Otago Regional Council

Section 42A Staff Recommending Report

Water Permit Application RM20.079
Bendigo Station Limited

The recommendation in the staff report represents the opinion of the writer 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.

Charles Horrell
Consultant Planner

22 April 2021

Executive Summary

Bendigo Station Limited has applied for multiple water permits (RM20.079.01-02) to take (and retake), use and dam water. The Application seeks to replace Deemed Permits WR1233CR and WR3908CR for the same and a reduced volume, seeks a new supplementary allocation take of water from Bendigo Creek and seeks to dam, retake and use water from a reservoir outside the bed of a lake or river. The Applicant initially sought a consent term of 25 years for all permits; however, amended the duration to 15 years in response to concerns raised by submitters and to give greater effect to proposed policies of the relevant planning documents.

Aukaha on behalf of the Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga has submitted in opposition and have requested the Application as proposed be declined, or if granted is subject to a number of conditions.

The key issues for this application and based on the submission from Aukaha are the monthly and seasonal allocations, the proposed bypass of water, whether a residual/minimum flow is required 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** for applications RM20.079.01 and RM20.079.03 and **6 years** for application RM20.079.02.

OTAGO REGIONAL COUNCIL DEEMED PERMIT REPLACEMENT SECTION 42A REPORT

ID Ref:	**A1400497**
Application No(s):	**RM20.079.01-03**
Prepared For:	**Hearing Commissioner**
Prepared By:	**Charles Horrell, Consultant Planner**
Date:	**22 April 2021**
Subject:	**Section 42A Recommending Report – Deemed Permit Replacement by Bendigo Station Limited for water permits to take and use water from Bendigo Creek and to dam water, Bendigo, Central Otago**

Summary of Recommendation

Bendigo Station Limited ("**the Applicant**") has applied for resource consent to replace two deemed permits to take and use surface water from the Bendigo Creek. In addition, the Applicant has sought to take additional water as supplementary allocation from Bendigo Creek and is seeking to dam, take and use water from and within a reservoir located outside the bed of a lake or river. 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 durations of 15 years for applications RM20.079.01 and RM20.079.03 and 6 years for application RM20.079.02, subject to the recommended conditions of consent.

1. Purpose

This report has been prepared under Section 42A of the Resource Management Act 1991 ("**RMA**" or "**the Act**") to assist in the hearing of the applications for resource consent made by Bendigo Station 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 Consultant Planner 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 Charles Horrell. I am a Consultant Planner for the Otago Regional Council.

I hold the qualifications of a Bachelor of Applied Science with Majors in Environmental Management and Economics from the University of Otago. I am an employee of Boffa Miskell Ltd and an Associate Member of the New Zealand Planning Institute. I have experience preparing and processing resource consent applications relating to freshwater and specifically Deemed Permits having previously worked for the Otago Regional Council as Senior Consents Officer.

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 Bendigo Station Limited application since it was lodged on 10 March 2020.

3. Summary of the Application

3.1 Overview

Applicant: Bendigo Station Limited ("**the Applicant**")

Applicant's agent: Will Nicolson (LandPro Limited)

Site address or location: Bendigo Creek, approximately 3 kilometres south east of the intersection of Bendigo Loop Road and York Street. See **Section 5.** Description of the Environment

Legal descriptions at points of take:

RM20.079.01: Section 21 SO 24641

RM20.079.02: Section 21 SO 24641

RM20.079.03: Lot 8 DP 517385

Legal descriptions for use:
Lot 6 DP 525495, Lot 5 DP 517285, Lot 3 DP 391334, Lot 4 DP 391334, Part Lot 10 DP 391334, Lot 8 DP 517385, Lot 3 DP 459561, Lot 7 DP 517385, Lot 3 DP 525495, Lot 4 DP 525495, Lot 1 DP 525495, Lot 2 DP 525495 and Lot 6 DP 517385

Map references:
RM20.076.01: NZTM 2000: E1314483 N5018116
RM20.076.02: NZTM 2000: E1314483 N5018116
RM20.076.03: NZTM 2000: E1313447 N5019532

Consents sought:

Consent type and number	Description
Water Permit RM20.076.01	To take and use water as primary allocation from the Bendigo Creek and to retake water from the Bendigo Creek Pond

Water Permit RM20.076.02	To take and use water as supplementary allocation from the Bendigo Creek and to retake water from the Bendigo Creek Pond
Water Permit RM20.076.03	To dam within and from a reservoir outside the bed of a watercourse

Purpose of takes: Irrigation, domestic, pond maintenance and stock water supply

Deemed permits: WR1233CR and WR3908CR

Information requested: Further information in accordance with Section 92(1) of the Act was requested from the Applicant on 19 March 2020 in relation to the actual and potential adverse effects on Regionally Significant Wetlands; water conveyance and storage means; efficiency of water use; assessments against specific planning provisions and actual and potential effects on aquatic ecosystems.

Notification decision: The application was approved, under delegated authority, to be processed on a limited-notified basis on 17 June 2020 (objective reference: A1333171.

Site visit: I undertook a site visit on 15 September 2020. Will Nicolson and Grant Porter were in attendance.

3.2 Key Issues

A meeting was held between the Applicant and the Submitter on 4 March 2021. Prior to the meeting, a draft 'without prejudice' s42A report was released. At this meeting, the key remaining issues were discussed. The notes from this meeting are attached as **Appendix 1** and are summarised below:

- The operation of the overflow channel and associated discharge to Bendigo Creek;
- Allocation – Aukaha have requested that allocation for Bendigo Creek (including supplementary) is equal to or less than 30% of MALF.
- Whether a specific minimum flow/residual flow should be applied to the primary allocation take – Aukaha have requested a minimum flow equal to 90% of MALF; and
- The consent duration – Aukaha oppose the 15-year duration for RM20.079.01.

4. Description of the Activities

The Applicant has sought two water permits to take and use water from Bendigo Creek as both primary and supplementary allocation for the purpose of irrigation and stock water and one water permit for damming on land outside of Bendigo Creek.

4.1 Rates and Volumes Applied For

The Applicant has sought the following rates and volumes:

- 50 litres per second ("**L/s**") from Bendigo Creek as primary allocation;
- 110 L/s from Bendigo Creek as supplementary allocation;
- A combined rate of 160 L/s;
- A combined monthly volume of 235,948 cubic metres per month ("**m^3/month**"); and
- A combined annual volume of 1,080,568 cubic metres per year ("**m^3/year**").

4.2 Details of Deemed Permits Being Replaced

The Applicant is seeking to replace Deemed Permits WR1233CR and WR3908CR which expire on 1 October 2021. Deemed Permit WR1233CR was originally authorised on 23 December 1902 under the Mining Act 1898 to take up to 55.6 L/s for the purpose of irrigation

and stock water. The mining privilege was renewed on a number of occasions and remained current when the Act was introduced thereby becoming a deemed permit. Deemed Permit WR3908CR was originally authorised on 16 June 1920 under the Mining Act 1908 to take up to 2.5 heads (69.5 L/s) for the purpose of irrigation and domestic use. The volume of water authorised was reduced on two occasions and currently authorises the take and use of up to 27.8 L/s. The two deemed permits have been exercised in conjunction with one another and in total they authorise the combined take and use of up to 83.4 L/s.

Based on the water use data which had been collected over the course of one season, the Applicant has assessed that 50 L/s is typically taken and therefore has sought up to 50 L/s (reduction of 33.4 L/s from that currently authorised). The Applicant has also sought supplementary allocation of up to 110 L/s. The Applicant has sought that the primary and supplementary takes are exercised in conjunction with one another and have sought combined monthly and seasonal volumes, as outlined in **Section 4.1** of this report. In addition to the water permits sought for primary and supplementary allocation, the Applicant has also sought a water permit to dam and take water from a reservoir outside of the bed of the watercourse. Full details of the proposal are outlined in the Section that follows.

This application has been lodged with the Otago Regional Council ("**the Council**") more than six months before the expiry of the deemed permits which it looks to replace. In accordance with Section 124 of the Act, the Applicant may continue to operate under Deemed Permits WR1233CR and WR3908CR until a decision on this application is made and all appeals are determined.

4.3 Proposal

The Applicant operates a 11,000-hectare (ha) station in Bendigo, near Cromwell. The station supports a number of activities including merino farming, angus breeding cows, trading steers, finishing beef calves, and viticulture. Much of the land on the hillsides above the flats which would otherwise provide relatively poor grazing has or is being converted into world class vineyards. Currently the Applicant relies upon their Deemed Permits as a water source for irrigation of 100 ha of pasture. A schematic of the current water abstraction method and system is shown in **Figure 1** and is discussed in detail below.

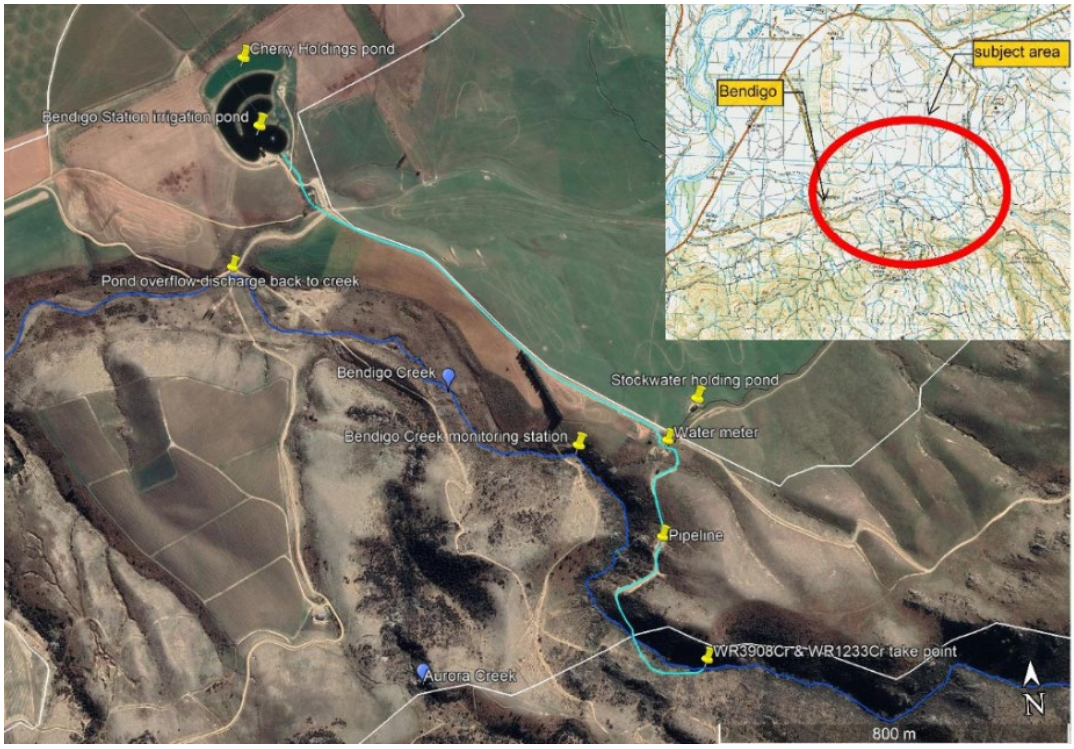

Figure 1: Schematic of current water take system. Source: Application.

The intake is an open pipe intake which feeds water via gravity feed through a 300 mm HDPE pipeline. **Figure 2** shows the point of take. The pipe leads from the true left-hand bank of Bendigo Creek and transverses back over Bendigo Creek (**Figure 3**) for 750 metres until a point where it is metered[1] (**Figure 4**).

Figure 2: Photograph of intake in Bendigo Creek. Source: Application.

[1] Authorised by WEX0287

Figure 3: Pipeline traversing Bendigo Creek. Source: Application.

Figure 4: Location of water meter. Source: Site visit photo.

From here, water is either conveyed via a small it pipe (up to 5 L/s[2]) to the "stock water holding pond" (**Figure 5** and **Figure 6**), or water continues to be piped for 1.25 km to the "Bendigo Station Irrigation Pond" (**Figure 7**).There are three manual control valves for managing flows from the intake and pipelines. These are located at the point of take, at the water meter site and at the outlet to Bendigo Station Irrigation Pond.

[2] As indicated by the Applicant during site visit.

Figure 5: Stock water drinking pipeline. Source: Site visit photo.

Figure 6: Stock water holding pond. Source: Application.

Figure 7: Bendigo Station Irrigation Pond. Source: Application.

The majority of the water is stored within the Bendigo Station Irrigation Pond and is either pumped directly into a centre pivot irrigator that sits adjacent to the pond (as shown in **Figure 7**) or is piped conveyed to nearby k-line pods.

The Bendigo Irrigation Pond has a connection via a culvert with "Cherry Holdings Pond" which sits directly adjacent. Cherry Holdings Pond is serviced by a separate water source which is not subject to this Application[3]. Based on the conditions of the resource consent for this alternative source, up to 260 L/s may be delivered to the Cherry Holdings Pond, which in turn has a connection with the Bendigo Irrigation Pond. Cherry Holdings Pond has a maximum capacity of 18,332 cubic metres ("m^3") of water and a depth of 3 metres ("m"). The Bendigo Station Irrigation pond has a capacity of 53,820 m^3 of water with a depth of 3 m. Both are "turkey nest" style dams which have been constructed outside the bed of a natural watercourse. An as-built engineering drawing of the reservoirs is shown in **Figure 8** ("outer pond" is Cherry Holdings Pond and "inner pond" is Bendigo Station Pond)**.**

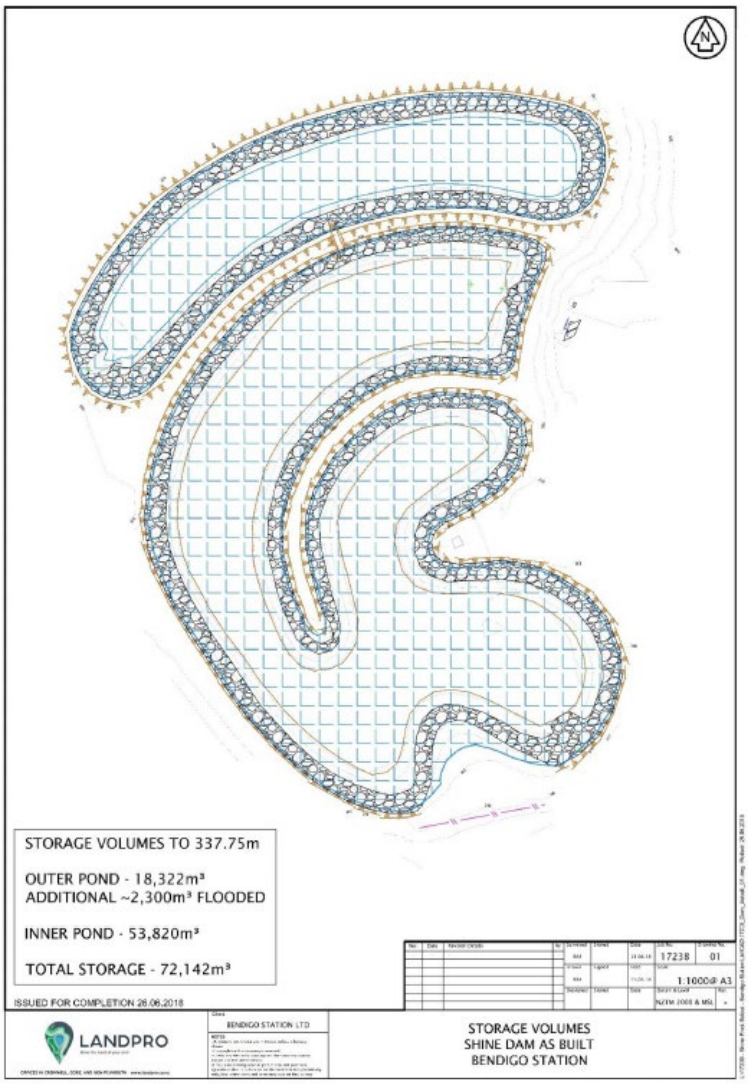

Figure 8:As built engineering drawing of two reservoirs. Source: Application.

The Bendigo Station pond has an operational spillway located in the southeast corner that moderates flows. Where water exceeds the capacity of the pond it flows through the spillway and re-enters Bendigo Creek via an overflow channel. A photograph of the spillway is shown

[3] Water Permit RM17.194.01

in **Figure 9** and an annotated aerial photograph showing the flow path of water from the spillway is shown in **Figure 10.**

Figure 9: Photograph of operation spillway on Bendigo Station Pond. Source: Application.

Figure 10: Annotated aerial photograph showing flow path from Bendigo Station pond to Bendigo Creek via the spillway. Source: Application.

The Applicant proposed no changes to the existing infrastructure for taking, conveying and storing water. As noted above, the Applicant has sought a reduction in the rate of take sought to reflect what is generally taken and is now seeking 50 L/s for primary allocation. In addition, the Applicant is seeking an additional 110 L/s as supplementary allocation and to opportunistically abstract when flows in Bendigo Creek are high. The water is to be used for a number of purposes as summarised in **Table 1**[4] below.

[4] Numbers highlighted show changes from what was initially proposed and an addendum to the Application to correct the numbers due to an omission in the initial calculations.

Table 1: Summary of proposed volumes for water use. Source: Addendum to Application dated 22 May 2020.

Volume	Daily (m^3)	Monthly (m^3)	Annual (m^3)
Current total paper allocation	7,200[1]	219,000[2]	2,628,000
Required (per Aqualinc calcs)	7,598	232,800	1,016,936 (90% ile)
Stock drinking requirements[3]	103	3,118	37,413
Domestic requirements[4]	1	30	365
Pond maintenance requirements[5]	-	-	25,854
Volume sought	-	**235,948**	**1,080,568**

The area of irrigable area is proposed to be increased to 182.4 ha from 100 ha with an additional 82.4 ha of viticulture proposed. The Applicant has also noted that 202 ha of cherries are in the process of being planted, using water from the Cherry Holdings Pond. **Figure 11** shows the full area of current and proposed irrigable land. While the cherry orchard is shown in this map, water use for this land does not form part of the Application.

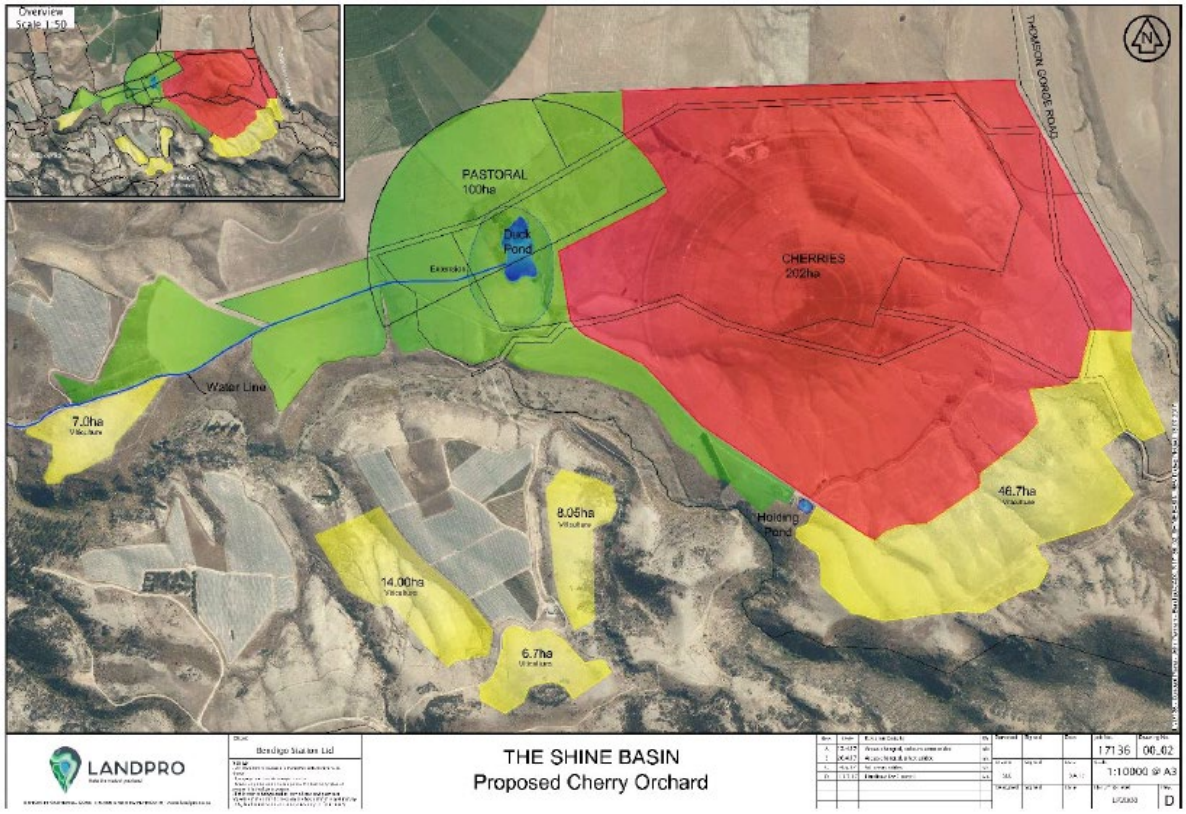

Figure 11: Proposed irrigable land and irrigation methods. Source: Application.

4.4 Application Documents

The Application was lodged with the Council on 10 March 2020 which including the following documents:

- Completed Otago Regional Council Forms 1 and 4;
- Resource Consent Application and Assessment of Environmental Effects prepared by Landpro Ltd, dated 27 February 2020;
- Hydrology assessment prepared by Landpro Ltd, dated 24 February 2020;

- Ecological assessment prepared by Waterways Consulting Limited, dated 10 January 2020; and
- Record of title.

Following a request in accordance with Section 92 of the Act, the Applicant provided additional information in relation to:

- Effects on Regionally Significant Wetlands;
- Details on water conveyance and storage means;
- Efficiency of use;
- How supplementary allocation will meet Policy 6.4.9;
- Effects on aquatic ecology; and
- Further assessment against planning provisions (proposed Plan Change 7).

This information is contained with the letter from Landpro dated 30 April 2020, an email from Will Nicolson on 14 May 2020 and the memo prepared by Waterways Consulting Limited dated 30 April 2020. The request was considered complete as of 14 May 2020.

Following this request for information, it was discovered that one of the reservoirs where water is stored (Bendigo Station Pond) does not meet the permitted activity provisions, therefore an additional application for the damming and subsequent take of water was sought in accordance with Section 91 of the Act. The Applicant provided the following documentation to fulfil this request:

- Completed Otago Regional Council Form 2;
- Assessment of Environmental Effects prepared by Landpro Ltd, dated 26 May 2020; and
- Potential Impact Classification assessment addendum prepared by Landpro Ltd, dated 11 June 2020.

The Applicant also made amendments to the Application on three occasions. The relevant changes are outlined below:

- Quantity of water sought was altered due to an omission in initial calculations. See letter from Landpro Ltd dated 22 May 2020;
- An additional ecological assessment was provided in relation to effects on trout. See memo prepared by Waterways Consultants Ltd, dated 24 June 2020; and
- The duration sought for all consents was amended from 25 years to 15 years following consultation with Fish and Game. See emails from Will Nicolson on 8 October 2020.

4.5 Notification and Written Approvals

On 17 June 2020, the Council made the decision to process the Application on a non-notified basis subject to the Applicant obtaining unconditional written approvals of all affected persons in accordance with Sections 95B and 95E of the Act; or on a limited notified basis should approvals be unable to be obtained within the specified timeframe[5] under Section 95B of the Act. The parties identified as affected are summarised in **Table 2** below.

Table 2: Parties identified as affected in accordance with Section 95E of the Act. Source: Notification Decision.

Party	Why the party is considered affected
Department of Conservation ("DoC")	DoC is the landowner of the parcel of land where water is abstracted. In addition, effects on conservation values including indigenous biodiversity, may incur a minor adverse effect.
Aukaha on behalf of the Te Rūnanga	Adverse effect on kai tahu values may be incurred, in particular impact on the mauri of Bendigo Creek.

[5] Initial timeframe was 17 July 2020 with a further period agreed to ending 3 August 2020.

o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga	
Otago Fish and Game Council ("Fish and Game")	Trout have been identified in Bendigo Creek and although a stunted population, the abstraction may incur a minor albeit localised adverse effect.

Following this decision, the Applicant obtained the unconditional written approval of DoC – see letter dated 14 July 2020 (**Appendix 2**). As written approval from the other remaining parties was unable to be obtained, the Application proceeded to limited notification and the two affected parties were notified on 10 August 2020. At the close of the submission period on 8 September 2020, two submissions were received from Fish and Game and Aukaha.

Further details of these submissions and their current status is provided below.

4.5.1 Submissions received

Fish and Game **opposed** the Application as notified due to its inconsistency with planning documents, namely proposed Plan Change 7. Relief sought from Fish and Game is that if the consents are to be granted, they are subject to the following:

- Should consents be granted, they are consistent with the provisions of proposed Plan Change 7; and
- A duration of no more than 15 years.

Fish and Game **do not** request to be heard in support of their submission.

Aukaha, on behalf of Ngā Rūnanga[6] **opposed** the application as notified due to its inconsistency with planning documents and the actual and potential effects on Kai Tahu values, specifically the mauri of Bendigo Creek. Relief sought from Aukaha is that the Application as notified is declined; or if the decision is that the consents are to be granted, that they are subject to the following:

- That the term of consent be no longer than 6 years.
- Retain existing requirements for water meter(s) and ensure results continue to be recorded and reported via telemetry.
- Retain existing requirements for fish screen over the intake structure.
- A minimum flow of 90% of the mean annual low flow (MALF) as calculated by the regional council and an allocation limit of 30% of MALF as calculated by the regional council.

Aukaha on behalf of Ngā Rūnanga **do** request to be heard in support of their submission.

4.5.2 Current status of Submissions

Following close of submissions, the Applicant has consulted with both submitters to resolve concerns. The Applicant agreed to amend the Application to seek a duration of 15 years and with this amendment, Fish and Game confirmed withdrawal of their submission (**Appendix 3**). The only remaining submission is Aukaha on behalf of Ngā Rūnanga**.**

Following the close of submissions, a 'draft' and without prejudice S42A report was released to the both the Applicant and Aukaha. A self-facilitated meeting will then held to discuss the

[6] Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga

Application. The intent is to determine whether there is any mutual agreement that can be reached between Aukaha, the Applicant and Council, represented by the report writer, on the outstanding submission matters. A summary of the matters discussed and agreed upon is provided in **Appendix 1**. While minor matters were agreed upon, many of Aukaha's concerns remain.

5. Description of the Environment

5.1 Description of the Site and Surrounding Environment

The point of take for the permits is located in the mid reaches of Bendigo Creek, approximately 11 km south of Tarras in Central Otago. The land where the point of take is located is legally described as Section 21 SO 24641, which is owned by Department of Conservation. The Applicant holds easement rights to access this land. The surrounding land is rural in nature with conservation land located at the southern extent. The location of the point of take is shown in **Figure 12** below.

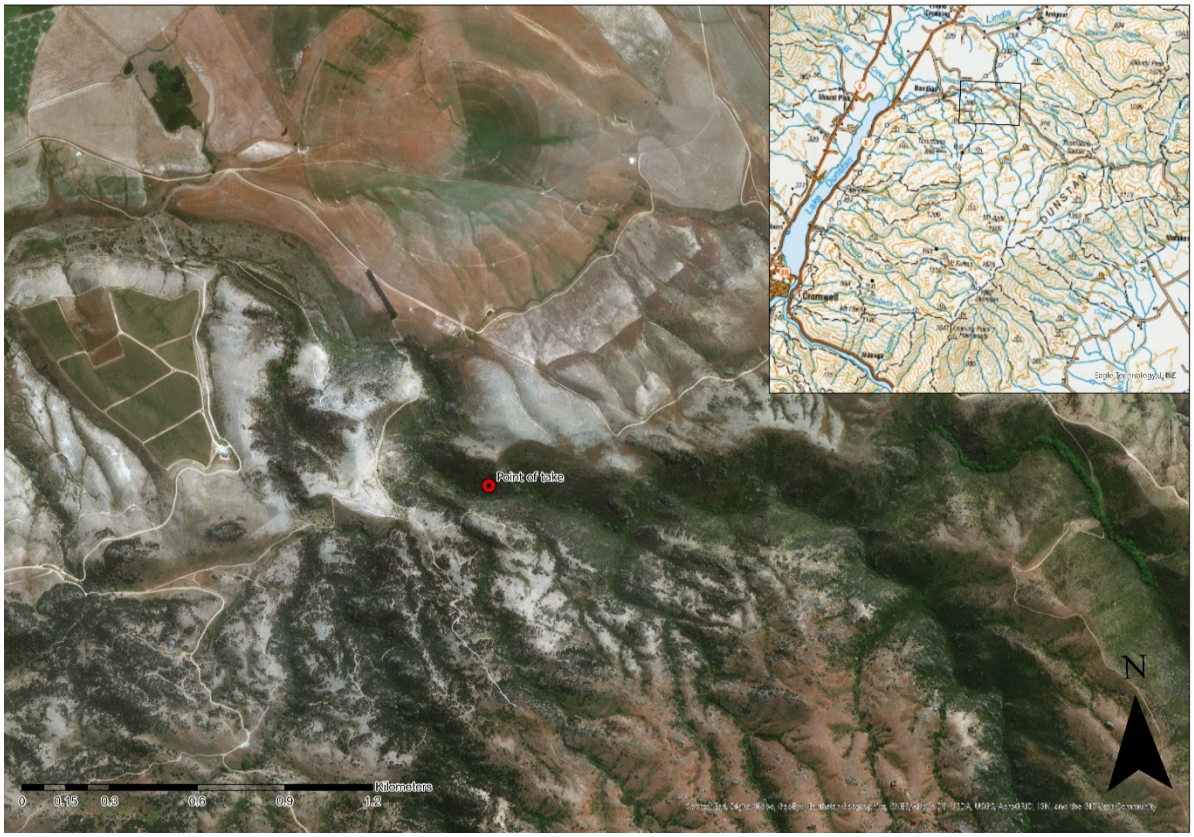

Figure 12: Site location. Source: ESRI Arc GIS.

5.2 Description of Surface Water Body

Water is abstracted from Bendigo Creek which flows into the headwaters of Lake Dunstan. The headwaters of Bendigo Creek begin towards the top of the Dunstan Mountains, at an elevation of approx. 1,560 metres above sea level (masl). The initial stretch of the creek is divided into two branches (Bendigo Creek Right Branch and Bendigo Creek Left Branch) which then join into one branch, after which the creek enters a moderately incised gorge. The Applicant's intake is located towards the end of this gorge, with the creek flowing onto the flats and the channel opening out shortly thereafter. Further details of the location of the intake including photographs are provided in **Section 4.3** of this Report.

5.2.1 Hydrology

There is no flow monitoring data for Bendigo Creek, however MfE flow modelling estimates the mean flow of Bendigo Creek in the vicinity of the intake to be 243 L/s and the mean annual low flow ("**MALF**") to be 63 L/s. The Applicant commissioned Landpro to undertake stream gauging on 16 January 2020 (see Appendix C of the Application). The Applicant's abstraction from the creek was ceased 24 hours prior to the survey, to allow the creek to assume a naturalised flow. **Figure 13** below is extracted from the report and shows the survey locations which indicates that the creek dries up relatively quickly between Sites 3 and 4.

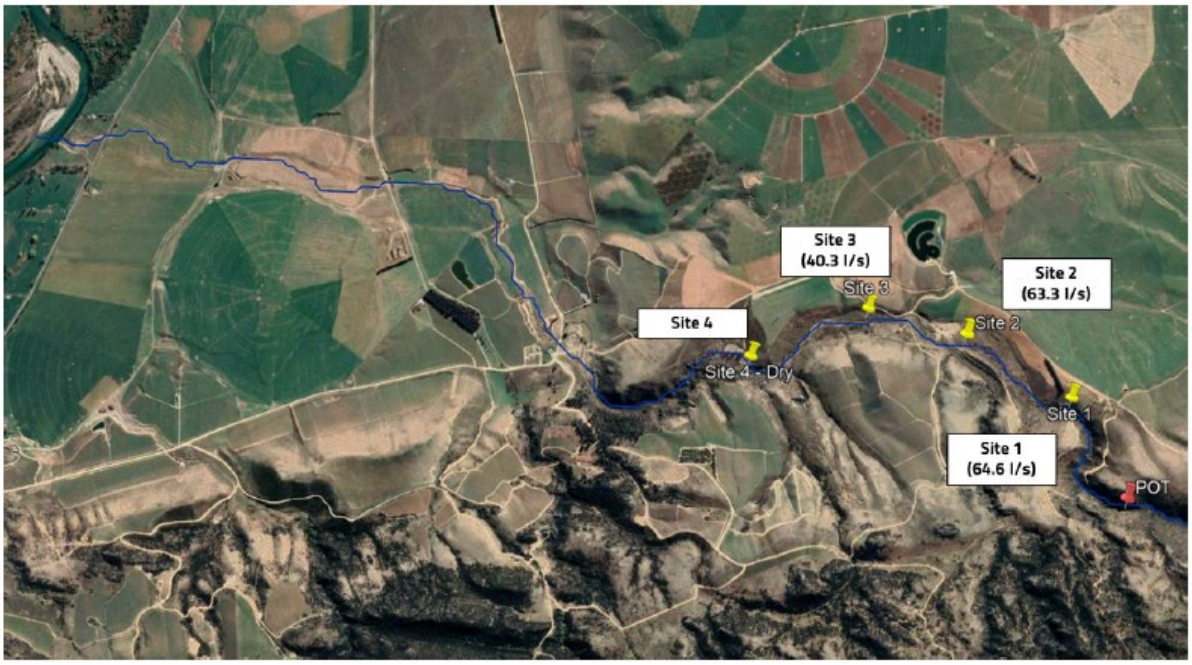

Figure 13: Location and results of gauging (note: site 4 was dry during gauging). Source: Application.

In relation to the apparent losing nature of Bendigo Creek, Landpro in their hydrology report noted the following:

> *"Results of the flow gauging's undertaken suggest that flow downstream of the Bendigo Station Ltd abstraction point interact with the hyporheic zone and fine loose alluvial gravels, and that this provides a mechanism for water loss to the sub-surface zone. The survey identified a net loss of 64.6 L/s between the abstraction point, and a site located approx. 2km downstream (Figure 1) where Bendigo Creek ran dry at a gorge where the creek was constrained by bedrock and pools and dense vegetation."*

In order to better understand the hydrology of Bendigo Creek and determine the effects of abstraction on the creek, the Applicant has commissioned installation of a flow monitoring station on the watercourse. The meter was installed in early February 2020 and is now capturing data. The Applicant may want to provide an update on data.

During my site visit, I inspected Bendigo Creek at various sections. On the proceeding days prior to the site visit, it is understood that the catchment received high rainfall. Near the confluence with the Clutha River/Mata Au there was no apparent flows nor evidence of recent

flows. Flows were first identified at a ford crossing located around the position of "Site 4" on Figure 13. I observed that fences with fine mesh are erected perpendicular and crossing through the river bed. There was no debris trapped in the mesh or obvious impacts of high flows. Flows steadily increased up the catchment.

Tonkin and Taylor ("**T&T**") have assessed this hydrology report on behalf of Council's Resource Science Unit and have advised that the assessment undertaken for hydrology is appropriate to understand the hydrological context. Further, a specific assessment was provided by Rain Effects Limited ("**Rain Effects**") to assist in understanding the MALF and mean flow in order to identify allocation. Rain Effects considered the data that has been collected, the gaugings undertaken and made a correlation with a similar catchment. Based on this, Rain Effects concluded that the MALF is approximately 33 L/s and the mean flow is 120 L/s. For the purposes of this allocation, these parameters will be relied upon.

5.2.2 Aquatic Ecology

There are no New Zealand Freshwater Fish Database ("**NZFFD**") records for Bendigo Creek. The Applicant commissioned a fish survey of Bendigo Creek which was undertaken by Water Ways Consulting Ltd ("**Water Ways**") in December 2019. The results of this fish survey and an ecological assessment of the activities by Water Ways is contained within **Appendix D** of the Application. The survey and assessment provided by Water Ways identified:

- Brown trout (*Salmo trutta*) were the only fish species identified within the survey reaches of Bendigo Creek. The population is limited to a reach between a gorge section and the ephemeral reach – this is between sites 1 and 2 as shown above (see **Figure 13**). This reach provides poor habitat and is likely affected by possible summer low flows resulting in little useable habitat for brown trout.
- There are no other available records of fish species within Bendigo Creek (i.e. within the New Zealand Freshwater Fish Database).
- Larval galaxiid habitat is available to some extent, however, no adult galaxiids were identified at all in each of the surveyed reaches.
- There is no evidence that rare Clutha flathead galaxiids (*Galaxias sp. D*) are present at the water take or downstream of that point.

While brown trout were identified, it was noted by Water Ways that they are one of many "stunted" populations within the Otago region that has no sports fishing value.

T&T also reviewed Water Ways report and advised that the assessment undertaken is robust and provides an accurate account of the ecological values present.

5.2.3 Other water users

Bendigo Creek is not known for recreational values, and given the lower reaches are located on privately owned land it is fairly inaccessible to the general public.

It has been established through case law[7] that the 'environment' includes the foreseeable future state of the environment as it might be modified by lawful activities (permitted or consented). A review of Council's database indicates there are no other consented activities within Bendigo Creek, including other water takes. It is also unlikely that any other permitted activities are being undertaken given the Applicant operates a station that occupies the majority of the catchment with the exception of the upper reaches which is Conservation land.

[7] *Queenstown Lakes District Council v Hawthron Estate Ltd* [2006] NZRMA 424 (CA) is the leading case

5.2.4 Cultural Values

Schedule 1D of the Regional Plan: Water for Otago ("**RPW**") identifies spiritual and cultural beliefs, values and uses associated with water bodies of significance to Kai Tahu. Bendigo Creek is not identified in this schedule.

In addition to Schedule 1D of the RPW, Kāi Tahu Ki Otago Natural Resource Management Plan 2005 provides information, direction and a framework to achieve a greater understanding of the natural resource values, concerns and issues of Kāi Tahu ki Otago. The Clutha River/Mata Au catchment have important cultural value to Kāi Tahu ki Otago. Of most relevance to this application is the protection of Ki U uta ki tai, and the importance of natural flow regimes.

Further, Bendigo Creek is located within the Clutha River/Mata Au catchment, which is identified in the Ngāi Tahu Claims Settlement Act 1998 as a recognised statutory acknowledgment (Schedule 40). This schedule identifies the values of the Clutha River/Mata Au to Ngāi Tahu and in particular note the importance of its mauri.

5.3 Schedule 1 of the Regional Plan: Water

Schedule 1 of the RPW outlines the natural and human use values of lakes and rivers throughout the Otago Region. This schedule is split into 4 parts: Schedule 1A – Natural Values; Schedule 1B – Water Supply Values; Schedule 1C – Registered Historic Places and Schedule 1D – Cultural Values. Regard must be given to these values when considering an activity that may affect a lake or river identified in the Schedule. Bendigo Creek is not identified within Schedule 1.

5.4 Schedule 2 of the Regional Plan: Water

Schedule 2 of the RPW identifies specific minimum flows for primary allocation takes in accordance with Policy 6.4.3, and primary allocation limits in accordance with Policies 6.4.2(a) and 6.4.1A. Bendigo Creek nor the wider catchment (Clutha River/Mata Au) are not identified within Schedule 2 of the RPW.

As no specific primary allocation is set, primary allocation is calculated in accordance with Policy 6.4.2(a). The Council's GIS system "Otago Maps" indicates that the modelled 7-day mean annual low flow for Bendigo Creek catchment is 16 L/s and therefore 8 L/s is the primary allocation limit. As noted in **Section 5.2.1**, a site-specific assessment has been undertaken by Rain Effects to identify the 7dMALF and natural mean flow. Based on their assessment of the available data and by correlating a similar catchment, a 7dMALF of 33 L/s has been identified which would indicate a theoretical limit of 16.5 L/s.

The Applicants current abstraction is the only surface water abstraction within Bendigo Creek. While there is are a number of groundwater abstractions located in the lower reaches of Bendigo Creek, based on the hydrology of the catchment, Rain Effects has noted that the any hydrological connection would be with the Clutha River/Mata Au rather than Bendigo Creek and therefore should not be included in any surface water allocation for Bendigo Creek. On the basis of only the Applicant's abstraction, allocation is currently "fully allocated" with an allocation limit of 83.3 L/s. As the Applicant is seeking 50 L/s for primary allocation, the allocation status will not be impacted upon.

5.5 Regionally Significant Wetlands

The Bendigo Wetland is a Regionally Significant Wetland which is located approximately 8 km west and downstream of the point of the take. The Bendigo Wetland is approximately 240 ha in area and is located at the head of Lake Dunstan. The Bendigo Wetland is identified as containing Schedule 9 regionally significant wetland values that are summarised in **Table 3.** In addition to these values, the wetland is known to support recreational values such as boating, water sports, angling and seasonal game hunting.

Table 3: Bendigo Wetland Schedule 9 values. Source: Schedule 9, Regional Plan: Water for Otago.

Value	Description
A1	Habitat for nationally or internationally rare or threatened species or communities. Habitat for threatened swamp bird Crested Grebe (*Podiceps cristatus*).
A3	High diversity of wetland habitat types. The slow infilling of the lake has provided a wide range of habitat types for a large range of wetland and aquatic plant species.
A7	High diversity of indigenous wetland flora and fauna. The head of Lake Dunstan contains significant habitat for native fish, such as longfin eels and bullies, as well as sports fish, including brown trout, rainbow trout and salmon. Important feeding and breeding sites for water fowl such as Paradise Shelduck (*Tadorna variegata*), Mallard (*Anas platyrhynchos*), Black Swan (*Cygnus atratus*), New Zealand Scaup (*Aythya novaeseelandiae*), Canada Goose (*Branta canadensis*), as well as for Pied Stilt (*Himantopus himantopus*) and other waders.
A8	Regionally significant wetland habitat for waterfowl. Regionally important habitat for waterfowl, including Black Swan, Paradise Shelduck, Mallard, Geese and New Zealand Scaup.
A2, A4-A6, A9	No relevant information is currently held by the ORC.

Based on the information provided, it is understood that there are also no natural inland wetlands that will be impacted in accordance with the National Environment Standard for Freshwater. It is suggested that the Applicant confirm this prior to the hearing.

6. Status of the Application s77A and s87A

Resource consent is required under the Regional Plan: Water ("**RPW**") and proposed Plan Change 7 (Water Permits) of the RPW ("**PPC7"**). PPC7 was notified for submissions on 18 March 2020 and has immediate legal effect in accordance with section 86B(3) of the Act. PPC7 introduces two new rules relating to water takes and as they have immediate legal effect upon notification, must be complied with.

Under s88A of the RMA an application for a resource consent continues to be processed for the type of activity that applied when an application was made, despite an activity status changing as a result of proposed plan change being notified.

As this application was lodged prior to notification of PPC7, it will retain the activity status that it had under the operative rules in the RPW. However, the rules in PPC7 still apply when considering the application under s104, which I address further below.

5.1 Regional Plan Water (Operative)

Water Permit RM20.079.01

The proposal seeks to replace existing deemed permits and has not proposed to increase the rate of abstraction for primary allocation. As Bendigo Creek is not identified in Schedule 2A of the RPW, the proposed replacement of the deemed permits WR1233CR and WR3908CR is a ***restricted discretionary*** activity in accordance with Rule 12.1.4.5 of the RPW:

> ***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.*

The Council may restrict its discretion to matters identified in Rule 12.1.4.8 of the RPW.

The Applicant abstracts water from each of the reservoirs to irrigate land and for stock water. Although water within the reservoirs has been primarily sourced from other lawful water abstractions, this is considered a retake and use of water. Permitted activity rule 12.1.2.3 of the RPW authorises the take and use of water from an 'artificial lake':

> ***Permitted Activity Rule 12.1.2.3:***
> *Except as provided for by Rule 12.1.1.2, the taking and use of surface water from any artificial lake is a permitted activity providing:*
>
> *(a) The artificial lake was created under Rule 12.3.2.1 or under the Transitional Regional Plan rule constituted by General Authorisation 13, prior to 28 February 1998; and*
> *(b) The water is taken by the owner of the dam structure, or the take is authorised by that owner.*

The abstraction form the Cherry Holdings pond can comply with this rule given the damming meets the associated permitted rule; however, the abstraction from the Bendigo Station pond will not comply given the damming is not permitted or authorised by the transitional regional plan. As this is retake of the associated abstraction from Bendigo Creek, this will be considered under the same rule (12.1.4.5).

Water Permit RM20.079.02
The proposal seeks to take and use up to 110 L/s for supplementary allocation in accordance ***restricted discretionary*** Rule 12.1.4.7 of the RPW:

Restricted Discretionary Rule 12.1.4.7
Taking and use of surface water as supplementary allocation in any catchment other than a Schedule 2B catchment:

(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

(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.

This rule relates back to Policy 6.4.9 of the RPW which states:

6.4.9 To provide for supplementary allocation for the taking of water, in blocks of allocation where that is appropriate:

(a) Such that up to 50% of flow at the catchment main stem, minus the assessed actual take, is available for allocation subject to a minimum flow set to ensure that no less than 50% of the natural flow remains instream; or

(b) On an alternative basis, provided:

(i) The take has no measurable effect on the flow at any Schedule 2 monitoring site, or any site established in terms of Policy 6.4.4, at flows at or below any minimum flow applying to primary allocation; and

(ii) Any adverse effect on any aquatic ecosystem value or natural character of the source water body is no more than minor; and

(iii) There is no adverse effect on any lawful existing take of water.

(c) Supplementary allocations and associated minimum flows for some catchments are set in Schedule 2B.

The Applicant has confirmed that they will be seeking supplementary allocation in accordance with clause (a) of Policy 6.4.9 and propose to meet a minimum flow as calculated in accordance with Method 15.8.1A.1 of the RPW.

As noted above, the Applicant proposes to retake water from the Bendigo Station Pond. The portion associated with supplementary allocation will be also be considered under the same rule (12.1.4.7).

The Council may restrict its discretion to matters identified in Rule 12.1.4.8 of the RPW.

Water Permit RM20.079.03
Part of the proposal includes the damming of water in two reservoirs. Both reservoirs are located outside the bed of a lake or river. The RPW does not contain specific rules relating to the damming of water outside the bed of a watercourse, however permitted activity rule 12.3.2.1 of the RPW authorises the damming of water in small catchments and where the dam is under a certain size:

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

The Applicant has confirmed that the dimensions of the Cherry Holdings pond comply with the thresholds for the permitted rule, and all other conditions can be met. The damming of water in the Cherry Holdings pond is therefore permitted. In relation to the Bendigo Station pond, given the storage capacity exceeds the permitted threshold of 20,000 m^3, this permitted rule cannot be met. The damming of water in the Bendigo Station pond is therefore a ***discretionary*** activity in accordance with Rule 12.3.4.1(i) of the RPW:

> *Except as provided for by Rules 12.3.1.1 to 12.3.3.1 and except in the Waitaki catchment, the damming or diversion of water is a discretionary activity.*

Permitted Activities
The Applicant proposes to discharge water to Bendigo Creek from a water race associated with the water bypassed by the Pond. The discharge of water into a lake or river from a race is a permitted activity in accordance with Rule 12.C.1.1 of the RPW. The Applicant has confirmed that all of the conditions of this rule will be met. The discharge to Bendigo Creek is therefore a ***permitted*** activity.

Bundling:
Applications involving a number of different activity status can be bundled together, so that the most restrictive activity classification is applied to the overall proposal. The bundling approach developed from case law to enable appropriate consideration of the effects of an activity, or group of activities. The most restrictive activity status applying to the activities subject to this application is a discretionary activity, as a ***discretionary*** activity status under the RPW.

Plan Change 7 to the Water Plan (Notified)
Plan Change 7 was notified on the 18 March 2020 and therefore the rules, objectives and policies in the plan change apply to the water permit.

For applications to renew deemed permits expiring in 2021, and any other water permits expiring prior to 31 December 2025, PC7 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 consent duration sought is more than 6 years, the activities do not meet the conditions of Rule 10A.3.1.1 and would be a non-complying activity under rule 10A.3.2.1. As set out above, this activity status does not apply to these consents as the Application was lodged prior to PPC7 being notified; however, assessment of the Applications in accordance with the rule in undertaken in accordance with s104(b) of the Act.

National Environmental Standard for Freshwater 2020

The National Environmental Standards for Freshwater ("NES-F") were released in August 2020. The NES-F introduces rules for various activities associated with lakes, rivers and wetlands, and is part of the freshwater management package, which include amendments to the Act, an updated National Policy Statement for Freshwater Management and amendments to water metering regulations. The NES-F, along with the other associated changes as part of the freshwater management package took effect on 3 September 2020.

There is no relevant regulations triggered in relation to the proposed under the NES-F.

6. 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. Assessment of Environmental Effects

Section 104(1)(a) of the Act 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 Bendigo Creek.

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)).

In terms of the applying a permitted baseline, I do not consider it is appropriate to apply the permitted baseline for the effect of the water abstractions within Bendigo Creek given the applicable permitted rule[8] is a fraction of the rate and volume sought, it would therefore be impractical to apply such a baseline. I note that Bendigo Creek flows into the Clutha River/Mata Au. I consider that a permitted baseline may be applied to effects on its values given the rate and volume is within the current thresholds of Rule 12.1.2.1. In relation to the damming of water, I do consider it is appropriate to apply a baseline to aspects of Rule 12.3.2.1 that the applicant can comply with being clauses (a), (d), (g) and (h).

I consider that the adverse effects of the activity on the environment relate to:

- Allocation availability
    - Minimum flows
- Instream values
- Effects on groundwater
- Natural Character and Amenity values
- Regionally Significant Wetlands
- Dam Safety
- Cumulative effects
- Downstream users and competing demand for water
- Cultural values

Consideration of the above adverse effects is provided in the Sections that follow.

7.1 Surface Water Allocation

Allocation of water under the RPW is split into two categories being “primary” allocation or “supplementary” allocation. Primary allocation is provided on a “first in first served” basis in accordance with Policy 6.4.2 of the RPW. The supplementary allocation being the alternative is generally provided when flows in the watercourse are high and there is no primary allocation remaining to allocate. Supplementary allocation is provided in accordance with Policy 6.4.9 of the RPW and ‘further’ supplementary is also provided in accordance with Policy 6.4.10. The Applicant has sought both primary allocation; being the 50 L/s associated with the replacement of the deemed permits, as well as supplementary allocation for the additional 110 L/s. Consideration of each form of allocation is given below.

It is noted that the Applicant has also sought to take water from the reservoir which is located outside the bed of a river. The water that is taken from the reservoir will have already been taken lawfully from the natural environment being Bendigo Creek under the above primary and supplementary allocation permits and the alternative groundwater source. The taking of this water will not obstruct any other individual’s ability to take water and is located over private land. The take from the reservoir will therefore not impact upon allocation (primary or supplementary) and should be treated as a ‘retake’.

[8] Permitted Activity Rule 12.1.2.1 or 12.1.2.5 authorises the take and use of up to 25,000 litres per day at a rate or 1 L/s

7.1.1 Primary Allocation

Primary allocation is defined by Policy 6.4.2 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 current allocation status of Bendigo Creek is summarised in **Section 5.4**. This Application seeks 50 L/s for primary allocation associated with the replacement of two existing deemed permits. This will result in the allocation limit of Bendigo Creek reducing to 50 L/s. While this is a reduction from 83.3 L/s, this still exceeds the theoretical allocation limit as calculated by clause (a). However, for the purposes of the National Policy Statement for Freshwater, given the above and current operative policy provides 'either' this is not over-allocation, and the proposed take can be considered as primary allocation. Bendigo Creek is currently considered to be fully allocated and will continue to be fully allocated with the granting of these permits.

Aukaha raised in their submission that allocation for Bendigo Creek should be calculated as 30% of the MALF. It is understood that this calculation was derived from a consultation document associated with the proposed National Environmental Standard for Ecological Flows (2008). Based on the MALF of 33 L/s, the allocation limit for Bendigo Creek would be 9.9 L/s. I note that the consultation document has no regulatory weight and the allocation provisions of the RPW must be considered. I consider that if a new allocation limit is to be set, it should be set through the Schedule 1 process as it relates to a full catchment and needs to consider a wider range of factors that cannot be considered through this consent process. This will occur as part of the NPSFM 2020 national objectives framework process, further discussed in **Section 8.3.3** below and be included in the Land and Water Plan to be notified by end of 2023. The fully allocated nature of the catchment and relationship between the current primary takes rates and MALF are a relevant consideration when determining the duration of any consents granted.

Minimum Flows

Minimum flows may be set for a river or catchment for the purpose of restricting primary allocation takes of water. A minimum flow provides for the maintenance of aquatic ecosystem

and natural character values of water bodies, while providing for the sustainable taking of water for use. Once set in Schedule 2A of the RPW, they are imposed on all relevant consents in that catchment. When a minimum flow is breached, all consents to take water as primary allocation (with some exceptions), must cease.

Policy 6.4.4 of the RPW states that in the case of existing resource consents to take water outside of Schedule 2A catchments, any proposed minimum flows must be set in Schedule 2A by a plan change before it can be applied to any consent in accordance with Policy 6.4.5(d). No minimum flow has yet been set for Bendigo Creek or Clutha River/Mata Au catchments. Any relevant consent within that catchment may be reviewed under Section 128 of the Act in order to impose conditions that will allow the minimum flow to be met.

Aukaha have requested that a minimum flow equal to 90% of the MALF be set in the Bendigo Creek which again is consistent with the consultation document associated with the proposed National Environmental Standard for Ecological Flows (2008). Based on Aukaha's submission, it is understood that this minimum flow would provide better protection of the mauri of Bendigo Creek and supports Te Mana o Te Wai. A minimum flow of 90% of MALF would be a flow of 29.7 L/s. As with allocation, given a minimum flow should apply to the full catchment it must consider wider matters than what can be considered by this application, therefore I consider that if this minimum flow is required that it is set through a Schedule 1 process. I note that 'residual flows' may also be applied to individual takes and further consideration of the appropriate flow is given in **Sections 7.3** and **7.9**.

7.1.2 Supplementary Allocation

Supplementary allocation is defined by Policy 6.4.9 of the RPW as:

"To provide for supplementary allocation for the taking of water, in blocks of allocation where that is appropriate:

(a) Such that up to 50% of flow at the catchment main stem, minus the assessed actual take, is available for allocation subject to a minimum flow set to ensure that no less than 50% of the natural flow remains instream; or

(b) On an alternative basis, provided:

(iv) The take has no measurable effect on the flow at any Schedule 2 monitoring site, or any site established in terms of Policy 6.4.4, at flows at or below any minimum flow applying to primary allocation; and

(v) Any adverse effect on any aquatic ecosystem value or natural character of the source water body is no more than minor; and

(vi) There is no adverse effect on any lawful existing take of water.

(c) Supplementary allocations and associated minimum flows for some catchments are set in Schedule 2B."

The Applicant has sought an additional 110 L/s as supplementary allocation in accordance with clause (a) of Policy 6.4.9. Method 15.8.1A.1 assigns the first allocation block (and subsequent blocks) depending on the MALF which is shown in **Table 4** below.

Table 4: Method for calculating the first supplementary block allocation for the purposes of Policy 6.4.9(a). Source: Method 15.8.1A.1 of the 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

Based on the MALF of Bendigo Creek, up to 100 L/s can be allocated in each supplementary block. There are currently no authorised abstractions within the Bendigo Creek Catchment for

supplementary allocation. The proposed 110 L/s would therefore be subject to two allocation blocks being the first block (100 L/s) and the second block (10 L/s).

Policy 6.4.9(a) requires that at least 50 % of the flow is maintained in the river at all times. This requires a set minimum flow for when the supplementary allocation can commence abstracting. The Applicant has not proposed a specific minimum flow, however, has confirmed that a minimum flow in accordance with Method 15.8.1A.2 will be adhered to. This method identifies the formula for calculating supplementary minimum flows as being:

Supplementary minimum flow = Primary allocation + Supplementary allocation(s)

As noted above, the primary allocation of Bendigo Creek will be 50 L/s. As there is currently no supplementary allocation, the primary allocation limit is the minimum flow for 'block 1' and the minimum flow for 'block 2' is the primary allocation limit plus the allocation from block 1. Consistent with this, I recommend that RM20.079.02 is subject to the following minimum flows:

Supplementary allocation block	**Rate of abstraction**	**Minimum flow / Abstraction may commence**
Block 1	100 L/s	50 L/s
Block 2	10 L/s (combined 110 L/s)	150 L/s

For context it is noted that if the Applicant were to exercise both their primary and supplementary allocation takes in unison, a flow of at least 100 L/s would be required to account for the Applicant's primary allocation take, assuming the full rate sought were to be granted.

While these minimum flows are what is Method 15.8.1A.2 suggest, I note that the flows may be lower than what is required based on the Applicant's method of abstracting being 'opportunistic'. The Applicant may wish to propose alternative minimum flows that better reflect the method of taking while providing higher environmental flows.

The Applicant has proposed to monitor the minimum flow at a point in Bendigo Creek downstream of the abstraction via a telemetered flow meter. I consider that this is appropriate location and means for monitoring the minimum flows.

7.2 Effects on the Hydrology of Bendigo Creek

The Applicant commissioned Landpro to undertake a hydrological assessment of Bendigo Creek and assess the effects on hydrology as a result of the proposed abstraction. The hydrological context is outlined in **Section 5.2.1** of this Report. Landpro conclude in their assessment of effects that while abstraction during low flows would shorten the wetted reach of the creek somewhat, the hydrological implications of this shortening would still be considered insignificant. Abstraction does not curb the natural cycles of the creek, meaning its inherent character is maintained, and the creek is always enabled to flow well past the point of take. Effects are assessed to be no more than minor. No specific mitigation has been proposed by the Applicant.

T&T have reviewed Landpro's assessment. T&T agree with the assessment and conclusions of Landpro based on the available data.

Through the further assessment undertaken by Rain Effects, conclusions of the hydrology of Bendigo Creek have been further confirmed.

I am satisfied with this assessment and consider effects on hydrology will be no more than minor.

7.3 Effects on the Instream Values

The Applicant commissioned Water Ways to undertake a survey of Bendigo Creek and provide an assessment of effects on instream values. The values present in Bendigo Creek are summarised in **Section 5.2.2** of this report. Water Ways assessed that the abstraction will lead to a reduction in some of the available and useable habitat for brown trout by increasing the size and duration of the natural ephemeral reach. However, as this brown trout population is one of many "stunted" populations within the Otago region and has no sports fishing value, the reduction in available and useable habitat is not considered more than minor.

Water Ways also identified that the abstraction would reduce available habitat for aquatic invertebrates However, flow will be maintained through the permanently wet reaches and will continue to provide a varied range of connected habitats for a diverse invertebrate community. Water Ways state that the habitat and flow characteristics downstream of the water take (for approximately 750 m) are conducive to high dissolved oxygen and lower temperatures and are not likely to be affected by the proposed water abstraction. No direct measurements of water temperature and dissolved oxygen were collected to confirm this characterisation. Similarly, nuisance periphyton communities are unlikely to reach bloom conditions within this reach due to the low stock grazing, increased riparian shading, and steep gradient providing high scour potential. The lower open and unshaded reaches of Bendigo Creek (> 750 m downstream of the water take), water temperatures are already likely to be naturally higher and will be elevated due to the water abstraction. Additionally, didymo already blooms within this reach and will continue to occur regardless of the water abstraction.

Water Ways conclude that adverse effects are not likely to be more than minor. T&T have reviewed this assessment on behalf of Council's RSU. T&T consider that a robust assessment has been undertaken and agree with the conclusions reached.

Residual Flow

Residual flows may be set in accordance with Policy 6.4.7 of the RPW for the purpose of maintaining natural character and aquatic ecosystem values. A residual flow can be used as an alternative to a minimum flow as a form of environmental flow. The Applicant assessed that based on the current flows of Bendigo Creek, a residual flow (number) is not required. The positioning of the current intake structure being an open pipe elevated above the bed of the river and its location on the bed, enables this residual flow to be maintained past the intake at all times regardless. The Applicant also indicated following the release of a draft s42A report, that continuous low continues to be maintained downstream of the intake for a distance of 750 metres, even during lowest flow periods (see **Appendix 1**). Water Ways noted in their assessment that the current flows that are maintained are appropriate for maintaining aquatic ecosystems. It was noted however, that should a residual flow be a set, it should be a visual flow below the point of take to reflect what is currently occurring.

Aukaha in their submission have requested that a minimum flow equal to 90% of the MALF is set. As noted, I would consider that placing a catchment wide minimum flow would be better managed through the Schedule 1 process, however, this flow could be applied to the residual flow meaning a residual flow of 29.7 L/s.

T&T have reviewed this assessment on behalf of Council's RSU. Based on the hydrology data provided, T&T agree with the assessment undertaken by Water Ways. Based on the advice of T&T, I do not consider that a quantifiable residual flow is necessary given the flows would

ensure that both the aquatic ecosystem and natural character of Bendigo Creek is maintained which is consistent with Policy 6.4.7. While a residual flow condition could be set to reflect this being a visual flow, I consider that this would result in an unnecessary monitoring and compliance requirements for an outcome that will be achieved by the current method and positioning of the intake. However, I noted that this is dependent on the Applicant's current abstraction method and means remaining the same throughout the duration of the consent. The Applicant could make changes to the intake through the duration that could alter the provision of this flow, moving to a pumped take for instance. Whole I don't recommended a residual flow condition, I recommend that a condition of consent require the intake method to continue to provide for connected flow below the intake as well as anticipate for any potential modifications to the intake to ensure the flow outcome remains.

Fish screen
An abstraction can cause uptake of fish and elvers if it is not appropriate screened. Given there is no fish present at the point to take based on the fish survey, no fish screen has been proposed. While Aukaha in their submission have requested that a fish screen be installed on the intake, based on the absence of fish at the point of take I do not consider that there is a risk of fish uptake and therefore do not consider a fish screen is necessary.

Subject to the Applicant confirming the above information, the effects on instream values is considered no more than minor.

7.4 Natural Character and Amenity

The taking of water can influence flows of a river thereby altering its natural character as well as adversely affect the amenity values associated with it. As noted in **Section 5.3**, Bendigo Creek is not specifically identified in Schedule 1A of the RPW for containing specific natural values (including natural character). The upper catchment of Bendigo Creek is relatively unmodified meaning there is a high natural character, the lower reaches however are heavily modified not only through the current land use, but also through historic mining.

In relation to amenity values, Bendigo Creek itself is too small for angling and other recreational uses and gauging shows that it tends to dry up in the summer months. Amenity values therefore relate primarily to visual amenity. While the abstraction will result in a reduction in flows, it is considered that sufficient water will be maintained below the abstraction to maintain any natural character and amenity values. The intake structure does modify the bank of the river; however, this effect is localised and due to the historic nature of the water abstraction, it does form part of the modified environment.

In relation to the reservoir, the surrounding land is rural in nature. Reservoirs are not uncommon in this area, particularly due to low water availability. The reservoir is also located on private land which is unlikely to be seen from neighbouring properties.

Overall, I consider that adverse effects on natural character and amenity will be no more than minor.

7.5 Dam Safety

Dam safety refers to the safe operation and management of dams. Currently there is no specific regulations in place for managing dam safety. Central government revoked the Building (Dam Safety) Regulations 2008 on 31 July 2015 and have since proposed another set of dam safety regulations which are likely to be passed as a Bill of Parliament around mid-next year. In the absence of specific dam safety regulations, the Building Act 2004 is the

primary legislation regulating the construction and management of dams. In terms of regulating the long-term maintenance and operation of dams, it is necessary that this is considered through the water permit to dam water. The proposed dam safety regulations are based on the New Zealand Society on Large Dams 2015 Guidelines (NZSOLD 2015) which sets out nationally accepted guidelines for the safe construction and operation of dams. As there are proposed regulations, it is reasonable to consider dam safety in relation to those. The dam safety regulation applies to all dams which are defined as a 'classifiable dam'[9] and will apply varying requirements on dam owners to undertake ongoing monitoring and reporting. In this case, the proposed dam, would meet the definition of a 'classifiable dam'.

While there is risk and potential effects for dam safety, the Applicant has confirmed that the dam would be operated in accordance with the NZSOLD 2015 guidelines which reflect the proposed regulations and are of best practice. The dam has been assessed as a Low PIC dam under the NZSOLD 2015 guidelines and, based the nature of the dam and its receiving environment and liaison with T&T, I am satisfied with this assessment. To ensure that the dam safety is provided for, I recommend, that if consent were to be granted, a condition of consent is imposed to reflect the proposed dam safety regulations for a 'Low PIC' dam. This requires a 5-year year review of the potential impact classification by a suitably qualified individual.

7.6 Effects on Regionally Significant Wetlands

The Bendigo Wetland is a Regionally Significant Wetland at the head of Lake Dunstan. The wetland provides a high value diverse habitat for nationally vulnerable or threatened species (e.g. Crested Grebe (*Podiceps cristatus*) and provides a wide range of habitat types for a large range of wetland and aquatic plant species. The confluence of the Bendigo Creek and the Clutha River/Mata-Au is upstream of the northern extent of the Bendigo Wetland.

The water abstractions could result in a reduction in available water to the wetland. The Applicant has assessed that the Bendigo Creek flow would account for a relatively insignificant portion of the hydrology for the wetland. T&T supported this by reviewing the groundwater allocation zone and which identifies that flows are dominated by the Clutha River/Mata Au. Notwithstanding Bendigo Creeks minimal inputs into the wetland, based on the hydrology assessment of the abstraction, which is not likely to influence flows, effects on the regionally significant wetland are considered negligible. It is understood based on my observations at the site visit and the information provided that there are no other wetlands in close proximity to the site (including natural inland wetlands).

7.7 Effects on Other Water Users

As noted in **Section 5.2.3**, there are no other consented water users in Bendigo Creek and it is unlikely that any permitted abstractions occur downstream. There are a number of groundwater abstractions located in the lower reaches. Rain Effects considered these water takes when providing advice regarding allocation. Due to the hydrological characteristics of Bendigo Creek and the proximity of the groundwater takes to other more significant water bodies, any potential adverse effects of the abstraction on these groundwater takes will be negligible.

Overall, I consider that adverse effects on other users is less than minor.

[9] **Classifiable dams** are either of the following:

- at or above 4 metres in height and 20,000 cubic metres in volume; or
- less than 4 metres in height, but at or above 30,000 cubic metres in volume.

7.8 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.

In accordance with Section 3 of the Act, the definition of 'effect' includes *any cumulative effect which arises over time or in combination with other effects.* There is no definition for 'cumulative effect' under the Act, other than what is outlined above. The Oxford English dictionary defines 'cumulative' as meaning *'having a result that increases in strength or importance each time more of something is added'* and *'including all the amounts that have been added previously'*. Westlaw NZ expands on this definition by drawing from case law. This case law advises that a cumulative effect is an effect that will occur as opposed to a 'potential effect'.

In relation to this application, consideration of the cumulative effects become a question of scale. Cumulative effects could be considered on two different scales, either the cumulative effects within each individual water body (Bendigo Creek) and/or the cumulative effects on the Clutha River/Mata-Au catchment.

In either case, based on the hydrology of Bendigo Creek its disconnection with the downstream catchment, and the fact that the proposed take is the only surface water abstraction within the Bendigo Creek catchment, I consider that cumulative effects to be no more than minor.

7.9 Effects on Cultural and Kai Tahu Values

While Bendigo Creek is not identified in Schedule 1D of the RPW, it is recognised that the creek may still have cultural significance. Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga (Ngā Rūnanga) have submitted opposing the application. In their submission they discuss that Kāi Tahu has a cultural, spiritual, historic and traditional relationship with the Clutha/Mata-au Catchments / Te Riu o Mata-au.

The Clutha/Mata-au Catchment and its headwaters were the traditional focus of seasonal migrations for many of the hapū and whānau living in the Araiteuru/Coastal Otago. Its vast length, many tributaries and three large roto at its headwaters, fed by the mauka in Kā Tiritiri o Te Moana/Southern Alps, had much to offer Kāi Tahu. The Clutha/Mata-au Catchments was therefore highly valued by all the different hapū and their whānau who used it. The use of these Catchments was a focus of the very distinctive seasonal lifestyle. The primary management principle for Ngā Rūnanga is the maintenance and enhancement of the mauri or life-giving essence of a resource. The Aukaha submission notes that Mauri can be tangibly represented in terms of elements of the physical health of the land, a river, or surrounding biodiversity. The forest, waters, the life supported by them, together with natural phenomena such as the mist, wind and rocks, possess a mauri or life-force. While there are also many intangible qualities associated with the spiritual presence of a resource, elements of physical health which Ngā Rūnanga use to reflect the status of mauri and to identify the enhancements needed include:

- Aesthetic qualities e.g. natural character and indigenous flora and fauna;
- Life supporting capacity and ecosystem robustness;
- Fitness for cultural usage.

Indigenous biodiversity, life-supporting capacity and eco-system robustness are also physical indicators of the status of mauri. Based on advice from T&T, and the aquatic assessment provided by the Applicant, Bendigo Creek supports a stunted population of brown trout as well as natural character values.

The natural flow and habitat characteristics are key factors affecting both life-supporting capacity and eco-system robustness below the take. While there will be a small reduction in habitat for trout, this is considered to be minor and the population affected is stunted. In addition, the flow that will continue to be maintained below the intake will maintain the natural character of Bendigo Creek, albeit no specific residual flow has been proposed. Based on this, I consider that the abstraction from Bendigo Creek has minor adverse effects on life-supporting capacity and eco-system robustness, as it limits the amount of water below the take points.

Another key aspect in terms of effects on waterways from a cultural perspective is the concept of ki uta ki tai. At a more literal level this concept may be applied in terms of flow from the mountains from the sea, and considering effects (including cumulative effects) along the whole length of a waterway. In the context of this Application, this would relate to the wider Clutha River/Mata Au. Due to the hydrology of Bendigo Creek, water flows are largely disconnected between the Clutha River and Bendigo Creek. Further, the effects of the abstractions on flows are considered less than minor. Based on this, I consider the proposed abstractions are not likely to impact upon the concept of ki uta ki tai within the Clutha River/Mata Au catchment.

Aukaha in their submission consider that the application in its current form should be declined, but would not oppose the application should the following conditions be imposed to manage effects on cultural and kai tahu values:

- That a term of consent be no longer than 6 years;
- Retain existing requirements for water meter(s) and ensure results continue to be recorded and reported via telemetry;
- Retain existing requirements for fish screen over the intake structure;
- A minimum flow of 90% of the MALF as calculated by the Regional Council and an allocation limit of 30% the MALF as calculated by the Regional Council.

In relation to the matters, it is understood that the duration of 6 years is sought to ensure consistency with proposed PPC7 and to give effect to Te Mana o Te Wai. I have given consideration to this in **Sections 8.3.8** and **10.** of this report.

In relation to the metering, I agree that this should continue and have recommended conditions that require it is in accordance with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2020.

As I understand it, the intake is not currently screened. Based on the non-existence of fish, I do not consider there is potential risk of uptake and therefore have not recommend that a screen is installed. During a meeting with Aukaha it was indicated agreement that if there is no risk, a screen is not necessary (see **Appendix 1**). It is anticipated that Aukaha will address this further at the hearing.

I have considered the allocation limit in **Section 7.1.1** and consider that if it is to be reduced to 30% the MALF it would need to be on a catchment basis and would be better suited to a Schedule 1 process. I note that if the panel are of the opinion that only 30% of MALF should be allocated for the primary allocation permit (RM20.079.01), this would relate to a reduced rate of take of 9.9 L/s. Given the Applicant does have the ability to abstract supplementary allocation, this may be feasible. However, I remain of the opinion that allocation must be considered based on the current provisions of the RPW.

I have considered the requested minimum flow of 90% of MALF in an ecological context in **Section 7.3** and do not consider that it is justified to set a specific flow limit (on a residual or minimum flow). Following release of a draft s42A report, it was sought by the Applicant that an indication be provide of what low flow would be expected to be maintained without requiring a specific residual flow. The Applicant advised that based on flow recordings, even during the driest periods (December 2020), a connected flow up to 750 m downstream was being maintained. In the context of maintaining the mauri of Bendigo Creek and other associated cultural values, I cannot comment on whether the flow provided will maintain these values. While I currently do not recommend a minimum flow of 90% of the MALF, I will consider this further should additional evidence be provided by Aukaha as to the necessity for this flow.

If the Commissioner is of opinion that a minimum flow should be set that is equal to 90% the MALF, this would relate to a minimum flow level of 29.7 L/s. I recommend that if this is to be placed, that the minimum flow is measured at the same monitoring station that the supplementary allocation minimum flows will be recorded at.

Overall, I consider adverse effect on cultural values to be minor.

7.10 Water Use Assessment

Water use assessment considers what the Applicants have applied for, their historic use and what is considered efficient. The Applicants are proposing to take and use the water in a variety of applications including irrigation, domestic, stock drinking water and pond maintenance.

7.7.1 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.

A water use analysis was undertaken by Council's Systems and Information Analyst, Sean Leslie. The Applicant installed a water meter in February 2019 and there was no recording of the take prior to this date, therefore data available is only from 7 February 2019. Based on a review of data up until 5 October 2020, Council's Systems and Information Analyst identified that the highest take in any one day was 6,570 m^3, the highest volume taken in any one month was 132,000 m^3 and 1,046,200 m^3 in any year. For the instantaneous rate, the 90th%tle high use rate shows a combined maximum of 49.7 L/s. **Table 5** shows a comparison of the rate and volume that has been sought, in comparison to the rate and volume that has been historically abstracted.

Table 5: Comparison of water sought and recorded water use.

	Applied for[10]	Water use
Rate	50 L/s	49.7 L/s
Monthly volume	235,948 m^3	132,000[11] m^3
Annual volume	1,080,598	1,046,200[12] m^3

In terms of the rate of abstraction, I am satisfied that the rate sought has been reasonably taken (is within the margin of error) and therefore do not recommend any reductions. The volumes sought include both the primary and the supplementary allocation with the intention that the later would provide for any additional volumes sought and for the increased irrigation area. As both the monthly and annual volumes exceed what has been sought, to ensure consistency with Policy 6.4.2A I recommend that the volumes provided for RM20.079.01 are specified and are no greater than 132,000 m^3 per month and 1,046,200 m^3 per year.

I note that this water use assessment is based on only one year of water use data. After visiting the site and inspecting the infrastructure (including irrigation infrastructure), I am satisfied that the above rate and volume have generally been taken, however caution that this may not be fully representative of what has been taken historically or what is reasonably required. I also note that in my observation of the water use information for the 2019 year, upwards of 100,000 m^3 was abstracted during the shoulders of the irrigation season and during the winter months[13]. Compare this with this year's data, volumes abstracted are markedly lower with no more than 37,400 m^3 taken during the same period[14]. I would therefore question whether the annual volume was reasonably required. I consider this mismatch further in my overall recommended volumes in **Section 7.7.4**.

It is noted that through PPC7, a method (Schedule 10A.4) has been provided for calculating actual use in accordance with the proposed controlled activity. As this Application was lodged prior to the notification of the proposed plan change and the relevant Controlled Activity rule would not be applicable in this instance, I do not consider it necessary to apply this method when considering actual/historic use. Further, I note that there is insufficient water use information to calculate the volumes in accordance with the method.

7.7.2 Efficiency of Water Take and Use

7.7.2.1 Irrigation

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

[10] Volumes are in combination with the proposed supplementary allocation
[11] Abstracted over the month of October 2019
[12] Abstracted over the 2019 calendar year
[13] 417,500 m^3 was abstracted during the months of May – August.
[14] 146,200 m^3 was abstracted during the months of May – August.

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.

In terms of adjoining regions and their more contemporary regional plans, we are aware that the Environment Canterbury Land and Water Regional Plan (Schedule 10) assumes an irrigation application efficiency of 80%, a system capacity to meet peak demand, a nominal irrigation season from 1 September to 30 April, demand conditions that occur 9 out of 10 years (equivalent to a 90-percetile demand) and a land use of intensive pasture production. Similarly, the Southland Water and Land Plan (Appendix O) stipulates use of a field-validated daily time-step irrigation demand model to calculate the annual irrigation volume for 90 percent (9 in 10 year) reliability taking account of crop and soil type, climatic factors and an irrigation application efficiency of 80%. Other Regional Councils that we are familiar with and who also allocate irrigation water for a 9 in 10 years security of supply include Hawke's Bay,[15] Waikato[16] and Northland.[17]

The Applicant requires water for the irrigation of pasture and viticulture. For the purpose of calculating water requirements on the applicant's property, the take is located in the Central Otago zone with a MAR of 450 mm/yr and PAW value of 40mm[18]. Therefore, to maintain optimum plant growth, the maximum monthly limit for irrigation has been estimated at 1,710 m^3/ha for pasture and 750 m^3/ha for viticulture. It is also estimated that no more than 8,200 m^3/ha for pasture and 2,390 m^3/ha for viticulture should be applied over an irrigation season.

[15] Regional Resource Management Plan, Policy 32 for groundwater. For surface water the security of supply is 1 in 5 years (Policy 42).
[16] Waikato Regional Plan, section 3.4.3 Policy 2.
[17] Northland Regional Plan, section D.4.13.
[18] The PAW of irrigable land differs from 24 – 45 based on the Fundamental Soil Layers from Landcare. Aqualinc assigns a minimum PAW of 40 which the soils at the site have been rounded to.

It is acknowledged that actual use will only be known through the keeping of accurate pumping records.

Table 6 summarises water volumes and application rates (calculated by the Council based on the total area able to be irrigated) as applied for by the applicant and compares them to water volumes and application rates recommended by Aqualinc. It is noted that currently the Applicant irrigates only 100 ha of pasture and the irrigation for viticulture is new area for irrigation.

Table 6: Summary of Applied for Water vs Aqualinc Recommendations.

	Applied for by Applicant	**Aqualinc recommendations – Pasture**	**Aqualinc recommendations – Viticulture**	**Total recommen by Aqualinc**
Total volume per month	232,800 m^3	171,000 m^3	61,800 m^3	232,800 m^3
Maximum take rate	160 L/s	65 L/s[19]	23.5 L/s	88.5 L/s
Irrigation period	8 months	8 months	8 months	8 months
Irrigated area	182.4 hectares	100 ha	82.4 ha	182.4 ha
Total volume per season	1,016,936 m^3	820,000 m^3	196,936 m^3	1,016,936 m^3

As the monthly and seasonal volumes sought are consistent with the recommendations of Aqualinc, I consider that the proposed volumes for irrigation are reasonable for the irrigation of the proposed 182.4 ha of land and will be an efficient use of water.

The recommended maximum allocation limits from Aqualinc can only discourage water being wasted during a dry year. In order to avoid water being wasted in an average year, if consent were to be granted, itis recommended that a condition of consent is imposed 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.

7.7.2.1 Domestic water

The Applicant has sought an additional 365 m^3 for domestic water associated with one house servicing 4 individuals. This volume sought is consistent with the AS/NZS 1547:2012 standards for calculating wastewater volumes for small-scale on-site wastewater systems. I consider this proxy to be reasonable for the purpose of use.

I note that this could be taken as a permitted right under Section 14(3) of the Act or permitted activity rules under the RPW; however, the High Court has confirmed that permitted aspects of a development proposal must be considered and assessed as part of resource consent applications (at least from a cumulative effect perspective). Importantly, the Court went on to confirm that individual activities forming part of an overall development that are permitted at the time consent is granted can therefore come within the scope of the consent and continue to be authorised by it. I therefore consider it appropriate that permitted aspects of the take, including both stock drinking water (see below) and domestic supply, be considered in the overall water use.

7.7.2.2 Stock Water Supply

[19] Based on constant rate pumping over an average month in the irrigation season (30.5 days)

The Applicant has sought up to 37,413 m^3 per year for stock water, based on the daily demand as outlined in **Table 7** below.

Table 7: Number of stock units and associated water requirements per day.

Animal	Total number	Water requirements per head per day (L)	Total water requirements per day (m^3)
Sheep	11,500	5	57.5
Beef cattle	1,000	45	45
Total			**102.5 m^3**

The water requirements are derived from the ANZECC guidelines and are consistent with what the Council would consider reasonable drinking water for stock as referenced on the Form 4 Application Form. I therefore consider that the volume of water sought for stock water is reasonable for the purpose of use.

As with domestic water, Section 14(3) of the Act provides for taking of water for reasonable stockwater drinking. As noted above, while this may be the case, it is appropriate that it is considered together in this application for overall water use.

7.7.2.3 Pond Maintenance Requirements

The Applicant has sought an additional 25,854 m^3 of water per year for 'pond maintenance' being the losses of water through the base of the reservoir and through evaporation from the surface. This does not seem to include the volume of water that is bypassed when the reservoir is full. The volume has been calculated based on the permeability of the soil and the potential evaporation. I consider that the calculations are reasonable, however consider that it is not reasonable to provide additional water for losses when the alternative is lining. In terms of the evaporation, it is noted that this would likely be offset by rainfall received in the localised catchment.

Overall, I do not consider that water sought for 'pond maintenance' is an efficient use of water and consider that Council should not be providing this additional volume when the alternative is lining of the pond. I recommend that this volume is not included in the authorised annual volume, if consent were to be granted.

7.7.2.4 Overflow channel discharge

Part of the proposal includes the periodic overflow of water via an operational spillway on the southern end of the reservoir. The Applicant has been unable to quantify how much water overflows and the maximum rate it is discharged at[20]. It is understood that this overflow occurs only when the reservoir is at its maximum operating capacity before the water abstraction is shut off. Water flows from the reservoir via a diversion race and enters Bendigo Creek at approximately NZTM 2000: E1313331 N5019072.

I may be of the opinion that this is not inefficient if the water returned to Bendigo Creek is providing an ecological benefit, however based on the hydrology and advice from T&T, there would be very little benefit provided through this bypass and this water would provide greater benefit if it were left in the upper reaches where it was abstracted. Based on this, I currently consider that the that the overflow channel is not expressly necessary and leads to water wastage. As I understand, it could also be avoided by either raising the embankment level or capturing water bypassed before it is returned to Bendigo Creek. I note that there is an additional water source to the reservoir that would equally result in water to be bypassed.

[20] See response to Question 4 of the RFI

While only a portion of the take is subject to this and the discharge is a permitted activity, I consider that it is still within the scope of this Application, particularly given the damming of water is part of the proposal.

I recommend that if consent were to be granted a condition of consent is imposed that requires the Applicant cease the bypass of water to Bendigo Creek within 2 years of the first exercise of the consent. This will provide reasonable time for the Applicant to investigate and implement measures. I am also willing to consider additional evidence that this bypass is required and not inefficient.

I note that this recommendation was discussed with the Applicant at a meeting on 4 March 2021 (see **Appendix 1**). The Applicant advised that the overflow channel does provide benefit in providing for stockwater drinking to the paddocks that it passes through. In addition, they noted that channel has been an existing drain which was pre-existing prior to the establishment of the reservoir and was contributing hydrologically to Bendigo Creek. It was indicated that the overflow would provide benefit to Bendigo Creek by extending its wetted bed, albeit based on anecdotal evidence. The Applicant has advised that further evidence and justification will be provided prior to the hearing.

7.7.3 Efficiency of Water Transport, Storage and Application System

Water is conveyed via the point of take via an open steel pipe and piped a further 2 km to the pond through buried PVC piping. From here, it is pumped directly into a centre pivot or conveyed to nearby k-line irrigators. The Applicant also proposes to install sprinkler irrigators for the proposed 82.4 ha of grapes. The locations and irrigation methods are shown in **Figure 11**. These application systems are considered industry best standard and are promoted as efficient irrigation methods by Irrigation New Zealand.

The Applicant stores water in a reservoir which is promoted by Policy 6.6.2 of the RPW as it reduces the requirement for constant rate abstracting from the river and provides for abstracting during high flows.

In terms of the conveyance means, the Applicant estimates that approximately 2% of water is lost to conveyance. I assume that a portion will be associated with losses from the reservoir - see my comments above in relation to this. The remaining losses from the pipe would be through leaks (before they are identified). It is noted that the Applicant has invested in upgrading the pipeline and intake pipe in recent years which I inspected during my site visit. I consider that the system is of best standard and minor losses are reasonable and expected. Standard conditions have been recommended to require avoidance of losses to conveyance.

Overall, I am satisfied that the water transport, storage[21] and application system is efficient.

7.7.4 Total Volumes Recommended

Combined rate and volumes

Taking into consideration the uses of water proposed and volumes applied for, the historical access to water at this site and the means of taking and using water, the following rate of take, monthly and seasonal limits are recommended to be imposed if consent were to be granted to ensure that the quantity of water granted to take is no more than that required for the purpose of use (combined between RM20.079.01 and RM20.079.02):

[21] Notwithstanding my comments in relation to the volumes sought for 'pond maintenance'

- 160 L/s;
- 235,948 m^3/month; and
- 1,054,714 m^3/year.

It is noted that the rate and monthly volume reflect what has been applied for and the annual volume is what was sought minus the 25,854 m^3.

While the above rate and volume is recommended, I consider that separate rates and volumes are required to differentiate the primary and supplementary allocation abstraction. Recommended rates and volumes are provided below.

RM20.079.01 – Primary allocation

Based on the historic use, I consider that the rate of 50 L/s is reasonable and has been historically taken and based on the means of taking is reasonably required. I note that this will result in a reduction to the primary allocation by 33.4 L/s. I also consider that the monthly volume should not exceed what has historically been taken in accordance with Policy 6.4.2A being 132,000 m^3.

In terms of the annual volume, while up to 1,046,200 m^3 has been historically taken (in 2019), given the Applicant will be seeking to abstract both supplementary allocation and primary, this volume would not be required nor could it be abstracted by the primary allocation take alone. In addition, I note that based on the irrigation of 100 ha of pasture and the required stock water and domestic water, the annual volume required would be 857,778 m^3 and it would seem that there was an over use of water during the winter months in 2019 where it would be expected that water use is restricted to domestic and stock water (albeit water is stored in a reservoir). I therefore recommend that the annual volume for RM20.079.01 is set to reflect what would have been reasonably required. Remaining volumes required can be provided for by the supplementary allocation take which is promoted through Policy 6.4.2A and 6.4.2AA.

I therefore recommend the following rate and volumes for RM20.079.01:

- 50 L/s;
- 132,000 m^3/month; and
- 857,778 m^3/year

RM20.079.02 – Supplementary allocation

The rate of take sought is reasonable, provided the minimum flows as outlined in **Section 7.1.2** are adhered to. The remaining volumes may be taken as supplementary and it should be encouraged that the Applicant prioritise abstracting greater volumes as supplementary allocation than primary. I therefore recommend the following rate and volumes for RM20.079.02:

- 110 L/s;
- A combined volume of 235,948 m^3/month with RM20.079.01; and
- A combined volume of 1,054,714 m^3/year with RM20.079.01.

Retake from the reservoir

The Applicant has not stated a rate and volume to be abstracted from the reservoir, rather that all water delivered to the reservoir will be abstracted. As only the volume of water that has been lawfully delivered to the reservoir can be abstracted and this has been assessed efficient,

I do not consider it necessary to require specific rates and volumes for the take from the reservoir.

8. Section 104 Evaluation cont.

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

This assessment has been undertaken in above (**Section 7.** Assessment of Environmental Effects) and overall, it is considered that the adverse effects on the environment will be minor. In addition, the proposal will result in a number of positive effects for both the Applicant and the wider community.

8.2 S104(1)(ab) – Offset of Compensation

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

8.3 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 (National Environmental Standards for Freshwater) Regulation 2020
- Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 and Amendment Regulations 2020
- The National Policy Statement for Freshwater Management 2020
- 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)

8.3.1 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 supplies within the vicinity of the proposed takes.

8.3.2 Resource Management (National Environmental Standards for Freshwater) Regulation 2020 (NESFW)

The NESFW 2020 regulations came into force on 3 September 2020. They impose standards on a range of farming activities and other activities relating to freshwater. They also set out a framework for consenting certain activities if the standards are not met.

There are no relevant provisions that relate to this proposal. I note that Regulation 20 requires that there is no increase to irrigable land of more than 10 ha where its purpose is associated with dairy farming. While the Applicant has proposed an increase of more than 10 ha of irrigation, this is not associated with dairy farming therefore the regulation is not applicable.

8.3.3 National Policy Statement Freshwater Management 2020 (NPS-FM)

The National Policy Statement for Fresh Water Management 2020 ("NPS-FM") provides direction to local authorities and resource users regarding activities that affect the health of freshwater and sets out objectives and policies for freshwater management under the RMA.

The NPS-FM came into force on 3 September 2020, replacing the previous 2014 NPS-FM. Although it retains some of the same principals as the NPS-FM 2014, including a strengthened focus on Te Mana o te Wai, the NPS-FM 2020, amongst other things:

- Sets out a framework of objectives and policies to manage activities affecting freshwater in a way that prioritises first, the health and well-being of water bodies and freshwater ecosystems, second, the health needs of people, and third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.
- Requires regional councils to develop long-term visions for freshwater in their region and include those long-term visions as objectives in their regional policy statement.
- Requires every local authority to actively involve tangata whenua in freshwater management.
- Sets out a more expansive National Objectives Framework, and Freshwater Management Unit, environmental flows and levels setting, and take limit setting processes. This includes 13 new attribute states for ecosystem health, including national bottom lines and national targets.
- Specific requirements to protect streams and wetlands and to provide for fish passage – including new policies which must be included in all regional plans.

Part 2 of the NPS-FM sets out the national objective for future freshwater management and 15 separate policies that support this objective.

An assessment of the objective and relevant policies is provided below.

The NPS-FM 2020 sets one objective being:

> *The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:*
>
> *(a) first, the health and well-being of water bodies and freshwater ecosystems*
>
> *(b) second, the health needs of people (such as drinking water)*
>
> (c) *third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future*

This objective sets as hierarchy and gives clear direction that priority must be given first to the environment before the needs to people. While the proposal will result in a benefit for the people and the community, I consider that priority has been given to first ensuring the well-being of water bodies and freshwater ecosystems is provided for. As outlined in **Section 7**, effects on the Bendigo Creek and its freshwater ecosystems will be no more than minor. Further, health needs of people are not likely to be impacted upon as a result of the activity.

I consider that the following policies are also relevant:

Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai.

The NPS-FM defines the concepts of Te Mana o Wai as being:

"Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community."

The NPS-FM directs that every regional council must engage with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region. It is noted that this has not yet occurred for the Otago Region. The ORC has identified FMUs in the region and these takes are part of the Clutha River/Mata-Au FMU and the Dunstan Rohe. The Council is in the early stages of identifying the values for this FMU. Council will undertake the remaining steps in the NOF process in upcoming years and plans to notify the Land and Water Plan in accordance with the NPS-FM 2020 in late 2023. This will set the limits that apply to these catchments. The application of these limits to this activity will be considered when this replacement permit is replaced (should consent be granted) or as part of a review of consent conditions, or both.

Policy 2: Tangata whenua are actively involved in freshwater management (including decision making processes), and Māori freshwater values are identified and provided for.

Tangata whenua have been actively involved in this consent process through Section 95E. Consideration has been given to effects on Kai Tahu values as identified by tangata whenua within their submission and based on direction provided in the RPW and the iwi management plan. Not all of the relief within their submission has been provided for, notably in respect of minimum flows and term. Minimum flows will likely be established as part of a new Land and Water Plan. The reasons for the consent term sought are discussed later in **Section 10** of this report (Policy 2).

Māori freshwater values are defined in the NPS-FM as being: *"the compulsory value of mahinga kai and any other value (whether or not identified in Appendix 1A or 1B) identified for a particular FMU or part of an FMU through collaboration between tangata whenua and the relevant regional council"*
The Māori freshwater values are yet to be identified for the Clutha/Mata Au FMU through the prescribed process.

Policy 6: There is no further loss to the extent of natural inland wetlands, their values are protected, and their restoration is promoted.

Based on the information provided and my observations during a site visit, I understand there are no natural inland wetlands in close proximity to the abstraction.

Policy 7: The loss of river extent and values is avoided to the extent practicable.
Policy 9: The habitats of indigenous freshwater species are protected.
Policy 10: The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.

In relation to Policy 7, while there is expected to be a reduction in available flows of Bendigo Creek, the effect of this is expected to be less than minor and sufficient flows will be provided to maintain the aquatic habitat in the downstream of the take. The Application is also

consistent with Policies 9 and 10 as effects on indigenous freshwater specifies and trout will be protected.

> *Policy 11: Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided.*

The efficiency of water use is assessed in **Section 7.10**, and I consider that the rate and volume that would be allocated will be efficiently used. The allocation status of Bendigo Creek is outlined in **Section 7.1** and it is considered that the proposal will not lead to future over-allocation and the allocation limit will be reduced by 33.4 L/s. It is understood that the Council will be reviewing the RPW and specifically the allocation framework in the near distant future. Should there be substantive changes that occur during the duration of the water permit, this can be accounted for through the recommended review clause condition.

> *Policy 15: Communities are enabled to provide for their social, economic, and cultural wellbeing in a way that is consistent with this National Policy Statement.*

The proposal will provide benefit for the Applicant and the community as outlined in **Section 7.** Assessment of Environmental Effects

Overall, the proposal is consistent with the NPS-FM subject to the recommended conditions and consent duration. I am satisfied that the application is prioritising the health and wellbeing of the waterbody over the ability of people and communities to provide for their social, economic and cultural wellbeing.

8.3.4 National Policy Statement on Renewable Electricity Generation

The National Policy Statement on Renewable Electricity Generation 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 proposed takes are located above the Clyde Dam and Roxburgh Dam, which are currently managed by Contact Energy Limited. Based on the hydrology assessment, there is unlikely to be much of a hydrological connection with Lake Dunstan. Further, the primary allocation take is less than 100 L/s, which is the maximum permitted rate of take for a take from Lake Dunstan (Rule 12.1.2.2 of the RPW). Based on this permitted baseline, the primary allocation abstraction will have a less than minor effect on renewable electricity generation. In terms of the supplementary allocation take, while the rate exceeds the permitted activity, it would only occur during high flows.

Effects on renewable electricity generation activities is considered less than minor and the proposal is consistent with the NPS-Renewable Electricity Generation.

8.3.5 Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 and Amendment Regulations 2020

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 2020 amendments introduce additional measuring and reporting requirements in stages starting with takes of more than 20 L/s on 3 September 2022.

The proposed abstraction is greater than 5 L/s. The Applicant currently monitors the take at the location outlined in **Section 4.3**. This monitoring is proposed to continue which is currently in accordance with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 (previous version) via a water measuring exemption that applies to measuring the take away from the consented point of take.

Through this consent process, conditions will be placed on any replacement water permit granted, to bring their water use measurement in line with what is required and to require them to provide abstraction data records in accordance with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 and 2020 Amendments.

I note there is also an abstraction from the reservoir (RM20.079.03) as a retake. Water taken from the reservoir is limited to what has been lawfully delivered by the two water sources and is captured within the primary allocation and supplementary allocations rules. Both of these water sources are metered in accordance with the Regulations. Given the water in respect to the reservoir is not considered in the water allocation as defined in the RPW, monitoring is not necessary for State of the Environment monitoring. Further I do not consider it necessary for ensuring efficient use as this is accounted for by the initial abstractions. For these reasons, I do not consider it necessary to meter the abstraction from the reservoir.

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

The partially operative 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") and through various court orders. Since then there have has been number of appeals resolved through the Environment Court. On 15 March 2021, the Council approved these further provisions to be added to the PO-RPS. The provisions that are the subject of court proceedings and are not made operative is now limited to Policy 4.3.7 (significant infrastructure) and specific methods of Chapter 3. As none of these provisions are

applicable to the application, therefore full weight and consideration can be provided to the PO-RPS.

The relevant provisions of the 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)*
- *Safeguard the life-supporting capacity of fresh water and manage fresh water to:*
    - *Maintain good quality water and enhance water quality where it is degraded, including for:*
        - *Important recreation values, including contact recreation; and,*
        - *Existing drinking and stock water supplies;*
    - *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 of rivers, lakes, and wetlands, their riparian margins, and aquifers;*
        - *Coastal values supported by fresh water;*
        - *The habitat of trout and salmon unless detrimental to indigenous biological diversity; and*
        - *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; and,*
    - *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 benefits of sustainable water use;*

    - *Avoiding over-allocation, and phasing out existing over-allocation, resulting from takes and discharges;*
    - *Ensuring the efficient allocation and use of water by:*
        - *Requiring that the water allocated does not exceed what is necessary for its efficient use;*
        - *Encouraging the development or upgrade of infrastructure that increases efficiency;*
        - *Providing for temporary dewatering activities necessary for construction or maintenance. (Policy 3.1.3)*
- *Manage for water shortage by undertaking all of the following:*
    - *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 significant 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 (Policy 4.4.3)*
- *Consider the offsetting of indigenous biological diversity, when:*
    - *Adverse effects of activities cannot be avoided, remedied or mitigated;*
    - *The offset achieves no net loss and preferably a net gain in indigenous biological diversity;*
    - *The offset ensures there is no loss of rare or vulnerable species;*
    - *The offset is undertaken close to the location of development, where this will result in the best ecological outcome;*
    - *The offset is applied so that the ecological values being achieved are the same or similar to those being lost;*
    - *The positive ecological outcomes of the offset last at least as long as the impact of the activity*

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 Aukaha on behalf of the local Runanga, were considered affected parties in accordance with Section 95E of the Act. Aukaha submitted in opposition to the application and their submission has been given due consideration and has informed the recommendations made in this report. No specific sites of cultural significance have been identified by Kai Tahu and the application does not relate to Māori land.

Effects on freshwater values have been considered in **Section 7.3** of this report. It is considered the take will safeguard the life supporting capacity of Bendigo Creek and freshwater values will be maintained as directed through Policy 3.1.1.

Policy 3.1.3 provides direction for "efficient" allocation freshwater by providing for the three identified components. There is no indication of hierarchy, so all must be considered equally. The rate and volume sought enables the Applicant to continue to irrigate their land and high value crops, resulting in their own economic wellbeing, and indirectly the wider community. In relation to avoiding overallocation, and phasing out existing, the allocation status of Bendigo Creek is outlined in **Section 7.1** and it is considered that the proposal will not lead to future over-allocation and the allocation limit will be reduced by 33.4 L/s. The efficiency of water use is assessed in **Section 7.10**, and I consider that the rate and volume that would be allocated will be efficiently used, subject to conditions, in particular requiring the overflow to cease within 2 years.

In relation to Policy 3.1.4, the proposed method for irrigation and volumes sought is considered efficient at to industry standard as outlined in **Section 7.10**. The Application also seeks the ability to water harvest through the proposed supplementary allocation take and a storage option will be utilised.

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.

In relation to Policies 3.2.13 - 3.2.16, there are no identified outstanding freshwater bodies associated with the proposal, including wetlands.

Overall, I consider that the applications are generally consistent with the provisions of the PO-RPS.

8.3.7 Regional Plan: Water for Otago

Objective and Policy Assessment

The RPW was notified in 28 February 1998 and became operative in 1 January 2004. It is noted here, that the RPW was drafted before the NPS-FM 2014 (amended 2017) was notified and has not been updated to give effect to the NPS-FM. Council notified its Progressive Implementation Programme in December 2018 and has a plan to implement the NPS-FM. Part of this plan and as directed by the Minister for the Environment is that a plan change to the Water Plan was notified in March 2020 (PPC7). Issues with the Planning framework have also been raised in Environment Court cases, including the 'Lindis' decision by Judge Jackson *(Lindis Catchment Group Incorporated Vs Otago Regional Council ENV-2016-CHC-61*) on a plan change to the RPW specific to the Lindis catchment and a series of consents to take water to replace deemed permits in this catchment.

Relevant objectives and policies from the RPW are considered below:

Objective 5.3.1 To maintain or enhance the natural and human use values, identified in Schedules 1A, 1B and 1C that are supported by Otago's lakes and rivers.

Objective 5.3.2 To maintain or enhance the spiritual and cultural beliefs, values and uses of significance to Kai Tahu, identified in Schedule 1D, as these relate to Otago's lakes and rivers.

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.

Bendigo Creek is not identified in Schedule 1 of the RPW and I consider that the Schedule 1 values associated with the Clutha River/Mata Au will be avoided due to the separation distance, hydrological characteristics and by applying the permitted baseline.

Impacts on other lawful users are outlined in **Section 7.7** and I consider the adverse effects to be less than minor.

Cultural and Kai Tahu values have been considered and Aukaha on behalf of the local Runanga, were considered affected parties in accordance with Section 95E of the Act. Aukaha submitted in opposition to the application and their submission has been given due consideration and has informed the recommendations made in this report.

Particular regard has been given to the natural character features outlined in Policy 5.4.8, in particular the natural flow characteristics, and it is considered that the abstraction is not likely to impact natural character to a degree that is more than minor. I also consider that the amenity values, including both recreational and aesthetics of Bendigo Creek will incur a less than minor adverse effect.

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.

My consideration against Policy 6.4.0A is given in **Sections 7.7.2** and **7.7.3** of this report. Based on this assessment, the volumes sought for irrigation, stock water and domestic water are reasonable and efficient for its required use. In addition, the transport (conveyance), storage and application system are reasonably efficient based on industry best standard. I consider that the water sought for 'pond maintenance' is not an efficient use of water and recommend that this volume is not included in the authorised volumes. I also consider that water bypassed from the reservoir serves no ecological benefit and is effectively running water to waste which is inefficient and contrary to Policy 6.4.0A. I have recommended that the discharge to Bendigo Creek cease within 2 years.

As outlined in **Sections 7.7.2 and 7.7.4** no more water than what has historically been taken will be authorised under the primary allocation water permit subject to recommended limits. In addition, the additional volumes of water required will be provided as supplementary allocation in accordance with Policy 6.4.2AA.

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.

There are no water allocation committees or water management groups that currently operate within this catchment. It is noted that the Applicant is the only surface water abstraction within the Bendigo Creek catchment. A standard condition of consent is recommended to be imposed, if consent were to be granted, that requires the applicant to operate in accordance with any Council approved rationing regime.

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

The water source is the nearest practicable given infrastructure already provides for the abstraction. It is noted that water could be abstracted from the Clutha River/Mata Au. This would result in significant invest to pipe water for this distance and additional authorisations may be required. Overall, it is considered that the proposed water source is the nearest practicable.

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…

This application to take surface water has both primary allocation and supplementary allocation. Bendigo Creek is not subject to a minimum flow restriction, nor is any primary allocation minimum flow recommended (see **Section 7.3**). The supplementary allocation takes will be subject to a minimum flow as calculated in accordance with Method 15.8.1A.2. Water sought for primary allocation will not impact the current allocation status and will result in a reduction to the current allocation limit.

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 Bendigo Creek or the Clutha River/Mata Au 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.

6.4.7 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.

The need for a residual flow is discussed in **Sections 7.3** and **7.4** of this report. Subject to the Applicant confirming that their original assessment stands, I consider that there is no requirement for a set residual flow as sufficient flow will be naturally maintained.

6.4.9 To provide for supplementary allocation for the taking of water, in blocks of allocation where that is appropriate:

(a) Such that up to 50% of flow at the catchment main stem, minus the assessed actual take, is available for allocation subject to a minimum flow set to ensure that no less than 50% of the natural flow remains instream…

The Applicant has sought supplementary allocation in accordance with Policy 6.4.9(a) of the RPW. Consideration against this is provided in Section 7.1.2. The proposed take will form both block 1 and block 2 supplementary allocation. Subject to adhering to the recommended minimum flows, the application (RM20.079.02) is consistent with Policy 6.4.9(a).

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 abstraction 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 and is 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 10.**

6.5.4 In regulating the management of flows, other than in association with a small dam or any dam designed to contain contaminants, to have regard to provision for:
(a) The requirements of:
(i) Natural and human use values identified in Schedule 1;
(ii) The natural character of the water body; and
(iii) Amenity values supported by the water body; and
(b) The periodic release of sufficient quantities of water at appropriate flow rates, where necessary to remove excess algal growth or an accumulation of sediment downstream of the dam; and
(c) The existing needs of consumptive users of water, while taking into account, where appropriate, the extent to which the water body has been modified by resource use and development.

The proposed dam is located outside the bed of a watercourse, therefore Schedule 1 values, nor water body values will not be impacted. Clause (b) is also not applicable. As the reservoir only receives water that has been delivered via authorised consents and it is located over private land, no consumptive users will be impacted.

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 stores water in a reservoir and the damming of water is subject to this application. This reservoir is to be filled both during normal operations and during periods of high-water availability.

Overall, I consider the proposed is that the proposal is consistent with the provisions of the RPW, subject to my recommendations as outlined above.

8.3.8 Proposed Plan Change 7 (Water Permits)

Plan Change 7 (PPC7) was notified by the Council on the 18 March 2020 and therefore the rules, objectives and policies in the plan change apply to the water permit. PPC7 was re-notified by the Environmental Protection agency on 6 July 2020.

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[22] following Professor Skelton's investigation of freshwater management and allocation functions at Otago Regional Council.

[22] 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).

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 2014 (amended 2017). While the comprehensive overhaul of the ORC planning framework is underway, the Minister considers that there is 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."*

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. The Council formally responded to the Minister's recommendations and advised of an agreed work programme which includes PPC7 to provide an adequate interim planning and consenting framework to manage freshwater up until the Council's Land and Water Regional Plan becomes operative. The Minister's 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.*

This objective is implemented by the following policies and rules:

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.*

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

a) *Any activity that is the replacement of an activity authorises 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 this application includes a water permit to replace deemed permits, Policies 10A.2.1 and 10A.2.3 apply to the primary allocation application. Policy 10A.2.2 is applicable for the supplementary take application only as it applies to new water permits for taking and using water

As PPC7 has been notified, regard must be had to its provisions as well as the provisions of the operative RPW. While regard must be given to the provisions of PPC7, this does not necessarily mean giving full effect to its context. It is up to the decision-maker as to the weight that should be afforded to each of the matters under section 104(1).

In terms of weight applied to proposed provisions, the following has been distilled from case law as relevant for the decision maker to consider whether greater weight should be applied to proposed provisions:

- The extent that it has progressed through the plan-making process[23];
- The extent that the proposed measure has been subject to independent testing or decision making[24];
- Circumstances of injustice[25];
- The extent to which a new measure, or the absence of one, might implement a coherent pattern of objectives and policies in a plan[26]; and
- Whether there has been a significant change in Council policy and the new provisions are in accordance with Part 2 of the RMA[27].

Based on these matters outlined above, I consider that while the provisions are in their initial stages of the plan making process, they are particularly directive and are a significant change from the operative provisions of the plan. 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. Otherwise, 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 and repeated in the Planning Evidence in Chief[28], 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. PPC7 also looks to cease further farming intensification until appropriate planning framework has been developed. 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.

I do acknowledge however, that this application was in the system before the notification of the plan change and as such the Applicant has not had the benefit of the new controlled activity rule under PPC7 to obtain a relatively low cost short term consent. However, it is inevitable that some applicants may be caught up in a change of planning framework and this does need to be weighed against the manner in which the provisions in PPC7 represent a significant shift in Council policy and that granting new consents for all expiring deemed permits would inhibit the Council from effectively implementing the outcomes of its intended new regional policy statement and land and water plan. I consider that weight, albeit not full weight, should be placed to the notified provisions. I have provided an assessment against the provisions below and further assessed specific provisions in **Section 10**.

The objective in PC7 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

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[23] *Queenstown Central Ltd v Queenstown Lakes District Council* [2013] NZHC 815 at [9].
[24] *Hanton v Auckland City Council* [1994] NZMRA 289 (PT).
[25] *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].
[26] *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].
[27] *Keystone Ridge Ltd v Auckland Bity Council* (HC Auckland, AP24/01, 3 April 2001) at [16].
[28] Planning Evidence in Chief dated 7 December 2020.

(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. By ensuring the application is consistent with the corresponding policies, ensures the application is consistent with this objective. I have considered these policies further below and the duration in **Section 10** 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*[29]case, the word 'avoid' takes its ordinary meaning of 'not allow' or 'prevent the occurrence of'. In respect to this policy, it directs that the Council must refuse the consent, unless all of the provisions of (a) – (e) are met. This policy relates only to RM20.079.01 being the replacement water permit for the deemed permits. In relation to the matters outlined above:

a) the deemed permits that are to be replaced are 'valid';
b) there is no increase to the area of irrigation (associated with RM20.079.01);
c) there is no increase to the instantaneous rate of take;
d) there was no existing residual or minimum flow on the current water permit; and
e) there is a reduction in the volume of water allocated for abstraction

As all of these provisions are met, granting of this application is consistent with this policy.

For replacement applications (RM20.079.01), Policies 10A.2.2 and 10A.2.3 should be considered together as only one is applicable depending on the nature of the application and what has been proposed. Beginning with 10A.2.2, this policy directs to avoid granting a duration longer than 6 years. It is noted that relates to all water permits including both replacements and new takes. As the Applicant has sought a duration of 15 years, the durations sought for RM20.079.01 and RM20.079.02 are contrary to this policy in its current form. In relation to RM20.079.03, as this is not associated with a water take, the PPC7 policies are not applicable.

When moving on to 10A.2.3, this policy provides the ability to grant a duration up to 31 December 2035 provided the activity is for a replacement of a current consent and 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. The adverse effects are outlined in **Section 6.** Section 104 Evaluation and it is concluded that the adverse effects will be no more than minor (including cumulative). Following consultation with F&G, the Applicant amended their duration to align with this policy and have sought no more than 15 years. Based on this, I consider that RM20.079.01 is consistent with this policy.

As the RM20.079.02 is not associated with a replacement of a current consent, this policy is not applicable.

I have considered these policies further in **Section 10.** of this report.

The activity would be a non-complying activity (as a result of bundling) under the notified plan in accordance with Rule 10A.3.2.1 as the duration sought exceeds 6 years and the volumes sought would not be in accordance with the associated water use schedule. However, it retains its activity status of Discretionary as it was in the system before notification of PC7. 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 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 PC7 it

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

retains the operative rule and its corresponding activity status. I therefore will give no further consideration to Section 104D.

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

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.

Water requirements and the efficiency of water use is outlined in **Sections 7.7.2** and **7.7.3** of this report. Based on this assessment, the volumes sought for irrigation, stock water and domestic water are reasonable and efficient for its required use. In addition, the transport (conveyance), storage and application system are reasonably efficient based on industry best standard. Subject to the recommendations in relation to 'pond maintenance' and overflow water, no more water than what is required will be provided. There are is also unlikely to be an overuse of water subject to the recommendations. Water taken is currently metered and will continue to be metered. The duration sought is less than 35 years.

Te Rūnanga o Ngāi Tahu Freshwater Policy Statement 1999

The Ngāi Tahu Freshwater Policy Statement 1999 (NTFP) is considered to be a relevant other matter for the consideration of this application because the RPW is yet to be amended to take into account the NTFP. The NTFP expresses the attitudes and values of Te Rūnanga o Ngāi Tahu

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

6.1 – Wāhi Tapu: To afford total protection to waters that are of particular spiritual significance to Ngai Tahu.

- *Identify sites for immediate protection because of their significance as wāhi tapu.*

The location of the take has not been identified as a site of significance as wāhi tapu.

6.2 – Mauri: To restore, maintain and protect the mauri of freshwater resources.

- *Identify freshwater resources where:*
  - *Mauri is unaffected by modification and human activity so that these waterbodies can be afforded total protection; and*

- *Mauri is adversely affected, and the activities that cause such affects.*
- *Accord priority to ensuring the availability of sufficient quantities of water of appropriate water quality to restore, maintain and protect the mauri of a waterbody, in particular priority is to be accorded when developing water allocation regimes.*

The application is for water takes within an area that has been modified by human activity and where water is currently taken from. Aukaha Limited made a submission on behalf of Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga ("Ngā Rūnanga"). The submission raises concern that a resource's mauri will be degraded through over-allocation and lack of sufficient flows. In turn, the resource may no longer supports the traditional uses and values. A water body or other natural resource can be desecrated by improper resource management activities. These may extinguish the mauri and in turn diminish the association upon which a range of values are based, including mahika kai, for Ngā Rūnanga who hold traditional rights and responsibilities in respect to the resource. Aukaha have sought that should the consents be granted, allocation within Bendigo Creek is reduced to 30% of MALF and a minimum flow of 90% of MALF is applied. This is further discussed in **Section 7.9.**

6.3 – Mahinga Kai: To maintain vital, healthy mahinga kai populations and habitats capable of sustaining harvesting activity.

- *Protect critical mahinga kai habitats and identified representative areas*
- *Restore and enhance the mahinga kai values of lakes, rivers, streams, wetlands, estuaries and riparian margins.*
- *Ensure that activities in the upper catchment have no adverse effects on mahinga kai resources in the lower catchments*
- *Restore access to freshwater resources for cultural activities, including the harvest of mahinga kai.'*

Aukaha have stated in its submission that the Clutha/Mata-au River was part of ara tawhito, mahika kai trail that led inland. Mahika kai sourced from the Clutha/Mata-au Catchment includes indigenous ika and manu such as: tuna, kanakana, kōkōpu, moa, inaka, weka. Due to the disconnection with the Clutha/Mata-au catchment, these values are unlikely to be impacted upon.

It is considered that, overall, the application is generally consistent with the objectives and policies of the NTFP.

Professor Skelton's Report and Minister's Recommendations

As set out above, 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 Proposed Plan Change 7 (Water Permits) ("PPC7").

Professor Skelton's Report and the Minister's recommendations are a relevant matter under section 104(1)(c). However, the weight placed on these matters is not determinative of the consent application in regard to granting the consent. This report and the Minister's recommendations have been considered but has not changed the recommendation to grant the consent.

8.5 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 Applicant has provided evidence of investment through the current infrastructure that is in place including the intake, pipeline (recently upgraded), reservoir and irrigation infrastructure. In addition to this, the Applicant is proposing additional irrigation infrastructure. It is suggested that the Applicant provide a monetary value of investment to provide further context to the Panel.

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.

8.6 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.

While there are no such other applications currently before the Council, the factors have been assessed for completeness and in the event any other application is lodged before this application is determined.

Assessing the efficiency of the use of the resource can be determined by comparing the volumes of water taken against what would be expected to be efficient. Based on the water use, it seems that the applicant has not been using water efficiently given the annual volume has exceeded what would be expected to be taken. It is also observed that there was an apparent overuse of water during the winter months, albeit water is stored in a reservoir. While water taken may not have been efficient, recommended conditions will ensure water is used efficiently going forward.

The use of water has generally been in accordance with industry good practice given it has been used via a centre pivot and k-line irrigators. Water is also stored which in a reservoir which is good practice in areas of low water availability.

There has been no enforcement orders or convictions under section 338 associated with the deemed permits.

8.7 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):[30]

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.

As noted, the Minister for the Environment recently commissioned an investigation into the allocation and freshwater management provisions of Otago. Following this, direction was provided for interim framework to be put in place while longer term allocation and freshwater management framework can be established. PPC7 has been established in response to this. As there has been identified to be ineffective allocation framework and PPC7 remains in its initial stages, there is an indication of incomplete coverage in the current regional planning document. I therefore consider it appropriate to consider the relevant matters of Part 2 of the Act.

The taking of water from Bendigo Creek for the purpose of irrigation, domestic and stock water, is consistent with the purpose of the Act, as outlined in Section 5. The granting of the application will enable the applicant and the community to meet their social and economic needs, while sustaining the life supporting capacity of the river, and avoid or mitigate the more significant adverse effects of the taking of water from the river.

The matters under Section 6 of the Act have been recognised and provided for. The natural character of the Bendigo Creek will be preserved (section 6(a)). The proposal will not affect any outstanding natural features or landscapes (section 6(b)). There is no presence of the

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

nationally endangered and nationally vulnerable indigenous fish (section 6(c) of the Act). 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 an affected party. 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 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 effects on trout will be localised and no more than minor (section 7(h)). With the recommended conditions, particularly the requirement to provide water efficiency reporting and cease the overflow discharge, I consider the application is consistent with the "other matters" of Section 7 of the Act.

Section 8 requires all persons acting under the Act to take into account the principles of the Treaty of Waitangi.. The principles of Te Tiriti o Waitangi, including active protection, equity and participation, have been taken into account in accordance with section 8. Of significance is the Treaty principle of active protection. This needs to be understood as it relates to the mauri of waterbodies. Degradation of mauri can diminish associations and prevent cultural uses, which may occur when an application is taking a significant proportion or all of a waterbody over a long period of time. The proposed conditions and the consent term of 15 years should address this issue. However, it is acknowledged that Aukaha have requested a duration of 6 years in their submission. Active protection is linked to Article Two of the Treaty and partnership responsibilities. When the mauri of waterbodies is degraded, this demonstrates a lack of active protection. Addressing degradation of mauri aligns with national direction around Te Mana o te Wai, which has been assessed in the section of this report on the NPS-FM.

Overall, the application is considered to be consistent with Part 2 of the Act, given the nature of the activity and the consent conditions recommended to be imposed.

8.8 Section 108 and 108AA of the Act

Section 104B provides for Council to impose conditions on a discretionary activity under Section 108 of the Act. Section 108AA sets out the requirements for conditions of resource consents.

The appended draft water permits (**RM20.079.01-03**) 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 the activities are carried out in accordance with the application lodged and assessed.
- Ensure that there are not three active consents for the same activity, avoiding confusion for compliance purposes.
- Set rate and volumes for RM20.079.01 and RM20.079.02

- Dam safety for RM20.079.03
- Ensure water is not used inefficiently via the overflow into Bendigo Creek within 2 years
- Ensure monitoring of all abstractions is undertaken in accordance with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2020.
- Ensure that evidence of reasonable use is provided to Council throughout the duration of the consent via a water use efficiency report.
- Ensure the take does not result in contamination of the source water body via the establishment of a backflow preventer.
- 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.

Recommended conditions are appended in the decision document.

9. Recommendation

9.1 Reason for Recommendation

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

a. The actual and potential adverse effects on the environment will be no more than minor.
b. Subject to recommended conditions of consent, the proposal is consistent with the objectives and policies of the RPW and PPC7, specifically in relation to the efficient use of water and the alignment of allocation with historic use,
c. The activity is consistent with the Part 2 of the Act.
d. The activity is consistent with the NPS-FM by providing for Te Mana o te Wai
e. The Applicant has undertaken an assessment that demonstrate that 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. This is the reason why a 15-year duration might be appropriate. 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.

10. Duration

The Applicant initially sought a duration of 25 years for all activities, however following consolation with F&G amended the duration to 15 years.

Aukaha have requested that a duration of 6 years be granted in accordance with the direction from PPC7.

I consider that a duration of 15 years is appropriate for RM20.079.01 and RM20.079.03. I consider that a reduced duration of 6 years is necessary for RM20.079.02. 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.

The explanation to the policy states the following:

> *The duration of each resource consent to take and use water should have regard to the particular circumstances of the activity and its likely environmental effects, but there needs to be good reason for Council to reduce the duration of consents from that required for the purpose of use. There can be tension between granting sufficiently long consent durations to enable continued business viability and managing the greater environmental risk associated with long duration consents.*
>
> *Where more is known about a water resource, such as when a catchment minimum flow has been specified in Schedule 2B, or an aquifer restriction level has been specified in Schedule 4B, and a council approved rationing regime will be adhered to, the risk of adverse effects being unforeseen is reduced and longer duration consents may be appropriate.*
>
> *Consent review provisions provide an opportunity to allow longer consent durations while ensuring the requirements of this Plan are met over time. Where there is a higher degree of risk of adverse effects, uncertainty of longer term availability of the water resource, or the applicant is unwilling to volunteer adaptive management conditions (it may be too difficult to set suitable review conditions), a shorter duration consent may be appropriate.*
>
> *Adaptive management provisions may be volunteered in situations where there is uncertainty about the response required to meet future change, including rapidly changing technology or a rapidly changing environment. Such provisions enable a proposal to proceed with sufficient, but not exhaustive, assessments of all risks and contingencies. Environmental standards initially set may be varied to be more or less*

restrictive over the life of the consent, in light of changing circumstances and community expectations.

Short duration consents should not be used as an alternative to declining consent, or as a response to poor assessments of environmental effects prepared by consent applicants.

The principal reasons for adopting the policy are:

This policy provides greater certainty on the assessment criteria used when deciding on the duration of the consent to take and use water.

- In the case of the proposed abstractions activities, the purposes are enduring, being irrigation, stock drinking water (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 but no detailed evidence of its relevance has been supplied. It 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 robust review conditions. However, there are limitations on how the Council can deal with allocation through the review of consent conditions and the extent of changes that can be made given that the effect of the change of conditions on the continued viability of the activity must be considered as part of any review. It is not yet known what the outcome of the Council's future planning programme may be and therefore the extent of changes required to conditions to bring the consent into line with the new planning framework. As such, a relatively short term of 15 years which relies on a review condition to manage effects is considered appropriate. (criteria (d)).
- The Applicant has not proposed adaptive management (criteria (e)),
- 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)).

The Kai Tahu ki Otago Natural Resource Management Plan 2005 oppose consents granted for up to 35 years and the duration sought is not contrary to these plans given the duration is less than 35 years. Therefore, the term sought of 15 years is consistent with the relevant iwi management plans. However, it is noted that both Aukaha has requested a 6-year term.

The objective and policies of PPC7 are relevant to consent applications that have been lodged but not determined (i.e. all resource consent applications currently being processed), and all new applications that are lodged in accordance with section 104(1)(b) of the RMA. The objective and policies of PPC7 are directive and have been outlined in **Section 8.3.8**. As outlined, while I consider that reduced weight should be given to PPC7 due to its current status and the timing of the Application, I consider that the duration sought of 15 years for primary allocation water permit (RM20.079.01) is generally consistent with the provisions of PPC7. This is on the basis that the activity meets Policy 10A.2.3 which directs that a duration expiring 31 December 2035 may be granted provided the adverse effects are no more than minor.

While the duration sought for the primary allocation permit (RM20.079.01) is not contrary to the PPC7 provisions, Policy 10A.2.3 does not apply to RM20.079.02 as it is not a replacement. The duration sought for RM20.079.02 is contrary to Policy 10.A.2.2 as a duration longer than 6 years is sought. The Panel may be of the opinion that only limited weight should be afforded to this policy due to the timing of when the application was lodged and due to the actual effects

associated the activity (see Section 6), in particular being a supplementary allocation permit as opposed to primary. It may also be considered that PPC7 did not anticipate supplementary allocation water permits.
Based on the Evidence in Chief of ORC's Planner, PPC7, in particular Policy 10A.2.2 seeks to achieve two outcomes:

- enable the transition to the long-term sustainable management of Otago's freshwater resources by ensuring new permits can be consider under a new allocation framework once the Land and Water Plan is notified; and
- Minimise further intensification prior to the notification of the Land and Water Plan.

Assessing RM20.079.02 against these outcomes, I would consider that this water permit was anticipated by the policy. I note that while the abstraction is for supplementary allocation, I understand that the supplementary allocation framework will also be reviewed and the current method for calculating a minimum flow may not be appropriate for managing long term effects. I also note that RM20.076.02 seeks water to irrigate additional land and therefore further intensification. Based on this, I consider that it is appropriate to reduce the duration of RM20.079.02 to ensure consistency with Policy 10A.2.2.

In relation to RM20.079.03, there are no specific policies that relate to duration for damming. Subject to the recommended dam safety conditions, adverse effects can be effectively anticipated and managed throughout the duration. I consider that the proposed 15-year duration is appropriate.

Based on the above, a duration of 15 years is recommended for RM20.079.01 and RM20.079.03 and a duration of 6 years is recommended for RM20.079.02, for the following reasons:

- Ensures consistency with the direction provided through PPC7;
- The rate and volume of water will reflect what has been historically taken and will result in a reduction of 33.4 L/s to primary allocation;
- The rate and volume of water recommended will only be what is reasonably required and based on efficient use;
- Subject to the overflow ceasing within a reasonable timeframe, the water use system is efficient and follows industry good standard;
- Adverse effects on the values within Bendigo Creek will be no more than minor;
- The Applicant has made significant economic investment into the operation into the take which has included the replacement of the water conveyance infrastructure and the using industry best irrigation methods.
- Provides the Applicant with long term security of access to surface water resources and assists in minimising costs associated with implementing the consent

Overall, I consider that the recommended durations strike an appropriate balance between the Applicant's level of investment, the security they require, managing long term adverse effects and in ensuring consistency with the Council's direction under PPC7.

Appendix 1: Summary of Meeting with Applicant and Aukaha, 3 March 2021

Following the release of a draft section 42A report, a meeting was held via electronic means (zoom), between the Applicant, the remaining submitter (Aukaha) and the Council s42A report writer. The intent of the meeting was to discuss areas of agreement and disagreement between parities. In attendance at the meeting were the following:

- Charles Horrell on behalf of Otago Regional Council;
- Will Nicolson, Landpro acting as planning support for the Applicant;
- Grant Porter, Applicant;
- Tim Vial, Aukaha.

The following are notes provided by Charles Horrell from this meeting. These notes have been verified as true and accurate by all attendees:

Water permit to dam water

No concerns are raised by any party in relation to the water permit to dam water (RM20.079.03) and the recommendation in relation to it.

Fish Screen

A fish screen has not been recommended due to the absence of fish uptake risk at the point of take. General consensus on this. Aukaha requested a fish screen be required through their submission but indicated this is not necessary if there is no risk. Tim to confirm if a fish screen is still sought.

Metering

Aukaha requested in their submission that the abstraction be subject to telemetered metering and water use is recorded via appropriate means. The current recommendation requires this. All parties accepted this.

Allocation

Allocation remains a matter of contention.

My current recommendation has considered allocation against the current provisions of the RPW. This would result in a current “fully allocated” status of 83.3 L/s which will be reduced to 50 L/s with the Applicant’s proposed rate sought. Supplementary allocation has also been calculated in accordance with the method in the plan. There were a couple of typos in the allocation numbers as Tim pointed out. I will update these before it is finalised.

Aukaha in their submission requested that the allocation for the full Bendigo Creek catchment is equal to or less than 30% of the 7dMALF. Based on the MALF identified by RainEffects, this would result in an allocation of 9.9L/s. As Aukaha consider that the current supplementary allocation framework is also flawed and the proposal would seek to take additional water adding pressure to the waterbody, this allocation limit relates to both applications.

The Applicant has not proposed to reduce allocation further.

Duration

Duration remains a matter of contention.

My current recommendation is for a duration of 15 years for the primary allocation take (RM20.079.01) and a reduced duration of 6 years for the supplementary take (RM20.079.02).

Tim pre-circulated a guidance document on providing for Te Mana o Te Wai in Otago and Aukaha's position on durations for water permits. This guidance first discusses Te Mana o Te Wai and how this should be provided for in Otago, followed by Aukaha's position on consent durations for water permits. Guidance of durations indicate that Aukaha would support an application of up to 6 years, or in some cases 10 years, where certain criteria are met. This was discussed and based on the application sought, Tim noted that the position would remain a maximum duration of 6 years. Tim also advised that this position is also opposed to the currently proposed provisions of Plan Change 7 that would provide up to 15 years in some circumstances. Further, Tim noted that Aukaha oppose any new permits to take water in water short catchments where new irrigation is proposed, this includes supplementary allocation takes. Relief sought remains that should the water permits to take be approved, that a duration of no more than 6 years be provided.

The Applicant agrees with the recommendation of the reporting officer and does not propose to reduce the duration of the primary allocation permit.

Minimum Flow

The requirement for a minimum flow remains a matter of contention.

No minimum flow or residual flow has been proposed by the Applicant or is currently recommended.

Will provided an update on the likely flows that would be maintained based on observation of the flow measurements taken in the monitoring station downstream of the abstraction point. Based on the driest period, there remained to be flow at the monitoring station 750 metres downstream, indicating that the take would always provide a connected flow to this point.

Tim pre-circulated a table that provides an indication of the minimum flow to avoid a more than minor effect on kai tahu values. Based on this table, a minimum flow of at least 90% of MALF should be applied. Tim noted that this could be applied as a residual flow – this would result in the requirement for a residual flow of at least 29.7 L/s.

The Applicant has not proposed to include any specified residual flow.

Overflow channel

My current recommendation requires the overflow channel discharge to Bendigo Creek to cease within 2 years. This is on the basis that there is little evidence that this is an efficient use of water and/or provide any ecological/hydrological benefit to Bendigo Creek.

Will had provided a response to this via email prior to the meeting and summarised at the meeting – seeks that there is no requirement to cease and provide further details of the benefit that the channel provides for stockwater, its function in relation to dam safety and the benefit of returning flows to Bendigo Creek and increasing the wetted area. Further evidence of this is to be provided by Will prior to the hearing and I will consider this further.

Grant noted that the reference in the s42A report as a "bywash" is a little miss-leading and should rather be referred to as an "overflow channel". I agree and will update the report accordingly.

Appendix 2: Department of Conservation Written Approval

Appendix 3: Withdrawal of submission – Otago Fish and Game Council

Appendix 4: Supporting Technical Assessments

Appendix 2: Department of Conservation Written Approval

Appendix 3: Withdrawal of submission – Otago Fish and Game Council

Appendix 4: Supporting Technical Assessments

Otago Regional Council

Our Reference: A1400994 Consent No. RM20.079.01

WATER PERMIT

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

Name: Bendigo Station Limited

Address: 1460 Tarras-Cromwell, RD 3, Cromwell

To take and use surface water as a primary allocation from Bendigo Creek for the and to retake and use water from the Bendigo Station Pond for the purposes of irrigation, stock water supply and domestic supply

For a term expiring 15 years from commencement of this consent

Locations of Points of Abstraction:	Bendigo Creek: approximately 5.7 kilometres south east of the intersection of Bendigo Loop Road and Tarras-Cromwell Road (State Highway 7). Bendigo Station Pond: Approximately 4 kilometres south east of the intersection of Bendigo Loop Road and Tarras-Cromwell Road (State Highway 7).

Legal Description of land at point of abstraction:

Bendigo Creek: Section 21 SO 24641

Bendigo Station Pond: Lot 8 DP 517385

Legal Description of land s where water is to be used: Lot 6 DP 525495, Lot 5 DP 517285, Lot 3 DP 391334, Lot 4 DP 391334, Part Lot 10 DP 391334, Lot 8 DP 517385, Lot 3 DP 459561, Lot 7 DP 517385, Lot 3 DP 525495, Lot 4 DP 525495, Lot 1 DP 525495, Lot 2 DP 525495 and Lot 6 DP 517385

Map Reference at point of abstraction:

Bendigo Creek: NZTM 2000: E1314483 N5018116

Bendigo Station Pond: NZTM 2000: E1313447 N5019532

Conditions

Specific

1. a) The take and use of surface water from Bendigo Creek and to retake primary allocation water from a reservoir for the irrigation of 100 hectares of pasture, stock water supply and domestic supply at the map

references and land legally described above 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 RM20.079:

i. The application and supporting information received by the Consent Authority on 10 March 2020 and addendums to application made on 22 May 2020 and 8 October 2020;
ii. Further information response received on 14 May 2020; and
iii. Hearing evidence *[Date] February* 2021.

b) If there are any inconsistencies between any conditions of this consent and the application, the conditions of consent must prevail.

2. This permit must not be exercised until Deemed Permits WR1233CR and WR3908CR have been surrendered or expired.

3. a) The rate of abstraction as primary allocation must not exceed 50 litres per second.
b) The volume of abstraction under this permit must not exceed:
i. 132,000 cubic metres per month; and
ii. 857,778 cubic metres in each 12-month period, commencing 1 July of any year and ending 30 June of the following year.

4. This consent only authorises water to be by-washed via the reservoir spillway into Bendigo Creek as shown in **Appendix 1** of this permit until [*2 years after commencement date*]. The Consent Holder must provide written notice within 20 working days of 23 November 2022 to the Consent Authority that the by-wash has ceased and details of how water is retained within the reservoir.

5. (a) The method for taking water at NZTM 2000 E1314483 N5018116 must be via an open pipe positioned above the bed of Bendigo Creek as described in the Application and Assessment of Environmental Effects received by the Consent Authority on 10 May 2020 and as shown in **Appendix 2**, unless clause (b) applies.
(b) The method for taking water at NZTM 2000 E1314483 N5018116 may be modified, provided the following is adhered to:
(i) A continuous connected residual flow is maintained at all times immediately downstream of the point of take for a distance of no less than 750 metres;
(ii) The Consent Authority is notified of the change in method of taking no less than 15 working days before any changes to the intake are undertaken; and
(iii) The Consent Holder must notify the Consent Authority in writing of the completion of the intake establishment no less than 10 working days following completion of works as outlined in (ii), and must provide photographs of the nee method of intake. Photographs must be in colour and be no smaller than 200 x 150 millimetres in size and be in JPEG form.

Performance Monitoring

6. a) Prior to the first exercise of this consent, the Consent Holder must install:
   i. A 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. 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 5-yearly 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.

7. 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 necessarily be limited to, the following:

   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) Measures undertaken to avoid loss or wastage of water including any bypass of water;
f) Any changes or modifications to irrigation (and water conveyance) infrastructure; and
g) Water conservation steps taken.

General

8. The Consent Holder must take all practicable steps to ensure that at all times:

a) There is no leakage from pipes and structures;
b) The use of water is confined to targeted areas, as illustrated on the attached plan as **Appendix 3** to this consent with the exception of the area identified in red;
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.
e) Prior to the first exercise of this consent, the Consent Holder, the Consent Holder must install a backflow prevention device to ensure water and/or contaminants cannot return to the water source.

Review

9. 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 resource consent within three months of each anniversary of the commencement of this resource consent or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this resource consent, for the purpose of:

a) Determining whether the conditions of this resource consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the resource consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the resource consent;
b) Ensuring the conditions of this resource consent are consistent with any National Environmental Standards, relevant plans, and/or the Otago Regional Policy Statement;
c) Reviewing the frequency of monitoring or reporting required under this resource consent;
d) Reducing the consented instantaneous rate of abstraction, maximum monthly abstraction volume, and/or maximum annual abstraction volume (Condition 3); and/or changing the monitoring, operating, and reporting requirements (Conditions 5 and 6), in response to and/or to implement:
    i. the results of monitoring carried out under this resource 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; and/or
vii. new statutory requirements for measuring, recording or data transmission.

e) Imposing a minimum flow restriction as a condition on this resource consent if and when an operative regional plan sets a minimum flow for the catchment.

Notes to Consent Holder

1. *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.*

2. *For the purposes of Condition 7, 'Field Capacity' means the amount of water that is able to be held in the soil after excess water has runoff.*

3. *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. 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 and should consider the following Drinking Water Standards*

4. *For the purposes of Condition 5, 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.*

5. *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.*

6. *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.*

7. *Under section 125 of the RMA, this consent lapses five years after the date it is granted unless:*
   a. The consent is given effect to; or
   b. The Consent Authority extends the period after which the consent lapses.

8. *Where information is required to be provided to the Consent Authority, this is to be provided in writing to watermetering@orc.govt.nz, and the email heading is to reference RM20.079.01 and the condition/s the information relates to.*

9. *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.*

10. *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 and National Environmental Standards.*

11. *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.*

Otago Regional Council

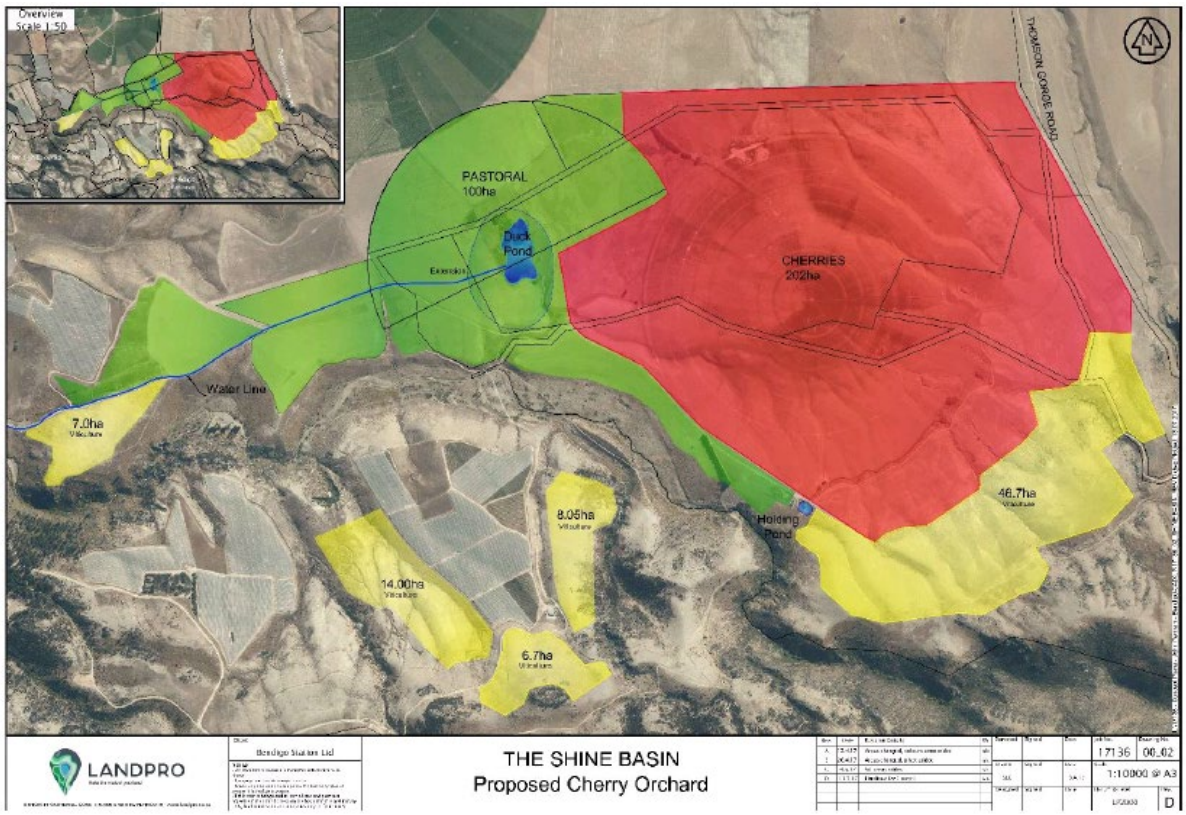
Appendix 1 to Water Permit RM20.079.01: By-wash location

Otago Regional Council

Appendix 2 to Water Permit RM20.079.01: Photographs (two) showing intake structure

Otago Regional Council

Appendix 2 to Water Permit RM20.079.01: Irrigation Areas



Otago Regional Council

Otago Regional Council

Our Reference: A1400995 Consent No. RM20.079.02

WATER PERMIT

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

Name: Bendigo Station Limited

Address: 1460 Tarras-Cromwell, RD 3, Cromwell

To take and use surface water as a supplementary allocation from Bendigo Creek and to retake and use water from a reservoir for the purpose of irrigation, stock water supply and domestic supply

For a term expiring 6 years from the commencement date

Locations of Points of Abstraction:

Bendigo Creek: approximately 5.7 kilometres south east of the intersection of Bendigo Loop Road and Tarras-Cromwell Road (State Highway 7).
Bendigo Station Pond: Approximately 4 kilometres south east of the intersection of Bendigo Loop Road and Tarras-Cromwell Road (State Highway 7).

Legal Description of land at point of abstraction:
Bendigo Creek: Section 21 SO 24641
Bendigo Station Pond: Lot 8 DP 517385

Legal Description of land s where water is to be used: Lot 6 DP 525495, Lot 5 DP 517285, Lot 3 DP 391334, Lot 4 DP 391334, Part Lot 10 DP 391334, Lot 8 DP 517385, Lot 3 DP 459561, Lot 7 DP 517385, Lot 3 DP 525495, Lot 4 DP 525495, Lot 1 DP 525495, Lot 2 DP 525495 and Lot 6 DP 517385

Map References at points of abstraction:
Bendigo Creek: NZTM 2000: E1314483 N5018116
Bendigo Station Pond: NZTM 2000: E1313447 N5019532

Conditions

Specific

1. a) The take and use of surface water as supplementary allocation from Bendigo Creek and the retake and use of water from a reservoir for the irrigation of x hectares, stock water supply and domestic supply at the map references and land legally described above 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 RM20.079:
    i. The application and supporting information received by the Consent Authority on 10 March 2020 and addendums to application made on 22 May 2020 and 8 October 2020;
    ii. Further information response received on 14 May 2020; and
    iii. Hearing evidence [Date] Month 2020.

b) If there are any inconsistencies between any conditions of this consent and the application, the conditions of consent must prevail.

2. This Consent must only be exercised in conjunction with Water Permit RM20.079.01.

3. The rate of abstraction as supplementary allocation must not exceed:
   a) 100 litres per second when flows in Bendigo Creek at NZTM 2000 E1314218 N5018598 are at or above 50 litres per second;
   b) 110 litres per second when flows in Bendigo Creek at NZTM 2000 E1314218 N5018598 are at or above 150 litres per second;
   c) 160 litres per second combined with Water Permit RM20.079.01 when flows in Bendigo Creek at NZTM 2000 E1314218 N5018598 are at or above 430.6 litres per second;

4. The combined volume of abstraction from Bendigo Creek in conjunction with RM20.079.01 must not exceed:
   a) 235,948 cubic metres per month; and
   b) 1,054,714 cubic metres in each 12-month period, commencing 1 July of any year and ending 30 June of the following year.

5. This consent must not be exercised when flows in Bendigo Creek at NZTM 2000: E1314218 N5018598 are below 50 L/s.

Performance Monitoring

6. a) Prior to the first exercise of this consent, the Consent Holder must at their own expense, install, operate and maintain a river flow recorder (sensor, logger, and associated equipment) within 20 metres of NZTM 2000 E1314218 N5018598;
   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 6(a) must be verified and provide written certification to the Consent Authority assigned by a suitably qualified and experienced person.
   c) and demonstrating by means of a clear diagram, that:
      i. the recorder 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 recorder has been verified as accurate.
   d) The Consent Holder shall provide evidence of the verification required by Condition 6(b) in writing to the Consent Authority within one month of the verification being completed.
   e) 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.
   f) The recorder must be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.
   g) The Consent Holder must ensure the recorder returns accurate readings at all times including by routinely checking the device and removing any ice or debris build up.

h) The 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.

i) The flow recorder must record water flow at intervals of 15 minutes or less, and must update data at least daily to a database which is accessible to authorised users, including the Consent Authority.

7. a) Prior to the first exercise of this consent, the Consent Holder must install:
   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. 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 5-yearly 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.

Review

8. 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 resource consent within three months of each anniversary of the commencement of this resource consent or within

two months of any enforcement action taken by the Consent Authority in relation to the exercise of this resource consent, for the purpose of:

a) Determining whether the conditions of this resource consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the resource consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the resource consent;
b) Ensuring the conditions of this resource consent are consistent with any National Environmental Standards, relevant plans, and/or the Otago Regional Policy Statement;
c) Reviewing the frequency of monitoring or reporting required under this resource consent;
d) Reducing the consented instantaneous rate of abstraction, maximum monthly abstraction volume, and/or maximum annual abstraction volume (Condition 3); altering the minimum flow (Condition 5); and/or changing the monitoring, operating, and reporting requirements (Conditions 6 and 7), in response to and/or to implement:
    i. the results of monitoring carried out under this resource 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; and/or
    vii. new statutory requirements for measuring, recording or data transmission.
e) Imposing a minimum flow restriction as a condition on this resource consent if and when an operative regional plan sets a minimum flow for the catchment.

Notes to Consent Holder

1. *Note: the water meter, data logger, telemetry unit sand river flow recorder must 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.*
2. *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. 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 and should consider the following Drinking Water Standards.*
3. *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. 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 and should consider the following Drinking Water Standards*
4. *For the purposes of Condition 5, 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.

5. *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.*
6. *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.*
7. *Under section 125 of the RMA, this consent lapses five years after the date it is granted unless:*
   a. The consent is given effect to; or
   b. The Consent Authority extends the period after which the consent lapses.
8. *Where information is required to be provided to the Consent Authority, this is to be provided in writing to watermetering@orc.govt.nz, and the email heading is to reference RM20.079.01 and the condition/s the information relates to.*
9. *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.*
10. *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 and National Environmental Standards.*
11. *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.*

Otago Regional Council

Our Reference: A1400996 Consent No. RM20.079.03

WATER PERMIT

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

Name: Bendigo Station Limited

Address: 1460 Tarras-Cromwell, RD 3, Cromwell

To dam water within a reservoir for the purpose of irrigation, stock water supply and domestic supply

For a term expiring 15 years from the commencement of this consent

Location of Damming: Approximately 4 kilometres south east of the intersection of Bendigo Loop Road and Tarras-Cromwell Road (State Highway 7).

Legal Description of land at point of damming: Lot 8 DP 517385

Map Reference at point of damming: NZTM 2000: E1313447 N5019532

Conditions

Specific

1. a) The damming of water within a reservoir at the map references and land legally described above 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 RM20.079:
   i. The application and supporting information received by the Consent Authority on 10 March 2020 and addendums to application made on 22 May 2020 and 8 October 2020;
   ii. Additional application received by the Consent Authority on 26 May 2020 and addendum provided 11 June 2020;
   iii. Further information response received on 14 May 2020; and
   iv. Hearing evidence [Date] Month 2020.
   b) If there are any inconsistencies between any conditions of this consent and the application, the conditions of consent must prevail.
2. Water taken and used by this consent must be restricted to surface water contained within the reservoir identified as "inner pond" as shown in **Appendix 1**.
3. The maximum volume of water impounded must not exceed 53,820 cubic metres.
4. The Consent Holder must immediately notify the Consent Authority if the Consent Holder has reasonable grounds for considering that the dam is, or has become, dangerous.

Performance Monitoring

5. a) Within the first anniversary of the exercise of this consent, and every 5 years thereafter, the Consent Holder must review the dam's classification.
   b) The Consent Holder must also review the dam's classification if, at any time:
      i. any building work that requires a building consent is carried out on the dam; and
      ii. the building work results, or could result, in a change to the potential impact of a failure of the dam on person, property, or the environment.
   c) In reviewing the classification of the dam, the Consent Holder must:
      i. apply the criteria and standards for dam safety set out in the New Zealand Dam Safety Guidelines 2015 published by the New Zealand Society of Large Dams (NZSOLD);
      ii. give the dam one of the following classifications: low potential impact, medium potential impact or high potential impact; and
      iii. submit the classification of the dam to a Chartered Professional Engineer experienced in dam safety for audit.
   d) Within one month of the review, the consent holder must provide the Consent Authority with the classification given by the consent holder to the dam and a certificate from a **Recognised Engineer** that:
      i. states that the classification of the dam accords with the New Zealand Dam Safety Guidelines 2015; and
      ii. states that the engineer is a Chartered Professional Engineer experienced in dam safety.
   e) If the review changes the classification of the dam from low potential impact to medium potential impact or high potential impact, the Consent Authority may review the conditions of this consent to impose conditions relating to dam safety. Conditions must be consistent with any relevant National Environmental Standards, Regulations, plans and/or the Otago Regional Policy Statement.

General

6. The dam, spillway and associated structures must be operated and maintained to ensure that, at all times, they are structurally sound, pose no undue risk to human life, property, or the natural environment, and are able to perform satisfactorily to their approved design standard.

7. The damming of water must not cause flooding, erosion, land instability, sedimentation, or property damage of any other person’s property.

Review

8. 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 resource consent within three months of each anniversary of the commencement of this resource consent or within two months of any enforcement action taken by the Consent Authority in relation to the exercise of this resource consent, for the purpose of:
   a) Determining whether the conditions of this resource consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the resource consent and which it is

appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the resource consent;

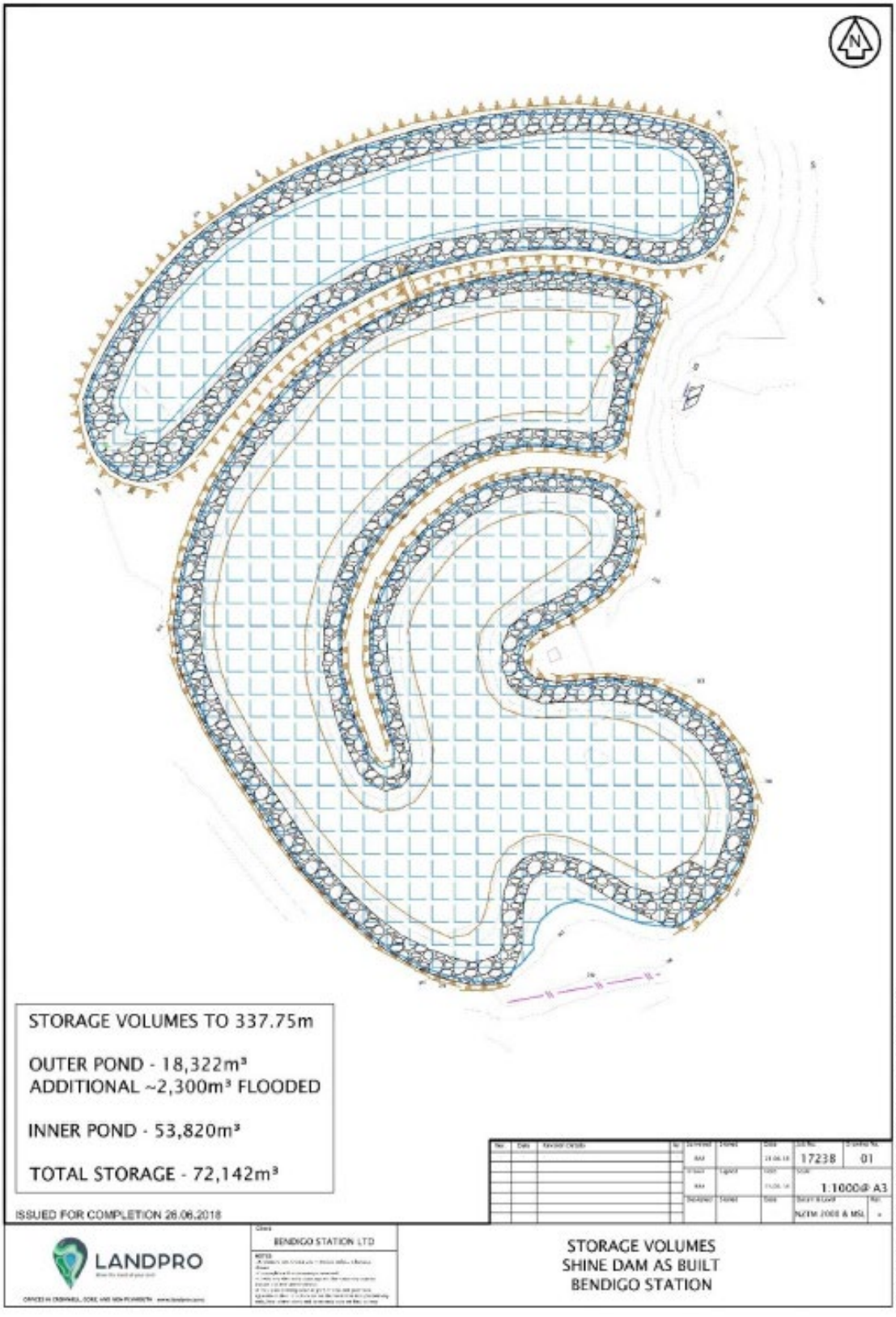
b) Ensuring the conditions of this resource consent are consistent with any National Environmental Standards, relevant plans, and/or the Otago Regional Policy Statement;
c) Reviewing the frequency of monitoring or reporting required under this consent;
d) Reviewing the need for public liability insurance cover to be held by the Consent Holder;
e) Reviewing the conditions of this consent to impose conditions relating to dam safety if the potential impact classification of the dam changes from low to medium or low to high, in accordance with Condition 5.

Notes to Consent Holder

1. *For the purposes of Condition 5, a **Recognised Engineer** means: an engineer described in Section 149 of the Building Act 2004, and has some or all of the following competencies:*
    - *geotechnical principles;*
    - *design principles including structural, geotechnical, seismic, hydrologic and hydraulic principles;*
    - *dam construction techniques;*
    - *operation and maintenance of dams;*
    - *surveillance processes;*
    - *response to dam safety issues;*
    - *emergency planning and emergency response;*
    - *resolution of potential dam safety deficiencies; and*
    - *dam safety critical plant systems.*
2. *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.*
3. *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.*
4. *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 and National Environmental Standards.*

Otago Regional Council

Appendix 1 to RM20.079.03: Dam design



Department of Conservation
Te Papa Atawhai

DOC Ref: RC881

Date: 14 July 2020

Will Nicolson
13 Pinot Noir Drive
Cromwell 9342

Dear Mr Nicolson

Request for Approval s95E Resource Management Act 1991: Application from Bendigo Station Ltd to replace an existing deemed water take permit at 1460 Tarras-Cromwell Rd, Cromwell.

I have considered your request for written approval in terms of s95E of the RMA and am pleased to advise that I grant my approval as an affected person. This approval is granted on the basis that the proposal is as described, for the purposes described, and will have the effects on the Department of Conservation's interests as described in the application dated 26 February 2020. This approval is limited to the likely adverse effects of the proposal on the Department's interests and should not be construed as approval to effects on the environment generally.

This approval is specific to the above application and is for the purposes of s95E of the RMA only. It is not indicative of any associated concession or other statutory approval which may be required from the Department relating to this proposal. This approval will be rendered null and void if the proposal to which it refers is changed between the date of this letter and its consideration by the consent authority without referral back to me for my further assessment.

If you have any questions regarding this approval, please contact RMA@doc.govt.nz

Yours sincerely

Amy Robinson
RMA Manager

From:	Nigel Paragreen
To:	Will Nicolson
Cc:	Charles Horrell; "grantporter@xtra.co.nz"
Subject:	RE: RM20.079 consent terms sought
Date:	Thursday, 8 October 2020 3:01:02 p.m.
Attachments:	image002.jpg image003.png

Thanks Will,
In that case, happy for this email chain to serve as notice of the Otago Fish and Game Council's request to withdraw its submission.
Cheers,

Nigel Paragreen | Environmental Officer
Otago Fish and Game Council
PO Box 76, Dunedin 9054
Cnr Hanover and Harrow Street, Dunedin
P 0272 050 395 | **E** nparagreen@fishandgame.org.nz | **W** www.fishandgame.org.nz

cid:image001.jpg@01D0C076.15AAE6A0

From: Will Nicolson <will@landpro.co.nz>
Sent: Thursday, 8 October 2020 2:51 p.m.
To: Nigel Paragreen <nparagreen@fishandgame.org.nz>
Cc: Charles Horrell <Charles.Horrell@orc.govt.nz>; 'grantporter@xtra.co.nz' <grantporter@xtra.co.nz>
Subject: RE: RM20.079 consent terms sought
Hi Nigel,
Yes, for clarity – my September 30 email below serves as the applicant's formal request for an amendment of the consent terms to 15 years.
Regards,
Will

Will Nicolson
Scientist/Resource Management Planner

Landpro

0800 023 318 | +64 27 459 8090
13 Pinot Noir Drive
Cromwell 9342 New Zealand

New Plymouth | Cromwell | Gore

landpro.co.nz

From: Nigel Paragreen <nparagreen@fishandgame.org.nz>
Sent: Thursday, 8 October 2020 2:30 PM
To: Will Nicolson <will@landpro.co.nz>
Cc: Charles Horrell <Charles.Horrell@orc.govt.nz>; 'grantporter@xtra.co.nz' <grantporter@xtra.co.nz>
Subject: RE: RM20.079 consent terms sought
Hi Will,

Thanks for your email.
Yes, the Otago Fish and Game Council is willing to withdraw its submission once notice has been provided that the term sought for these consents has been amended to 15 years. Just so I'm clear, are you intending for your email to be the formal request to amend the application as such?
If so, I'm happy for this email to serve as notice of the Council's request to withdraw its submission.
If not, I will need confirmation of the amendment before I can withdraw the Council's submission.
Cheers,

Nigel Paragreen | Environmental Officer
Otago Fish and Game Council
PO Box 76, Dunedin 9054
Cnr Hanover and Harrow Street, Dunedin
P 0272 050 395 | **E** nparagreen@fishandgame.org.nz | **W** www.fishandgame.org.nz

From: Will Nicolson <will@landpro.co.nz>
Sent: Wednesday, 30 September 2020 4:36 p.m.
To: Nigel Paragreen <nparagreen@fishandgame.org.nz>
Cc: Charles Horrell <Charles.Horrell@orc.govt.nz>; 'grantporter@xtra.co.nz' <grantporter@xtra.co.nz>
Subject: RM20.079 consent terms sought

Hi Nigel,
Following our phone conversation earlier this week, I understand that Fish & Game is willing to withdraw their submission on RM20.079.01-RM20.079.03 provided the applicant amends the terms sought on RM20.079.01-03 to 15 years. The applicant has indicated that they are willing to do this, and the processing officer (Charles Horrell, cc'ed) noted that this email can be appended to the application to that end.
If you're happy with this arrangement, can you please respond accordingly to this email so that we have everything on file.
Thanks,
Will

Will Nicolson
Scientist/Resource Management Planner

Landpro

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Cromwell 9342 New Zealand

New Plymouth | Cromwell | Gore

landpro.co.nz

Tonkin+Taylor

Job No: 51640.0380
12 May 2020

Otago Regional Council
70 Stafford Street,
Private Bag 1954,
Dunedin 9054

Attention: Charles Horrell

Dear Charles

Bendigo Station Limited Consent Technical Review

Bendigo Station Limited has submitted an application for consent to replace existing Permits WR1233CR and WR3908CR which expire on 1 October 2020. The application is to take up to 50 L/s of primary allocation and 110 L/s of supplementary allocation from Bendigo Creek. The proposed monthly and annual take volumes are 179,473 m^3/month and 900,601 m^3/year respectively. The water is to be used for domestic supply, stockwater and water harvesting.

Tonkin and Taylor Ltd (T+T) have completed a technical review of hydrology and freshwater ecological components of the consent application. The documents reviewed include:

- *Resource Consent Application to Otago Regional Council, Prepared for Bendigo Station Limited* prepared by Landpro Ltd, 27 February 2020.
- *Bendigo Station Limited S92 Response* prepared by Landpro, 30 April 2020.

The following letter summarises our review and provides our conclusions as to the validity and robustness of the inputs, assumptions, and conclusions drawn from the assessments.

This work has been undertaken in accordance with our email of 16 March 2020[1], and our existing agreement with ORC dated 24 May 2019.

Hydrology

The Applicant proposes to take 50L/s of primary allocation plus an additional 110 L/s of supplementary allocation when flows in creek exceed more than 50% of the natural flow plus the primary allocation.

Based on a request for information response from the Applicant, the flow abstraction will be controlled at the intake using a newly installed downstream flow meter transmitting flow data in real time to a web portal which the Applicant will monitor.

[1] Email, from Scott Sutherland, T+T, to Will Osborne, ORC, 16/03/2020, 4:50pm, Subject: RE: Capacity to review Surface water take (RM20.084)

Tonkin & Taylor Ltd | Level 3, PwC Centre, 60 Cashel Street, West End, Christchurch, 8013, New Zealand | PO Box 13-055, Christchurch 8141
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The volume of water needed for irrigation has been determined from Aqualinc's 'Guidelines for Reasonable Irrigation Water Requirements in the Otago Region, 24/7/2017. For the Bendigo area, Aqualinc estimates a mean annual rainfall of around 450 mm/yr resulting in a 90% irrigation demand of (836,696 m^3 with 100 ha of pasture and 82 ha of vineyard). We agree with the assessment of annual volume is in accordance with the Aqualinc guideline.

Due to the lack of measured flow data available for Bendigo Creek, the report utilises NIWA River Maps to determine various flow statistics for the creek. In the absence of flow data, we consider that the use of NIWA River Maps is suitable.

The report states that based on an assessment of historical imagery, the surface flow from the creek does not flow to the Clutha River and this behaviour is observed across all seasons. The flow monitoring undertaken supports this statement during common flows, where a net flow loss of 64.6 L/s was observed between the upstream and downstream measurement site. The downstream site was measured at 0 L/s (i.e. dry). The report states that the flow measurements were recorded at a time of low flow. We have reviewed the flow record from the nearby Lindis River recorder which was flowing around the MALF on the day of the flow measurements.

The report concludes that the loss of flow between the gorge and the plains is likely due to porous alluvial gravels which can leak surface water to the sub-surface zone. Based on review of aerial imagery, geological maps and the Applicant's flow measurements we agree that the creek runs dry downstream of the gorge at various times throughout all seasons. We agree that the additional abstraction from the creek will not significantly exacerbate these natural flow losses, which are likely to occur regardless of abstraction.

We conclude that the assessments undertaken for hydrology are appropriate and we have no further comments regarding technical hydrology aspects of the application.

Freshwater ecology

Effects on aquatic ecology

The Applicant's ecologist has provided an additional assessment of ecological effects (AEcE) as per our s.92 request. We have reviewed both the Bendigo Creek fish survey memo[2] and the AEcE.

The Bendigo Creek fish survey memo and, in part, the AEcE states that:

- Brown trout (*Salmo trutta*) were the only fish species identified within the survey reaches of Bendigo Creek. The population is limited to a reach between a gorge section and the ephemeral reach. This reach provides poor habitat and is likely affected by possible summer low flows resulting in little useable habitat for brown trout.
- There are no other available records of fish species (i.e. within the New Zealand Freshwater Fish Database).
- Larval galaxiid habitat is available to some extent, however, no adult galaxiids were identified at all in each of the surveyed reaches.
- There is no evidence that rare Clutha flathead galaxiids (*Galaxias sp. D*) are present at the water take or downstream of that point.

The AEcE details that the taking of water will lead to a reduction in some of the available and useable habitat for brown trout by increasing the size and duration of the natural ephemeral reach. However, as this brown trout population is one of many "*stunted*" populations within the Otago region and has no sports fishing value, the reduction in available and useable habitat is not

[2]Water Ways Consulting Ltd. 2020. Bendigo Creek fish survey memo. Appendix D. Resource Consent Application to Otago Regional Council. Prepared for Bendigo Station Limited by Landpro Ltd

considered significant. We agree that there will be a reduction in available and useable habitat for trout, however, this reduction in available and useable habitat in not considered significant.

The AEcE outlines that the reduction in flow will reduce available habitat for aquatic invertebrates However, flow will be maintained through the permanently wet reaches and will continue to provide a varied range of connected habitats for a diverse invertebrate community. We agree that there will be a reduction in available habitat for aquatic invertebrate communities, but the diversity of habitats, connectivity and wetted reaches will be maintained limiting the effect of the abstraction.

The AEcE states that the habitat and flow characteristics downstream of the water take (for approximately 750 m) are conducive to high dissolved oxygen and lower temperatures and are not likely to be affected by the proposed water abstraction. No direct measurements of water temperature and dissolved oxygen were collected to confirm this characterisation. Similarly, nuisance periphyton communities are unlikely to reach bloom conditions within this reach due to the low stock grazing, increased riparian shading, and steep gradient providing high scour potential. The lower open and unshaded reaches of Bendigo Creek (> 750 m downstream of the water take), water temperatures are already likely to be naturally higher and will be elevated due to the water abstraction. Additionally, didymo already blooms within this reach and will continue to occur regardless of the water abstraction. We agree with the description and conclusion provided by the Applicant's ecologist.

The report concludes that the water abstraction effect on trout habitat and the macroinvertebrate community and habitats are not considered significant. in addition, the shaded, steep gradient section downstream of the water take will maintain wetted connection to upstream habitats, prevent the occurrence of periphyton blooms, maintain good dissolved oxygen and prevent increases in water temperature. We agree with the conclusion provided by the Applicant's ecologist that the additional abstraction from the creek is not considered significant.

We conclude that the assessments undertaken into potential ecological effects on the Bendigo Creek are robust and we have no further comments regarding freshwater aspects of the application.

Regionally significant wetland

A s.92 request for further information relating to the actual and potential effects on Bendigo Wetland was requested. The Bendigo Wetland is a regionally significant wetland at the head of Lake Dunston. The wetland provides a high value diverse habitat for nationally vulnerable or threatened species (e.g. Crested Grebe (*Podiceps cristatus*) and provides a wide range of habitat types for a large range of wetland and aquatic plant species. The confluence of the Bendigo Creek and the Clutha River/Mata-Au is upstream of the northern extent of the Bendigo Wetland.

The s.92 response describes the nature of the interaction between the Bendigo Stream, Bendigo Wetland and the Clutha River/Mata-Au. The response additionally details that the Bendigo Creek flow (both surface water and any groundwater flow) is likely having a *"relatively insignificant"* input into the Clutha River/Mata-Au and as such the Bendigo Wetland. Research into the Bendigo groundwater allocation zone[3] (which encompasses the Bendigo Wetland) has shown that the main source of recharge is from the Clutha River/Mata-Au in a north-south direction and there is little impact on the groundwater/aquifer (and as such Bendigo Wetland) from tributary streams as the Clutha River/Mata-Au recharge is so dominant. This aligns with the Applicants conclusion that any significant changes to the tributary inputs of the Clutha River/Mata-Au (upstream of the Bendigo Wetland) may have a potential indirect impact on the wetland, however, the inputs from the Bendigo Creek are relatively insignificant compared to those attributed to the Clutha River/Mata-Au.

[3] Houlbrooke, C. 2010. Bendigo and Tarras Groundwater Allocation Study. Otago Regional Council.

We conclude that the Applicant has provided sufficient details to determine the effects to the regionally significant Bendigo Wetland and we have no further comments regarding the effects of primary and supplementary flow allocation of Bendigo Creek on this wetland.

Applicability

The sole purpose of this report and the associated services performed by Tonkin & Taylor Limited ("T+T") is to undertake a limited review of, and comment on, the *Resource Consent Application to Otago Regional Council,* 27 February 2020 ("Report") prepared by prepared by Landpro Ltd ("Principal Consultant") in accordance with the scope of services set out in the contract between Otago Regional Council (the "Client") and T+T. That scope of services, as described in this letter, was developed with the Client.

T+T's review was a form of peer review, undertaken on a level-of-effort basis to determine validity and robustness of the inputs and assumptions, and the validity of the conclusions drawn from the assessments. The responsibility for the Report remains fully with the Principal Consultant and T+T's review does not constitute a means by which that responsibility can be passed on to T+T. This letter has been prepared on behalf of, and for the exclusive use of, T+T's Client, and is subject to, and issued in accordance with, the provisions of the contract between T+T and the Client. T+T accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:

.....

Richard Brunton

Water Resource Engineer

Authorised for Tonkin & Taylor Ltd by:

.....

Tim Morris

Project Director

Report prepared by:

pp.  .....

Patrick Lees
Freshwater Ecologist

12-May-20
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Tonkin+Taylor

Job No: 51640.0380
2 November 2020

Otago Regional Council
70 Stafford Street,
Private Bag 1954,
Dunedin 9054

Attention: Charles Horrell

Dear Charles

Bendigo Station Limited Consent Review

Bendigo Station Limited has submitted an application for consent to replace existing Permits WR1233CR and WR3908CR which expire on 1 October 2020. In May 2020 Tonkin and Taylor Ltd (T+T) completed a technical review of hydrology and freshwater ecological components of the consent application. The technical review was summarised in a letter *'Bendigo Station Limited Consent Technical Review'*, 12 May 2020. Following this technical review, further information has been provided by the Applicant and resource consent hearing submitters.

The following letter summarises our review of this additional information and provides our conclusions as to the validity and robustness of the inputs, assumptions, and conclusions drawn from the assessments.

This work has been undertaken in accordance with our email of 28 October 2020[1], and our existing agreement with ORC dated 24 May 2019.

Hydrology

Landpro has completed an additional hydrology assessment based on flow data from the recently installed Bendigo Creek flow recorder (July – September 2020) and a site visit carried out on the 11 September 2020.

Landpro calculates the loss of water between Site 2 and Site 4 at 0.05 L/s/m. However, based on a loss in flow of 63.3 L/s from Sites 2 to 4 (refer to Application document for location map), divided by the reach length between Sites 2 and 4 (2,145 m) T+T calculates a loss rate of 0.03 L/s/m. The total distance from site 2 to the mouth of the Clutha River is approximately 6.3 km. Therefore, a flow of at least 190 L/s at Site 2 would be required for a continuous flow to the Clutha River confluence.

The highest flow measured from the recently installed flow recorder site during the period July – September 2020 was approximately 130 L/s. The Landpro assessment does not estimate the return period/magnitude of this highest recorded flow. Flow records from the nearby Lindis River suggest that only small fresh events smaller than a mean annual flood occurred over the July – September

[1] Email, from Richard Brunton, T+T, to Charles Horrell, ORC, 28/10/2020, 4:42pm, Subject: RE: Bendigo Station Hydro Assessment (RM20.079)

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2020 period. The length of record currently available from the flow recorder is insufficient to allow an accurate assessment of long-term flows for the creek.

Landpro states that it is "likely Bendigo Creek is permanently dry in the lower reaches". We do not agree with this statement as there is no long-term monitoring to support this. Based on our loss rate calculation, a continuous flow connection to the Clutha may occur when flows are higher than 190 L/s at Site 2. At this time, the return period/magnitude of this flow is unknown.

Freshwater ecology

Residual Flow

We have no further comment in addition to our original technical review regarding residual flows.

Fish Screen

Any fish protection structures/objectives (such as intake screening) should be established through reviewing the fish community and any potential impact on the fisheries due to the intake. A fish community assessment was undertaken by the Applicants ecologist and this identified no fish (both larval and adult) present within the Bendigo Creek at the intake site. Similarly, an assessment of the New Zealand Freshwater Fish Database was undertaken, and no records are available for the upper Bendigo Creek. Of note is that adequate fish habitat was identified at the intake site and within the wider upper Bendigo Creek.

It is best practice to recommend an appropriately designed fish screen be installed on all intake structures where there will be an impact on the fish community. The Bendigo Creek intake is located in the upper catchment, no fish were observed by the Applicants ecologist nor are there historic fisheries records at the intake site and within the upper Bendigo Creek. Therefore, based on the current available data there is likely to be a negligible impact on the Bendigo Creek fish community from an unscreened intake. However, if further information shows that fish are present upstream and or downstream of the intake site, an appropriately designed fish screen must be included to protect the fish species present within the upper Bendigo Creek.

Applicability

The sole purpose of this report and the associated services performed by Tonkin & Taylor Limited ("T+T") is to undertake a limited review of, and comment on, the *Resource Consent Application to Otago Regional Council,* 27 February 2020 ("Report") prepared by prepared by Landpro Ltd ("Principal Consultant") in accordance with the scope of services set out in the contract between Otago Regional Council (the "Client") and T+T. That scope of services, as described in this letter, was developed with the Client.

T+T's review was a form of peer review, undertaken on a level-of-effort basis to determine validity and robustness of the inputs and assumptions, and the validity of the conclusions drawn from the assessments. The responsibility for the Report remains fully with the Principal Consultant and T+T's review does not constitute a means by which that responsibility can be passed on to T+T. This letter has been prepared on behalf of, and for the exclusive use of, T+T's Client, and is subject to, and issued in accordance with, the provisions of the contract between T+T and the Client. T+T accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:

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Richard Brunton

Water Resource Engineer

Authorised for Tonkin & Taylor Ltd by:

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Tim Morris

Project Director

Report prepared by:

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Patrick Lees
Freshwater Ecologist

3-Nov-20
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Document Id: **A1396490**

MEMORANDUM

To: **Charles Horrell**

From: **Sarah McCrorie**

Date: **6/10/2020**

Re: **RM20.079 - WM1515 historical water use analysis**

This memorandum is in relation to application RM20.079 to replace WR1233CR and WR3908CR from Bendigo Creek for the purpose of irrigation, stock water and domestic use. Abstraction of water under these permits occurs through water meter WM1515.

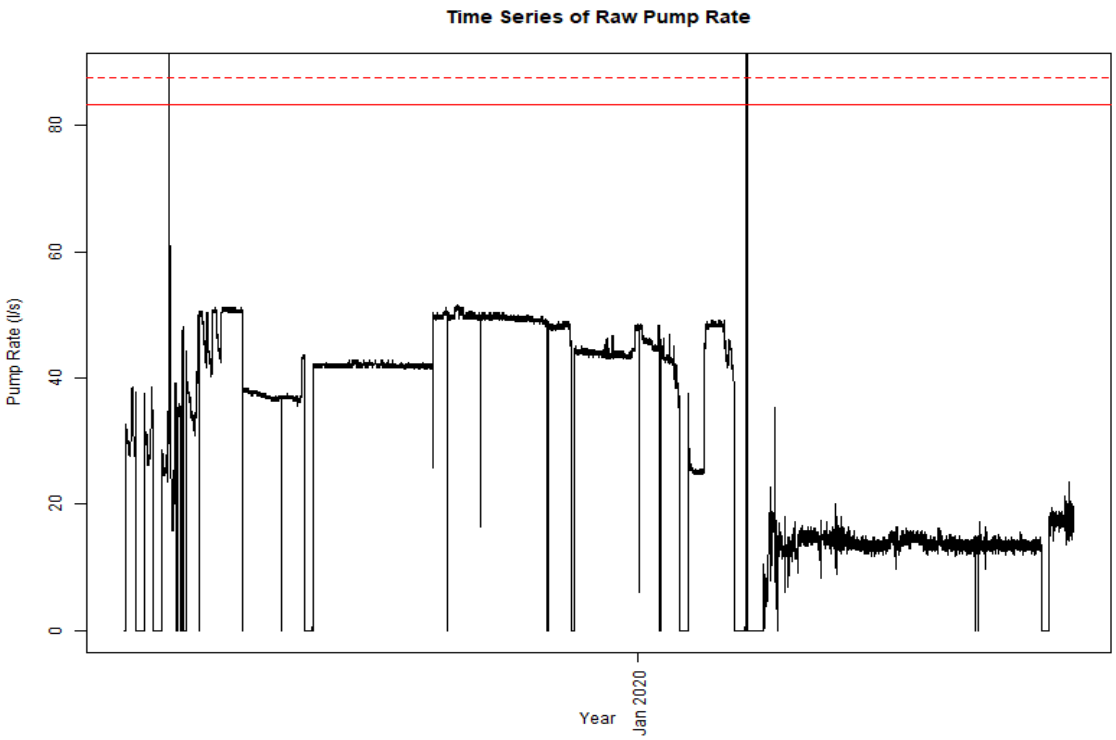
All analyses, graphs, and calculations were performed using RStudio version 1.2.5033 and RGui version 3.6.3.

Data taken through WM1515 extends from 07 February 2019 to 05 October 2020 with a total of 14,543 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 83.3 l/s and water is taken through an open channel or other type of meter. A 5% margin of error was applied to this and rates in excess of 87.5 l/s were set to NA.
- Rates between 83.3 l/s and 87.5 l/s were set to 83.3 l/s.
- The resultant data set had 13,284 hourly measurements.

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

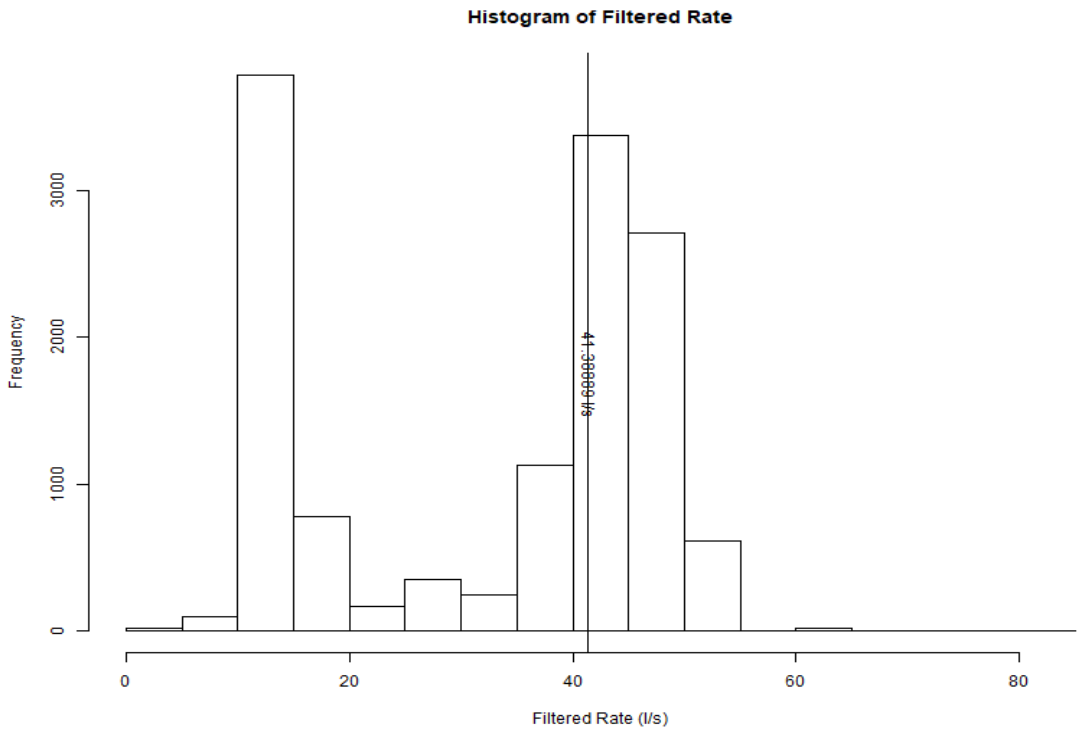


The solid red line represents the consented maximum rate of 83.3 l/s, and the broken red line represents 83.3 l/s + 5% (87.5 l/s).

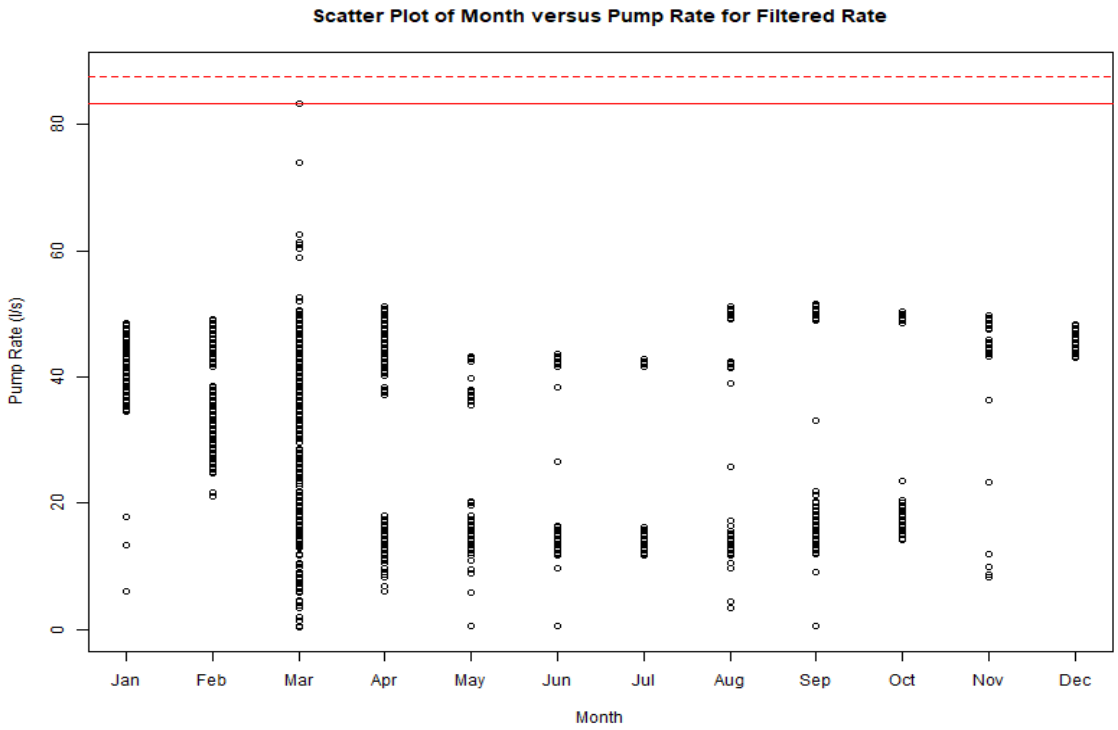
This is a limited dataset containing only one season, there is no obvious pattern in the above time series.

The filtered data set contains 13,284 measurements with an average take of 33 l/s, a median rate of take of 41.4 l/s, and a modal (most common) rate of take of 41.9 l/s.

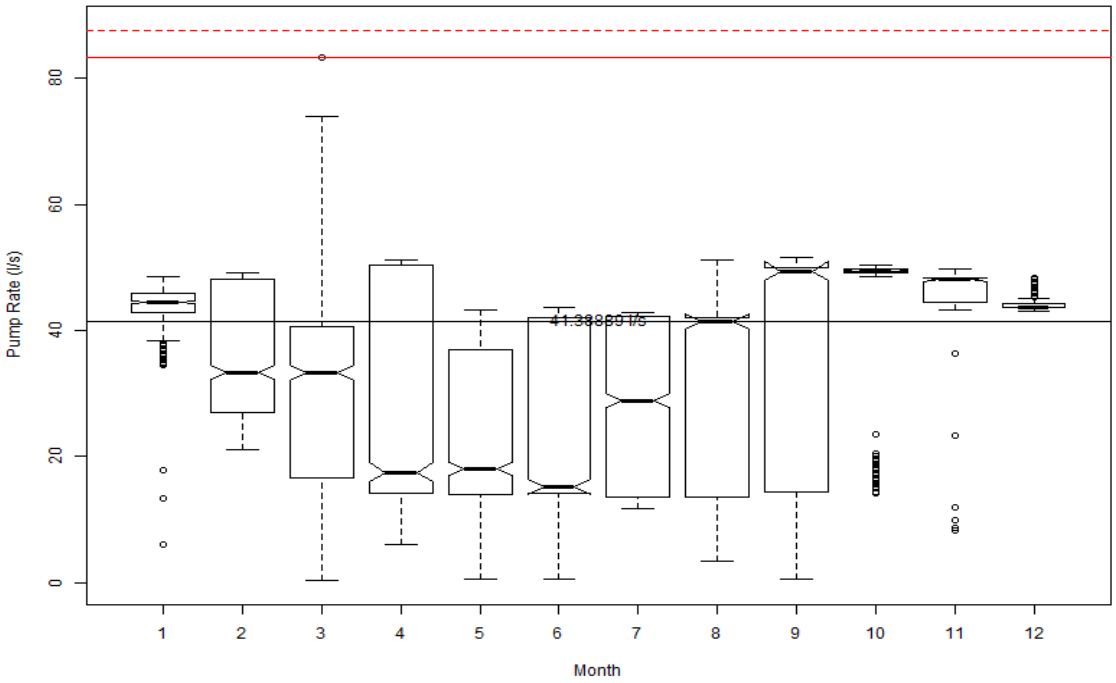
The histogram below is bimodal with a peak between 10-15 l/s and again between 40-50 l/s representing 29% and 46% of the filtered measurements respectively. This is consistent with taking for domestic and stock drinking purposes and at other times taking for irrigation.



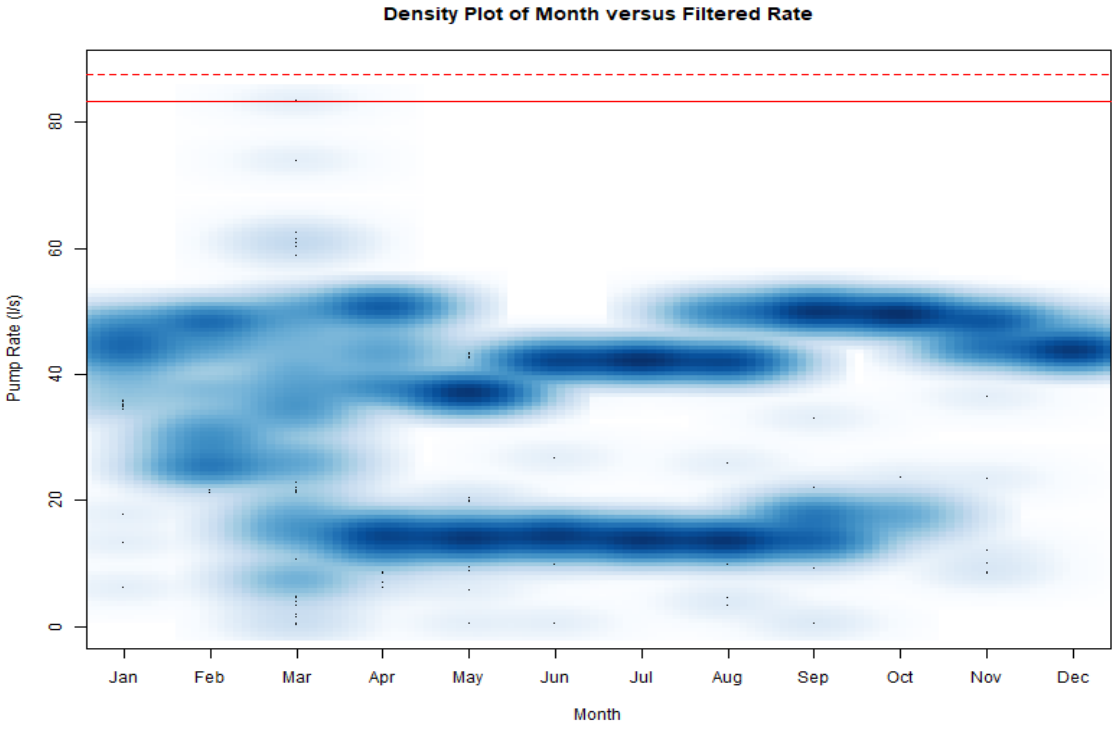
The scatter plot continues the bimodal trend of the histogram. Rates of taking are generally higher between November and February, this is consistent with taking for irrigation.



The box plot is consistent with the above graphs. An above average rate of taking is more likely to occur between October and January. This is consistent with taking for irrigation during the season.



A lower rate of taking is clearly visible below, this is consistent with taking for domestic and stock drinking. The higher rate of taking is consistent with taking for irrigation.



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 38.2l/s, the median is 43.9 l/s and the modal value is 49.4 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.

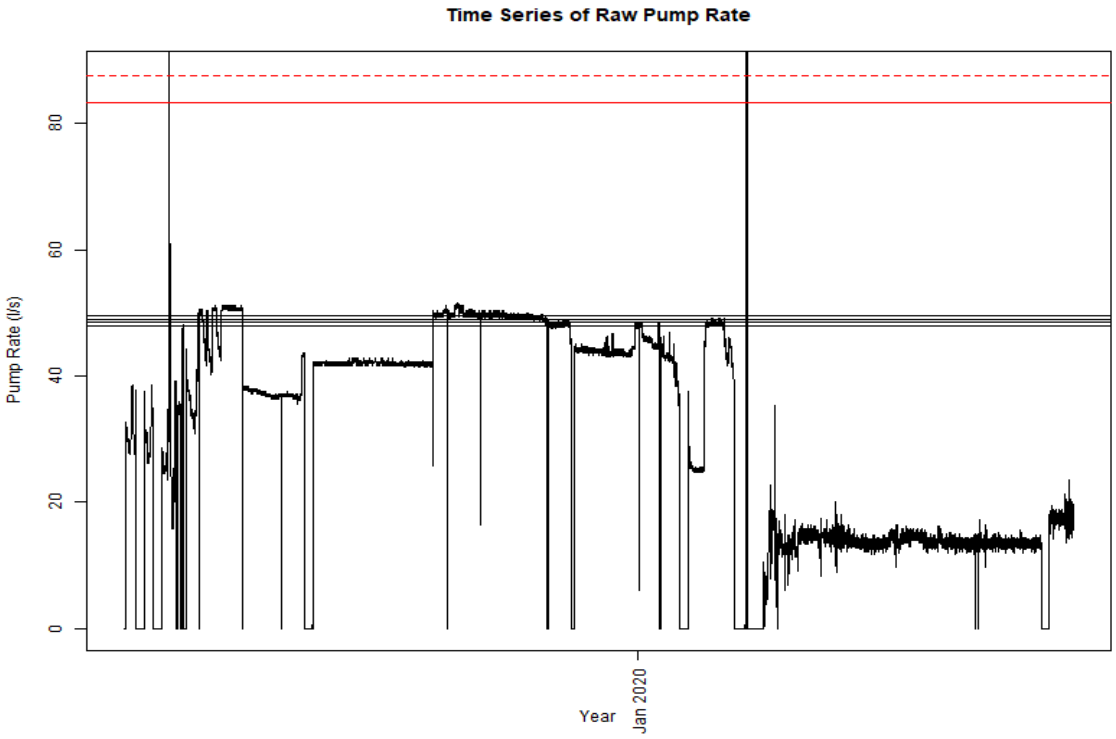
What this means is that if a consent holder is consistently using their maximum consented rate for more than 5%, 10%, or 20% of the time they are pumping, it will show up in the table of percentiles.

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.

	80th %ile	**90th %ile**	**95th %ile**
Raw rate	48.1	49.4	50
Filtered rate	48.3	49.7	50
High use rate	49.4	49.7	50

As the data only began in 2019 Method 10.A.4 cannot be applied.

A time series with reference lines at 48 l/s, 48.5 l/s, 49 l/s, & 49.5 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 consent holder.


Time Series of Raw Pump Rate
Pump Rate (l/s)
0
20
40
60
80
Year
Jan 2020

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

48.1 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	NA	0	8	19	0	0	0	9	30	31	18	2
2020	4	14	0	0	0	0	0	0	0	0	NA	NA

49.4 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	NA	0	7	18	0	0	0	9	30	27	0	0
2020	0	0	0	0	0	0	0	0	0	0	NA	NA

48.3 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	NA	0	8	19	0	0	0	9	30	31	15	1
2020	2	13	0	0	0	0	0	0	0	0	NA	NA

49.7 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	NA	0	7	18	0	0	0	9	29	14	0	0
2020	0	0	0	0	0	0	0	0	0	0	NA	NA

50 l/s	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	NA	0	6	18	0	0	0	4	21	5	0	0
2020	0	0	0	0	0	0	0	0	0	0	NA	NA

A summary of daily volumes, in m^3, filtered for a maximum daily take of 7200 m^3 and then rounded to three significant figures is presented below:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	1,000	991	2	1,030	1,150	2	1,160	719	419	1,520	1,720	3,750

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	3,560	2,960	2,330	2,600	2,200	2,220	2,410	2,470	2,850	3,960	3,770	3,800
Median	3,810	2,710	2,240	2,280	2,060	1,270	2,450	2,400	4,110	4,270	4,150	3,780
80%	3,960	4,170	3,370	4,370	3,190	3,630	3,640	3,620	4,300	4,290	4,170	3,800
90%	4,010	4,180	3,970	4,390	3,220	3,630	3,650	4,290	4,330	4,300	4,190	3,820
95%	4,120	4,190	4,270	4,390	3,250	3,630	3,660	4,300	4,370	4,300	4,230	3,930
Max	4,150	4,200	6,570	4,390	3,440	3,730	3,670	4,360	4,420	4,310	4,240	4,120

A summary of monthly volumes based on daily volumes that have been filtered for a maximum daily take of 7200m³ and then rounded to three significant figures is presented below.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	NA	34,100	80,400	120,000	98,900	87,600	113,000	118,000	129,000	132,000	113,000	118,000
2020	99,700	93,200	20,000	36,200	37,400	36,700	36,600	35,500	33,900	6,100	NA	NA

In summary:

- The pattern of taking is consistent with taking for the purpose of irrigation, domestic potable and stock drinking.
- The maximum volume taken in any day is 6,570 m^3
- The maximum volume taken in any month is 132,000 m^3.
- The maximum taken in any irrigation year is 1,046,200 m^3
- The applicant has applied for 50 l/s ±5%.
- The lowest rate at which water can be taken and still in the range 50 l/s ±5% is 47.6 l/s.
- The 95th percentile is 50 l/s, this is consistent with what the applicant has applied for.

REVIEW OF BENDIGO CREEK HYDROLOGY

Report Prepared for

Otago Regional Council

By David Stewart

February 2021

Raineffects
water resources analysts

Bendigo Creek Calculated 7-Day Mean Annual Low Flow

Purpose

This report has been prepared for Otago Regional Council to assist in assessing the surface water allocation within the Bendigo Creek catchment. This will enable consideration of a Deemed Permit replacement application.

This report responds to the briefing report dated 12 October 2020 along with further direction provided through correspondence with Charles Horrell, Consultant Planner for Otago Regional Council.

General

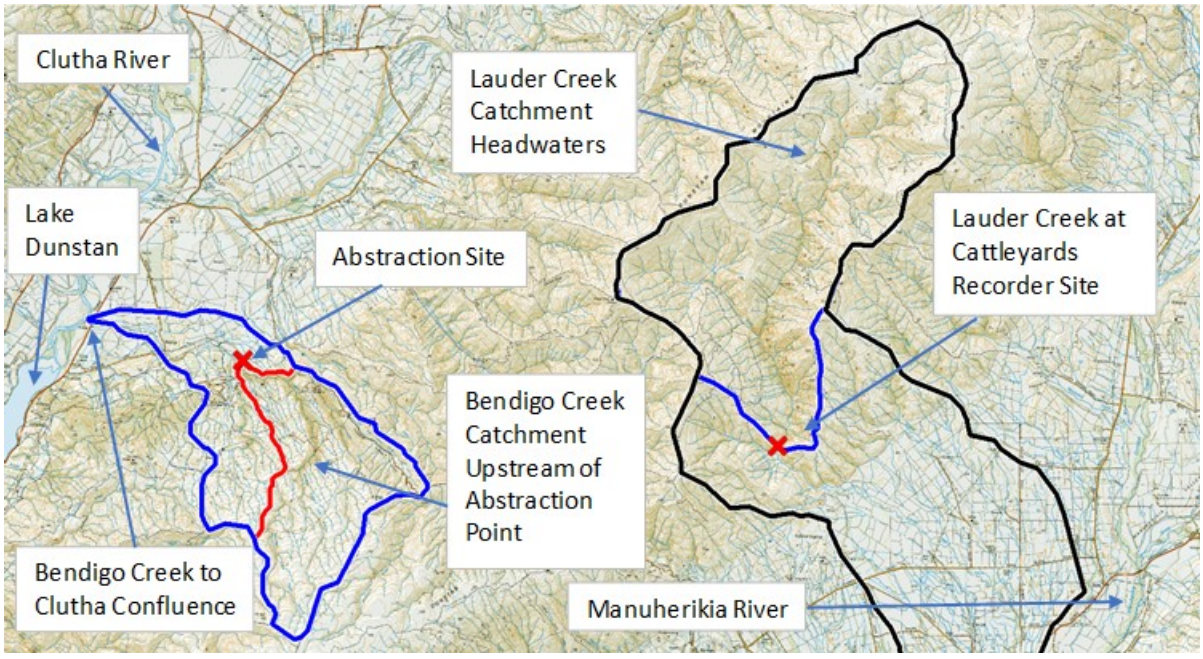
Bendigo Station, located in the Upper Clutha Valley, has applied for consents to replace mining privileges which are currently used for irrigation abstraction from Bendigo Creek.

The requirement of this analysis is to assess and review the hydrology of Bendigo Creek, a tributary of the Clutha River. This includes a review of hydrology data provided in both the application and separately by Landpro, the agents for Bendigo Station.

Bendigo Creek is a small northwest facing catchment with its headwaters in the Dunstan Mountains and it drains into the Clutha River just upstream of Lake Dunstan.

Its headwaters share the Dunstan Mountains as the main source of water as does Lauder Creek which generally faces southeast and flows into the Manuherikia River just downstream of the Lauder settlement. The headwaters of the catchment boundaries are about 9km apart. Figure 1 shows the location of the two catchments.

Figure 1. Location Map

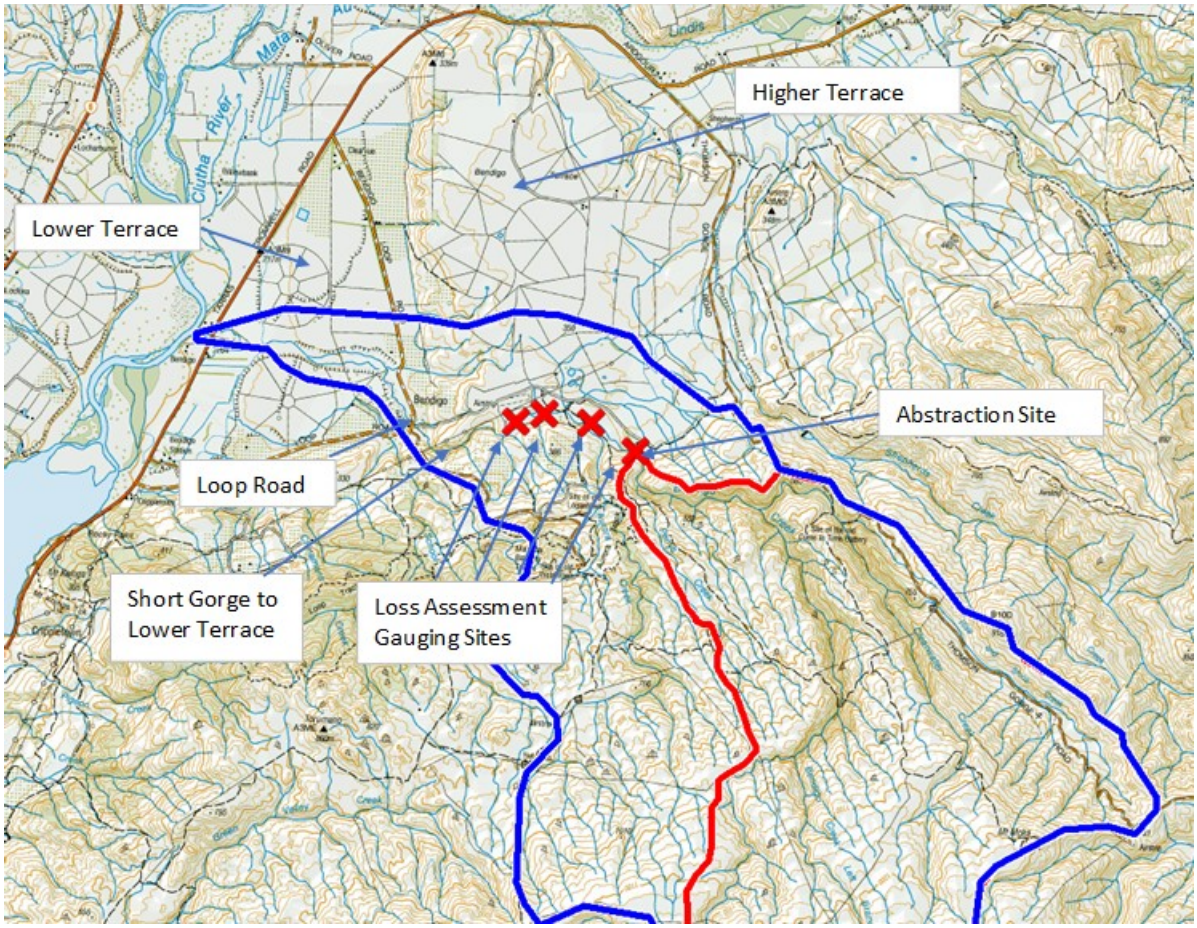


The catchment area of Bendigo Creek is 47km^2 at its confluence with the Clutha, but according to local farmers and the overgrown state of the stream channel (see cover photo), the lower section of Bendigo Creek seldom flows, contributes nothing to the water resource, and only during major floods will surface water reach the Clutha River from Bendigo Creek.

The area of Bendigo Creek most critical in providing flow to this Creek is the 27.9 km^2 upstream of the gorge which connects the high terrace (about 100m higher than the Lindis and Clutha Rivers) on the true left bank of Lindis with the lower terrace which Bendigo Creek crosses as it heads to its confluence with the Clutha just upstream of Lake Dunstan (see Figure 2).

The applicants for consent renewal rely on this same area to provide the flows they require for irrigation abstraction.

Figure 2. Notable Sites in the Bendigo Creek Catchment

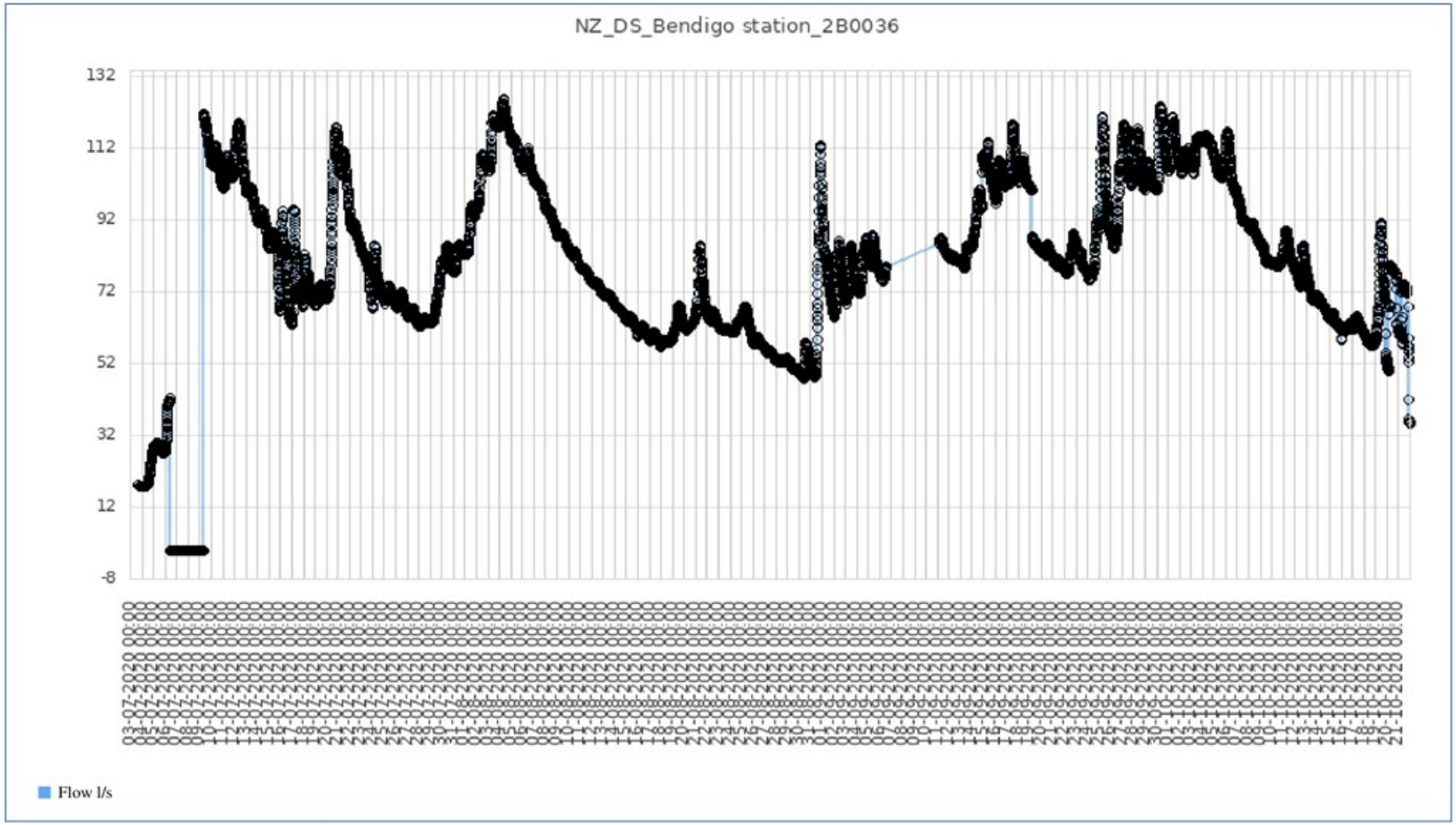


Available Flow Information

There is limited flow information available for Bendigo Creek. Landpro has provided a daily flow record for the period 12 February to 30 June 2020 and Charles Horrell from the Otago Regional Council (ORC), has provided a series of data in graphical form for the period 3 July 2020 to 21 October 2020 (see Figure 3). Both of these flow records were collected downstream of the current irrigation abstraction point.

The other recorder site of interest here is Lauder Creek at Cattleyards. This is a natural flow unaffected by abstractions. Recent record is available from August 2016.

Figure 3. Graphed Data Provided



Hydrology Information Included in the Application

Landpro's Technical Comment prepared by Christina Bright (24 February 2020) provides 7-day mean annual low flow (7DMALF) and mean flow information for 2 sites in the Bendigo Creek Catchment, namely the irrigation abstraction point and the downstream site at State Highway 8. These data were calculated using the National Institute of Water and Atmospheric Research (NIWA) on-line model called NIWA River Maps. The critical point is the point of abstraction because downstream of that point, the contribution to the flows in Bendigo Creek will be negligible due to both the very low rainfall and the fact that the lower catchment sits on a large, porous, alluvial terrace beside the Clutha River and little runoff will be able to run to the stream channel. The values for the 7DMALF from the NIWA River Maps model at the time of application was 63.3 l/s while that for the mean flow at the abstraction point was 243 l/s.

Charles Horrell (Consultant Planner, Otago Regional Council) (ORC) also provided a 7-day MALF of 16 l/s from an ORC model.

Other information provided by Landpro in its application included an assessment of losses from Bendigo Creek as the watercourse crosses the higher terrace before it travels through a short gorge to the lower terrace and then to its confluence with the Clutha River. Landpro undertook instantaneous flow gaugings at four sites beginning at the irrigation abstraction point and ending at the top of the short gorge connecting the upper terrace with the lower terrace. (see Figure 2). Landpro found that over the 4.5 km distance between sites 1 and 4, Bendigo Creek ran dry due to losses to groundwater in that reach. The calculated losses were 65 l/s.

Historical imagery and anecdotal evidence along with inspection of the state of the river channel from the bottom of the short gorge to the Clutha confluence shows that under relatively wet conditions, flows in Bendigo Creek seldom continue past Bendigo Loop Road (see Figure 2) and flows entering the Clutha River from Bendigo Creek at the confluence almost never happens. As a result, imposing any minimum or residual flow on Bendigo Creek at the abstraction site in my opinion will achieve nothing for the hydrology downstream.

7-Day MALF at the Abstraction Point

Two 7-DMALF estimates have already been provided but both are significantly different from each other. I am not familiar with the ORC method for calculating this statistic but from my experience with the NIWA River Maps model, it can be significantly inaccurate for Central Otago rivers and streams. I have experienced a number of examples where the model has significantly over or underestimated. The model also makes a number of assumptions about a catchment disregarding its specific characteristics.

I consider that this should only be used as a starting point and that further site-specific assessment must be undertaken.

Some measured flow data have been provided by Landpro for Bendigo Creek and these flows along with the corresponding flows in Lauder Creek will be used to provide a better estimate of the 7DMALF at the Bendigo Creek irrigation abstraction point using actual measured flow data from the Creek at the abstraction point.

7-Day MALF from Measured Data

The daily measured and graphed flow data are of unknown quality. The daily data included a flow rating table, and the information from 4 instantaneous gaugings undertaken during the period of daily record. In my view, four gaugings over that period of time are insufficient to define the rating and the shape of the rating curve provided shows this, especially for low flows. The higher flow gaugings look fair and this part of the rating is accepted as being usable. As a result, the data period 13 February to 30 June is not usable because the low flows are too low. Correlations between the 13 February to 30 June data were tried but the resultant relationships between Lauder Creek and Bendigo Creek data produce 7DMALFs of around 10 l/s and given the size and location of Bendigo Creek and the amount of water the current abstractor can take, this 10 l/s flow is likely to be far too low.

This leaves the latter graphed period of data as usable, and this data can be correlated with the daily flows at Lauder Creek at Cattleyards. Daily flows were calculated from the graph (see Figure 3) for the period 10 July to 19 October, measured abstractions were added back into the daily flows, and the resulting flows compared with Lauder Creek. Figure 4 shows the two records plotted against time. Note that on Figure 4, each creek refers to its own vertical axis.

Figure 4. Comparison of Daily Flows at Bendigo and Lauder Creeks

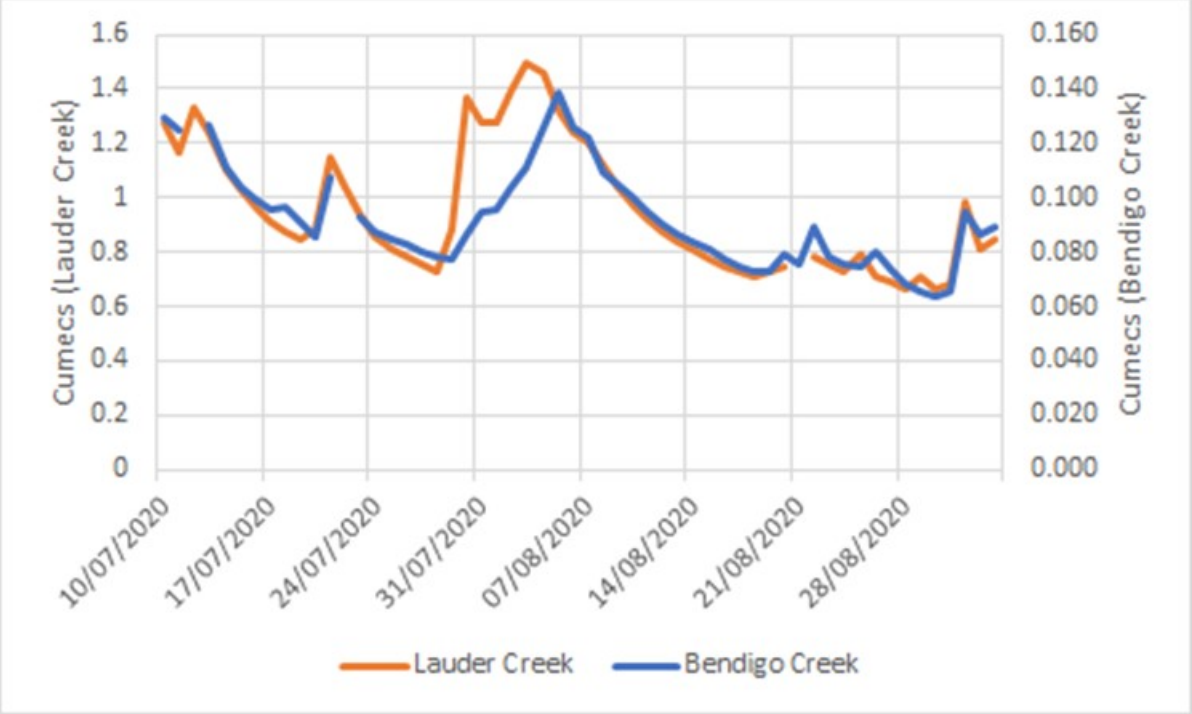


Figure 4 shows that generally on a broad scale, the two creeks are in sync with each other. The Lauder Creek peak flows between 29 July and 5 August are clearly out of sync with Bendigo Creek (peak flow on 5th August) so this section of data is removed from any correlation attempts.

A good correlation was found ($R^2 = 0.95$) in this latter record period and it provided a 7DMALF of 0.033 cumecs and a mean flow of 0.120 cumecs for Bendigo Creek at the abstraction point.

This calculation is based on a short period of record and it may be improved if there was more data collected or if the low flow rating for Bendigo Creek was improved or both. An

improved low flow rating would allow some or all the record from February to June to be used. This was generally a period of low flows and it would help verify the correlation with Lauder Creek being used here. In Lauder Creek, the flow record from February to June was also a period of relatively stable low flows. The adopted 7DMALF for Lauder Creek is 0.320 cumecs, and the lowest average 7-day flow in that period of record was 0.372 cumecs.

Impact on Existing Groundwater Abstractors in or Close to Bendigo Creek Catchment

There are several existing irrigators in or close to the Bendigo Creek catchment on the terrace where Bendigo Creek flows into the Clutha River. These irrigators source their water supply from groundwater, and it has been noted in reports that currently these groundwater abstractions have been conservatively assessed as abstracting connected surface water from Bendigo Creek. Therefore, the proposed Deemed Permit application could impact upon these downstream groundwater takes. ORC has asked that I comment on the likelihood of this.

Given the location of this stream is in close proximity to Lake Dunstan, it is likely that the depth at which these groundwater irrigators abstract from will coincide with the level of Lake Dunstan. The Clutha and Lindis Rivers surround the terrace where the irrigation occurs and there will be a considerable flow of groundwater from these two rivers into the alluvium from where these groundwater abstractors take water as it flows to Lake Dunstan. Therefore, it is extremely likely that these irrigators are abstracting Clutha River water. Bendigo Creek could not supply the quantity and provide the reliability that these groundwater sourced irrigators have. These irrigators have the right to abstract a total of 287 l/s. If they were reliant on flows percolating into the groundwater from Bendigo Creek, then they would have failed every year to abstract enough water for their irrigation needs. In this assessment, Bendigo Creek has an estimated mean flow of 0.120 cumecs. The water from Bendigo Creek disappears into the alluvium on the low terrace and is likely to become part of the groundwater flow that is travelling through the alluvium from the Lindis and Clutha Rivers.

It can be concluded that the amount of water available to and abstracted by the groundwater irrigators including its reliability, is substantially more than what could occur if they were reliant on water entering the groundwater system from Bendigo Creek. These irrigators are likely to be abstracting Clutha River water from either the Clutha and Lindis Rivers, Lake Dunstan, or both due to their proximity to the waterbodies and the significant volumes of water they abstract. Therefore, the impact of the current applicants on these groundwater abstractors on the terrace is likely to be negligible.

Conclusions

Based on my assessment of Bendigo Creek, its characteristics, the available flow information and correlating with a similar catchment, I consider that Bendigo Creek has a 7DMALF of 33 l/s and a mean flow of 120 l/s.

I have also considered the likely connection of groundwater in the lower reaches and consider that there is little to no connection, and any impact on groundwater abstractors will be negligible.

D W Stewart

Raineffects Limited

5 February 2021