the presence of indigenous fish species threatened with extinction.

No lawful water users or recreational users will be affected by the proposed takes.

6.4.0A To ensure that the quantity of water granted to take is no more than that required for the purpose of use taking into account:
(a) How local climate, soil, crop or pasture type and water availability affect the quantity of water required; and
(b) The efficiency of the proposed water transport, storage and application system.

6.4.2A Where an application is received to take water and Policy 6.4.2(b) applies to the catchment, to grant from within primary allocation no more water than has been taken under the existing consent in at least the preceding five years, except in the case of a registered community drinking water supply where an allowance may be made for growth that is reasonably anticipated.

6.4.2AA Where Policy 6.4.2A applies and, under the existing consent, water was usually taken at flows above the minimum flow calculated for the first supplementary allocation block for that catchment, to consider granting the new resource consent to take water as supplementary allocation.

As discussed in Section 7.3 of this report, the Applicant has not historically accessed the full allocation provided for by the deemed and water permits. For the primary allocation takes, the Applicant's proposed abstraction rates are less than or equal to the historic use and the recommended annual allocation volumes align with the historic use and are considered efficient for the intended purpose of use, taking into consideration the local climate, soils and crops and the Applicant's efficient irrigation and conveyance methods.

6.4.12 To promote, establish and support appropriate water allocation committees to assist in the management of water rationing and monitoring during periods of water shortage.

6.4.12A To promote, approve and support water management groups to assist the Council in the management of water by the exercise of at least one of the following functions:
(a) Coordinating the take and use of water authorised by resource consent; or
(b) Rationing the take and use of water to comply with relevant regulatory requirements; or
(c) Recording and reporting information to the Council on the exercise of resource consents as required by consent conditions and other regulatory requirements, including matters requiring enforcement.

6.4.12B To manage water rationing amongst water takes, Council may either
(a) Support establishment of a water management group; or
(b) Establish a water allocation committee.
Council may also instigate its own water rationing regime or issue a water shortage direction.

6.4.12C Where appropriate, to include in water permits to take water a condition that consent holders comply with any Council approved rationing regime.

6.4.13 To restrict the taking of water in accordance with any Council approved rationing regime.

6.6.0 To promote and support development of shared water infrastructure.

6.4.0B To promote shared use and management of water that:

(a) Allows water users the flexibility to work together, with their own supply arrangements; and

(b) Utilises shared water infrastructure which is fit for its purpose.

Water Management Groups are voluntary arrangements that provide flexibility for two or more consent holders to cooperate in exercising their consents without the added formality associated with a water allocation committee. As the Applicant is the only water user on Schoolhouse Creek and the Albert Burn, and no minimum flow applies to the Clutha River, management by water allocation committee or group is not necessary. No conditions regarding rationing regimes or water allocation committees are considered necessary as the consent alone should ensure appropriate use of water for a single user.

6.4.0C To promote and give preference, as between alternative sources, to the take and use of water from the nearest practicable source.

As discussed in Section 7.6, the proposed points of take are the nearest practicable sources.

6.4.1 To enable the taking of surface water, by:

(a) Defined allocation quantities; and

(b) Provision for water body levels and flows,

except when

(i) the taking is from Lakes Dunstan, Hawea, Roxburgh, Wanaka or Wakatipu, or the main stem of the Clutha/Mata-Au or Kawarau Rivers.

(ii) All of the surface water or connected groundwater taken is immediately returned to the source water body.

(iii) Water is being taken which has been delivered to the source water body for the purpose of that subsequent take.

6.4.2 To define the primary allocation limit for each catchment, from which surface water takes and connected groundwater takes may be granted, as the greater of:

(a) That specified in Schedule 2A, but where no limit is specified in Schedule 2A, 50% of the 7-day mean annual low flow; or

(b) The sum of consented maximum instantaneous, or consented 7-day takes of:

(i) Surface water as at: 19 February 2005 in the Welcome Creek catchment; or 7 July 2000

(ii) Connected groundwater as at 10 April 2010,

less any quantity in a consent where:

(1) In a catchment in Schedule 2A, the consent has a minimum flow that was set higher than that required by Schedule 2A.

(2) All of the water taken is immediately returned to the source water body.

(3) All of the water being taken had been delivered to the source water body for the purpose of the subsequent take.

(4) The consent has been surrendered or has expired (except for the quantity granted to the existing consent holder in a new consent).

(5) The consent has been cancelled (except where the quantity has been transferred to a new consent under Section 136(5).

(6) The consent has lapsed.

While these policies do not apply to the proposed take from the Clutha River, as discussed in Section 7.2 of this report, the proposed takes from the Albert Burn and Schoolhouse Creek have primary allocation status.

6.4.3 For catchments identified in Schedule 2A, except as provided for by Policy 6.4.8, minimum flows are set for the purpose of restricting primary allocation takes of water.

6.4.4 For existing takes outside Schedule 2A catchments, minimum flows, for the purpose of restricting primary allocation takes of water, will be determined after investigations have established the appropriate minimum flows in accordance with Method 15.9.1.3. The new minimum flows will be added to Schedule 2A by a plan change and subsequently will be applied to existing takes in accordance with Policy 6.4.5(d). For new takes in a catchment outside Schedule 2A, until the minimum flow has been set by a plan change, the minimum flow conditions of any primary allocation consents will provide for the maintenance of aquatic ecosystems and the natural character of the source water body.

6.4.5 The minimum flows established by Policies 6.4.3, 6.4.4, 6.4.6, 6.4.9 and 6.4.10 will apply to resource consents for the taking of water, as follows:

- *(a) In the case of new takes applied for after 28 February 1998, upon granting of the consent; and*
- *(b) In the case of any resource consent to take surface water from within the Taieri above Paerau and between Sutton and Outram, Welcome Creek, Shag, Kakanui, Water of Leith, Lake Hayes, Waitahuna, Trotters, Waianakarua, Pomahaka and Lake Tuakitoto catchment areas as defined in Schedule 2A, upon the operative date of this Plan subject to the review of consent conditions under Sections 128 to 132 of the Resource Management Act; and*
- *(c) In the case of any existing resource consent to take surface water from the Manuherikia catchment area (upstream of Ophir) and the Taieri catchment areas Paerau to Waipiata, Wapiata to Tiroiti, Tiroiti to Sutton, as defined in Schedule 2A, upon collective review of consent conditions within those catchments under Sections 128 to 132 of the Resource Management Act; and*
- *(d) In the case of any existing resource consent to take surface water within a catchment area not specified in Schedule 2A, upon the establishment of a minimum flow set for the water body by a plan change, subject to the review of consent conditions under Sections 128 to 132 of the Resource Management Act.*

6.4.11 To provide for the suspension of the taking of water at the minimum flows and aquifer restriction levels set under this Plan.

No minimum flow has currently been established for the Albert Burn, Schoolhouse Creek, or the Clutha River catchments. It is recommended that a review condition is imposed to enable a minimum flow condition to be applied if a minimum flow is set via a plan change in accordance with Policies 6.4.4 and 6.4.5 or relevant policies in any future Regional Plan.

6.4.10 In addition to Policy 6.4.9, to provide for further supplementary allocation without any restriction on the volume taken, where the minimum flow applied is equal to the natural mean flow.

The Applicant seeks to take supplementary allocation with a minimum flow greater than the natural mean flow. While Policy 6.4.10 generally allows for unlimited taking under such conditions, the Applicant seeks for the supplementary taking to be constrained by the overall monthly and annual volumes limits across all permits. As such, any allocation captured as supplementary allocation will relieve primary allocation taking at other times.

6.4.7 The need to maintain a residual flow at the point of take will be considered with respect to any take of water, in order to provide for the aquatic ecosystem and natural character of the source water body.

No residual flow has been proposed or recommended for the Clutha River as the proposed abstraction will have negligible effects on aquatic ecosystems and natural character.

A residual flow for Schoolhouse Creek was recommended by Councils RSU and this was adopted by the Applicant and endorsed by DoC in their submission. This residual flow will appropriately provide for aquatic ecosystems, and to a lesser extent, the natural character of Schoolhouse Creek.

A seasonal residual flow has been proposed for the Albert Burn and is considered to be appropriate. While a permanent residual flow has been considered, it is concluded that this will have little ecological or natural character benefits. In terms of natural character, the Albert Burn is naturally ephemeral and while the take will exacerbate this ephemerality during the irrigation season, the effects on the natural character of the Albert Burn are considered to be acceptable within the environmental context.

6.4.16 In granting resource consents to take water, or in any review of the conditions of a resource consent to take water, to require the volume and rate of take to be measured in a manner satisfactory to the Council unless it is impractical or unnecessary to do so.

The Applicant proposes to continue measuring the Albert Burn and Clutha River takes using water meters with the data recorded electronically using a datalogger and sent to Council via telemetry. A recommended condition of consent will ensure that this is maintained. Likewise, as part of the intake upgrade proposed for Schoolhouse Creek, a new water meter will be installed. A recommended condition will ensure that this occurs in accordance with Regulations. It is noted that the recommended conditions that require the ongoing monitoring of the takes, are consistent with Policy 6.4.16 and wholly satisfy the relief sought in the submission from Aukaha in respect of monitoring and reporting.

6.4.18 Where a resource consent for the taking of water has not been exercised for a continuous period of 2 years or more, disregarding years of seasonal extremes, the Otago Regional Council may cancel the consent.

The recommended water metering conditions on the respective permits will allow the Council to monitor the rate and volumes of take, and ensure the water is being used efficiently. Should metering show the consent has been unexercised in accordance with this policy, the consent may be cancelled. An advice note to this effect has been recommended.

6.4.19 When setting the duration of a resource consent to take and use water, to consider:

- *(a) The duration of the purpose of use;*
- *(b) The presence of a catchment minimum flow or aquifer restriction level;*
- *(c) Climatic variability and consequent changes in local demand for water;*
- *(d) The extent to which the risk of potentially significant, adverse effects arising from the activity may be adequately managed through review conditions;*
- *(e) Conditions that allow for adaptive management of the take and use of water;*
- *(f) The value of the investment in infrastructure; and*
- *(g) Use of industry best practice.*

Policy 6.4.19 is particularly important for determining the duration of the consent. Further discussion around this policy and the consent term is provided in Section 12.

6.6.2 To promote the storage of water at periods of high water availability through:
(a) The collection and storage of rainwater; and
(b) The use of reservoirs for holding water that has been taken from any lake or river.

The Applicant has a number of small storage facilities including a tank farm and two storage ponds. These are used to better utilise water supply, consistent with this policy. While this storage will be of some utility to the supplementary allocation sought, no additional storage is being proposed.

Overall, I consider the application is consistent with the provisions of the RPW.

7.15 Proposed Plan Change 7 (Water Permits)

The objective, policies and rules in PPC7 establish an interim planning and consenting framework to manage freshwater for the transition from deemed permits to RMA water permits while a long-term sustainable framework is prepared. PPC7 has been notified to implement the recommendations of the Minister for the Environment[10] following Professor Skelton's investigation of freshwater management and allocation functions at Otago Regional Council.[11]

Professor Skelton's report and the Minister's recommendations both highlighted inadequacies of the current planning framework in giving effect to the higher order documents, in particular the NPS-FM. While the comprehensive overhaul of the ORC planning framework is underway, the Minister considered that there was an urgent need to ensure that an interim framework is in place between now and 31 December 2025. In his recommendation to ORC the Minister stated:

> *"This is necessary to manage approximately 400-600 future consent applications in over allocated catchments. The possibility of up to 600 consents being granted under the current planning and consenting framework is problematic. I understand that around 70 per cent of ORC's currently issued water permits are for durations of 25-35 years, with various expiry dates. This includes over 50 permits that expire in 2050 or later, eight of which are 35 year permits issued this year. I am advised that there is a strong expectation from deemed and RMA water permit holders that their new consents will be for similarly long terms, and that the Council is likely to come under strong pressure to meet these expectations. In my view, long terms for these new consents would be unwise, as they would lock in unsustainable water use, inhibiting the council from effectively implementing the outcomes of its intended new RPS and LWRP."*

[10] Letter from David Parker (Minister for the Environment) to Otago Regional Council Councillors regarding the Minister's investigation of freshwater management and allocation functions at the Otago Regional Council (18 November 2019).
[11] Peter Skelton "Investigation of freshwater management and allocation functions at Otago Regional Council: (report to the Minister for the Environment, November 2019).

In response to Professor Skelton highlighting the importance of having robust interim measures in place to provide for short-term consents until the new regional policy statement and land and water regional plan are completed, the Minister formally recommended, under section 24A of the RMA that ORC:

> *Prepare a plan change by 31 March 2020 that will provide an adequate interim planning and consenting framework to manage freshwater up until the time that new discharge and allocation limits are set, in line with the requirements in the National Policy Statement for Freshwater Management.*

The Minister encouraged ORC to consider a narrow plan change that provides for a relatively low cost, and fast issuing of new consents on a short-term basis, as an interim measure until sustainable allocation rules are in place. These recommendations are reflected in Objective 10A.1.1 of PPC7 which provides:

> ***Objective 10A.1.1***
>
> *Transition toward the long-term sustainable management of surface water resources in the Otago region by establishing an interim planning framework to manage new water permits, and the replacement of deemed permits and water permits to take and use surface water (including groundwater considered as surface water) where those water permits expire prior to 31 December 2025, until the new Land and Water Regional Plan is made operative.*

As this application is for a water permit to replace a deemed permit, Policies 10A.2.1 and 10A.2.3 are relevant and implement this objective. Policy 10A.2.2 is also applicable to the supplementary allocation sought from the Albert Burn. While the supplementary allocation will be included on the same water permit that replaces the existing primary allocation, this is a new activity and requires resource consent under a different rule to the renewal of the existing primary allocation.

> ***Policy 10A.2.1***
>
> *Irrespective of any other policies in this Plan, avoid granting resource consents that replace deemed permits, or water permits to take and use surface water (including groundwater considered as surface water under policy 6.4.1A (a), (b) and (c) of this Plan) where those water permits expire prior to 31 December 2025, except where:*
>
> *a. The deemed permit or water permit that is being replaced is a valid permit; and*
>
> *b. There is no increase in the area under irrigation, if the abstracted water is used for irrigation; and*
>
> *c. There is no increase in the instantaneous rate of abstraction; and*
>
> *d. Any existing residual flow, minimum flow or take cessation condition is applied to the new permit; and*
>
> *e. There is a reduction in the volume of water allocated for abstraction.*
>
> ***Policy 10A.2.2***
> *Irrespective of any other policies in this Plan concerning consent duration, only grant new resource consents for the take and use of water for a duration of no more than six years.*
>
> ***Policy 10A.2.3***
>
> *Irrespective of any other policies in this Plan concerning consent duration, only grant new resource consents that replace deemed permits, or resource consents that replace water permits*

to take and use surface water (including groundwater considered as surface water under policy 6.4.1A (a), (b) and (c) of this Plan) where those water permits expire prior to 31 December 2025, for a duration of no more than six years, except where Rule 10A.3.2.1 applies and:

a. *The activity will have no more than minor adverse effects (including no more than minor cumulative effects) on the ecology and the hydrology of the surface water body (and any connected water body) from which the abstraction is to occur; and*
b. *The resource consent granted will expire before 31 December 2035.*

The objective in PPC7 requires a 'transition' toward long-term sustainable management of surface water. This relates to the management of surface water generally and the issues relating to large quantities of water being allocated to deemed permits or historic water permits (pre-RMA). Transition insinuates a process or period of changing which through the preceding policies and rules is achieved through limiting the duration of consents and thereby reducing risk for water to be allocated for a long duration under the current framework. I have considered these policies further below and in Section 12 of this report.

Policy 10A.2.1, provides strong direction to 'avoid' granting consent except where the provisions in (a) – (e) are met. As confirmed in the *King Salmon*[12] case, the word 'avoid' takes its ordinary meaning of 'not allow' or 'prevent the occurrence of'. The use of the word 'avoid' in this policy is deliberate and it is also deliberately different to the wording in Policy 10A.2.3 which states 'only grant'. In respect to Policy 10A.2.1, it directs that the Council must refuse the consent, unless all of the provisions of (a) – (e) are met. In relation to these matters, the water permits that are to be replaced are 'valid'; there is a proposed increase to the area of irrigation; there is no increase to the instantaneous rate of abstraction; there was no existing residual or minimum flow on the current permits, and there is a reduction in the volume of water allocated for abstraction. As the development of new irrigation areas is proposed, the application is contrary to this policy.

Policy 10A.2.2 applies irrespective of any other policies concerning consent duration but only in relation to new resource consents. In this case, the proposed supplementary allocation from the Albert Burn is considered the be a new consent. This policy directs that the duration of the supplementary allocation take should be limited to 6 years. As the application seeks a 25 year term for all permits, the application is contrary to this policy.

Policy 10A.2.3 applies irrespective of any other policies concerning consent duration. It directs that new resource consents to replace deemed permits only be granted for a duration of no more than 6 years except where the activity will have no more than minor adverse effects (including no more than minor cumulative effects) on the ecology and the hydrology of the surface water body (and any connected water body) from which the abstraction is to occur. In that case a consent may be granted with an expiry of up to 3 December 2035. The continuation of the activity is not likely to result in adverse effects that a more than minor. However, notwithstanding the adverse effects, the Applicant has sought a consent term of 25 years and the application is contrary to this policy.

The activity would be a non-complying activity under the notified plan in accordance with rule 10A.3.2.1. A non-complying activity status introduces the most onerous test for a consent application being the Section 104D 'gateway' test. This being that the consent authority may only

[12] *Environmental Defence Society Incorporated v The New Zealand King Salmon Company Limited* [2014] NZSC 38 (King Salmon).

grant consent if the application is not contrary to provisions of all planning documents or causes a no more than minor adverse effect. Given this application was lodged prior to the notification of PPC7 it retains the discretionary activity status determined by the operative RPW. On that basis I do not consider that a s104D analysis is required. Notwithstanding the retention of the discretionary activity status, I record that the adverse effects of the activity on the environment will be minor and so the application passes through the s104D(1)(a) 'gateway' and it can be assessed under s104 of the RMA.

As PPC7 has been notified, regard must be had to its provisions. However, this does not necessarily mean giving full effect to its context. In terms of weight to be applied to the provisions of a proposed Plan, the following has been distilled from case law and is relevant for the decision maker to consider:

- The extent that it has progressed through the plan-making process[13];
- The extent that the proposed measure has been subject to independent testing or decision making[14];
- Circumstances of injustice[15];
- The extent to which a new measure, or the absence of one, might implement a coherent pattern of objectives and policies in a plan[16]; and
- Whether there has been a significant change in Council policy and the new provisions are in accordance with Part 2 of the RMA[17].

I consider that while the provisions are in their initial stages of the plan making process, they are particularly directive (use of 'avoid') and are a significant change from the operative provisions of the RPW. As these provisions have been proposed in response to the Minister's recommendations that I have set out above, following an independent investigation undertaken by Professor Skelton with a particular focus on the management of freshwater, I consider that they better achieve the purpose and principles of the Act and the NPS-FM than current operative provisions.

Water permits granted under the current operative planning provisions have the potential to frustrate the new limits imposed in the new regional plan for land and water resources that is scheduled to be notified by December 2023, and made operative by December 2025. I recognise that PPC7 is only an interim step to achieving the purpose of the RMA and giving full effect to the NPS-FM, however as set out in the section 32 report for PPC7, it is a critical measure in order to achieve this purpose in a timely manner and ensures the current planning framework is more in accordance with Part 2 of the RMA in the interim period.[18] Further, PPC7 implements a coherent pattern of objectives and policies as it is designed to be a standalone consenting regime for replacement deemed permits and water permits expiring before 31 December 2025.

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[13] *Queenstown Central Ltd v Queenstown Lakes District Council* [2013] NZHC 815 at [9].
[14] *Hanton v Auckland City Council* [1994] NZMRA 289 (PT).
[15] *Keystone Ridge Ltd v Auckland Bity Council* (HC Auckland, AP24/01, 3 April 2001) at [16] and [37]; *Mapara Valley Preservation Society Incorporated v Taupo District Council* EnvC Auckland A083/07, 1 October 2007, at [51].
[16] *Keystone Ridge Ltd v Auckland Bity Council* (HC Auckland, AP24/01, 3 April 2001) at [16] and [37]; *Mapara Valley Preservation Society Incorporated v Taupo District Council* EnvC Auckland A083/07, 1 October 2007, at [51].
[17] *Keystone Ridge Ltd v Auckland Bity Council* (HC Auckland, AP24/01, 3 April 2001) at [16].
[18] *Section 32 Evaluation Report for PPC7 dated 18 March 2020, p 18.*

While PPC7 is in its infancy and is yet to be tested through a hearing, for the above reasons I consider more weight than usual should be afforded to its provisions. I acknowledge that this application was received by ORC several months prior to the notification of the plan change and the Applicant has not had the benefit of the controlled activity pathway to obtain a relatively low cost, albeit short term, consent under PPC7. However, the weight to be afforded to the matters under s104 should be determined at the time of consideration of the application.

On the basis that allocating water to the development of additional irrigation areas is contrary to the directive policy established by PPC7, I consider that the irrigation area should be limited to the existing area under irrigation. A condition of consent has been recommended to that effect and the sum of the recommended allocation volumes have adopted the 90th percentile annual volume recommended by Aqualinc for irrigation of the existing 393 hectares. It is recommended that the monthly and seasonal volumes sought for frost fighting or stock drinking water be granted as applied for.

The Policies of PPC7 are also very directive in relation to the consent terms. On the basis that the 25 year term sought is contrary to the very directive policies of PPC7, I consider the 25 year term to be inappropriate. I address this issue in full in Section 12.

7.16 Section 104(1)(c) - Any other matters

The Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008

The Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008 - The Cry of the People, Te Tangi a Tauira [only applicable to activities south of the Clutha River/Mata Au] is considered to be a relevant other matter for the consideration of this application. This is because the RPW is yet to be amended to take into account this Plan and this Plan expresses the attitudes and values of the four Rūnanga Papatipu o Murihiku – Awarua, Hokonui, Ōraka/Aparima and Waihōpai.

The following objectives and policies are of most relevance to this application:

- Adopt the precautionary principle when making decisions on water abstraction resource consent applications, with respect to the nature and extent of knowledge and understanding of the resource.
- Support and encourage catchment management plans, based on the principle of *ki uta ki tai*, to manage the cumulative impacts of water abstractions in a given area.
- Require that scientifically sound, understandable, and culturally relevant information is provided with resource consent applications for water abstractions, to allow Ngāi Tahu ki Murihiku to fully and effectively assess cultural effects.
- Recommend, as a condition of consent, that any application for irrigation puts in on-farm rainwater holding facilities, to help with dairy washdown and irrigation.
- Encourage the installation of appropriate measuring devices (e.g. water meters) on all existing and future water abstractions, to accurately measure, report, and monitor volumes of water being abstracted, and enable better management of water resources.
- Advocate for durations not exceeding 25 years on resource consents related to water abstractions.

- Require that Ngāi Tahu are provided with the opportunity to participate through pre hearing meetings or other processes in the development of appropriate consent conditions including monitoring conditions to address our concerns.
- Avoid adverse effects on the base flow of any waterway, and thus on the mauri of that waterway and on mahinga kai or taonga species.
- Ngāi Tahu's right to development, as per the Treaty of Waitangi, must be recognised and provided for with respect to water allocation from freshwater resources.
- Encourage water users to be proactive and use water wisely. To encourage best practice and efficient use of water, particularly in terms of:
  - sustainable irrigation design, delivery and management;
  - making best use of available water before water levels get too low;
  - reducing the amount of water lost through evaporation by avoiding irrigating on hot windy days.
- Consideration of consent applications for water abstractions should have particular regard to questions of:
  - how well do we understand the nature and extent of the water resource;
  - how well can we monitor the amount of water abstracted;
  - whether land capability (e.g. soil type, vulnerability of underlying groundwater resources) matches the land use enabled by irrigation;
  - what might happen in the future (e.g. rainfall and recharge of aquifers, climate change).
- Applications for water abstractions may be required to justify the quantities of water requested. Information may need to be provided to Te Ao Mārama Inc. regarding the proposed water use per hectare, estimated water losses, stocking rates, and the level of efficiency for the scheme. This will enable iwi to put the quantity of water sought in context, and ensure that a test of reasonableness can be applied to consents.
- Require catchment based cumulative effects assessments for activities involving the abstraction of water.
- The establishment of environmental flow regimes must recognise and provide for a diversity of values, including the protection of tangata whenua values.
- Ensure that environmental flow allocation and water management regimes for rivers recognise and provide for the relationship between water quality and quantity.
- Avoid compromising fisheries and biodiversity values associated with spring fed creeks and rivers for the purposes of water abstractions.

While Te Ao Marama Incorporated were given the opportunity to be involved in the consent process through being identified as an affected party, they did not submit on the application. Despite this, the precautionary approach promoted by this Plan is particularly relevant given the inadequacy of the current planning framework. Notably, Aukaha sought that the application be subject to a 6 year term. However, given the acceptable level of effect of the proposal, I consider a 15 year term to be appropriate. The use of review conditions provides a suitably precautionary measure to deal with unforeseen adverse effects within that term. On that basis, I consider that the granting of the consents, subject to the recommended conditions, will be consistent with this Plan.

The Kai Tahu ki Otago Natural Resource Management Plan 2005

The Kai Tahu ki Otago Natural Resource Management Plan 2005 (NRMP) is considered to be a relevant other matter for the consideration of this application. This is because the RPW is yet to be amended to take into account this Plan and this Plan expresses the attitudes and values of the four Papatipu Rūnaka: Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga. The following objectives and policies are of most relevance to this application:

- To require that resource consents applications seek only the amount of water actually required for the purpose specified in the application.
- To require that all water takes are metered and reported on, and information be made available upon request to Kai Tahu ki Otago.
- To oppose the granting of water take consents for 35 years.
- To encourage those that extract water for irrigation to use the most efficient method of application.
- To discourage over-watering.

The granting of this consent with the recommended term and conditions would be wholly consistent with the objectives and policies of the NRMP. Aukaha on behalf of local runanga were considered an affected party to the application and lodged a submission in opposition to it. This submission has been given due consideration and has influenced the recommendations in this report. As set out above, Aukaha sought for the term of consent to be constrained to 6 years, however, I do not consider such a term to be appropriate in light of the effects of the application and the current planning considerations.

Report by Professor Skelton and Ministers Recommendation

Professor Peter Skelton was engaged by the Hon David Parker, Minister for the Environment (the Minister) to investigate whether the ORC is adequately carrying out its functions under section 30(1) of the RMA in relation to freshwater management and allocation, particularly the implementation of the NPS-FM.

The October 2019 report concluded that the current planning framework in Otago is not fit for purpose to appropriately consider resource consent applications for new water permits before the expiry of deemed permits in October 2021. It also identified the need for an accelerated full review of the Water Plan (to notify a new Land and Water Plan by December 2023) and a full review of the Regional Policy Statement (to notify by November 2020).

To bridge the gap between the expiry of deemed permits in Otago in 2021 and other water permits expiring prior to a full plan review, and when a new Regional Policy Statement and Land and Water Plan for Otago will be operative, the Minister has recommended an interim change to the Water Plan. This has recently been notified as PPC7.

It is appropriate to consider Professor Skelton's Report and the Minister's recommendation as an "other matter" under section 104(1)(c) of the RMA. The Minister's recommendation, in response to the report, provides clear direction in terms of the inadequacy of the current planning framework and methods to address it. PPC7 is the direct response to that recommendation and directs that short consent terms for deemed permit replacements. While the weight to be afforded to this matter is not determinative, in my opinion, considerable weight should be given to the general

direction to not issue consents that have the potential to undermine the implementation of a fit-for-purpose planning framework for the management of water abstraction activities.

Reducing overall allocation, preventing the development of new irrigation areas, imposing residual flows (where appropriate) and limiting the term of the consent to 15 years, as recommended, will avoid any potential for this consent to hinder the implementation of any future allocation limits long into the future. On that basis, I consider that the recommended consent term of 15 years is appropriate and consistent with the Minister's recommendations.

There are no other matters that the Consent Authority considers relevant and reasonably necessary to determine the application.

8. Section 104(2A) Value of Investment

When considering an application affected by Section 124 of the Act, the Council must have regard to the value of the investment of the existing consent holder. The application states that close to $4 million has been spent on on-farm infrastructure, including water conveyance infrastructure (pipes and races), water storage (tanks and ponds), pivots and irrigation systems, pump equipment and maintenance, fencing and general land improvements. The Applicant also recently purchased over 500 ha of new land from Contact Energy for $3 million and has invested considerable value into converting this dilapidated land into productive farmland. While it is unclear whether this new land includes the 100 ha seeking to be developed into irrigable land, I do not consider the purchase of land gives sufficient reason for it to be irrigated give the current policy framework. Notwithstanding this, I agree that the existing land developments, water distribution infrastructure and irrigation systems associated with the existing irrigation area represent a significant investment.

Further investment will be required for ongoing use, maintenance and upgrading of the water take infrastructure, including the installation of the piped intake from the Schoolhouse Creek abstraction point as proposed. The investment in the proposed Schoolhouse Creek upgrade will increase the overall efficiency of the scheme, as historically the Schoolhouse Creek take has operated inefficiently.

The abstraction provides for various commercial activities including primary production, viticulture and other high values crops that would arguably not be viable if the water takes were to cease. It is clear from the application that several landowners and businesses benefit from the water take and have a vested interest in it.

The value of investment and the viability of businesses and the social and economic well-being of people has been given consideration in determining the recommended consent term and the area to be irrigated by the water sought.

9. Section 124B Applications by Existing Holders of Resource Consents

The following criteria must be considered when a person who holds an existing resource consent makes an application within Section 124 timeframes:

(a) the efficiency of the person's use of the resource; and

(b) the use of industry good practice by the person; and

(c) if the person has been served with an enforcement order not later cancelled under section 321, or has been convicted of an offence under section 338,

  (i) how many enforcement orders were served or convictions entered; and

  (ii) how serious the enforcement orders or convictions were; and

  (iii) how recently the enforcement orders were served or the convictions entered.

Assessment of the Applicant's historic water use against efficiency guidelines demonstrates that the Applicant has historically used water efficiently. A review of the Applicant's compliance history shows that no enforcement orders have been issued to them and they have not been convicted.

10. Part 2 of the Act

Under Section 104(1) of the RMA, a consent authority must consider resource consent applications "subject to Part 2" of the RMA, specifically, sections 5, 6, 7 and 8.

The Court of Appeal has recently clarified how to approach the assessment of "subject to Part 2" in section 104(1). In *R J Davidson,* the Court of Appeal found that (in summary):[19]

a. Decision makers must consider Part 2 when making decisions on resource consent applications, where it is appropriate to do so. The extent to which Part 2 of the RMA should be referred to depends on the nature and content of the planning documents being considered.

b. Where the relevant planning documents have been prepared having regard to Part 2 of the RMA, and with a coherent set of policies designed to achieve clear environmental outcomes, consideration of Part 2 is not ultimately required. In this situation, the policies of these planning documents should be implemented by the consent authority. The consideration of Part 2 "would not add anything to the evaluative exercise" as "genuine consideration and application of relevant plan considerations may leave little room for Part 2 to influence the outcome". However, the consideration of Part 2 is not prevented, but Part 2 cannot be used to subvert a clearly relevant restriction or directive policy in a planning document.

c. Where it is unclear from the planning documents whether consent should be granted or refused, and the consent authority has to exercise a judgment, Part 2 should be considered.

d. If it appears that the relevant planning documents have not been prepared in a manner that reflects the provisions of Part 2, the consent authority is required to consider Part 2.

Given the clear need and intention of the Council to promote a revised water management framework, I consider it appropriate to assess this application against Part 2 of the RMA.

The taking of water from the Albert Burn, Schoolhouse Creek and the Clutha River for the purposes proposed, and subject to the recommended conditions and recommended duration, is consistent with the purpose and principles of the Act, as outlined in Section 5. The use of water

[19] *R J Davidson Family Trust v Marlborough District Council* [2018] NZCA 316.

for production activities, including some high value horticulture, will provide for the social and economic wellbeing of people and the community. The recommended conditions will safeguard the life-supporting capacity of the waterways and mitigate adverse effects of the activity on an ongoing basis. As such, the natural and physical resources of the waterways will meet the reasonably foreseeable needs of future generations.

The relevant matters under section 6 of the Act, have been recognised and provided for. The natural character of the Clutha River will be unaffected by the proposed abstraction and the ephemeral natural character of the Albert Burn and Schoolhouse Creek will be preserved (section 6(a)). The proposal will not affect any outstanding natural features or landscapes (section 6(b)). Schoolhouse Creek supports a significant population of Clutha flathead galaxias that will be appropriately protected by the proposed residual flow (section 6(c)). Where public access exists, this will be maintained (section 6(d)). The relationship of Maori and their culture and traditions with water has been recognised through the identification of iwi as affected parties. The submission of Aukaha has been considered and the recommendations of this report have provided for the relief sought where appropriate (section 6(e)).

Particular regard has been given to kaitiakitanga (section 7(a)). It is considered that the rates and volumes of abstraction and proposed residual flows will not cause the mauri of the waterbodies to be degraded beyond its current state. This will ensure that a degree of kaitiakitanga is maintained which recognises the relationship between Maori and the water. Particular regard has also been given to the efficient use and development of natural and physical resources and the Applicants efficient use of water has been recognised (section 7(b)). The need to protect the habitat of trout has been considered and it is considered that the fish screening will be an appropriate measure to do this (section 7(h)). With the recommended conditions, particularly fish screening and the requirement to provide water efficiency reporting, I consider the application is consistent with the “other matters” of Section 7 of the Act.

The principals of Te Tiriti o Waitangi, including protection and participation, have been taken into account in accordance with section 8.

Overall, the application as amended by the recommended conditions is considered to be consistent with sections Part 2 of the Act.

11. Section 108 and 108AA of the Act

The appended draft water permits (**Appendix 3**) contain the conditions that are recommended in accordance with Sections 108 and 108AA of the Act and have generally been discussed through this report. In summary these conditions achieve the following:

- Ensure that the irrigation area does not increase.
- Ensure the activities are carried out in accordance with the application lodged and assessed.
- Ensure that there are not two active consents for the same activity, avoiding confusion for compliance purposes.
- Consider the uses of water proposed and volumes applied for and the historical access to water at this site and ensures that the quantity of water granted to take is no more than that required for the purpose of use.
- Ensure that appropriate fish screening is maintained to avoid fish intake and entrapment.

- Ensure monitoring of all abstractions is undertaken in accordance with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010.
- Ensure that evidence of reasonable use is provided to Council throughout the duration of the consent.
- Ensure that accurate records of frost fighting water usage (high use) are maintained.
- Ensure irrigation continues to be undertaken in an efficient manner and remains and efficient use of water.
- Ensure that the consents can be reviewed when appropriate in accordance with Sections 128 and 129 of the Act including when allocation limits are set in a regional plan.

11. Recommendation

11.1 Reason for Recommendation

It is recommended that this consent application is approved subject to the appended conditions and for the recommended term for the following reasons:

a. The adverse effects are no more than minor as the recommended conditions, including residual flows (where appropriate) and fish screening will avoid, remedy or mitigate adverse effects.
b. The activity is consistent with the objectives and policies of the RPW and PPC7, specifically in relation to the efficient use proposed and the alignment of allocation with historic use and limiting the development of further irrigation areas.
c. The activity is consistent with the Part 2 of the Act.
d. The activity is consistent with the NPS-FM as the proposed take is not causing any further allocation (including to new irrigation areas) and is reducing current allocation as the recommended instantaneous rates of take are less than or equal to those currently consented.
e. The proposal will not hinder the implementation of an NPS-FM compliant Plan as future allocation limits can be imposed upon renewal of this consent or periodically as provided for by the recommended review conditions.
f. No matters have arisen in the assessment of the application that would indicate the application should have been publicly notified.

12. Term of Consent (Section 123)

The Applicant seeks a consent duration of 25 years. The Applicant has sought this term to align with the policy direction of the NRMP and to provide security to make ongoing investment decisions based on the return of the operation over this duration. Aukaha raised concerns around the inadequacy of the current planning framework and in light of the direction provided in PPC7, I consider that a term of 15 years is appropriate. In reaching this recommendation I have considered the following factors, distilled from case law, which are relevant to the Council's determination of the duration of a resource consent:

- The duration of a resource consent should be decided in a manner which meets the RMA's purpose of sustainable management;

- Whether adverse effects would be likely to increase or vary during the term of the consent;
- Whether there is an expectation that new information regarding mitigation would become available during the term of the consent;
- Whether the impact of the duration could hinder implementation of an integrated management plan (including a new plan);
- Whether review conditions are able to control adverse effects;
- Whether the relevant Plan addresses the question of the duration of a consent;
- The life expectancy of the asset for which consents are sought;
- Whether there was significant capital investment in the activity/asset; and
- Whether a particular period of duration would better achieve administrative efficiency.

Policy 6.4.19 of the RPW addresses consent duration for consents to take and use water. While it does not recommend actual durations, it directs the consideration of the following criteria:

(a) The duration of the purpose of use;
(b) The presence of a catchment minimum flow or aquifer restriction level;
(c) Climatic variability and consequent changes in local demand for water;
(d) The extent to which the risk of potentially significant adverse effects arising from the activity may be adequately managed through review conditions;
(e) Conditions that allow for the adaptive management of the take and use of water;
(f) The value of the investment in infrastructure; and
(g) Use of industry best practice.

In the case of the proposed abstractions activities, the purposes are enduring, being irrigation, stock drinking water and frost fighting (criteria (a)). There are no minimum flows or aquifer restriction levels that apply to the relevant waterways (criteria (b)). Climatic variability is certain to occur and is likely to create uncertainty in water demand therefore water security is critical to ongoing business operation (criteria (c)). Potential adverse effects, such as minimum flows, can be addressed through review conditions (criteria (d)). The Applicant has not proposed adaptive management (criteria (e)), although review conditions will allow allocation limits to be addressed in the future should the need arise. The Applicants have considerable investment that benefits from the water abstraction activities (criteria f)). The irrigation methods employed are consistent with industry best practice and the efficiency of use is acceptable (criteria (g)).

As noted in Section 7.15, Policy 10A.2.3 of PPC7 directs that new consents to replace deemed permits only be granted for no more than 6 years except where there are no more than minor adverse effects (including cumulative effects) on the ecology and the hydrology of the surface water body (and any connected water body) from which the abstraction is to occur. Policy 10A.2.2 also applies to the supplementary allocation that is sought and directs that the duration of this take should be limited to 6 years.

Policies 10A.2.2 and 10A.2.3 apply irrespective of any other policies in the Plan concerning consent duration (i.e. Policy 6.4.19). Considering this direction, granting the consent duration sought by the Applicants would be contrary to the provisions of PPC7. Given my conclusion that the adverse effects (including cumulative effects) on aquatic ecology and hydrology are no more than minor, a duration of 6 years for the supplementary allocation and 15 years for the remaining activities would be consistent with PPC7. As discussed in Section 7.15 I consider that some, but not full weight should be given to PPC7 due to it recently being notified and not yet tested and the application already being in the system at the time of notification. While it is appropriate to give

weight to Policy 6.4.19 of the RPW, I consider that weight should also be given the provisions of PPC7 as it responds to a ministerial direction to establish a fit-for-purpose planning framework.

In this instance, I consider that a 15 year consent term is appropriate for all activities on the basis that:

- The recommended rate of take and the annual allocation is less than the current consented limits;
- The supplementary allocation is provided on the same permit as the primary allocation take and is constrained by the overall monthly and annual volumes applying to all permits that are subject to a common term. As such, administrative efficiency is gained by aligning the supplementary allocation term with the other permits;
- While PPC7 is at the beginning of the Plan-making process, the weight given to this will increase further through the process;
- PPC7 contains a coherent set of policies and is intended as a stand alone consenting regime and an interim step in giving full effect to the NPS-FM;
- While the application was lodged several years prior to the notification of PPC7 and was substantially through the consent process at the time of notification, the weight to be applied to relevant planning provisions is determined at the time of consideration of the application.
- The Applicant's level of investment in the water take is considerable and the surety of investment and business decision making would benefit from on a term longer than the 6 years sought in the submission made by Aukaha;
- The proposed upgrading of the Schoolhouse Creek abstraction and conveyance infrastructure will have efficiency benefits and will require additional investment that will unlikely be warranted in the context of a 6 year term.
- The adverse effects of the proposed take are no more than minor and ultimately acceptable; and
- Unforeseen adverse effects can be managed by review conditions during the consent term.

Ethan Glover
Consultant Consents Officer

06 August 2020

Appendix 1

Water take consent Queensbury

(RSU Assessment)

Otago Regional Council

Document Id: A1327301

File Note

From: Ciaran Campbell

Reviewed by: Pete Ravenscroft

Date: 26/02/2020

Re: Science Unit assessment of Resource Consent No. RM19.312 Queensbury Ridges Limited to take surface water from Albert Burn, Schoolhouse Creek and Clutha River

Activity

The applicant proposes to take water from the Albert Burn, Schoolhouse Creek and Clutha River/Mata-Au catchments and has applied for a total of 457.5 L/s with a maximum term of 25 years.

Table 1. Summary of water takes and sources under application RM19.312.

Source	Maximum rate of take (L/s)
Albert Burn (primary)	103
Albert Burn (supplementary)*	150*
Schoolhouse Creek	31.5
Clutha River/Mata-Au	273

**When Albert Burn flows are greater than 224L/s*

Application RM19.312	Combined water volume
Monthly	696015m^3/month
Yearly	3648348m^3/year

Significant values: Albert Burn

The Albert Burn is not listed in Schedule 1A of the Regional Plan: Water for Otago (RPW).

Records from the New Zealand Freshwater Fish Database (NZFFD) are sparse but show that brown trout is the only fish species recorded in this catchment.

A thorough survey of the Albert Burn and Alfern Creek led by Richard Allibone (Waterways Consulting Ltd) revealed the instream values are confined to a stunted and relatively disconnected population of brown trout (Allibone 2019).

There are no regionally significant wetlands that will be affected, adversely or otherwise, by the proposed water take in Albert Burn.

Hydrology: Albert Burn

There are currently no existing flow records for Albert Burn, for this assessment we used NIWA's Shiny model to estimate MALF at 23L/s. The MALF records provided by Shiny is consistent with the neighbouring catchment of Schoolhouse Creek, which we consider to be ephemeral.

The Regional Plan: Water (RPW) 15.8.1A.1 and 15.8.1A.2 *Methodology for determining supplementary allocation* provides guidance to determine the setting of supplementary allocation blocks (Table 2).

Table 2. Methodology for determining supplementary allocation, RPW.

7 day mean annual low flow of catchment (litres per second)	Supplementary allocation block (litres per second)
< 10	50
10 – 299	100
300 – 999	250
> 1000	500

15.8.1A.2 provides the formula for calculating supplementary minimum flows as:

Supplementary minimum flow = Primary allocation + supplementary allocation.

As 7dMALF has been estimated to be 23L/s, it falls into the allocation block "10 – 299L/s", which means there is a supplementary block of 100L/s.

Therefore, in this scenario the Residual flow = 103L/s + 100L/s = 203L/S. It needs to be noted that the applicant has proposed a Residual Flow of 224L/s and will be installing a flow recorder as a measure for this Residual Flow.

Assessment of effects: Albert Burn

We agree with the applicant's assessment of instream values, that the population of brown trout is small and stunted and very rarely has connection with mainstem Clutha River/Mata-Au.

Due to the hydrology and limited values in Albert Burn, there is no need for a residual flow on Primary allocation below the point of take. The infrastructure is designed that it transports water from the Albert Burn into a holding pond. From this point it is then piped to K-lines and tank farms. A fish screen between the pond and pipes is needed to prevent fish entrapment and fatalities.

Recommendation: Albert Burn

The effects of this take are considered to be no more than minor provided the following condition is adhered to:

A 3mm mesh fish screen be attached at the point of take in the ponds.

Supplementary take requires a Residual Flow of at least 203L/s. The applicant has proposed a Residual Flow of 224L/s. It is recommended that the applicant's proposed conditions are accepted.

Significant values: Schoolhouse Creek

Schoolhouse Creek is listed in Schedule 1A of the RPW as an important habitat for rare fish and is notably absent of aquatic pest plants. The schedule lists Schoolhouse Creek as "significant habitat for flathead galaxias".

Records from the NZFFD confirm the presence of Clutha flathead galaxias (Galaxias "species D"), a taxonomically indeterminate fish species classified as "Nationally Critical" (Dunn et al. 2018). There are also records of introduced brown trout in the lower reaches of Schoolhouse Creek and the water race, however the Department of Conservation have led a trout removal project to protect the Schoolhouse Creek population of Clutha flathead galaxias. The status of that project is believed to be successful, with no brown trout observed during recent fishing surveys, and Clutha flathead galaxias re-establishing throughout the lower reaches (D. Jack pers. comm. November 2019, P. Ravenscroft pers. comm. January 2020).

There are no regionally significant wetlands that will be affected, adversely or otherwise, by the proposed water take in Albert Burn.

Hydrology: Schoolhouse Creek

The Regional Council has had a flow recorder established upstream of any takes since 2014 (Figure 1). Based on these approximate six seasons of flow recording, 7dMALF was suggested to be 0.012m^3/s.

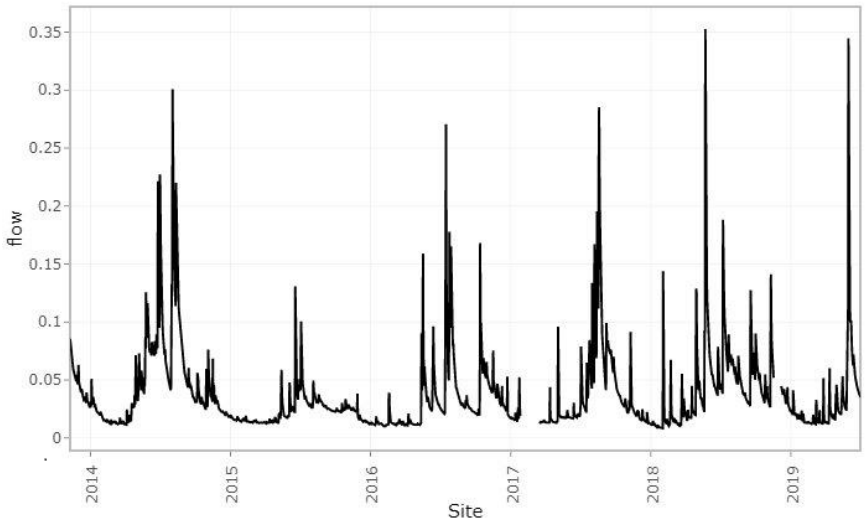

Figure 1. Flow recording data for Schoolhouse Creek 2014 – 2019.

Table 3. 7dMALF statistics for Schoolhouse Creek for the period of 2014 – 2019.

	MALF.methods	No.seasons	7dMALF
	All	All	All
1	All seasons	6	0.012
2	Complete seasons	3	0.011
3	Complete & the xdLF <= MALF.CPL	3	0.011

From historic observations of Schoolhouse Creek over a decade of fish surveys, it is highly unlikely that Schoolhouse Creek would flow much further than State Highway 6 and would not often connect with the Clutha River/Mata-Au. Therefore, the natural character of this stream should be described as ephemeral.

Recommendation:

Providing the following condition is adhered to, the effects of this take are considered to be no more than minor:

A visual residual flow to where Schoolhouse Creek passes the point 2218973 5588907 (NZMG), (refer to green waypoint on Figure 2).

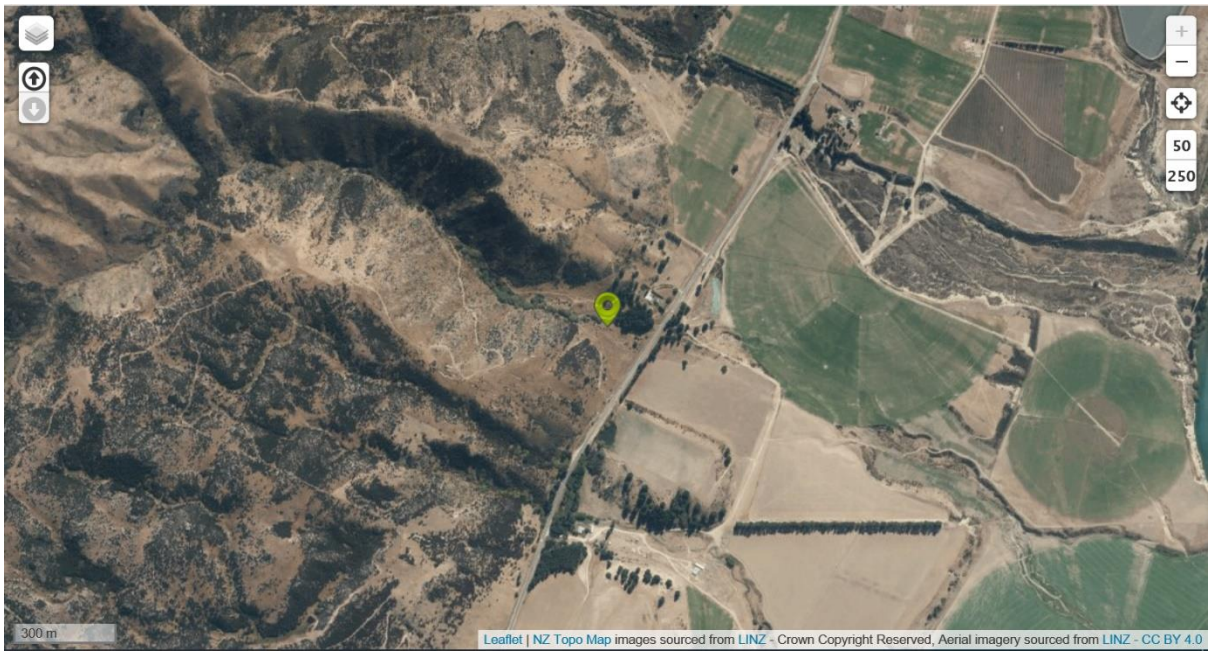

Figure 2. Aerial satellite imagery of Schoolhouse Creek and water race. Green waypoint indicates where visual residual flow should be measured.

Significant values: Clutha River/Mata-Au

The Clutha River/Mata-Au between Alexandra and Lake Wanaka is listed in Schedule 1A of the RPW for the following ecosystem values:

- Large water body supporting high numbers of particular species, or habitat variety, which can provide for diverse life cycle requirements of a particular species, or a range of species.
- Notable rock and gravel bed composition for resident biota.
- Significant fish spawning areas for trout and salmon.
- Significant areas for development of juvenile trout and salmon.
- Presence of riparian vegetation of significance to aquatic habitats.
- Significant presence of trout, eel, and salmon.
- Presence of indigenous fish species threatened with extinction.
- Presence of a significant range of indigenous waterfowl.

There are no regionally significant wetlands that will be affected, adversely or otherwise, by the proposed water take in Clutha River/Mata-Au.

Records from the NZFFD confirm the presence of brown trout, upland bully, common bully and longfin eel.

Hydrology: Clutha River/Mata-Au

In this reach of the Clutha River/Mata-Au, NIWA's shiny model places an estimated MALF at 84.6m^3/s. The applicant has proposed taking maximum rate of take of 273L/s.

Recommendation: Clutha River/Mata-Au

The effects of this take are considered to be no more than minor provided the following condition is adhered to:

A 3mm mesh fish screen be attached at the point of take to prevent fish fatalities.

Appendix 2

Letter from Department of Conservation advising no longer wish to be heard

Department of Conservation
Te Papa Atawhai

Our Ref: DOC-6371110

Date: 20 July 2020

Otago Regional Council
70 Stafford St
Private Bag 1954
DUNEDIN
Attn: Consents Manager/ Ethan Glover

QUEENSBURY RIDGES Ltd, QUEENSBERRY
PROPOSED WATER TAKE CONSENT: RM 19.312.02: SCHOOLHOUSE CREEK
SECTION 100 RMA WITHDRAWAL OF RIGHT TO BE HEARD

Regarding the applicant's request dated 20 July 2020 for the Director-General (D-G) to consider his rights to be heard on the above resource consent application, which the D-G has submitted on.

The Department of Conservation has consulted with the applicant's agent, Mr Will Nicolson of Landpro Limited. I advise we have come to an agreement (as outlined in an email to ORC and DOC on proposed conditions also dated 20th July) that satisfies the concerns raised in the Director-General's submission if the consent conditions and terms proposed by the applicant enclosed in Appendix 1 are imposed.

I can advise my position is now neutral on the application and D-G no longer wishes to be heard at the upcoming hearing. I would appreciate if you could please pass on this position onto the hearing panel. Please be advised that the original of this letter has been sent to Will Nicolson for the applicant's records. If you have any questions regarding this letter, please contact Herb Familton at (027) 290 6025 or hfamilton@doc.govt.nz.

Yours sincerely,

Mike Tubbs
Operations Manager, Central Otago / *Kā Moana Haehae*
Pursuant to a delegation for the Director-General of Conservation[1]

[1] Note: A copy of the Instrument of Delegation may be inspected at the Director-General's Office at Conservation House, *Whare Kaupapa Atawhai*, 18/32 Manners Street, Wellington 6011.

L from DoC advising that DoC no longer wish to be heard 20 07 206371110

Enc: Appendix 1.

cc

Landpro Ltd
13 Pinot Noir Drive
CROMWELL 9342
OTAGO
Attn: Will Nicolson

APPENDIX 1

Proposed Conditions

- *Prior to decommissioning of the existing Schoolhouse water race, the Consent Holder shall employ a suitably qualified individual to translocate indigenous fish species present in the race to a safe distance upstream of the race in Schoolhouse Creek. To minimise harm to fish, best practice methods shall be used for the translocations, and the work shall only be undertaken on a cool and/or overcast day.*
- *At the time of decommissioning of the water race, Schoolhouse Creek shall be re-routed back to it's original (natural) course to ensure continuity of flow.*
- *Prior to exercise of this consent, the Consent Holder shall install a fish screen in accordance with the plan(s) provided in Appendix **XX**.*
    - *Before installation of the fish screen, the Consent Holder must submit a report to the Otago Regional Council containing the design plans and specifications for the screen and its installation and the operation and maintenance plan for the screen, together with a letter from a person experienced in freshwater ecology and fish screening techniques certifying that the screen is fit for purpose.*
    - *Within 12 months of fish screen installation, confirmation must be provided to the Otago Regional Council, by a person with experience in freshwater ecology and fish screening techniques, stating that the fish screen has been installed in accordance with the details provided to Otago Regional Council as shown in Appendix **XX.***
    - *The intake structure and fish screen shall be operated in accordance with operation and maintenance procedures as established through condition **XX** above. A record must be kept of all the maintenance and monitoring carried out (and provided to Otago Regional Council upon request).*
    - *The Consent Holder shall ensure that 2 mm mesh screens are installed from September 1st through to December 31st. 4 mm mesh screens may be used for the remainder of the abstraction period. Screens shall be clearly labelled to indicate 2 mm or 4 mm mesh size. Date stamped photo evidence of 2 mm screens installation at the start of the irrigation season shall be obtained, with screen aperture labels clearly visible, and this photo evidence shall be retained by the Consent Holder and provided to Otago Regional Council upon request during the consent term.*

L from DoC advising that DoC no longer wish to be heard 20 07 206371110

Appendix 3

Draft Water Permits

Our Reference: A1372462

Consent No. RM19.312.01

WATER PERMIT

Pursuant to Section 104B of the Resource Management Act 1991, the Otago Regional Council grants consent to:

Name: Queensbury Ridges Limited

Address: C/- Richard Somerville, 320 Beaconpoint Road, Wanaka, 9305

To take and use water in a non-consumptive manner and as both primary allocation and supplementary allocation from the Albert Burn and to retake and use water from a weir and two storage ponds for the purpose of irrigation, frost fighting and stock drinking water.

For a term expiring on *31 December 2035*

Location of Point of Abstraction from Albert Burn:	Albert Burn, approximately 800 metres upstream of Luggate-Cromwell Road (SH6)
Legal Description of land at point of abstraction from Albert Burn:	Section 1 Survey Office Plan 300501

Legal Description of lands where water is to be used:
Section 37 BLK IX Tarras SD, Section 45 BLK IX Tarras SD, Section 46 BLK IX Tarras SD, Lot 1 DP 347117, Lot 1 DP 511969, Lot 3 DP 22096, Section 1 Survey Office Plan 300501, Lot 1 DP 516051, Lot 2 DP 516051, Lot 4 DP 466903, Lot 1 DP 22096, Lot 4 DP 368189, Lot 2 DP 532869, Lot 1 DP 532869, Lot 4 DP 35805, Lot 5 DP 358051, Lot 6 DP 358051, Lot 7 DP 358051, Lot 8 DP 358051, Lot 3 DP 368189, Lot 1 DP 368189, Lot 1 DP 22567, Lot 2 DP 358051, Lot 18 DP 358051, Lot 17 DP 358051, Lot 2 DP 439756, Lot 1 DP 439756, Lot 1 DP 525499, Lot 15 DP 358051, Lot 6 DP 511969, Lot 14 DP 358051, Lot 5 DP 511969, Lot 13 DP 358051, Lot 4 DP 511969, Lot 12 DP 358051, Lot 3 DP 511969, Lot 11 DP 358051, Lot 2 DP 511969, Lot 8 DP 511969, Lot 9 DP 358051.

Map Reference at Point of Abstraction from the Albert Burn:	NZTM 2000 E1308734 N5028107
Map Reference at Point of Abstraction from weir:	NZTM 2000 E1308763 N5028101
Map References at Points of Abstraction from Storage Ponds:	NZTM 2000 E1309031 N5026817 NZTM 2000 E1309200 N5026561

Conditions

Specific

1. The take and use of surface water in a non-consumptive manner and as primary allocation and supplementary allocation from the Albert Burn and the retake and use water from a weir and two storage ponds at the map references specified above and the land legally described above and illustrated in **Appendix 1** for irrigation, frost fighting and stock drinking must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number RM19.312.01.
   a) Application Forms 1 and 4 and Assessment of Environmental Effects prepared by LandPro Ltd, dated 8 October 2019.
   b) Response to further information request prepared by LandPro Limited, dated 6 December 2019.
   c) Albert Burn Fisheries Values and Residual Flows prepared by Water Ways Consulting Limited, dated November 2019.

   If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.
2. This permit shall not commence until Deemed Permits 2002.348, 2002.349, 2002.351 and 2002.352 have all been surrendered or have all expired.
3. If this resource consent is not given effect to within a period of two years from its date of commencement it must lapse under Section 125 of the Resource Management Act 1991.
4. The rate of abstraction as primary allocation must not exceed:
   a) 103 litres per second.
   b) 214,318 cubic metres per month.
   c) 1,183,765 cubic metres in each 12 month period, commencing 1 July of any year and ending 30 June of the following year.
5. The rate of abstraction as both primary and supplementary allocation must not exceed 150 litres per second.
6. The combined volume of water taken under this permit (primary and supplementary allocation) and RM19.312.02 and RM19.312.03 must not exceed 699,671 cubic metres per month and 3,050,488 cubic metres per year, commencing 1 July of any year and ending 30 June of the following year.
7. The taking of supplementary allocation must only occur when the naturalised flow in the Albert Burn exceeds 224 litres per second at the point of take as measured by the flow meter installed in accordance with Condition 8 of this consent. The supplementary take must cease when the flow in the Albert Burn is below 224 litres per second.
8. a) Prior to the first exercise of supplementary taking under this consent, the Consent Holder must at their own expense, install, operate and maintain a river flow recorder (sensor, logger, and associated equipment) as close as practical upstream of the point of take at NZTM 2000 E1308734 N5028107;
   b) Within 3 months of installing the recorder, and then at a minimum of five yearly intervals, the location, structures and equipment to be used for the purpose of determining flows as required by Condition 8(a) shall be verified by a suitably qualified and experienced person, approved by the Consent Authority.
   c) The Consent Holder shall provide evidence of the verification required by Condition 8(b) in writing to the Consent Authority within one month of the

verification being completed.
d) All malfunctions of the flow recorder during the exercise of this consent shall be repaired and reported to the Consent Authority within 5 working days of discovery by the Consent Holder or notification to the Consent Holder. In the event of an equipment malfunction the consent holder must cease the taking of supplementary allocation.
e) The river flow recorder and the surrounding waterway must be available at all reasonable times for inspection by the Consent Authority for the purposes of assessing compliance with the conditions of this consent.
f) The river flow recorder shall record water flow at intervals of 15 minutes or less, and shall update data at least daily to a database which is accessible to authorised users, including the Consent Authority.

9. The area of land irrigated under this permit and RM19.312.02 and RM19.312.03 must not exceed 393 hectares.

10. Prior to the first exercise of this consent, the Consent Holder must install a fish screen across the weir intakes with apertures no greater than 3 millimetres side-of-square or no greater than 2 millimetres bar or slot to avoid fish ingress and uptake.
The fish screen must be fully functional at all times. If it is damaged and cannot be repaired or replaced immediately, the intake must be shut down.

11. A continuous connected residual flow must be maintained from 1 April to 15 November every year immediately downstream of the point of take at NZTM 2000 E1308734 N5028107 on the Albert Burn to the Albert Burn's confluence with the Clutha River/Mata-Au at NZTM 2000 E1310780 N50273820.

Performance Monitoring

12. a) Prior to the first exercise of this consent, the Consent Holder must install:
i. Water meters that which will measure the rate and the volume of water taken to within an accuracy of +/- 5% over the meter's nominal flow range at NZTM 2000 E1309128 N5028030 and E1309114 N5028006. The water meters must be capable of output to a datalogger.
ii. A datalogger that time stamps a pulse from the flow meter at least once every 15 minutes and has the capacity to hold at least twelve months data of water taken.
iii. A telemetry unit which sends all of the data to the Consent Authority.
b) Provide telemetry data once daily to the Consent Authority. The Consent Holder must ensure data compatibility with the Consent Authority's time-series database and conform with Consent Authority's data standards.
c) Within 20 working days of the installation of the water meter / datalogger/ telemetry unit, any subsequent replacement of the water meter / datalogger/ telemetry unit and at annual intervals thereafter, and at any time when requested by the Council, the Consent Holder must provide written certification to the Consent Authority signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:
i. Each device is installed in accordance with the manufacturer's specifications;
ii. Data from the recording device can be readily accessed and/or retrieved in accordance with the conditions above; and
iii. That the water meter has been verified as accurate.
d) The water meter / datalogger / telemetry unit must be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.

e) All practicable measures must be taken to ensure that the water meter and recording device(s) are fully functional at all times.
f) The Consent Holder must ensure the water meter returns accurate readings at all times including by routinely checking the device and removing any ice or debris build up.
g) The Consent Holder must report any malfunction of the water meter / datalogger/ telemetry unit to the Consent Authority within 5 working days of observation of the malfunction. The malfunction must be repaired within 10 working days of observation of the malfunction and the Consent Holder must provide proof of the repair, including photographic evidence of any physical repairs, to the Consent Authority within 5 working days of the completion of repairs.
Photographs must be in colour and be no smaller than 200 x 150 millimetres in size and be in JPEG form.
Note: the water meter, data logger and telemetry unit should be safely accessible by the Consent Authority and its contractors at all times. The Water Measuring Device Verification Form and Calibration Form are available on the Consent Authority's website.

13. A water use efficiency report must be provided to the Consent Authority by 31 July each year for the period commencing 1 July the previous year and ending 30 June the current year. The report must assess the water use over the previous 12 months in respect of the efficient use of water for the purposes consented. This report must include, but not be limited to:
a) Area, crop type, number of harvests per year, and timing;
b) Annual summary of water usage (month by month, and related to crops in the ground);
c) Reasons why use may have varied from the previous year;
d) Information demonstrating irrigation equipment that has been used and decision-making regarding efficiency of use (e.g. soil moisture data, irrigation scheduling, meter accuracy checks, computer control of irrigation) and any changes planned for the coming year;
e) Any changes or modifications to irrigation (and water conveyance) infrastructure; and
f) Water conservation steps taken.

14. When using water taken under this permit for frost fighting, the Consent Holder must keep a record of the following:
a. The date and duration of each frost fighting event; and
b. The total volume of water used during each frost fighting event.
This record shall be provided to the Consent Authority in writing by 31 July each year and can be part of the water use efficiency report required by Condition 13.

15. The Consent Holder must advise the Consent Authority at all times prior to the taking of water as supplementary allocation and at the ceasing of taking water as supplementary allocation by emailing watermetering@orc.govt.nz or by contacting Council on 0800 474 082.

General

16. The Consent Holder must ensure that at all times:
a) There is no leakage from races, pipes and structures;
b) The use of water is confined to targeted areas, as illustrated on the plan attached as Appendix 1 to the consent and referenced as: Irrigation Area for RM19.312.01; and

c) That the volume of water used for irrigation does not exceed that required for the soil to reach field capacity and avoids the use of water onto non-productive land such as impermeable surfaces; and
d) That irrigation to land must not occur when the moisture content of the soils is at or above field capacity.
Note: Field Capacity is the amount of water that is able to be held in the soil after excess water has run off.

Review

17. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent within three months of each anniversary of the commencement of this consent or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this consent, or on receiving monitoring results, for the purpose of:
a) Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the consent;
b) Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
c) Reviewing the frequency of monitoring or reporting required under this consent;
d) Varying the rates and volumes of abstraction and monitoring, operating and reporting requirements to respond to:
i. the results of previous monitoring carried out under this consent;
ii. water availability, including alternative water sources;
iii. actual water use;
iv. efficiency of water use;
v. surface water allocation limits and minimum flows set out in any future regional plan, including any review of the Regional Plan: Water for Otago;
vi. surface water quality limits set out in any future regional plan, including any review of the Regional Plan: Water for Otago;
vii. new statutory requirements for measuring, recording or data transmission.

Notes to Consent Holder

1. *Water may be taken at any time for reasonable domestic or stock water purposes where and the taking or use does not, or is not likely to, have an adverse effect on the environment in accordance with Section 14 of the Resource Management Act 1991.*
2. *If you require a replacement water permit upon the expiry date of this water permit, any new application should be lodged at least 6 months prior to the expiry date of this water permit. Applying at least 6 months before the expiry date may enable you to continue to exercise this permit until a decision is made on the replacement application. Failure to apply at least 3 months in advance of the expiry date may result in any primary allocation status being lost. A late application may result in the application being treated as supplementary allocation if any such allocation is available.*
3. *Section 126 of the Resource Management Act 1991 provides that the Consent Authority may cancel this consent by written notice served on the Consent*

Holder if the consent has been exercised in the past but has not been exercised during the preceding five years.

4. *The Consent Holder is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, the Biosecurity Act 1993, the Conservation Act 1987, and the Heritage New Zealand Pouhere Taonga Act 2014. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*
5. *Where information is required to be provided to the Consent Authority in Conditions 7, 8, 12, 13, 14 and 15 this is be provided in writing to watermetering@orc.govt.nz, and the email heading is to reference RM19.312.01 and the condition/s the information relates to.*
6. *The Consent Holder will be required to pay the Consent Authority an annual administration and monitoring charge to recover the actual and reasonable costs incurred to ensure ongoing compliance with the conditions attached to this consent, collected in accordance with Section 36 of the Resource Management Act 1991.*
7. *The consent holder must be aware of any rules that relate to the control of farm contaminants in runoff and leaching of nutrients to groundwater in relevant Otago regional plans. For current obligations under the regional plans, refer to the Otago Regional Council website or contact the Council on 0800 474 082.*
8. *It is the responsibility of the consent holder to ensure that the water abstracted under this resource consent is of suitable quality for its intended use. The Consent Holder is advised that water supplied for human consumption may also need to meet the requirements of the Health Act 1956, the Drinking Water Standards for New Zealand 2005 (Revised 2018), and any other Ministry of Health requirements. Where water is to be used for human consumption, the consent holder should have the water tested prior to use and should discuss the water testing and treatment requirements with a representative of the Ministry of Health.*

Issued at Dunedin this day of

Appendix 1: Irrigation area for RM19.312.01

It is requested that the Applicant provide a map illustrating the existing 393 ha irrigation area to be serviced by this permit.

Our Reference: A1372465

Consent No. RM19.312.02

WATER PERMIT

Pursuant to Section 104B of the Resource Management Act 1991, the Otago Regional Council grants consent to:

Name: Queensbury Ridges Limited

Address: C/- Richard Somerville, 320 Beaconpoint Road, Wanaka, 9305

To take and use water as primary allocation from Schoolhouse Creek and to retake and use water from two storage ponds for the purpose of irrigation, frost fighting and stock drinking water.

For a term expiring on *31 December 2035*

Location of Point of Abstraction from Schoolhouse Creek:	Schoolhouse Creek, approximately 550 metres upstream of Luggate-Cromwell Road (SH6)
Legal Description of land at point of abstraction from Schoolhouse Creek:	Section 1 Survey Office Plan 300501

Legal Description of lands where water is to be used:
Section 37 BLK IX Tarras SD, Section 45 BLK IX Tarras SD, Section 46 BLK IX Tarras SD, Lot 1 DP 347117, Lot 1 DP 511969, Lot 3 DP 22096, Section 1 Survey Office Plan 300501, Lot 1 DP 516051, Lot 2 DP 516051, Lot 4 DP 466903, Lot 1 DP 22096, Lot 4 DP 368189, Lot 2 DP 532869, Lot 1 DP 532869, Lot 4 DP 35805, Lot 5 DP 358051, Lot 6 DP 358051, Lot 7 DP 358051, Lot 8 DP 358051, Lot 3 DP 368189, Lot 1 DP 368189, Lot 1 DP 22567, Lot 2 DP 358051, Lot 18 DP 358051, Lot 17 DP 358051, Lot 2 DP 439756, Lot 1 DP 439756, Lot 1 DP 525499, Lot 15 DP 358051, Lot 6 DP 511969, Lot 14 DP 358051, Lot 5 DP 511969, Lot 13 DP 358051, Lot 4 DP 511969, Lot 12 DP 358051, Lot 3 DP 511969, Lot 11 DP 358051, Lot 2 DP 511969, Lot 8 DP 511969, Lot 9 DP 358051.

Map Reference at Point of Abstraction from Schoolhouse Creek:	NZTM 2000 E1308644 N5027281
Map References at Points of Abstraction from Storage Ponds:	NZTM 2000 E1309031 N5026817 NZTM 2000 E1309200 N5026561

Conditions

Specific

1. The take and use of surface water as primary allocation from Schoolhouse Creek and the retake and use water from two storage ponds at the map reference specified above and the land legally described above and illustrated in **Appendix 1** for irrigation, frost fighting and stock drinking supply must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number RM19.312.02.
   a) Application Forms 1 and 4 and Assessment of Environmental Effects prepared by LandPro Limited, dated 8 October 2019.
   b) Response to further information request prepared by LandPro Limited, dated 6 December 2019.

   If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.
2. This permit must not commence until Deemed Permit 2002.354 has been surrendered or has expired.
3. If this resource consent is not given effect to within a period of two years from its date of commencement it must lapse under Section 125 of the Resource Management Act 1991.
4. The rate of abstraction as primary allocation must not exceed:
   a) 31.5 litres per second.
   b) 47,303 cubic metres per month.
   c) 378,427 cubic metres in each 12 month period, commencing 1 July of any year and ending 30 June of the following year.
5. The combined volume of water taken under this permit and RM19.312.01 and RM19.312.03 must not exceed 699,671 cubic metres per month and 3,050,488 cubic metres per year, commencing 1 July of any year and ending 30 June of the following year.
6. The area of land irrigated under this permit and RM19.312.01 and RM19.312.03 must not exceed 393 hectares.
7. a) Prior to the exercise of this consent and the decommissioning of the existing Schoolhouse Creek water race required by Condition 9 of this consent, the Consent Holder must engage a suitably qualified freshwater ecologist to translocate all indigenous fish species present in the Schoolhouse Creek water race.
   b) No less than 10 working days prior to the translocation of indigenous fish required by Condition 7(a), the Consent Holder must provide a translocation plan prepared by a suitably qualified freshwater ecologist to the Consent Authority for certification. The objective of the plan shall be to:
      i) Identify a safe distance upstream of the race in Schoolhouse Creek to which the translocated fish shall be relocated.
      ii) Identify best practice methods to be employed during the translocations; and
      iii) Identify appropriate climatic and flow conditions under which the translocations must be undertaken.

   A copy of the translocation plan must also be provided to the Department of Conservation.
   c)Translocation must not commence until the translocation plan has been certified and all measures identified in that plan as needing to be put in place prior to the start of the translocation are in place.

d) The translocation must comply with the certified translocation plan at all times.
e) No longer than 10 working days after the translocation the Consent Holder must supply a written report to the Consent Authority prepared by the freshwater ecologist confirming that the translocation has been carried out in accordance with the certified translocation plan. This report must also identify the species and number of individuals translocated.

8. Prior to the exercise of this consent, the Consent Holder must decommission the existing Schoolhouse Creek water race and all associated infrastructure that diverts water away from Schoolhouse Creek to the water race.

9. a) Prior to exercise of this consent, the Consent Holder must install a fish screen across the stream intake to avoid fish ingress and uptake.
b) No less than 10 working days prior to the installation of the fish screen required by Condition 9(a) the Consent Holder must submit a report containing the design plans and specifications for the screen and its installation and the operation and maintenance plan for the screen to the Consent Authority for certification. The report must include documentation from a person experienced in freshwater ecology and fish screening techniques certifying that the screen is fit for purpose.
c) The Consent Holder must ensure that 2 millimetre mesh screens are installed on the intake when in use from 1 September to 31 December each year. 4 millimetre mesh screens may be used outside of this period. Screens must be clearly labelled to indicate 2 millimetre or 4 millimetre mesh size. Date stamped photographic evidence of 2 millimetre screens installation at 1 September (or upon start of operation of the intake during the period 1 September to 31 December) each year must be obtained, with screen aperture labels clearly visible, and this photographic evidence must be provided to the Consent Authority upon request.
Photographs must be in colour and be no smaller than 200 x 150 millimetres in size and be in JPEG form.
d) Within 12 months of fish screen installation, confirmation must be provided to the Consent Authority, by a person with experience in freshwater ecology and fish screening techniques, stating that the fish screen has been installed in accordance with the details provided to the Consent Authority in accordance with Condition 9(b)**.**
e) The intake structure and fish screen must be operated in accordance with the certified operation and maintenance procedures as established through Condition 9(b) above. A record must be kept of all the maintenance and monitoring carried out and provided to the Consent Authority upon request.

10. A continuous connected residual flow must be maintained at all times immediately downstream of the point of take at NZTM 2000 E1308644 N5027281 on Schoolhouse Creek to NZTM 2000 E1309017 N5027188.

Performance Monitoring

11. a) Prior to the first exercise of this consent, the Consent Holder must install a:
i. Water meter that which will measure the rate and the volume of water taken to within an accuracy of +/- 5% over the meter's nominal flow range at NZTM 2000 E1308644 N5027281. The water meter must be capable of output to a datalogger.
ii. A datalogger that time stamps a pulse from the flow meter at least once every

15 minutes and has the capacity to hold at least twelve months data of water taken.
iii. A telemetry unit which sends all of the data to the Consent Authority.
b) Provide telemetry data once daily to the Consent Authority. The Consent Holder must ensure data compatibility with the Consent Authority's time-series database and conform with Consent Authority's data standards.
c) Within 20 working days of the installation of the water meter / datalogger/ telemetry unit, any subsequent replacement of the water meter / datalogger/ telemetry unit and at annual intervals thereafter, and at any time when requested by the Council, the Consent Holder must provide written certification to the Consent Authority signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:
i. Each device is installed in accordance with the manufacturer's specifications;
ii. Data from the recording device can be readily accessed and/or retrieved in accordance with the conditions above; and
iii. That the water meter has been verified as accurate.
d) The water meter / datalogger / telemetry unit must be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.
e) All practicable measures must be taken to ensure that the water meter and recording device(s) are fully functional at all times.
f) The Consent Holder must ensure the water meter returns accurate readings at all times including by routinely checking the device and removing any ice or debris build up.
g) The Consent Holder must report any malfunction of the water meter / datalogger/ telemetry unit to the Consent Authority within 5 working days of observation of the malfunction. The malfunction must be repaired within 10 working days of observation of the malfunction and the Consent Holder must provide proof of the repair, including photographic evidence of any physical repairs, to the Consent Authority within 5 working days of the completion of repairs.
Photographs must be in colour and be no smaller than 200 x 150 millimetres in size and be in JPEG form.
Note: the water meter, data logger and telemetry unit should be safely accessible by the Consent Authority and its contractors at all times. The Water Measuring Device Verification Form and Calibration Form are available on the Consent Authority's website.

12. A water use efficiency report must be provided to the Consent Authority by 31 July each year for the period commencing 1 July the previous year and ending 30 June the current year. The report must assess the water use over the previous 12 months in respect of the efficient use of water for the purposes consented. This report must include, but not be limited to:
a) Area, crop type, number of harvests per year, and timing;
b) Annual summary of water usage (month by month, and related to crops in the ground);
c) Reasons why use may have varied from the previous year;
d) Information demonstrating irrigation equipment that has been used and decision-making regarding efficiency of use (e.g. soil moisture data, irrigation scheduling, meter accuracy checks, computer control of irrigation) and any changes planned for the coming year;
e) Any changes or modifications to irrigation (and water conveyance) infrastructure; and

f) Water conservation steps taken.

13. When using water taken under this permit for frost fighting, the Consent Holder must keep a record of the following:
a. The date and duration of each frost fighting event; and
b. The total volume of water used during each frost fighting event.
This record shall be provided to the Consent Authority in writing by 31 July each year and can be part of the water use efficiency report required by Condition 12.

General

14. The Consent Holder must ensure that at all times:
a) There is no leakage from races, pipes and structures;
b) The use of water is confined to targeted areas, as illustrated on the plan attached as Appendix 1 to the consent and referenced as: Irrigation Area for RM19.312.02; and
c) That the volume of water used for irrigation does not exceed that required for the soil to reach field capacity and avoids the use of water onto non-productive land such as impermeable surfaces; and
d) That irrigation to land must not occur when the moisture content of the soils is at or above field capacity.
Note: Field Capacity is the amount of water that is able to be held in the soil after excess water has run off.

Review

15. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent within three months of each anniversary of the commencement of this consent or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this consent, or on receiving monitoring results, for the purpose of:
a) Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the consent;
b) Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
c) Reviewing the frequency of monitoring or reporting required under this consent;
d) Varying the rates and volumes of abstraction and monitoring, operating and reporting requirements to respond to:
i. the results of previous monitoring carried out under this consent;
ii. water availability, including alternative water sources;
iii. actual water use;
iv. efficiency of water use;
v. surface water allocation limits and minimum flows set out in any future regional plan, including any review of the Regional Plan: Water for Otago;
vi. surface water quality limits set out in any future regional plan, including any review of the Regional Plan: Water for Otago;
vii. new statutory requirements for measuring, recording or data transmission.

Notes to Consent Holder

1. *Water may be taken at any time for reasonable domestic or stock water purposes where and the taking or use does not, or is not likely to, have an adverse effect on the environment in accordance with Section 14 of the Resource Management Act 1991.*
2. *If you require a replacement water permit upon the expiry date of this water permit, any new application should be lodged at least 6 months prior to the expiry date of this water permit. Applying at least 6 months before the expiry date may enable you to continue to exercise this permit until a decision is made on the replacement application. Failure to apply at least 3 months in advance of the expiry date may result in any primary allocation status being lost. A late application may result in the application being treated as supplementary allocation if any such allocation is available.*
3. *Section 126 of the Resource Management Act 1991 provides that the Consent Authority may cancel this consent by written notice served on the Consent Holder if the consent has been exercised in the past but has not been exercised during the preceding five years.*
4. *The Consent Holder is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, the Biosecurity Act 1993, the Conservation Act 1987, and the Heritage New Zealand Pouhere Taonga Act 2014. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004. Additional authorisations may also be required under the Freshwater Fisheries Regulations 1983.*
5. *Where information is required to be provided to the Consent Authority in Conditions 9, 11, 12 and 13 this is be provided in writing to watermetering@orc.govt.nz, and the email heading is to reference RM19.312 and the condition/s the information relates to.*
6. *The Consent Holder will be required to pay the Consent Authority an annual administration and monitoring charge to recover the actual and reasonable costs incurred to ensure ongoing compliance with the conditions attached to this consent, collected in accordance with Section 36 of the Resource Management Act 1991.*
7. *The consent holder must be aware of any rules that relate to the control of farm contaminants in runoff and leaching of nutrients to groundwater in relevant Otago regional plans. For current obligations under the regional plans, refer to the Otago Regional Council website or contact the Council on 0800 474 082.*
8. *It is the responsibility of the consent holder to ensure that the water abstracted under this resource consent is of suitable quality for its intended use. The Consent Holder is advised that water supplied for human consumption may also need to meet the requirements of the Health Act 1956, the Drinking Water Standards for New Zealand 2005 (Revised 2018), and any other Ministry of Health requirements. Where water is to be used for human consumption, the consent holder should have the water tested prior to use and should discuss the water testing and treatment requirements with a representative of the Ministry of Health.*

Issued at Dunedin this day of

Appendix 1: Irrigation area for RM19.312.02

It is requested that the Applicant provide a map illustrating the existing 393 ha irrigation area to be serviced by this permit.

Our Reference: A1372466

Consent No. RM19.312.03

WATER PERMIT

Pursuant to Section 104B of the Resource Management Act 1991, the Otago Regional Council grants consent to:

Name: Queensbury Ridges Limited

Address: C/- Richard Somerville, 320 Beaconpoint Road, Wanaka, 9305

To take and use water from the Clutha River/Mata-Au and to retake and use water from two storage ponds for the purpose of irrigation, frost fighting and stock drinking water.

For a term expiring on *31 December 2035*

Location of Point of Abstraction from the Clutha River/Mata-Au:	Clutha River/Mata-Au, approximately 400 metres upstream of the Albert Burn confluence.
Legal Description of land at point of abstraction from the Clutha River/Mata-Au:	Lot 1 DP 511969

Legal Description of lands where water is to be used:
Section 37 BLK IX Tarras SD, Section 45 BLK IX Tarras SD, Section 46 BLK IX Tarras SD, Lot 1 DP 347117, Lot 1 DP 511969, Lot 3 DP 22096, Section 1 Survey Office Plan 300501, Lot 1 DP 516051, Lot 2 DP 516051, Lot 4 DP 466903, Lot 1 DP 22096, Lot 4 DP 368189, Lot 2 DP 532869, Lot 1 DP 532869, Lot 4 DP 35805, Lot 5 DP 358051, Lot 6 DP 358051, Lot 7 DP 358051, Lot 8 DP 358051, Lot 3 DP 368189, Lot 1 DP 368189, Lot 1 DP 22567, Lot 2 DP 358051, Lot 18 DP 358051, Lot 17 DP 358051, Lot 2 DP 439756, Lot 1 DP 439756, Lot 1 DP 525499, Lot 15 DP 358051, Lot 6 DP 511969, Lot 14 DP 358051, Lot 5 DP 511969, Lot 13 DP 358051, Lot 4 DP 511969, Lot 12 DP 358051, Lot 3 DP 511969, Lot 11 DP 358051, Lot 2 DP 511969, Lot 8 DP 511969, Lot 9 DP 358051.

Map Reference at point of abstraction from the Clutha River/Mata-Au:	NZTM 2000 E1310827 N5027786
Map References at Points of Abstraction from Storage Ponds:	NZTM 2000 E1309031 N5026817 NZTM 2000 E1309200 N5026561

Conditions

Specific

1. The take and use of surface water from the Clutha River/Mata-Au at the map reference specified above and the land legally described above and illustrated in **Appendix 1** for irrigation, stock drinking supply and frost fighting must be carried out in accordance with the plans and all information submitted with the application, detailed below, and all referenced by the Consent Authority as consent number RM19.312.03.
a) Application Forms 1 and 4 and Assessment of Environmental Effects prepared by LandPro Limited, dated 8 October 2019.
b) Response to further information request prepared by LandPro Limited, dated 6 December 2019.

   If there are any inconsistencies between the above information and the conditions of this consent, the conditions of this consent will prevail.

2. This permit must not commence until Deemed Permit 2002.353.V1 and Water Permit 2003.591.V2 have been surrendered or has expired.

3. If this resource consent is not given effect to within a period of two years from its date of commencement it must lapse under Section 125 of the Resource Management Act 1991.

4. The rate of abstraction must not exceed:
a) 273 litres per second;
b) 438,050 cubic metres per month; and
c) 1,488,296 cubic metres in each 12 month period, commencing 1 July of any year and ending 30 June of the following year.

5. The combined volume of water taken under this permit and RM19.312.01 and RM19.312.02 must not exceed 699,671 cubic metres per month and 3,050,488 cubic metres per year, commencing 1 July of any year and ending 30 June of the following year.

6. Prior to the first exercise of this consent, the Consent Holder must install fish screens across all off-race intakes to avoid fish ingress and uptake that complies with the following:
a) The maximum water velocity into the entry point of the intake structure is no greater than 0.12 metres per second;
b) The apertures on the intake screen are no greater than 3 millimetres side-of-square or no greater than 2 millimetres bar or slot width;
The fish screen must be fully functional at all times. If it is damaged and cannot be repaired or replaced immediately, the intake must be shut down.

7. The fish screens, as required by Condition 6, must be maintained in good working order, to ensure that the screen is performing as designed. Records must be kept of all inspections and maintenance and these should be made available to the Consent Authority, on request.

8. No water shall be taken from the Clutha River/ Mata-Au between 1 May and 31 August in any calendar year. At all other times the taking of water authorised by this consent must cease when:
a) the combined flow levels in the following rivers are below 250 cubic metres per second:
   - Clutha Mata-au at Cardrona (NIWA Hydrological Recording Site No. 75282) plus ten cubic metres per second, less the mean Hawea River flow as measured at the Camp Hill site (NIWA Hydrological Recording Site No.75287);
   - Kawarau River at Chards Road (NIWA Hydrological Recording Site No.

75262);
- Nevis River at Wentworth (Site No. 75265);
- Manuherikia River at Ophir (NIWA Hydrological Recording Site No. 75253);

and

b) the level of Lake Hawea is at or below 338.2 metres above datum (based on a 3 hour rolling average) as measured at Hawea Dam site (NIWA Hydrological Recording Site no. 75288).

9. Prior to the first exercise of this consent, the consent holder must install a backflow prevention device to ensure water and/or contaminants cannot return to the water source.

Performance Monitoring

10. a) Prior to the first exercise of this consent, the Consent Holder must install a:
i. Water meter that will measure the rate and the volume of water taken to within an accuracy of +/- 5% over the meter's nominal flow range at NZTM 2000 E1310827 N5027786. The water meter must be capable of output to a datalogger.
ii. A datalogger that time stamps a pulse from the flow meter at least once every 15 minutes and has the capacity to hold at least twelve months data of water taken.
iii. A telemetry unit which sends all of the data to the Consent Authority.
b) Provide telemetry data once daily to the Consent Authority. The Consent Holder must ensure data compatibility with the Consent Authority's time-series database and conform with Consent Authority's data standards.
c) Within 20 working days of the installation of the water meter / datalogger/ telemetry unit, any subsequent replacement of the water meter / datalogger/ telemetry unit and at annual intervals thereafter, and at any time when requested by the Council, the Consent Holder must provide written certification to the Consent Authority signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:
i. Each device is installed in accordance with the manufacturer's specifications;
ii. Data from the recording device can be readily accessed and/or retrieved in accordance with the conditions above; and
iii. That the water meter has been verified as accurate.
d) The water meter / datalogger / telemetry unit must be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.
e) All practicable measures must be taken to ensure that the water meter and recording device(s) are fully functional at all times.
f) The Consent Holder must ensure the water meter returns accurate readings at all times including by routinely checking the device and removing any ice or debris build up.
g) The Consent Holder must report any malfunction of the water meter / datalogger/ telemetry unit to the Consent Authority within 5 working days of observation of the malfunction. The malfunction must be repaired within 10 working days of observation of the malfunction and the Consent Holder must provide proof of the repair, including photographic evidence of any physical repairs, to the Consent Authority within 5 working days of the completion of repairs. Photographs must be in colour and be no smaller than 200 x 150 millimetres in size and be in JPEG form.

Note: the water meter, data logger and telemetry unit should be safely accessible by the Consent Authority and its contractors at all times. The Water Measuring Device Verification Form and Calibration Form are available on the Consent Authority's website.

11. A water use efficiency report must be provided to the Consent Authority by 31 July each year for the period commencing 1 July the previous year and ending 30 June the current year. The report must assess the water use over the previous 12 months in respect of the efficient use of water for the purposes consented. This report must include, but not be limited to:
    a) Area, crop type, number of harvests per year, and timing;
    b) Annual summary of water usage (month by month, and related to crops in the ground);
    c) Reasons why use may have varied from the previous year;
    d) Information demonstrating irrigation equipment that has been used and decision-making regarding efficiency of use (e.g. soil moisture data, irrigation scheduling, meter accuracy checks, computer control of irrigation) and any changes planned for the coming year;
    e) Any changes or modifications to irrigation (and water conveyance) infrastructure; and
    f) Water conservation steps taken.
12. When using water taken under this permit for frost fighting, the Consent Holder must keep a record of the following:
    a. The date and duration of each frost fighting event; and
    b. The total volume of water used during each frost fighting event.
    This record shall be provided to the Consent Authority in writing by 31 July each year and can be part of the water use efficiency report required by Condition 11.

General

13. The Consent Holder must ensure that at all times:
    a) There is no leakage from races, pipes and structures;
    b) The use of water is confined to targeted areas, as illustrated on the plan attached as Appendix 1 to the consent and referenced as: Irrigation Area for RM19.312.03; and
    c) That the volume of water used for irrigation does not exceed that required for the soil to reach field capacity and avoids the use of water onto non-productive land such as impermeable surfaces; and
    d) That irrigation to land must not occur when the moisture content of the soils is at or above field capacity.
    Note: Field Capacity is the amount of water that is able to be held in the soil after excess water has run off.

Review

14. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent within three months of each anniversary of the commencement of this consent or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this consent, or on receiving monitoring results, for the purpose of:
    a) Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which

becomes evident after the date of commencement of the consent;
b) Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
c) Reviewing the frequency of monitoring or reporting required under this consent;
d) Varying the rates and volumes of abstraction and monitoring, operating and reporting requirements to respond to:
i. the results of previous monitoring carried out under this consent;
ii. water availability, including alternative water sources;
iii. actual water use;
iv. efficiency of water use;
v. surface water allocation limits and minimum flows set out in any future regional plan, including any review of the Regional Plan: Water for Otago;
vi. surface water quality limits set out in any future regional plan, including any review of the Regional Plan: Water for Otago;
vii. new statutory requirements for measuring, recording or data transmission.

Notes to Consent Holder

1. *Water may be taken at any time for reasonable domestic or stock water purposes where and the taking or use does not, or is not likely to, have an adverse effect on the environment in accordance with Section 14 of the Resource Management Act 1991.*
2. *If you require a replacement water permit upon the expiry date of this water permit, any new application should be lodged at least 6 months prior to the expiry date of this water permit. Applying at least 6 months before the expiry date may enable you to continue to exercise this permit until a decision is made on the replacement application. Failure to apply at least 3 months in advance of the expiry date may result in any primary allocation status being lost. A late application may result in the application being treated as supplementary allocation if any such allocation is available.*
3. *Section 126 of the Resource Management Act 1991 provides that the Consent Authority may cancel this consent by written notice served on the Consent Holder if the consent has been exercised in the past but has not been exercised during the preceding five years.*
4. *The Consent Holder is responsible for obtaining all other necessary consents, permits, and licences, including those under the Building Act 2004, the Biosecurity Act 1993, the Conservation Act 1987, and the Heritage New Zealand Pouhere Taonga Act 2014. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007 and the Health and Safety at Work Act 2015), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004.*
5. *Where information is required to be provided to the Consent Authority in Conditions 7, 10, 11, 12 this is be provided in writing to watermetering@orc.govt.nz, and the email heading is to reference RM19.312.03 and the condition/s the information relates to.*
6. *The Consent Holder will be required to pay the Consent Authority an annual administration and monitoring charge to recover the actual and reasonable costs incurred to ensure ongoing compliance with the conditions attached to this*

consent, collected in accordance with Section 36 of the Resource Management Act 1991.

7. *The consent holder must be aware of any rules that relate to the control of farm contaminants in runoff and leaching of nutrients to groundwater in relevant Otago regional plans. For current obligations under the regional plans, refer to the Otago Regional Council website or contact the Council on 0800 474 082.*
8. *It is the responsibility of the consent holder to ensure that the water abstracted under this resource consent is of suitable quality for its intended use. The Consent Holder is advised that water supplied for human consumption may also need to meet the requirements of the Health Act 1956, the Drinking Water Standards for New Zealand 2005 (Revised 2018), and any other Ministry of Health requirements. Where water is to be used for human consumption, the consent holder should have the water tested prior to use and should discuss the water testing and treatment requirements with a representative of the Ministry of Health.*

Issued at Dunedin this day of

Appendix 1: Irrigation area for RM19.312.03

It is requested that the Applicant provide a map illustrating the existing 393 ha irrigation area to be serviced by this permit.

Appendix 4

Email from D Druce confirming Contact Energy no longer wish to be heard

From: Daniel Druce
To: Ethan Glover
Cc: Will Nicolson; rsommerville@xtra.co.nz
Subject: RE: Contact Energy submission RM19.312
Date: Monday, 15 June 2020 9:56:44 a.m.
Attachments: image002.png
image003.jpg
image004.png

Good morning Ethan,
I have been through the below emails and confirm that Contact Energy no longer wishes to be heard at any hearing (should one be necessary) provided that proposed Condition 2 (refer Contact's original submission) is appended to Queensbury Ridges replacement consent(s) to take water from the Clutha River Mata-au.
Regards to all,

Daniel Druce
Environmental Advisor
Generation and Development
Ph: 03 440 0319 Ext: 3319 Mob: 021 711 311

PO Box 25, Clyde 9341
46 Fruitgrowers Road
Earnscleugh
Clyde 9391, New Zealand
contact.co.nz

From: Ethan Glover [mailto:Ethan.Glover@orc.govt.nz]
Sent: Thursday, 11 June 2020 1:17 p.m.
To: 'Will Nicolson' <will@landpro.co.nz>
Cc: Daniel Druce <Daniel.Druce@contactenergy.co.nz>; 'Richard Somerville' <rsomerville@xtra.co.nz>
Subject: RE: Contact Energy submission RM19.312
Hi Will,
Thanks for this. On the basis of the proffered condition we can accept the written approval. As per the submission, I will make note that Contact Energy Limited no longer wish to be heard.
Kind regards,
Ethan

From: Will Nicolson [mailto:will@landpro.co.nz]
Sent: Thursday, 11 June 2020 10:29 a.m.
To: Ethan Glover <Ethan.Glover@orc.govt.nz>
Cc: Daniel Druce <Daniel.Druce@contactenergy.co.nz>; Richard Somerville <rsomerville@xtra.co.nz>
Subject: Contact Energy submission RM19.312
Good morning Ethan,
Daniel and I have discussed the items raised in Contact's submission and have come to an agreement. Contact approved the application provided 2 conditions are appended to the replacement consent(s) for the Clutha River take (RM19.312.03):

1. *The applicant accurately verifies the actual locations of the take of water from the Clutha Mata-au and advises the Otago Regional Council of their geographic position; and*
2. *No water shall be taken from the Clutha Mata-au between 1 May and 31 August in any calendar year.*

At all other times the taking of water authorised by this consent shall cease when:
i) the combined flow levels in the following rivers are below 250 cubic metres per second:

- *Clutha Mata-au at Cardrona (NIWA Hydrological Recording Site No. 75282) plus ten cubic metres per second, less the mean Hawea River flow as measured at the Camp Hill site (NIWA Hydrological Recording Site No.75287); and*
- *Kawarau River at Chards Road (NIWA Hydrological Recording Site No. 75262);*
- *Nevis River at Wentworth (Site No. 75265);*
- *Manuherikia River at Ophir (NIWA Hydrological Recording Site No. 75253);*

AND
ii) the level of Lake Hawea is at or below 338.2 metres above datum (based on a 3 hour rolling average) as measured at Hawea Dam site (NIWA Hydrological Recording Site no. 75288).

1. I have since conducted a site visit and confirmed that the Clutha take location specified in the application is correct. For clarity, the map reference proposed in the application for abstraction of Clutha water was NZTM2000 1310827E 5027786N. The map reference recorded during my site visit yesterday was NZTM2000 1310823E 5027783N (within a few meters of that proposed in the application). As such, there is no need to change the specified take location from the Clutha River, and the specified accommodating land parcel would remain the same.
2. The applicant agrees with proposed Condition 2 in its entirety, and is happy for this to be appended to the replacement consent(s) for Clutha water.

Regards,
Will

Will Nicolson
Scientist/Resource Management Planner

Landpro

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13 Pinot Noir Drive
Cromwell 9342 New Zealand

New Plymouth | Cromwell | Gore

landpro.co.nz

Appendix 5

Groundwater technical review

Pattle Delamore Partners Limited

TECHNICAL MEMORANDUM

INVESTIGATION	Resource Consent Application Review for Queensbury Ridges Limited	**PROJECT**	Otago Regional Council Consent Reviews
CLIENT	**Otago Regional Council**	**PROJECT NO**	C032635104
CLIENT CONTACT	Natasha Pritchard/Ethan Glover (Mitchell Daysh)	**PREPARED BY**	Cameron Jasper
CLIENT WORK ORDER NO/ PURCHASE ORDER	PO010220	**SIGNATURE**	
		DATE	6 November 2019

1. Introduction

Pattle Delamore Partners Ltd (PDP) has been engaged by Otago Regional Council (ORC) to review potential impacts to groundwater related to a resource consent application from Queensbury Ridges Limited (the Applicant) to replace 7 existing permits to take surface water from the Albert Burn (permits 2002.348.V1, 2002.349.V1, 2002.351.V1 and 2002.352.V1 totalling 237.5 L/s), Schoolhouse Creek (permit 2002.354.V1 totalling 55.6 L/s), and the Clutha River (permits 2002.353 V1 and 2003.591 V2 totalling 273.3 L/s) for stock, irrigation and frost fighting.

A combination of surface water modelling, flow gaugings and observations provided by the Applicant demonstrates that the Albert Burn and Schoolhouse Creek lose significantly to groundwater as they flow out of the hard rock (schist) Pisa Range over gravelly Holocene river deposits towards the Clutha River. The information suggests that, with or without the surface water takes outlined above, Albert Burn and Schoolhouse Creek regularly naturally become dry before reaching the Clutha River.

The Applicant has stated that there are no designated aquifers within the study area. However, ORC have proposed the Queensbury Groundwater Management Zone for this area, the boundary of which is based on the geologic boundary at the edge of the terrace and the Clutha River. This proposed management zone is currently listed as over allocated, which is based on current allocation exceeding the default limit of 50% of rainfall recharge within the management zone. Albert Burn and Schoolhouse Creek flows in the vicinity of the current takes represent a combination of hard rock aquifer and precipitation contributions outside of the management zone. It is expected that the existing takes reduce natural groundwater recharge to the proposed Queensbury Groundwater Management Zone and could therefore potentially impact groundwater levels at supply wells and surface water bodies, the overall groundwater resource and reduce the potential for contaminant dilution. A consideration of these potential effects is outlined below.

2.1 Effects on the overall groundwater resource

It is understood that surface water inflows from Albert Burn and Schoolhouse Creek are not included in ORC's calculation of allocation status for the proposed Queensbury Groundwater Management Zone. Although a significant portion of flows from these waterways naturally become part of the shallow groundwater system within the proposed management zone, this quantity is currently not accounted for, so from an allocation perspective, the Applicant's proposal could be viewed as not affecting allocation from the overall groundwater resource. However, ORC may wish to consider accounting for the takes in the groundwater allocation block, in addition to surface water, to recognise the potential reduction in recharge. Specific effects on current groundwater resource users are considered in Section 2.3 of this memo.

2.2 Effects on surface water bodies

The specific direct effects on surface water from the abstractions are being considered by others reviewing this application. From a groundwater perspective, reduced recharge to an aquifer can affect any connected wetlands or spring fed-streams via a reduction in groundwater levels. There are no wetlands identified by ORC as regionally significant wetlands in this area. Inspection of aerial imagery does not indicate any obvious wetlands or spring-fed streams bordering the courses of the Albert Burn and Schoolhouse Creek in the potentially affected area between the Pisa Range and the Clutha River, or on the true right bank of the Clutha River. On this basis, adverse effects on connected surface water bodies as a result of reduced groundwater recharge are not expected to occur as a result of the activity.

2.3 Effect on nearby bores

The Applicant has identified that there are neighbouring bores at a large distance (>2 km) or on the opposite site of the Clutha from the proposed takes. There are a number of bores nearer the Albert Burn and Schoolhouse Creek takes and the Clutha River which appear to be owned by the Applicant.

Given the distance to neighbouring bores, adverse effects on neighbouring bores due to lowered groundwater levels or reduced capacity for contaminant dilution (for exampling nitrate-nitrogen) are not expected to occur as a result of the activity.

3.0 Conclusion

In conclusion our assessment of the proposed take indicates the following.

- The taking of surface water is expected to reduce groundwater recharge.
- It is considered that sufficient information has been provided for effects on groundwater.
- Based on the absence of potentially affected bores and connected surface water bodies, no residual flow specific to groundwater effects is considered necessary.
- No specific groundwater conditions are considered necessary.
- While the recharge from Schoolhouse Creek and the Albert Burn have not been provided for in ORC's allocation calculations for the proposed Queensbury Groundwater Management Zone, ORC may wish to consider accounting for the takes in the groundwater allocation for this area.

Appendix 6

Water use analysis

Otago Regional Council

Document Id: **A1326152**

MEMORANDUM

To: **Ethan Glover**
From: **Sean Leslie**
Date: **21/02/2020 (Updated 05/08/2020)**
Re: **Water Use Analysis**

This memorandum is in relation to the surface water take usage for application RM19.312 to replace the following permits:

- 2002.348 (Deemed Permit) 83.3 l/s ±5% WM0235, WM0236
- 2002.349 (Deemed Permit) 14.2 l/s ±5% WM0235, WM0236
- 2002.351 (Deemed Permit) 83.3 l/s ±5% WM0235, WM0236
- 2002.352 (Deemed Permit) 55.6 l/s ±5% WM0235, WM0236
- 2002.353 (Deemed Permit) 83.3 l/s ±5% WM0237
- 2002.354 (Deemed Permit) 55.6 l/s ±10% WM1390
- 2003.591 (RMA Permit) 190 l/s ±5% WM0237

All analyses, graphs, and calculations were performed using RStudio v1.2.1355 utilizing R v 3.6.1.

Before the data were analysed, the following steps were taken for all sets of data.

- WM1390 had insufficient usable data and was not considered further.
- 2002.348, 2002.349, 2002.351, and 2001.352 represent a many to many relationship with WM0235 and WM0236. As disentangling the data by consent is not possible, both WM0235 and WM0236 will be assessed against the combined rate of all four consents although this represents an unrealistic situation.
- Rates less than, or equal to 0 l/s were set to NA
- Rates in excess of the maximum combined consented rate plus the margin of error were set to NA.
- Rates between the maximum consented rate and the maximum consented rate plus the margin of error were rounded down to the maximum consented rate.
- The resultant data sets had:
    - 58,101 observations for WM0235 with a mean of 22 l/s, a median of 12.8 l/s and a modal value of 0.76 l/s
    - 58,101 observations for WM0236 with a mean of 18.9 l/s, a median of 19.4 l/s and a modal value of 26.7 l/s
    - 61,475 observations for WM0237 with a mean of 43.2 l/s, a median of 19.5 l/s, and a modal value of <0.1 l/s
- To emulate the statistics for a high use season, the median for each month was calculated using the filtered data, and those months with a median lower than the population median were excluded.
- The resultant high use data sets had:

- 28,817 observations for WM0235 with a mean of 28.3 l/s, a median of 23.3 l/s, and a modal value of 0.76 l/s.
- 19,608 observations for WM0236 with a mean of 20.26 l/s, a median of 21.1 l/s, and a modal value of 26.7 l/s.
- 25,523 observations for WM0237 with a mean of 57.2 l/s, a median of 52 l/s and a modal value of <0.1 l/s.

A time series for each raw data set is presented below:

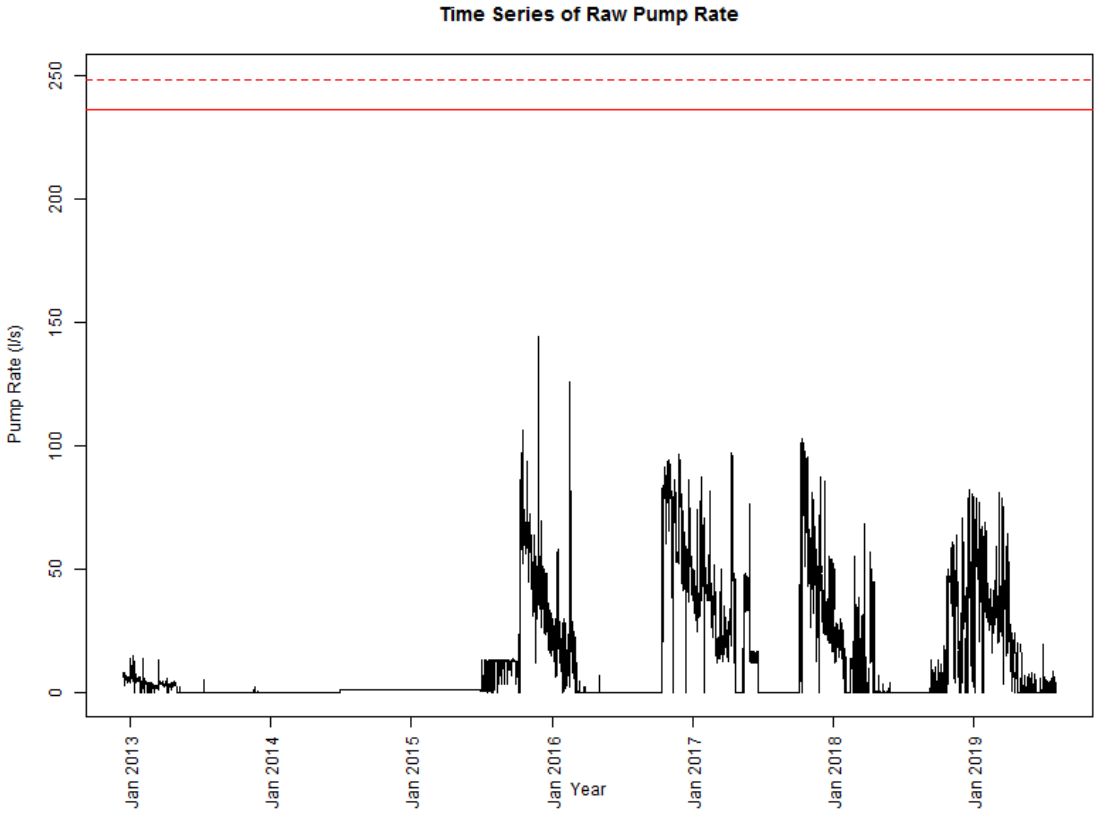


Figure 1 Raw Pump Rate for WM0235

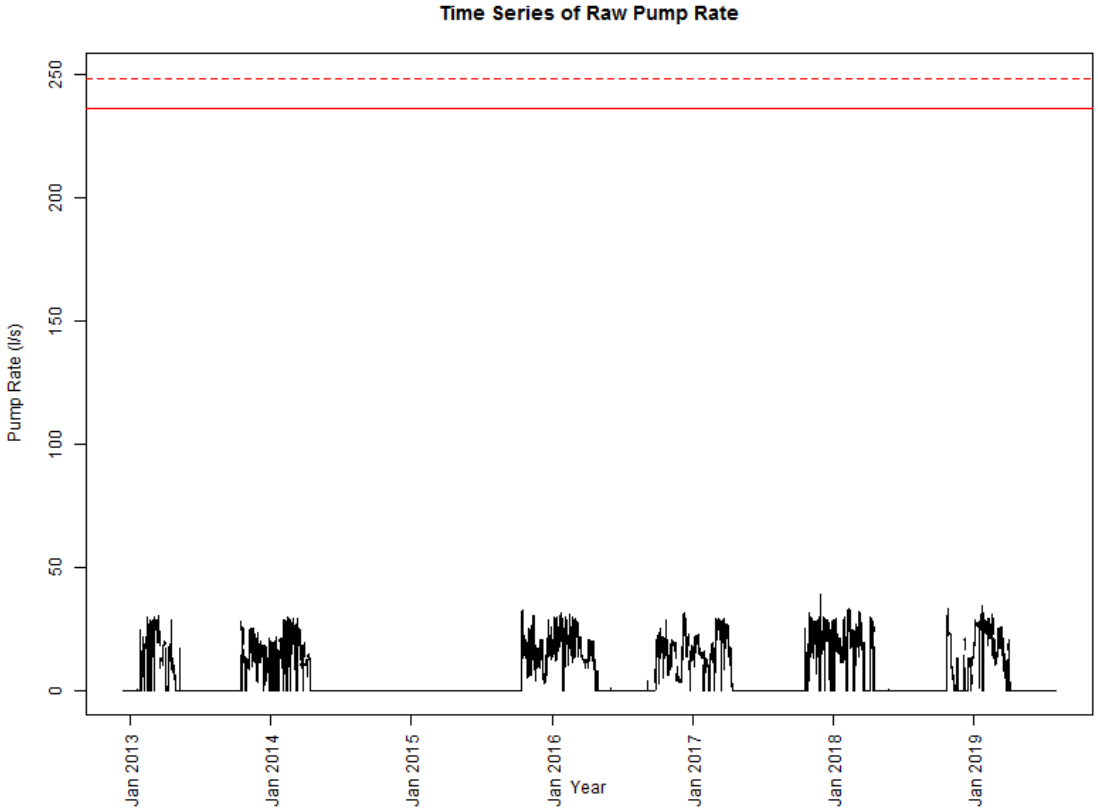


Figure 2 Raw pump rate for WM0236

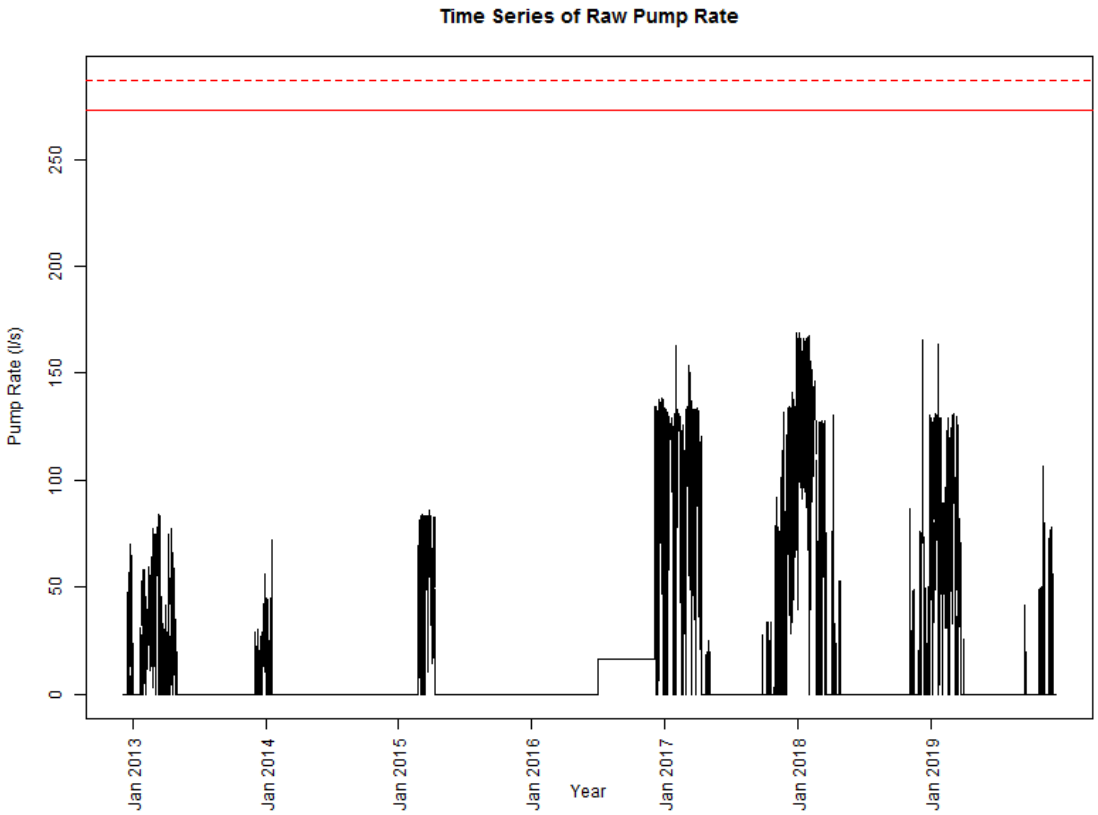


Figure 3 Raw Pump Rate for WM0237

In all cases the consented limit is shown with the solid red line, and the upper limit (+5% or 10%) is shown with the broken red line.

When viewed as a histogram, the filtered usage data for WM0235 has an approximately logarithmic distribution with no taking at rates above the 100 l/s – 110 l/s bin, a primary mode at rates in the range of 0 l/s – 10 l/s, and an additional secondary mode at rates in the range of 40 l/s – 50 l/s.

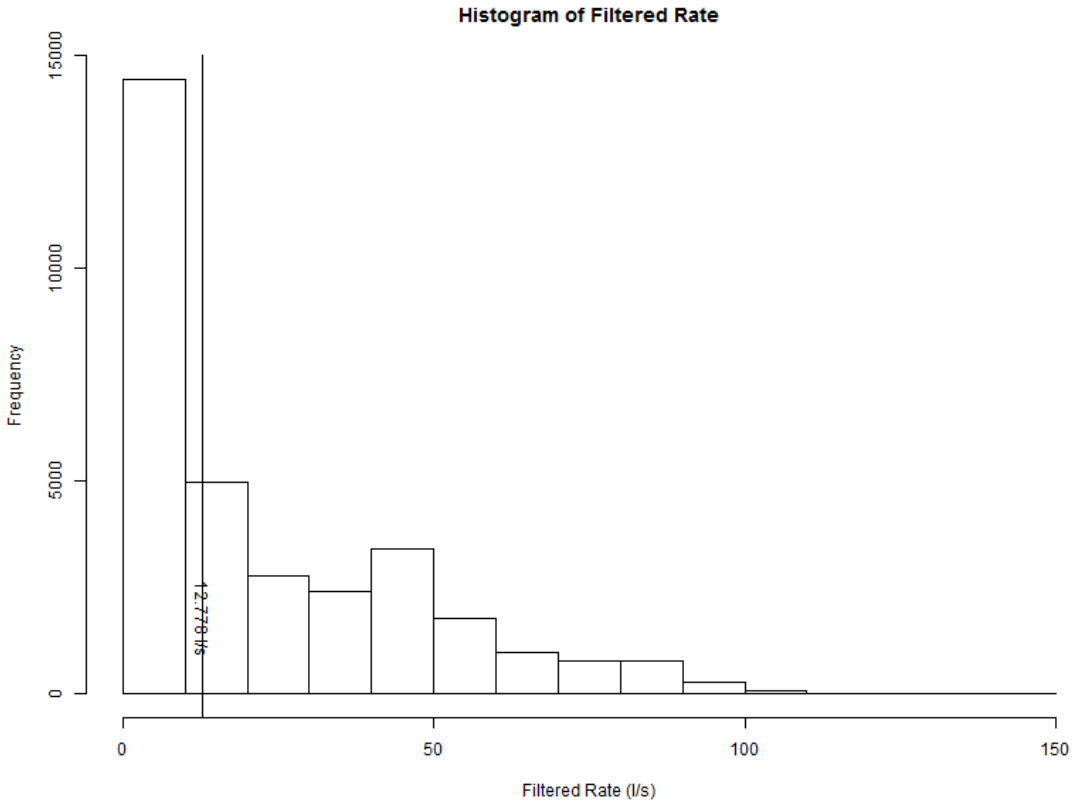


Figure 4 Filtered Histogram for WM0235

When viewed as a histogram, the filtered usage data for WM0236 appears to be complicated and multi-modal. The distribution is centred on 20 l/s, with no taking in excess of the 32 l/s to 34 l/s bin. There are also significant shoulders in the 10 l/s to 12 l/s bin and the 26 l/s to 28 l/s bin.

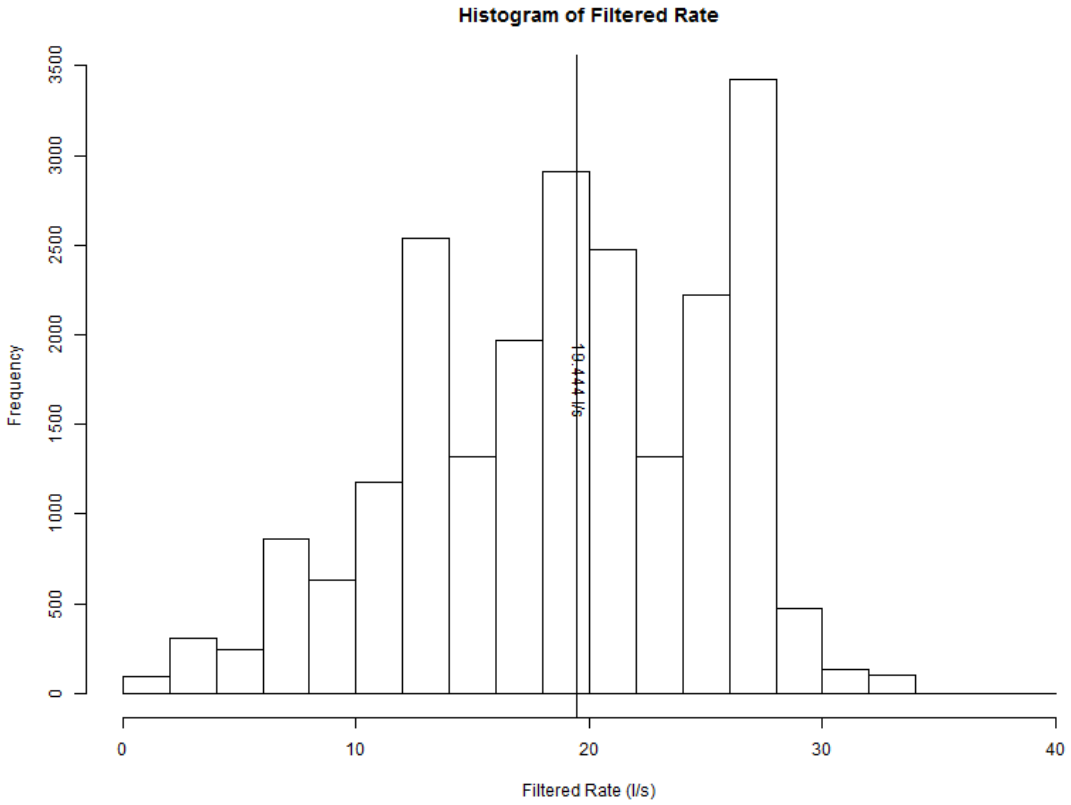


Figure 5 Filtered Histogram for WM0236

When viewed as a histogram the filtered usage for WM0237 appears to be a logarithmic distribution overlaying an approximately random distribution. Taking at rates between 20 l/s and approximately 140 l/s appears to be essentially random suggesting it may be limited by water availability or subject to poor quality data. The majority of the taking appears to be occurring at rates of less than 20 l/s.

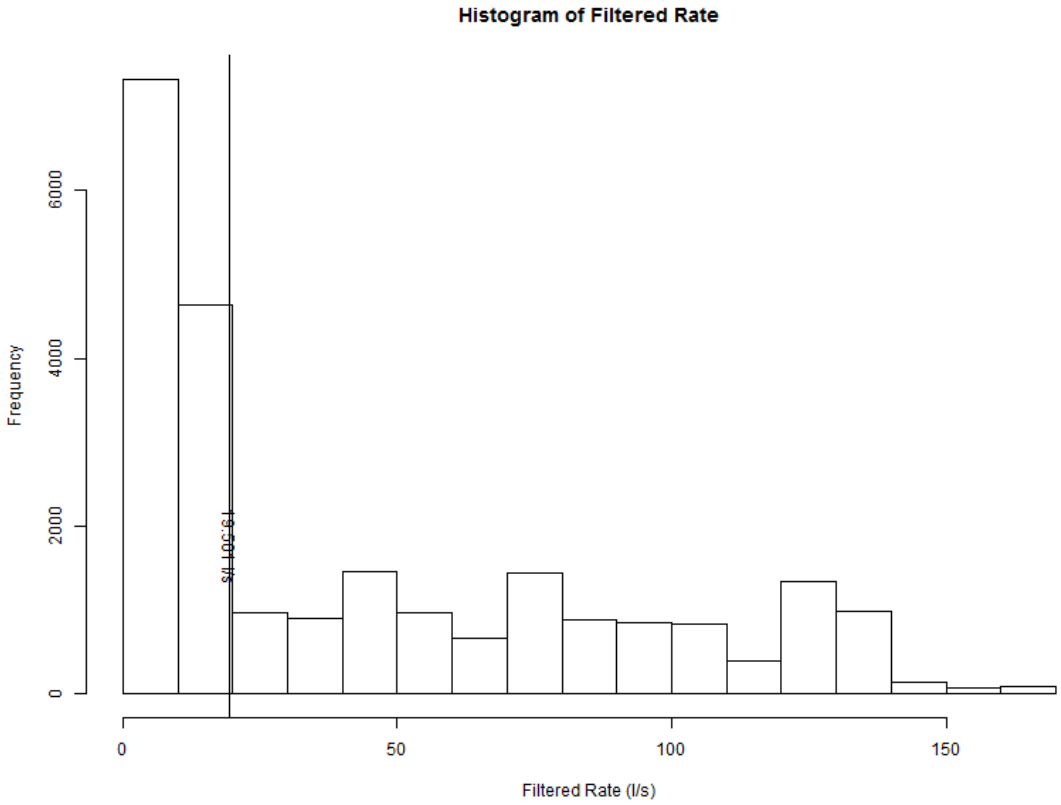


Figure 6 Filtered Histogram for WM0237

Scatter plots for WM0235, WM0236, and WM0237 emphasize the seasonal variations in the taking of water which are broadly consistent with taking water for irrigation. The scatter plot for WM0235 appears to suggest that there is a base flow through winter of <10 l/s, which is consistent with observations made elsewhere. The scatter plots for WM0236 and WM0237 appear to indicate that there is no water taken over winter. This may reflect the reality, or it may be a reflection of the meters being winterized.

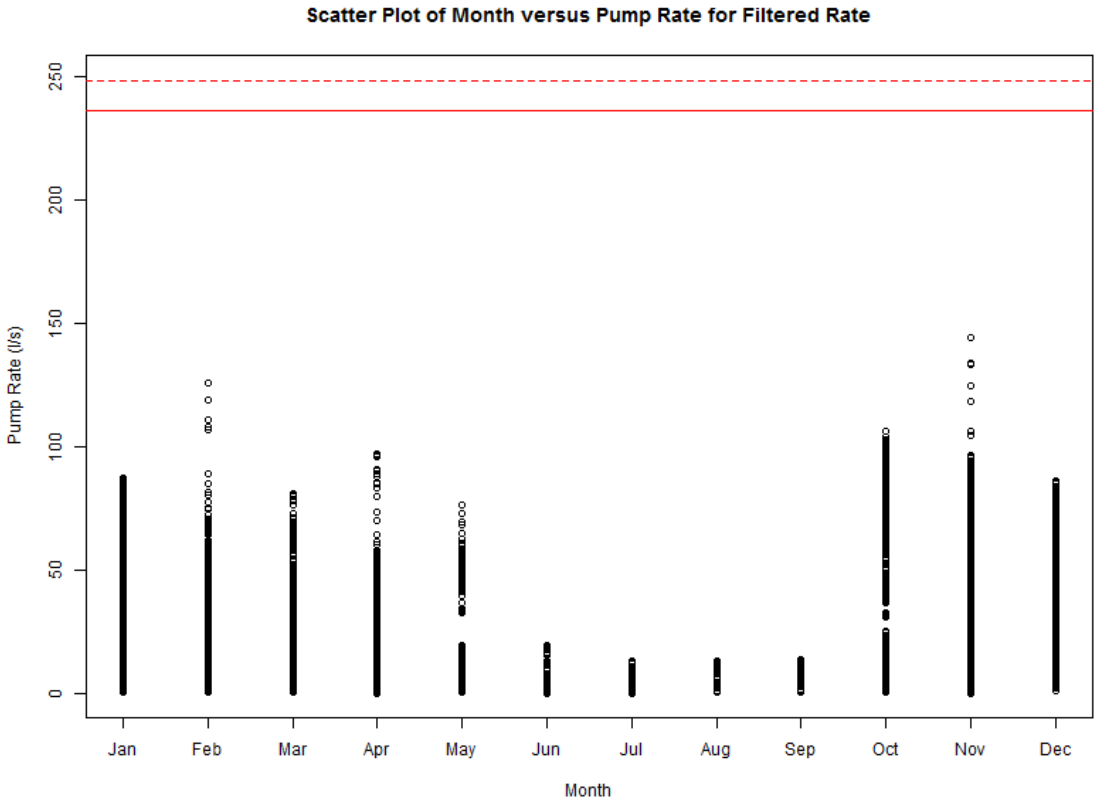


Figure 7 Filtered Data Scatter Plot for WM0235

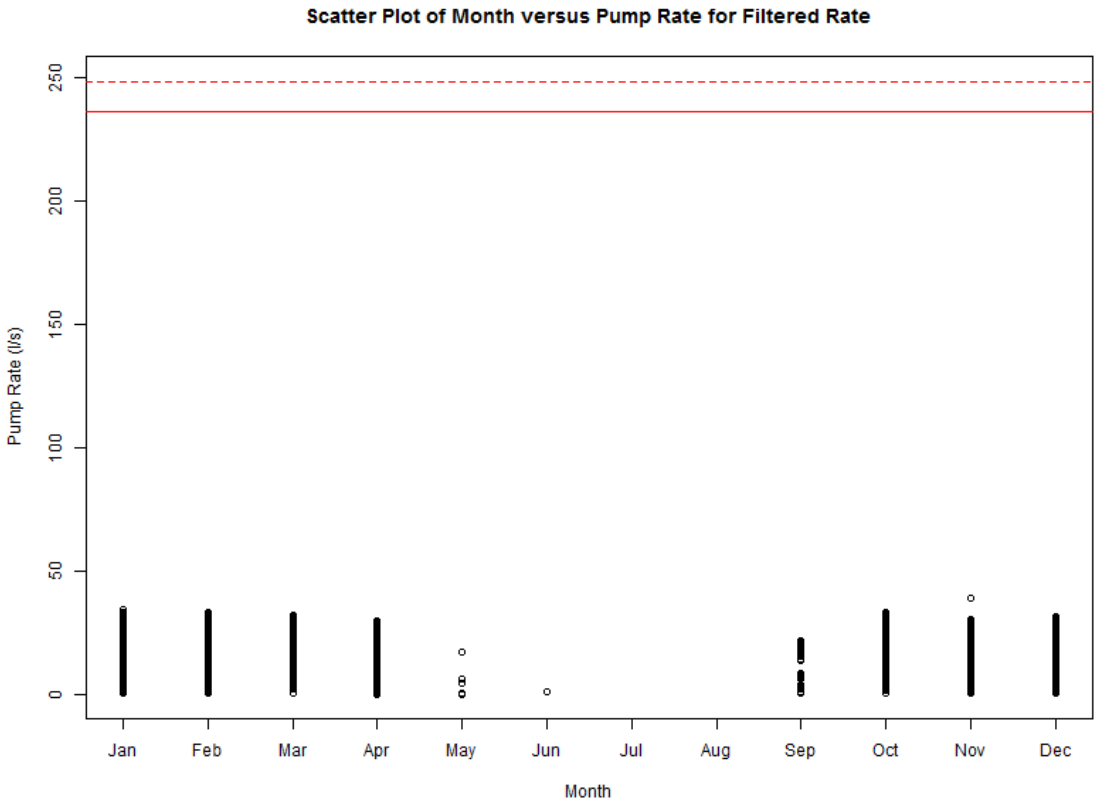


Figure 8 Filtered Data Scatter Plot for WM0236

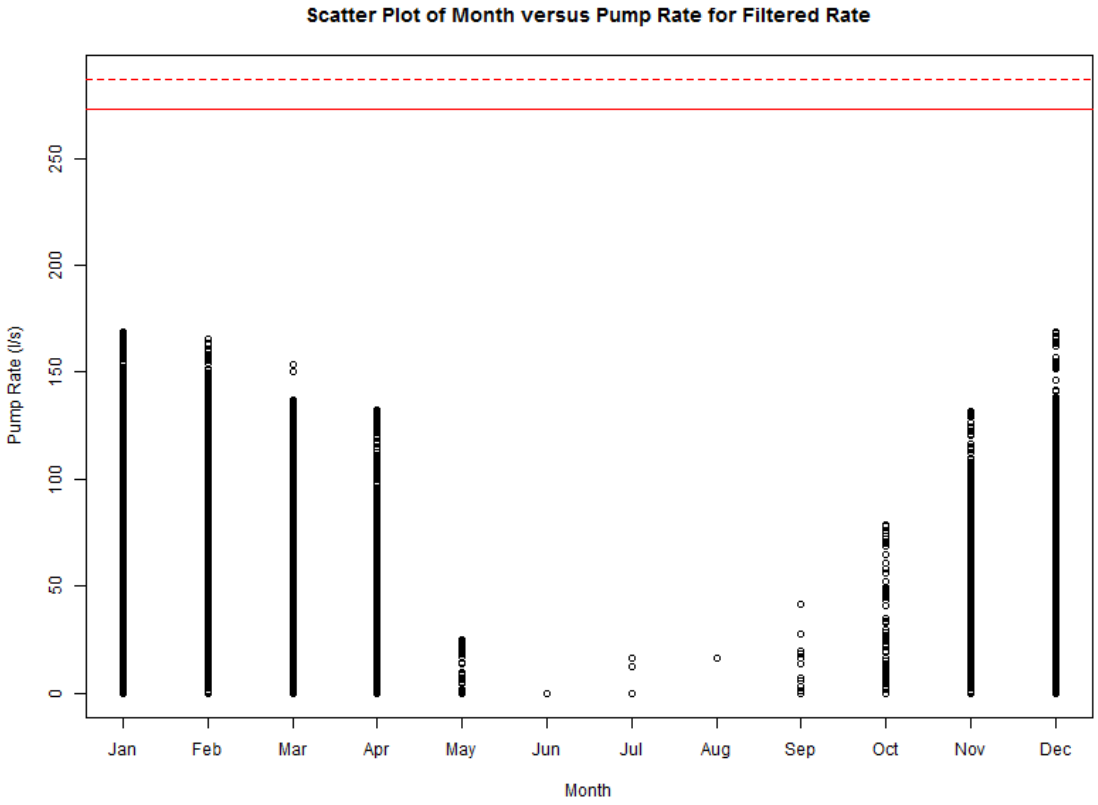


Figure 9 Filtered Data Scatter Plot for WM0237

Density plots for all three water meters do not provide any additional useful information.

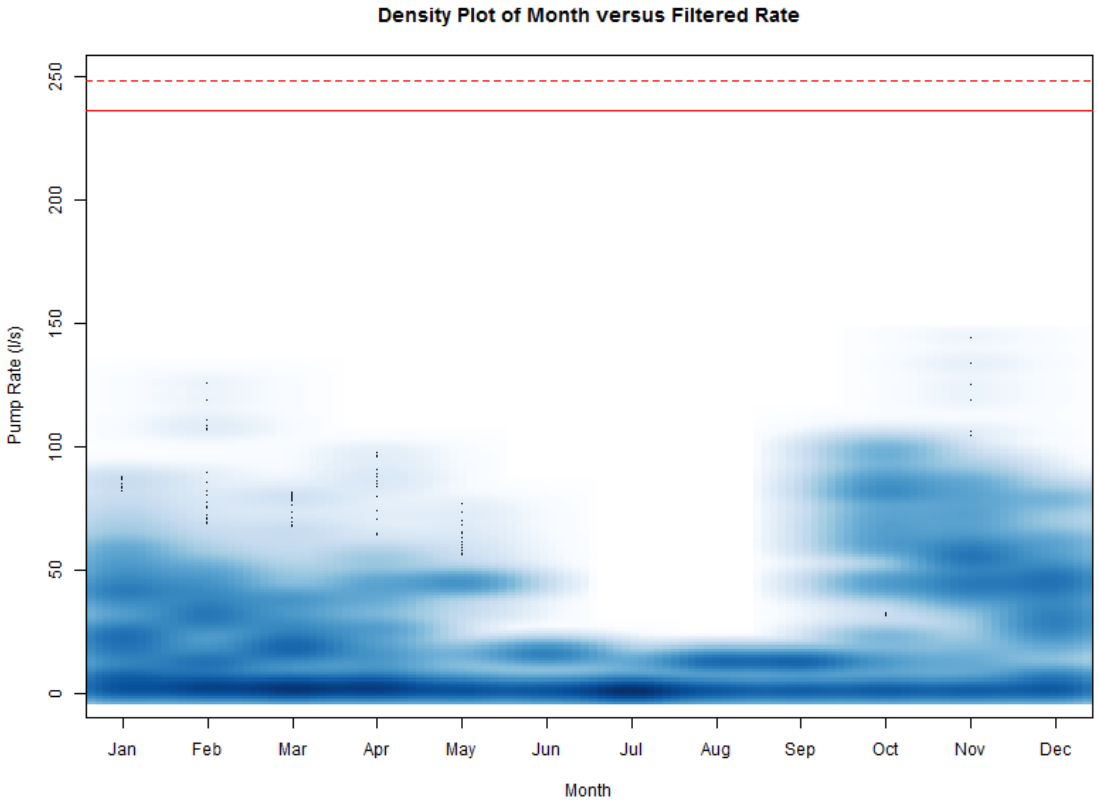


Figure 10 Filtered Data Density Plot for WM0236

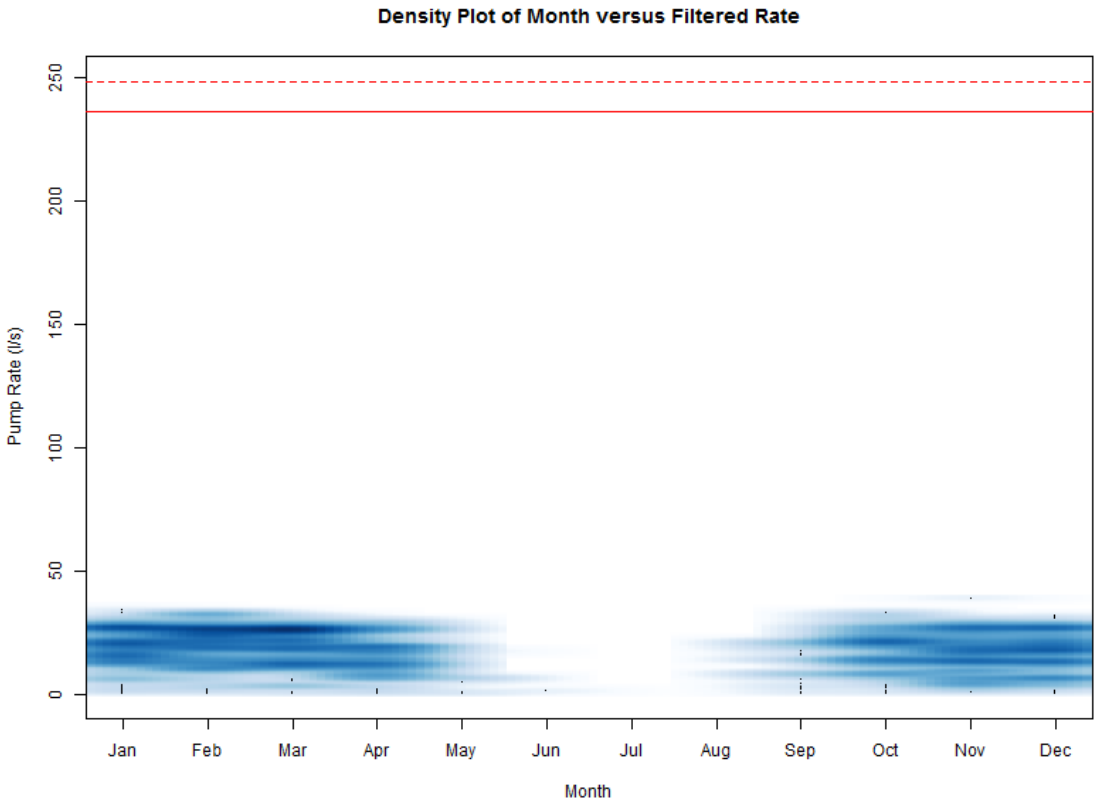


Figure 11 Filtered Data Density Plot for WM0236

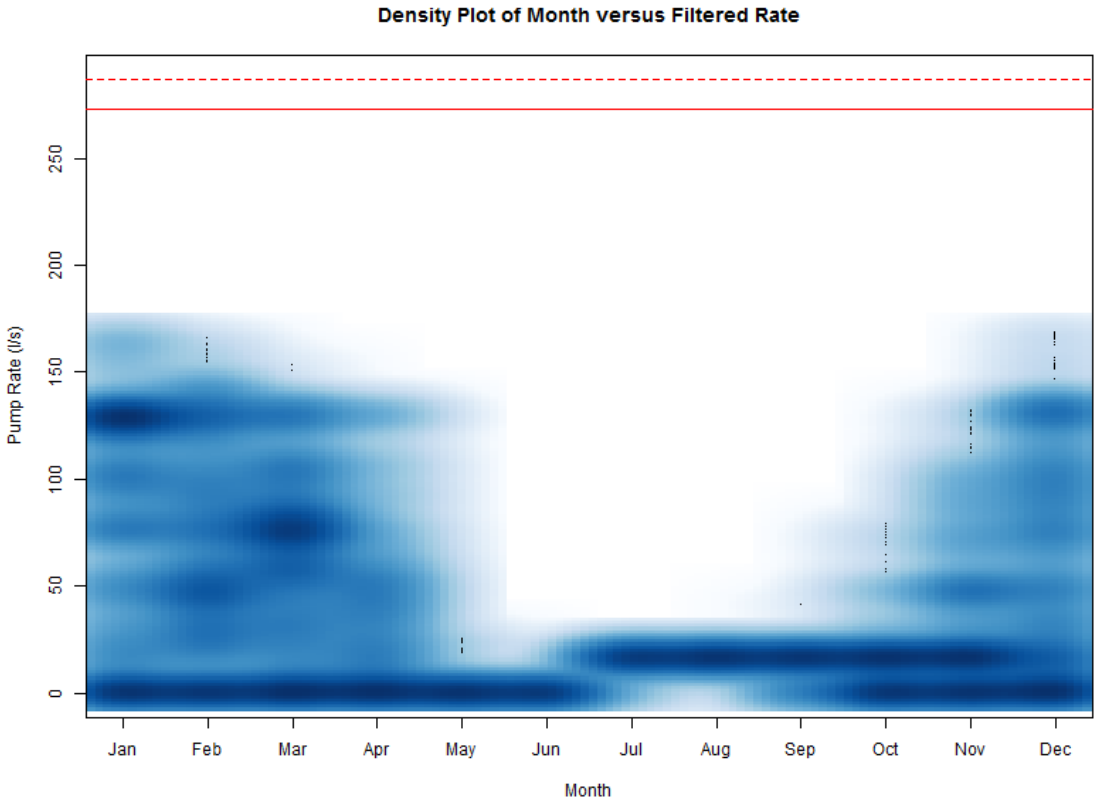


Figure 12 Filtered Data Density Plot for WM0237

The box plots for the filtered data, likewise, reinforce these conclusions.

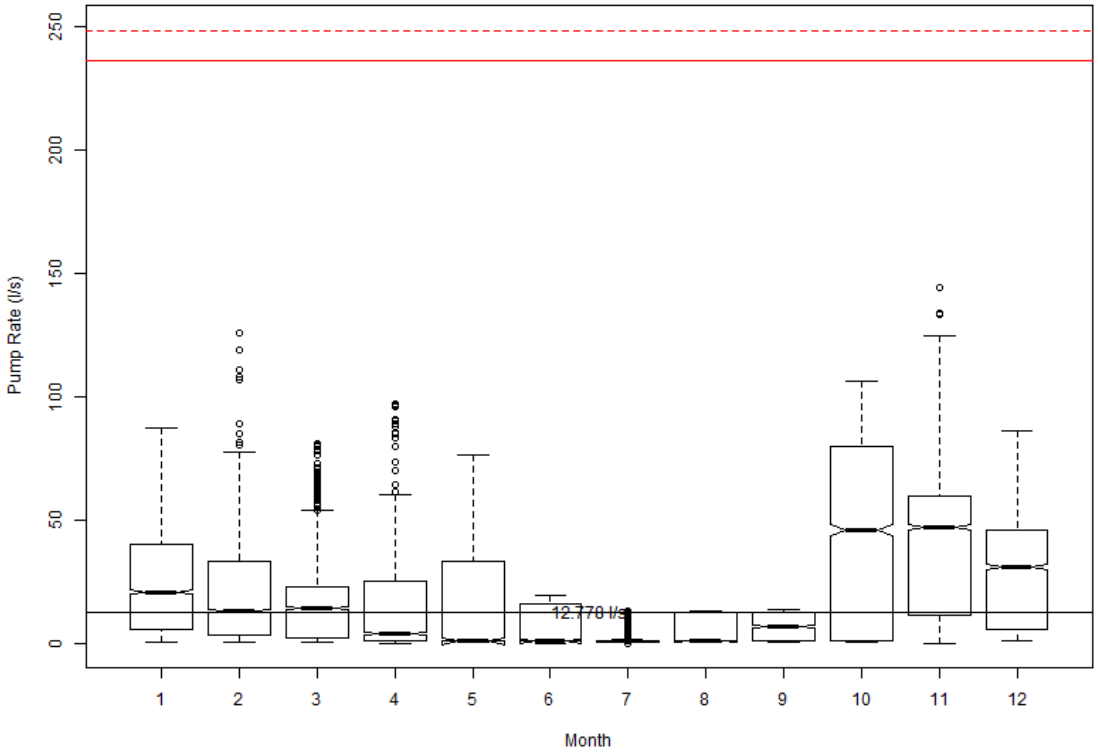


Figure 13 Filtered Data Boxplot for WM0235

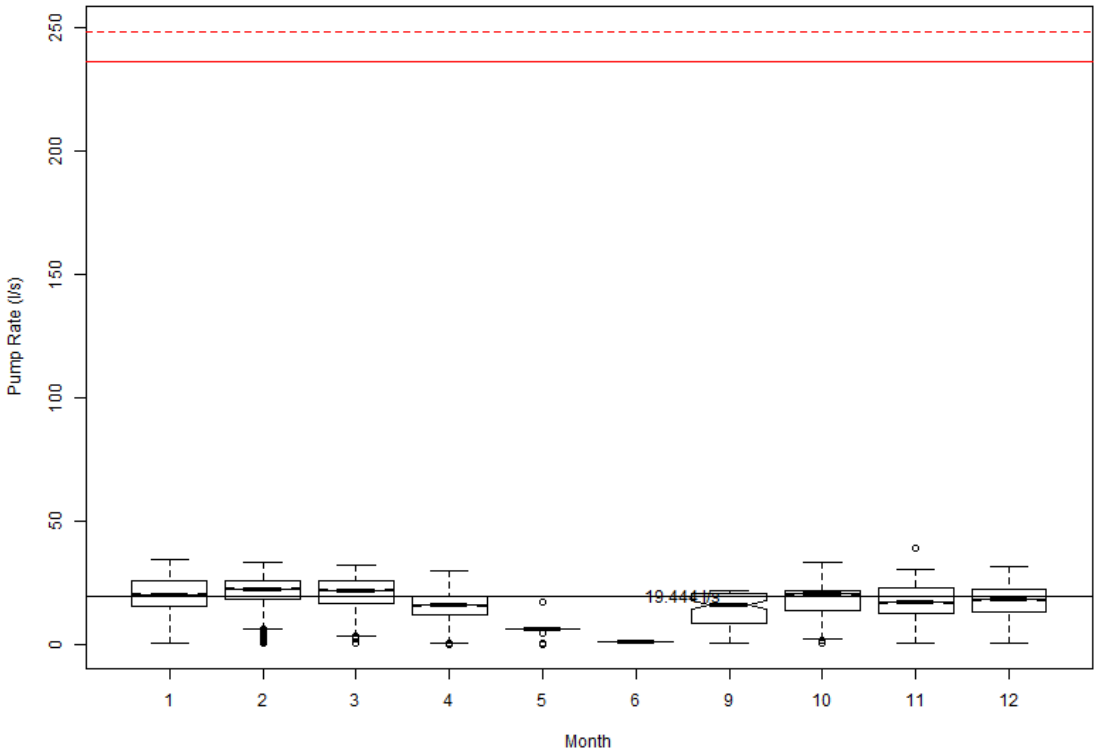


Figure 14 Filtered Data Boxplot for WM0236

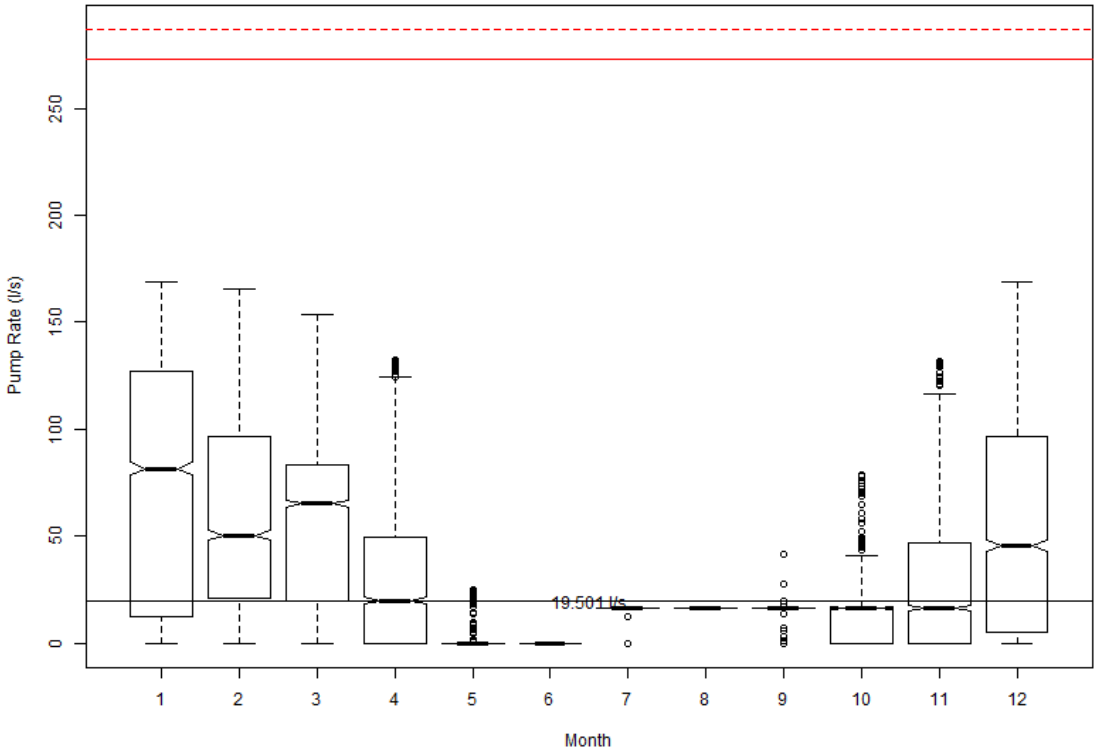


Figure 15 Filtered Data Boxplot for WM0237

The histograms for the high use rate data are indistinguishable from those of the filtered data.

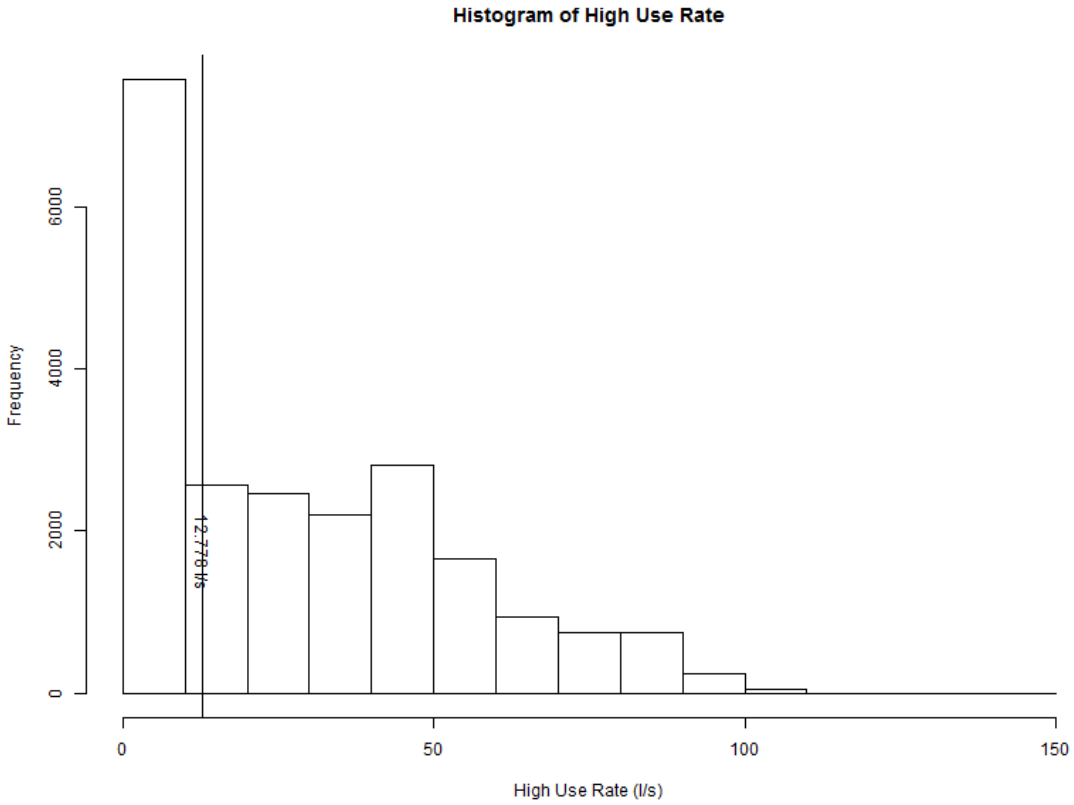


Figure 16 High Use Rate Histogram for WM0235

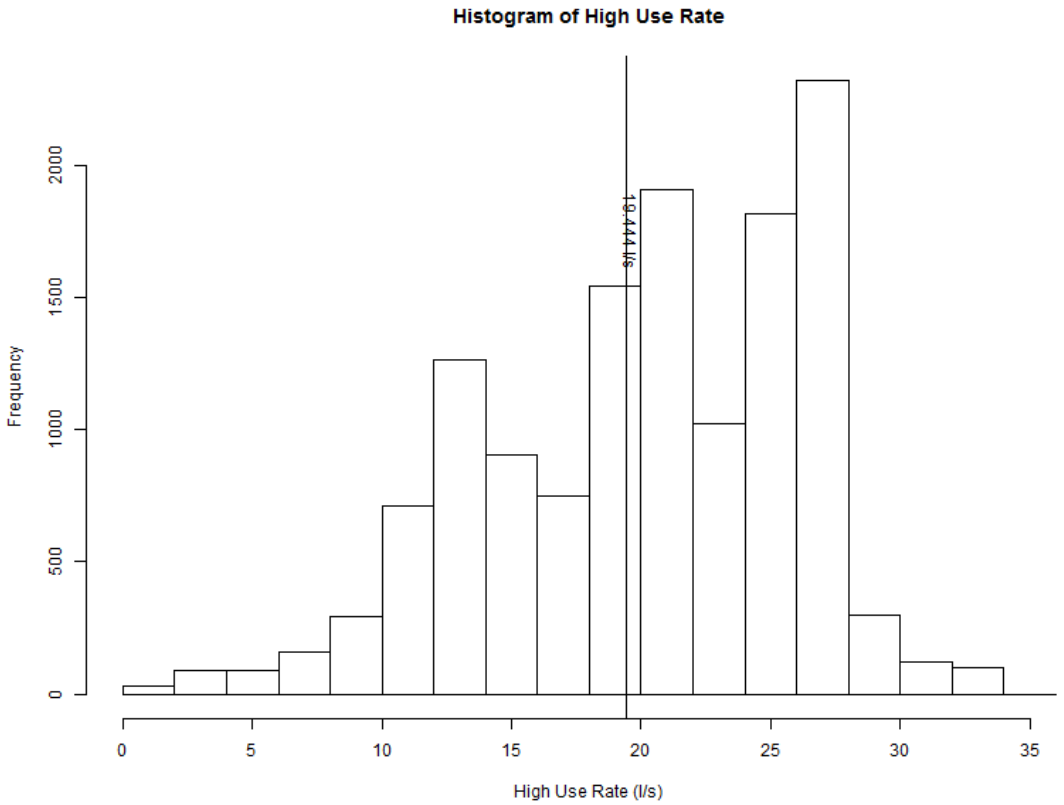


Figure 17 High Use Rate Histogram for WM0236

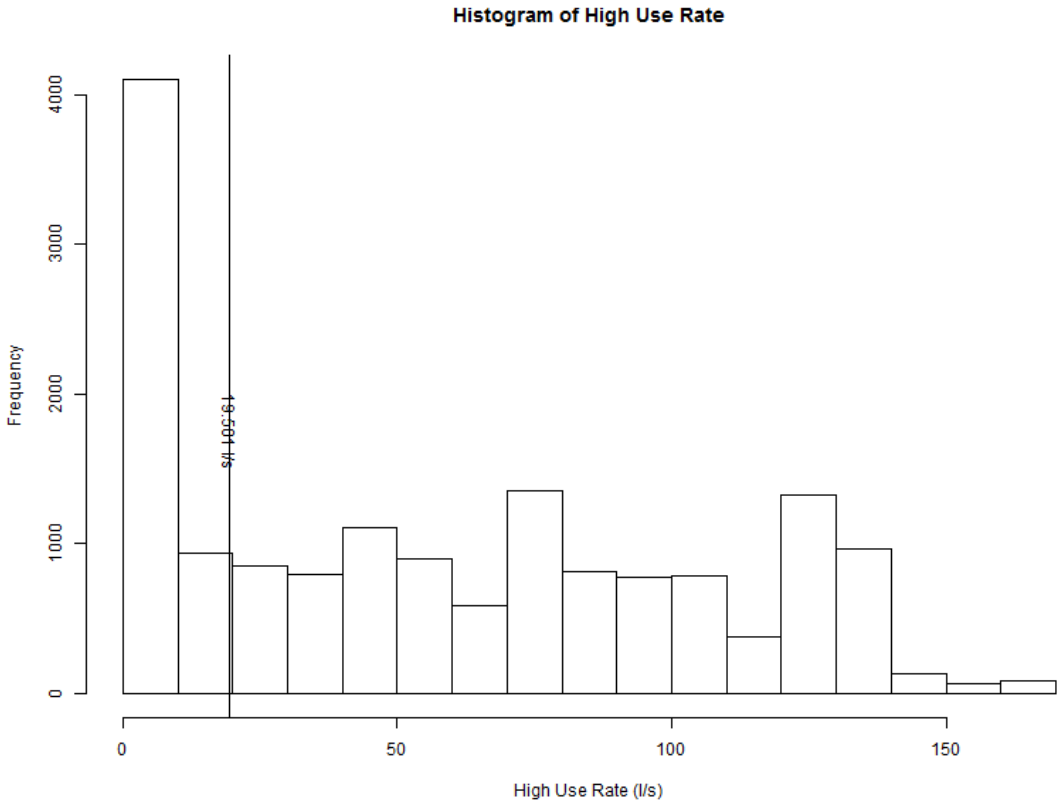


Figure 18 High Use Rate Histogram for WM0237

Percentiles are not a percentage of the maximum rate, but rather the rate that is exceeded x% of the time. Percentiles are calculated by ranking the data from lowest to highest and taking the weighted average of the nth highest and the n+1th highest values. The 80th percentile is the pump rate that is exceeded 20% of the time. The 90th percentile is the pumping rate that is exceeded 10% of the time. The 95th Percentile is exceeded 5% of the time. What this means in terms of the analysis is that if the applicant is pumping at the maximum consented rate more than 5% of the time, the 95th percentile will equal the maximum consented rate. If they are pumping at the maximum consented rate more than 10% of the time, the 90th percentile will equal the maximum consented rate. If they are pumping at the maximum consented rate more than 20% of the time, then the 80th percentile will equal the maximum consented rate. In practical terms if the applicant is pumping 24 hours/day and 2160 hours for a 90 day season then:

- The 80th percentile is the rate that is exceeded for 5 hours per day, or 432 hours per season.
- The 90th percentile is the rate that is exceeded for 2.5 hours per day, or 216 hours per season.
- The 95th percentile is the rate that is exceeded for 1.5 hours per day, or 108 hours per season.

What this means is that if a consent holder is consistently using their maximum consented rate for more than 5%, 10%, or 20% of the time they are pumping, it will show up in the table of percentiles.

The 80th, 90th, and 95th percentiles for the flow rate were calculated, without modelling the distribution, for the raw data set, the filtered data set, and the high rate data set. The results are presented to three significant figures below as Table 1 through Table 3.

WM0235	80th Percentile	90th Percentile	95th Percentile
Raw rate	25	45.3	59.2
Filtered rate	43.9	57.5	72.5
High use rate	50	64.7	79.7

WM0236	80th Percentile	90th Percentile	95th Percentile
Raw rate	18.9	24.7	26.7
Filtered rate	25.8	26.8	27.2
High use rate	26.1	26.9	27.5

WM0237	80th Percentile	90th Percentile	95th Percentile
Raw rate	16.5	75.3	108
Filtered rate	88.1	124	130
High use rate	106	129	132

A time series for each water meter, with the percentiles included for reference is shown below:

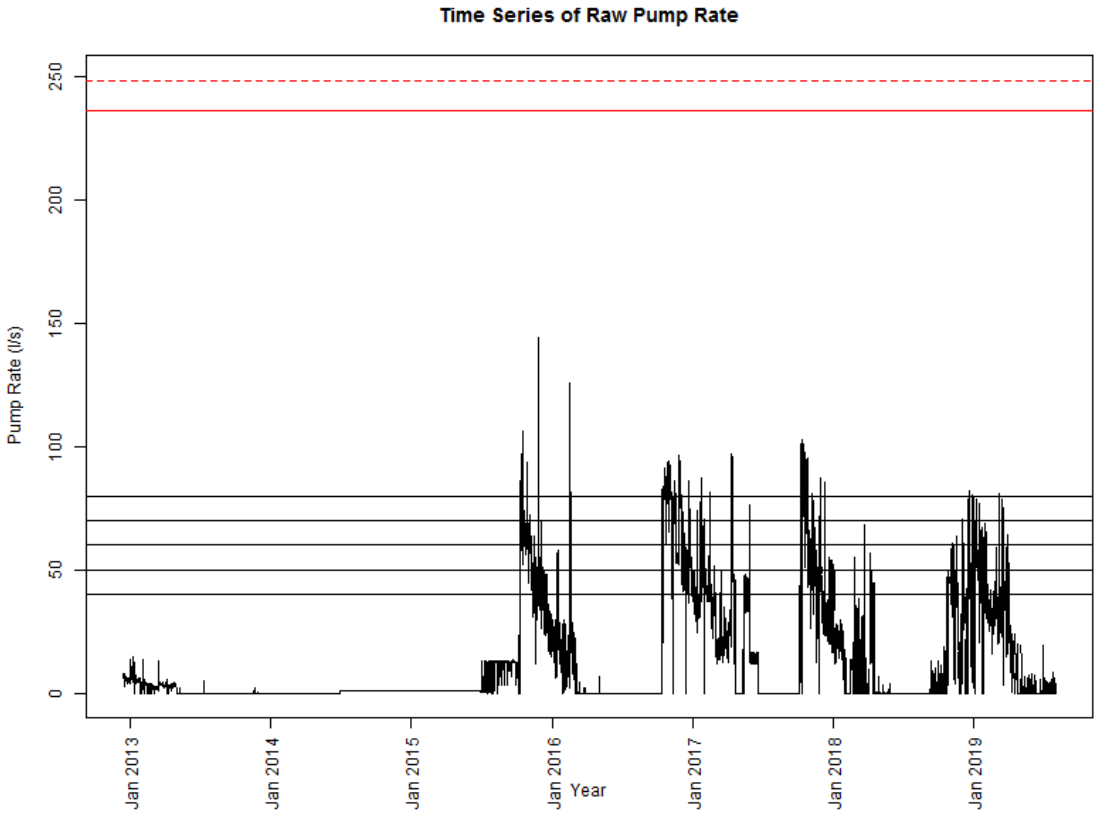


Figure 19 WM0235 Time Series with Percentile References

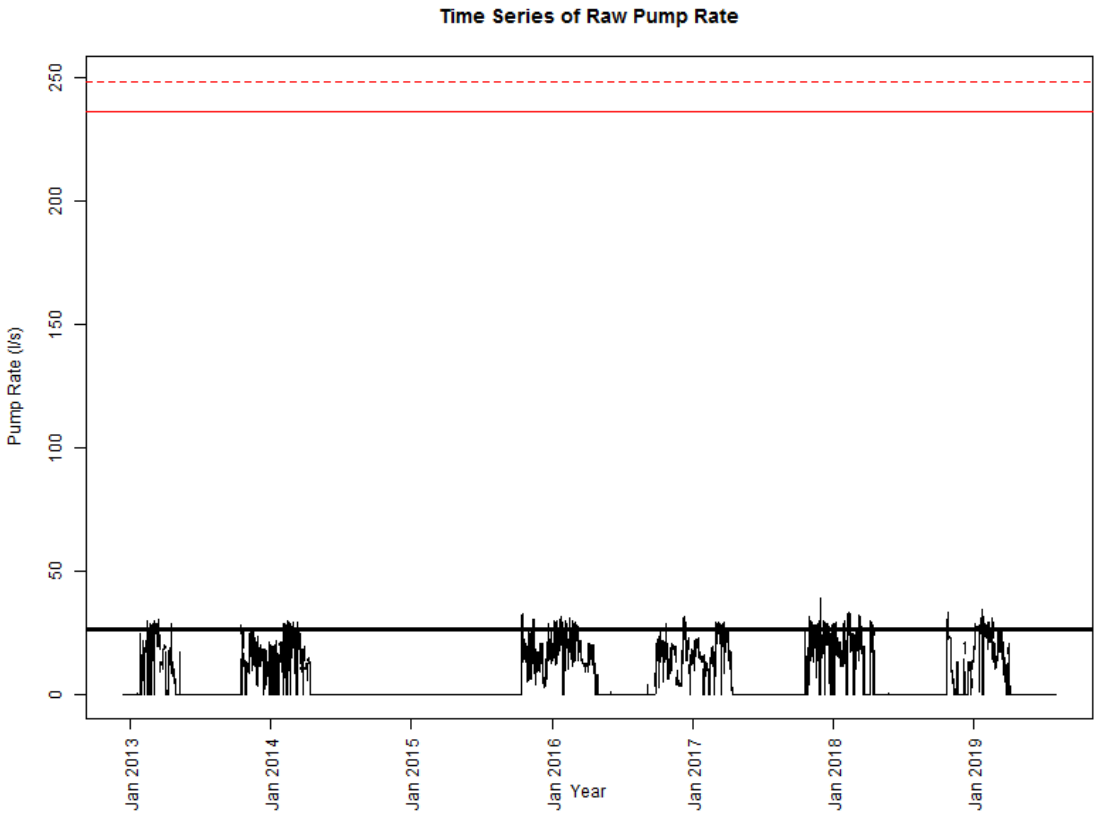


Figure 20 WM0236 Time Series with Percentile References

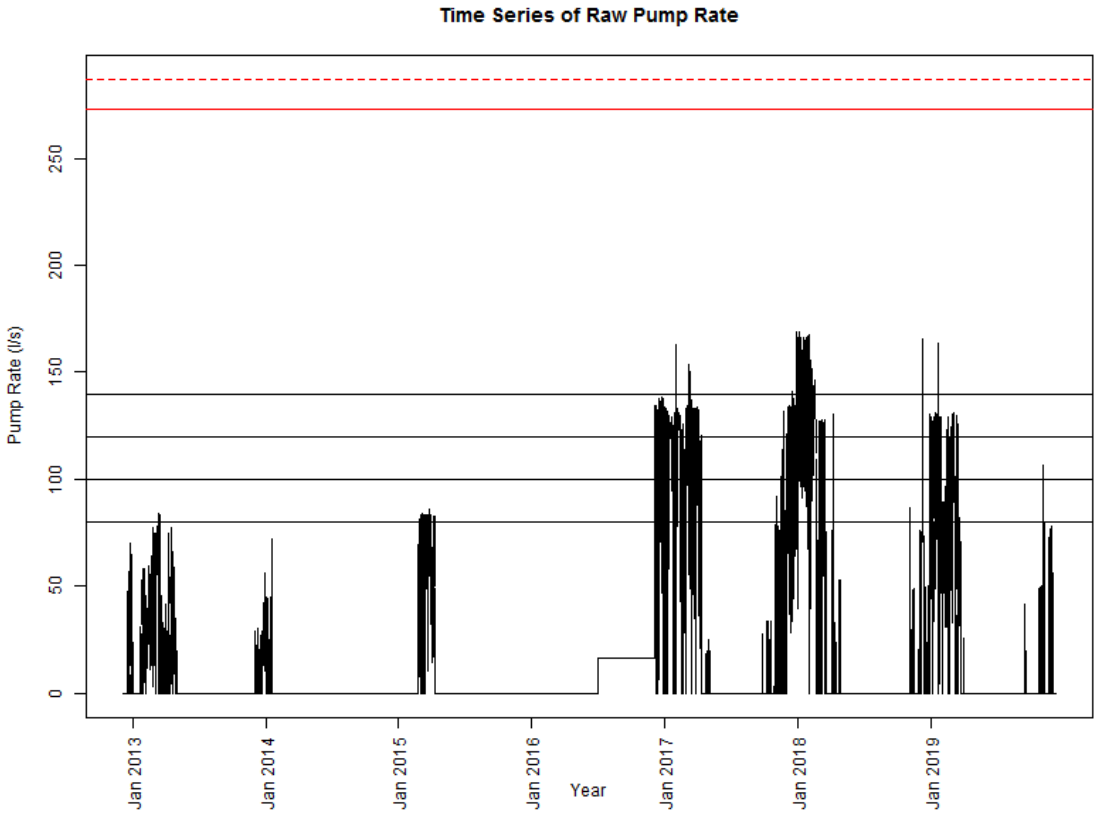


Figure 21 WM0235 Time Series with Percentile References

Monthly and annual volumes, in m³, based on filtered daily volume data are presented below:

WM0235	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Calendar Year	Water Year
2012												8,440	8,440	
2013	14,600	7,650	7,300	6,820	692		42				28		37,132	45,502
2014							1,980	2,050	1,980	2,050	1,980	2,050	12,090	70
2015	2,050	1,850	2,050	1,980	2,050	1,980	8,120	31,000	32,500	128,000	129,000	96,900	437,480	24,050
2016	52,600	39,600	3,520		25					132,000	183,000	144,000	554,745	521,265
2017	120,000	102,000	54,100	62,100	65,400	27,700				173,000	140,000	92,300	836,600	890,300
2018	60,200	22,900	32,800	39,300	56				1,430	36,200	71,300	81,000	345,186	560,556
2019	121,000	82,100	89,200	30,600	4,800	1,840	1,370						330,910	519,470
Max Month:	183,000											Max Year:	836,600	890,300

WM0236	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Calendar Year	Water Year
2012													0	
2013	4,000	42,100	53,100	31,700	828					17,100	45,700	42,000	236,528	131,728
2014	32,800	51,900	53,800	15,800									154,300	259,100
2015										29,900	43,500	40,400	113,800	0
2016	58,400	56,700	48,700	33,000		4			6,940	51,000	33,200	48,300	336,244	310,604
2017	41,000	26,400	67,000	20,200						11,200	56,400	58,600	280,800	294,040
2018	51,400	50,800	42,200	24,400	1					19,000	11,000	17,600	216,401	295,001
2019	66,700	56,900	44,600	3,780									171,980	219,580
Max Month:	67,000											Max Year:	336,244	310,604

WM0237	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Calendar Year	Water Year
2012												27,900	27,900	
2013	19,900	89,700	98,400	61,600	993							30,900	301,493	298,493
2014	19,100												19,100	50,000
2015		18,300	157,000	44,000					0	2	2	2	219,305	219,300
2016	2	1	2	2	2	2	41,300	44,200	42,800	44,200	42,800	195,000	410,309	14
2017	272,000	227,000	267,000	95,800	1,470				252	9,540	110,000	266,000	1,249,062	1,273,570
2018	332,000	219,000	144,000	36,300							8,790	87,600	827,690	1,117,092
2019	233,000	189,000	148,000	856					249	6,940	70,100	3,280	651,425	667,246
Max Month:	332,000											Max Year	1,249,062	1,273,570

Daily volumes taken in m³ are summarized below:

WM0235	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	31	8.93	1	1	1	3.25	2.75	66	4	5	2	66
Mean	2,020	1,630	1,160	1,140	849	464	124	534	478	3,380	3,370	2,570
Median	1,790	1,110	851	317	66	66	66	281	69	3,100	3,870	2,660
80%	3,680	3,070	2,230	2,290	1,370	1,360	154	1,080	1,090	6,930	5,240	4,030
90%	4,240	3,690	2,870	3,220	3,780	1,360	342	1,100	1,090	7,430	6,420	4,970
95%	4,810	4,100	3,300	3,840	3,830	1,360	496	1,100	1,100	7,680	7,020	5,350
Max	7,270	5,180	4,310	6,390	5,080	1,360	694	1,110	1,120	8,540	7,960	6,790
Max Day	8,540											

WM0236	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	1	26.7	99	5.46	1	4			21	294	2	228
Mean	1,630	1,760	1,750	1,280	207	4			991	1,510	1,430	1,480
Median	1,670	1,880	1,880	1,270	144	4			892	1,660	1,420	1,530
80%	2,200	2,180	2,240	1,640	349	4			1,630	1,860	2,030	2,010
90%	2,320	2,280	2,300	2,130	445	4			1,690	2,040	2,250	2,280
95%	2,340	2,310	2,320	2,240	493	4			1,730	2,170	2,310	2,300
Max	2,430	2,790	2,390	2,420	540	4			1,770	2,650	2,380	2,380
Max Day	2,790											

WM0237	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1,430	0.04	0.05	0.05	0.05
Mean	5,800	5,090	4,770	2,210	63.3	0.05	1,330	1,430	1,010	798	2,020	4,070
Median	6,730	4,430	5,190	1,270	0.05	0.05	1,430	1,430	1,430	949	1,430	2,500
80%	10,800	8,750	7,910	3,970	3.63	0.05	1,430	1,430	1,430	1,430	4,040	8,620
90%	11,300	11,100	9,310	5,710	129	0.05	1,430	1,430	1,430	1,430	5,270	9,570
95%	11,500	11,800	9,990	8,360	458	0.05	1,430	1,430	1,430	1,720	6,300	10,800
Max	12,400	13,200	10,900	10,900	865	0.05	1,430	1,430	1,430	3,250	9,140	11,800
Max Day:	13,200											

Annual Max Rate Data are presented below:

WM0235:

Year	2012	2013	2014	2015	2016	2017	2018	2019
Max Rate:	7.78	15.00	0.76	144.17	125.56	102.78	82.22	81.11
Mean Max Rate:	69.92							

WM0236:

Year	2013	2014	2015	2016	2017	2018	2019
Max Rate:	30.42	29.58	32.50	31.67	38.89	33.06	34.17
Mean Max Rate:	32.90						

WM0237:

Year	2012	2013	2014	2015	2016	2017	2018	2019
Max Rate:	70.41	84.11	71.81	85.83	138.33	168.61	169.17	163.89
Mean Max Rate:	119.02							

In summary:

- The seasonal patterns are broadly consistent with usage for Irrigation and stock drinking or domestic potable uses.
- If a base flow is being taken, it is at rates of less than 10 l/s.
- The patterns of data in WM0236 and WM0237 strongly suggest that the meters are being winterized.
- The maximum volume taken in any day is:
    - WM0235: 8,540 m³
    - WM0236: 2,790 m³
    - WM0237: 13,200 m³
- The maximum volume taken in any month is:
    - WM0235: 183,000 m³
    - WM0236: 67,000 m³
    - WM0237: 332,000 m³
- The maximum taken in any water year is:
    - WM0235: 890,300 m³
    - WM0236: 310,604 m³
    - WM0237: 1,273,570 m³
- The average maximum rate taken over the full record is:
    - WM0235: 107 l/s l/s (this data excludes the 2014 calendar)
    - WM0236: 32.9 l/s
    - WM0237: 119 l/s

- The annual maximum taken under WM0237 doubled from an average of 77.9 l/s for the period 2012-2015 to 160 l/s for the period 2016-2020

This memorandum is in relation to application RM19312 to replace [consent/deemed permit](s) from [catchment] for the purpose of [consent purpose]. Abstraction of water under this permit occurs through watermeter WM0235 WM0236 combined.

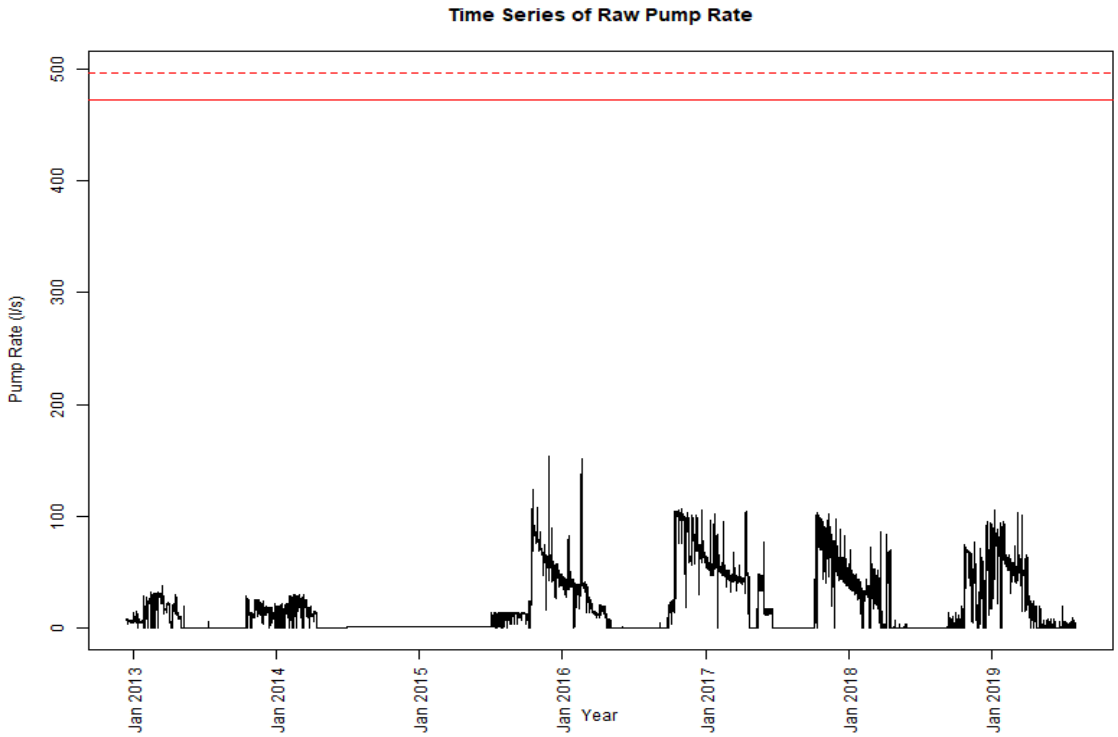
All analyses, graphs, and calculations were performed using RStudio version1.2.5033 and RGui version 3.6.3.

Data taken through WM0235 WM0236 combined extends from 13 December 2012 to 31 July 2019 with a total of 58101 hourly measurements.

In addition to analysing the raw data, the following steps were taken:

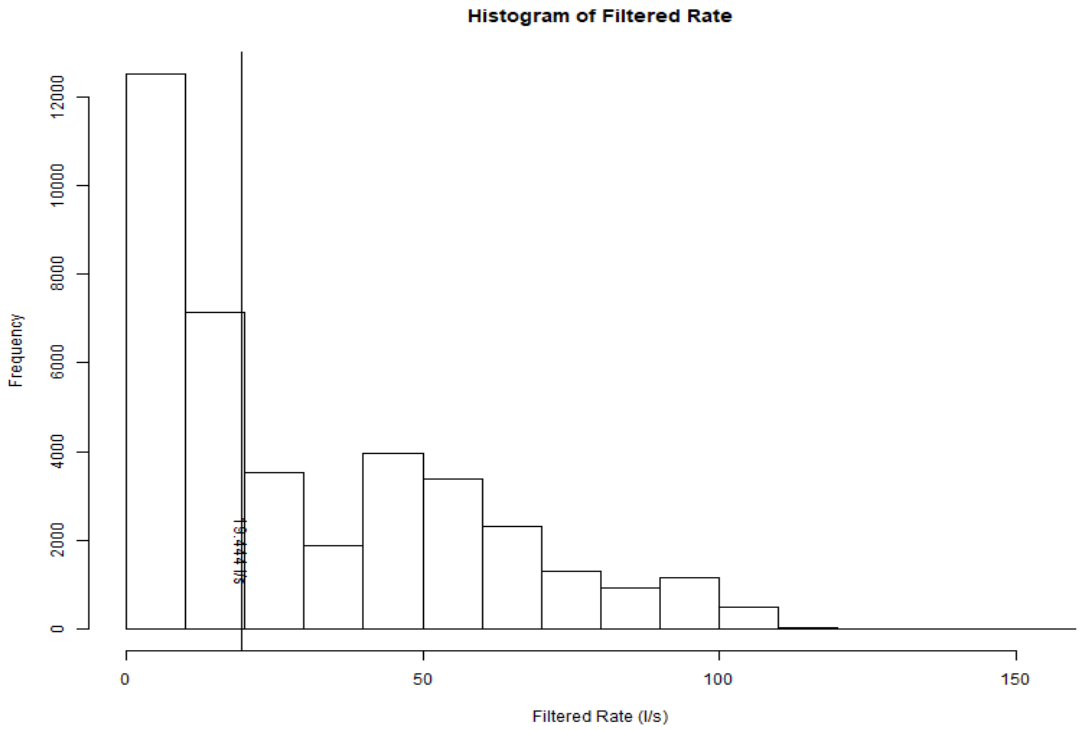
- Rates less than, or equal to zero were set to NA.
- The maximum average rate of take authorized by the permit this application seeks to replace is 472.8 l/s and water is taken trough [a full pipe/an open channel]. A [5%/10%] margin of error was applied to this and rates in excess of 496.44 l/s were set to NA.
- Rates between 472.8l/s and 496.44l/s were set to 472.8l/s.
- The resultant data set had 38605 hourly measurements

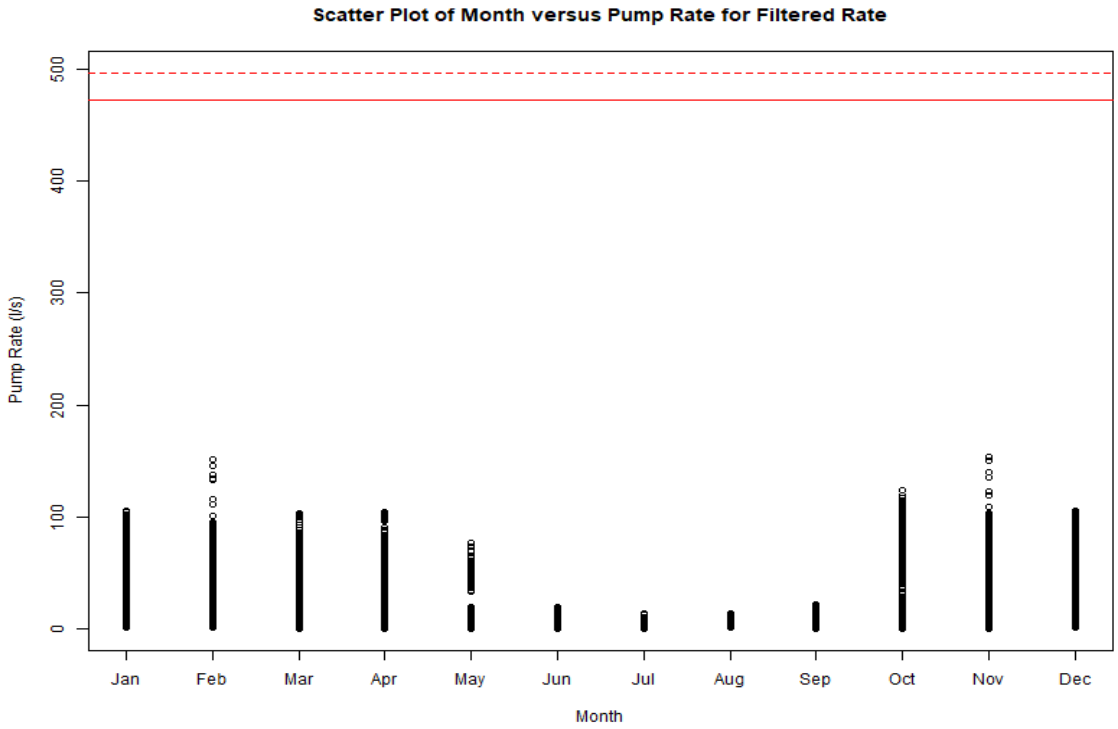
A time series showing the pump rate, the maximum consented rate, and the upper error limit is presented below:

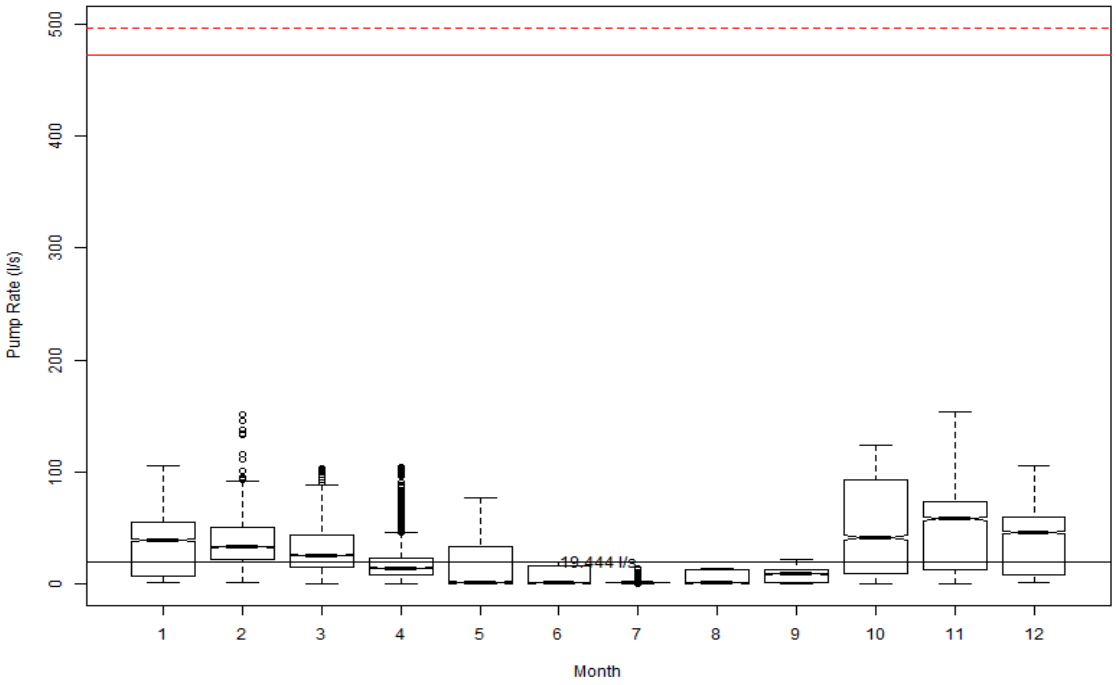


The solid red line represents the consented maximum rate of 472.8 l/s, and the broken red line represents 472.8[+ 10%/+5%] (496.44 l/s).

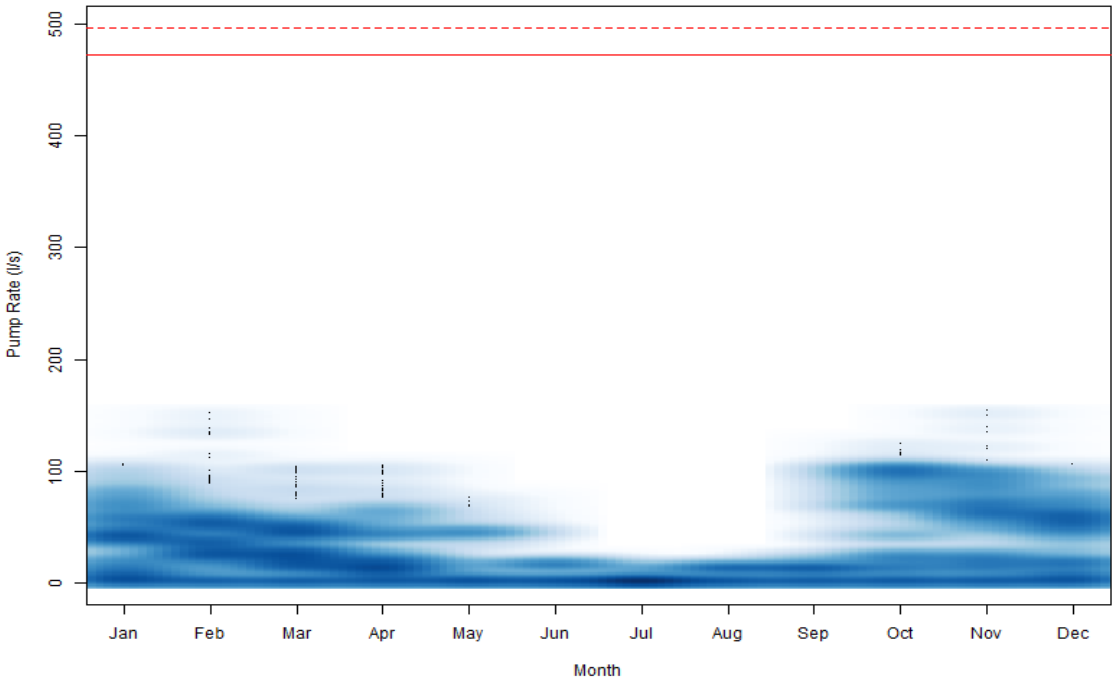
The filtered data set contains 38605 measurements with an average take of 29.3 l/s, a median rate of take of 19.4 l/s, and a modal (most common) rate of take of 0.764 l/s.







Density Plot of Month versus Filtered Rate



The high use data set was selected by filtering for those months in which the median usage exceeded the median for the filtered data set. The mean for the high use data set is 37.1l/s, the median is 35.278 l/s and the modal value is 0.764 l/s.

Percentiles are not a percentage of the maximum rate, but rather the rate that is exceeded x% of the time. Percentiles are calculated by ranking the data from lowest to highest and taking the weighted

average of the nth highest and the n+1th highest values. The 80th percentile is the pump rate that is exceeded 20% of the time. The 90th percentile is the pumping rate that is exceeded 10% of the time. The 95th Percentile is exceeded 5% of the time. What this means in terms of the analysis is that if the applicant is pumping at the maximum consented rate more than 5% of the time, the 95th percentile will equal the maximum consented rate. If they are pumping at the maximum consented rate more than 10% of the time, the 90th percentile will equal the maximum consented rate. If they are pumping at the maximum consented rate more than 20% of the time, then the 80th percentile will equal the maximum consented rate. In practical terms if the applicant is pumping 24 hours/day and 2160 hours for a 90 day season then:

- The 80th percentile is the rate that is exceeded for 5 hours per day, or 432 hours per season.
- The 90th percentile is the rate that is exceeded for 2.5 hours per day, or 216 hours per season.
- The 95th percentile is the rate that is exceeded for 1.5 hours per day, or 108 hours per season.

What this means is that if a consent holder is consistently using their maximum consented rate for more than 5%, 10%, or 20% of the time they are pumping, it will show up in the table of percentiles.

The 80th, 90th, and 95th percentiles for the flow rate were calculated, without modelling the distribution, for the raw data set, the filtered data set, and the high rate data set. The results are presented to three significant figures below.

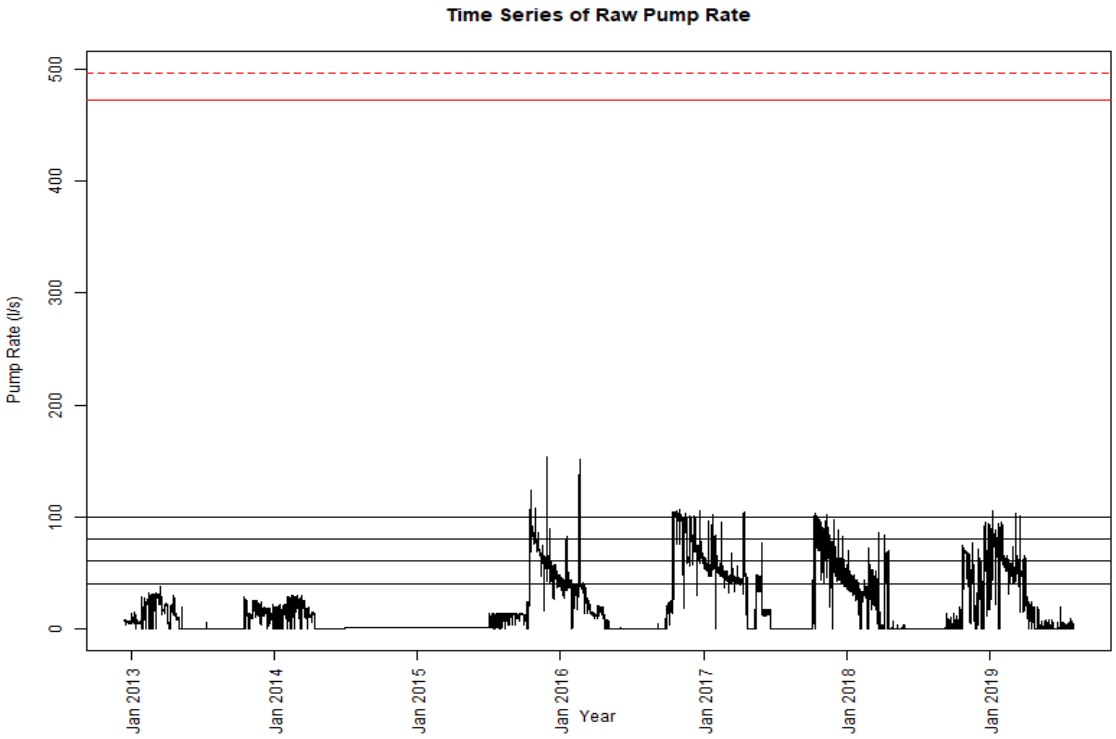
V1	80th %ile	90th %ile	95th %ile
Raw rate	44.4	61.4	76.7
Filtered rate	55.3	70	86.7
High use rate	62.2	78.3	93.1

A summary of rates and volumes for the period 1 July 2012 to 30 June 2017, prepared according to proposed Method 10.A.4 is presented below:

V1	Max Take Rate	Max Daily Volume	Max Monthly Volume	Max Annual Volume
2012/2013	37.1	2,530	60,400	177,000
2013/2014	29.6	2,220	53,800	259,000
2014/2015	0.764	66	2,050	24,000
2015/2016	154	8,920	173,000	832,000
2016/2017	106	8,870	216,000	1,180,000
Mean	65.5	4,520	101,000	495,000

[COMMENT ON ANY RELEVANT FACTORS THAT EXPLAIN OR MAY INFLUENCE THE PERCENTILES OR 10.A.4 DATA]

A time series with reference lines at 40 l/s, 60 l/s, 80 l/s, & 100 l/s is presented below to provide context for the percentiles and where they sit in relation to the history of taking by the resource cosent holder.


Time Series of Raw Pump Rate
Pump Rate (l/s)
0
100
200
300
400
500
Jan 2013
Jan 2014
Jan 2015
Jan 2016
Jan 2017
Jan 2018
Jan 2019
Year

The number of days in each month of he historical record that the 80th, 90th, and 95th percentiles have been exceeded for all three data sets is presented below:

[REVIEW THESE TABLES AS THERE MAY BE DOUBLE UPS.]

44.4 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	20	30	31
2016	12	3	0	0	0	0	NA	NA	0	20	30	31
2017	31	28	30	11	16	0	NA	NA	NA	24	30	31
2018	19	6	15	13	0	NA	NA	NA	0	10	16	21
2019	31	28	29	2	0	0	0	NA	NA	NA	NA	NA

61.4 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	20	27	3
2016	2	3	0	0	0	0	NA	NA	0	20	29	31
2017	15	3	1	2	1	0	NA	NA	NA	24	30	16
2018	1	2	2	11	0	NA	NA	NA	0	10	9	18
2019	30	11	7	1	0	0	0	NA	NA	NA	NA	NA

76.7 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0

76.7 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	20	3	1
2016	1	2	0	0	0	0	NA	NA	0	20	21	12
2017	6	2	0	1	0	0	NA	NA	NA	21	25	2
2018	0	0	2	2	0	NA	NA	NA	0	0	0	8
2019	19	1	4	0	0	0	0	NA	NA	NA	NA	NA

55.3 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	20	30	13
2016	2	3	0	0	0	0	NA	NA	0	20	30	31
2017	29	10	2	4	1	0	NA	NA	NA	24	30	25
2018	1	3	2	13	0	NA	NA	NA	0	10	15	19
2019	31	26	11	1	0	0	0	NA	NA	NA	NA	NA

70 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	20	11	1

70 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016	2	3	0	0	0	0	NA	NA	0	20	24	20
2017	8	3	0	1	1	0	NA	NA	NA	21	28	3
2018	0	1	2	2	0	NA	NA	NA	0	5	2	8
2019	24	2	4	0	0	0	0	NA	NA	NA	NA	NA

86.7 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	13	1	1
2016	0	2	0	0	0	0	NA	NA	0	20	20	4
2017	4	1	0	1	0	0	NA	NA	NA	19	13	1
2018	0	0	0	0	0	NA	NA	NA	0	0	0	8
2019	8	1	3	0	0	0	0	NA	NA	NA	NA	NA

62.2 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	20	27	3
2016	2	3	0	0	0	0	NA	NA	0	20	29	31
2017	14	3	1	1	1	0	NA	NA	NA	24	30	13
2018	1	2	2	11	0	NA	NA	NA	0	10	8	15

62.2 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	30	9	6	1	0	0	0	NA	NA	NA	NA	NA

78.3 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	19	3	1
2016	1	2	0	0	0	0	NA	NA	0	20	21	11
2017	6	2	0	1	0	0	NA	NA	NA	20	22	2
2018	0	0	2	2	0	NA	NA	NA	0	0	0	8
2019	18	1	3	0	0	0	0	NA	NA	NA	NA	NA

93.1 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2013	0	0	0	0	0	NA	0	NA	NA	0	0	0
2014	0	0	0	0	NA	NA	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	7	1	0
2016	0	2	0	0	0	0	NA	NA	0	20	16	4
2017	3	1	0	1	0	0	NA	NA	NA	17	6	0
2018	0	0	0	0	0	NA	NA	NA	0	0	0	5
2019	4	0	3	0	0	0	0	NA	NA	NA	NA	NA

A summary of daily volumes, in m^3, filtered for a maximum daily take of 40849.92 m^3 and then rounded to three significant figures is presented below:

V1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	66	35.6	3	1	1	3.25	2.75	66	4	5	16	66
Mean	2,910	2,770	2,320	1,620	849	458	124	534	522	3,650	3,970	3,220
Median	3,340	2,820	2,180	1,170	66	66	66	281	90.5	1,780	4,890	3,940
80%	4,940	4,550	3,850	3,520	1,370	1,360	154	1,080	1,090	8,070	6,870	5,360
90%	6,010	4,940	4,330	3,940	3,770	1,360	342	1,100	1,090	8,570	7,750	6,150
95%	6,590	5,160	4,490	4,780	3,830	1,360	496	1,100	1,110	8,740	8,290	6,650
Max	8,520	6,440	6,370	6,890	5,080	1,360	694	1,110	1,770	8,920	8,670	7,870

A summary of monthly volumes, based on daily volumes that have been filtered for a mximum daily take of 40849.92m³ and then rounded to three significant figures is presented below.

V1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8,440
2013	18,600	49,800	60,400	38,500	1,520	NA	41.5	NA	NA	17,100	45,800	42,000
2014	32,800	51,900	53,800	15,800	NA	NA	1,980	2,050	1,980	2,050	1,980	2,050
2015	2,050	1,850	2,050	1,980	2,050	1,980	8,120	31,000	32,500	158,000	173,000	137,000
2016	111,000	96,300	52,200	33,000	25	4	NA	NA	6,940	183,000	216,000	192,000
2017	161,000	128,000	121,000	82,300	65,400	27,700	NA	NA	NA	184,000	197,000	151,000
2018	112,000	73,600	75,000	63,700	57	NA	NA	NA	1,430	55,100	82,300	98,600
2019	188,000	139,000	134,000	34,300	4,800	1,840	1,370	NA	NA	NA	NA	NA