

**Before the Commissioners appointed by Canterbury
Regional Council**

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Application CRC060253 by
Falconer, Macassey and Cook
Allan Gibson Trustee Co. Limited
for a Water Permit to take & use
surface water.

Section 42A Officer's Report of Yvette Rodrigo

Date of Hearing: 21 September 2009

1. This report should be read together with the introductory s42A report which gives an overview of all applications presented at this hearing (Report 1), the planning and technical reports on hydrology and minimum flows (Report 2A and 2B), the planning report outlining annual allocations (Report 3) and the reports on cumulative landscape and water quality effects in the catchment (Reports 4(A) – (F) and 5).

INTRODUCTION

2. Falconer, Macassey and Cook Allan Gibson Trustee Co. Limited (the 'Applicant') has applied for a resource consent to take and use:
 - (a) No more than 1209.6 cubic metres (m³) per day of water from two locations in Coal Creek, at a rate of 14 litres per second (l/s); and
 - (b) No more than 1209.6 m³ per day of water from three locations in Shepherds Creek, at a rate of 14 l/s.
 - (c) The combined annual volume from Coal Creek and Shepherds Creek will not exceed 356,000 m³.
3. Attachment One of this report shows the location of the take and the proposed irrigation area.
4. Water will be used for spray irrigation of 80 hectares (ha) of land at Peak Valley Station, McAughtries Road, Benmore. This area is irrigated to grow winter feed crops, and pasture grazed by sheep and cattle, excluding dairy cows.
5. The applicant has requested a consent term of 35 years.

Background

6. Peak Valley Station is located at the end of Falstone Road and consists of 4,000 hectares (ha) on the western shores of the Haldon Arm of Lake Benmore. Within this property, 80 ha of flat land are irrigated for the purposes of growing pasture, and

winter feed such as Lucerne and turnips. The property is not stocked extensively, with up to 2,500 stock units present at any one time.

7. Water has been abstracted from Coal Creek and Shepherds Creek since 1991, for the irrigation of land within Peak Valley Station. In 1991, the consents authorising this water abstraction were held by Mr K A Falconer (CRC916762A, and CRC905195). These consents expired in 2000, and were replaced by consent CRC001119, which authorised the abstraction of a lesser volume of water than was authorised by the original consents. Consent CRC001119 was transferred to Falconer, Macassey and Cook Allan Gibson Trustee Company Limited in 2002 (CRC001119.1).
8. This current application for resource consent is to replace the previous consent authorising this activity (CRC001119.1), which expired in December 2005. Application CRC060253 was lodged in July 2005, (five months prior to the expiry of the previous consent) and the applicant was subsequently advised by Environment Canterbury (ECan), that they could continue operating under the conditions of their existing consent until a decision on the current application was made¹.
9. Water abstracted under the previous consent was diverted into races and applied to the irrigation area via wild flooding. This system is no longer used and has been replaced with a spray irrigation system. As a result, abstraction will occur at a reduced number of intakes from both creeks than what was authorized under CRC001119.1.
10. The application was considered to be notifiable on the date it was lodged with ECan. No other resource consents have been applied for by the applicant or considered necessary. Further information was requested from the applicant in November 2008 on the effects of the proposed activity including, but not limited to, water quality, landscape and minimum flows.
11. Mr Robert Hall, of RJ Hall Civil and Environmental Consulting Limited was initially engaged by the applicant and submitted the original application and supporting assessment of environmental effects (AEE) in 2005. Since 2008, Ms Cathy Begley (GHD Limited), and Mr Matthew Suddaby (C Hughes and Associates) have responded to further information and provided information on behalf of the applicant. The applicant has also engaged Mr Dave Boraman of Boraman Consultants Limited to undertake hydrological investigations of Shepherds Creek and Coal Creek.
12. A site visit was undertaken by Environment Canterbury (ECan) staff in February 2009.

Notification

13. Details of the notification and wording are contained in Appendix 4 of the introductory s42a report (Report 1). This consent was notified in August 2007 with 200 other applications for similar activities in the Waitaki catchment.

Submissions

14. Details of the submissions lodged on all applications notified at the same time as this application are contained in Report 1, Appendix 5. Overall, the key effects of concern raised by submitters, that were common to all applications within the Waitaki

¹ In accordance with section 124 of the RMA

catchment including this application, are those on minimum flows and the efficient use of water, effects on landscape values and cumulative water quality impacts.

15. Table 1 provides details of submissions that made specific reference to this application. Please note that all submissions hold equal importance, even if not specifically listed below.

Submitter	Issues	Support/ Neutral/ Oppose	To be heard
Fish and Game New Zealand	Appropriate minimum flows need to be determined given the lack of existing hydrological data for Coal Creek and Shepherds Creek. Abstraction should be within allocation limits.	Oppose	Yes
Meridian Energy Ltd	Water quality and metering.	Oppose	Yes

Table 1: Summary of specific submissions on application CRC060253

16. Transpower New Zealand did not submit on the application, however advice regarding safe operation practices near to Transpower's transmission assets, was provided by Transpower to the applicant, given the presence of transmission lines crossing the irrigation area (specifically the Benmore – Twizel A (ROX-TWZ-A_ 220 kV double circuit high voltage transmission line).

DESCRIPTION OF THE PROPOSED ACTIVITY

17. The applicant proposes to take and use water under the following conditions:

Shepherds Creek

- (i) Water will be taken from Shepherds Creek:
 - (a) At or about map references NZMS 260 H39:848-350, H39:858-353 and H39:861-355; and
 - (b) At a maximum rate of 14 l/s, with a volume not exceeding 1209.6 m³/day; and

Coal Creek

- (ii) Water will be taken from Coal Creek:
 - (a) At or about map references NZMS 260 H39:864-328 and H39:869-342; and
 - (b) At a maximum rate of 14 l/s, with a volume not exceeding 1209.6 m³/day.

Minimum flows

- (iii) Water will only be taken from Shepherds Creek and Coal Creek, when the flows in Shepherds Creek, immediately downstream of the intake are greater than or equal to 60 l/s.

- (iv) The minimum flows for Shepherds Creek and Coal Creek shall be measured at or about map reference NZMS 260 H39:866-356.
- (v) The applicant will continue monitoring flows in Shepherds Creek.
- (vi) The combined annual volume of water taken from Shepherds Creek and Coal Creek will not exceed 356,000 m³.

Use of water

- (vii) Water abstracted will be used to irrigate an area of 80 hectares of land at Peak Valley Station. The plan attached to this report in Attachment One shows the irrigation areas and location of the abstraction points. Photographs of these sites are included in Attachment Two.
- (viii) Pasture will be grazed by non-dairy stock, such as sheep and cattle, with low-intensity stocking rates.

Irrigation System

- (ix) Water will be abstracted using a slotted 150 mm pipe placed on the river bed at each intake location and gravity fed to the irrigation area via a pipe.
 - (x) The slot width of the intake pipe will be no greater than 5 mm in order to prevent fish from entering the pipe.
 - (xi) Water meters and data loggers will be installed within the main pipeline for each creek so that the rate and volume of take can be measured and recorded.
18. The applicant does not have a reticulated stockwater system, and has not applied to take stockwater as a part of this consent. Stock drink water directly from the lake or from streams within the property. Section 14(3)(b)(ii) of the Resource Management Act (RMA) 1991 does not prohibit a person from taking water for the “*reasonable needs of an individual’s animals for drinking water*”. The annual volume requested in this application therefore is solely for “irrigation purposes” and is additional to the volumes considered reasonable under section 14(3) of the RMA.

LEGAL AND PLANNING MATTERS

Consent Requirements

19. The consent requirements under the Resource Management Act (RMA), Transitional Regional Plan (TRP) and Waitaki Catchment Water Allocation Regional Plan (WCWARP) for water permit applications are outlined in the introductory s42A report. A summary of the requirements for these applications are provided below:
20. TRP
- (a) The TRP permits the abstraction of surface water from any surface waterway provided the volume abstracted is less than 10 m³/day, and the rate of take is limited to 5 l/s. Given that the proposed take exceeds these limits, consent is required as a discretionary activity.
21. WCWARP

- (a) Rule 2, clause (1a) – The applicant proposes a minimum flow of 65 l/s for Shepherds Creek that will be used as a minimum flow to control the abstraction from both Shepherds and Coal Creek, due to the strong correlation of flows between the two creeks. This flow represents the 5-year, 7-day low flow as assessed by the Canterbury Regional Council (Table 3, row (xxii)).
 - (b) Rule 6 – The activity is within the annual allocation limit of 275 million cubic metres for agricultural activities upstream of Waitaki Dam.
 - (c) Rule 15 – Classifying rule, discretionary activity.
22. In summary, the proposed water permit is a discretionary activity and requires consent under s14 of the RMA.
23. The intake pipes are to be placed on the creek beds and will not result in any disturbance of the beds or banks of the creeks. On this basis, land-use consent under section 13 of the RMA is not considered necessary.
24. No discharges are associated with the system and therefore no consent under section 15 of the RMA is required.

Priority

25. In terms of instantaneous allocation under Rule 2, a detailed list of all applicants who fall within Table 3 can be found in Report 2A.
26. For Rule 6, annual allocation, refer to Report 3 for a full list of all existing consent holders and all applicants in priority order. All allocations upstream of the Waitaki Dam and downstream of the glacial lake outlets are currently within annual allocation limits set in the WCWARP, therefore priority in relation to the plan, is not an issue for this application.

Derogation Approval

27. Derogation approval has been provided by Meridian Energy Limited (MEL) for this application. A copy of the letter confirming this approval is attached to this report as Attachment Three.

CONSULTATION

28. It is stated in the application that consultation was to be undertaken with Central South Island Fish and Game Council, Temuka; Department of Conservation, Te Runanga O Moeraki and Te Runanga O Waihao and MEL. The applicant however has not provided any details of consultation undertaken with these parties.
29. These parties were subsequently notified when the application was publicly notified along with other applications in the catchment.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

30. A description of the values of the Mackenzie Basin in general is provided in the introductory s42A report (Report 1).
31. In addition to the overall summary, the applicant notes the following:

- (a) Shepherds Creek flows into Lake Benmore at a location approximately 1 kilometre north of Whanau Island.
- (b) The outlet of Coal Creek to Lake Benmore is located approximately 500 metres south of Whanau Island. However, Coal Creek often runs dry in the lower reaches in summer (as was the case during the site visit in February 2009).
- (c) Both Coal Creek and Shepherds Creek drain into the Eastern (or Haldon) Arm of Lake Benmore, therefore they will make a small contribution to the storage and outflow of Benmore dam, which is utilised by Meridian Energy Limited for power generation, and provides flow to the Lower Waitaki River.
- (d) Torrent fish, galaxids, common and upland bullies are expected to occur in both streams (Hall, 2005²). It is also stated in the AEE that these streams may provide spawning and rearing habitat for rainbow and brown trout.
- (e) There are no recreational values, other users or food gathering sites associated with either creek.

32. A site visit to the applicant's property in December 2008 and a search of ECan's GIS database undertaken by ECan staff was used to audit the applicant's description of the affected environment. The following information was also identified as being relevant to understanding the values and sensitivity of the receiving environment in relation to the proposed activity:

Shepherds Creek and Coal Creek

- (a) No ecological values have been recorded for Shepherds Creek or Coal Creek.
- (b) There is a Department of Conservation site located at NZMS 260 H39:8649-3350, labelled 'Threatened Plants, (Carmichaelia kirkii)'. This is approximately 200 metres north of the proposed lower intake site on Coal Creek. No native plant species were evident during the site visit.
- (c) There are no other consents or public roads within the vicinity of the proposed water take or irrigation area.

Irrigation Area

- (d) The whole area is classified as being Regionally Significant.
- (e) According to Transpower New Zealand information, the Benmore-Twizel A (ROX-TWZ-A) 220 kV double circuit high voltage transmission line is located within the vicinity of the proposed intake locations and irrigation areas.
- (f) There are several sites of archaeological significance listed on ECan's GIS database, located on the small islands just offshore of the area proposed for irrigation, or have been covered over during the creation of Lake Benmore, and are therefore now located within the lake itself. None of the sites are located within the proposed area for irrigation.

² Hall, RJ 2005. Assessment of effects supporting application for consent.

- (g) There are no silent file areas located within the irrigation area or in the vicinity of the intake locations.

Lake Benmore

- (h) ECan’s GIS database identifies Lake Benmore as having the following values:
- Salmonid and native bird habitat;
 - Wetland of Regional Importance (WERI)³;
 - Site of Special Wildlife Importance (SSWI)⁴; and
 - An Area of National Significance.
- (i) Lake Benmore is a Ngai Tahu Statutory Acknowledgment Area. Shepherds Creek and Coal Creek are not located within this Statutory Acknowledgment Area.

Other Users

- (j) Both Shepherds Creek and Coal Creek are located within Peak Valley Station, therefore there are no other parties abstracting water or using either creek for any other purpose.

ASSESSMENT OF THE PROPOSED ACTIVITY

33. The proposed water permit is a discretionary activity and must be considered in context of section 104 of the RMA.
34. Section 104(1) outlines matters that the consent authority must have regard to when considering an application for resource consent, including any actual and potential effects on the environment, any relevant statutory provisions, and any other matter the consent authority considers relevant.

Assessment of actual and potential effects (Section 104(1)(a))

35. The effects that have been considered for this type of activity (surface water abstraction) are presented in the introductory s42A report (Report 1). That report includes the presentation of the relevant planning provisions which direct us to consider these effects. A summary table regarding the assessment of individual effects for this application is provided below and a detailed discussion of these effects is provided in the following sections.

Adverse Effects	Applicant’s assessment	IO assessment	Conclusion
Ecosystems	Fish screen and minimum flow proposed.	Agree with applicant’s assessment & mitigation.	Effects acceptable.
People, communities & amenity values	Local effects minor. Cumulative effects not assessed.	Agree with applicant regarding local effects on amenity and recreation.	Landscape, amenity effects acceptable.

³ Keller and Pfluger, 2005. A register of ecologically important wetlands.

⁴ Keller and Pfluger, 2005. A list of areas identified by the former New Zealand Wildlife Service that provide important habitat for wildlife.

		Given the buffer distance between the irrigation area and Lake Benmore, cumulative effects likely to be acceptable.	
Inefficient use	Annual volume of 356,000 cubic metres per year.	Agree that this is an efficient volume.	Effects minor.
Other water users	No other users. MEL derogation approval obtained.	Agree with applicant's assessment.	Effects acceptable.
Water quality	MWRL study for cumulative effects. Local effects minor as improvements to method of irrigation and low stocking rates.	Cumulative effects may be acceptable given the separation distances between the irrigation operation and the lake, the efficient use of water and as the discharge is into the Haldon Arm of Lake Benmore. Applicant still to finalise farm management plan that sets out mitigation measures.	Effects may be acceptable, provided greater clarity is provided on water quality mitigation measures.
Tangata Whenua values	No assessment provided.	Submissions concerned & have not been addressed by applicant.	Effects may be more than minor.

Table 2: Summary of Assessment of Effects for CRC060253

Adverse effects on ecosystems

36. The applicant predicts that the take and use of water from Coal Creek and Shepherds Creek will not result in more than a minor impact on the ecosystem or instream values of either creek. This prediction is largely based on the following assumptions:
- (a) That the intake structure proposed will not obstruct fish passage;
 - (b) The fish screens will be effective in preventing fish from entering the intake pipes; and
 - (c) The minimum flows proposed will adequately protect instream values, including the ecological values the creeks support.

Fish Screen and Intake Structure

37. The applicant is proposing to use a 150 mm slotted pipe placed in the bed of the creek to take water at each abstraction location. The slots will not exceed a width of 5 mm. It is noted that this slot width is consistent with Schedule WQN12(a)(iii) of the PNRRP but not consistent with NIWA's Fish Screen Guidelines (2007) that require a smaller slot width (2mm). The intake is not within the distances specified in this schedule for any sensitive areas, such as the coast, coastal lake or estuary. In addition, neither Shepherds Creek nor Coal Creek have been identified (by ECan's GIS, Dr Meredith or Fish & Game) as having any specific fishery values or habitat. On this basis, I am satisfied that the applicant's proposal is appropriate and should not result in more than minor impacts on fishery values.
38. The pipe is currently moved between intake locations and placed on the bed of the creek to take water. The applicant states that given the sizes of the pipe and both creeks at the abstraction locations, it is unlikely that fish passage will be impeded.

Minimum Flows

39. It is noted that the submission by Fish & Game specifically referred to this application, in reference to ensuring that the minimum flow provisions of the Waitaki Plan applied are addressed by conditions of consent. The submission however recognised that very limited hydrological information was available for both Shepherds Creek and Coal Creek.
40. When the application for a replacement consent was lodged with ECan in 2005, the applicant proposed the same minimum flows that were included as conditions of their existing consent (CRC001119.1).
41. Hydrological investigations of flows within Shepherds Creek and Coal Creek undertaken after notification in January 2008 determined that the minimum flows from the existing consent were not appropriate to provide a reliable supply for irrigation or representative of the 5 year, 7-day low flow required by the WCWARP for this class of stream. Based on these investigations and further discussions with Mr Dave Stewart (of Raineffects, engaged by ECan to provide advice on this issue), new minimum flows were subsequently proposed by the applicant.
42. The proposed flows were audited by Mr Stewart on behalf of ECan and determined to be appropriate based on the information obtained from monitoring to date, however, it has been recommended that the applicant continue to monitor the flows in these streams and that these flows could be reviewed when more information becomes available from further monitoring⁵.
43. A monitoring site based on the requirements of the WCWARP⁶ has been selected at the bottom end of the Shepherds Creek catchment. Given the strong correlation between the flows in Coal Creek and Shepherds Creek, it has been determined that this site will be appropriate for measuring the minimum flows for both creeks.

Summary

44. The minimum flows proposed for this site are based on the best available information, to be consistent with the plan. This should ensure the protection of the instream values associated with both Shepherds Creek and Coal Creek.
45. It should also be noted that further hydrological investigations have been undertaken since the application was notified in order to set an appropriate minimum flow for these waterways and therefore should address part of the concerns raised by Fish and Game in their submission on this application.
46. While the proposal in relation to fish screening of the intake structure is not completely consistent with the NIWA fish screening guidelines, I am satisfied that the effects on ecosystem and fishery values are likely to be acceptable, given that these waterways have not been identified as being significant fish habitat and based on the proposed method of abstraction.
47. Alternatively, if the Commissioners are not satisfied that the impacts of the abstraction on potential fish values that could exist in these waterways, they could include a condition requiring the fish screen on the intake structure to be consistent with the

⁵ Stewart, D 2009. Hydrology report on CRC060253 – Peak Valley Station.

⁶ The minimum flows are to be set at the bottom end of a catchment or sub-catchment.

NIWA guidelines. This would require the intake pipe to have a slot width of 2 mm rather than 5 mm.

48. I understand however, that a smaller slot/mesh width requires more frequent maintenance to remove blockages caused by algal growth or sediment. Given the size of the intake pipe, these blockages could have a significant impact on the amount of water entering the system.

Adverse effect on people, communities and amenity values

49. The applicant has provided an assessment of the effects on landscape, amenity values and other downstream users at a local scale. The applicant has also undertaken hydrological investigations to determine an appropriate minimum flow to address the impacts on the instream values of Shepherds Creek and Coal Creek.

Landscape Values

50. It is stated in the application that the effects on landscape values as a result of this application will be unchanged as the applicant is proposing to continue irrigating the same areas of land that were irrigated under the previous consent for this property.
51. The applicant has not assessed the cumulative impacts of the activity on the on natural character and amenity values of the catchment resulting from increased irrigation within the Mackenzie Basin. A number of submitters have raised concerns with regard to this effect on natural character and amenity values. This matter is discussed in a separate report by Dr Mike Freeman, which addresses the cumulative landscape effects (Report 4a) of irrigation within the catchment.
52. While this is an existing activity, a replacement consent is still required for both the taking and use of water, therefore the permitted baseline does not technically apply, and the effects of the proposal should be assessed assuming that this land is not irrigated.
53. The applicant is not proposing to increase the scale of the activity, and the amenity, recreational and landscape values have not changed since the previous consent was granted, therefore it may be considered that the visual effects on the landscape that have occurred over the last 18 years will not change.
54. Mr Chris Glasson, (Landscape Architect, engaged on behalf of ECan) was asked to comment on the impacts on landscape values arising from the proposal (See Report 5). He stated that while the visible impacts of continued irrigation at the site would not result in a change in effects on landscape values, ensuring that adverse effects of irrigation would be mitigated depends on maintaining an appropriate buffer distance between the lake and the irrigation area.
55. It was noted by ECan staff during the site visit to the applicant's property, that a separation distance of 300 metres between the lake and irrigation area was being proposed by the applicant. Mr Glasson has confirmed that this separation distance would be appropriate to mitigate landscape effects arising from irrigation. I recommend that should consent be granted, a condition of consent is included that provides for this separation distance.

Recreation & Amenity Values

56. It is stated in the AEE that while Shepherds Creek and Coal Creek may support fishery habitat values, there are no recreational or amenity values associated with either waterway.
57. It has been confirmed by GIS and site visits by ECan Investigating Officers that the intakes from Coal Creek and Shepherds Creek, and the proposed irrigation area are located within a large station and that these areas are not accessible to the public.
58. Given that it is unlikely that this area would be accessible to the public or used for recreational or amenity purposes, I would agree with the applicant that the adverse effects on amenity and recreational values are no more than minor.

Transpower Infrastructure

59. The map attached to this report in Attachment One indicates the presence of Transpower structures and electrical conductor lines that dissect the irrigation area (for Shepherds Creek) in a south easterly direction. The applicant has not assessed the impacts of irrigation on these structures.
60. It should be noted that Transpower did not submit on the application when it was notified. They did however advise ECan in a letter dated 27 August 2007, that the proposed activities including the irrigation of water onto land could result in adverse effects on their assets, in particular the Benmore – Twizel A (ROX-TWA-A) 220kV double circuit high voltage transmission line. They have also provided guidelines (NZECP34:2001) on appropriate mitigation measures that should be implemented to ensure the protection of these assets and the National Grid.
61. These mitigation measures include:
 - (a) Avoiding the placement of structures, buildings, planting of trees or encroaching vegetation within 12 horizontal metres either side of any structure;
 - (b) Maintaining a distance of at least 4 metres from any irrigation equipment to the conductors (power lines), towers and poles; and
 - (c) Preventing the spray of water onto conductors by adjusting nozzles, turning jets off when the boom passes by the towers and keeping the boom well away from conductors.
62. The applicant may wish to provide an assessment of the impacts of their proposed activity (irrigation) on these structures at the hearing. Alternatively a condition has been recommended for this application, should the Commissioners decide to grant consent for this activity, that require the above measures, including separation distances to be maintained.

Positive Effects

63. It is noted that the use of water for irrigation could maintain the productivity of the land, provide for the economic well-being of the wider community.

Summary

64. Given the conclusions reached by Dr Freeman and Mr Glasson in their reports, the nature of the proposed activity, and the mitigation measures proposed by the

applicant and recommended above (including appropriate minimum flows and separation distances between the lake and irrigation area, and Transpower assets), I am satisfied that the adverse effects on people, communities and amenity values will be minor.

Adverse effects on other users

65. The applicant states that both creeks discharge to Lake Benmore and hence make a small contribution to Benmore dam storage and outflow, which is utilised by Meridian for power generation and contributes to the flow of the lower Waitaki River.
66. Only Meridian Energy currently hold water permits on Lake Benmore. There are no other consented water users on Coal Creek or Shepherds Creek.
67. Given the minimum flows proposed by the applicant, the lack of abstractions from Coal Creek and Shepherds Creek other than the applicant's take, and the derogation approval from MEL, the effects of the abstractions may be considered to be acceptable. It is noted however, that MEL have lodged a submission in opposition to this application and wish to be heard in support of their submission.

Adverse effects of inefficient use

68. The taking of water in excess of that required for the intended use may contribute to water levels being unnecessarily reduced and less water available for other users. A number of submitters have identified this issue.

Annual Volumes

69. The proposed irrigation volume of 356,000 m³ has been based on the volume authorised by the previous consent for this activity. In the AEE, the applicant determined the annual volume using Schedule WQN9v2, based on an average PAW of 80 millimetres (for a medium soil), an effective rainfall of 180 millimetres per hectare per year and arable land use. This provided an annual volume of 356,000 m³.
70. It is noted that this volume is equivalent to the volume that would be required for irrigation if the soils within the proposed development area consisted solely of medium soils. ECan's soil information database indicates that the command area for irrigation (80 hectares) is comprised of approximately 75 % heavy soils (PAW > 110 millimetres) and 25 % medium soils (PAW 75 – 110 millimetres). If this was taken into account, then the annual volume based on the irrigation demand for "arable land-use" would equate to 311,000 m³.
71. The applicant states that water is used for the purposes of growing winter feed crops and pasture for grazing stock. Schedule WQN9 of the PNRRP defines arable land-use as:

"(Intensive cropping) – land that is cultivated and used predominantly to produce a mix of annual crops being grown in rotation. Arable farms have a mix of crops that usually have a single harvest..."
72. Given the range and description of land-uses occurring within the irrigated area, including pasture for grazing stock, the irrigation demand is likely to be more representative of an "intensive" rather than "arable" land-use classification when compared to the description of these land-use categories in Schedule WQN9 of the PNRRP. Based on the seasonal irrigation demand for soils at the site, using an

intensive land-use category and the method outlined in Policy 16(c)(ii) of the WCWARP (WQNv2), the annual volume required for irrigation should be 408,000m³.

73. I discussed this issue with Mr Dave Power (the applicant), who confirmed that this land is irrigated for both growing pasture for grazing and cropping, and the land-use is limited by the volume of water that is available through the previous consent.
74. On this basis, and given that the volume requested by the applicant is considerably lower than the volumes estimated by the method outlined in Policy 16 (WQNv2) for intensive land-use, I am satisfied that the annual volume is not unreasonable for irrigation of the site.

Irrigation Efficiency

75. The applicant has converted to using spray irrigation rather than the wild flood irrigation method previously used. The applicant states that the maximum gross depth of water applied over the 80 ha will be 3 millimetres per day. They also state that water is irrigated continuously over a period of 10 days, with a return period of 10 days. The rate of application (i.e. 30mm) is less than half the AWHC of the soil type in the area (80 mm), therefore losses to groundwater are unlikely and the proposal should be able to achieve the 80% technical efficiency in the WCWARP.

Summary

76. Given the method of irrigation, application rates and return periods proposed combined with the water holding capacity of the soils within the irrigation area, I am satisfied that the proposed seasonal allocation is reasonable for the proposed irrigation area and the applicant's proposal to use this water can be carried out efficiently. In addition, the applicant has proposed to install a water meter and monitor the actual amount of water taken and used from each creek.

Adverse effect of use on water quality

77. The proposed activity can have an impact on water quality in the immediate vicinity of the site or in combination with other activities in the catchment result in cumulative adverse effects.

Localised Impacts on Water Quality

78. The applicant has assessed the impacts of the proposed use of water for irrigation on groundwater and surface water quality. It is predicted in the AEE that these effects are likely to be minor for the following reasons:
 - (a) Water taken from Shepherds Creek and Coal Creek was previously irrigated onto land within the irrigation area using a wild flooding method. This method of irrigation has been replaced with spray irrigation, which is a more efficient method of irrigation and will minimise leaching of contaminants such as nutrients to groundwater; and
 - (b) The property has a very low stocking rate, with 2,500 stock units per 4000 ha.
79. As discussed above, the proposed method of irrigation should ensure that the water is irrigated onto land in an efficient manner and therefore minimise leaching to groundwater and overland runoff. The applicant has not proposed any separation distances between the irrigation area and the surface waterways in the vicinity of the irrigation area, such as the creeks, however there is a separation distance of 300 metres to Lake Benmore.

Cumulative Impacts on Water Quality

80. In accordance with s93(1)(b), all applications for take, divert and use of water for irrigation in the Upper Waitaki catchment were notified in August 2007, and subsequent applications notified as well, because the consent authority was not satisfied that the cumulative adverse effects on water quality as a result of land-use intensification and increased irrigation in the catchment would be minor (see notification memo dated 19 April 2007).
81. A number of submissions on this effect were received by ECan, including a submission from Meridian Energy Ltd. Those submitters and their concerns are outlined in more detail in Appendix 5 of the s42A introductory report.
82. An assessment of cumulative effects on water quality was requested to address the above concerns, in relation to Policy 13 of the WCWARP. The applicant has contributed to the study by Mackenzie Water Research Ltd (MWRL) on cumulative effects within the catchment.
83. The report by MWRL has been audited and a separate s42a report prepared (see Report 4a). The property is within the Haldon arm of Lake Benmore and it is understood that water quality impacts of irrigation on land draining into this branch may be acceptable provided certain mitigation measures are implemented.
84. Based on the findings of the MWRL report, each applicant was to advise ECan of specific measures, including farm management plans that would mitigate the impacts of irrigation on water quality for each property. These mitigation measures have not yet been provided therefore I cannot confirm at this time that the effects on water quality will be acceptable.

Adverse effects on Tangata Whenua values

85. The applicant did not include an assessment of the proposed activity on cultural values. The sites of the proposed activities are within the rohe of Te Runanga O Moeraki. Both runanga and Te Runanga O Ngai Tahu were served notice of the applications in August 2007.
86. Submissions were received in opposition to this application from Te Runanga O Ngai Tahu and Ngai Tahu-Mamoe Fisher People. The concerns of Ngai Tahu-Mamoe Fisher People seem to relate specifically to the resource consent process, rather than this specific application.
87. Te Runanga O Ngai Tahu have raised concerns relating to mixing of waters between catchments, deterioration of water quality, dewatering and residual flows, changes to sediment flow and deposition and impacts on sites of cultural significance.
88. Given that there are a number of submissions which identify cultural values, and a cultural impact assessment has not been provided by the applicant, I cannot conclude that the actual and potential effects on cultural values of the area will be minor.
89. I can however, provide comments on the concerns raised in submissions relating to cultural values as described above.
 - (a) The applicant does not propose to mix waters between catchments. As shown on the plan (Attachment One), water abstracted from each creek will be used to irrigate land in the vicinity of the creek that the water is sourced from.

- (b) The applicant is proposing a separation distance between the irrigation area and the lake. In addition, the conversion to spray irrigation should ensure that water is irrigated onto land more efficiently and without losses to groundwater or overland runoff. This should improve the overall management of the irrigation operation and could result in reducing the impacts on water quality from what was previously authorised under the previous consent for this site. However, specific mitigation measures based on the MWRL study on water quality have not been proposed as yet, so the impacts on water quality cannot be confirmed at this stage.
- (c) The applicant has agreed to a minimum flow which is acceptable to the Canterbury Regional Council.
- (d) No land-use consent is required so it is unlikely that significant adverse effects will occur as a result of dewatering or result in significant changes to sediment flow and deposition.
- (e) There are some sites of cultural significance in the vicinity of the proposed irrigation area however none of these sites are located within the irrigation area. Given that the area has been irrigated for many years, and that the irrigated area will not be extended, I consider that it is unlikely that there will be any adverse effects on sites of cultural significance.

Conclusion

- 90. With regard to s104(1)(a), the actual and potential effects of the activities have been discussed above. For this consent, I cannot confirm that under s104(1)(a), the actual and potential effects of the proposed activity are acceptable, due to uncertainties regarding the localised and cumulative impacts on surface water quality.
- 91. The impacts on landscape values and Transpower assets however can be mitigated, if the recommended conditions requiring appropriate separation distances are included, should the Commissioners decide to grant consent for this activity. In addition, the Commissioners may require the use of a fish screen consistent with the recommended guidelines if they are not satisfied that the applicant's current proposal will adequately mitigate the impacts on fishery values.

Statutory Assessment (Section 104(1)(b))

Regional Policy Statement (RPS)

- 92. Under Section 104(1)(b)(iii) of the RMA, the consent authority shall have regard to any relevant regional policy statement. The Canterbury Regional Policy Statement has been operative since 26 June 1998.
- 93. Of significance to these applications are Chapter 9, which relates to the management of the Region's water resources, and Chapter 10, which relates to works in the bed. The WCWARP and PNRRP take into account policies in the RPS and address the issues outlined in more detail. Any assessment of effects has been made using these documents and therefore I have had regard to the RPS throughout this assessment.

Waitaki Catchment Water Allocation Regional Plan (WCWARP)

- 94. The objectives and policies of the WCWARP that are relevant to each potential adverse effect have been identified in the introductory s42A report. A table of all those objectives and policies considered to be relevant to this application is appended in

Attachment Five. A discussion of the key objectives and policies that I consider particularly relevant when deciding this application is provided in the following paragraphs.

Objectives

95. Objective 1 of the WCWARP is a key objective that provides direction on the key issues that need to be addressed to sustain the quality of the Waitaki River and surrounding environment in relation to the taking and using of water. The proposed activity could potentially impact on the matters set out in (a), (b) and (c) of this objective.
96. While the proposed minimum flow regime should ensure that the life supporting capacity of the environment is not compromised (Objective 1(a)), and the buffer distance proposed between Lake Benmore and the irrigation area should ensure that the natural landscape values of the area are maintained (Objective 1(c)), I cannot confirm that the proposal will not compromise cultural values (Objective 1(b)).
97. The applicant's proposal, however, is consistent with Objectives 2 – 5 of the WCWARP.

Environmental Flow and Level regimes

98. The applicant is proposing to adopt the '5-year, 7-day low flow' required by the WCWARP for both Shepherds Creek and Coal Creek, therefore it is considered that the application is consistent with Policies 3 and 4.

Surface Water Quality

99. Policies 4 and 13 of the WCWARP are most relevant when considering the impacts of the proposed take and use of water on water quality. Policy 4 requires consideration of the impacts on water quality when setting environmental flows and Policy 13 deals with water quality issues as a result of land use intensification in relation to achieving the objectives of the NRRP, which require the maintenance and enhancement of water quality.
100. Given the location of the property irrigation could occur without resulting in significant impacts on water quality provided certain mitigation measures are implemented. The applicant has not yet provided details of this mitigation and therefore I cannot confirm that the proposal will be consistent with these policies.

Efficient and effective use

101. Policies 15 – 20 deal with efficient and effective use and all are applicable to this application.
102. Policy 15 ensures that the rate of abstraction and the annual volume is reasonable for the intended use. As discussed in the assessment of effects section of this report, I am satisfied that the annual volume is reasonable for the intended use.
103. Policy 16 provides guidance for determining reasonable and efficient use for agriculture activities. As discussed in the assessment of effects, I am satisfied that the requested volume of water is required under these consent applications. The applicant has converted from wild flood irrigation of the property to spray irrigation, which should achieve a higher level of efficiency.

Replacement consents

104. Policy 28 provides guidance as to matters which must be considered when deciding whether to grant or refuse an application for replacement of existing consents.
105. These include consideration of attempts to meet the efficiency expectations of the plan, recognition of the value of the investment by the consent holder and maintenance of the consent in any allocation limits and priority bands if granted.
106. I consider that the proposal is consistent with this policy. The applicant has applied for a direct replacement of a consent that has authorised irrigation at the site for approximately 18 years and is proposing a more efficient method of irrigation.

Policy for tributaries of Lake Benmore

107. Policy 41 requires environmental flow regimes to be set in tributaries of Lake Benmore that recognise the natural values of these tributaries. Shepherds Creek and Coal Creek are mid-catchment tributaries, according to Map 2 of the WCWARP. The applicant is proposing to adopt the minimum flows required in the plan for these tributaries, therefore the proposal is consistent with this policy.

Conclusion

108. With regard to s104(1)(b), the relevant provisions of the RPS and WCWARP have been considered above. In my view, the applicant's proposal is generally consistent with the policies of these documents. The proposal however may not be consistent with Policy 13 due to impacts on water quality that could arise as a result of irrigation.

Other Matters (Section 104(1)(c))

109. With regard to s104(1)(c), the consent authority can consider any other matter relevant and reasonably necessary to determine the applications. I consider that the high court decision *Aoraki Water Trust and Others v Meridian Energy Limited* is relevant to this application (see discussion in Report 1).

Part II Purpose and Principles

Purpose of the RMA (s5)

110. Under Section 104, the consent authority must consider applications "subject to part II" of the RMA. The purpose of the RMA (Section 5(1)) is to:

"promote the sustainable management of natural and physical resources."
111. Section 5(2) defines the meaning of "sustainable management", which is to manage resources in a manner that provides for the social, economic and cultural wellbeing of communities while protecting the life-supporting capacity of the environment for the needs of future generations. This section also states that this should be achieved by "avoiding, remedying or mitigating" the adverse effects of activities.
112. The proposal will allow the development of land to occur, which may provide for the economic and social well-being of the community. The applicant has proposed measures to "avoid, remedy or mitigate" the potential impacts on landscape values, however it is unclear whether the proposal will ensure that impacts on water quality are adequately mitigated, as required in Section 5(2)(c). I am satisfied however that that the proposed annual volumes requested are reasonable and consistent with the

objectives of Section 5(2)(a), which aims to provide for the needs of future generations.

Matters of National Importance (s6)

113. Sub-sections (b) and (e) of Section 6 of the RMA are particularly relevant to this application. Given that this is an application to replace an existing consent, the proposal will not result in a change in the visual aesthetics of the area or result in increasing the extent of effects on the environment. The applicant is proposing to convert to a more efficient method of irrigation and has proposed measures to address the potential impacts of the activity.

Other Matters (Section 7)

114. In achieving the purpose of the RMA, the consent authority is directed to have particular regard to a number of matters as set out in (a) – (d) of Section 7.

115. Sub-sections (b), (c) and (d) are specifically relevant to this application and should be considered when deciding the acceptability of effects resulting from the proposed take and use of water from Shepherds Creek and Coal Creek. Section (b) relates to the efficient use of water and as discussed above, I am satisfied that the requested volume is reasonable.

116. Section (c) refers to the maintenance and enhancement of amenity values. Given that this is an application for a replacement consent, the proposed irrigation will not increase the impacts on amenity or landscape values. In addition the applicant has proposed a buffer distance of 300 metres between the irrigation area and Lake Benmore.

117. Section (d) relates to the “intrinsic values of ecosystems”. In my view, the applicant’s proposal will not compromise these values.

Principles of the Treaty of Waitangi (s8)

118. Section 8 of the RMA requires the consent authority to take into account the principles of the Treaty of Waitangi. The site lies within the rohe of both Arowhenua and Waihao Runanga. Runanga were informed separately when ECan received the application and later when the application was notified. As discussed above the applicant has not provided an assessment on cultural values and submissions were received on all applications in relation to the impacts on cultural values, therefore I cannot confirm that the proposal is consistent with principles of the treaty.

RECOMMENDATION

Grant or Refuse

119. Section 104B applies to any application which is a discretionary or non-complying activity and states that the consent authority may grant or refuse the application and may impose conditions under s108.

120. This application relates to a replacement consent that if granted will authorise an existing activity, in relation to the location of abstraction, the amount of water taken and the proposed size and location of the irrigation area. In addition, the applicant is also proposing mitigation measures aimed to achieve the outcomes set by the WCWARP. These measures include:

(a) Converting from wild flooding to spray irrigation;

- (b) Installing a water metre to monitor the takes from Shepherds Creek and Coal Creek;
 - (c) Ceasing abstraction when minimum flows in the creeks reach the 5-year, 7 day low flow; and
 - (d) Maintaining buffer distances between the irrigation area and Lake Benmore.
121. These measures are likely to improve the efficiency of the operation, while ensuring that amenity and landscape values are mitigated.
122. The only outstanding issues relating to this application are listed below:
- (a) *Surface water quality* – The applicant has not yet provided information regarding any mitigation measures that will be implemented on the property to address the localised and cumulative water quality impacts that could arise from irrigation at this site. The impacts on water quality may therefore not be acceptable; and
 - (b) *Cultural impacts* – The applicant has not provided a cultural impact assessment relating to the proposed activity. Submissions have been received on these impacts and runanga wish to be heard at the hearing.
123. Having considered all relevant matters outlined in section 104(1), I cannot recommend that the application be granted until the impacts on water quality and cultural values have been addressed to confirm that these impacts will be acceptable.

RECOMMENDED CONDITIONS

124. Comments on the mitigation proposed by the applicant for each application are provided earlier in this report.
125. If the Commissioners decide to grant this application, a list of conditions that are usually included in a water permit are provided in Appendix 6 of the introductory s42A report (Report 1). A list of draft recommended conditions for this application have been provided below.
126. It should be noted that I am not satisfied that these conditions would adequately mitigate that adverse effects that are of key concern, for example, adverse effects on water quality as a result of land use intensification.

No.	Condition Code ⁷	Details
Take		
1	WP01 modified to allow abstraction from 2 creeks.	<p><i>Name of waterbody 1:</i> Shepherds Creek</p> <p><i>Map references:</i> NZMS 260 H39:848-350, H39:858-353 and H39:861-355.</p> <p><i>Instantaneous rate:</i> 14 litres per second and 1209.6 cubic metres</p>

⁷ See Report 1, Appendix 6 for condition code and condition wording

		<p>per day.</p> <p><i>Name of waterbody 2:</i> Coal Creek</p> <p><i>Grid References:</i> NZMS 260 H39:864-328 and H39:869-342</p> <p><i>Instantaneous rate:</i> 14 litres per second and 1209.6 cubic metres per day.</p> <p><i>Combined Annual Volume:</i> 356,000 cubic metres</p>
2	WP03	<p><i>Instantaneous rate:</i> 14 litres per second from Shepherds Creek and 14 litres per second from Coal Creek.</p> <p><i>Volume:</i> 12,096 cubic metres (for each creek)</p> <p><i>Design return period:</i> 10 days</p> <p><i>Seasonal volume:</i> 356,000 cubic metres</p>
Use		
3	WP04	<p><i>Type of irrigation:</i> Spray irrigation</p> <p><i>Number of hectares:</i> 80 hectares</p> <p><i>Use:</i> Winter feed crops and pasture for grazing sheep and beef cattle.</p> <p><i>Plan No:</i> CRC060253</p>
4	WP05	
5	WP06	
Mitigation		
6	WP07 modified as only the applicant is abstracting water from both creeks, so delete (b) of this condition.	<p><i>Tributary name:</i> Shepherds Creek</p> <p><i>Grid reference of recorder site:</i> H39:866-356</p> <p><u><i>Minimum flows apply to both creeks:</i></u></p> <p><i>“B” Minimum flow:</i> 74 l/s</p> <p><i>Rate of take:</i> 14 l/s</p> <p><i>Daily volume:</i> 1,209.6 cubic metres</p> <p><i>Annual volume for each creek:</i> 178,000 cubic metres</p> <p><i>“A” Minimum flow:</i> 60 l/s</p>
7	WP08	<p><i>Minimum flow grid reference:</i> H39:866-356</p> <p><i>Water body name:</i> Shepherds Creek</p>
8	Non standard plus WPA09 (b), (e) and (f)	<p>(a) Water shall only be taken when a fish screen with a maximum slot width of 5 millimetres is operated and maintained across the intake to ensure that fish and fish fry are prevented from passing through the intake screen.</p>

Measuring & Metering		
9	ME01	
10	ME03	
11	ME04	
12	ME05	
13	ME06	<i>Waterway: Shepherds Creek</i>
Administrative Conditions		
14	AD01	
15	AD02	<i>Number of working days: 5 Month 1: May Month 2: October Waterbody: Shepherds Creek Cross reference to Condition: 6</i>
16	AD03	
17	AD04	



Signed:

Date: 31st August 2009

Yvette Rodrigo
Consents Investigating Officer

REFERENCES

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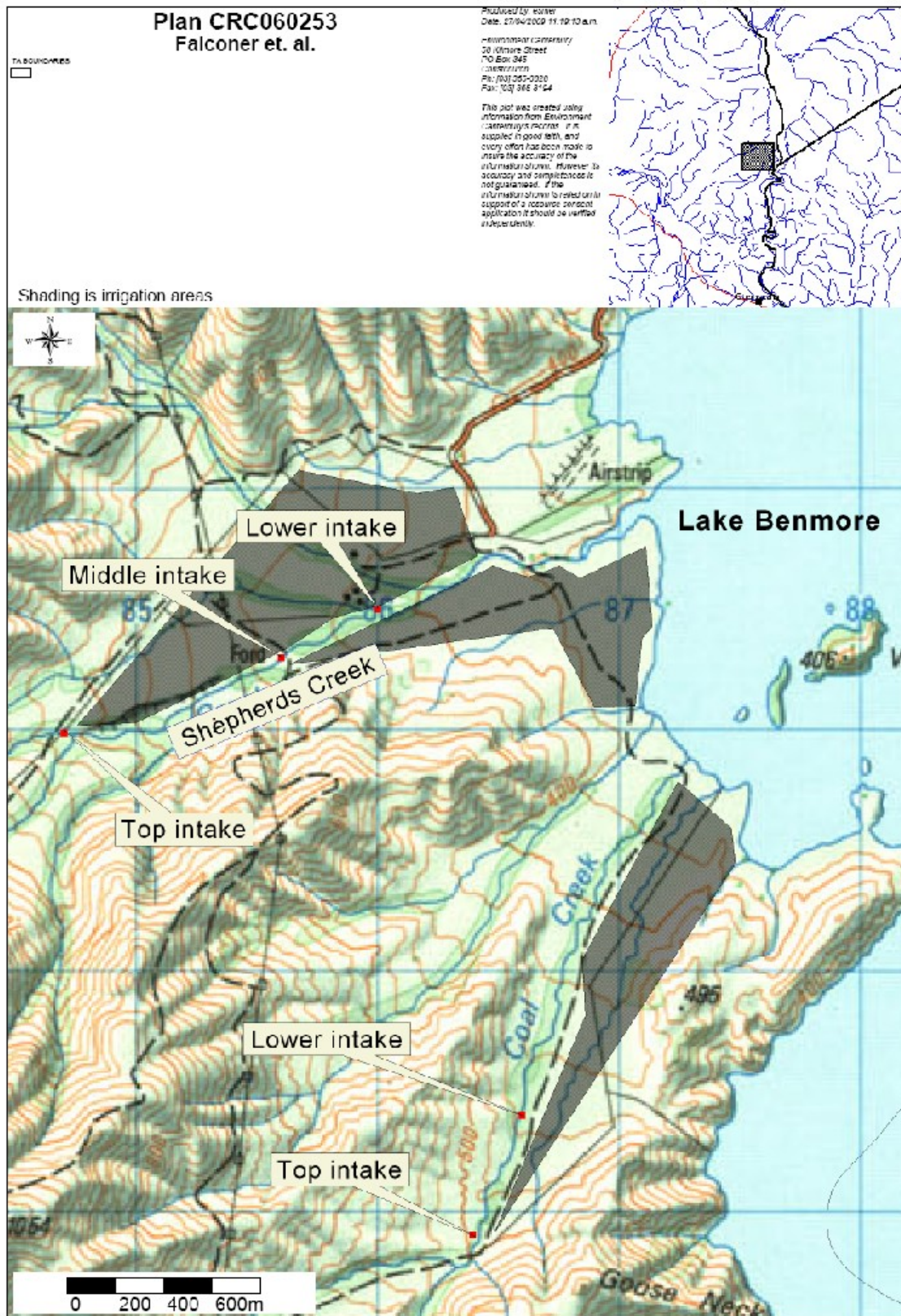
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ATTACHMENT ONE – LOCATION MAP



ATTACHMENT TWO – PHOTOS OF IRRIGATION AREA & INTAKE



Figure 1. Shepherds Creek (middle intake)



Figure 2. Shepherds Creek Irrigation Area



Figure 3. Coal Creek (top intake) upstream view



Figure 4. Lower reaches of Coal Creek



Figure 5. Coal Creek Irrigation Area



Figure 6. Buffer zone (Coal Creek Irrigation Area)

ATTACHMENT THREE – DEROGATION APPROVAL



meridian

17 March 2009

Gillian Ensor
Environment Canterbury
PO Box 345
Christchurch

Dear Gillian

Application by Falconer, Macassey & Cook Allan Gibson Trustee Co Ltd

- 1 We write to you to outline the basis of Meridian Energy Limited (*Meridian*) providing its derogation approval to the application numbered CRC060253 by Falconer, Macassey & Cook Allan Gibson Trustee Co Ltd (*Falconer*). We refer to the letter to ECan from Chapman Tripp dated the 26th of June 2008 setting out Meridian's position on derogation approvals generally.
- 2 Meridian has read and considered the application CRC060253 by Falconer and provides derogation approval on the following basis:
 - 2.1 Falconer shall only be entitled to take and use water from Coal Creek (between H39: 864-329 and H39: 866-334) at a maximum rate of 14 litres per second and from Shepherds Creek (between H39: 847-350 and H39: 860-355) at a maximum rate of 14 litres per second for the spray irrigation of 80 hectares identified in the application;
 - 2.2 The daily volume for the take and use of water from Coal Creek shall not exceed 1209.6 cubic metres per day and the daily volume for the take and use of water from Shepherds Creek shall not exceed 1209.6 cubic metres per day; and
 - 2.3 The combined annual volume from the Coal Creek take and the Shepherds Creek take shall not exceed 356,000 cubic metres per annum and this shall be allocated as an agricultural and horticultural activity upstream of Waitaki Dam but not upstream of the outlets of the glacial lakes under Rule 6, Table 5 of the Waitaki Catchment Water Allocation Regional Plan.
- 3 Any amendment or modification to the above will require further written derogation approval from Meridian. On the same basis any subsequent variation, transfer or replacement application that is relevant to the volume or location of the take may also require further approval.
- 4 This letter is not an affected party approval to the consent application under section 94 of the Resource Management Act. Meridian may choose to submit in support or

oppose the application on grounds which do not relate to the derogation of its rights, or not to submit at all.

- 5 This letter does however record (subject to the above) that Meridian will not oppose the granting of the Falconer application on the ground that it will reduce the quantity of water available under Meridian's existing consents.
- 6 Please advise if any basis for Meridian's approval outlined in paragraph 2 will not be met by the resource consent.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Mike Roan', with a stylized flourish at the end.

Mike Roan
Markets and Production Director

ATTACHMENT FOUR – OBJECTIVES & POLICIES

Objective / Policy	Description	Assessment
Objective 1	To sustain the qualities of the environment of the Waitaki River and associated beds, bars, margins, tributaries, islands, lakes, wetlands and aquifers.	The proposal does not compromise sections b. – g. of this objective, however, no assessment of the proposed activity has been submitted by the applicant to determine if the extent of the effects on cultural values (i.e. section a.).
Objective 2	Provide water for different activities.	The proposed activity is within the WCWARP allocation for agricultural and horticultural activities.
Objective 3	Recognise that there are beneficial and adverse effects on the environment at a national and local scale.	These factors have been considered in the assessment of effects.
Objective 4	Achieve a high level of technical efficiency in the use of water.	The proposed abstraction and use will be undertaken to achieve a high level of efficiency.
Objective 5	Provide for practical and fair sharing of allocated water during times of low water availability.	An appropriate minimum flow has been proposed.
Policy 1	Recognising connectedness between all parts of the catchment	The cumulative effects on water quality have been assessed.
Policy 3	Setting of environment flow and level regimes for all activities in Objective 2 and consistent with Objective 1.	Minimum flows for Shepherds Creek and Coal Creek have been proposed to protect the instream values of each waterbody and the rights of existing users (MEL).
Policy 4	Outlines a number of matters that must be considered when setting an environmental flow and level regime	The minimum flows proposed will protect the values set out in this policy for both Shepherds Creek and Coal Creek.
Policy 11	Consider effects on Tangata Whenua values, local and national effects when allocating water to activities	The proposal may have an effect on these values.
Policy 12	Outlines matters that must be considered when establishing allocation limits.	Apart from the uncertainty regarding the impacts of the proposal on tangata whenua values, the proposed abstraction is consistent with this policy.
Policy 13	Addresses water quality objectives in the NRRP	Effects uncertain.
Policy 15	Ensuring take and use of water is reasonable for its intended use	The proposed take and use is considered to be reasonable for the purposes of irrigation.
Policy 16	Requiring irrigation applications to meet the specified reasonable use test	The proposed annual volume is consistent with the volumes determined using WQN9v2 and irrigation will be undertaken in an efficient manner.
Policy 19	Requiring piping or sealing of water distribution systems to minimise water loss.	Water will be piped to the irrigation area.
Policy 20	Promotes the integration of	Stock drink water directly from Lake Benmore and

	multiple uses of water	surface waterways that flow within the station.
Policy 21	Requires the installation of a water meter	One is proposed.
Policy 23	Policies 23 – 27 refer to restrictions during times of low water availability.	An appropriate minimum flow has been proposed that will take into account the requirements of these policies.
Policy 24		
Policy 25		
Policy 26		
Policy 27		
Policy 28	Considerations to be taken into account when deciding replacement consents	The annual volume requested is within allocation limits for this activity and the applicant has moved to a more efficient method of irrigation.
Policy 40	Setting an environmental flow and level regime for these rivers and streams	Appropriate minimum flows have been proposed that takes into account the requirements of Shepherds Creek and Coal Creek.
Policy 41	Setting environmental flow regimes for tributaries of Lakes Benmore, Aviemore and Waitaki	Minimum flows have been set taking into account the natural values of Shepherds Creek and Coal Creek.