



IN THE MATTER OF THE

Resource Management Act 1991

AND

IN THE MATTER OF

Resource consent application CRC122871;
CRC122874 and CRC13492 by Mr RH Robertson
for a Water Permit to take and use surface water
and associated Land Use Permits to undertake
works in the bed of a stream and to construct and
operate a water storage dam

BETWEEN

**RH Robertson
Applicant**

AND

**CANTERBURY REGIONAL COUNCIL
Respondent**

DECISION OF HEARINGS COMMISSIONER

Dr James Cooke

9th April 2013

Heard on the 21st March 2013, at the offices of Environment Canterbury, 75 Church Street, Timaru.

REPRESENTATIONS AND APPEARANCES

Applicant:

Ms Katia Fraser, North-South Environmental Law: Counsel

Mr Robert Robertson, Applicant

Mr Harry Stocker – Civil Engineer

Mr Tom Heller – Environmental Consultant

Mr Brett Giddens – Resource management Planner

Submitters:

Ms Devon Christensen - Central South Island Fish & Game Council

Mr Donald McKenzie - Neighbour

Section 42A reporting officers:

Mr Samuel Nevin, Consents Planner (Canterbury Regional Council)

Ms Shirley Hayward – Environmental Scientist

Ian Lloyd – Water Resources Engineer

It is the decision of the Canterbury Regional Council, pursuant to sections 104, 104B, 104D and subject to Part 2 of the Resource Management Act 1991, to grant RH Robertson Water Permit CRC122871 to take and use surface water, together with associated land use permits CRC122874 to undertake works in the beds of the Brothers Stream (for the installation and maintenance of a diversion structure) and an unnamed tributary of the Hakataramea River (to construct and operate a water storage dam), and CRC13492 to use land to store water behind the dam as authorised under CRC122874 for a term of 25 years, subject to the consent conditions set out in Annexure 1.

BACKGROUND AND PROCEDURAL MATTERS

1. This is the decision of Independent Commissioner James Cooke appointed by the Canterbury Regional Council (**ECan**) to hear and decide on applications by RH Robertson ("the applicant") to divert waters from The Brothers Stream at higher flows, when flows permitted, store it in a dam to be constructed in the bed of an unnamed ephemeral stream, and use that water to irrigate crops and pasture.
2. The applications were lodged on 26th June 2012. Mr Nevin (ECan consents planner) noted that when the applications were first received, he considered the damming and storage of water could be considered under applications CRC122871 and CRC122874, which was reflected in the notification wording. However, following the notification of the Proposed Canterbury Land and Water Regional Plan (pLWRP), ECan considered that the storage of water outside of the bed of a river constituted a section 9 land use consent and split the 'use of land for storage of water' component of the consents to be considered specifically under CRC134927.
3. Given the need for CRC134927 was not explicitly required when the application was made, or when a decision to notify the application was made, the use of land consent was not explicitly defined in the notification notice. However, because the activity sought was outlined under the heading for CRC122874 (see notice #12) Mr Nevin did not consider it necessary to re-notify the application.
4. Lastly, I note that the applicant also applied for consent (CRC122875) to discharge up to 2,000 L/s of water from behind the dam for the purposes of dam sluicing. However, the applicant withdrew this application on 13/03/2013 stating that the dam base can be maintained with a digger and that consent is no longer needed.
5. Given that the applications are inter-related and that consent for the water permit could not be granted without granting land use consents, I agreed with the s42A Officer that they be considered as a bundle.
6. The hearing commenced at 10.00 am on Thursday 21st March 2013 and closed at 5.00 pm the same day. I did not consider it necessary to undertake a site visit.

7. Prior to the hearing, a report was produced pursuant to section 42A of the Act by ECan's consent planner, Mr Samuel Nevin. This "s42A Report" provided an analysis of the matters requiring consideration and recommended the applications be declined. The reasons for this recommendation are discussed in the assessment section of this decision.

THE APPLICATION

8. The applicant owns adjoining properties (Foveran Deer Park and The Brothers) situated approximately 10 km up the Hakataramea Valley. The two properties together comprise approximately 2645 hectares (ha) of which 560 ha are irrigable. Consent is sought for:

- a) CRC122871 To take up to 2,000 Litres per second (L/s) of water when available at higher flows, with an annual volume of 5,800,000 cubic metres (m³) from the Brothers Stream, at or about map reference NZMS 260 140:2180-1180. Water is to be used for storage and irrigation of crops and pasture over the entire 560 ha irrigable area, with the maximum volume used for irrigation being 2,900,000 m³. The total annual volume proposed will enable the applicant to take two years' worth of irrigation water during a single calendar year with 2,900,000 m³ being irrigated and 2,900,000 m³ stored until the next irrigation season.
- b) CRC122874 To install and maintain a diversion structure in the bed of the Brothers Stream at or about map reference NZMS 260 140:2180-1180, and to construct and operate a water storage dam no higher than 16 metres in an ephemeral unnamed tributary of the Hakataramea River, at or about map reference NZMS 260 140:1923-1263.
- c) CRC134927 To use land to store up to 1,500,000 m³ of water behind the dam as authorised under CRC122874

9. The proposed water permit will complement existing consented irrigation on the Foveran property sourced from the Hakataramea River (CRC950601.2 and CRC031592). The current irrigation area is consented for, and is exercised at, up to approximately 175 hectares; with the combined take not exceeding 52 L/s. Since the purchase of The Brothers property in 2011, the two properties have been managed as one landholding for farm management purposes. Whilst CRC031592 is specific about the land to be irrigated (including control on land use), CRC950601.2 does not specify any particular land for irrigation under the resource consent. The applicant advised that water harvested by the dam (the application) would be used partially for irrigation of the 175 ha consented under CRC950601.2 and CRC031592 because of the lack of reliability of supply from the Hakataramea River under low flow conditions.
10. A consent duration of 35 years was sought.

NOTIFICATION AND SUBMISSIONS

11. Pursuant to section 95 of the RMA, the application was publicly notified in Oamaru Mail (Monday 20th August 2012) and Otago Daily Times (Saturday 18th August 2012).
12. The notification wording is included below. In addition, individual notice was served on the following parties:
- Waitaki District Council;
 - Waimate District Council;
 - Te Rūnanga o Waihao Inc;
 - Te Rūnanga o Ngāi Tahu;
 - Central South Island Fish and Game;
 - Department of Conservation;
 - Federated Farmers of New Zealand (South Canterbury); and
 - Neighbouring property owners

Hakataramea Valley – “The Brothers” and “Foveran”
--

Applicant: Mr R.H Robertson
Address: C/- Environmental Associates Limited, PO Box 2079, South Dunedin, DUNEDIN
Attn: Mr Tom Heller

CRC122871 – to take and use water:

To take up to 2,000 litres per second of water when available at higher flows, with an annual volume not exceeding 5,800,000 m³ from the Brothers Stream, at or about map reference NZMS 260 I40:218-118.

Water may be used for storage and irrigation of up to 560 ha of crops and pasture.

The annual volume of water used for irrigation shall not exceed 2,900,000 cubic metres.

CRC122874 – to undertake works in the bed of a river:

To install and maintain a diversion structure in the bed of the Brothers Stream at or about map reference NZMS 260 I40:218-118.

To construct and operate a dam no higher than 16 metres in an unnamed tributary of the Hakataramea River, at or about map reference NZMS 260 I40:1923-1263.

The volume of water in the dam shall not exceed 1,500,000 cubic metres.

CRC122875 – to discharge water:

To discharge up to 2,000 litres per second of water from the unnamed stream dam into the unnamed stream and the Hakataramea River, at or about map reference NZMS 260 I40:1923-1263.

Water may be discharged for the purpose of sluicing.

The above activities are to take place at properties known as “The Brothers” and “Foveran Farm Property” in the Hakataramea Valley. The property locations are adjacent to the Brothers Stream at its confluence with the Hakataramea River; at the corner of McHendrys and Tabletop Roads.

A consent duration of 35 years is sought for all three activities. All three applications are for new activities.

13. As discussed in paragraphs 3 and 4 of this Decision, there have been changes to the applications since notification, but none of a nature that warranted re-notification.
14. Four submissions on this application were received (Table 1). All four submissions were in opposition and wished to be heard.
15. Following consultation with the applicant, Te Rūnanga o Ngāi Tahu and the Tweed Family Trust informed ECan they no longer wished to be heard. However their

respective submissions were not withdrawn and were taken into account in reaching a decision. Mr Tweed provided further written information.

Table 1. Submissions received for CRC121871, CRC122874, and CRC122875.

Submitter	Issues
Mr Donald McKenzie	<ul style="list-style-type: none"> - Effects on natural flows in the Hakataramea River and Brothers Stream; - Effects of land use intensification; - Appropriateness of diversion structure; and - Effects on significant natural features in the Brothers Stream (Sarsen Stones).
Central South Island Fish and Game	<ul style="list-style-type: none"> - Effects on water quality - Effects on the Hakataramea River – in particular, because the Hakataramea Catchment is considered a Significant Salmon Spawning Catchment; - Effects on aquatic ecology (namely sports fish species); - Effects on downstream flows in the Hakataramea River and the Waitaki River (but not necessarily limited to these waterways); and - The duration of consent proposed.
Te Rūnanga o Ngāi Tahu (Submission on behalf of Te Rūnanga o Ngāi Tahu; Te Rūnanga o Waihao; and Te Rūnanga o	<ul style="list-style-type: none"> - The application in its current form may negatively impact upon cultural values associated with the area; - Effects on water quality; - Effects on aquatic ecology; and - Effects on flows in downstream waterway(s).

Arowhenua).	
Tweed Family Trust	<ul style="list-style-type: none"> - Effects from land use intensification on water quality (including drinking water); - Effects on bore used for domestic supply; - Effects on flows in downstream waterways (namely the Hakataramea River); - Effects on structures due to the discharging of water from the dam; and - Concerns over dam safety.

THE HEARING

Applicant's Case

16. **Ms Katia Fraser** (North South Environmental Law) made the opening legal submissions on behalf of the applicant. As well as introducing the applicant's case, Ms Fraser addressed legal issues relating to:
 - (a) The relative weight to be given to the Waitaki Catchment Water Allocation Regional Plan (WCWARP) and the proposed Canterbury Land and Water Regional Plan (pLWRP),
 - (b) The relevance of expert opinion cited in the Section 42A Officer's report without corroborating written technical support, and,
 - (c) The correct use of the terms "effects being more than minor" and "contrary to objectives and policies" in the Section 104(1) evaluation by the S42A Officer.
17. Ms Fraser acknowledged that the proposal needs to be assessed as requiring non-complying consents under Section 104D of the RMA, but submitted that that it passed the test required under this section.
18. **Mr Bob Robertson** (the applicant) related his history on the Foveran Deer Park (including being the recipient of a Fish & Game New Zealand Award for

Excellence in riparian management) and how his 2011 acquisition of the Brothers property, together with the proposed irrigation, would enable him to sustain high quality pasture through the summer dry months and grow out his own winter feed supplements.

19. In terms of the Brothers application to take and store water he made the following points:
 - (d) The last kilometre of The Brothers Stream that runs into the Hakataramea only flows for about 10% of the year and that when water does flow it does so for 4-10 days at a time, mainly during the winter.
 - (e) During the large periods of no-flow, the last kilometre of the river channel is completely dry without any pools. He supported this statement with photographic evidence.
 - (f) The proposal seeks to extract water from The Brothers stream at times when flow is high both in the Hakataramea and the Brothers stream.
 - (g) Water storage is the most environmentally friendly way of using our scarce water resource and is more sustainable than direct extraction out of the Hakataramea
16. In answer to my question Mr Robertson said that while he could not predict farm type in the future, his intention was to maintain and develop the deer stud, and that deer fences were currently being constructed on the Brothers property "as we speak".
17. **Mr Harry Stocker** (Tonkin & Taylor Ltd) a chartered civil and environmental engineer said in his view any variation to the natural flow regimes of the Brothers or Unnamed Stream would not significantly affect fluvial processes in the Hakataramea River nor the Waitaki River. He made the following points about fluvial processes in The Brothers stream and Unnamed Stream:
 - (a) The reach below the proposed diversion is generally dry during summer low flows and will not contribute to channel forming processes,

- (b) Proposed consent conditions precluding or limiting substantial diversion during low to medium flow periods will correspondingly mitigate any fluvial effects,
 - (c) During periods of medium to higher flow, flows will tend to be reduced in the Brothers Stream by the diversion, and buffered by the dam in the Unnamed Stream,
 - (d) During freshes, the Brothers Stream diversion will encourage some deposition at the diversion point due to the abrupt reduction in stream flow at this point. However in larger floods, when most sediment transport occurs, the maximum diversion of 2000 L/s will represent only a small proportion of the total flow and the diversion will be effectively overwhelmed by the flood.
 - (e) Thus in his view, the dynamic fluvial process in Brothers Stream will be largely unaffected by the diversion.
 - (f) The Unnamed Stream dam will interrupt the sediment flow and trap it in the reservoir pond, thus potentially exposing the downstream channel to erosion. However, upstream flood flows will be absorbed or attenuated by the reservoir and therefore less competent to remobilise the coarser fractions of alluvium with any potential for erosion reduced correspondingly.
 - (g) The applicant intends to maintain its storage capacity of the dam by occasional mechanical excavation. Provided the excavated material is re-spread within or near the downstream channel, so that it will be accessible by flood flows, it will act to re-nourish the channel and thus further reduce any erosion potential.
18. Mr Stocker noted that although the dimensions of the proposed dam have yet to be finalised, it is clear that it will be classified as a 'Large Dam' in terms of the Building Act 2004. A dam breach assessment will therefore be required as part of the design and building consent process. Mr Stocker outlined the Potential Impact Classification (PIC) and certification required under that Act.
19. **Mr Tom Heller's** (Environmental Associates Ltd) evidence related specifically to water quantity and water quality for the water take and use application.

20. Specific points made by Mr Heller on water quantity included:
- (a) Efficient use (up to 2,900,000 m³ over 560ha) had been calculated using WQN9 and was accepted as efficient by ECan's technical expert Mr Lloyd,
 - (b) Refilling of the storage dam could occur during the storage year and that up to 5,800,000 m³ was the maximum annual diversion volume proposed,
 - (c) The proposed environmental flow regime was considered generally acceptable by Mr Lloyd notwithstanding some modifications to the proffered conditions with respect to the minimum flows,
 - (d) He explained that the residual flow proposed for the Brothers Stream was principally to provide flow continuity for the Hakataramea River during low flow ranges. The amount of residual flow and its timing was designed to ensure the flow contribution from the Brothers Stream to the Hakataramea River was close to the natural flow, except under storm flow conditions when some diversion from the Brothers Stream catchment was possible, due to the expected high flows in the main stem of the Hakataramea.
21. Mr Heller agreed with Mr Lloyd's conclusion that WCWARP specifically allows the water allocation limits for the Hakataramea River (above Black Point) to be exceeded under conditions where higher flows are harvested for later use at low flows.
22. Mr Heller's evidence on water quality was confined to discussing points of agreement/disagreement with Ms Hayward (ECan technical expert). Significant points made were:
- (a) Any increase in nutrients in the Hakataramea River as a result of the proposal will be small and that as a result any increase in nuisance periphyton growths will be small,
 - (b) An assessment of potential phosphorus losses was not done as part of the AEE (as pointed out by Ms Hayward) but that as such losses occur mainly during high rainfall events when the Hakataramea River is also high. He

noted that the mobilisation of phosphorus can be managed within the property with an appropriate FEMP and best practice farming methods,

- (c) Any P loss from the property would not increase the risk of nuisance periphyton growth in the Hakataramea River,
- (d) The proposed activity would not result in non-compliance with water quality outcomes in the pLWRP and that outcomes for groundwater nitrate would be met.
- (e) DIN-losses are predicted to conservatively increase by 14% downstream in the Hakataramea River after groundwater input from the requested activity. This is in excess of that allowed for in Policy WQL4 of the operative NRRP as pointed out by Ms Hayward. However, Mr Heller maintained that an assessment of potential effects on nuisance periphyton had been undertaken and those effects were deemed to be minor; which Ms Hayward also agreed would be the case.
- (f) The AEE proposed an average N-loss condition of 15 kg/ha/y based on AgResearch studies in the Hakataramea valley using Overseer V5.3. However after discussions with Ms Hayward, Mr Heller agreed that Overseer Version 6.0 should be used to set N-loss limits and that a value of 20 kg N/ha/y is more appropriate for the applicant's proposal. This takes into account an expected 30% increase in N loss when moving from Overseer v5.3 to Overseer V6.0.

23. Mr Heller then addressed technical issues raised in the s42A report. In particular he noted:

- (a) The minimum flow and flow sharing thresholds identified by Mr Nevin have been incorporated into conditions of consent and are now in compliance with Table 3 (xxii) of the WCWARP,
- (b) That priority was not an issue for this application mainly because (i) there is no physical relationship between this proposal and any other applications in process, and (ii) the proposed water take does not affect the low flow yield of

the Hakataramea River, or it's contribution to the Waitaki River above Black Point.

- (c) The cumulative effects upon downstream flows and water users is insignificant, particularly when referenced to available allocation for water harvesting activities of this nature.

24. Finally Mr Heller addressed outstanding issues which in summary were:

- (a) Appropriate irrigation areas to be considered (Mr Heller stated that the applicant agreed to the proffered N-loss limit being applied to the full 560 ha of irrigable area as suggested by Mr Nevin);
- (b) Comments on flow statistics and viability for the requested activity (Mr Heller noted that although there were differences in flow statistics between the parties, acceptance of the ECan or Golders calculations made the applicant's proposal significantly more conservative towards the environment, and that this was agreed by all experts);
- (c) Potential effect of algal blooms in water storage dams (Mr Heller said this would be mitigated by fluctuating levels during operation of the dam and that in any case water storage was contained within the applicant's property with no right of public access); and,
- (d) Ecological assessment. – Mr Heller rebutted the S42A officers assertion that an ecological assessment should have been done citing the reply to a request for information form the Department of Conservation (Mr Ravenscroft) who concluded there that is little to no value in the connection between the lower and upper parts of the Brothers Stream and that any resident fish population was there because of the lack of predation. Mr Heller said Mr Ravenscroft's opinion was consistent with the Fish and Game submission that there was no sports fishery value for the Brothers Stream due to there being no surface flow to the Hakataramea River.

25. **Mr Brett Giddens** (Town Planning Group Ltd) emphasized that there was considerable agreement amongst the experts as to the extent of effects that the

proposal will have on the environment. He summarised the key potential adverse effects as:

- (a) Degradation of water quality within the Brothers Stream and Hakataramea River;
- (b) Consequential ecological effects;
- (c) The extent to which the take is an efficient use;
- (d) Water quality and effects on other users;
- (e) Impacts on amenity, landscape and cultural values; and
- (f) Potential effects of dam failure, compromising of flood flow regimes and water quality.

26. Mr Giddens key points of interpretation having considered all the experts' documentation and evidence was:

- (a) Effects on water quality will be minor and the objectives and policies in the in the RRP and pLWRP will be met,
- (b) Conditions developed as part of the Lower Waitaki Hearings are appropriate for inclusion for these applications,
- (c) A Farm Management Plan is required to outline how the effects of the land use on water quality will be minimised,
- (d) The proposed conditions of take whereby the volume of water from all sources do not exceed 1,500 m³/ha/30 days and 2,900,000 m³ between 1 July and the following 30 June sufficiently constrains the take such that it will not exceed this value,
- (e) There were no concerns from the technical experts over allocation and no other specific concerns over the flow compliance regime apart from it being potentially difficult to operate. The proposed flow compliance regime will result in effects that are less than minor,

- (f) Cumulative effects are a relevant consideration. The take has been structured to target high flow situations, avoid low flow takes and preserve as best as possible the residual river flows. The effects resulting from the proposal will not form a significant cumulative contribution within the environment,
 - (g) The effects of the proposal on amenity values are insignificant,
 - (h) A number of consent conditions have been proposed that provide sufficient controls for consent authority to assess dam safety aspects of the application, and,
 - (i) The proposal has a number of positive effects.
27. Mr Giddens also provided a statutory assessment and in his view the main the main points are:
- (a) Full weight cannot be afforded to the provisions of the pLWRP and that the principal document of relevance in terms of water quality and quantity is the WCWARP, but in any case, apart from being neutral with respect to Policy 4.47 the proposal is certainly not contrary to all other relevant provisions,
 - (b) In particular it meets the requirements of Policy 4.1, 3.32, 3.6, 4.7, 4.8, 4.26, 4.33 and 4.35. Mr Giddens noted that the Plan states in Section 15 that *"the LWRP's objectives, policies and rules do not apply to the matters controlled by the Waitaki Catchment Water Allocation Regional Plan"*
 - (c) In this regard the proposal fulfils the objectives and policies of the WCWARP and that in particular the proposal meets Policy 21 relating to monitoring and review, noting that the inclusion of a consent condition provides some relief to the Consent Authority that should any unforeseen adverse effect arise from the granting these applications, the consents can be reviewed to address any such effect (of relevance as section 128 of the RMA).
 - (d) The proposal also meets relevant provisions of the Canterbury Regional Policy Statement and the Natural Resources Regional Plan.

28. Mr Giddens confirmed that in his view the proposal is consistent with Part 2 of the RMA and promotes the sustainable management of natural and physical resources.

Submitter's Evidence

29. **Ms Devon Christensen** gave evidence on behalf of Central South Island Fish & Game Council, noting that the original submission had been prepared by **Ms Zella Smith** (now ECan).
30. The main points made by Ms Christensen's evidence were:
- (a) The Hakataramea is an important tributary of the Lower Waitaki River which is the fourth most fished river managed by Fish and Game New Zealand,
 - (b) The main recreational fishing in the Hakataramea is for trout and its most valuable attribute is early season rainbow trout fishing upstream of Cattle Creek Bridge about 35km upstream from the Waitaki River,
 - (c) The Hakataramea and Awakino rivers are the major known sources of rainbow trout recruits from tributaries for the lower Waitaki River and are of comparable importance,
 - (d) The Hakataramea fishery is dependent on winter access for adult rainbow trout upstream from the Waitaki and spring and summer access for their offspring downstream to the Waitaki,
 - (e) While Brothers Stream is not a sports fishery in itself because it is often dry in the lower reaches, it provides an important contribution of water to the Hakataramea River when it is flowing and through subsurface flows. A "spring" where the Brothers Stream reaches the Hakataramea helps water a dry area of the waterbed. Diverting water from the Brothers onto land through irrigation may exacerbate the drying of that part of the Hakataramea River from about Wrights Crossing downstream to Foveran,
 - (f) Reports on the water quality of the Hakataramea indicate that current water quality exceeds at times certain biomass criteria for protecting visual aesthetic, benthic biodiversity, trout habitat and angling values,

- (g) The river already exceeds the criteria for filamentous algal cover provided in the NRRP, and it is important that appropriate conditions are applied if the consent is granted to mitigate further degradation,
- (h) Fish and Game seeks that if consent is granted, the water quality conditions set developed in the Lower Waitaki Consent process be retained,
- (i) Fish and Game consider it inappropriate to allow water takes to be granted that will result in the allocation limit, set through an extensive hearing process (the WCWARP), being exceeded,
- (j) It appears that the large amount of water to be taken at high flows will flat line the waterway at 5 l/s for an extended period of time,
- (k) Concern about disparities in flow statistics between experts, and the relationship between flows in the Brother's Stream and the Hakataramea, and,
- (l) A 35-year consent duration is not suitable considering the limited information the application is based on.

- 31. **Mr Donald McKenzie** farms the property east of the proposed take site. Mr McKenzie was concerned about effects of the proposed take on natural flows in Brothers stream and the Hakataramea River. He pointed out that each tributary catchment of the Hakataramea River is unique and as a result it is difficult to accurately model mean flows. He would have preferred some gaugings at the take site in Brothers stream to give some reference to the modelling.
- 32. Mr McKenzie also had concerns over future intensification plans on the property, particularly if future owners have a different focus to Mr Robertson.
- 33. **Mr Tweed** (another neighbour) made a written submission and provided additional material but did not appear at the hearing. Mr Tweed acknowledged that he had been contacted by Mr Robertson and assured that his concerns with respect to sluicing of the dam, providing for residual flows down the Brothers Stream, and not taking from the Brothers Stream when the Hakataramea river was low, had been listened to and the current proposal reflects that.

34. However Mr Tweed was still concerned that the Hakataramea River is already under stress through existing takes and that he has seen the River dry up between pools near the Brothers stream confluence yet still flowing at the village.
35. He requested that thought be given not only of a minimum flow in the Hakataramea River, but also where that flow is measured. He also sought to ensure that the diversion structure of the Brothers Stream is built in such a way that it cannot be tampered with and take the total flow.
36. A written submission was received from **Te Runanga o Ngai Tahu** (Philippa Lynch – Environmental Advisor). However following consultation with the applicant Ngai Tahu chose not to appear at the hearing.
37. Ngai Tahu's were not confident that the proposed mitigation measures by the applicant would ensure that the cumulative effects of the activity on the environment would not negatively impact on their cultural values. Ngai Tahu remained deeply concerned as this degradation of water quality is a physical expression of the degradation to the mauri, thus it could have a significantly negative impact upon native fish populations, mahinga kai species and the aspirations of nga runanga to improve the degraded mahinga kai areas within the area.
38. Ngai Tahu were also concerned about the impact of the diversion on Brothers Stream and the proposed dam and discharges from the dam on the unnamed stream and were not confident that the proposed mitigation measures would ensure the effects on the streams will be minor.

Section 42A Report

39. Much of the Applicant's evidence was directed at the S42A report written by **Mr Sam Nevin**, Consents Planner for ECan. Mr Nevin chose not to speak to his report but rather to address outstanding issues. He called upon his technical advisers Mr Ian Lloyd (water quantity) and Ms Shirley Hayward to speak when appropriate.
40. Mr Nevin's main points were:
 - (a) He disagreed with the applicant that priority (with other applicants) should be disregarded,

- (b) He disagreed with the applicant that Joanna Lessard's comments (reported in the s42A report but not backed up with a technical report should be disregarded,
- (c) Concern about dam safety in the absence of design plans –PIC would not be assessed for a building permit,
- (d) On-farm storage ponds would be required if total annual take was 5,800,000 m³. He maintained such ponds would require a consent,
- (e) Concern over the effects of the pLWRP with respect to triggering the need for additional consents under rule 5.42 because the applicant had assessed effects only on 385 ha whereas 560 ha would be irrigated in total,
- (f) Concern that the proposed consent monitoring conditions would not lead to any action in the event the consent condition was breached, and
- (g) He recommended a term of 10 years for the water take if consent was granted because of the uncertainties surrounding the application.

41. **Mr Lloyd** noted:

- (a) Transport of suspended sediment from the Brothers Stream to the storage dam could cause problems in terms of maintaining storage capacity in the dam,
- (b) The storage capacity of the dam (1,500,000 m³) was incompatible with the intention of the applicant to take up to twice the volume needed to irrigate pasture over one year (5,800,000 m³) without developing additional storage.

42. **Ms Hayward's** concerns were:

- (a) The AEE was based on irrigating 385 ha, with the existing 175 ha assumed to be part of the existing baseline by the applicant. However the increased reliability of supply could result in additional N leaching from that 175 ha over and above the existing baseline,
- (b) The AEE assessed N loss based on 15 kg N/ha/y loss (Overseer version 5.3 – equivalent to 20 kg N/ha/y Overseer version 6.0)) whereas the applicant

had signalled a maximum leaching loss of up to 50 kg N/ha/y (Version 6.0) apparently to comply with provisions of pLWRP. Ms Hayward thought their interpretation was wrong and it should be revised back to an average 20 kg N/ha/y, otherwise a new assessment would need to be done based on the higher figure.

- (c) Proposed condition 14 on the N leaching loss limit needs to be specifically related to Overseer Version 6.

Right of Reply

43. Ms Fraser submitted that:

- (a) As Ms Hayward concluded that the proposed activity will possibly result in some minor (but no more than minor) effects on the environment, and the first test of Section 104D provides that a consent can be granted if adverse effects will be minor, then section 104D is satisfied.
- (b) The view taken by both Fish & Game and the Section 42A Officer that it is inappropriate to allow water takes to be granted that result in the allocation limit being exceeded is *ultra vires* and would in effect render any exceedance a prohibited activity, which was not the case.
- (c) The difference in the flow statistics calculated by the Mr Heller, ECan and Mr Lloyd represent a risk to the Applicant, and will not affect potential adverse effects on the environment.
- (d) Although Fish & Game expressed concerns about effects on the ecology of waterways, no expert evidence was provided by either Fish & Game or ECan.
- (e) Mr Stocker provided evidence in relation to dam design. Mr Nevin confirmed that dam design measures could be addressed when/if resource consents are granted.
- (f) The Section 42A Report expressed concerns about the lack of assessment in terms of a dam breach. However no consent application has been made for a dam breach, and hence no assessment of effects is needed. The

Applicant is of the view it is more important to ensure that the engineering of the dam is accurate so that a dam breach does not take place. Should a dam breach take place and the Applicant does not have the requisite consent, ECan has the option of taking enforcement action.

- (g) An appropriate level of information was provided given that the proposal is simple and has few potential effects. At no stage did ECan state prior to issuing the Section 42A Report that inadequate information had been provided by the Applicant.
- (h) In assessing the applications it is necessary to have regard to both operative and proposed plans. It is important, however, to ensure appropriate weight is given to any proposed plan. In particular, **less** weight should be given to the Proposed Land and Water Regional Plan. It is noted that the nitrogen loss rules discussed at length during the hearing are from the proposed plan and should not be given full weight. The Section 42A Officer did not question the weight to be given to the proposed plan during the hearing.
- (i) Concern was expressed in the Section 42A Report regarding viability of the proposal. It is submitted that viability of the proposal is at the Applicant's risk and not the environment. Viability is not a concern for ECan in so far as there is no environmental risk because the proposal has been informed in such a conservative manner.

ASSESSMENT

44. In assessing this application, I have considered the application documentation and assessment of environmental effects (AEE), the s42A Report, the submissions received and the evidence provided during the hearing.

Status of the Application

45. There is agreement between the parties that the proposed take and land use applications should be bundled and considered as an overall non-complying activity. I agree and consider it is appropriate to consider the application overall as **a non-complying activity**.

Statutory Considerations

46. In terms of my responsibilities for giving consideration to the application, I am required to have regard to the matters listed in sections 104, 104B and 104D of the Act.
47. In terms of s104(1), and subject to Part 2 of the Act, which contains the Act's purpose and principles, I must to have regard to-
- (a) *Any actual and potential effects on the environment of allowing the activity;*
 - (b) *Any relevant provisions of a national environmental standard, other regulations, a national policy statement, a New Zealand coastal policy statement, a regional policy statement or a proposed regional policy statement, a plan or proposed plan; and*
 - (c) *Any other matters the consent authority considers relevant and reasonably necessary to determine the application.*
48. In terms of s104(3), when considering the application, I must not have regard to any effect on a person who has given written approval to the application.
49. In terms of s104 (6) I may decline the application on the grounds that it has inadequate information to make a determination on the application; taking into account requests made for further information (s104 (7)).
50. In terms of s104B, I may grant or refuse the application, and if granted I may impose conditions under s108.
51. In terms of s104D for a non-complying activity, I may only grant consent if either-
- (a) The adverse effects of the activity on the environment will be minor; or
 - (b) The application is for an activity that will not be contrary to the objectives and policies of the relevant plans.

Section 104(1)(a) - Actual and potential effects on the environment

52. On the basis of the evidence presented, the principal issues in contention are:
- (a) Degradation of water quality within the Hakataramea River;
 - (b) Ecological effects on the Brothers Stream and Hakataramea River;

- (c) The extent to which the take is an efficient use;
53. I agree with the Applicant's assessment, backed up by ECan's technical reviewer, Ms Hayward, that effects will be minor, providing the consent conditions proffered by the Applicant are met. In coming to this view I note the following:
- (a) The Applicant has agreed to conditions restricting N leaching from the property as a whole to < 20 kgN/ha/y as determined using Overseer Version 6.0,
 - (b) This N leaching consent condition will restrict future farm intensification scenarios, which was a concern of Mr McKenzie,
 - (c) Phosphorus runoff should not be an issue because of separation of the irrigation command areas from waterways, and the conditions proposed for riparian planting and management,
 - (d) The proposed residual flow conditions that maximise flow in the Hakataramea River under low flow conditions, will help minimise nutrient levels in the river at times when the risk of nuisance periphyton growths is greatest,
 - (e) The proposed 'stepped' residual flow regime in Brother's Stream should not diminish the Hakataramea's ability to scour periphyton during flood flows.
54. I accept the applicant's analysis that the ecological value of Brother's Stream is low below the proposed take point due to the lack of a surface connection to the Hakataramea River except under flood conditions. The proposed take will not change this situation. I acknowledge Mr Tweed and Ms Christensen's concerns that the take and use could diminish ecological values of Brother's Stream and the Hakataramea River through reducing the input to a spring near the confluence. However I concur with the applicant that with the residual flow conditions proposed, any such effects will be minor.
55. I accept the applicant's and Mr Lloyd's analysis that a take of 2,900,000 m³ per year constitutes an efficient use of water over 560 ha. I note that Mr Nevin's concerns that the actual proposed take (5,800,000 m³) exceeded the combined annual volume needed for irrigation plus the storage capacity of the dam

(4,400,000 m³). Mr Nevin's concerns have been alleviated by the applicant agreeing by way of consent condition that the maximum annual take will not exceed 4,400,000 m³.

56. Overall, I accept the applicant's and ECan technical advisers analyses that the potential adverse effects of the application are likely to be no more than minor.

Section 104(1)(b) – Relevant planning provisions

57. An analysis of the relevant provisions of the Canterbury Regional Policy Statement (RPS), the Waitaki Catchment Water Allocation Regional Plan (WCWARP, the Natural Resources Regional Plan (NRRP), and the proposed Canterbury Land and Water Regional Plan (pLWRP) was provided in the Section 42A report as well as the applicant's planning evidence (Mr Giddens).
58. I note and agree with the applicant's submission that lesser weight should be given to the pLWRP due to the relative dates of the applications being lodged and the pLWRP being notified, as well as the current state of the plan,
59. Nevertheless I concur with Mr Nevin that I need to give some consideration of the pLWRP particularly with respect to it triggering (Rule 5.42) the need for further consents for the 175 ha currently irrigated under consents CRC950601.2 and CRC031592, which do not specify an N loss limit. The applicant has offered to accept an N loss limit of 20 kg/ha/y for the entire 560 ha irrigated area, however the AEE assessed effects only on the 385 ha not consented under CRC950601.2 and CRC031592, arguing that this formed part of the permitted baseline. However ECan's technical adviser on water quality issues, Ms Hayward advised that in her view the scale of change did not change her original assessment in terms of the effects overall being minor, providing the conditions as described draft consent are implemented.
60. I note the relevance of Row xix (Table 3, Rule 2) of the WCWARP and that the schedule proposed by the applicant for taking water from Brothers Stream complies with this environmental flow regime. Although the take will increase the over-allocation to agriculture and horticulture of the water resource in the Waitaki Catchment between the Waitaki Dam and Black Point, as stipulated in Table 5 under Rule 6, it will not compromise the environmental flow regime specified for

the Hakataramea River in Table 3 under Rule 2. I therefore agree with Mr Giddens that the outcomes sought in Policy 43 will not be compromised.

61. Overall I consider the relevant provisions of the RPS, WCWARP, and NRRP highlighted by the applicant and the s42A officer will not be compromised by the applicant's proposal and that the relevant provisions of the pLWRP are broadly met.

Section 104(1)(c) - Other matters

62. Mr Nevin considered that the Kati Huirapa Management Plan, and the Ngai Tahu resource management document Te Whakatau Kaupapa – Resource Management Strategy for the Canterbury Region (1992) are relevant documents (under Policy 4.3.5 of the RPS) to be considered for this application as the maintenance and enhancement of water quality and water quantity are of paramount importance in these plans.
63. I note that Ngāi Tahu submitted against these applications for reasons broadly similar to those outlined in the documents cited above. As I have previously determined that granting consent to the application with appropriate conditions will result in only minor effects on water quality and quantity I consider that Ngāi Tahu's concerns will be met.
64. Mr Nevin also raised the economic viability of the project. As the risk of economic viability is entirely borne by the applicant and will have no impact on the Brother Stream or Hakataramea River, I don't consider it relevant to my deliberations.
65. Mr Nevin also highlighted the Canterbury Water Management Strategy (CWMS) as relevant to the decision. I agree with Mr Nevin that it is relevant and that the proposal is consistent with the objectives of the CWMS, which encourages water harvesting as a means of increasing economic output for Canterbury, providing it does not cause significant environmental effects.

Section 104 (3) Written approval

66. There were no written approvals of the applications. I note that Mr Tweed and Ngāi Tahu chose not to appear at the hearing, but did not withdraw their respective submissions or give written approval.

Section 104 (6) and (7) Inadequate information

67. A recurring theme of Section 42A report was that there was inadequate information provided by the applicant upon which to make a decision. The applicant has argued that the information provided is adequate and consistent with a proposal for which only minor effects are expected, and that in any case, all information requested by ECan has been provided.
68. If there was a likelihood that the proposal might cause significant environmental effects I would have sided with Mr Nevin in this argument. It would have been desirable to have some information of the ecology of Brothers Stream and also some flow measurements at the diversion point. This would have provided more substance to the applicant's view that effects on Brothers Stream will be only minor, and it would also have provided a reference point to the flow statistics that were debated between the applicant, submitters and ECan. However Mr Robertson's photos of Brothers Stream clearly showing the extent of the dry streambed is incontrovertible, and was supported by other evidence from Mr Heller as well as Ms Christensen. In addition Mr Giddens made a good case that any errors in flow statistics (and hence the ability to divert water to the storage dam) are at the expense of the applicant and not the environment. Therefore on balance I consider that there is sufficient information from which to make a decision.
69. I note the Ms Fraser submitted that I should not take into account Dr Lessard's views on the ecology of Brothers Stream (reported in the s42A report) since no technical memoranda from Ms Lessard was provided. While this may have been the case, the applicant's assertion that Brothers Stream and unnamed stream had little ecological value was equally not substantiated by expert evidence from a qualified ecologist.
70. Similarly I would have preferred that a FEMP were submitted as part of the AEE documentation. This would have provided more assurance that the applicant had thought through the issues and considered mitigation options. However the applicant has agreed to a nitrogen cap of 20 kg/ha/y over the 560 ha irrigated area. This should be easy to comply with if deer farming is the dominant farm use but could prove more difficult if more intensive farm uses such as dairying were

envisaged in the future. Therefore, on balance, I am comfortable with the condition that requires a FEMP to be prepared prior to the exercise of the consent.

Section 104D

71. On the basis of the evidence presented, I consider the application is likely to have only minor adverse effects on the environment and that it is generally not contrary to the relevant objectives and policies of the relevant planning provisions. It therefore passes the Section 104D gateway test and I am able to grant consent.

Part 2 of the Act

72. All the considerations I have described are subject to Part 2 of the Act. On the basis of the evidence presented, I am satisfied that the purpose of the Act (section 5) is best achieved by granting consent. I am satisfied that the application is likely to be consistent with sections 6, 7 and 8, with the imposition of the recommended conditions of consent.

Term and conditions

73. I note that Mr Nevin recommended that if granted, that consent should be given for only 10 years. Mr Nevin's reasons for this recommendation centred on the lack of information provided and the risk of significant environmental effects being noted. However I am satisfied that there will be only minor effects. I also note that the conditions contain a review clause, such that ECan have the ability to refine existing conditions or impose new ones if required.
74. The applicants sought a term of 35 years for these new consents. Ms Fraser, stated during the hearing that a 10 year term as argued by Mr Nevin was inadequate to provide investment certainty, but that the applicant would be satisfied with a 20-25 year consent duration. I note that applications within the Hakataramea catchment were generally granted a 35-year consent by the Lower Waitaki Commissioners, and that the applicant has adopted the monitoring and survey conditions imposed on those consents. In addition there is a lot of commonality between the Hakataramea consents granted in the Lower Waitaki hearing and this application, namely:
- (a) Any adverse effects of the water takes and on water quality can be satisfactorily mitigated,

- (b) a substantial expenditure on infrastructure is involved,
 - (c) the take will comply with the Environmental Flow Regime of the Hakataramea River,
 - (d) this tributary take is for water harvesting only,
 - (e) in-stream values (Hakataramea) will be protected by the flow regime proffered by the applicant and incorporated into conditions,
 - (f) there is a significant commitment by the applicant to an on-going monitoring programme, and,
 - (g) there is the same comprehensive review condition (as with the Lower Waitaki to deal with any unforeseen adverse effects that become evident through the monitoring.
75. Against the commonality listed above, the applicants in the Lower Waitaki hearing provided more information than was the case here; and in fact the applicant relied on evidence produced for the Lower Waitaki hearing to bolster his case with respect to ecological effects. Given the greater certainty provided by the Lower Waitaki applicants, and the offer by the applicant to accept a lesser term than that requested, I consider it appropriate to grant a term of 25 years to these consents.
76. A number of the proposed consent conditions tabled by the applicant were changed during the course of the hearing including the N leaching limit (condition) and the total annual take. These are reflected in Annexure 1.

Decision

77. **For the reasons outlined above, it is the decision of the Canterbury Regional Council, pursuant to sections 104, 104B and 104D, and subject to Part 2 of the Resource Management Act 1991, to grant RH Robertson Water Permit CRC122871 to take and use surface water, together with associated land use permits CRC122874 to undertake works in the beds of the Brothers Stream (for the installation and maintenance of a diversion structure) and an unnamed tributary of the Hakataramea River (to construct and operate a water storage dam), and CRC13492 to use land to store water behind the**

dam as authorised under CRC122874 for a term of 25 years, subject to the consent conditions set out in Annexure 1.

Right of Appeal (Section 120)

78. The parties are advised there is a right of appeal to the Environment Court, which must be lodged within 15 working days of this decision.

Dated at Hamilton this 9th day of April 2013

A handwritten signature in black ink, appearing to read 'J Cooke', is positioned above the printed name of the Independent Commissioner.

Dr James Cooke
Independent Commissioner

Annexure 1

Water Permit – The Brothers Stream (CRC122871)

1. Water shall only be taken from a fixed diversion complex within the Brothers Stream located at or about map reference NZMS 260 I40:2180-1180 (Topo50 CA17:1186-5015), as shown on Plan CRC122871, which forms part of this consent.
2. Water may only be taken from the fixed diversion complex referred to in condition (1) at a rate not exceeding 2,000 litres per second, with a volume not exceeding 4,400,000 cubic metres between 1st July and the following 30th June.
3. Water shall only be taken into on-farm water storage and then subsequently used for spray irrigation of crops and pasture as described in the application, on the 560 ha area of land shown in attached Plan CRC122871, which forms part of this consent.
4. The rate of take from storage for irrigation shall not exceed a maximum of 250 litres per second, with a volume not exceeding 648,000 cubic metres per month and 2,900,000 cubic metres between 1st July and the following 30th June.
5. The maximum combined volume of water from any take in conjunction with the exercise of this consent for irrigation onto any land shown in the attached plan for CRC122871, shall not exceed 1,500 cubic metres/ha/30-consecutive days, and 2,900,000 cubic metres between 1st July and the following 30th June.

Fish Screen

6.
 - a. Water shall only be taken when a fish screen with a maximum mesh width and height of three millimetres or maximum slot width and height of two millimetres is operated and maintained across the intake to ensure that fish and fish fry are prevented from passing through the intake screen;
 - b. The fish screen shall be positioned to ensure that there is unimpeded fish passage to and from the waterway and to avoid the entrapment of fish at the point of abstraction, and to minimise the risk of fish being damaged by contact with the screenface; and
 - c. The fish screen shall be designed and installed in general accordance with Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007. 092. October 2007 and will ensure that:
 - i. The majority of the screen surface is oriented parallel to the direction of water flow.
 - ii. Where practicable, the screen is positioned in the water column a minimum of 300 millimetres above the bed of the waterway and a minimum of one screen radius from the surface of the water.
 - iii. As far as possible, the approach velocity perpendicular to the face of the screen shall not exceed 0.06 metres per second if no self-cleaning mechanism exists, or 0.12 metres per second if a self-cleaning mechanism is operational; and
 - iv. The sweep velocity parallel to the face of the screen shall exceed the design approach velocity.
 - d. The fish screen specified in this condition shall be designed or supplied by a suitably qualified person who shall ensure that the design criteria specified in clause (c) of this condition is achieved. Prior to the installation of the fish screen, a report containing final design plans and illustrating how the fish screen will meet the required design criteria, and an operation and maintenance plan for the fish screen shall be provided to Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager.
7. Within three months of installation, a certificate shall be provided to Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) by the designer or supplier

of the fish screen to certify that the fish screen has been installed in accordance with the details provided to Canterbury Regional Council and in accordance with Condition 6.

8. The fish screen shall be maintained in good working order. Records shall be kept of all inspections and maintenance, and those records shall be provided to Canterbury Regional Council upon request.
9. All water abstracted for irrigation shall be from storage via a straight pipe as specified in condition (10) of this consent and metered as specified in condition (11) of this consent.
10. For any abstraction occurring from storage for the purpose of irrigation, the consent holder shall, before the first exercise of this consent, install an easily accessible straight pipe(s), with no fittings or obstructions that may create turbulent flow conditions, of a length at least 15 times the diameter of the pipe, as part of the pump outlet plumbing or within the mainline distribution system.
11. The consent holder, shall before the first exercise of this consent:
 - a.
 - i. install a water meter(s) on the take from storage to irrigation and on the take from the Brothers Stream to storage in accordance with conditions (1) and (2), that has an international accreditation or equivalent New Zealand calibration endorsement, and has pulse output, suitable for use with an electronic recording device, which will measure the rate and the volume of water taken to within an accuracy of plus or minus five percent as part of the pump outlet plumbing, or within the mainline distribution system, at a location(s) that will ensure the total take of water is measured; and
 - ii. install a tamper-proof electronic recording device such as a data logger(s) that shall time stamp a pulse from the flow meter at least once every 15 minutes, and have the capacity to hold at least one season's data of water taken as specified in clauses (b)(i) and (b)(ii), or which is telemetered, as specified in clause (b)(iii).
 - b. The recording device(s) shall:
 - i. be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and
 - ii. store the entire season's data in each 12 month period from 1 July to 30 June in the following year, which the consent holder shall then download and store in a commonly used format and provide to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; or
 - iii. shall be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder. No data in the recording device(s) shall be deliberately changed or deleted.
 - c. The water meter(s) and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval.
 - d. The water meter(s) and recording device(s) shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions.
 - e. All practicable measures shall be taken to ensure that the water meter(s) and recording device(s) are fully functional at all times.

12. Within one month of the installation of the measuring and recording device(s) referred to in condition (11) or any subsequent replacement measuring or recording device(s), and at five yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, the consent holder shall provide a certificate to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:
 - a) The measuring and recording device(s) has been installed in accordance with the manufacturers specifications; and
 - b) Data from the recording device(s) can be readily accessed and/or retrieved in accordance with conditions of this resource consent.
13. The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder.
14. If the irrigation system is used to distribute diluted effluent, fertiliser or added contaminants the consent holder shall ensure:
 - (a) An effective backflow prevention device is installed and operated within the pump outlet plumbing or within the mainline to prevent the backflow of contaminants into the water source; and
 - (b) The backflow prevention device is tested at the time of installation and annually thereafter by a suitably qualified or certified person in accordance with Canterbury Regional Council approved test methods for the device used; and
 - (c) The test report is provided to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager within two weeks of each inspection.

Advisory note:

This condition does not authorise the distribution of effluent or fertiliser as this is subject to separate consent requirements pursuant to s15 of the RMA.

15. The consent holder shall take all practicable steps to:
 - a) Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and
 - b) Minimise leakage from pipes and structures; and
 - c) Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.

Advice Note: For the purposes of clause (a) of this condition, field capacity means the soil moisture content in the crop root zone after drainage (1-3 days) after thorough wetting (such as a large rainfall events that exceeds the root zone water holding capacity when the macro pores contain air and micro pores water).

16. Farm Environmental Management Plan and Nutrient Limit:
 - a. Prior to first exercise of this consent, a suitably qualified person shall prepare and submit to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, a Farm Environmental Management Plan (FEMP) to provide details of the practices and procedures put into place to manage environmental effects arising from the use of water for irrigation, in order to ensure compliance with the conditions of this

resource consent. The FEMP shall be prepared in accordance with Schedule 7 – Farm Environment Plan, of the proposed Canterbury Land and Water Regional Plan.

- b. The FEMP shall also specifically address the following:
 - (i) Provision of land use, areas irrigated, stock numbers, fertiliser use, riparian fencing and management, and
 - (ii) A nutrient budget for the irrigated land area using Overseer Version 6.0 (or an approved alternative) to model nitrate-nitrogen and phosphorus losses arising.
- c. An audit shall be undertaken by an appropriately qualified person to determine compliance by the consent holder with the provisions of the FEMP. The audit shall be made after the first year of exercise of this consent during the month of June and then every five years thereafter. A copy of the audit shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within two months of completion of each report.
- d. Should the audit referred to in clause (c) indicate that the consent holder has failed to meet any of the provisions of the FEMP, then a suitably qualified person shall identify actions that can be taken by the consent holder that will ensure the provisions of the FEMP can be met. The actions referred to in this clause shall be undertaken by the consent holder.
- e. The annual average loss of Nitrogen from the 560 hectare irrigated area as shown in Plan CRC122871 shall not exceed 20 kilograms of Nitrogen per hectare per year, as calculated by Overseer Version 6.0.
- f. Within one month from written notice from the Canterbury Regional Council, the consent holder shall submit the modeled average annual Nitrogen loss as referred to in clause (e) to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager.
- g. A revision of land use practices within the FEMP shall be undertaken by the consent holder if the calculated discharge or leaching of nitrate-nitrogen from the 560 hectares of land irrigated under this consent, as shown in attached Plan CRC122871, to groundwater as modeled with Overseer Version 6.0 in 16 (e), exceeds an annual average figure of 20 kilograms per hectare. Any revision of land use practices should identify where changes can be made to reduce the leaching of nitrate-nitrogen from the land irrigated under this consent, to no greater than an annual average of 20 kilograms per hectare.
- h. The consent holder shall undertake the changes in land use practices identified under clause (g). Should the applicant be unable to identify and undertake suitable measures to ensure compliance with the conditions of this consent, then the consent holder shall cease irrigating the property until such a time that sufficient measures can be undertaken.

17. The consent holder shall before the first exercise of this consent:

- a. Install a measurement and recording device(s) at the Brothers Stream located at the diversion complex at or about map reference NZMS 260 140:2180-1180 (Topo50 CA17:1186-5015) that has an international accreditation or equivalent New Zealand calibration endorsement and has pulse output, suitable for use with an electronic recording device, which will measure and record:
 - i. the rate and volume of natural stream flow;
 - ii. any water taken from the Brothers Stream in accordance with condition (2) of this consent; and
 - iii. any environmental flow immediately downstream of the diversion complex within an accuracy of plus or minus five percent;

- b. Ensure that the measurement and recording device(s) is accessible to the Canterbury Regional Council at all times for inspection;
 - c. Ensure that the measurement and recording device(s) is installed, maintained and operated throughout the duration of the consent in accordance with the manufacturer's instructions;
 - d. Take all practicable measures to ensure that the measurement and recording device(s) is fully functional at all times; and
 - e. Ensure monitoring and recording data for the continuously recorded flows as detailed in this condition shall be kept for a period of no less than two years, and shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, annually during the month of July and when requested in writing.
18. Water shall only be taken from the Brothers Stream into storage for the subsequent use for irrigation under this resource consent when the flow in the Hakataramea River at the Main Highway (State Highway 82) recorder site, at map reference NZMS 260 I40:1118-0604 (Topo50 CB17:0125-4440), as estimated by the Canterbury Regional Council, is:
- a. Below the minimum flow of 0.5 cubic metres per second, no take is permitted.
 - b. Between 0.5 cubic metres per second and 1.5 cubic metres per second, then an environmental flow shall be maintained immediately downstream of the diversion complex of at least the first 100 litres per second of natural flow in the Brothers Stream upstream of the diversion complex.
 - c. Between 1.5 cubic metres per second and 2.5 cubic metres per second, then an environmental flow shall be maintained immediately downstream of the diversion complex of at least the first 50 litres per second of natural flow in the Brothers Stream upstream of the diversion complex.
 - d. Between 2.5 cubic metres per second and 4.5 cubic metres per second, then
 - i. an environmental flow shall be maintained immediately downstream of the diversion complex of at least the first 10 litres per second of natural flow in the Brothers Stream upstream of the diversion complex, or
 - ii. when the natural flow in the Brothers Stream upstream of the diversion complex is greater than 100 litres per second, then notwithstanding (i), at least a 50 litres per second flow shall be maintained immediately downstream of the diversion complex. .
 - e. Greater than 4.5 cubic metres per second, then:
 - a. an environmental flow shall be maintained immediately downstream of the diversion complex of at least the first 5 litres per second of natural flow in the Brothers Stream upstream of the diversion complex, or
 - b. when the natural flow in the Brothers Stream upstream of the diversion complex is greater than 100 litres per second, then notwithstanding (i), at least a 50 litres per second flow shall be maintained immediately downstream of the diversion complex.

Baseline and on-going monitoring

19

- a. Objective and purpose of the Hakataramea monitoring plan.
 - i. The objective and survey of all monitoring programmes shall be to obtain a definitive and representative assessment of any effects of the use of water authorised by this consent on the state of the environment of the Hakataramea Valley.

- ii. Without limiting this objective, the purpose of the monitoring plan is to provide information which may be used to determine whether the exercise of this consent is a cause or contributing cause to changes in:
 - a. Periphyton in the Hakataramea River.
 - b. Macroinvertebrate species in the surface water bodies.
 - c. Native and salmonid fish species, and
 - d. Physical and chemical groundwater and surface water quality.
- b. This is a catchment-wide survey.
- c. PROVIDED THAT compliance by this consent holder with one or more parts of this condition shall be deemed to be compliance by the following consent holders (Hakataramea Water Quality Group) of the same parts:
 - i. RPNZ Properties – resource consents CRC051767, CRC051768 and CRC051769
 - ii. RG & ZL Pringle – resource consents CRC050940 and CRC050957
 - iii. Star Holdings LTD – resource consent CRC072756
 - iv. Hakataramea Station (1990) LTD – resource consent CR 040999
 - v. RW & ME Sutton- resource consent CRC071114
 - vi. NJ Small – resource consent CRC051766
 - vii. Haka Valley Irrigation LTD – resource consent CRC032177
 - viii. R H Robertson – resource consent CRC031592
 - ix. Winterburg Ltd Partnership – resource consent CRC032220.
- d. PROVIDED ALSO THAT compliance by the Hakataramea Water Quality Group representing all the consent holders who are subject of this condition shall be deemed to be compliance by the consent holder.

Baseline surveys to be undertaken prior to taking of water for irrigation purposes

20

- a. Subject to condition 20 (f) before the first exercise of this consent the consent holder shall provide to the Canterbury Regional Council a copy of the baseline survey plan prepared in accordance with the sampling design specified in Schedule A.
- b. The baseline survey shall be undertaken over a period of one year and completed within a period of two years from the date the consent is granted.
- c. The baseline survey plan shall be designed and carried out using standard scientifically accepted methods by suitably qualified personnel with appropriate (recognised) experience in the matters being surveyed.
- d. Timeframes specified in the Surface Water Baseline Study, Groundwater Baseline Study and the Land Baseline Study shall be coordinated by the personnel engaged.
- e. The surveys may include any matters which the personnel engaged to design and carry out the baseline surveys consider necessary or more desirable and which are in addition to, or instead of, the provisions on Schedule A.
- f. The consent holder may take water under the terms of this consent from the date that consent is granted. However, taking must cease if after two years from the grant of consent the baseline survey has not been completed in accordance with this condition. Taking water may only resume once the baseline survey has been completed.

On-going Monitoring

21

- a. Within three months of the completion of all of the baseline survey the results of each of the baseline survey's shall be assessed to determine the location, sampling and frequency of on-going monitoring throughout the exercise of this consent and any analysis that will be undertaken on the basis of the proposed monitoring information in Schedule A.
- b. The consent holder shall provide in advance of implementation to the Canterbury Regional Council a copy of the annual monitoring plan prepared in accordance with this condition.
- c. All monitoring programmes shall be designed and carried out using standard scientifically accepted methods by suitably qualified personnel with appropriate (and recognised) experience in the matters being monitored.
- d. On-going monitoring time intervals shall be re-evaluated and modified as appropriate.
- e. Schedule A shall be reviewed annually and changed as necessary on the recommendation of the personnel engaged to design and carry out the monitoring programme following monitoring results.
- f. At least once every five years for the duration of the consent the consent holder shall undertake an audit of landuse changes in accordance with the Landuse Inventory in Schedule A identifying gross changes.

Reporting of the Baseline Surveys and Annual Monitoring

22

- a. The consent holder shall provide the Canterbury Regional Council with an annual report no later than 31 July in each year during the term of this consent. The report shall include a summary of the analyses and records collected in accordance with the conditions of this consent and as a minimum shall also:
 - i. Summarise all the data collected as required under the conditions of this consent (including graphical presentation and statistical summations of monitoring data) and analyse the information in terms of compliance of this consent.
 - ii. Highlight and discuss any important environmental trends in the results.
 - iii. Compare results obtained over the reporting period with the results obtained from previous reporting periods.
 - iv. Audit compliance by consent holders and water users with the provisions of their Farm Management Plans in accordance with Condition (16).
 - v. Report and discuss any operational difficulties, changes or improvements to the Farm Environmental Management Plan which would result in a notable variation of water quality.
 - vi. List any maintenance works needed, proposed or undertaken to ensure compliance with the conditions of the consent.
 - vii. Report any remedial steps to be incorporated by amendment to the Farm Environmental Management Plan in response to the results of the baseline survey and monitoring program.
 - viii. Report detailing any changes to Schedule A.
- b. Within three months of completion of each of the surveys or monitoring reports the consent holder shall provide copies of survey and monitoring reports and results to, the Director-General of the Department of Conservation, Te Runanga o Ngai Tahu and Central South Island Fish and Game Council.

- 23 The geologic feature known as the "Sarsen Rocks" that occur on the property and within the 560 hectare area irrigated under this consent as shown on the attached Plan CRC122871, shall be left in-situ unless they occur on a rock outcrop that is required to be modified due to

centre-pivot earthworks. In such a case, the Sarsen Rocks shall be relocated to another suitable area and re-created as a “Sarsen Rocks” outcrop.

24. The damming of water shall only occur at or about map reference NZMS 260 I40:1980-1230 (Topo50 CA17:0986-5066) in an Unnamed Stream, behind a dam as authorised under consent CRC122874.
25. The total volume of water that may be stored behind the storage dam as authorised under consent CRC122874 shall not exceed 1,500,000 cubic metres.
26. Within the irrigated area:
 - a. Permanent fencing shall be erected at a minimum setback distance of 12 metres from the edge of any natural, permanently flowing, surface water feature.
 - b. Where practicable, riparian planting shall be carried out within fenced areas.
 - c. Temporary fencing shall be erected when stock are grazing areas of the property where there is access to other waterways, excluded from condition (27)(a) above.
 - d. All fencing will be maintained in a good state of repair.

Fertiliser

27.
 - a. Fertiliser shall be applied in accordance with a nationally recognised quality assurance program for fertiliser application.
 - b. For the purposes of this condition a quality assurance program is:
 - i. The New Zealand Fertiliser Manufacturers' Research Association Code of Practice for Fertiliser Use, or
 - ii. The Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) NZFMRA 07, or
 - iii. Any other method approved by the Canterbury Regional Council.

Irrigation Infrastructure

28.
 - a. All new irrigation infrastructures shall be designed and accredited by a qualified professional, and installed in accordance with an accredited design. The design shall take into account the specific requirements of the property's soil types.
 - b. If a consent holder is using existing irrigation infrastructure they shall obtain an evaluation report prepared by a certified irrigation evaluator. The evaluation shall determine the system's current performance in accordance with the Code of Practice for Irrigation Evaluation 2005. This report shall be obtained within three months of the first exercise of the consent. Any recommendations identified in the report shall implement within 12 months from the date of receipt of the report.
 - c. A copy of the report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager.

Administration

29

Consent review:

- a. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice on its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
- b. The Canterbury Regional Council may, once per year on any of the last five working days of May or November, serve notice of its intention to review the annual volume specified in condition (2) of this consent on the basis of the water records of the actual annual volume taken under this consent.

30

The duration of this resource consent shall be for a period of 25 years and the lapsing date for the purposes of Section 125 shall be 31 December 2018.

Schedule A

The Baseline Study and On-Going Monitoring shall include the following elements:

Land Baseline Study

Daily monitoring of:

- air temperature
- rainfall
- wind speed and direction
- evapo-transpiration (representative of catchment)
- sunshine hours
 - at one control site for at least one year.

Monthly monitoring of:

- soil moisture
- evapo-transpiration
- leachate quality (e.g. N, P)
 - at four control sites located on land, which may include but which is not limited to, land which is the subject of this consent. One control site shall be a non-irrigated cropping block. One control site shall be on an existing irrigated cropping block. The remaining two controls sites shall be located on non-irrigated and irrigated grazing blocks.

Land use Inventory

A survey of agricultural and horticultural landuse within the Hakataramea Valley and estimate of the area of land used.

- Inventory of land use:
 - Cropping production,
 - Livestock including sheep, beef, deer and dairying
 - Mixed arable and livestock.

***Advisory Note:** This inventory should include changes that occur seasonally on these lands. For example, cropping occurs only in certain parts of the year, and dairying practices can also change seasonally, depending on the farmer.*

- Inventory of land use practices:
 - Cropping Methods i.e. harvesting, planting, and fallow times in between
 - Stock grazing/breeding programs
 - Audit of fertilizer use (nutrient budgets - Overseer/Spasmo)
 - Animal waste management
 - Percentage of streams fenced and area of margins between fence and stream bank
 - Survey of current stock access to stream beds and banks, including routine stock crossing i.e. dairy cows making way to cow shed.

A desktop investigation on catchment wide land classification, specifically:

- Geology
- Land class (e.g. LUC)
- Topography (e.g. steep/shallow)
- Non-agricultural/horticultural land use and estimated areas of these (e.g. forestry, reserve land etc.).

Advisory Note: The purpose of this desktop investigation is to provide a summary of those catchment features which may affect the water quality of the Hakataramea River or its tributaries. The catchment feature could either be impacted by land use practices (for example intensive grazing on highly erodible soils) or the catchment feature itself could contribute an effect on the waterway when the land use practice is employed (such as increased runoff when irrigating on steep slopes).

Surface Water Baseline Study

From the control sites at monthly intervals for a duration of at least 1 year the surface water quality shall be sampled for:

- Dissolved Inorganic Nitrogen (DIN)
- Dissolved Organic Nitrogen (DON)
- Total Nitrogen (TN)
- Dissolved Reactive Phosphorous (DRP)
- Total Phosphorus (TP)
- Total Suspended Sediment (TSS)
- Electrical Conductivity
- pH
- Temperature
- Dissolved Oxygen
- Clarity/Turbidity/Absorbance
- E.coli/F.coli
- Periphyton percentage cover (filaments and mats) and the ratio of dead to living species.

Flow depth and velocity shall be obtained at each site when the sample is collected.

On four occasions equally spaced throughout the year, quantitative sampling should be carried out to provide an accurate description of:

- Macro-invertebrate species present (MCI) (%EPT);
- Native fish and salmonid species (counts, type, presence/absence, tolerances):
- Plant species:
- Stream bed conditions (e.g. degraded/eroded) adjacent to the control sites:
- Riparian margins adjacent to the control sites: and an
- Observation of terrestrial biodiversity in the margins (presence/absence, tolerances).

Control Sites

Three control sites shall be established in the following tributaries:

- Grampian Stream (representative of an up-catchment tributary)
- Deadman Stream (representative of a poor water quality tributary)
- Kirklisten Stream (representative of a tributary with irrigation already occurring)

Four control sites along the Hakataramea River.

One site will be located in the upper reaches of the river, with the three remaining sites located at increasing downstream intervals. Control site locations shall be surveyed in, and monthly sampling should be taken in a way to ensure spatial variations are minimised.

Groundwater Baseline Study

At Quarterly intervals for duration of at least one year the groundwater quality at each of the seven control sites shall be sampled for:

- Nitrogen
- Phosphorus

- E.coli

The Consent Holder shall establish seven control sites at the following locations:

- Top of the catchment:
- Bottom of the catchment near the confluence of the Hakataramea and Waitaki Rivers:
- Two non-irrigated properties (one up gradient and one down gradient):
- Two existing irrigated properties (one up gradient and one down gradient):
- A gaining Tributary.

The down gradient wells installed at each control site shall be close to the Hakataramea River in a reach that is gaining from groundwater and at a distance approximately 10 metres from the river bed.

Land Use – (CRC122874) – to construct, operate and maintain a diversion structure and a dam

- 1 Works authorised under this consent shall be limited to those necessary for the construction, operation and maintenance of:
- a. a water diversion complex in The Brothers Stream at map reference NZMS 260 I40:2180-1180 (Topo50 CA17:1186-5015); and
 - b. a 16 metre high and up to 25 metre wide dam in an Unnamed waterway at map reference NZMS 260 I40:1980-1230 (Topo50 CA17:0986-5066);

As shown in Plan CRC122871, which forms part of this consent.

Advice Note: This consent does not authorise the taking, damming, discharging or using of water.

General

- 2 Any works shall, as far as practicable, be undertaken:
- a. when flows in the subject waterways are sufficiently low to minimise the flow of sediment laden waters into any downstream waterbody;
 - b. in a manner which ensures the erosion of the bed and banks of the subject waterways is minimised; and
 - c. in a manner which ensures the discharge of sediment to the subject waterways is minimised.

3 **Biosecurity Management**

- a. All machinery shall be water blasted prior to being brought onto the works sites as referred to in condition (1), and following completion of the works, to reduce the potential for pest species being introduced to or taken from watercourses.
- b. Machinery and equipment that has worked in watercourses shall, prior to entering and leaving the works sites as referred to in condition (1), be cleaned with suitable chemicals or agents to kill didymo.
- c. At no time during the exercise of this consent shall machinery be washed within the bed of a watercourse.
- d. The Consent holder shall comply with all notices and guidelines issued by Biosecurity New Zealand in relation to avoiding spreading the pest organism *Didymosphenia geminata* (commonly known as 'Didymo').

Advice Note: Additional information on the matters referred to in this condition can be found on the Biosecurity New Zealand website at www.biosecurity.govt.nz/didymo.

- 4 In the event that vehicles or machinery enter water, the consent holder shall undertake all practicable measures to:
- a. minimise disturbance of the bed of the waterway(s); and
 - b. minimise the discharge of sediment to the waterways.
- 5 The consent holder shall:

- a. ensure that no contaminants, including fuel, oil, or cement products enter any watercourse or groundwater. In the event of contamination, the consent holder shall

undertake remedial action and shall notify the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager as soon as practical;

- b. not refuel machinery or store fuel within 20 metres of the bed of any waterway.

6 In the event of any discovery of archaeological material:

- a. The consent holder shall immediately:
 - i. Cease earthmoving operations in the affected area and mark off the affected area; and
 - ii. Advise the Canterbury Regional Council of the disturbance; and
 - iii. Advise the New Zealand Historic Places Trust of the disturbance.
- b. If the archaeological material is determined to be Kōiwi Tangata (human bones) or taonga (treasured artefacts) by the New Zealand Historic Places Trust, the consent holder shall immediately advise the office of the appropriate runanga (office contact information can be obtained from the Canterbury Regional Council) of the discovery.
- c. If the archaeological material is determined to be Kōiwi Tangata (human bones) by the New Zealand Historic Places Trust, the consent holder shall immediately advise the New Zealand Police of the disturbance.
- d. Work may recommence if the New Zealand Historic Places Trust (following consultation with runanga if the site is of Māori origin) provides a statement in writing to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager that appropriate action has been undertaken in relation to the archaeological material discovered. The Canterbury Regional Council shall advise the consent holder on written receipt from the New Zealand Historic Places Trust that work can recommence.

Advice Note: This may be in addition to any agreements that are in place between the consent holder and the Papatipu Runanga. (Cultural Site Accidental Discovery Protocol).

Advice Note: Under the Historic Places Act 1993 an archaeological site is defined as any place associated with pre-1900 human activity, where there is material evidence relating to the history of New Zealand. For sites solely of Māori origin, this evidence may be in the form of accumulations of shell, bone, charcoal, burnt stones, etc. In later sites, artefacts such as bottles or broken glass, ceramics, metals, etc, may be found or evidence of old foundations, wells, drains, tailings, races or other structures. Human remains/kōiwi may date to any historic period.

It is unlawful for any person to destroy, damage, or modify the whole or any part of an archaeological site without the prior authority of the New Zealand Historic Places Trust. This is the case regardless of the legal status of the land on which the site is located, whether the activity is permitted under the District or Regional Plan or whether a resource or building consent has been granted. The Historic Places Act provides for substantial penalties for unauthorised damage or destruction

- 8. The diversion structure and the dam as referred to in condition (1) shall be suitably designed to withstand the Maximum Design Earthquake (MDE) and the Operating Base Earthquake (OBE).

DIVERSION STRUCTURE

9. A Chartered Professional Engineer shall take responsibility for the design of the diversion structure as referred to in condition (1). The design shall be such as to minimise the potential for erosion or other instability due to the construction, operation and maintenance of the diversion complex. The Chartered Professional Engineer shall prepare a design report, which shall include but not necessarily be limited to the following:

- a. Details of the location and layout of the diversion,
- b. Details of the geometry of the diversion and the related hydraulic structures,
- c. Detail of the engineering design of the diversion, which shall include facility to close the intake when the Unnamed Stream dam as referred to in condition (1) is full.
- d. Detail of the operation of the diversion, which shall include a procedure to close the intake when the Unnamed Stream dam as referred to in condition (1) is full.
- e. Confirmation, signed by a Chartered Professional Engineer, that the diversion has been designed according to appropriate engineering standards and practices for a structure of this nature,
- f. A schedule of inspections to be undertaken under the supervision of the Chartered Professional Engineer during the construction process. Work may not proceed until these inspections have been carried out and written authorisation has been provided by the Chartered Professional Engineer,
- g. A schedule of routine inspections that shall be carried out by the consent holder at least annually during the operational life of the diversion structure,
- h. A schedule of comprehensive inspections that shall be carried out by a Chartered Professional Engineer at specified intervals at least once every two years, during the operational life of the diversion structure,
- i. Details of routine maintenance work that shall be undertaken by the consent holder during the operational life of the diversion structure.

10. A copy of the design report referred to in condition (9) shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, no less than 10 working days prior to commencement of construction.

11. A construction, operation and maintenance report for the diversion structure referred to in condition (1) shall be prepared by a Chartered Professional Engineer and forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, within 15 working days of first operation.

12. The consent holder shall ensure the diversion structure as referred to in condition (1) is designed, constructed, operated and maintained in accordance with the reports referred to in conditions (9) and (11).

13. Upon completion of the diversion structure as referred to in condition (1), and before first operation, a Chartered Professional Engineer shall certify that the diversion structure is safe and ready for operation. A copy of the certification documents shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, prior to commissioning.

14. The Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, shall be notified at least 48 hours prior to first operation of the diversion structure referred to in condition (1).
15. The consent holder and a Chartered Professional Engineer shall:
 - a. regularly inspect the diversion structure referred to in condition (1) in accordance with the schedules detailed in the design and construction, operation and maintenance reports referred to in conditions (9) and (11);
 - b. provide a report detailing the inspection(s) of the diversion structure as referred to in clauses (g) and (h) of condition (9) to the Canterbury regional Council, Attention: RMA Compliance and Enforcement Manager, at least once every two years,
 - c. undertake maintenance works in accordance with the requirements detailed in the design and construction, operation and maintenance reports referred to in conditions (9) and (11).
 - d. Ensure the findings of any inspections and the details of any maintenance works undertaken are recorded in a logbook kept for that purpose. A copy of the logbook shall be forwarded to the Canterbury Regional Council, attention RMA Compliance and Enforcement Manager, upon request.
16. Risk Management:
 - a. In the event of any evidence of erosion, seepage, cracking, settlement, slipping or other embankment deformation around the diversion structure referred to in condition (1), or an earthquake of Modified Mercalli Scale 6 or greater; the consent holder shall as soon as practicable:
 - i. Report the event to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, and
 - ii. Consult a Chartered Professional Engineer who shall be requested to take responsibility for:
 1. the inspection of the diversion structure;
 2. the identification of any remedial action required; and
 3. the recording of the event in a report, of which a copy shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager within 21 days of the inspection.
 - b. The consent holder shall undertake any remedial works or corrective action recommended by the Chartered Professional Engineer as soon as practicable.

DAM

17. The total volume of water stored behind the dam referred to in condition (1) shall not exceed 1,500,000 cubic metres.
18. The operational freeboard of the dam referred to in condition (1) shall be maintained at greater than 1 metre at all times.
19. The maximum crest height of the dam referred to in condition (1) shall not exceed 16 metre above the downstream Unnamed Stream bed level at the map reference specified in condition (1)(b) of this consent.

20. Dam Spillway:

- a. A suitably constructed spillway shall be capable of passing a Maximum Design Flood as determined in accordance with the New Zealand Dam Safety Guidelines 2000 as produced by NZSOLD (the New Zealand Society of Large Dams), including any flows potentially arriving via the diversion race, to be assessed in the course of detailed design.
 - b. The dam spillway shall be capable of passing a minimum volume of water of 10 cubic metres per second.
 - c. The consent holder shall take all practicable steps to ensure that the spillway is kept clear of debris and foreign objects.
21. The dam structure referred to in condition (1) shall be suitably designed to withstand the Maximum Design Earthquake (MDE) and the Operating Base Earthquake (OBE).
22. An appropriate Recognised Engineer in terms of the Building Act 2004 shall take responsibility for the design of the dam structure which shall be in accordance with NZ Dam Safety Guidelines 2000 as produced by NZSOLD (the New Zealand Society of Large Dams). The Recognised Engineer shall prepare a design, construction, operation and maintenance report, which shall include, but not necessarily be limited to, the following:
- a. Details of the location and layout of the dam,
 - b. Details of the geometry of the dam and the related hydraulic structures,
 - c. Detail of the engineering design of the dam,
 - d. Detail of the construction, operation and maintenance of the dam,
 - e. Confirmation, signed by an appropriate Recognised Engineer in terms of the building Act 2004, that the dam has been designed according to appropriate engineering standards and practices for a structure of this nature,
 - f. A schedule of inspections to be undertaken under the supervision of an appropriate Recognised Engineer in terms of the Building Act 2004, during the construction process. Work may not proceed until these inspections have been carried out and written authorisation has been provided by the Recognised Engineer,
 - g. A schedule of routine inspections that shall be carried out by the consent holder at least annually during the operational life of the dam structure,
 - h. A schedule of comprehensive inspections that shall be carried out by an appropriate Recognised Engineer during the operational life of the dam structure. Routine inspections shall be carried out at least once every two years.
 - i. Details of routine maintenance work that shall be undertaken by the consent holder during the operational life of the dam structure,
 - j. An emergency action plan detailing the process to be undertaken during a possible dam failure and/or breach event.
23. A copy of the design report shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, no less than 10 working days prior to commencement of construction.

24. A construction, operation and maintenance report for the dam referred to in condition (1) shall be prepared by an appropriate Recognised Engineer in terms of the Building Act 2004, and forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, within 15 working days of first filling.
25. The consent holder shall ensure the diversion structure as referred to in condition (1) is designed, constructed, operated and maintained in accordance with the reports referred to in conditions (22) and (24).
26. Upon completion of the dam referred to in condition (1), and before first filling, an appropriate Recognised Engineer in terms of the Building Act 2004, shall certify that the dam is safe and ready for operation. A copy of the certification documents shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, prior to commissioning.
27. The Canterbury Regional Council, attention RMA Compliance and Enforcement Manager, shall be notified at least 48 hours prior to first filling of the dam referred to in condition (1).
28. The consent holder shall:
 - a. ensure that an appropriate Recognised Engineer in terms of the Building Act 2004 is present during first filling of the dam referred to in condition (1); and
 - b. remedy any faults recorded by the Recognised Engineer during first filling.
29. The consent holder and an appropriate Recognised Engineer in terms of the Building Act 2004, shall:
 - a. regularly inspect the dam structure in accordance with the schedules detailed in the design and construction, operation and maintenance reports as referred to in conditions (22) and (24);
 - b. provide a report detailing the inspection(s) of the dam as referred to in clauses (g) and (h) of condition (22) to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, at least once every two years,
 - c. undertake maintenance works in accordance with the requirements detailed in the design and construction, operation and maintenance reports as referred to in conditions (22) and (24); and
 - d. ensure the findings of any inspections and the details of any maintenance works undertaken are recorded in a logbook kept for that purpose. A copy of the logbook shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, upon request.
30. Risk Management:
 - a. In the event of any evidence of erosion, seepage, cracking, settlement, slipping or other embankment deformation around the dam referred to in condition (1), or an earthquake of Modified Mercalli Scale 6 or greater; the consent holder shall as soon as practicable:
 - i. Report the event to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, and
 - ii. Consult a Recognised Engineer in terms of the Building Act 2004 who shall be requested to take responsibility for:

1. the inspection of the diversion structure;
 2. the identification of any remedial action required; and
 3. the recording of the event in a report, of which a copy shall be forwarded to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager within 21 days of the inspection.
- b. The consent holder shall undertake any remedial works or corrective action recommended by the Recognised Engineer as soon as practicable.
31. The applicant shall take all practical measures to ensure that adverse effects on the environment, including but not necessarily limited to, ecological values, amenity values, the potential for erosion, and Tangata Whenua values are minimised as result of the exercising of this consent.

ADMINISTRATION

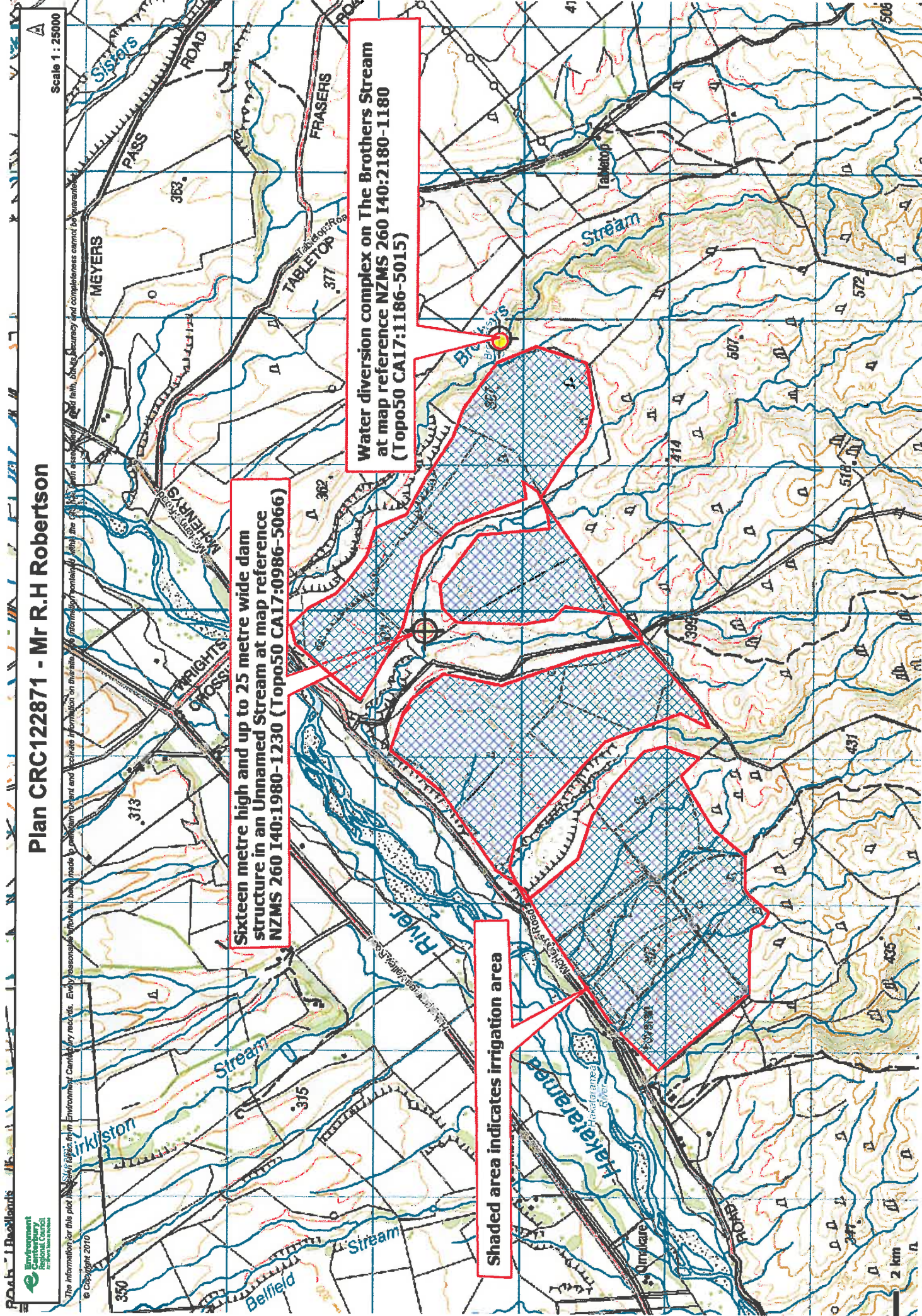
32. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice on its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
- a) Deal with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or
 - b) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
33. The lapsing date for the purposes of Section 125 shall be 31 December 2018.

CRC134927 – to use land to store water

1. Water may only be stored at map reference NZMS 260 I40:1980-1230 (Topo50 CA17:0986-5066) in and adjacent to Unnamed Stream, as shown on Plan CRC122871, which forms part of this consent. .
2. The total volume of water stored shall not exceed 1,500,000 cubic metres.
3. Water shall only be stored behind a dam structure as authorised under CRC122874.
4. When exercising this consent, the consent holder shall ensure compliance with the conditions of resource consents CRC122871 and CRC122874.
5. The applicant shall take all practical measures to ensure that adverse effects on the environment, including but not necessarily limited to, ecological values, amenity values, the potential for erosion, and Tangata Whenua values are minimised as result of the exercising of this consent.
6. The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice on its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.

- a) Deal with any adverse effect on the environment which may arise from the exercise of the consent and which is appropriate to deal with at a later stage; or
- b) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

7. The lapsing date for the purposes of section 125 shall be 31 December 2018.



Plan CRC122871 - Mr R.H Robertson

Scale 1 : 25000

Sixteen metre high and up to 25 metre wide dam structure in an Unnamed Stream at map reference NZMS 260 140:1980-1230 (Topo50 CA17:0986-5066)

Water diversion complex on The Brothers Stream at map reference NZMS 260 140:2180-1180 (Topo50 CA17:1186-5015)

Shaded area indicates irrigation area