

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER of the Resource Management Act 1991

A N D

IN THE MATTER of resource consent applications by Simons Hill Station Limited, Simons Pass Station Limited, Rosehip Orchards New Zealand Limited and High Country Rosehip Orchards Limited to take and use water for irrigation

**STATEMENT OF EVIDENCE OF PETER LLOYD GLASSON
ON BEHALF OF THE APPLICANTS
DATED 19 NOVEMBER 2009**

INTRODUCTION

Qualifications

1. My full name is Peter Lloyd Glasson. I am a Director of SolutionNZ RM Limited and practice as a project manager and resource management planner. I hold the qualifications of Bachelor of Science (Botany & Ecology), Master of Environmental Science (Honours), and Bachelor of Town Planning, all from the University of Auckland.
2. I confirm that I am authorised to give this evidence in relation to the applications by Simons Pass Station Limited ("Simons Pass"), Simons Hill Station Limited ("Simons Hill"), Pukaki Irrigation Company Limited ("Pukaki Irrigation"), Rosehip Orchards New Zealand Limited ("Rosehip Orchards"), and High Country Rosehip Orchards Limited ("High Country").
3. In preparing my evidence, I have reviewed the Code of Conduct for Expert Witnesses and I agree to comply with it.

Experience

4. I have had over twenty one years experience in resource management planning, related fields of consents management, and consulting in the private sector. This has involved considerable experience in obtaining resource consents for major projects and includes considerable experience in the preparation of Environmental Effects Assessments (AEE's) and consultation with potentially affected parties.
5. I was previously a Director of a major Christchurch engineering, environmental science, surveying, and resource management planning consultancy. I have had extensive project experience in similar sized projects.

Project Role

6. My role in this project is as the project manager for all the applications relating to:
 - Simons Pass
 - Simons Hill
 - Pukaki Irrigation
 - Rosehip Orchards

- High Country

7. I did not prepare any of the original resource consent applications and AEE's for any of the above projects. I was appointed as project manager for the Simons Pass/ Simons Hill/ Pukaki Irrigation suite of resource consent applications in June 2008 and I was appointed as the project manager for Rosehip Orchards and High Country in June 2009.
8. I have visited the sites on many occasions specifically in relation to these applications.

Scope of evidence

9. My evidence to this hearing is deliberately brief and I intend to simply:
- Outline a brief overview of the projects
 - Record the consultation undertaken

SIMONS PASS & SIMONS HILL STATION

10. Simons Pass and Simons Hill are adjoining stations centered on the Mary Range and lying west of the Maryburn Stream, east of the Pukaki River, south of Lake Pukaki, and north of the Tekapo River (Appendix 1).
11. The Mary Range (north-south alignment) and State Highway 8 divide the properties into four unequal parts (Table 1) (approximate areas).

Station		Area (ha)	Irrigation Command Area (ha)	Irrigation Area (ha)
Simons Pass	West of Mary Range		3880	2113
	East of Mary Range		512	287
Total:		6282		2400
Simons Hill	West of Mary Range		2231	1909
	East of Mary Range		645	491

Total:		6432		2400
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Table 1: Land areas of Simons Pass & Simons Hill Stations

12. Pukaki Irrigation Company is proposing to develop a water supply scheme to supply water to Simons Pass, Simons Hill, Glentanner Station (Catherine Fields), and Maryburn Station (Classic Properties Limited). A decision will be made at a later date by Glentanner and Maryburn Stations as to whether they join the scheme or pursue separate water intake locations and water supply routes.
13. The possible sources of the required 3.5 m³/s water for the scheme are the Tekapo Canal (immediately upstream of the Tekapo Stilling Basin), Pukaki Canal, or Lake Pukaki. The preferred intake location is the Tekapo Canal with a 9km buried water conveyance pipeline from the Tekapo Canal to the Pukaki Flats. The pipeline would be constructed within an easement across Irishman Creek, The Wolds, and Maryburn Station, and then passing across State Highway 8.
14. Simons Hill has one operating centre pivot of 150 hectares on the property east of the Mary Range. Water for the pivot is abstracted from the Maryburn Stream and a water permit is issued for another 150 hectares of irrigation. It is intended that this existing water permit will be relinquished and abstraction from the Maryburn will cease following the supply of water from the Tekapo Canal.
15. The majority of land to be irrigated for both Simons Pass and Simons Hill is located on the Pukaki Flats. Smaller areas to be irrigated are located to the north (287 ha) and south (491 ha) of State Highway 8 and east of the Mary Range.
16. I have commissioned a large number of on-site field investigations as part of the on-going assessment of effects of the project. These include a comprehensive groundwater investigation involving the installation of twenty shallow piezometers. Following the construction of the piezometers, there have been three suites of groundwater and surfacewater monitoring undertaken including an the sampling of an additional four existing bores. As part of the overall water sampling, surfacewater samples have also been taken at selected locations within the two separate sub-catchments.
17. An additional river gauging programme has also been completed.

18. I have commissioned a topographical survey of the northern areas of Simons Pass on the Pukaki Flats to primarily assist in assessing the visual effects of the proposed irrigation, determine view shafts, and "fix" ecologically sensitive areas.
19. A comprehensive terrestrial ecology investigation has been completed as well as an aquatic ecology investigation in the Maryburn and Tekapo River areas.
20. Concept designs have been completed for all intake locations and the State Highway crossing. Comprehensive Farm Environmental Management Plans have been prepared.
21. I have made considerable changes to the project, especially in relation to the irrigation command area, as a result of the environmental effects of the proposal and, more latterly, consultation undertaken with submitters.
22. Changes made to the project for mitigation reasons include:
 - Pull back of irrigation from all lower terraces on the Pukaki Flats;
 - Change from smaller number of larger pivots to larger number of smaller pivots;
 - Deletion of all Irrigation Command Area from north of State Highway (west of Mary Range)
 - Creation of 600 metre setback along State Highway 8; and
 - Removal of Irrigation Command Area from ecologically sensitive areas.

ROSEHIP ORCHARDS & HIGH COUNTRY

23. Rosehip Orchards is located north of Lake Benmore, and is bordered by the Pukaki and Tekapo Rivers to the east and the Twizel River to the west (Appendix 2).
24. High Country is located south of the Twizel township and consists of a long relatively narrow property bordered by the Twizel River to the east and the Ohau River to the west (Appendix 3).
25. Areas associated with each Station are shown in Table 2.

Station	Area (ha)	Irrigation Area (ha)	Command	Irrigation Area (ha)
Rosehip Orchards	973	968		610 (existing pivot 200ha)
High Country	868	651		500

Table 2: Land areas of Rosehip Orchards & High Country Stations

26. The Irrigation Command Area for High Country has been substantially reduced in area compared to the original resource consent application. All potential irrigation has been deleted from the upper terrace adjacent to State Highway 8 and Twizel township. The nearest area of potential irrigation is now approximately 1.5 kms from the Twizel township.
27. Furthermore, the proposed location of the centre pivots on High Country has been changed so that irrigation is on the higher terrace rather than the lower terraces adjacent to the Twizel and Ohau Rivers.
28. The original resource consent application for High Country proposed an alternative surfacewater abstraction from the Twizel River. Following derogation approval for the Ohau Canal intake, this option has been withdrawn.
29. Rosehip Orchards has an existing pivot of 200 hectares. Water for this pivot is supplied from a groundwater bore at the centre of the pivot. It was originally intended that the abstraction of water from this bore would cease and all 810 hectares of irrigation would be supplied by water from the Canal. It is now intended that groundwater will continue to be used for the existing 200 hectare pivot and water from the Ohau Canal will supply the proposed 610 hectares of irrigation.

CONSULTATION

30. I have undertaken a considerable amount of consultation with some of the submitters to the resource consent applications.
31. **Canterbury Regional Council:** I have had a considerable number of meetings with CRC staff and consultants. In particular, I have had numerous meetings with Ms Maria Bartlett, the Investigating Officer for the Simons Pass and Simons

Hill applications. I have found these meetings to be particularly productive in identifying additional information required and possible solutions to issues.

32. I also undertook a site inspection of the Simons Pass and Simons Hill properties with CRC staff prior to Ms Bartlett's appointment as Investigating Officer. However, despite an offer to accompany her, I am not aware that Ms Bartlett has inspected the properties in preparing her Section 42A reports.
33. Two meetings were held with Ms Maria Bartlett, and the CRC consultant landscape architect, Mr Chris Glasson, specifically to discuss the visual effects of the proposed irrigation on the four properties. Mr Mike Steven, landscape architect, also attended those meetings.
34. As stated above, Simons Pass is in the Tenure Review process. Thus a landscape report has recently been prepared as part of the Department of Conservation Conservation Resources Report ("CRR"). It is the CRR that Ms Bartlett has based most of her comments regarding the ecological effects of the proposed irrigation on Simons Pass. I was already aware of the landscape issues raised in the CRR. The meetings with Mr Chris Glasson again raised the issue of views from the State Highway at Simons Pass and possible changes in views from irrigation structures at Rosehip Orchards and High Country.
35. In addition, the issue of the visual effects of irrigation on the walkway adjacent to High Country was also discussed and emphasised.
36. As a result of these meetings and the CRR landscape report, I commissioned a full topographical GPS survey of the land at Simons Pass adjacent to State Highway 8. The height of the State Highway carriageway, directly abutting land in the State Highway shoulder and corridor, and the distant land (and varying "fix" densities) was surveyed and recorded.
37. I also undertook a further site inspection with Mr Mike Steven and another separate inspection with Mr Denis Fastier to evaluate potential changes in views from SH8.
38. I also asked that the topographical survey fix the exact position of significant terminal moraine features on Simons Pass. I requested this information as these features had been identified as significant geomorphological glacial features and significant ecological habitat for native invertebrates by DoC.

39. The raw topographical GPS survey information was then converted into a 3-dimensional computer model. Mr Mike Steven and myself were then able to see exactly what distant landscape features are visible at what heights along SH8. Because the height of the carriageway had been fixed, the model was able to be adjusted so that the view from a person in a car, or a person in a bus, could be ascertained at any point along the State Highway adjacent to Simons Pass.
40. In addition, the exact location of the Scenic Viewing Area, contained in the Mackenzie District Plan was fixed.
41. As a result of this survey and modelling work and additional consultation and review of the DoC CRR, I made major changes to the applications which were originally notified:
- a) **Simons Pass:** Deleted the Scenic Viewing Area ("SVA") from the overall Irrigation Command Area ("ICA").
 - b) **Simons Pass:** Deleted all ICA from land within 600 metres of State Highway 8 thereby providing a wide swath between the SH8 carriageway and, in many places, a slightly higher area of land which restricts views to more distant land. This land will now remain in its present vegetation pattern.
 - c) **Simons Pass:** Deleted three significant terminal moraine areas from the ICA.
 - d) **Simons Pass:** Deleted all land north of State Highway 8 from the ICA. This deletion retains the landscape values and ecologically important (Mousetail herb spring annual) areas identified by DoC in their CRR.
 - e) **High Country:** Deleted the entire higher terrace area from the ICA restricting the ICA to the less visible intermediate terrace preventing the irrigation on this property from being closer than 1.5 kilometres to State Highway 8.
42. **Mackenzie District Council:** I have met with the Mayor and a Councillor of Mackenzie District Council, and the District Planner, to discuss Simons Pass and Simons Hill. I was able to confirm that the Scenic Viewing Area contained in the Mackenzie District Plan had been deleted from the Irrigation Command Area. In addition, the economic effects of Simons Pass and Simons Hill on the District was discussed together with the Proposed Plan Change 13 to the Mackenzie District Plan.

43. **New Zealand Transport Agency (Formerly Transit New Zealand):** I have met with two representatives of NZTA in relation to their submission. NZTA originally lodged its submission principally because there was limited information associated with the application and it could not understand how the application would affect State Highway 8. In order to convey water to Simons Pass and Simons Hill (either location), a pipeline will need to be built under the State Highway. It was clear that NZTA simply wishes to ensure that any works in the State Highway corridor be undertaken in accordance with good engineering practice, the design and construction process involves NZTA, and a legal agreement for the pipeline is concluded between NZTA and Pukaki Irrigation.
44. Regardless of the outcome of the NZTA submission and an RMA process, no entity can undertake works in the State Highway corridor without NZTA approval. Regardless of this, a comprehensive set of concept design plans was prepared by our engineering consultants, Riley Consultants, and has subsequently been discussed and approved by NZTA.
45. In recent correspondence dated 17 November 2009, the Planning Manager for NZTA stated:

"NZTA has been in discussions with the applicant and now understands the nature of the works required to convey water under the State Highway. It also has a better understanding of underlying geology.

In our view the effects of works within the State Highway corridor can be best managed by an encroachment agreement between the applicant and NZTA, which the applicant would be required to obtain under the Government Roadway Powers Act 1989.

Therefore I agree with your analysis that NZTA will now no longer pursue its decision and will not attend the hearing.

Further I agree under these circumstances that NZTA should withdraw its submission as there is no further purpose to be served with its submission.

Please find enclosed a letter to Environment Canterbury seeking our submission be withdrawn."

46. **Meridian Energy Limited:** I have had several meetings and considerable correspondence with Meridian Energy representatives relating to overall Basin wide project issues such as derogation approval, and WQS investigations. I have also met with Meridian specifically in relation to Simons Pass, Simons Hill, Rosehip Orchards, and High Country to ascertain Meridian's concerns specific to the applicant's own properties.

47. Furthermore, I have met with Meridian's groundwater consultant (Mr Peter Callander), Meridian representatives, and my client's groundwater consultant (Mr Ian McIndoe) in a formal "caucusing" meeting to discuss groundwater issues. Although no agreement was reached on issues, Meridian concerns expressed at the meeting resulted in the commissioning of additional field work on the Tekapo and Lower Tekapo River. The results of the river gauging and simultaneous groundwater level monitoring resulted in considerable further understanding of the groundwater regime to the south of the Pukaki Flats, based on actual field data. This work will be outlined by Mr Ian McIndoe in his evidence.
48. The groundwater "caucusing" meeting also agreed on the installation by Meridian of automatic groundwater level monitoring meters in two of the Simons Hill groundwater bores adjacent to the Pukaki River dry bed. It was agreed that information from this monitoring would be shared between the parties.
49. **Royal Forest & Bird Protection Society:** I met with two representatives of Royal Forest & Bird Protection Society to discuss their concerns. While I gave an overview of the project and outlined the changes that had been made to the project for environmental reasons, it was clear that, in my opinion, the opposition to the applications was philosophical and that there was no real opportunity to resolve any issues by discussing additional mitigation options.
50. **Fish & Game Council ("Fish & Game"):** Denis Fastier and myself met with two Fish & Game representatives on 20 October to identify issues of concern. I understand that consultation with Fish & Game had been also carried out earlier during the preparation of the RCA and AEE. I have also had numerous telephone conversations and email correspondence with Fish & Game regarding the issues set out below.
51. The issues of interest to Fish & Game identified at the meeting included:
 - a) Control of Canada Geese
 - b) Mesh size on intake structures
 - c) Release of salmon from the salmon farm to mitigate loss of juvenile trout into intake through larger mesh size
 - d) Alder control along the Maryburn

- e) Relinquishing of existing Maryburn water permits for abstraction
52. The applicants have agreed to enter into an agreement with Fish & Game regarding the control of Canada Geese. An agreement is presently being prepared and I do not foresee any issues that should prevent the agreement being finalised.
 53. Detailed design on the intake structures has yet to be commissioned. Therefore the exact mesh size has yet to be determined. However, Fish & Game has indicated that it is prepared to accept a much larger mesh size than I originally discussed with the engineer preparing the concept plans for the intakes (20mm vs 3mm). Further investigations need to be undertaken before PIC can confirm what mesh size it wishes to proceed with.
 54. If the mesh size is increased to 20mm, Fish & Game has indicated that this may allow a greater proportion of juvenile trout through into the intake. Fish & Game has indicated that this effect could be mitigated by the applicants paying for the annual release of salmon from the salmon farm upstream. Discussions on this matter will continue.
 55. The applicant has indicated that it will participate in the control of alders along the Maryburn. Although this matter is one not strictly connected to the applications, it is part of the overall environmental enhancement of the area and the applicants will participate, with Fish & Game, in the ongoing management of the Alders.
 56. Simons Pass and Simons Hill have agreed to relinquish their water permits for surfacewater abstraction from the Maryburn should the present suite of resource consents be granted. Mr Fastier addresses this matter in his evidence.
 57. I consider that I will be able to resolve the issues outlined above with Fish & Game.
 58. **Irishman Creek, The Wolds, Maryburn Stations:** I have attended several meetings with the owners of the Irishman Creek, The Wolds, and Maryburn High Country Pastoral leases. The meetings have been held to discuss the proposed water conveyance pipeline from the Tekapo Canal, along the western side of the Mary Range across the three stations, to the Pukaki Flats.

59. Discussions have related to levels of compensation and the timing of site inspections. At the last meeting held with the three leaseholders, agreement was given for a site inspection to occur to investigate the environmental effects of the proposed pipeline. However a date for the site inspection has been refused by Land Information New Zealand.
60. **Land Information New Zealand ("LINZ"):** Considerable consultation has been undertaken with LINZ staff and a consultant representative regarding both the LINZ submission opposing the application (CRC062866) and an additional application that has been lodged directly with LINZ for an easement for the pipeline across the three Crown lease Stations. The LINZ submission to the application is similar to the NZTA submission in that no works can be undertaken on Crown Pastoral lease land, regardless of the outcome of any RMA process, without Crown consent. Given the reasons listed in the LINZ submission, I am at a loss to understand why LINZ has lodged a submission at all when it can impose any other conditions on any works on Crown land. I have discussed this issue with the LINZ consultant representative who has acknowledged the additional powers held by LINZ and has suggested to LINZ that it withdraw its submission. However no action has been taken by LINZ.
61. LINZ states that the reason for its submission is "*To ensure that landowner consent is obtained for all proposals which affect land administered by Land Information NZ*". However, such consent is under the Crown Pastoral Land Act, not the Resource Management Act.
62. Of the four properties, only Simons Pass is still in the tenure review process and is therefore subject to the additional provisions of the CPLA which will effectively consider the same environmental issues as being considered as part of these hearings. It is expected that the tenure review process for Simons Pass will be completed within the next two to three years.
63. An application for an easement for the buried pipeline across the three Crown Pastoral leases was lodged six months ago with LINZ.
64. **Te Runanga o Ngai Tahu:** Considerable consultation has been undertaken with representatives of TRONT and also representatives of the three local runanga (Te Runanga o Arowhenua; Te Runanga o Waihao; Te Runanga o Moeraki). Initially, Kelvin Reid and myself met (24 September) with Ms Maree Willetts and Mr Paul Horgan, both of TRONT. The proposed irrigation on all four

properties was outlined and the wider Mackenzie Basin water quality issues discussed.

65. One of the main issues identified at the initial meeting was the present scarcity of mahinga kai (food gathering) areas within the Basin, and the potential effect of any degradation of water quality resulting in further deterioration and possible loss of mahinga kai areas. Our attention was drawn especially to the potential deterioration of mahinga kai areas in Lake Benmore itself.
66. A site inspection, lasting much of the day and involving five Ngai Tahu and runanga representatives, occurred on 16 October 2009 with Denis Fastier and myself. The overall project was discussed in detail.
67. I also discussed the different types of dairying on the Pukaki Flats that could be undertaken: wintering on; or, wintering off. I had previously requested that OVERSEER modelling be undertaken for both dairying land use options. I was aware that the nutrient discharges for both options on the Pukaki Flats were below the threshold allocation.
68. However, it was as a result of the discussions with Ngai Tahu and an attempt to mitigate its concerns that a decision was made to delete the wintering on option.
69. Mr John Wilkie of the Arowhenua runanga suggested that we visit the enhancement area of Mr Stephens near Waimate to gain an impression of what can be achieved through environmental enhancement.
70. On 20 October Denis Fastier and myself therefore inspected the Waimate property which contains a rehabilitated stream and surrounding native planting area. Later that same day, we met again with Mr John Wilkie of the Arowhenua runanga to discuss the project.
71. A meeting was then held on 27 October with Mr Paul Horgan of Ngai Tahu, Ms Di Robertson, Ngai Tahu's consultant ecologist, and myself.
72. A further site inspection at Simons Hill occurred on 29 October with Ngai Tahu representatives, the Ngai Tahu consultant ecologist, as well as Ms Joy Comrie from the Twizel Office of DoC.
73. In summary, there have been extensive discussions between Ngai Tahu and the applicants and a further update on those discussions can be made later.

74. In my opinion, the consultation undertaken with Ngai Tahu has been very successful in identifying and attempting to mitigate the concerns of a submitter to the applications.
75. **Department of Conservation ("DoC"):** I have met with different representatives of DoC numerous times at the different DoC offices and also with them on site. To place the applications in context, Simons Hill, Rosehip Orchards, and High Country have all completed tenure review. During that process, DoC identified areas of special significance and these areas were retained by the Crown in public ownership.
76. Simons Pass is still in the tenure review process. A Conservation Resources Report was earlier released by DoC but that has been overtaken by the Recommendations Report and now the Recommendations Plan (Appendix 4), a copy of which was given to us on 14 October 2009. At this stage I am uncertain of the status of the Plan as one member of DoC has indicated that the Plan is wrong despite the Plan having been officially given to me.
77. The resource consent process and the tenure review process are separate *legal* processes. However, on some issues I have regarded them as seeking similar *environmental* outcomes and have therefore used the tenure review process information as part of the basis for understanding the environmental issues of concern on the four stations.
78. At some meetings with DoC representatives, it has been difficult attempting to identify what the specific concerns of DoC actually are. At all times I have indicated that my clients are willing to discuss and, if necessary, undertake environmental mitigation or enhancement. However, I have encountered varying opinions from DoC staff ranging from practical solutions to philosophical opposition.
79. In essence, it can be viewed that significant natural areas have already been retained by the Crown in the case of Simons Hill, Rosehip Orchards, and High Country. In these cases, it is any change in effects from the introduction of irrigation that needs to be considered. I understand that some DoC representatives consider that there are no further issues from irrigation on Simons Hill while others wish to set aside additional areas as reserve. With respect to High Country and Rosehip Orchards, Mr Greg Ryder has undertaken additional investigations and consultation with DoC and will address this issue.

80. For the reasons stated above, I have also used the findings of Dr Peter Espie, and the DoC Recommendations Plan as the basis for identifying and seeking *practical* solutions to DoC's concerns. I have ensured that the areas identified in the DoC Recommendations Plan as being significant have been taken out of the ICA. I have discussed additional practical solutions with DoC staff such as fencing and the imposition of conservation covenants. These areas include (1) the Mousetail spring annual herb area north of State Highway 8 labelled as "CC1" on the Recommendations Plan (Appendix 4); (2) the Mousetail spring annual herb area within the developed grassland area labelled as "CC3" on the Recommendations Plan (Appendix 4); and (3) the significant terminal moraine areas labelled as "CC2" on the Recommendations Plan (Appendix 4).
81. In my opinion, the complete removal of the ICA from the area north of the State Highway and the 600 metre swath along the south side of the State Highway also addresses the landscape issues raised in the DoC CRR.
82. The Recommendations Plan (Appendix 4) shows that DoC wishes to retain a large area in the north west corner of Simons Pass in Crown ownership. I have overlaid this area with the ICA showing that there is little conflict between the proposed irrigation and the DoC Recommendations Plan (Appendix 5). Furthermore, I have offered an additional area adjacent to the Pukaki River as a conservation covenant area which would be close to DoC's existing reserve to the west and therefore be consistent with biogeographical principles of reserve design.
83. I have indicated to DoC that Simons Hill could possibly develop an area as a black stilt wetland area at the southern end of the Simons Hill property on the very lowest terrace. While DoC have indicated that it is not interested in involvement in such an area, the development of the area for wider ecological purposes still remains a long term option for Simons Hill.
84. While I have made the above changes to the Simons Pass project, I have been unable to resolve DoC's concerns and DoC has now indicated that it does not have sufficient time to consider the changes that have been made.

CONCLUSIONS

85. I have undertaken considerable consultation with potentially affected parties in relation to the applicant's proposed irrigation.

86. Despite not having completely "resolved" the concerns of some submitters resulting in the withdrawal of those submissions, the consultation has resulted in changes to the project with significant positive environmental benefit.
87. I intend to continue to consult with potentially affected parties and consider that I will be able to resolve many of the concerns raised by the submitters over the course of the project.

Peter L Glasson

19 November 2009

APPENDIX 1: SIMONS HILL/ SIMONS PASS IRRIGATION PLAN



CIRCLES SHOW ARE

- 1. 619m Full Circle Pivot x19
- 2. 619m Full Circle Pivot x10
- 3. 619m Part Circle Pivot x4
- 3. 785m Part Circle Pivot x1
- 4. 515m Full Circle Pivot x2
- 6. 619m Full Circle Pivot x1
- 8. 510m Full Circle Pivot x1
- 7. 185m Part Circle Pivot x3
- 8. 753m Part Circle Pivot x1
- 9. 600m Part Circle Pivot x1

Title:
 Date:
 Drawn:
 Checked:
 Appr:

Rev.	By	Date	Description

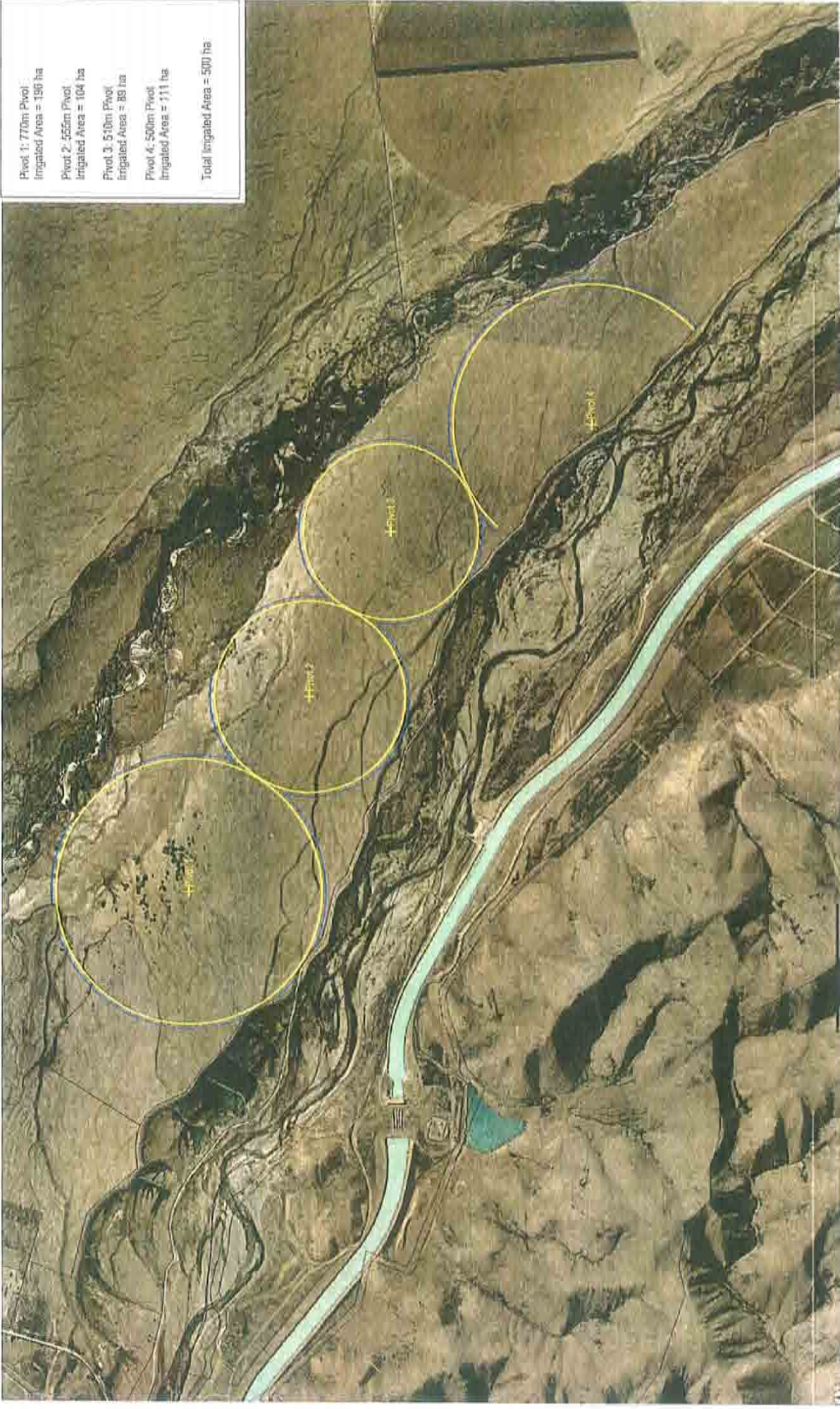


© Water Dynamics, 2009
 Simons Pass - Simons Hill Concept

Designer: Brandon Haines
 Email: brandon@waterdynamics.ca
 Phone: 416-288-1225
 Mobile: 416-971-9155
 Date: 26 April 2009
 Scale: 1:10000

APPENDIX 2: ROSEHIP ORCHARDS NZ LIMITED IRRIGATION PLAN

APPENDIX 3: HIGH COUNTRY ROSEHIP ORCHARDS LIMITED IRRIGATION
PLAN



- Pivot 1: 770m Pivot
Irrigated Area = 195 ha
- Pivot 2: 555m Pivot
Irrigated Area = 104 ha
- Pivot 3: 510m Pivot
Irrigated Area = 88 ha
- Pivot 4: 500m Pivot
Irrigated Area = 111 ha

Total Irrigated Area = 500 ha

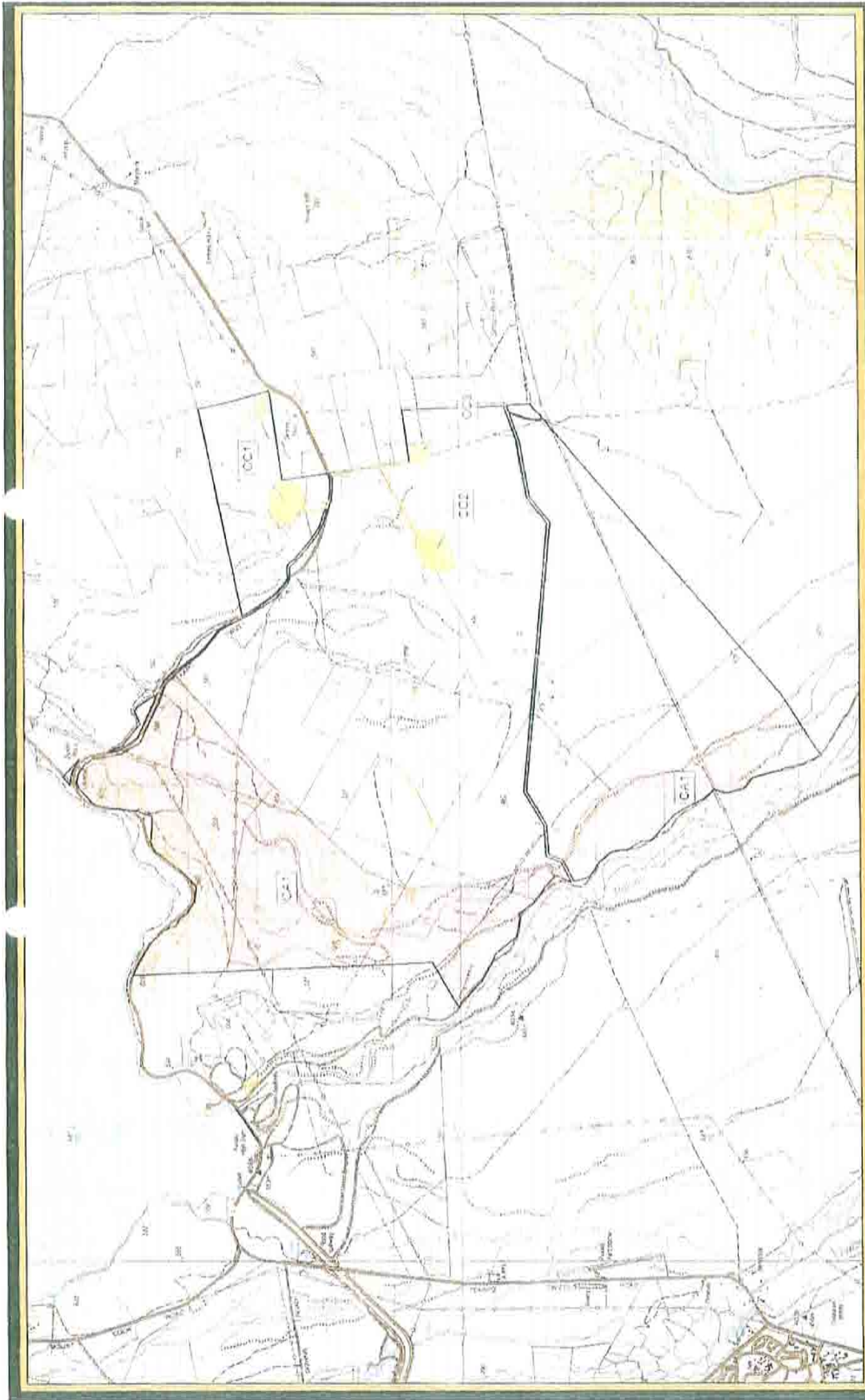
Area	500 ha
Developer	Water Dynamics
Date	12 August 2009
Scale	1:10000

© Water Dynamics, 2009
 HCROL Pivot Concept



Water Dynamics

APPENDIX 4: DoC Recommendations Plan



SIMONS PASS - Revised recommendations

Department of Conservation
Te Papa Atarohā

New Zealand Government
 CANTERBURY CONSERVANCY - TENURE REVIEW



- Legend**
- DnC management assessment
 - Simons Pass pastoral lease
 - Full Crown ownership and control
 - Conservation coverant

APPENDIX 5: Simons Pass: Overlay of DoC Recommendations Plan and Irrigation Command Area

