

**Before the Hearing Panel appointed by Canterbury
Regional Council**

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Applications to divert, dam, take
and use water from tributaries of
the Waitaki River

Section 42A Officer's Report

Date of Hearing: August 11th 2008

Report of Claire Penman

INTRODUCTION

1. I have been employed by MWH NZ Ltd as an Environmental Consultant since December 2005. I have 2 ½ years relevant experience in resource management particularly focused on water resources management. I hold a Bachelor of Applied Science (with Honours) in Environment Management from the University of Otago. I have been engaged by Canterbury Regional Council (CRC) to act as Investigating Officer for these applications.
2. This report is prepared under the provisions of Section 42A of the Resource Management Act 1991 (RMA). This section allows a Council officer to provide a report to the decision-maker on a resource consent made to the Council, and allows the decision-maker to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker to request and receive from any person who makes a report under Section 42A "*any information or advice that is relevant and reasonably necessary to determine the application*". This report is relevant to all water permit applications in Group 1A and 1C identified in Appendix 1 of the s42A introductory report.
3. It should be emphasised that any conclusions reached or recommendations made in this report are not binding on the decision-maker. It should not be assumed that the decision-maker will reach the same conclusion or decision having considered all the evidence to be brought before it by the applicant and submitters.
4. This report should be read together with the introductory s42A report which gives an overview of all applications presented at this hearing, and the individual s42A report prepared for each application in Group 1A and 1C.

Scope of report

5. The purpose of this report is to:
 - (a) Identify the provisions of the Waitaki Catchment Water Allocation Regional Plan (WCWARP) relevant to establishing an environmental flow and level regime;

- (b) Outline the existing environmental flow and level regime for Hakataramea River, Maerewhenua River, and other tributaries as established by the existing consents;
 - (c) Provide an interpretation of Rule 2, Table 3;
 - (d) Outline the flow and level regimes sought by applicants;
 - (e) Establish the relationship of existing consents and applications for new consents to Rule 2, Table 3; and
 - (f) Explore the implications of the potential options for an environmental flow and level regime and flow sharing.
6. It is emphasised that the views expressed in this report are not binding on the decision-maker(s). It cannot be assumed that the decision-makers will reach the same views having considered all the evidence to be brought before them at the hearing by the applicants and submitters.

RELEVANT WAITAKI PLAN PROVISIONS

7. In this section, the relevant provisions in the WCWARP relating to 'how' to establish an environmental flow and level regime for Hakataramea River, Maerewhenua River and other tributaries are discussed. The relevant provisions are set out in Attachment One.
8. The key objective is to establish practical and fair sharing of allocated water during times of low water availability (Objective 5). In the first instance, this objective will be implemented by the minimum and low flow conditions that any water permit is subject to. In the second instance, policies 25, 26 and 28 recognise that there are several techniques that may be used to manage the practical and fair sharing of water between users in order to achieve Objective 5. These techniques include flow sharing (Policy 25), banding (Policy 26) and recognising the existing priority of replacement consents (Policy 28).
9. Rule 2, Table 3, sets a flow and level regime for a number of water bodies.
10. For the Hakataramea River, the flow and level regime (Table 3, row xix) provides for:
- (a) From September to March
 - (i) A minimum flow at the Main Highway recorder site of 0.5 cubic metres per second
 - (ii) An allocation limit of 0.5 cubic metres per second
 - (iii) Flow-sharing between the thresholds of 1.0 and 4.5 cubic metres per second – any water taken, diverted, dammed or used pursuant to the flow-sharing regime is in addition to the allocation limit.
 - (b) From April to August
 - (i) A minimum flow at the Main Highway recorder site of 0.75 cubic metres per second

- (ii) Flow-sharing between the thresholds of 0.75 cubic metres per second and 4.5 cubic metres per second.
 - (c) At all times
 - (i) Any water taken when the river is above 4.5 cubic metres per second is in addition to the allocation limit and flow-sharing regime.
11. For the Maerewhenua River, the flow and level regime (Table 3, row xx) provides for:
 - (a) A minimum flow of 0.4 cubic metres per second at State Highway 83
 - (b) An allocation limit of 0.4 cubic metres per second
 - (c) Flow-sharing between the thresholds of 0.8 and 2.0 cubic metres per second
 - (d) Any water taken, diverted, dammed or used pursuant to the flow-sharing regime is in addition to the allocation limit
 - (e) Any water taken when the river is above 2 cubic metres per second is in addition to the allocation limit and flow-sharing regime.
 12. For all other rivers and streams (Table 3, row xxii), the flow and level regime provides for:
 - (a) A minimum flow of the 5-year, 7-day low flow as assessed by Canterbury Regional Council set at the downstream end of the catchment
 - (b) A flow-sharing threshold at the mean flow as assessed by the Canterbury Regional Council.
 13. Policy 25 provides for the establishment of water users group and encourages them as a means for users to collectively manage their cumulative abstraction within the limits of the environmental flow and level regime.
 14. Policy 26 enables the establishment of priority bands if the reliability of existing consents and new applications falls below the reliability thresholds outlined in Policy 26a.
 15. As explained in Annex 1 to the WCWARP at paragraph 233:

“The Plan does not contain any rules to implement Policy 26, as the Board considered that the application of priority bands would be better addressed during resource consent process. This approach allows consideration of the detailed flow patterns in any sub-catchment, and the combination of activities, to be addressed when specific resource consent applications are considered.”
 16. Policy 28 provides guidance on how an application to replace an existing consent should be considered by the consent authority. This policy provides for maintaining an existing consent in the same allocation limit and priority band if replacement consent is granted.
 17. Policies 43 and 44 outline the values of the Hakataramea catchment and other tributaries of the Lower Waitaki River that should be recognised when setting environmental flow regimes and ensures the provision of water for those activities in Objective 2.

18. Rule 25 indicates that any review of an existing water permit for the purposes of imposing the requirements of Rule 2 is only to have effect after five years from the day on which the WCWARP became operative. This would be July 2011.
19. Policies 15, 16 and 17 set out water efficiency expectations for individual abstractors. Policies 18 and 19 relate to technical efficiency, which is defined in the WCWARP as *“using a resource in a way that any given output is produced at the least cost, including avoiding waste”* (Pg 60). There are no rules which are specific to these policies. The explanation for these policies noted that *“they provide matters of discretion when considering an application for a resource consent”* (pg 34).

EXISTING ENVIRONMENTAL FLOW AND LEVEL REGIMES

20. In this section, the flow and level regime established by existing water permits are presented.

Hakataramea River

21. For the Hukataramea River, an examination of existing water permit minimum and low flow conditions reveals that all existing permits that are on the mainstem and many of those on tributaries have a condition of consent restricting the rate of abstraction to 50% of the weekly volume when the flow is at or below 1.5 cubic metres per second and requiring the taking of water to cease when the flow in the Hukataramea River is at or below 0.5 cubic metres per second¹
22. Attachment Two includes the condition wording for the current low flow condition and a list of all existing consents that have the Hukataramea River minimum flow as a condition of consent (Table 4). It should be noted that this list includes not only consents from the mainstem itself, but also consents from tributary water bodies.
23. From the existing consents, it is reasonable to assume that the existing consents fall into two bands. The first has a current minimum flow for the Hukataramea River is 0.5 cubic metres per second, with restrictions starting when the flow is at or below 1.5 cubic metres per second. It would appear from the wording of the low flow condition, that a Water Users Committee has been established in the Hukataramea catchment to ensure that water is shared in a reasonable and fair manner when flows are between 1.5 and 0.5 cubic metres per second.
24. The second band has a minimum flow at which point the taking of water must cease of 3 cubic metres per second from April to June and 2.5 cubic metres per second between July and March.

Maerewhenua River

25. For the Maerewhenua River, an examination of existing water permit minimum and low flow conditions reveals the following:
 - (a) all existing surface water permits within Band 1 on the mainstem (except for domestic use) include a low flow condition restricting the rate of abstraction to half the weekly volume when the flow is at or below 0.6 cubic metres per

¹ Attachment Two includes the exact wording of the minimum flow condition for the Hukataramea River.

second and must cease taking water when the flow is at or below 0.4 cubic metres per second measured at Kelly's Gully;

- (b) all existing surface water permits within Band 2 can only resume abstraction when the flow is at or above 0.6 cubic metres per second (after the minimum flow of 0.4 cubic metres per second has been reached), and can only be exercised to their maximum rate of abstraction when the Band 1 permit CRC992096.2 is not being exercised, or when flows are above 1.2 cubic metres per second;
 - (c) the one existing surface water permit within Band 3 is restricted to taking half the weekly volume when the flow is between 0.7 cubic metres per second and 1 cubic metres per second during the period 1 December to 31 August, and between 0.9 cubic metres per second and 1.6 cubic metres per second during the period 1 September to 30 November, with a maximum combined rate of take in conjunction with the Band 1 permit CRC992096.2;
 - (d) all existing surface water permits for domestic use have no minimum flow;
 - (e) connected groundwater permits have no minimum flow.
26. Attachment Two includes condition wording for the current low flow conditions and a list of all existing consents that have as a condition of consent, the Maerewhenua River minimum flow. It should be noted that this list includes not only consents from the mainstem itself, but from the Maerewhenua Community Irrigation diversion race as well.
27. From the existing consents, it is reasonable to assume that the current minimum flow for the Maerewhenua River is 0.4 cubic metres per second at Kelly's Gully. There are three existing permits which can be considered to be in first priority band, having access to water at half the consented volume between 0.4 cubic metres per second and 0.6 cubic metres per second. Permits in the second priority band only have resumed access to water at flows above 0.6 cubic metres per second, and the one permit that can be considered to be in the third priority band accesses flows above 0.7 cubic metres per second during the irrigation season, at half the consented volume.
28. It would appear from the wording of the low flow condition, that a Water Users Committee has been established on the Maerewhenua River to ensure that water is shared in a reasonable and fair manner when flows are between 0.6 cubic metres per second and 0.4 cubic metres per second.

All other rivers and streams

29. Of the waterbodies covered by Row xxii of Table 3, Rule 2, which refers to "all other rivers and streams", there are only two that have a specific minimum flow condition, with applications in process, namely McKays Stream and the Otekaieke River. McKays Stream is the only tributary of the Hakataramea River that is subject to its own minimum flow, rather than having the standard Hakataramea River minimum flow condition applied.
30. Table 1 below shows minimum flow conditions for McKays Stream and the Otekaieke River, as expressed in existing consents. There does not appear to be any applicable banding on these waterbodies.

31. For all other rivers and streams where there is an application that is not on a tributary of McKays Stream or the Otekaieke River, there is no minimum flow established by existing water permits e.g. Kurow River.

Table 1: Environmental flow regimes of all other rivers and streams subject to new applications

Tributary	Minimum flow condition (if any)	Applied to Consents
McKays Stream (Hakataramea River tributary)	The taking of water for irrigation in terms of this permit from McKays Stream shall cease whenever the flow in McKays stream at the confluence with the Hakataramea River falls below 30 litres per second.	CRC931009 CRC950464.1
Otekaieke River	<p>The taking of water in terms of this permit from Otekaieke River shall cease whenever the flow in the Otekaieke River falls below 95.74 metres above sea level (1.71 metres below Bench Mark "A" as shown on attached plan No 12356M).</p> <p>The consent holder shall ensure that, whenever water is available to be diverted from the Otekaieke River to the consent holders pond, the water level in the pond at map reference I40:155-917 shall not fall below 95.74 metres above sea level (1.71 metres below Bench Mark "A" as shown on the attached plan No. 12356M).</p>	CRC950552 CRC950551

ENVIRONMENTAL FLOW AND LEVEL REGIMES ANTICIPATED BY THE WCWARP

Introduction

32. In this section, I discuss the environmental flow and level regime anticipated by the WCWARP.
33. A flow and level regime has the purpose of implementing Objectives 1, 2 and 5 of the WCWARP by balancing the needs of in-stream and abstractive users. It is likely that any regime specified within any new water permit (if granted) in relation to the Hakataramea River, Maerewhenua River and other tributaries will need to consist of:
- (a) Minimum flow, below which the take or divert must cease;
 - (b) Low flow, below which restrictions on the take or divert will apply;
 - (c) Take restriction regime between the specified minimum and low flows;
 - (d) Maximum instantaneous rates of take; and
 - (e) Maximum annual volumes able to be taken.
34. In order to establish the above, the influence of the consent being considered on the reliability of other water takes, diverts and uses will be an important consideration. Central to this consideration is the relative priority of consented individual abstractors to take water and the reliability 'planned' to be provided.

WCWARP flow and allocation regime

35. The WCWARP establishes the parameters of an environmental flow and level regime. It does not preclude the consideration of alternative environmental flow level regimes outside of the specified rules, but these applications would be considered non-complying activities.
36. It is my view that Rule 2, Table 3 establishes an environmental flow and level regime for all waterbodies, and establishes the following allocation blocks for sharing water.
37. For the Hakataramea River mainstem, to give full effect to the environmental flow and level regimes specified in Table 3 of the WCWARP, from September to March the following applies:
 - (a) 'A' block of 0.5 cubic metres per second between flows of 0.5 cubic metres per second and 1.0 cubic metres per second;
 - (b) 'B' block of 1.75 cubic metres per second between flows of 1.0 cubic metres per second and 4.5 cubic metres per second (1:1 flow sharing applies); and
 - (c) 'C' block with no upper limit above flows of 4.5 cubic metres per second.
38. From April to August in the Hakataramea River, the following applies:
 - (a) 'A' block of 1.875 cubic metres between flows of 0.75 cubic metres and 4.5 cubic metres (1:1 flow sharing applies); and
 - (b) 'B' block with no upper limit above flows of 4.5 cubic metres per second (this is equivalent to the 'C' block from September to March).
39. For the Maerewhenua River mainstem, to give full effect to the environmental flow and level regimes specified in Table 3 of the WCWARP, the following applies:
 - (a) 'A' block of 0.4 cubic metres per second between flows of 0.4 cubic metres per second and 0.8 cubic metres per second;
 - (b) 'B' block of 0.6 cubic metres per second between flows of 0.8 cubic metres per second and 2.0 cubic metres per second (1:1 flow sharing applies); and
 - (c) 'C' block with no upper limit above flows of 2.0 cubic metres per second.
40. For all other rivers and streams, to give full effect to the environmental flow and level regimes specified in Table 3 of the WCWARP, the following applies:
 - (a) 'A' block between the 5-year 7-day low flow and the mean flow; and
 - (b) 'B' block with no upper limit above the mean flow but 1:1 flow sharing applies.
41. Of particular concern when considering the applications for these waterbodies is:
 - (a) How should water be shared between existing and new users within these allocation blocks?
 - (i) Equal priority within a block?
 - (ii) Banding or differing priority?

- (b) What is the effect on existing users of establishing a flow and level regime consistent with the Plan?
42. In addition, when considering the effects on other users of allocating water from the tributaries of these waterbodies, it is important to consider the effect on existing mainstem users and those users who are limited by minimum flow conditions on that mainstem.
43. I then explore whether an environmental flow and level regime should be established for the entire catchment rather than individual water bodies/mainstems and whether the WCWARP allows for a catchment-wide approach.

Flow sharing between existing and new users

Equal priority within a block

44. In my view, the Plan is not specific on how a flow sharing regime is to be established and implemented, and the Plan is not specific on how an interim flow and level regime should be established prior to any review of existing consents. This is highlighted in the associated explanation for Policies 3 – 5 in the plan, which states that *“the details of implementing the environmental flow and level regimes of this Plan in a consistent way throughout a sub-catchment are not addressed in this Plan, but will be matters for consideration through the resource consent process.”*
45. In terms of the policies that assist with implementing the environmental flow and level regimes, policies 25, 26 and 28 are relevant (as discussed above).
46. Policy 26 states that, all consents within the first priority band, should expect a high level of reliability, with:
- (a) At least 95 percent of the allocation specified on the consent to be taken in any 14-day period from August to May in 6 years out of 10, and at least 75 percent of the allocation specified on the consent to be taken in any 14-day period from August to May in 9 years out of 10; or
 - (b) If the existing reliability is less than that specified in Policy 26a, then a consent shall maintain its existing reliability.
47. I do not consider that the Plan is clear on whether the allocation limit, or “A” block as I have termed it, established in Rule 2, Table 3 is to be considered as the first priority band. In the explanation for this policy, it states that in many sub-catchments of the Waitaki River, the existing reliability is below the level set by Policy 26a. Therefore, the policy allows for a priority band to be set that is equivalent to the existing peak allocation or the size of the first priority band if such an approach has been used previously.
48. What the appropriate first priority band should be is not discussed any further here in terms of Policy 26a. Instead, to aid discussion regarding effects on other users from the environmental flow and level regimes in the Plan, I have inferred that the allocation limit, or ‘A’ block, can be considered as the first priority band. Consent holders within this block can expect to take their full allocation above the flow sharing threshold, and expect a pro-rata reduction in take between the flow sharing threshold and the minimum flow.
49. By implication, outside of the allocation limit, abstractors’ reliability is dependant on the flow sharing provisions of Rule 2, for example, the Hakataramea River enables

flow sharing between the thresholds of 1.0 and 4.5 cubic metres per second, and the Maerewhenua River enables flow sharing between the thresholds of 0.8 – 2.0 cubic metres per second.

50. In the explanation for Policy 26 it is recognised that as further consents to take, use or divert water are granted, the run-of-river reliability to each user reduces. This policy therefore allows for priority bands to provide enhanced certainty for water users. However, it is about managing competition between users, and not about reliability to be provided as a result of setting an environmental flow regime. The explanation also states that the specific priority bands can be established by the Canterbury Regional Council in each instance in accordance with this policy.
51. A banding system could provide more manageable administration of water which in turn provides more reliable water for abstractors that are grouped in the “lower bands”. Bands could be established which have allocation limits and increasing minimum flows where abstractions must cease (i.e. several bands could be set up within each allocation block). This is discussed later in this report in the section entitled “differing priority”.
52. For the purposes of the next section of my discussion I have used the Hakataramea River as an example.

Hakataramea River

53. From **September to March**, if equal priority is provided to all users within a block, Figure 1 shows the total allowable abstractions from the “A” block during the restriction period. When the river flow is between 0.5 cubic metres per second and 1.0 cubic metres per second all “A” users together can abstract water at the corresponding rate of take on the vertical axis in relation to the river flow at any given time.

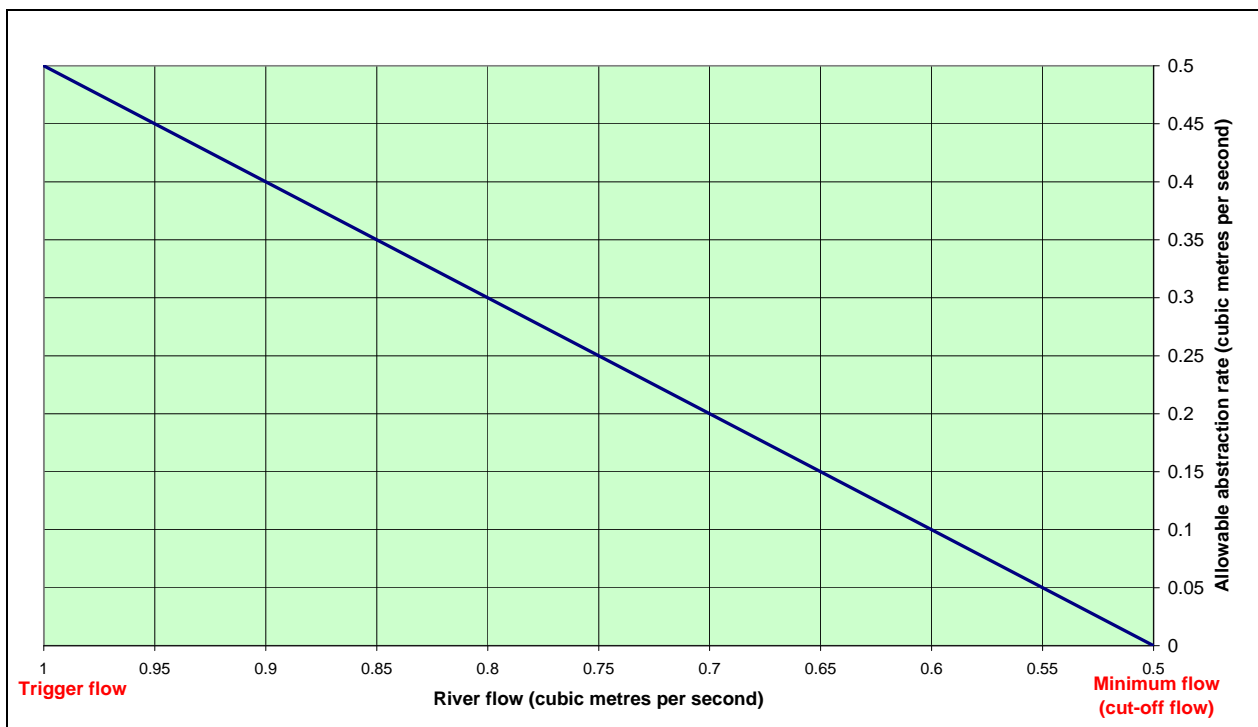


Figure 1: Restriction graph for the "A" allocation block in the Hakataramea River (September to March)

54. As shown in Figure 1, when the river flow is 0.75 cubic metres per second all abstractors in the “A” block are authorised to take a combined maximum of 0.25 cubic metres per second. Every consent holder would be authorised to take their share from the available 0.25 cubic metres per second, depending on the rate of take authorised for those individuals. For example if we consider there is a person (*M*) authorised to abstract a maximum of 50 litres per second, *M* will be authorised to take up to 25 litres per second, when the flow in the river is reduced to 0.75 cubic metres per second (Figure 2).

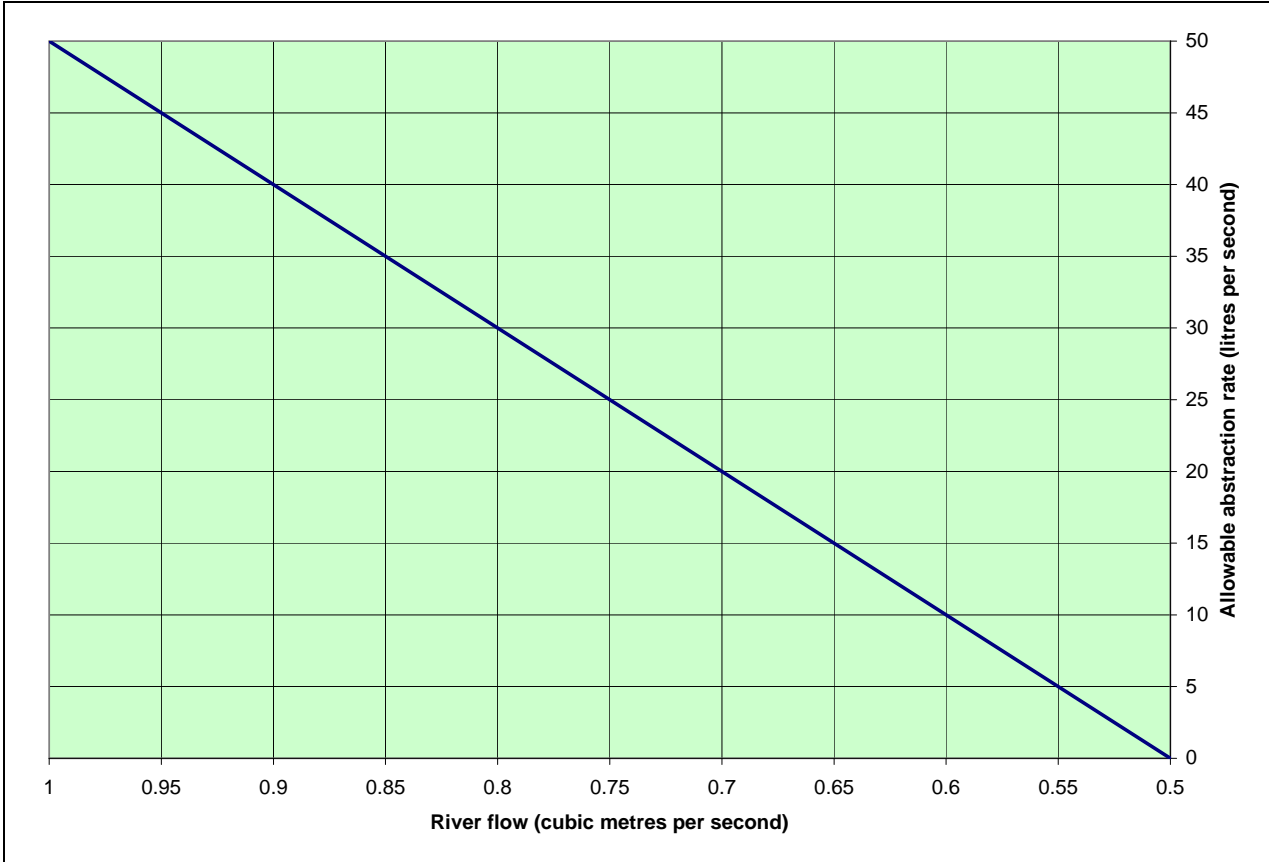


Figure 2: Restriction graph for "M"

55. The minimum flow for the “B” allocation block is 1.0 cubic metres per second and the trigger level is 4.5 cubic metres per second. The “B” allocation block is subject to flow sharing (1:1 sharing) with the river. This implies that every litre allocated to be used out of stream should leave another litre for the river. Under the flow sharing regime the WCWARP provides 1.75 cubic metres per second (i.e $(4.5 - 1.0)/2 = 1.75$ cubic metres per second) of “B” allocation block for the Hakataramea River. The allowable abstraction for “B” permit holders during the restriction period is shown in Figure 3.

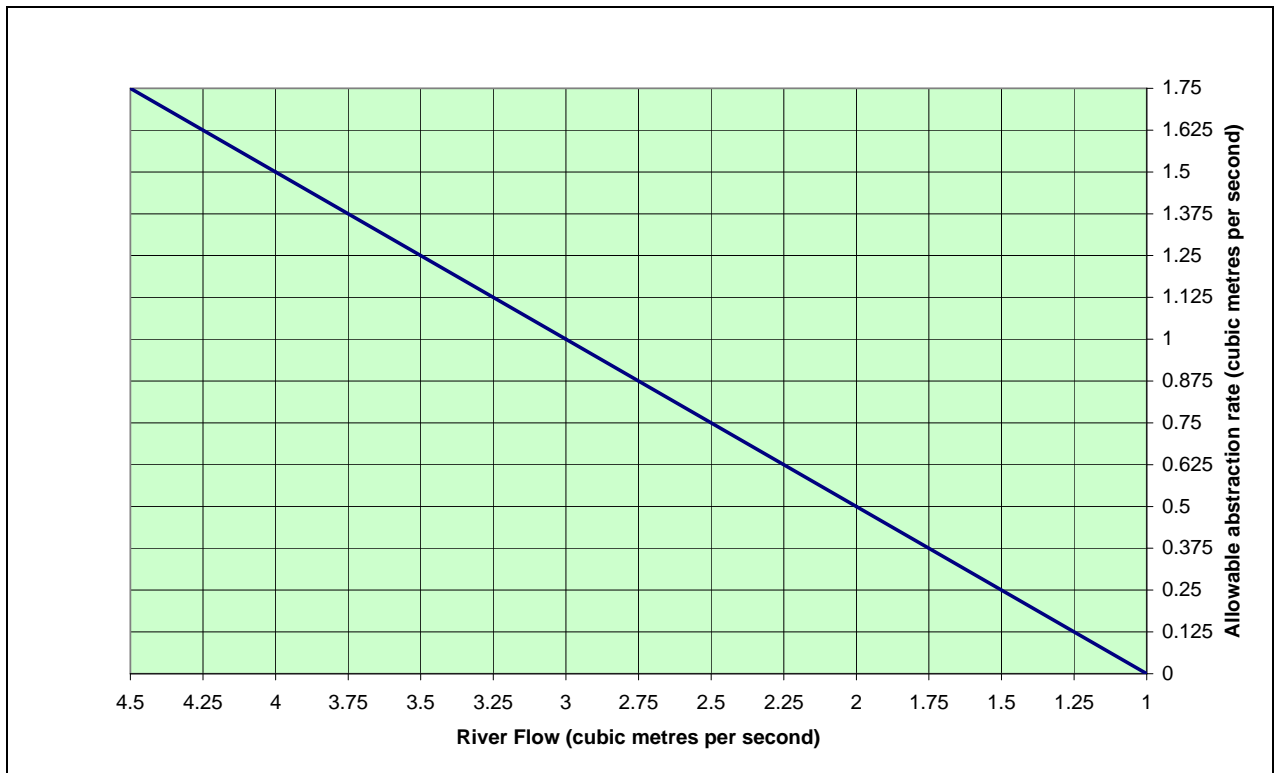


Figure 3: Restriction graph for 1:1 flow sharing regime ("B" allocation block) when the flow in Hakataramea River falls between 1.0 and 4.5 cubic metres per second (September to March)

56. From **April to August** on the Hakataramea River, a different allocation block is established. The WCWARP provides a sharing regime (1:1 sharing) as an allocation block above the minimum flow of 0.75 cubic metres per second. Therefore the sharing regime provides a block of 1.875 cubic metres per second (i.e $(4.5 - 0.75)/2 = 1.875$ cubic metres per second). How this might be applied is discussed further in the section on "*differing priority*" below.

Comparing existing and proposed flow regimes on the Hakataramea River

57. With the above "*equal priority*" there would be no need for a banding system to be imposed as all water would be shared equally. When comparing existing consents to new applications (Figure 4 below), it can be seen that there is a conflict between the existing minimum flow conditions on consents and those that could be adopted for new applications in accordance with Rule 2, Table 3.
58. The trigger level for the existing abstractors to reduce their takes starts when the flow reaches 1.5 cubic metres per second. The new trigger level for the "A" allocation block on the Hakataramea River, as stated in the WCWARP, would be 1.0 cubic metres per second. Both the existing and the new river minimum flows are 0.5 cubic metres per second. The following chart (Figure 4) illustrates graph lines for existing and new abstractors' during the restriction period.

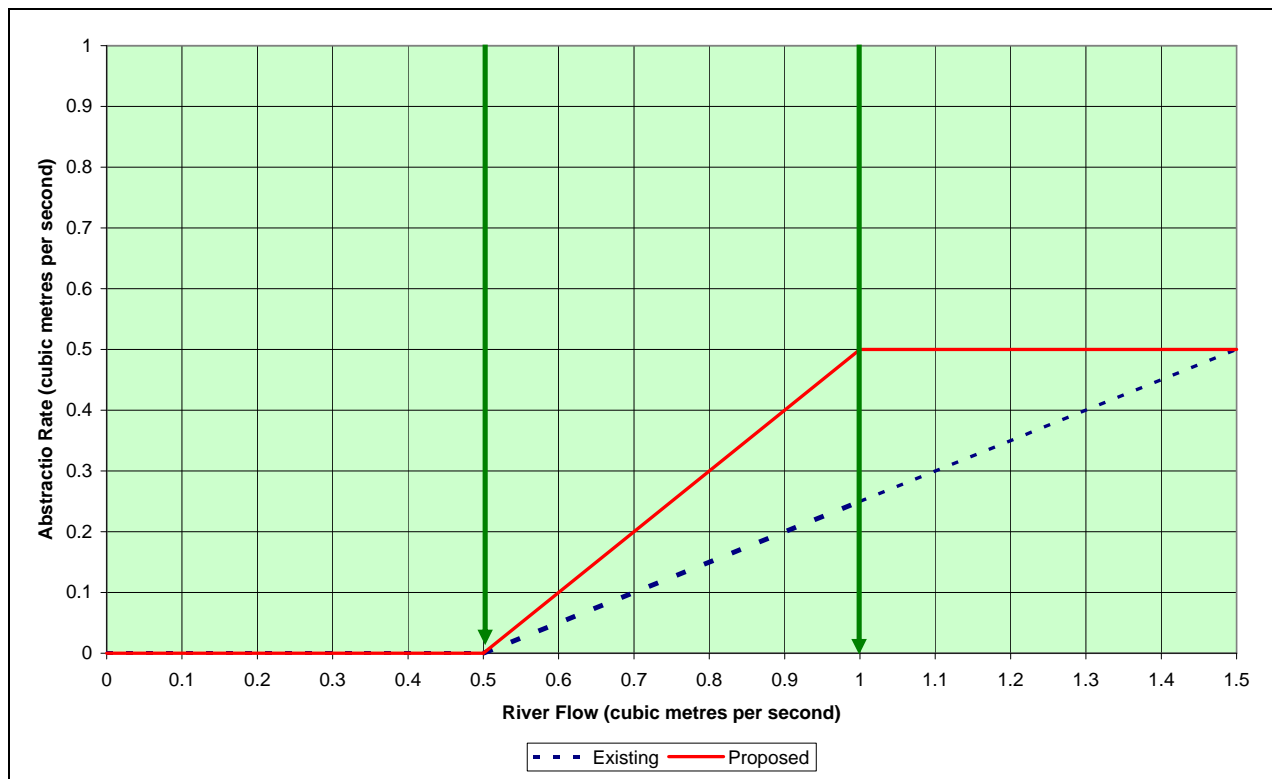


Figure 4: Existing versus proposed abstraction regimes for Hakataramea River (September to March)

59. Restrictions start for the existing consented abstractors when the flow in the river is 1.5 cubic metres per second. The existing consented abstractors therefore would reduce their water takes in proportion to the blue dashed line shown in Figure 4. In accordance with the WCWARP, new abstractors would start reducing their abstraction when the river flow reaches 1.0 cubic metres per second. The red line in Figure 4 shows the restriction line for new abstractors.
60. When the flow in the river is 1.0 cubic metres per second, the new abstractors can take up to maximum of 0.5 cubic metres per second whereas the existing abstractors can take up to 0.25 cubic metres per second. When the river flow is between 1.0 cubic metres per second and 1.5 cubic metres per second the existing users should reduce their water takes while the new abstractors can enjoy their maximum authorised take.
61. To achieve equal priority with no effects on existing users, existing consents would have to be changed. In my view this could only occur if those consents were reviewed (under s128 of the RMA), existing consent holders requested a change to their minimum flows to be in line with the WCWARP (under s127 of the RMA), or new consents are granted with a flow regime in line with the flow regimes for existing consents and with the potential to change that flow regime at the same time as reviews of existing consents are being undertaken.

Differing priority

62. Managing water on the Hakataramea River mainstem needs to take into consideration the effects on other users'. One way to achieve this is to provide greater priority to existing consented abstractors.

- 63. It is not clear from the WCWARP how the allocation of water within the “A”, “B” or “C” blocks is to be managed. The “A” block is currently comprised of a number of existing users’ and may include new applicants if consents are granted and there is sufficient allocation available. The “B” block allows for allocation of a large volume of water which must be equally shared with the river and among other users. For both these allocation blocks, adverse effects on other users’ reliability of supply need to be considered.
- 64. One way of managing these effects would be to provide for the establishment of priority bands within an allocation block. The WCWARP allows for this through Policy 26 which has been discussed previously. An example is shown below in Figure 5 of what a restriction graph could look like for an abstractor in a band within an allocation block.
- 65. In setting these priority bands, the provisions of Policy 28 would need to be considered in order to maintain the priority of any replacement consents in their existing band.
- 66. As an example, bands could be established within the 1.75 cumecs of “B” allocation block water from the Hakataramea River. An initial band could be 0.5 cubic metres per second. The following chart (Figure 5) shows the allowable abstraction for a “B” permit holder taking a maximum of 50 litres per second within the first band during the restriction period in September to March. Additional bands could be provided for above this initial band with increasing minimum flows where abstractions must cease.

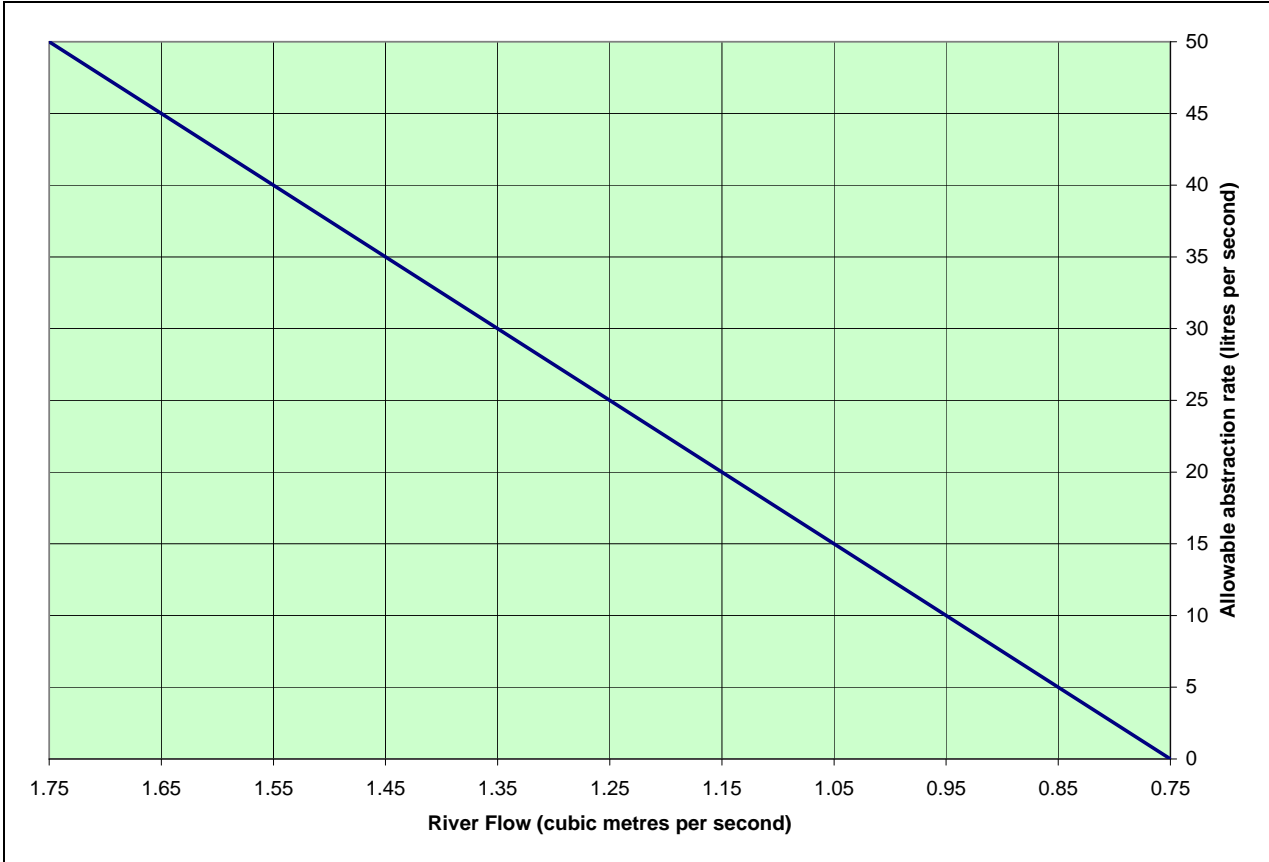


Figure 5: Band 1 abstractor in “B” block on Hakataramea River (September to March)

67. The “C” allocation block would apply to any consents requesting abstraction above the 4.5 cubic metres per second minimum flow for water harvesting or who fall outside the “A” or “B” allocation blocks. It is possible that in this situation, priority may need to be accorded using a “first-on last-off” approach.

Maerewhenua River

68. The same approach as for the Hakataramea River (September to March) can be taken for the Maerewhenua River for each allocation block. Therefore, an “A” allocation block would consist of 0.4 cubic metres per second, a “B” allocation of 0.6 cubic metres per second between 0.8 cubic metres per second and 2.0 cubic metres per second (1:1 flow sharing applies), and a “C” allocation block above 2.0 cubic metres per second as illustrated previously.
69. Possible wording for consent conditions which would reflect these blocks and the respective minimum flows for A, B and C blocks are provided in Attachment Three. In addition, flow restriction graphs for the Maerewhenua River are provided in Attachment Four.

All other rivers and streams

70. For all other rivers and streams a slightly different allocation regime would apply. The minimum flow would occur at the 5-year 7-day low flow, with an “A” allocation block up to the mean flow. A “B” allocation block would apply at the mean flow and require 1:1 flow sharing above that point. This block would have no upper limit and would consist of the actual requirements of additional consents. A “first-on last-off” approach as outlined above could apply.
71. Possible wording for consent conditions which would reflect these blocks and the respective minimum flows are provided in Attachment Three. In addition, flow restriction graphs for the Otekaieke River are provided as an example of all other rivers and streams in Attachment Four.
72. It is important to note that the 5-year 7-day low flow for all tributaries subject to consent applications at this hearing cannot always be established. The reason for this is the lack of reliable flow data from most of these tributaries from which to make any reasonable assertion. As such, in addition to a potential minimum flow condition, a flow review clause has been proposed in Attachment Four to recognise that more reliable data determining the 5-year 7-day low flow may be available after more detailed gaugings by some applicants’.

Summary

73. If the Commissioner’s consider the above ‘mainstem’ only approach is appropriate, with either equal or differing priority, the allocations for each waterbody, for which there is an application, are outlined in Table 3 later in this report.

Catchment-wide approach

74. Alternatively, in recognition of the influence that tributaries have on the flow in the mainstems of the Hakataramea River and Maerewhenua River, a catchment-wide approach could be taken.
75. Fish and Game submitted on the issue of excluding tributaries from the allocation limits in Table 3. Fish and Game consider that, by excluding water permits on tributaries from the allocation limits, it is effectively encouraging applicants to seek

water from smaller tributaries instead of the mainstem. Policy 7 makes specific reference to discouraging the taking water from small streams when there is a viable alternative. Fish and Game consider that not including tributaries in the Hakataramea River allocations is contrary to Policy 7.

76. Given the above submission and the potential for effects on existing users, a catchment-wide approach is discussed. As an example, this would consider all takes, diversions and damming from the Hakataramea River mainstem and from tributaries of the Hakataramea River within the allocation blocks and flow sharing regimes specified in Rule 2, Table 3. However, it is noted that in Rule 2, Table 3, for the Hakataramea River and Maerewhenua River, this approach appears not to be envisaged when compared to, for example, "Fork stream and tributaries".
77. Notwithstanding this, the relationship between tributaries and mainstems is recognised in the explanation accompanying Policies 3-5: "*As part of implementing the environmental flow and level regimes, the consent authority could also establish minimum flows of tributaries as a means to ensure compliance with the downstream flows set in this Plan.*"
78. If the Commissioner's consider a 'catchment-wide' approach is appropriate, allocations can be provided on request.

Comments on all approaches

79. In terms of competition for resources and reliability of supply, a 'mainstem' approach with equal priority would imply that priority is given to abstraction from tributaries. This is because they would not need to comply with the environmental flow regimes and allocation limits of the relevant river (Hakataramea or Maerewhenua). However, as tributaries contribute flows to the mainstem the result would be that there is less reliability for existing consent holders taking from the mainstem and and/or if the consent is tied to minimum flows on the mainstem.
80. The main weakness of this 'mainstem with equal priority' approach is that existing consent holders on the mainstem and those tied to minimum flow conditions on the mainstem may have reduced reliability of supply if any new consents were granted.
81. With a 'mainstem with differing priority' approach, effects on other users may be managed through establishment of priority bands within the allocation blocks.
82. However, the limitations of this are that taking water from tributaries still has priority and all users on the mainstem may have an increased number of days on restrictions as there is less water contributing to the mainstem flows.
83. The 'catchment-wide' approach allows for management of competition for resources across the catchment and does not afford a take from any particular part of the catchment higher priority or reliability other than that which the allocation blocks in Rule 2, Table 3 provide for.
84. The limitations of this approach are that there is significantly less water available for allocation than previously interpreted by the applicants (see below for an illustration of how existing and new consents could fit within this regime). Most applicants have applied for either "A" block water or "C" block water to allow for water harvesting, but under this regime many applicants applying for "A" block water may fall into the "B" allocation block and therefore have lower reliability of supply.

85. However, under this regime, existing consent holders would retain their existing priority and their reliability of supply would not be reduced.

ENVIRONMENTAL FLOW AND LEVEL REGIMES SOUGHT BY APPLICANTS'

86. In this section, the flow and level regime sought by applicants at this hearing are presented and discussed.

Hakataramea River

87. For the Hakataramea River and tributaries, Table 2 shows the consent applications that seek the minimum flow for the Hakataramea River.

Table 2: Consents and minimum flows sought on Hakataramea River and tributaries

Consent Application Number	Applicant Name	Waterbody	Minimum flow sought
CRC031592	Mr RH Robertson	Hakataramea River	WCWARP min flow for the Hakataramea River
CRC050940	Mr & Mrs R G & Z L Pringle	Hakataramea River	WCWARP min flow for the Hakataramea River
CRC051767	RPNZ Properties Limited	Hakataramea River	WCWARP min flow for the Hakataramea River
CRC051768	RPNZ Properties Limited	Hakataramea River	WCWARP min flow for the Hakataramea River
CRC051769	RPNZ Properties Limited	Hakataramea River	WCWARP min flow for the Hakataramea River
CRC071114	R W & M E Sutton	Avonlea Stream	Harvesting above WCWARP flow-sharing threshold for the Hakataramea River
CRC040989	N J Small	Grampians Stream	33.5L/s min flow in Grampians Stream at the intake point, and WCWARP min flow for Hakataramea River, as well as harvesting above WCWARP flow-sharing threshold for the Hakataramea River
CRC032220	Mr RH Robertson	Homestead Stream	Not proposed
CRC011989	Padkins Creek Community Race	Kirkliston Stream	64L/s min flow in Kirkliston Stream
CRC981376	Hakataramea Station (1990) Limited	McKays Stream	77L/s min flow in McKays Stream at Hakataramea Valley Road, and a 137L/s residual flow past intake
CRC950464.2	Hakataramea Station (1990) Limited	McKays Stream	Not proposed
CRC051766	N J Small	Morton Stream	Not proposed
CRC050957	R G & Z L Pringle	Peters Stream	Min flow on the Hakataramea River of 1,060 litres per second

CRC021585	Star Holdings Limited	Station Stream	Harvesting above WCWARP flow-sharing threshold for the Hakataramea River
CRC951776.5	Star Holdings Limited	Station Stream	Existing standard condition for the Hakataramea River

88. The applicants' seek the Hakataramea River minimum flow but have not assessed the effects on other users or proposed any consent conditions to deal with reliability of supply for existing users who are subject to minimum flows on the Hakataramea River.

Maerewhenua River

89. The groundwater application CRC070820, with connection to the Maerewhenua River, and surface water application CRC070826 to harvest flows above the flow-sharing threshold specified in row xx, Table 3, Rule 2 of the WCWARP, from Mr M S Gillingham, are the only applications in process that will be subject to a minimum flow. The applicant has proposed to comply with the Rule 2 flow regime for the river.

All other rivers and streams

90. Westmere Estate Limited has a replacement application in process on the Kurow River, CRC012051. At present there is no minimum flow for the river. The applicant proposes a flow of 165 litres per second at the Curries recorder site. All other existing permits on the Kurow River are deemed permits in substitution for mining privileges, which are not subject to restrictions. Any consent granted would have lowest priority for water, behind four existing priority bands established by the mining privileges.
91. Waitaki Valley Vineyards Limited has applied to take water from Malcolms Creek as a new activity. There are no existing takes on the creek, and therefore no existing flow regime. The applicant has proposed a residual flow of 15 litres per second past the point of abstraction. This proposed minimum flow is based on a previous authorisation, CRC011285 (now lapsed), which required a 15 litres per second residual flow two kilometres upstream from the new proposed abstraction point.
92. Warnbro Enterprises Limited has an application to take groundwater connected to the Otekaieke River, and Sunny Downs Limited has an application to take surface water from a spring fed tributary of the Otekaieke River. Both applicants' have proposed to comply with the 5-year 7-day low flow minimum flow for the Otekaieke River, as required in Table 3, Rule 2 of the WCWARP, which has been calculated at 200 litres per second at the Old Weir recorder site. Sunny Downs Limited has not proposed a separate minimum flow for the spring fed tributary.

RELATIONSHIP OF EXISTING WATER PERMITS AND APPLICATIONS TO RULE 2

93. In this section, the existing water permits and applications for new permits are set out in the context of the mainstem approach for applying Rule 2, Table 3 of the WCWARP² (Table 3).

² Tables containing detail of all existing consents included in the allocation for Hakataramea River, Maerewhenua River and all other rivers and streams are contained in Appendix 3 of the introductory s42A report (Report 1).

Table 3: Cumulative instantaneous rate of take or divert of water under the mainstem only approach (both equal and differing priority)

E= existing water permits

A= applications for water permits

T= cumulative total of E and A

Rule 2, Table 3			Calculated cumulative rate of take or divert authorised by existing resource consents and new consents
Water bodies	Allocation limit specified in the environmental flow regimes		
xix. Hakataramea River	A block	Allocation limit of 0.5 m ³ /s (Sept – March)	E = 0.291 m ³ /s A = 0.116 m ³ /s T = 0.407 m³/s
	B block	Allocation limit of 1.75 m ³ /s (Sept – March)	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
	C block	No limit	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xx. Maerewhenua River	A block	Allocation limit of 0.4 m ³ /s	E = 0.685 m ³ /s A = 0.022 m ³ /s T = 0.707 m³/s
	B block	Allocation limit of 0.6 m ³ /s	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
	C block	No limit	E = 0 m ³ /s A = 0.12 m ³ /s T = 0.12 m³/s
xxii. All other rivers and streams (Avonlea Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0.049 m ³ /s A = 0.050 m ³ /s T = 0.099 m³/s
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xxii. All other rivers and streams (Grampians Stream Hakataramea)	A block	Between 5-year 7-day low flow and mean flow <i>Mean flow unknown</i>	E = 0 m ³ /s A = 0.030 m ³ /s T = 0.030 m³/s


tributary)	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 1 m ³ /s T = 1 m³/s
xxii. All other rivers and streams (Homestead Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow and mean flow <i>5-year 7-day low flow unknown</i>	E = 0 m ³ /s A = Entire flow T = Entire Flow
	B Block	Above mean flow of 0.161 m ³ /s	E = 0 m ³ /s A = Entire Flow T = Entire flow
xxii. All other rivers and streams (Kirkliston Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0.0376 m ³ /s A = 0.110 m ³ /s T = 0.1476 m³/s
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xxii. All other rivers and streams (McKays Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0.075 m ³ /s A = 0.060 m ³ /s T = 0.135m³/s
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xxii. All other rivers and streams (Morton Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0 m ³ /s A = Entire Flow T = Entire Flow
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = Entire Flow T = Entire Flow
xxii. All other rivers and streams (Peters Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0.040 m ³ /s T = 0.040 m³/s
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s

xxii. All other rivers and streams (Station Stream Hakataramea tributary)	A block	Between 5-year 7-day low flow of 0.067 m ³ /s and mean flow of 0.224 m ³ /s 0.157 m ³ /s	E = 0.193 m ³ /s A = 0.060 m ³ /s T = 0.253 m³/s
	B Block	Above mean flow of 0.224 m ³ /s	E = 0 m ³ /s A = 50% of flow T = 50% of flow
xxii. All other rivers and streams (Kurow River)	A block	Between 5-year 7-day low flow of 0.165 m ³ /s and mean flow of 0.733 m ³ /s at Curries 0.568 m ³ /s	E = 0.253 m ³ /s A = 0.048 m ³ /s T = 0.301m³/s
	B Block	Above mean flow	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xxii. All other rivers and streams (Malcolms Creek)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0.0225 m ³ /s T = 0.0225 m³/s
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xxii. All other rivers and streams (Otekaieke River)	A block	Between 5-year 7-day low flow of 0.248 m ³ /s and mean flow of 1.152 m ³ /s at the Old Weir 0.904 m ³ /s	E = 0.352 m ³ /s A = 0.00453 m ³ /s T = 0.35653m³/s
	B Block	Above mean flow of 1.152 m ³ /s	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s
xxii. All other rivers and streams (Unnamed Farm Drain – Otekaieke tributary)	A block	Between 5-year 7-day low flow and mean flow <i>Unknown</i>	E = 0.045 m ³ /s A = 0 m ³ /s T = 0.045 m³/s
	B Block	Above mean flow <i>Unknown</i>	E = 0 m ³ /s A = 0 m ³ /s T = 0 m³/s

94. The above table outlines the 'mainstem only' approach. The 'catchment-wide' approach would result in quite different outcomes for both existing consent holders and new applicants', however neither are without their advantages or disadvantages.

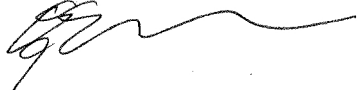
CONCLUSION

95. This discussion has highlighted the uncertainty surrounding effects on other users from each application, which are highly dependent on the environmental flow regimes implemented within these catchments.

Signed: 

Claire Penman
Consultant Investigating Officer

Date: 18 July 2008

Signed: 

Reviewed by Gillian Ensor
Consents Project Leader (Waitaki)

Date: 18 July 2008

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ATTACHMENT ONE – RELEVANT PROVISIONS OF WCWARP RELATING TO ‘HOW’ TO ESTABLISH THE FLOW AND LEVEL REGIME

Objective 5 is:

“To provide for a practical and fair sharing of allocated water during times of low water availability.”

Policies 15 is:

“By ensuring that the rate of abstraction and the annual volume of resource consents for taking, using, damming or diverting water are reasonable for the intended end use, and thereby avoiding significant wastage of water.”

Policies 16 and 17 set out the specific efficiency expectations for irrigation (Policy 16), and town and community and stock drinking-water supplies (Policy 17).

Policy 18 is:

“By encouraging and, where appropriate, requiring the water allocation specified on existing resource consents to reflect the actual quantity needed to undertake the activity.”

Policy 19 is:

“By encouraging the piping or otherwise sealing of water distribution systems to minimise water losses and maintain the quality of water and, where appropriate, requiring their progressive upgrade and piping where there is an environmental and/or economic the benefit of so doing, but recognising that some of may provide significant habitats.”

Policy 24 is:

“By allowing consent holders to take water for domestic, stock drinking-water uses and for the processing and storage of perishable produce when rivers or lakes are at or below minimum flows or levels provided the amount taken does not exceed 250 litres per person per day based on the population being supplied at that time, plus actual stock drinking-water requirements, plus the minimum necessary to maintain fire-fighting capability and for the processing and storage of perishable produce. In addition, an allowance may be made for reasonable losses from reticulated supply schemes.”

Policy 25 is:

“By allowing the restrictions on takes and diversions to be achieved by sharing the available water between resource consent holders within a water-users group, provided the total amount taken by any individual does not exceed their resource consent, and the sum of the takes does not exceed the water available above the minimum flow or minimum lake level.”

Policy 26 relates to restrictions in times of low water availability and is relevant for tributaries of the Lower Waitaki River. It is not directly relevant to HDIS, but I include it for the sake of completion:

“By providing a measure of certainty as to the likely frequency of restrictions to consent holders taking or diverting water on a run-of-river basis from upper or mid-catchment tributaries, the Ahuriri catchment, the Hakataramea catchment, or tributaries of the Lower Waitaki River (see Map 2) through setting priority bands. The first priority band will be set to provide a reliability which either:

- a. allows at least 95 percent of the allocation specified on the consent to be taken in any 14-day period from August to May in 6 years out of 10, and at least 75 percent of the allocation specified on the consent to be taken in any 14-day period from August to May in 9 years out of 10; or*
- b. if the existing reliability is less than that specified in Policy 26a, maintains the existing reliability.”*

Policy 27 is:

By giving priority during times of low flows or levels to integrated schemes in which water is used for more than one purpose.

Policy 28 relates to the replacement of existing consents, and is:

In considering whether to grant or refuse applications for replacement of existing consents, the consent authority will:

- a. consider whether all reasonable attempts to meet the efficiency expectations of this Plan have been undertaken;*
- b. recognise the value of the investment of the existing consent holder; and*
- c. maintain the inclusion of the consent, if granted, in any allocation limits and priority bands on the water body concerned.*

The relevant part of Rule 2 Table 3 is:

xix.	Hakataramea River	<p>From September to March</p> <ul style="list-style-type: none"> a. A <u>minimum flow</u> at the Main Highway recorder site of 0.5 m³/s b. An <u>allocation limit</u> of 0.5 m³/s c. <u>Flow-sharing</u> between the thresholds of 1.0 and 4.5 m³/s – any water taken, diverted, dammed or used pursuant to the <u>flow-sharing</u> regime is in addition to the <u>allocation limit</u> <p>From April to August</p> <ul style="list-style-type: none"> d. A <u>minimum flow</u> at the Main Highway recorder site of 0.75 m³/s e. <u>Flow-sharing</u> between the thresholds of 0.75m³/s and 4.5 m³/s <p>At all times</p> <ul style="list-style-type: none"> f. Any water taken when the river is above 4.5m³/s is in addition to the <u>allocation limit</u> and <u>flow-sharing</u> regime
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xx.	Maerewhenua River	<ul style="list-style-type: none"> a. A <u>minimum flow</u> of 0.4 m³/s at State Highway 83 b. An <u>allocation limit</u> of 0.4 m³/s c. <u>Flow-sharing</u> between the thresholds of 0.8 and 2.0 m³/s d. Any water taken, diverted, dammed or used pursuant to the <u>flow-sharing</u> regime is in addition to the <u>allocation limit</u> e. Any water taken when the river is above 2 m³/s is in addition to the <u>allocation limit</u> and <u>flow-sharing</u> regime
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xxii.	All other rivers and streams (except for the Pūkaki River, lower Ōhau River and the Tekapo River upstream of Lake George Scott)	<ul style="list-style-type: none"> a. A <u>minimum flow</u> of the 5-year, 7-day low flow as assessed by the Canterbury Regional Council set at the downstream end of the catchment b. A <u>flow-sharing</u> threshold at the mean flow as assessed by the Canterbury Regional Council
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ATTACHMENT TWO – EXISTING MINIMUM FLOW CONDITIONS

Hakataramea River

Band 1 - Standard Condition

- (a) The taking of water in terms of this permit shall cease whenever the flow in the Hakataramea River at State Highway 82 recorder site (map reference NZMS 260 I40:112-062), as estimated by the Canterbury Regional Council, falls below 500 litres per second.
- (b) The taking of water in terms of this permit shall be reduced to one half the weekly allocation noted in condition (1) above, whenever the flow in the Hakataramea River at State Highway 82 recorder site (map reference NZMS 260 I40:112-062), as estimated by the Canterbury Regional Council, falls below 1500 litres per second.

PROVIDED THAT Whenever the Canterbury Regional Council, in consultation with the Water Users Committee representing all water users who are subject to this condition, has determined upon a water sharing regime which restricts abstraction from the Hakataramea River in accordance with the minimum flow of part (a) of this condition, then the taking of water in accordance with that determination shall be deemed to be a compliance with this condition.

Band 2 - Standard Condition

The taking of water in terms of this permit shall cease whenever the flow in the Hakataramea River at State Highway 82 recorder site (map reference NZMS 260 I40:112-062), as estimated by the Canterbury Regional Council falls below 3000 litres per second during the period April, May and June inclusive, or falls below 2500 litres per second during any other month.

Table 4: Existing consents with the standard Hakataramea River minimum flow conditions

Consent Number	Consent Holder	Waterbody	Rate of Take L/s	Permit Type
Band 1				
CRC950462.4	Hakataramea Station Limited	Deadman Stream	15	SW Take
CRC950995.1	Mr G S Hay	Farm Stream	60	SW Take
CRC951082.2	Star Holdings Limited	Farm Stream	25	SW Take
CRC980514	Mr & Mrs M E & R W Sutton	Farm Stream	30	GW Take
CRC950493.3	Star Holdings Limited	Farm Stream (tributary)	13	SW Take
CRC961543.2	Star Holdings Limited	Farm Stream (tributary)	40	SW Dam
CRC040309	Davenport Holdings Limited	Hakataramea River	110	SW Take
CRC930285.1	R G & Z L Pringle	Hakataramea River	14	SW Take
CRC930653.3	RPNZ Properties Limited	Hakataramea River	26	GW Take
CRC930942.2	Mr A Pasquale	Hakataramea River	30	SW Take

CRC931003.4	Mr & Mrs J R D & M M Clarke	Hakataramea River	110	SW Take
CRC950601.2	Mr & Mrs R H & J Robertson	Hakataramea River	26	SW Take
CRC950602.2	Mr & Mrs R H & J Robertson	Hakataramea River	45	SW Take
CRC980916	Montara Properties Limited	Hakataramea River	25	SW Take
CRC020875.2	Woodrow Limited	Hatcheries Stream	19	SW Take
CRC980915	Montara Properties Limited	Kirkliston Stream	25	SW Take
CRC950464.1	Hakataramea Station (1990) Limited	McKays Stream	15	SW Take
CRC010048.2	Star Holdings Limited	Padkins Creek	13	SW Divert
CRC021460.1	Star Holdings Limited	Padkins Creek	30	SW Divert
CRC030278	Mr & Mrs C R A & G N Hay	Padkins Creek (tributary)	5	SW Take
CRC950460.2	Hakataramea Station Limited	Poplar Stream	40	SW Take
CRC931005	Maungatiro Partnership	Station Stream	45	SW Take
CRC950458.2	Hakataramea Station Limited	Station Stream	45	SW Take
CRC951698.1	Star Holdings Limited	Station Stream	30	SW Take
CRC951776.4	Star Holdings Limited	Station Stream	43	SW Take
CRC951804.2	Star Holdings Limited	Station Stream	30	SW Take
Band 2				
CRC042849.1	RPNZ Properties Limited	Hakataramea River	20	GW Take
CRC950409.4	Star Holdings Limited	Padkins Creek	100	SW Take

Maerewhenua River

Band 1 - Standard Condition

- (a) The taking of water in terms of this permit shall cease whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (at or about map reference NZMS 260 I41:197-820), as estimated by the Canterbury Regional Council, falls below 400 litres per second.
- (b) The taking of water in terms of this permit shall be reduced to one half of the volume noted in condition (1) above, whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (at or about map reference NZMS 260 I41:197-820), as estimated by the Canterbury Regional Council, falls below 600 litres per second.

PROVIDED THAT Whenever the Canterbury Regional Council, in consultation with the Water Users Committee representing all water users who are subject to the same Maerewhenua River minimum flow restriction, has determined a water sharing regime which restricts abstraction from the Maerewhenua River to that available above the minimum flow of clause (a), then the taking of water in accordance with that determination shall be deemed to be in compliance with clause (b) of this condition.

Band 2 - Standard Condition

- (a) The taking of water in terms of this permit shall cease whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (map reference I41:197-820), as estimated by the Canterbury Regional Council, falls below 400 litres per second.
- (b) Whenever the taking of water has ceased in accordance with clause (a) above, the taking of water shall not recommence until the flow in the Maerewhenua River at Kelly's Gully recorder site (map reference I41:197-820), as estimated by the Canterbury Regional Council, exceeds 600 litres per second.
- (c) Whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (map reference NZMS 260 I41:197-820), as estimated by the Canterbury Regional Council, is between 1,200 litres per second and 400 litres per second, and water is being taken concurrently with CRC992096, the combined abstraction rate shall not exceed 290 litres per second, and a combined volume of 25,056 cubic metres per day.
- (d) The maximum volume of water taken in terms of this permit shall not exceed 263,088 cubic metres in any period of 24 consecutive days, whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (map reference NZMS 260 I41:197-820), as estimated by the Canterbury Regional Council, falls below 600 litres per second.

PROVIDED THAT Whenever the Canterbury Regional Council, in consultation with the Water Users Committee representing all water users who are subject to the same Maerewhenua River minimum flow restriction, has determined a water sharing regime which restricts abstraction from the Maerewhenua River to that available above the minimum flow of clause (a), then the taking of water in accordance with that determination shall be deemed to be in compliance with clause (d) of this condition.

Band 3 - Standard Condition

- (a) The taking of water in terms of this permit shall cease whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (at or about map reference NZMS 260 I41:197-820) as estimated by the Canterbury Regional Council falls below 700 litres per second during the months of 1 December to 31 August inclusive; and
- (b) The taking of water in terms of this permit shall cease whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (at or about map reference NZMS 260 I41:197-820) as estimated by the Canterbury Regional Council falls below 900 litres per second during the months of 1 September to 30 November inclusive; and
- (c) The taking of water in terms of this permit shall be reduced to one half of the volume noted in condition (1) above, whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (at or about map reference NZMS 260 I41:197-820) as estimated by the Canterbury Regional Council falls below 1,000 litres per second, during the months of 1 December to 31 August inclusive; and

- (d) The taking of water in terms of this permit shall be reduced to one half of the volume noted in condition (1) above, whenever the flow in the Maerewhenua River at Kelly's Gully recorder site (at or about map reference NZMS 260 I41:197-820) as estimated by the Canterbury Regional Council falls below 1,600 litres per second, during the months of 1 September to 30 November inclusive.

Table 5: Existing consents with the standard Maerewhenua River minimum flow conditions

Consent Number	Consent Holder	Waterbody	Rate of Take L/s	Permit Type
Band 1				
CRC011714	Mr M F Moynihan	Maerewhenua River	57	SW Take
CRC991000.1	PukeraroTrust	Maerewhenua River	19	SW Take
CRC992096.2	Des Conlan Trust	Farm Stream	230	SW Take
Band 2				
CRC991295.3	Maerewhenua Community Irrigation	Maerewhenua River	320	SW Take
CRC030840.3	Mr & Mrs S R & M E Fenwick	Maerewhenua Community Irrigation Diversion Race	76 290	Galleries SW Take
Band 3				
CRC021504.1	Des Conlan Trust	Maerewhenua Community Irrigation Diversion Race	110	SW Take

ATTACHMENT THREE – POSSIBLE CONSENT CONDITIONS FOR ALLOCATION BLOCKS

Minimum flow condition for “A” permits

1. Whenever the flow (expressed in litres per second) in [Tributary Name], as estimated by the Canterbury Regional Council from measurements at recorder site [Name] map reference [NZMS 260 xxx:xxxx-xxxx]:
 - (a) is equal or greater than [“B” minimum flow], the maximum rate at which water is taken, shall not exceed [rate of take] litres per second, with a daily volume not exceeding [xxxx] cubic metres per day and with a total volume not exceeding [xxxx] cubic metres between 1st July and the following 30th June.
 - (b) falls below the flows shown on the horizontal axis of the annexed graph, then the rates of abstraction permitted in terms of this permit shall not exceed those shown as corresponding on the vertical axis of the annexed graph.

PROVIDED THAT Whenever the Canterbury Regional Council, in consultation with the “Water Users Group” representing all water users who are subject to the same minimum flow restriction, has determined upon a water sharing regime which restricts abstraction from [Tributary Name] is limited to half the flow above the minimum flow specified in condition 1(a), then the taking of water in accordance with that determination shall be deemed to be in compliance with this condition.

- (c) falls below [“A” minimum flow], the taking of water in terms of this permit shall cease.

Minimum flow condition for “B” permits

2. Whenever the flow (expressed in litres per second) in [Tributary Name], as estimated by the Canterbury Regional Council from measurements at recorder site [Name] map reference [NZMS 260 xxx:xxxx-xxxx]:
 - (a) is equal or greater than [“C” minimum flow], the maximum rate at which water is taken, shall not exceed [rate of take] litres per second, with a daily volume not exceeding [xxxx] cubic metres per day and with a total volume not exceeding [xxxx] cubic metres between 1st July and the following 30th June.
 - (b) falls below the flows shown on the horizontal axis of the annexed graph, then the rates of abstraction permitted in terms of this permit shall not exceed those shown as corresponding on the vertical axis of the annexed graph.

PROVIDED THAT Whenever the Canterbury Regional Council, in consultation with the “Water Users Group” representing all water users who are subject to the same minimum flow restriction, has determined upon a water sharing regime which restricts abstraction from [Tributary Name] is limited to half the flow above the minimum flow specified in condition 1(a), then the taking of water in accordance with that determination shall be deemed to be in compliance with this condition.

- (c) falls below [“B” minimum flow], the taking of water in terms of this permit shall cease.

Minimum flow condition for “C” permits

3. Whenever the flow (expressed in litres per second) in [Tributary Name], as estimated by the Canterbury Regional Council from measurements at recorder site [Name] map reference [NZMS 260 xxx:xxxx-xxxx]:
 - (a) is greater than [“C” minimum flow], the maximum rate at which water is taken, shall not exceed [rate of take] litres per second, with a daily volume not exceeding [xxxx] cubic metres per day and with a total volume not exceeding [xxxx] cubic metres between 1st July and the following 30th June.
 - (b) falls below [“C” minimum flow], the taking of water in terms of this permit shall cease.

NB: Please note that there is no upper limit for “C” allocation provided in the Plan.

5-Year 7-Day Low Flow –Table 3 (xxii) tributaries – where data unavailable

Below is a combined set of conditions that may be used where there is limited data available to establish an appropriate minimum flow on a tributary waterbody, as covered by row xxii of Table 3, Rule 2 in the WCWARP.

1) The taking of water pursuant to this consent shall cease when the flow of the [waterbody] downstream from the intake point for this consent at [‘a site approved by the Canterbury Regional Council’ or specific site reference], as estimated by the Canterbury Regional Council, falls below:

- (i) [xx] litres per second in the period 1 October to 30 April, during the first two consecutive years this consent is exercised;
- (ii) [xx] litres per second in the period 1 May to 30 September, during the first two consecutive years this consent is exercised;
- (iii) the one in five year (seven day natural) low flow of the [waterbody] as determined in accordance with condition (x) from 1 October to 30 April, during the third consecutive year this consent is exercised, and every year thereafter.

2) The one in five year (seven day natural) low flow return period in condition (x) shall be determined as follows:

- (a) Within 12 months of the commencement of this consent, or within such other extended period as approved by the Canterbury Regional Council, the consent holder shall measure the flow of the [waterbody] downstream from the intake point for this consent, at [‘a site approved by the Canterbury Regional Council’ or specific site reference] on at least eight separate occasions:
 - (i) On four occasions, when the flows at the [recorder site] recorder are less than or equal to [xx] litres per second; and
 - (ii) On four occasions, when the flows at the [recorder site] recorder exceed [xx] litres per second; and
 - (iii) When no water is being abstracted for irrigation upstream of the measurement point.
- (b) The gaugings are to be carried out in accordance with the following manuals: Hydrologists Field Manual (NIWA 1991) and Procedure for Rating a Flow Station (NIWA 1993), or any equivalent publication approved for use by the Canterbury Regional Council.
- (c) All data from the measurements taken pursuant to condition (x)(a) shall be provided to the Canterbury Regional Council within one month of the date of each gauging.
- (d) Flow data from gaugings undertaken in accordance with condition (x)(a) shall be analysed by the Canterbury Regional Council using a generally accepted methodology to establish the one in five-year (seven day natural) low flow return period for that point.

- 3) (a) The consent holder shall install and maintain a rated staff gauge downstream from the intake point for this consent at a site approved by the Canterbury Regional Council.
- (b) The consent holder shall maintain an accurate daily record of the rated staff gauge levels in a log kept for that purpose and a copy of the records shall be provided to the Canterbury Regional Council before 1 March each year for the preceding October to January period and by 31 May in each year for the preceding February to April period, and otherwise, upon request.

ATTACHMENT FOUR – FLOW RESTRICTION GRAPHS

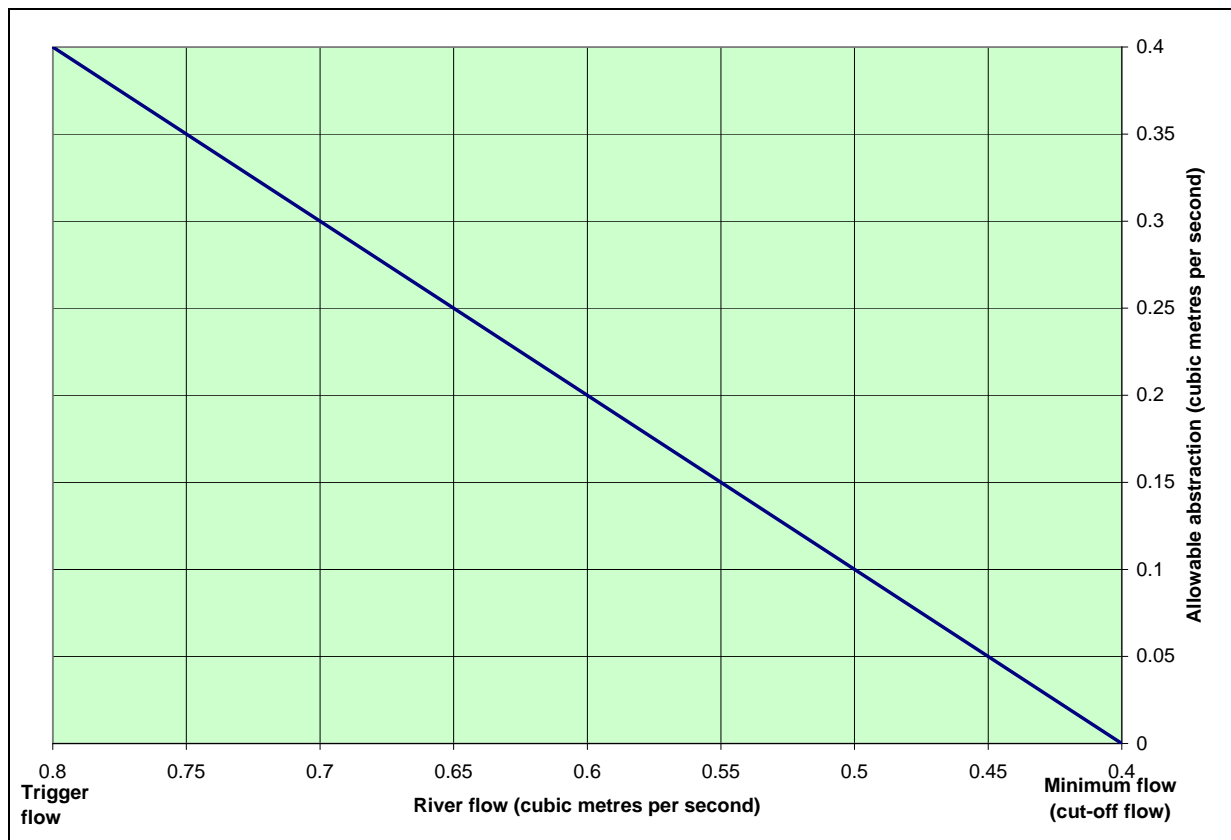


Figure 6: Restriction graph for the total "A" allocation block in the Maerewhenua River

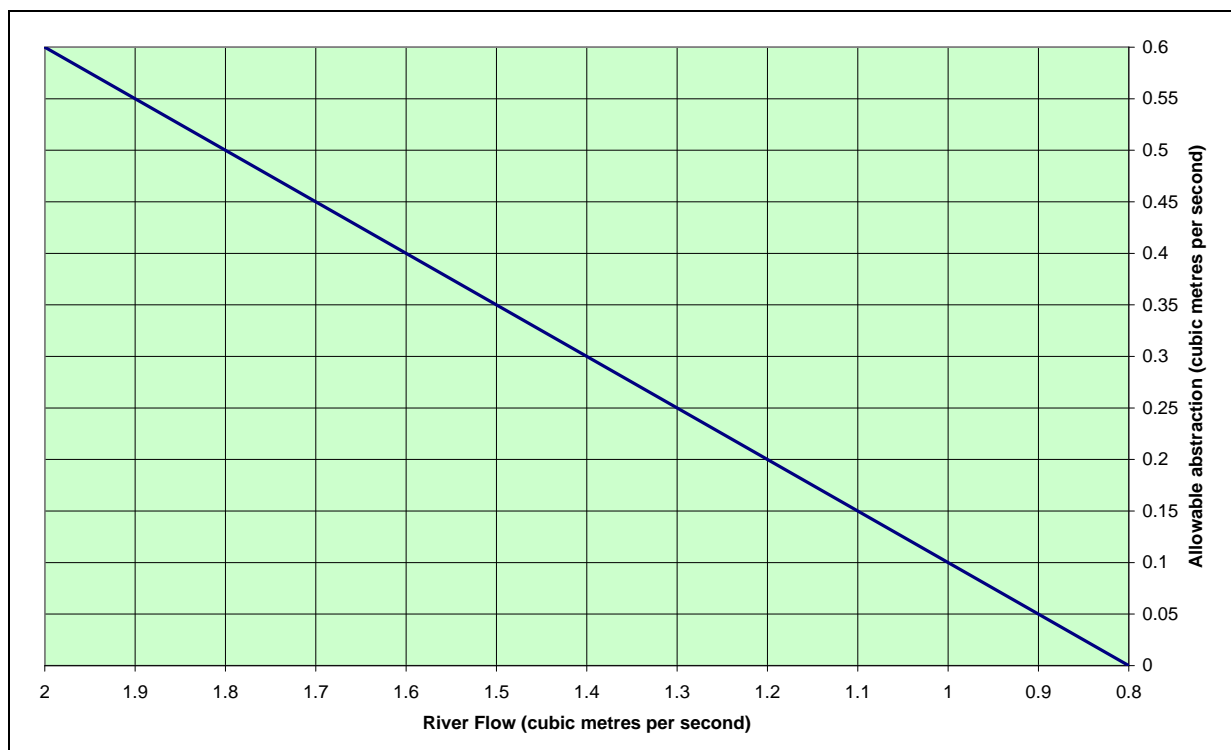


Figure 7: Restriction graph for 1:1 sharing ("B" allocation block) when the flow in the Hakataramea River falls between 0.8 and 2.0 cubic metres per second

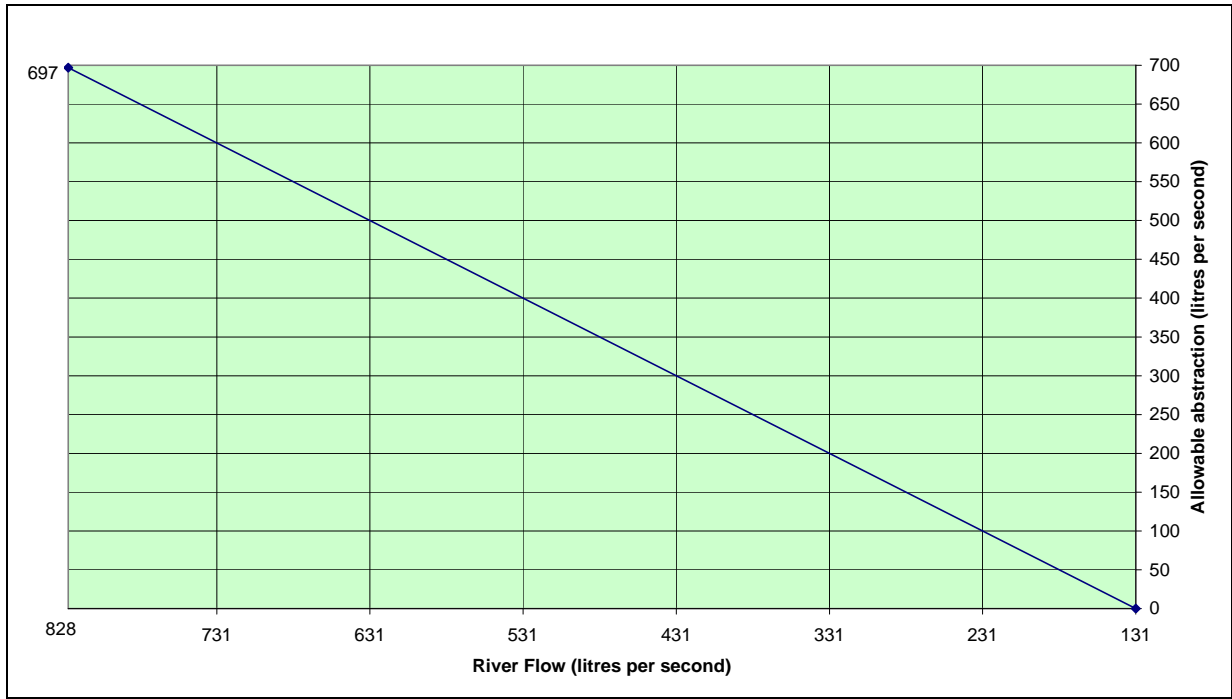


Figure 8: Restriction graph for the total "A" allocation block in the Otekaieke River