

Appendix 1

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)

CONSULTATION DRAFT

Regional Plan: Water for Otago

Consultation draft for Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)
to the Regional Plan: Water for Otago

June 2014

Introduction

The Otago Regional Council has prepared the Consultation Draft of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) to the Regional Plan: Water for Otago. Proposed Plan Change 4C sets a maximum allocation volume for the groundwater resources of the Cromwell Terrace Aquifer.

This document should be read in conjunction with:

- Draft Section 32 – Evaluation Report; and
- The Regional Plan: Water for Otago operative as at 1 May 2014.

Amendments to the Regional Plan: Water as a result of Proposed Plan Change 4C are shown as follows: (additions underlined, deletions ~~struck-out~~).

Any person may make comments on this consultation draft. You may do so by sending written comments to the Otago Regional Council, or by telephone.

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Fax to	(03) 479 0015
Email to	policy@orc.govt.nz
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Comments will be received until 5 pm on Monday 23 June 2014.

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SCHEDULE 4: SPECIFIED RESTRICTIONS ON THE
EXERCISE OF PERMITS TO TAKE GROUNDWATER

4. Schedule of specified restrictions on the exercise of permits to take groundwater

This schedule sets out restrictions that apply to the taking of groundwater from certain aquifers in Otago.

Schedule 4A identifies maximum allocation volumes for the taking of groundwater from aquifers identified in the C-series maps, in accordance with Policy 6.4.10A(a)(i) of this Plan. Schedule 4B identifies water levels at which the taking of groundwater will be restricted in accordance with Policy 6.4.10A(b) of this Plan. Schedule 4C identifies matters to be considered when making additions to these schedules through a plan change.

4A Maximum allocation volumes for groundwater takes from aquifers

Aquifer Name	Map Reference	Maximum Allocation Volume (million cubic metres per year)
<u>Cromwell Terrace Aquifer</u>	<u>C3</u>	4
North Otago Volcanic Aquifer	C10	7

4B *[Unchanged]*

Table of minor and consequential changes

Plan Provision	Detail of proposed change																	
Page numbers	Update page numbers.																	
Footers	Change footer to read “ <u>Regional Plan: Water for Otago (Updated to <date to be inserted>)</u> ”.																	
Title page	Change the date to read “ <u>Updated to <date to be inserted></u> ”.																	
ISBN number	Obtain new ISBN numbers for Regional Plan: Water for Otago.																	
Chronicle of key events	Add the following to the end of table:																	
	Key event	Date notified	Date decisions released	Date operative														
	<u>Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) to the Regional Plan: Water</u>	<Date to be inserted>	<Date to be inserted>	<Date to be inserted>														
section 1.4	<u>Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) sets a maximum allocation volume on the Cromwell Terrace Aquifer. It was notified on ... , and a total of ... submissions and ... further submissions were received. Following the hearing, decisions on submissions received were released on Plan Change 4C was made operative on</u>																	
Schedule 4B	Replace the words “(m above mean sea level)” with “(metres above datum)” under the heading “Restriction levels” as follows:																	
			<table border="1"> <thead> <tr> <th colspan="3">Restriction levels (metres above datum above mean sea level)</th> </tr> <tr> <th rowspan="2">Aquifer See Maps D1–D4</th> <th rowspan="2">Aquifer Reference Bore See Maps D1–D4</th> <th rowspan="2">Aquifer maximum height (metres above datum)</th> <th>25% restriction or response in terms of Council recognised rationing regime*</th> <th>50% Restriction</th> <th>100% restriction</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Restriction levels (metres above datum above mean sea level)			Aquifer See Maps D1–D4	Aquifer Reference Bore See Maps D1–D4	Aquifer maximum height (metres above datum)	25% restriction or response in terms of Council recognised rationing regime*	50% Restriction	100% restriction					
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Appendix 2

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)

CONSULTATION DRAFT Section 32 Evaluation Report

Regional Plan: Water for Otago

This Section 32 Report should be read in conjunction with the Consultation Draft of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) to the Regional Plan: Water for Otago.

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Abbreviations used in this report

Clutha	Clutha River/Mata-Au
Council	Otago Regional Council
Mm ³ /yr	Million cubic metres per year
NPSFM	National Policy Statement for Freshwater Management 2011
Proposed plan change / plan change	Proposed Plan Change 4C (Groundwater management for the Cromwell Terrace Aquifer)
RMA	Resource Management Act 1991
Water Plan	Regional Plan: Water for Otago (as at 1 May 2014)

1. Introduction

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) builds on existing provisions of the operative Regional Plan: Water for Otago (Water Plan) for managing groundwater by setting a maximum allocation volume for the Cromwell Terrace Aquifer.

This report assesses the appropriateness of Proposed Plan Change 4C, as required by Section 32 of the RMA, and should be read in conjunction with the proposed plan change.

2. Background

2.1 The NPS Freshwater Management 2011

The National Policy Statement for Freshwater Management 2011 (NPSFM) requires Council to prevent the over-allocation of groundwater resources, by establishing environmental levels for all aquifers in the region and making sure the freshwater objectives within the Water Plan give effect to the NPSFM objectives.

The Water Plan Objectives give effect to the NPSFM by recognising the need to provide for the water needs of Otago's communities and industries, while maintaining long term groundwater levels and water storage in the region's aquifers. The Water Plan achieves this by establishing maximum allocation volumes for groundwater resources and, where considered appropriate, setting aquifer restriction levels.

2.2 Groundwater management and allocation under the Water Plan

The maximum allocation volume limits the volume of water that can be taken annually from an aquifer by consents. When the combined yearly volume of consented takes equals the aquifer's maximum allocation volume, the aquifer is considered fully allocated and consents for new groundwater takes can no longer be granted.

The maximum allocation volume is set to maintain long term groundwater levels and avoid aquifer compaction. The maximum allocation volume for specified aquifers is set in Schedule 4A of the Water Plan. When no volume is set in Schedule 4A, the maximum allocation volume is determined as 50% of the mean annual recharge of the aquifer.

In addition, for some aquifers, restriction levels have been set in Schedule 4B of the Water Plan. These control the taking of groundwater during extended periods of low recharge.

3. Cromwell Terrace Aquifer

3.1. Current management regime and allocation

No maximum allocation volume in Schedule 4A has been set for the Cromwell Terrace Aquifer. Therefore, the maximum allocation volume for this aquifer is currently determined by the default as 50% of mean annual recharge or 1.2 Mm³/yr. The combined annual volume of groundwater allocated in existing resource consents is estimated to be around 1.7 Mm³/yr and no further groundwater can be allocated from the aquifer.

No restriction levels for this aquifer are currently set in Schedule 4B of the Water Plan.

3.2. Aquifer hydrology

In 2012 ORC carried out a review of the Cromwell Terrace Aquifer's hydrology and monitoring data. The study report concludes that the aquifer is currently receiving a modest volume of infiltration from irrigation, rainfall and inflow from the Kawarau arm of Lake Dunstan and discharging the bulk of any excess back into the Lake as groundwater seepage.

Groundwater modelling shows that the aquifer is in dynamic equilibrium with Lake Dunstan and compensates for increased groundwater extraction with increased infiltration of lake water. Therefore, the study report suggests that it is appropriate to set a tailored maximum allocation volume of 4 Mm³/yr in Schedule 4A.

While the study report initially recommended setting aquifer restriction levels in Schedule 4B of the Water Plan, further investigation shows that the risk of water table decline and permanent aquifer damage (e.g. aquifer compaction) is negligible. Despite the existence of large number of bores located across the aquifer, there are no known issues with generalised or localised water table decline. Drawdown effects are not expected to occur for the following reasons:

1. The aquifer's high transmissivity and permeability allow groundwater levels to be persistently maintained across the aquifer; and
2. Under Contact Energy's current consent to dam the Clutha River at Clyde Dam, the operating level of Lake Dunstan must be maintained between 193.5 m above datum and 194.5 m above datum based on a 3 hour rolling average.

3.3. Important uses and values

Through stakeholder consultation, critical review of publications and further research the following values and uses were identified as being important to the local and wider community:

- ***Availability of water for taking***

Twenty-two groundwater takes from the aquifer have been granted consent under the RMA, 19 of which are managed as groundwater takes and 3 of which are managed as surface water due to their proximity to Lake Dunstan.

Consented groundwater takes provide for the irrigation of about 100 ha on the terrace, most of which has been developed as orchards and vineyards. Other activities reliant

on consented groundwater takes include bottled water for export, frost fighting and supply to a community water scheme.

In addition to these consented groundwater takes, approximately 40 bores are also operating under permitted activity rules, supplying domestic water and stock water to properties on the terrace.

Groundwater supply on the Cromwell Terrace currently meets local demand. However, feedback from local community members indicates there is scope for further expansion of the land under irrigation, while changing market conditions could also drive the conversion of land into productive uses that require higher irrigation inputs. Stakeholder consultation indicates that there is general support for increasing the availability of more groundwater for a variety of uses on the Terrace as long as there would be no adverse impact on existing uses or known values.

- ***Natural, cultural and recreational values***

No natural, cultural or recreational values are known to be dependant on the groundwater resources of the Cromwell Terrace.

Lake Dunstan is widely recognised as an important recreational asset and various features in the surrounding area are well-known for their aesthetic and amenity values. Schedules 1A and 1D of the Water Plan also identify various ecosystem values and cultural values that are associated with nearby surface water bodies, such as the Low Burn, the Kawarau River and the Clutha River/Mata-Au (Clutha). However, flow/lake levels in these surface water bodies are not significantly influenced by inflows from the aquifer, nor are they susceptible to any significant surface flow loss due to water infiltration to the aquifer.

4. Section 32 evaluation

Section 32 of the RMA requires the consideration of alternatives and an assessment of the costs and benefits of adopting any objective, policy, rule, or method in the Water Plan. The following sections discuss the costs and benefits of the options considered and provide a detailed analysis of the preferred option.

4.1. Options overview

The following options were considered in developing the proposed plan change:

OPTION 1: MAINTAIN THE STATUS QUO

Option 1 describes the current situation. This option relies on the “default” maximum allocation volume provided for by the Water Plan.

OPTION 2: ADOPT A TAILORED GROUNDWATER MANAGEMENT REGIME

Option 2 proposes to set a maximum allocation volume of 4 Mm³/yr in the Water Plan.

OPTION 3: MANAGE GROUNDWATER TAKES AS SURFACE WATER TAKES

Option 3 proposes to identify the Cromwell Terrace Aquifer in Schedule 2C of the Water Plan and seeks to manage all groundwater takes from the aquifer as surface water takes from the Kawarau River.

4.2. Analysis of Options

Table 1 summarises the costs and benefits of the three options described above.

Option 1	Maintain the status quo
BENEFITS:	<ul style="list-style-type: none"> • Financial benefit - No plan change required.
COSTS/RISKS:	<ul style="list-style-type: none"> • Social & Economic Cost– Does not allow for the further allocation of groundwater through resource consents and seeks to reduce the current allocation. This may result in the local community being unable to capitalise on future economic opportunities and improve their wellbeing. The productive use of land is restricted by the limited availability of groundwater and the need to supply water from alternative sources may increase water supply infrastructure costs. • No benefit for natural, cultural or recreational values – Despite its restrictive nature, option 1 is not expected to have any tangible benefit for the natural or cultural values present on the terrace or any values associated with nearby surface water bodies. • Lack of clarity and certainty – Using 50% of mean annual recharge as a measure to calculate the maximum allocation volume may fail to provide certainty, because of the risk in inconsistencies in calculating the mean annual recharge.
EVALUATION SUMMARY	No scope exists for further growth in economic sectors and activities reliant on the availability of groundwater and allocation from the aquifer is likely to be reduced over time as consents are renewed.

Option 2	Adopt a tailored groundwater management regime
BENEFITS:	<ul style="list-style-type: none"> • Social & Economic Benefit – Allows for further groundwater to be allocated from the aquifer. The local community is in a better position to pursue economic opportunities as the further allocation of locally available groundwater enables more productive land-uses to occur and minimises the cost of water transport infrastructure. Likely spin-off effects for the local and wider community include job creation in the local primary sector and ancillary industries. • Greater clarity and certainty for plan users – Having the maximum allocation volume stated in the Water Plan, provides more clarity and greater certainty by making the maximum allocation volume less susceptible to challenge. • Promotes efficient resource use – The recommended maximum allocation volume allows for various types of irrigation-dependant land-uses to take place on the terrace, provided the irrigation water is efficiently applied.
COSTS/RISKS:	<ul style="list-style-type: none"> • Financial cost - Plan change required.
EVALUATION SUMMARY	This option allows the local community to provide for their wellbeing, while scope exists for further growth in economic sectors and activities reliant on the availability of groundwater on the Cromwell Terrace.

Option 3	Manage groundwater takes as surface water takes
BENEFITS:	<ul style="list-style-type: none"> • Social & Economic Benefit – Allows for further water from the aquifer to be allocated as surface water from the Kawarau River. The local community can pursue economic opportunities as further allocation of locally available groundwater enables more productive land-uses to occur and minimises the cost of water transport infrastructure.
COSTS/RISKS:	<ul style="list-style-type: none"> • Financial cost - Plan change required. • Limited clarity and certainty for plan users – The aquifer would be subject to a more complex management regime than under Option 2. Plan users need to be aware of management regime and allocation status of connected surface water bodies under the Water Plan, in order to understand how the Cromwell Terrace Aquifer is being managed. <p>Although the Water Plan currently states that no allocation limit or minimum flow apply to takes from the main stem of the Kawarau River, future changes to the management of this river may change how water from the aquifer is being allocated.</p>
EVALUATION SUMMARY	This option allows the local community to provide for their wellbeing and enables future growth, but is more difficult to administer.

4.3. Recommendation

Option 2 - Adopt a tailored groundwater management regime is recommended for the following reasons:

- Option 2 is an appropriate and effective way of better achieving the objectives of the Water Plan and those outlined in the NPSFM
- By taking into account local conditions Option 2 should bring about a positive impact on the diverse social and economic values supported with the Cromwell Terrace Aquifer, while avoiding any adverse impact on the aquifer's long term health.
- Option 2 provides the greatest level of clarity and certainty for plan users and ensures consistency in plan administration.
- There is currently no need for setting aquifer restriction levels in Schedule 4B of the Water Plan, as water levels of Lake Dunstan, the aquifer's dominant recharge source, are artificially maintained and only vary by up to one metre. The risk of existing groundwater takes being affected by bore interference in localised areas of high demand can be appropriately dealt with by Council by considering Schedule 5B of the Water Plan when new applications to take groundwater are received. This may result in limits being placed through consent conditions on new groundwater permits.

Council will continue monitoring groundwater levels across the aquifer and initiate a new future plan change to set aquifer restriction levels if further monitoring data would indicate a water table decline.

5. Consultation

Prior to preparing Proposed Plan Change 4C, a public workshop was organised in Cromwell on 18 March 2014. During the workshop Council staff presented local community members and interest groups with recent aquifer study results and discussed with them various options for the future management of the Cromwell Terrace Aquifer. The option of setting a tailored maximum allocation volume of 4 Mm³/yr in Schedule 4A of the Water Plan was widely endorsed by the people attending the workshop.

Feedback received during and following the workshop also indicates that surety of supply for existing takes is a key concern. While some community members expressed support for setting restriction levels, others acknowledged that there were no known issues with water table decline and advised that further investigation is required before a monitoring bore is installed and restriction levels are included in the Schedule 4B of the Water Plan.

6. Conclusion

The purpose of the RMA is to promote the sustainable management of natural and physical resources. It is considered that Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) enables the ORC to better manage the groundwater resources of the Cromwell Terrace, now and for the future.

This report identifies that the preferred option is to undertake Option 2: Adopt a tailored groundwater management regime. This option meets the requirements of Section 32 of the Resource Management Act 1991, being an efficient means to achieve the improved, more focused management of groundwater takes from the Cromwell Terrace Aquifer with the greatest benefit, and insignificant risk.

7. Supporting information

National Policy Statement on Freshwater Management 2011

Resource Management Act 1991

ORC, Regional Plan: Water for Otago

ORC Reports to committee or Council:

- 2012/0759: Groundwater Allocation of the Cromwell Terrace Aquifer, Central Otago

ORC Technical Report:

- Cromwell Terrace Aquifer Study, 2012

Other material:

- ORC, Cromwell Aquifer Draft Information Sheet, 2014
- ORC, Cromwell Terrace Aquifer (Presentation to community meeting), 2014 (Available online www.orc.govt.nz)