

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

**IN THE MATTER OF** The Resource Management Act  
1991

**AND**

**IN THE MATTER OF** Application CRC070406 by  
Classic Properties Limited for a  
Water Permit to take & use  
surface water from Tekapo  
Canal.

**Section 42A Officer's Report of Maria Bartlett**

**Date of Hearing: 21 September 2009**

1. Pukaki Irrigation Company Limited proposes to install infrastructure for a new irrigation scheme, to be utilised by three properties to the south of Lake Pukaki, including Simons Pass Station. See Attachment One for a diagram showing the relationship of applications in process for the Pukaki Irrigation Scheme.
2. This report should be read in conjunction with the report prepared for application CRC063106 lodged by Classic Properties Limited.
3. The report for application CRC082300 lodged by Pukaki Irrigation Company Limited (PIC) for construction of irrigation scheme infrastructure are relevant to this report, as the applicant may rely on PIC infrastructure, or install independent infrastructure.
4. This report should also 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 and 5).

**INTRODUCTION**

5. Classic Properties Limited (the applicant) has applied for a resource consent to:  
  
take and use surface water from Tekapo Canal at a maximum rate not exceeding 165 litres per second, and a volume not exceeding and 1,190,100 cubic metres between 1 July and the following 31 June, at or about map reference NZMS 260 I38:9522-7737 or map reference NZMS 260 H38:8842-7328, for spray irrigation of up to 234 hectares of crops and pasture for grazing stock, excluding milking dairy cows, at Maryburn, Tekapo-Twizel Road.
6. See Attachment Two for a map of the proposed locations of take and irrigation area.

7. The applicant has engaged Irricon Consultants to prepare the application and assessment of environmental effects.
8. A consent duration to 30 April 2025 is sought.
9. This is an application for a new activity.
10. A site visit was carried out on 4 February 2009, by Gillian Ensor and Maria Bartlett of Canterbury Regional Council, with Martin Murray of Classic Properties Limited. See Attachment Three for photos taken on the site visit.

## **Background**

11. The application was lodged by Classic Properties Limited on 10 August 2006 and considered to be notifiable from that date. The application originally proposed a rate of abstraction of 211 litres per second, a volume per return period of 72,922 cubic metres, and an annual volume of 3,079,750 cubic metres for irrigation of 485 hectares, specifying the location of take as I38:9522-7737, which is the site of a proposed independent intake off the Tekapo-Pukaki Canal.
12. Subsequent to notification, on 4 February 2009 the proposal was amended, shifting the location of take one kilometre upstream to NZMS 260 I38:9615-7774, taking into account concerns of Meridian Energy Limited regarding effects on the canal. On 23 February 2009 the irrigation area was revised down to 234 hectares, based on MIC shares acquired. A further amendment was made on 10 July 2009, revising the rate of abstraction to 165 litres per second, the volume per return period to 57,024 cubic metres, and the annual volume figure down to 1,190,100 cubic metres, to reflect the revised irrigation area and ensure the requested rate and volume met a reasonable use assessment. The applicant also advised that the scheme would be entirely piped from the independent intake, as consideration of an open race system has been dropped from the proposal.
13. On 15 May 2009 the applicant requested inclusion of an alternative location of take from the Tekapo Stilling Basin, at map reference NZMS 260 H38:8842-7328, to correspond with the proposed Pukaki Irrigation Company Limited (PIL) scheme intake (Option 3). This application now consists of the option to take from either of two locations.
14. These amendments were not considered cause for further notification of the application, as there is a reduction in effects on Meridian Energy Limited and landscape effects related to an open race system, both intake locations are within the Tekapo-Pukaki Canal, and there are no parties adversely affected by the change who had not already submitted on the application.
15. The applicant holds resource consent CRC981958, under the name of Martin Murray, to divert and take up to 230L/s from the Mary Burn for irrigation of 30 hectares of pasture. The applicant is also a joint holder of resource consent CRC011554, under the name of Maryburn Irrigation Company Limited, which authorises diversion of 230 litres per second from the Mary Burn for irrigation of a total of 270 hectares, approximately 140 hectares of which are irrigated on the applicant's property (Maryburn Station), and the remainder on neighbouring Simons Hill Station and Simons Pass Station.

16. In the event that CRC070406 and/or CRC063106 are granted, the applicant intends to surrender resource consent CRC981958, but retain his share in the joint consent held by Maryburn Irrigation Company to continue irrigation of 35 hectares of borderdyke.
17. The applicant intends that 97 hectares of existing borderdyke, irrigated using CRC011554, will be converted to spray irrigation using CRC070406 (see the draft pivot plan in Attachment Two).
18. The applicant has also lodged application CRC063106 to irrigate an additional 416 hectares of Maryburn Station on the Maryburn flats to the east of the state highway. That application does not propose to use the PIC irrigation supply scheme, but proposes to install an independent canal intake location, which is proposed to be used under this application as well.
19. In total, if CRC070406 and CRC063106 are both granted, the applicant will be irrigating 685 hectares of Maryburn Station, 518 hectares of which will be spray irrigation on previously non-irrigated areas, 97 hectares of which will be spray irrigation on previously borderdyke irrigated areas, and 35 hectares of which will remain as borderdyke irrigation under existing consent.

## Notification

20. Details of the notification and wording are contained in Appendix 4 of the introductory s42a report (Report 1). This application was notified on 4 August 2007 with over 200 other applications to dam, divert, take and use water in the Waitaki Catchment.

## Submissions

21. In the 2007 public notification, 21 submissions in total were made on this application. Of these:
  - (a) 2 were in support;
  - (b) 17 in opposition; and
  - (c) 2 neither supported nor opposed the application.
22. A summary of submissions made on all applications, including this one, that were publicly notified at the same time in 2007, are contained in Report 1, Appendix 5. Overall, the key effects of concern to submitters include effects on: ecosystems, water quality, allocations, minimum flows, natural character and landscape, efficiency and cultural values.
23. Additionally, Table 1 below summarises submissions made individually on this application, or submissions on all applications which raise particular concerns in relation to this proposal.

| Submitter                                 | Issues   | Support/<br>Neutral/<br>Oppose | To be heard |
|---|--|--------------------------------|-------------|
| Canterbury Aoraki Conservation Board      | AEE deficient, WQ effects, natural character, indigenous species habitat, landscape changes, 35 yr duration too long | Oppose                         | Yes         |
| Upper Waitaki Community Irrigation Scheme | Consistent with objectives of the WCWARP, recognises irrigation potential in the                                     | Support                        | Yes         |

|                            |   |         |     |
|----------------------------|---|---------|-----|
|                            | Mackenzie   |         |     |
| Meridian Energy Limited    | Need MIC shares & to comply with tranching arrangement; water quality effects; water metering; effect of take on Meridian infrastructure; effect of changing flow levels in Tekapo-Pukaki canal resulting from maintenance or low lake levels | Oppose  | Yes |
| Department of Conservation | WQ effects on habitats, species & ecosystems; natural character, indigenous flora, fauna & threatened species; pest organism threat to freshwater habitats  | Oppose  | Yes |
| Waitaki First Incorporated | Spray or drip irrigation only; report soil moisture levels monthly; install aqua flex data logger; implement farm management plan   | Oppose  | No  |
| David Scott                | Irrigation potential to increase productivity   | Support | Yes |

**Table 1: Summary of submissions on application CRC063106**

## DESCRIPTION OF THE PROPOSED ACTIVITY

24. The applicant proposes the following:

- a) Take and use surface water from Tekapo Canal at a maximum rate not exceeding 165 litres per second, and a volume not exceeding 57,024 cubic metres in any period of four consecutive days, or 1,190,100 cubic metres between 1 July and the following 31 June, at or about map reference NZMS 260 I38:9522-7737 or map reference NZMS 260 H38:8842-7328, for spray irrigation of up to 234 hectares of crops and pasture for grazing stock, excluding milking dairy cows, at Maryburn, Tekapo-Twizel Road;
- b) To comply with the minimum lake level for Lake Tekapo, as specified in Rule 3, Table 4 of the WCWARP;
- c) To install an appropriate fish screen on the intake to comply with Environment Canterbury, Fish and Game New Zealand and Department of Conservation design requirements;
- d) To convey water from the Tekapo canal by means of a private canal, independent pipeline, or Pukaki Irrigation Company Scheme pipeline to the irrigation area;
- e) To spray irrigate using centre pivot irrigators;
- f) To apply a maximum average application of 5mm per day, a gross depth of application of 20mm in any 4 day return period;
- g) To install a water flow measurement and recording device that will measure the volume at which water is taken to within an accuracy of plus or minus 5 percent, which shall be installed as part of the canal siphon structure;
- h) To record the volume of water abstracted per required time interval, either electronically, or in a log kept for that purpose, and the records of abstraction made available to CRC on request for at least the preceding 12 month period;
- i) To install and maintain the measuring and recording device according to the manufacturer's instructions for the duration of the consent;

- j) To ensure that the volume of water used does not exceed that required for the soil to reach field capacity, utilising soil moisture probes;
- k) To avoid leakage from pipes and structures;
- l) To avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips;
- m) To utilise best farm management practices to prevent accumulation of mineral N in the soil, including managing N applications to meet plant requirements;
- n) To employ nutrient budgeting to apply nutrients at the rate they are required to achieve target plant growth rates;
- o) Time tabling nutrient applications to limit the quantity of nutrients applied at any one time;
- p) To use ECO-N formulations to reduce nitrate leaching, as an option;
- q) To monitor soil moisture;
- r) To monitor leachate and contaminant volumes, as required;
- s) To fence of surface waterways to livestock;
- t) To limit application of irrigation water, farm fertilisers and chemicals near surface waterways.

## LEGAL AND PLANNING MATTERS

### Consent Requirements

25. The consent requirements under the Resource Management Act (RMA), Transitional Regional Plan, Proposed Natural Resources Regional Plan (PNRRP) and Waitaki Catchment Water Allocation Regional Plan (WCWARP) for water permit applications are outlined in the introductory s42A report (Report 1). A summary of the requirements for these applications are provided below:

#### WCWARP

- Rule 3, clause (1) – The applicant proposes to adopt the minimum lake level for Lake Tekapo of 704.1 metres above mean sea level in the period October to March, and 701.8 metres above mean sea level in April (Table 4, row (ii)).
  - Rule 6 – The applicant proposes an annual volume for this activity of 1,404,000 cubic metres, which is within the annual allocation limit for agricultural and horticultural activities upstream of Waitaki Dam (275 million cubic metres), (applicable to abstraction from canals leading from the glacial lakes as per footnote 23, pg 52 of the WCWARP).
  - Rule 16 – Classifying rule, complies with Rule 2 and Rule 6.
26. In summary, the proposed water permit is a **discretionary** activity and requires consent under S14 of the RMA.

27. A permit is not required for construction of the intake on Tekapo Canal as it is an entirely artificial watercourse, and permit to disturb the bed and banks of a waterway is required for construction of the independent pipeline because the route does not cross any flowing waterway. There are no discharges associated with the proposal

### **Additional Requirements**

28. The applicant will require consent and an easement from the Commissioner of Crown Lands to install the proposed independent irrigation supply pipeline across pastoral lease land.

### **Priority**

29. In terms of instantaneous allocation under Rule 3, a detailed list of all applicants who fall within Table 4, Row (ii) can be found in Report 2A. There are existing consent holders taking water from Lake Tekapo-Pukaki Canal for irrigation, and other applications seeking to take water from the canal, but Rule 3 does not contain a limit affecting priority for activities that must comply with the minimum lake level for Lake Tekapo. I note also that Meridian Energy Limited control flows in the canal and the cumulative rate of abstraction from the canal.
30. For Rule 6, all applications upstream of Waitaki Dam are within the allocation limit for agricultural and horticultural activities, so priority is not a concern with regards to the abstraction from Tekapo-Pukaki Canal or Tekapo Stilling Basin (see Report 3 for annual allocation tables).

### **Derogation Approval**

31. At the time of writing this report, Meridian Energy Limited has not provided approval for Classic Properties Limited to derogate from its consents.

### **CONSULTATION**

32. The applicant has consulted with Meridian Energy Limited with respect to this application.

### **DESCRIPTION OF THE AFFECTED ENVIRONMENT**

33. A description of the values of the Mackenzie Basin in general are provided in the introductory s42A report (Report 1).
34. In this section, I agree with the applicant's statements unless otherwise stated.
35. *Tekapo Canal*
- a) The applicant states:
    - i. The Tekapo-Pukaki Canal was installed to take water from the Tekapo A power station to the Tekapo B power station, and is owned and operated by Meridian Energy Limited.
    - ii. There are no other users of the canal, besides Meridian Energy Limited.
  - b) I note that:

- i. Levels of Lake Tekapo are controlled by Meridian Energy Limited for the purposes of hydroelectricity generation, and lake levels are publicised on the Meridian Energy website at the following address, [www.meridianenergy.co.nz/AboutUs/LakeLevels](http://www.meridianenergy.co.nz/AboutUs/LakeLevels)
- ii. The Tekapo Canal is approximately 26.5 kilometres long, with an average depth of 5.3 metres, a typical peak flow of 110 cumecs and a maximum flow of 130 cumecs (refer application CRC083609).
- iii. State Highway 8 runs alongside the Tekapo Canal and Tekapo Stilling Basin in the vicinity of the proposed Pukaki Irrigation Company Limited intake, and tourists can view the Stilling Basin from a side road off the State Highway.
- iv. Salmonids inhabit the canal, including salmon, rainbow and brown trout, and recreational anglers make use of the canals.
- v. There are other users of the canal, including Irishman Creek Station Limited, who have an intake approximately 4.5 kilometres downstream of the proposed independent intake site (CRC991667), The Wolds Station Limited have an intake approximately 5.5 kilometres upstream of the proposed independent intake site (CRC952547, CRC952550).
- vi. Didymo has been detected in the Tekapo-Pukaki Canal.

36. *Property Location – Maryburn Station*

a) The applicant states:

- i. The proposed site of activity on Maryburn Station is alongside the Tekapo-Pukaki Road, south of where the canal crosses the road at Irishman Creek.
- ii. There is no existing irrigation on the terraces between the state highway and the Tekapo River.
- iii. Current stocking rates are very low, running at less than 1 stock unit per hectare.
- iv. The land irrigated will operate under an intensive arable and livestock grazing system.
- v. Existing borderdyke irrigation, sourcing water from the Mary Burn, has had low reliability of supply

b) I note that:

- i. A full property description is available in the Conservation Resources Report prepared by the Department of Conservation for Land Information New Zealand as part of the tenure review process (see [www.linz.govt.nz/crown-property/tenure-review/property-status](http://www.linz.govt.nz/crown-property/tenure-review/property-status)).
- ii. The existing irrigation blocks on Maryburn Station, and generally the site of proposed irrigation, are bordered by the State Highway to the south, Mary Burn to the east, Simons Hill Station to the west and non-irrigated Maryburn Station pasture to the north.

37. *Climate*

a) The applicant states:

- i. Effective seasonal rainfall is estimated to be 180mm.
- ii. The nearest climate station with long term rainfall records are at Twizel and Omarama, which indicate an average rainfall of between 457mm and 488mm.
- iii. Potential evapotranspiration (PET) is estimated to be 6mm per day in a hot, dry year, but 5.5mm is expected in an average year.

38. *Soils and Vegetation*

a) The applicant states:

- i. Soils on the property are predominantly Pukaki silt loams with an average PAW of less than 75mm.

b) I note that:

- i. Soils information from the CRC GIS system indicates that Simons soils are predominant, with an average PAW of 180mm for straight Simons soils, 130mm for the Simons + Glenrock soils mix and 65mm for the Glenrock + Simons soils mix (see Attachment Four for a map of soils within the area of irrigation).

39. *Landscape, recreation and amenity*

a) The applicant states:

- i. The proposed irrigation area is within a working farm environment.
- ii. The Mackenzie Basin is a regionally outstanding landscape.
- iii. The proposed irrigation area is approximately 130 metres east of the state highway, beyond a line of power poles.

b) I note that:

- i. The Mary Burn is a popular stream for recreational angling.
- ii. The proposed irrigation area is adjacent to State Highway 8 and is visible from the highway.

40. *Surface water*

a) The applicant states:

- i. The proposed irrigation area is approximately 680 metres west of the Mary Burn.
- ii. There are small creeks and water races within the proposed irrigation area.

- iii. CRC Water quality monitoring of the Mary Burn from October 2002 to June 2003 indicated a nitrate + nitrite concentration average of 0.039mg/L.

b) I note that:

- i. Water quality monitoring has been undertaken regularly for the Mary Burn at the state highway bridge (SQ10275), approximately 800m east of the proposed irrigation area, from 1983 to the present, with a total of 24 sampling records. These show variable levels of Total N (<0.08mg/L to 0.70mg/L) and Total P (<0.008mg/L to 0.039/mg/L), and variable E Coli counts October to April (from 12 MPN/100ml to 980 MPN/100ml). See Attachment Two for location of sampling site in relation to irrigation area.
- ii. An area of the Mary Burn directly east of the proposed area of irrigation (Woolshed Wetland) is a Site of Natural Significance in the Mackenzie District Plan.

#### 41. *Groundwater*

a) The applicant states:

- i. Groundwater quality has been monitored downgradient of the proposed irrigation area using bore I38/0015 and bore I38/0054, with a test undertaken in February 2005 indicating nitrate concentration of <0.1mg/L for I38/0015 and 0.06mg/L for I38/0054.

b) I note that:

- i. There have been two samples taken from bore I38/0015, immediately west of the proposed irrigation area, in February 2005 and October 2007, with the 2007 result indicating nitrate concentration of 0.3mg/L and dissolved reactive phosphorus concentration of 0.008mg/L.
- ii. Depth to groundwater in bore I38/0015 is approximately 11 metres.
- iii. There has only been one sample taken for bore I38/0054, approximately 200m southeast of the proposed irrigation area across the state highway, with no measure for dissolved reactive phosphorus.
- iv. Bore I38/0054 is approximately 6 metres deep.

#### 42. *Ecology*

a) The applicant has not identified ecological values.

b) I note that:

- i. The Mary Burn supports populations of brown and rainbow trout, as well as long-finned eel, alpine galaxiid, Canterbury galaxiid, koaro, common bully and upland bully, and freshwater mussels.
- ii. Endemic and native wetland bird species nest and feed in the Mary Burn wetland areas, including the critically endangered black stilt, the nationally endangered grey duck, Australasian bittern, black fronted tern, and black-

billed gull, as well as species in serious or gradual decline, such as banded dotterel.

## ASSESSMENT OF PROPOSED ACTIVITY

### Assessment of Actual and Potential Effects (s104(1)(a))

43. The effects that have been considered for this type of activity (surface water abstraction) are presented in the introductory s42A report. 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 those outstanding matters or areas of concern is provided in the following sections.

| Adverse Effects                      | Applicant's assessment   | IO assessment  | Conclusion   |
|--------------------------------------|--|--|--|
| Ecosystems                           | Flow for aquatic species will be managed by Meridian; appropriate fish screen will be installed; stock will be fenced out of waterways; adverse effects on surface water quality no more than minor                    | Fish screen to comply with NIWA guidelines; take from canal will reduce impact of abstraction on Mary Burn; overall water quality effects uncertain  | Effects may be more than minor, depending on water quality study                             |
| Other water users                    | No other water users from the canal; MIC shares and MIC conditions proposed; metering proposed at the intake and at the property boundary  | Combined PIC intake - MIC shares held by all parties; metering of abstraction is proposed at the intake, and boundary to Maryburn Station; independent intake – metering at canal intake; assessment on other irrigation abstractors not provided, but Meridian control abstractions from canal and flow rates; tied to Lake Tekapo minimum lake level; take from canal will reduce impact of abstraction on Mary Burn and therefore users of the stream | Effects minor  |
| People, communities & amenity values | Minor effects only   | Adverse effects on water quality have potential to impact angling in the Mary Burn; take from canal will reduce impact of abstraction on Mary Burn   | Effects may be more than minor, depending on outcome of water quality study                  |
| Landscape                            | Working farm environment; no change to the overall contour of the land; land cultivated and re-grassed; temporary greening effect; centre pivots no more intrusive than pylons; partially borderdyke irrigated already | Centre pivot irrigators will be new addition to the landscape; not a scenic viewing area, but visible from state highway; buffer of natural tussock grassland between SH8 and irrigation area  | Localised effects minor, subject to conditions, but uncertainty regarding cumulative effects |

|                       |   |   |   |
|-----------------------|---|---|---|
| Inefficient use       | Requested annual volume of 1,190,100 m <sup>3</sup> based on Policy 16(c)(ii) reasonable use assessment; metering proposed; piped scheme; soil moisture monitoring proposed to manage irrigation requirements   | Agree that proposal represents efficient use  | Effects minor   |
| Water quality         | Soil water holding capacity not exceeded; centre pivots; soil moisture monitoring; nutrient budget and farm management plan to ensure best practice; fence stock from waterways; some increase in total nitrate-N leaching to groundwater expected; monitoring as required; spray conversion an improvement | Mitigation measures proposed are appropriate, but farm management plan yet to be provided; cumulative effects on water quality uncertain; reduced effect as a result of spray conversion on BD areas, but no assessment of effects on Mary Burn | Effects may be more than minor, depending on results of MWRL report and additional mitigation proposed. |
| Tangata Whenua values | No consultation undertaken; no known effects  | Te Runanga o Ngai Tahu have submitted in opposition   | Effects uncertain   |

**Table 2: Summary of Assessment of Effects**

### Effects on ecosystem values

44. The applicant has not provided details of fish screen design. Provided the applicant accepts a condition requiring installation of a fish screen that complies with guidelines in the NIWA *Fish Screening: good practice guidelines for Canterbury*, effects on fish and fish fry at the intake will be minor.
45. Improved pasture may attract an increase in Canada geese numbers. The applicant proposes to address this by allowing access for hunting.
46. Didymo was detected in the Tekapo-Pukaki canal at the Mt Cook salmon farm on 24 June 2009, approximately 3 kilometres from the Tekapo Stilling Basin. The organism would challenge performance of the intake and fish screen if it does establish in the canal.
47. The applicant has not assessed the potential of adverse effects on the ecological values of the Mary Burn as a result of the proposed increase in stocking rates and area irrigated. The applicant has stated that stock will not have access to waterways, so effects will be limited to potential water quality degradation as a result of increased nutrient output. The applicant proposes a range of mitigation measures intended to reduce adverse effects on water quality. See the section on water quality effects for further discussion.
48. I acknowledge that the conversion of 97 hectares of irrigation from borderdyke to spray will reduce potential nutrient leaching, and surrender of consent CRC981958 will reduce effects on the Mary Burn resulting from irrigation abstraction.
49. In summary, a conclusion regarding effects on ecosystems can not be made until localised effects on water quality are understood.

### **Effects on other water users**

50. The applicant proposes to comply with standard conditions assigned by the Mackenzie Irrigation Company Limited, including ceasing abstraction during periods when maintenance of the canal is undertaken or flows in the canal are reduced, at request from Meridian Energy Limited. Effects on the operations of Meridian Energy Limited can therefore be considered to be minor.
51. The applicant proposes water metering in relation to the proposed abstraction. Metering at the intake location will be for a combined rate of abstraction by Simons Pass Station Limited, Simons Hill Station Limited, Glentanner Station Limited and Classic Properties Limited. Accurate metering and monitoring of the entire combined abstraction from Lake Pukaki or the Pukaki Canal will be necessary to ensure that the combined rate authorised by all consents does not exceed the rate Meridian Energy Limited have agreed to supply.
52. Regarding other users of the canal, further abstraction from the Tekapo-Pukaki Canal has the potential to reduce reliability of supply to existing abstractors. I note, however, that Meridian control the overall rate of abstraction from the canal and the rate of flow, such that reliability of supply is a matter between abstractors and Meridian Energy Limited.

### **Effects on people, communities and amenity values**

53. Effects on amenity values will be primarily related to enjoyment of the landscape, which is discussed in the following section.
54. I acknowledge that there may be positive effects on the local community as a result of the proposed activity, due to increased production. In addition, climate change may impact on frequency of dry years in the future, affecting the viability of the property in the long term.
55. I note that recreation users of the Mary Burn will benefit from reduced irrigation abstraction, as a result of surrender of consent, but may be adversely affected depending on localised water quality effects.

### **Effects on natural character and landscape**

56. The applicant has argued that the area is a working farm environment, and there will be a temporary greening effect, but that the contour of the land will not be changed.
57. Various submitters have raised concerns about effects of land use intensification on landscape, including cumulative effects. This is one of many proposals to irrigate areas not previously irrigated in the Mackenzie Basin, and it is therefore appropriate to consider the cumulative effects of irrigation on landscape in the region.
58. In relation to cumulative landscape effects, I note that this proposal is being advanced in conjunction with other proposals to utilise a shared intake to be built by the Pukaki Irrigation Company Limited. Neighbouring Simons Pass Station and Simons Hill Station Limited propose to irrigate a total of 4800 hectares, the majority of which has not been previously irrigated and is situated on the Pukaki outwash flats.
59. A separate report has been prepared in relation to effects on landscape (refer to Report 5). Chris Glasson recommends a buffer between the irrigation area on Maryburn Station and the state highway, consisting of natural tussock grassland, recognising that increased greening and the introduction of centre pivots in this

location will be visible from the state highway. A draft pivot plan for the property is included in Attachment Two showing the location of the outer rim of the first pivot approximately 250 metres from the highway, in keeping with the recommended buffer.

60. I am satisfied that localised adverse effects of the proposed activity can be considered minor, subject to conditions limiting the location of irrigation, as recommended in Report 5 and noted in paragraph 42. However, part of this proposal is dependent on access to the Pukaki Irrigation Scheme proposal to supply water from Tekapo Stilling Basin (Option 3) to three other properties, totalling 5,000 hectares, and therefore I am not satisfied that cumulative effects of the proposed activity on landscape can be considered minor.

### Effects of inefficient take and use of water

61. Regarding delivery of water to Maryburn Station, I note that the proposed abstraction from Tekapo–Pukaki Canal or Tekapo Stilling Basin will be an entirely piped scheme, whether the independent proposal is pursued, or the Pukaki Irrigation Scheme proposal. Choosing to pipe the independent scheme, rather than operate an open race system, minimises potential losses from conveyance to the irrigation area.
62. Regarding management of the abstraction to ensure compliance with stated efficiencies for the PIC intake option from Tekapo Stilling Basin (Option 3), in addition to metering at the intake location in the Stilling Basin, metering of the use of water on Maryburn Station will be required to ensure that the consent holder does not exceed the maximum rate of take and use of water authorised by CRC070406. This should involve metering at a point in the supply pipeline that captures all water supplied to Maryburn Station from Tekapo Stilling Basin, and is likely to be located at the boundary of the property, given that the Pukaki Irrigation Company Limited applications propose only to supply water to the boundary of each property. Location will be dependant on negotiation between the applicant and Pukaki Irrigation Company Limited. Regarding the independent intake location, metering will be required within the pipeline from the canal intake.
63. The applicant proposes to apply no more than 20mm per 4 day return period, which will be less than half the average water holding capacity of soils within the proposed irrigation area, and to undertake soil moisture monitoring. These are considered appropriate measures.
64. Using the CRC GIS system, I have determined that soils within the irrigation area are a mix of medium to heavy soils, with approximately 87% heavy and 13% light (see Attachment Four). The applicant has accepted the soils information and is in agreement with the reasonable use assessment as follows, presuming effective seasonal rainfall of 180mm and use of water for intensive pasture:

| Soil Type                         | % of irrigation area represented | # ha/234ha | Irrigation Demand | Annual Volume (m3) |
|-----------------------------------|----------------------------------|------------|-------------------|--------------------|
| Light soils<br>PAW average <75mm  | 13                               | 30         | 635mm             | 190,500            |
| Heavy soils<br>PAW average >110mm | 87                               | 204        | 490mm             | 999,600            |
|                                   |                                  |            | <b>Total</b>      | <b>1,190,100</b>   |

**Table 3: Policy 16(c)(ii) assessment for CRC070406**

65. The applicant has formally amended the application to the annual volume identified above, and as such, I am satisfied that the proposed activity as a whole can be considered an efficient use of water.

### **Effects of water use on water quality**

66. There are a number of submissions which identify water quality as a result of land use intensification as a concern, including from Meridian Energy Limited, Department of Conservation, Royal Forest and Bird Protection Society, and Fish and Game New Zealand.
67. In terms of effects at the local scale, the applicant has stated that soil water holding capacity will not be exceeded, based on a design return period of 4 days and an application depth of 20mm per return period. In addition, centre pivots will be used, a farm management plan will be established that includes nutrient budgeting, soil moisture monitoring, and monitoring of contaminants if required. A farm management plan has not been provided by the applicant at the time of writing this report.
68. The applicant identifies that an increase in nitrate-N leaching to groundwater can be expected as a result of the proposed activity, and calculates that 23.24kg/ha may leave the site annually as a consequence of irrigation, assuming an increase from <1 stock unit per hectare to 15 stock units per hectare and assuming a conservative leachate concentration of 12g/m<sup>3</sup> at the increased stocking rate. From 416 hectares of irrigation, the increase of Nitrate-N entering Lake Benmore is predicted to be 9,703kg per year resulting in an increased concentration in the lake of 0.001g/m<sup>3</sup> (based on average lake inflows and lake area inputs), which the applicant concludes is insignificant.
69. The applicant has not assessed the potential for leachate to enter the Mary Burn, or creeks and water races within the irrigation area, and has generally not assessed impacts on water quality in these streams as a result of the proposed activity.
70. In relation to cumulative water quality effects, I note that this proposal is being advanced in conjunction with other proposals to utilise a shared intake to be built by the Pukaki Irrigation Company Limited. Consideration of the cumulative effect on water quality of all four properties sharing the PIC intake is appropriate, as this application may not be granted as a stand alone activity.
71. The report by MWRL has been audited and a separate s42a report prepared (see Report 4a).
72. Given that mitigation proposed to address localised and cumulative water quality effects has not been identified at the time of writing this report, pending a farm management plan from the applicant, I cannot be certain that adverse effects on water quality from the proposed activity will be minor.

### **Conclusion**

73. With regard to s104(1)(a), the actual and potential effects of the proposed activity have been discussed above. For this application, I am not satisfied that under s104(1)(a), the actual and potential effects of the proposed activity in its current form will be minor. In particular, there remains uncertainty regarding localised and cumulative effects on water quality.

## **Statutory Assessment (s104(1)(b))**

### **Regional Policy Statement (RPS)**

74. 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.
75. Of significance to this application is Chapter 9, which relates to the management of the Region's water resources. 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)**

76. 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 applicable to this application is appended in Attachment Three. A discussion of the objectives and policies which are particularly relevant to this application is provided in the following paragraphs.

#### ***Objectives***

77. Objectives 1 and 2 are key objectives in relation to the proposed taking of water. I have considered whether Objective 1 can be met in terms of sustaining the quality of the river and surrounding environment. This is a finely balanced decision and that while the proposal may not entirely be consistent with Objective 1 and the associated policies (particularly policy 13 regarding water quality), it is difficult to determine if the inconsistencies are significant enough to make the proposal contrary to Objective 1.
78. The proposed activity will impact on the matters outlined in Objective 1, particularly (a), (b) and (c). There have been a wide range of people who have submitted against the proposed activity due to concerns about impacts on these values. I therefore cannot determine whether the proposed activity is contrary to these values at the time of preparing this report.
79. Objective 4 aims to achieve a high level of technical efficiency in the use of water. The applicant proposes a technically efficient irrigation system.

#### ***Policies on water quality***

80. Policy 13 deals with water quality issues resulting from land use intensification and enables the consent authority to have regard to the water quality objectives in the PNRRP. The WCWARP incorporates by reference Objectives WQL1, 2 and 3 of the PNRRP which contain particular outcomes to be achieved in the regions waterbodies. Report 4, by Dr Mike Freeman, addresses water quality matters in more detail, particularly on the cumulative scale. Until the applicant provides details of the farm management plan, and given the conclusions in Dr Freeman's report, I cannot be certain that the application is consistent with this policy at the time of writing this report.

#### ***Policies on efficient and effective use***

81. Policies 15 – 20 deal with efficient and effective use and all are applicable to this application.

82. 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 rate of abstraction and annual volume are reasonable for the intended use.
83. 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 annual volume meets the reasonable use test in this policy.
84. Policy 18 requires consents to reflect the actual quantity required to undertake the activity. As discussed in the assessment of effects, I am satisfied that the applicant has demonstrated that the requested annual volume of water is required.
85. Policy 19 encourages the piping and sealing of distribution systems. The proposal is consistent with this policy.

#### ***Policies on low water availability***

86. Policy 24 refers to exemption from the minimum lake level for reasonable stock drinking water and reasonable losses from reticulated supply systems. Stockwater does not form part of this application, as the applicant proposes to take reasonable requirements in accordance with Section 14(3)(b) of the RMA. As such, water may be taken from the canal into the proposed pipeline for stockwater when Lake Tekapo is at or below the minimum lake level.

#### **Conclusion**

87. With regard to s104(1)(b), the relevant provisions of the RPS and WCWARP have been considered above. I cannot be certain the application is consistent with Policy13 due to likely effects on water quality. As such, I cannot make a conclusion about whether the application is consistent with Objective 1 of the WCWARP given the number of submissions to be heard.

#### **Other Matters (s104(1)(c))**

88. 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*<sup>1</sup> is relevant to this application (see discussion in Report 1).

### **Part II Purpose and Principles**

#### **Purpose of the RMA (s5)**

89. 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.”*

90. 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 some mitigation measures to “avoid, remedy or mitigate” potential adverse effects of the proposed activity, as required in Section 5(2)(c), however there are additional adverse

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<sup>1</sup> [2004] NZMRA 251

effects of the activity on ecosystems, water quality and landscape values not yet addressed by the applicant..

### **Matters of National Importance (s6)**

91. Sub-sections (b), (c), and (e) of Section 6 of the RMA are particularly relevant to this application. The proposal will result in visual change in an area of outstanding natural landscape. Areas of significant indigenous flora and fauna are present within the proposed irrigation command area, which the applicant has not proposed to protect. The relationship of Maori to their ancestral lands and water is relevant, and Te Runanga o Ngai Tahu have submitted in opposition to the application.

### **Other Matters (Section 7)**

92. 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) – (j) of Section 7.
93. Sub-sections (a), (b), (c), (d), (f), (g), (h) and (i) are relevant to this application. Kaitiakitanga, or good stewardship, is represented by the choice of a piped scheme and centre pivot irrigation, however the proposed location of irrigation is in an area of natural significance, due to visual character and presence of indigenous species.
94. Section (b) relates to the efficient use of water and, as discussed above, the proposal is considered to be an efficient use of water.
95. Section (c) relates to maintenance or enhancement of amenity values. Visual amenity values adjacent to the state highway will not be maintained as a result of the proposed activity.
96. Section (d) relates to intrinsic values of ecosystems, which is relevant to the habitat of indigenous species present within the proposed irrigation area.
97. Section (f) refers to maintenance and enhancement of the quality of the environment. Water quality may not be maintained as a result of the proposed activity, and the quality of naturalness of the proposed irrigation area will not be maintained.
98. Section (g) relates to the finite characteristics of natural resources and is relevant to the taking and use of water. The requested annual volume recognises the finite nature of the resource in the Upper Waitaki Catchment.
99. Section (h) refers to protection of habitat of trout and salmon, which is adequately addressed by screening to exclude fish at the intake.
100. Section (i) refers to the effects of climate change. Abstraction from the hydroelectricity lakes and canals, while putting pressure on generation capacity, will reduce pressure on naturally flowing rivers and streams, which may experience lower flows due to increased frequency of dry years and reduced snowmelt.

### **Principles of the Treaty of Waitangi (s8)**

100. 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 Arowhenua Runanga. Te Runanga o Ngai Tahu has submitted in opposition to the proposal and wish to be heard.

## RECOMMENDATION

### Grant or Refuse

101. 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.
102. The application proposes to establish irrigation over 234 hectares of Maryburn Station east of State Highway 8, utilising an independent pipeline from the Tekapo-Pukaki canal to the proposed irrigation area, or utilising the proposed Pukaki Irrigation Scheme supply pipeline from Tekapo Stilling Basin (Option 3). The irrigation area is partially irrigated using borderdyke irrigation at present, so the proposal represents a partial conversion of the property to spray irrigation.
103. There are, however, a number of outstanding issues associated with this proposal as listed below:
  - (a) *Water quality* – Cumulative and localised effects on water quality are anticipated as a result of the proposed activity, which have yet to be addressed by the applicant.
104. Given uncertainty regarding effects on water quality, and whether the application is consistent with Policy 13, I am unable to recommend that the application be granted at the time of writing this report.

## RECOMMENDED CONDITIONS

105. If the Commissioners decide to grant this application, a list of conditions that are usually included in a water permit, and explanation for their inclusion, are provided in Appendix 6 of the introductory s42A report. A list of conditions for this application is included below. The italicised conditions are shorthand, with the full condition listed against the unique identifier in Report 1, Appendix 6.
106. I am not satisfied that these conditions would adequately mitigate adverse effects of the proposed activity.

### CRC070406 – To take and use surface water

1. *WP01*  
Water shall only be taken from Tekapo-Pukaki Canal, at surface water abstraction point I38/0078, at or about map reference NZMS 260 I38:9615-7774, at a maximum rate of 165 litres per second, a maximum volume of 57,054 cubic metres within any period of four consecutive days, and an annual volume not exceeding 1,190,100 cubic metres between 1<sup>st</sup> July and the following 30<sup>th</sup> June.
2. *WP04*  
Water shall be used only for spray irrigation of 234 hectares of crops and pasture for grazing sheep, beef cattle, deer or non-milking dairy cows, as described in the application, on the area of land shown in attached plan CRC070406, which forms part of this consent.
3. *WP08 Fish Screen*
4. *WP05 Avoid wastage of water*
5. *WP06 Backflow prevention*
6. Whenever the level of Lake Tekapo is at or below 701.8 metres above mean sea level in the months April to September inclusive, and at or below 704.1 metres above mean sea level in the months October to March inclusive, abstraction shall cease.
7. *Metering condition – MIC Conditions 12-15 – from Tekapo Stilling Basin*
8. *ME04 Certification*

9. ME05 Certification
10. Metering condition – MIC Conditions 12-15 – from the irrigation supply canal at the boundary of Simons Pass Station, such that all flow to Simons Pass Station passes the metering device
11. ME04 Certification
12. ME05 Certification
13. AD03 Review
14. AD04 Lapse

Signed:



*Maria Bartlett*  
Consents Investigating Officer

Date: 28 August 2009

## REFERENCES

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The Resource Management Act 1991. Consolidated version including the Resource Management Amendment Act 1995. August 2005.

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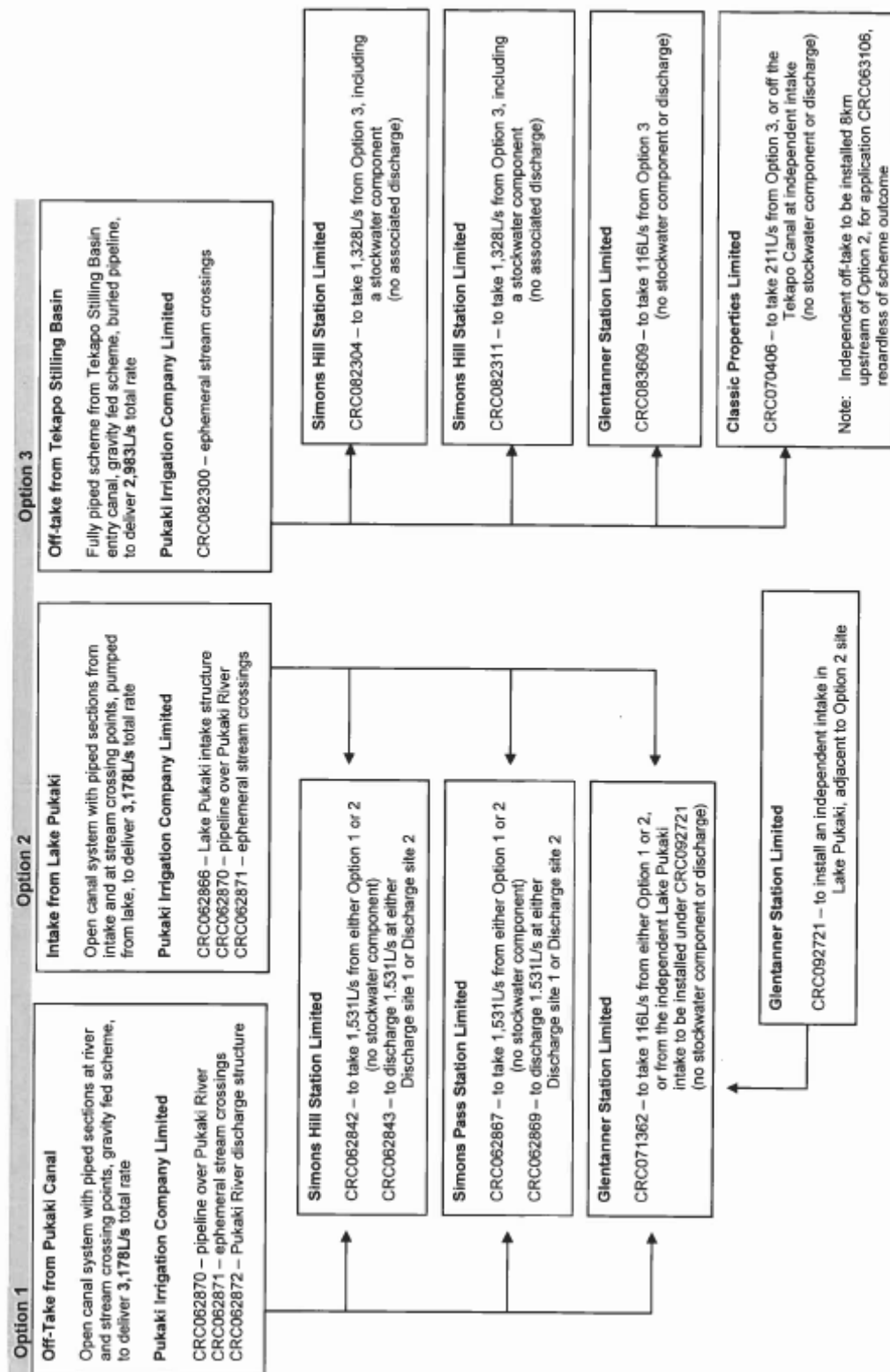
Waitaki Catchment Water Allocation Board 2006. Waitaki Catchment Water Allocation Regional Plan, Material Incorporated by Reference. ISBN: 0-9582620-6-3.

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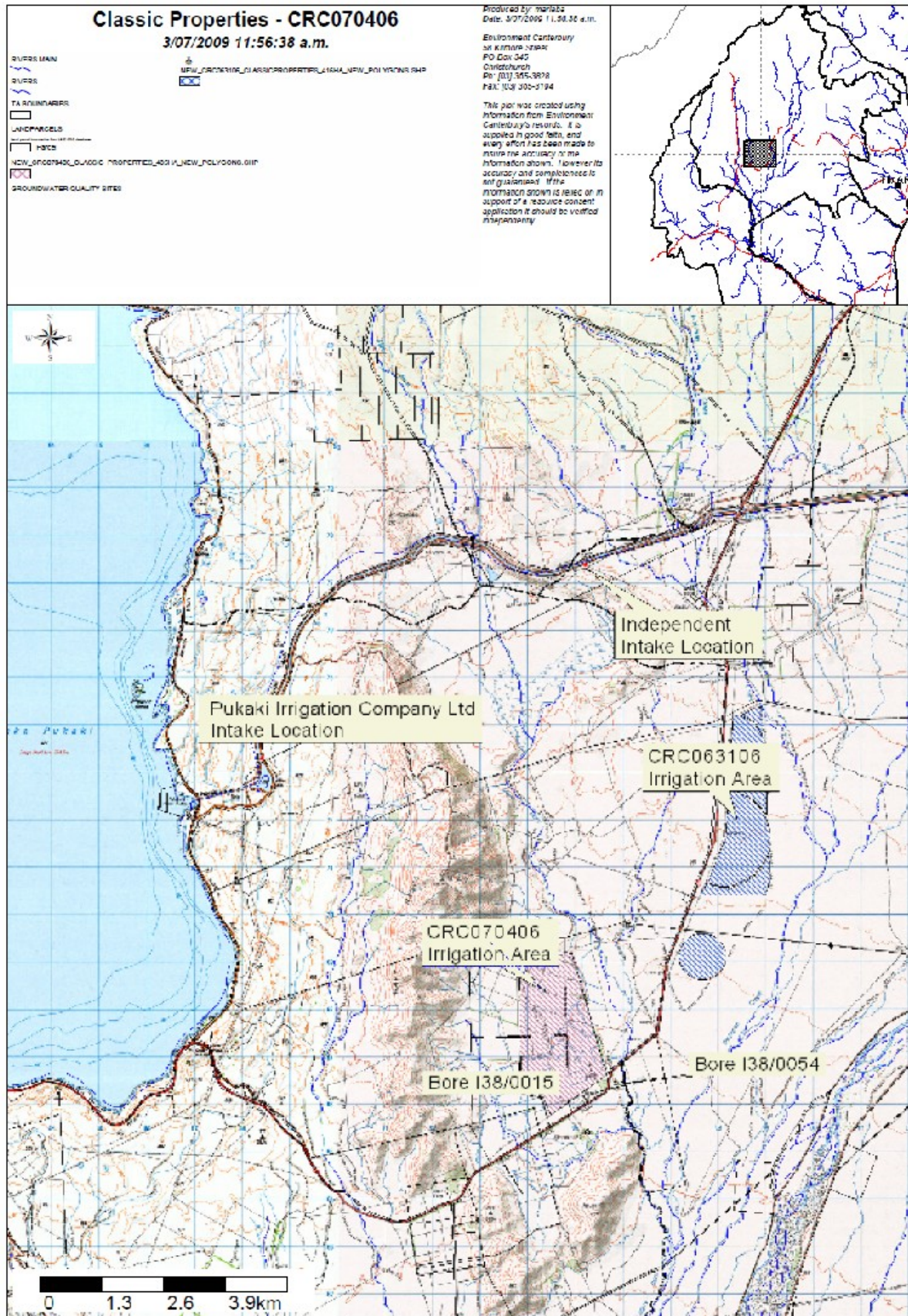
Waitaki Catchment Water Allocation Board 2006. Waitaki Catchment Water Allocation Regional Plan, Section 32 Report. ISBN: 0-9582620-5-5.

# ATTACHMENT ONE: PUKAKI IRRIGATION SCHEME

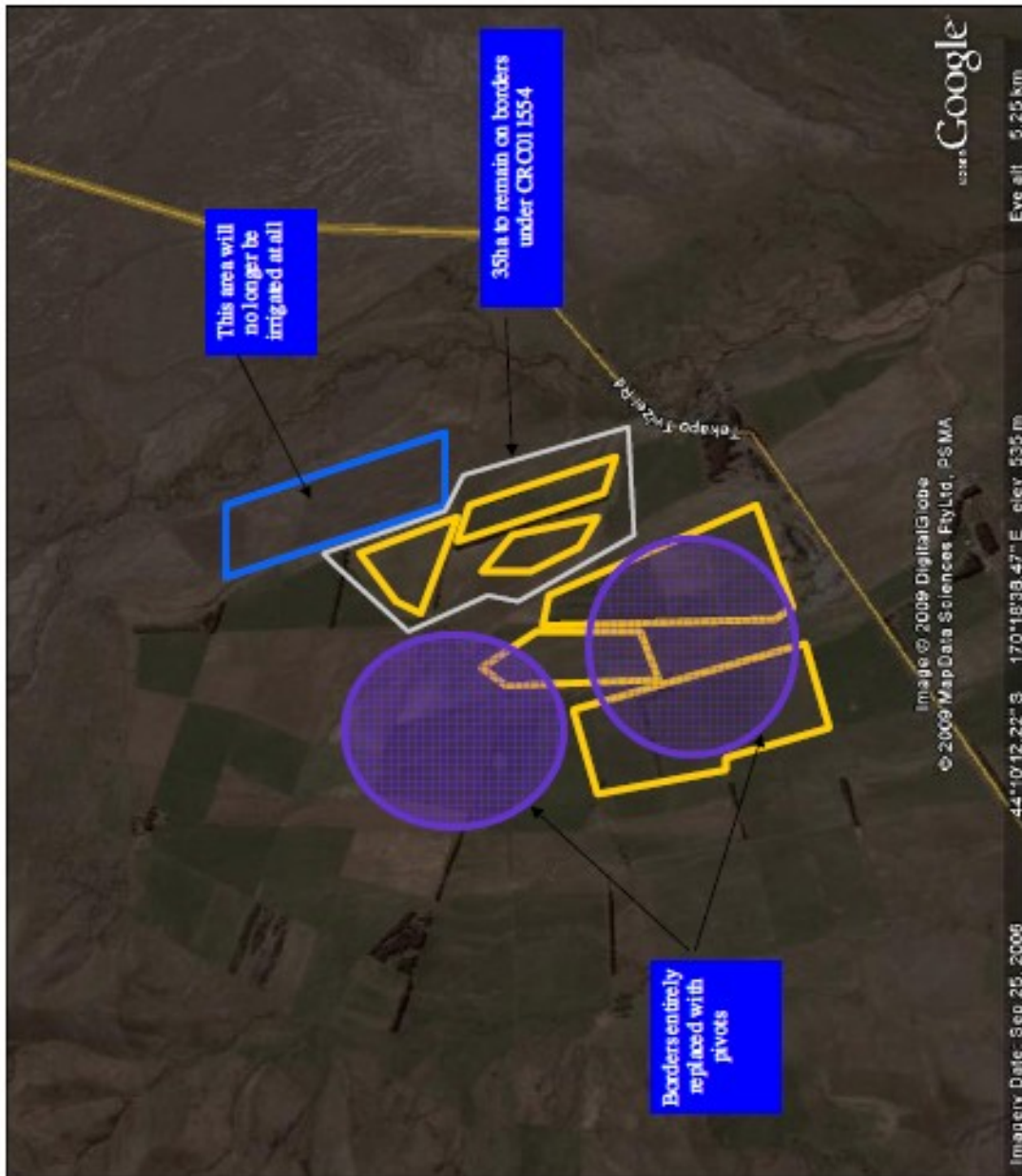
This diagram shows the relationship of applications lodged by all applicants that are part of the scheme.



# ATTACHMENT TWO – LOCATION MAP



Following is a draft pivot plan provided by the applicant showing existing borderdyke areas and their relationship to the proposed spray conversion.



## ATTACHMENT THREE – PHOTOS OF IRRIGATION AREA & INTAKE SITE

Photos taken by Maria Bartlett during site visit on 4 February 2009.



Photo 1 – View of Maryburn Station, eastwards across the proposed irrigation area, to the State Highway and river terraces



Photo 2 – Looking southwards to Simons Pass and the State Highway

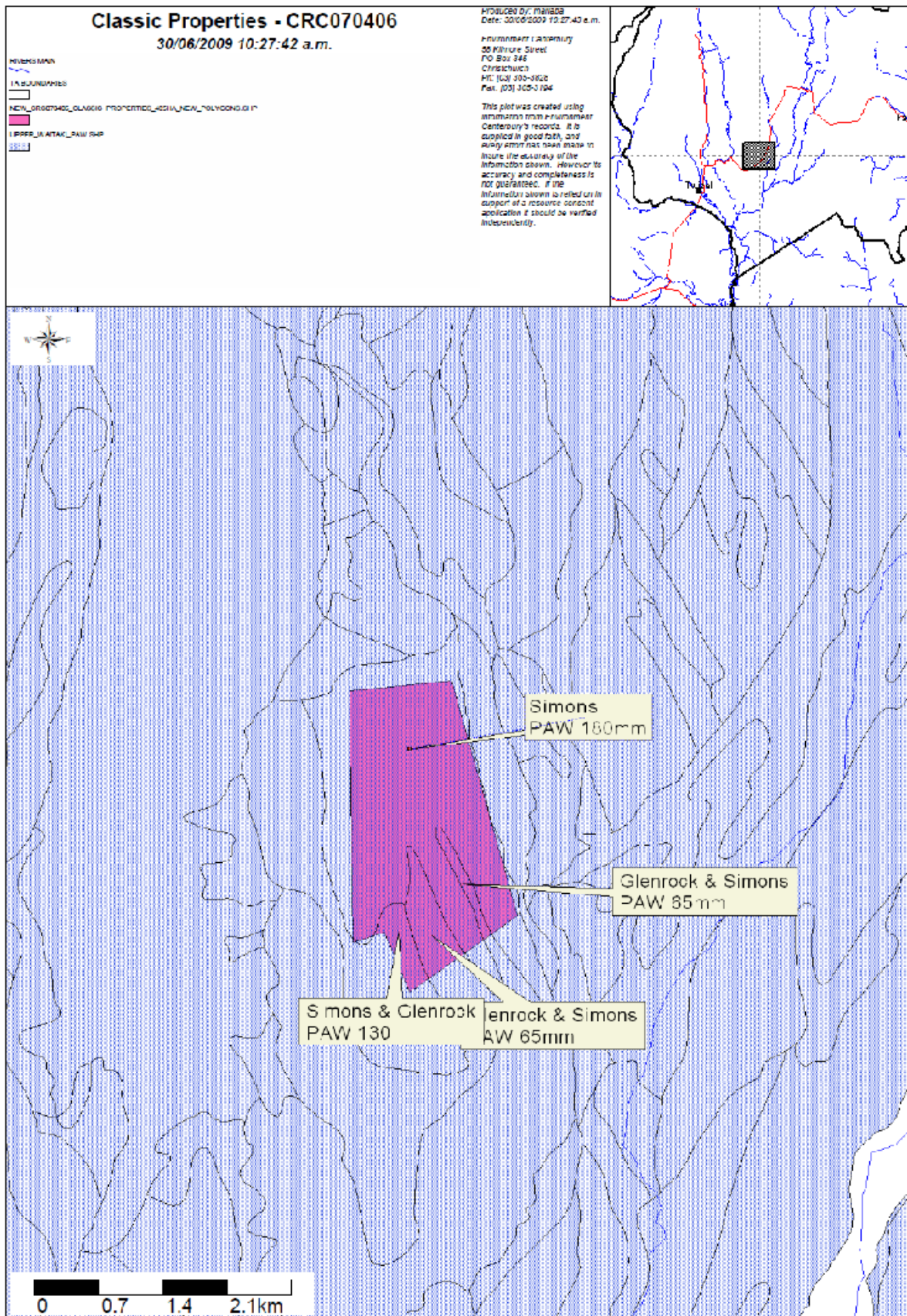


Photos 3-4 – stockwater race, first view roughly eastwards from crossing on access road, and second view westwards towards the Mary Range



Photos 5-7 – views in an arc southwest to northwest from access road

# ATTACHMENT FOUR – SOILS MAP



## ATTACHMENT FIVE – OBJECTIVES & POLICIES

| Objective / Policy | Description   | Assessment  |
|--------------------|---|---|
| Objective 1        | To sustain the qualities of the environment of the Waitaki River and associated beds, banks, margins, tributaries, islands, lakes, wetlands and aquifers. | Submissions concerned about values in Objective, cannot determine that application is consistent with these values.   |
| Objective 2        | Provide water for different activities.   | Activity is within allocation limit for activities above Waitaki Dam  |
| 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 applicant is proposing a technically efficient system.  |
| Objective 5        | Provide for practical and fair sharing of allocated water during times of low water availability.   | Appropriate minimum lake level proposed   |
| Policy 1           | Recognising connectedness between all parts of the catchment  | Matters related to cumulative allocation have been considered   |
| Policy 3           | Setting of environment flow and level regimes for all activities in Objective 2 and consistent with Objective 1.  | The minimum lake level is set for Lake Tekapo and accepted by the applicant   |
| Policy 4           | Outlines a number of matters that must be considered when setting an environmental flow and level regime  | The minimum lake level is set for Lake Tekapo and accepted by the applicant   |
| Policy 11          | Consider effects on Tangata Whenua values, local and national effects when allocating water to activities   | Effects on Tangata Whenua have been considered, as well as local and national effects.  |
| Policy 12          | Outlines matters that must be considered when establishing allocation limits.   | The allocation limit is set for agricultural activities above the Waitaki Dam and the application is within this limit  |
| Policy 13          | Addresses water quality objectives in the NRRP  | Water quality effects on rivers, lakes and groundwater are uncertain  |
| Policy 15          | Ensuring take and use of water is reasonable for its intended use   | The requested rate and volume are reasonable for the intended use   |
| Policy 16          | Requiring irrigation applications to meet the specified reasonable use test   | The requested volume meets the reasonable use test  |
| Policy 18          | By requiring consents to reflect the actual quantity required to undertake the activity   | The requested rate and volume reflect the actual quantity required  |
| Policy 19          | By encouraging the piping or otherwise sealing of water distribution systems  | Fully piped scheme proposed   |
| Policy 21          | By requiring the installation of water measuring and recording devices  | The applicant proposes appropriate metering   |
| Policy 23          | Restricting water use in times of low water availability, except for reasonable domestic and stockwater needs   | The minimum lake level is set for Lake Tekapo and accepted by the applicant   |
| Policy 24          | To take reasonable stockwater requirements in times of low water availability   | The minimum lake level is set for Lake Tekapo and accepted by the applicant; the applicant may take reasonable requirements for stockwater when the minimum flow is reached |
| Policy 35          | Setting a minimum lake level for these lakes, to apply to agricultural activities   | The minimum lake level is set for Lake Tekapo and accepted by the applicant   |