

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of resource consent applications to take and use
water for irrigation in the Upper Waitaki Catchment

**CLOSING LEGAL SUBMISSIONS ON BEHALF OF
SOUTHDOWN HOLDINGS LIMITED, FIVE RIVERS LIMITED AND
KILLERMONT STATION LIMITED**

29 APRIL 2010

RUSSELL McVEAGH

C N Whata / S A Bond
Phone 64 9 367 8000
Fax 64 9 367 8163
PO Box 8
DX CX10085
Auckland

1. INTRODUCTION

1.1 These closing submissions are on behalf of the following Applicants:

- (a) Five Rivers Limited (Ohau Downs Station).
- (b) Southdown Holdings Limited (Glen Eyrie Station and WHL Killermont).
- (c) Killermont Station Limited.¹

2. OVERVIEW

2.1 As I submitted for MWRL, the final officer recommendations have lost sight of the big picture, and more particularly a realistic appraisal of the adverse and positive effects of the proposed farming systems.

2.2 On this:

- (a) The focus on cumulative effects has diverted attention from the very careful management of onsite effects under all of the proposed farming systems;
- (b) Little if any credit is given to the positive localised effects of the farm proposals, including the basically uncontested evidence that the stream and riparian conditions are likely to improve under the proposed systems;
- (c) Little or no analysis has been done of the counterfactual - ie life without water. Indeed there has been little recognition or response to the evidence that current farming conditions may present a worse long term fate for local conditions;
- (d) The recommendations do not appear to have taken into account the real net effect of the proposed farming systems - ie virtually nil at the Ahuriri Arm, and a small relative increase in terms of the Wairepo sub catchment effects.

2.3 To the extent that there has been some engagement on the local effects of the proposed farming systems, they appear to present a snapshot of

¹ Applications (Pebbley Block, Woolshed Block, Manuka Creek, Frosty Gully).

the environment, and in some instances a snapshot that does not reflect reality.

- 2.4 All of this is contrary to the recent statement of the Court in the North Bank tunnel case, that the environment must be seen as dynamic and the effects of a proposal assessed accordingly.
- 2.5 I therefore submit that once all the evidence is properly gathered, and that dynamism fully accounted for, that the adverse effects are acceptable and that there are genuine positive effects to justify grant.

3. STRUCTURE OF SUBMISSIONS

3.1 The following matters will be dealt with in these submissions:

- (a) Existing and future environment.
- (b) Officer's Recommendations.
- (c) Outstanding issues.
- (d) Response to issues raised by submitters.
- (e) Conditions, lock step, staging and ratchet: Case Study.
- (f) Other Matters.
- (g) Summary.

4. EXISTING AND FUTURE ENVIRONMENT

4.1 There has been no serious challenge around the Applicant's experts existing environment or future potential environment analysis, as set out in our opening submissions.² Significantly, from our review of both the submissions and evidence of other parties and the Council, the following matters are not disputed and therefore provide the base foundation to assess the effects of the proposal:

- (a) ***The existing environment*** - on the four properties is not a pristine natural environment and reflects the reality of dryland

² Opening submissions at paragraph 5.2 to 5.19.

farming in a tough environment. All four properties are currently farmed and these activities have an impact on the environment:

- (i) *Existing farming activities generate nutrients on all of the properties except WHL Killermont.*
- (ii) *Some waterbodies on the properties are currently not fenced from stock, with related effects.*
- (iii) *There is little or no riparian planting adjacent to the waterbodies on the properties.*
- (iv) *Significant soil erosion is occurring on all four properties and this soil erosion contributes significantly to the nutrient loadings in adjacent waterbodies.*
- (v) *Without active farming, wilding pines invaded vast areas of land.*
- (vi) *Certificates of compliance have been granted for a range of farming activities, including buildings.*

(b) ***The future environment:***

General

- (i) *Areas of significant ecological value on all properties will be excluded from irrigation and farming activity.³*
- (ii) *Irrigation provides an opportunity to significantly improve terrestrial values.⁴*
- (iii) *The application of water and nutrients to the land will result in an improved vegetation cover which will increase soil conservation on the properties.⁵*
- (iv) *Exclusion of stock from sensitive areas will regenerate and improve the sensitive areas.⁶*

³ Dr Bartlett, paragraph 11.1, evidence.

⁴ Dr Ruth Bartlett, paragraph 4.37, 5.22, 11.3, evidence.

⁵ Dr Bartlett, paragraph 11.4, evidence.

⁶ Dr Robson, paragraph 51(a), 88, evidence.

Rivers and Streams

- (v) *Tara Hills water race - does not flow continuously and because of this has only minor aquatic values.⁷*
- (vi) *The local streams (Serpentine Creek, Wairepo Creek and Six Mile Creek) all appear ecologically degraded relative to typical streams classified as in "natural state".⁸*
- (vii) *Riparian margins will enhance the physical character of streams and maintain and potentially enhance the health of local stream aquatic communities.⁹*
- (viii) *Manuka Creek flows intermittently, the current channel is unfenced from stock and the riparian vegetation is modified.¹⁰*
- (ix) *Similarly the upper reaches of Frosty Gully are generally flowing however downstream of the dam the stream flows underground.¹¹*
- (x) *The establishment of a 5m buffer around the areas where water flows will be sufficient to protect and possibly improve existing aquatic ecosystem values.¹²*

Lakes

- (xi) *The proposed abstraction from Lake Ohau for irrigation of Ohau Downs and Glen Eyrie will result in a de minimis effect on the lake:*
 - (aa) *The takes will comply with the minimum lake levels set out in the WRP.¹³*
 - (bb) *The proposed Glen Eyrie rate of the water take is only 0.5% and Ohau Downs take 0.3%*

⁷ Ibid.

⁸ Greg Ryder, paragraph 4.14, evidence.

⁹ Greg Ryder, paragraph 8.3, evidence.

¹⁰ Ruth Goldsmith, paragraph 5.5, evidence.

¹¹ Ibid.

¹² Ruth Goldsmith, paragraph 4.22, evidence.

¹³ Evidence of Ian McIndoe, paragraph 401, evidence.

*of the natural annual inflow into Lake Ohau.¹⁴
Given this minor abstraction there will be no
measureable or meaningful effect on the level
of Lake Ohau.*

4.2 Consequently it is against this context that the scale of the effects of the proposed applications should be assessed. To the extent that some analysis has been done of the existing and future potential environment it has been manifestly flawed. Two examples stand out:

- (a) Landscape - Mr Glasson has not considered the existing or future environment within which the effects of irrigation might occur, or the counterfactual, what the environment might look like if irrigation did not occur on the affected areas.¹⁵
- (b) Terrestrial - Global statements have been made about the level and extent of indigenous vegetation without any real empirical foundation.¹⁶ Like Mr Glasson no serious consideration has been given to the counterfactual and a return for example to more than a 1000 hectares of wilding pines on Glen Eyrie.

4.3 I therefore urge the Committee to factor in the real 'existing' and 'future potential' environments in evaluating the impacts of the proposed irrigation.

5. OFFICER RECOMMENDATIONS

5.1 In relation to the cumulative water quality effects of each application, Mr Freeman has recommended the following:

- (a) Glen Eyrie Station:
 - (i) 53% of the property is located in the Ahuriri Arm catchment therefore the recommendation is that the application should not be granted.
 - (ii) 47% of the property is located in the Wairepo Creek catchment and the recommendation is that the application could be granted provided that more

¹⁴ Evidence of Greg Ryder, paragraphs 6.2 and 12.2, evidence.

¹⁵ Mr Brown, paragraph 4 to 11, reply evidence.

¹⁶ Dr Bartlett, paragraph 2.7 to 2.15, reply evidence.

information is obtained to reduce the uncertainties and/or subject to strict comprehensive monitoring and response conditions.

- (b) WHL Killermont and Killermont Station - both properties are located in the Ahuriri Arm catchment therefore the recommendation is that the application should not be granted.
- (c) Ohau Downs - the property is located in the Wairepo Creek catchment and has therefore the recommendation is that application could be granted provided that with more information is obtained to reduce the uncertainties and/or subject to strict comprehensive monitoring and response conditions.

6. OUTSTANDING ISSUES

- 6.1 The Reporting Officers have identified the outstanding issues for each property. We have **attached** a table at **Appendix A** setting out these issues and the response provide by the Applicant's experts.
- 6.2 These submissions will focus on the core issues that have appeared to ground the Reporting Officer's recommendations.

General Issues

*Water quality - there are still uncertainties about the potential adverse effects.*¹⁷

- 6.3 The Applicants adopt the recommendations put forward by MWRL, and adopt the approach signalled by that presentation.
- 6.4 In summary, both individually and collectively, the applications will have a small effect over the existing and future environment:
 - (a) There is virtually a nil increase in the proposed nutrient loading in the Ahuriri Arm of Lake Benmore.¹⁸

¹⁷ Ms Vesey, paragraph 91, addendum report; Ms Rodrigo, addendum report, paragraph 160 and 169; Ms Rodrigo, addendum report, paragraph 33; Ms Penman, addendum report, paragraph 284 and 307; Ms Rodrigo, addendum report, paragraph 184.

¹⁸ Dr Jose Romero, Table 12 at page 35, evidence:
In volume, the loading in the red zoned Ahuriri sub-catchment is estimated to increase by only 0.6 ton of N and -0.5 ton of P.

- (b) About a 6-8% increase in relation to the Wairepo sub catchment (when measured at the Ohau C Canal).¹⁹
 - (c) Over 90% of the proposed loading in the Ahuriri Arm will be mitigated by the farmers.²⁰
 - (d) The WQS assumes that the proposed loading will arrive at the lake at the same time on a 1:1 basis.²¹
 - (e) The WQS Lake thresholds have been set 20% below the oligotrophic / mesotrophic boundary for TN and 15% for TP.²²
 - (f) The mitigation requirements will enable the farms to remain within their nutrient allowance under a highly developed scenario – which all experts agree is an unlikely outcome but offsets any residual concerns about OVERSEER.
 - (g) For the first full 5 years of operation, the pNDAs are set at 80% below the MWRL threshold.
 - (h) The pNDAs do not factor in the full mitigation effects of the proposed on farm management and mitigation set out in the FEMPs.
- 6.5 To illustrate this point, I provide a comparison at **Appendix B** of the various options for the Applicants when compared to a viable permitted baseline, and to the MWRL threshold. This is drawn from the evidence already tabled.²³
- 6.6 While simplistic, and illustrative only, it can be seen that the cumulative effects of the proposed irrigation:
- (a) are relatively small compared to alternative lawful dryland activity with only WHL Killermont registering a significantly higher nutrient loading (though still well within the MWRL limits – ie with a virtually nil cumulative impact);
 - (b) meets in all respects the MWRL thresholds;

¹⁹ Dr Greg Ryder, at paragraph 3.3, reply evidence.

²⁰ Dr Jose Romero, Table 12 at page 35, evidence.

²¹ Dr Melissa Robson, paragraph 116 to 135, reply evidence.

²² Dr Melissa Robson and Dr John Bright at paragraph 6.34, joint evidence statement.

²³ Dr Melissa Robson, paragraph 42, 83, 100, 119, evidence.

(c) broadly achieves the objectives of the NRRP.²⁴

*OVERSEER - areas of concern with the parameters used in the running of OVERSEER.*²⁵

6.7 Mr McNae's report states that:

A majority of the issues identified have been satisfactorily responded to by the Applicants and it is noted in the above table where Applicants responses that are still not deemed to be in line with the "best practise" use of OVERSEER.

6.8 After discussion with Dr Robson, Mr McNae has only minor concerns about the operation of OVERSEER in relation to Glen Eyrie, WHL Killermont and Ohau Downs. There are no outstanding concerns in relation to Killermont Station. These relate to the "very low clover content", "effluent solids removed from the system", "12.8+ DM/ha pasture production" and "high per cow production". Dr Robson has addressed these minor differences in her reply evidence.²⁶

6.9 Mr McNae's overall conclusion for all the applications is that he has a strong level of confidence that the completed modelling provides a reasonable representation of future nutrient loading.²⁷

*Efficient and reasonable use - provide a favourable comparison of the Irricalc input parameters against field measurements.*²⁸

6.10 The Reporting Officer is of the view that there is a lack of conclusive information to support the annual volume requested in accordance with Policies 15-20 of the WRP as there needs to be a favourable comparison of the Irricalc input parameters against field measurements.²⁹

6.11 Mr McIndoe will address this in his reply evidence. His view is that neither Irricalc nor the WQN9 method has been specifically calibrated against soil moisture measurements from the Mackenzie Basin, therefore no data exists. He states that it is unrealistic to compare Irricalc

²⁴ Dr John Bright, paragraph 4.6, 5.11, 6.1., 7.3, evidence. Dr Greg Ryder, paragraph 8.3, 14.3 and 14.4, 20.4, evidence. Dr Ruth Goldsmith, paragraph 3.22, 3.24, 4.22 and 5.18, evidence.

²⁵ Ms Penman, paragraph 284 and 307, addendum report; Ms Rodrigo, paragraph 153 and 170, addendum report; Ms Rodrigo, paragraph 161, addendum report; Ms Rodrigo, paragraph 185, addendum report; Ms Vesey, paragraph 92, addendum report.

²⁶ Dr Robson, paragraph 7 -13, reply evidence.

²⁷ Mr McNae, paragraph 18, addendum report.

²⁸ Ms Penman, paragraph 285 and 308, addendum report.

²⁹ Ms Penman, paragraph 269(ii).

parameters against field measurements for specific farms before they are irrigated.

- 6.12 However I note that, when the consents are being exercised, water use and soil moisture measurement will occur, and checks for reasonable and efficient use will be able to be made.³⁰

Cultural Issues

- 6.13 Ngai Tahu's main concerns are concentrated around the effects of new irrigation proposed that may degrade existing habitats and deny opportunities to undertake enhancements.³¹ These Applicants have agreed to the full suite of MWRL conditions which includes FEMPS designed to meet the appropriate water quality standards. These steps will be significant to ensuring that these properties will not adversely affect the resources that Ngai Tahu is concerned about.

- 6.14 The evidence of Mr Horgan also states that Ngai Tahu is specifically opposed to the Southdown Holdings, Five Rivers and Killermont applications because of the potential to degrade the Ahuriri delta.³²

- 6.15 I note that the northern half of Glen Eyrie and Ohau Downs do not in fact drain into the Ahuriri Arm. However WHL Killermont and the southern part of Glen Eyrie Downs do eventually drain to the Ahuriri Arm. The analysis undertaken by MWRL has not identified the Ahuriri Delta as a likely discharge point for cumulative nutrient loading. Nevertheless, the Applicants have committed to both the lockstep approach (regarding flow of groundwater) and ongoing monitoring of the Ahuriri Delta.³³ The expectation is that they will share this responsibility with the other applicants given this is a cumulative effects issue.

General concerns around intake galleries

- 6.16 There have been a number of concerns raised about the effects of the gallery intakes from Lake Ohau for Glen Eyrie and Ohau Downs and from the Ahuriri River for WHL Killermont and Killermont Station.³⁴

³⁰ Mr Ian McIndoe, paragraph 49-51, reply evidence.

³¹ Mr Horgan, paragraph 19, evidence

³² Mr Hogan, paragraph 18, evidence.

³³ Mr Brian Coffey, paragraph 2.24, reply evidence.

³⁴ Ms Penman Addendum paragraph 273, 282, 300, 301, addendum report; Mr Meredith, paragraph 78, addendum report; Ms Penman, paragraph 287 and 310, addendum report.

- 6.17 Mr McIndoe has provided further details around the construction of the galleries and the maintenance of the galleries to ensure that effects associated are minimised.³⁵ These further details have been included in the conditions of consent.

Landscape

- 6.18 The Applicants maintain their position that no landuse consent for landscape effects is required for the consent applications given that:³⁶

- (a) there is nothing in the regional planning framework that merits addressing land use effects; and
- (b) farming activities are permitted in the Waitaki districts and all proposed areas of irrigation avoid outstanding natural landscape areas.

- 6.19 Nevertheless, Mr Brown has responded to the landscape assessment by Mr Glasson. His view (as foreshadowed) is that Mr Glasson fails to recognise the changing nature of the Waitaki Basin, the landscape change already occurring within it, and the potential that permitted activities have to exacerbate such change.

...Hieraceum, pines, Douglas Fir, rabbits and a wide range of other weeds and pests, have reinforced the contrast between the imagery and public perception of what this plateau landscape is and the reality of its physical nature.

Yet this context – both for the present applications and future land management within the Waitaki Basin – does not feature at all in Chris Glasson's assessment of the current water right applications. For example, there is no mention at all of the 1200ha of pines that covered Glen Eyrie Downs Station prior to the current applications or the implications that such 'accidental afforestation' might have for the Waitaki Basin.³⁷ [emphasis added]

- 6.20 In reality therefore the current state and recent evolution of land uses within the Waitaki Basin, as a result of rural economies and farming practice, are rapidly changing and therefore this will have an inevitable impact on landscape character and values.

- 6.21 I also note further that Mr Glasson has incorporated the effects of landuse activities that are permitted by the relevant District Plan. For the reasons already set out in Applicants' opening, and also because of the law of the

³⁵ Mr McIndoe, paragraph 26 to 47, reply evidence.

³⁶ See Opening submissions on behalf of the Applicants, paragraph 5.21 to 5.24.

³⁷ Mr Stephen Brown, paragraph 5 and 6, reply evidence.

permitted baseline, these effects should not have been taken into account.³⁸

- 6.22 Mr Glasson's individual recommendations for each property are addressed below.

Terrestrial effects

- 6.23 Dr Walker disagrees with Dr Bartlett's conclusions around the existing ecological values, stating that the existing ecological values are high on the Ohau Downs and Glen Eyrie properties.³⁹

- 6.24 Dr Bartlett has undertaken a site survey of all four properties and concludes that the area proposed to be irrigated is in a "modified" state:

The proposed irrigation at Ohau Downs is almost entirely on fully cultivated land which retains very limited, if any, ecological value.⁴⁰

Almost all of the land at Glen Eyrie has been fully cultivated, having been ripped and disced after the removal of wilding pines.⁴¹

The area that is proposed for irrigation on WHL Killermont is managed as a modified "natural" pasture and has a sparse vegetation cover...⁴²

I estimate the land cover of native species as much less than 10% on the Killermont Station and WHL Killermont modified "natural blocks..."⁴³

Specific issues

Glen Eyrie / Ohau Downs / WHL Killermont

Effluent management

- 6.25 The Committee will be familiar with the vexed process surrounding the effluent management. An issue has arisen as to whether this Committee can impose conditions in relation to effluent management even though applications for that activity are not before it. I submit that you can. In this regard, Commissioner Rogers referred me to the *Pukenamu Estates Ltd v Kapiti Environmental Action Inc* case.

³⁸ *Queenstown Lakes District Council v Hawthorn Estate Ltd* 2006] NZRMA 424 at [65], at 65, *HB Land Protection Society Incorporated v Hastings District Council* CIV 2009-441-143 at paragraph 58.

³⁹ Ms Penman, paragraph 287 and 310, addendum report.

⁴⁰ Dr Bartlett, paragraph 2.16, reply evidence.

⁴¹ Dr Bartlett, paragraph 2.21, reply evidence.

⁴² Dr Ruth Bartlett, paragraph 2.24, reply evidence.

⁴³ Dr Ruth Bartlett, paragraph 2.28, reply evidence.

- 6.26 The Court in *Pukenamu* took a pragmatic approach to related consents for a development.⁴⁴

[45] Nor do I consider the fact that other applications for resource consent may be required for some or all of earth works consequent upon the subdivision as prohibiting consideration of them as a effect under s104 or s 105. To interpret s104 in this way would significantly downgrade the effect of subsection (1)(a). It would also prevent the local authority and subsequent appellate bodies from looking holistically at an activity requiring resource consent where, as here, the activity is non complying and where, as here, further resource consents may be required before the subdivision can be undertaken.

[...]

[53] It may have been preferable for the local authority to have insisted that all consent applications be heard together. This seems especially sensible where applications are associated with a subdivision. This should ensure that the Council has accurate facts on which to assess effect (see s91 the Act).

- 6.27 While the Court noted that it may have been preferable for the Council to have insisted that all consent applications were heard together, that did not stop it considering the proposal, and its related effects. Similarly, in the High Court decision in *Hawthorn Estate*, Fogarty J rejected an argument that consent could not be granted for an activity because earthworks consents were not specifically sought. The Court found that the activity clearly needs earthworks and the application should be read accordingly.⁴⁵ While different to the current facts, it illustrates the pragmatism adopted by the Court to these issues.
- 6.28 I further maintain that the jurisdiction to impose conditions is not limited to the activity itself but includes to the effects of that activity. If mitigation is required for the purpose of grant, then you are empowered to grant on that basis.
- 6.29 In addition, in *Pukenamu* the applicant provided no information about the extent of the earthworks that may be needed, and argued that the earthworks should not be considered as an effect of the subdivision. However, in this case the Applicants accept that the effects of effluent management are a relevant effect that can be considered by the Committee, having provided information accordingly, and having sought to mitigate and minimise these effects.

⁴⁴ AP106/02, 18 June 2003, Ronald Young J.

⁴⁵ *Queenstown Lakes District Council v Hawthorn Estate Ltd & Ors* (HC, Christchurch, CIV-2004-485-1441, CIV-2004-485-1445, 17 December 2004, Fogarty J) at [55]

- 6.30 I further submit that the Applicants should not be penalised for developing sophisticated systems to mitigate effects, such as the herd home system. The overarching objective of the WRP is to protect the Basin's waterways while enabling activities. The herd home proposal achieves just that in a way which is superior to alternative systems of nutrient management.

Glen Eyrie / Ohau Downs

Non-complying take

- 6.31 The Reporting Officer is concerned that the granting of the consent over the allocation limit may have a precedent effect as the WRP is an operative plan.⁴⁶
- 6.32 This misconceives the reason for the allocation limits. They were specifically tied to the MIC agreement, the requisite derogation approvals, and the management of lake levels. The Application had to satisfy these matters. They are only precedents to the extent that future applicant must also satisfy these matters. Furthermore, with agreement reached on the additional water take out of Lake Ohau, with appropriate derogation approval, more water is available overall for generation purposes as less is now available for abstraction upstream.
- 6.33 As is noted by Mr McIndoe, because Lake Ohau is operated within a narrow water band (which will be complied with), the effects of taking over the allocation limit will be minor. Meridian Energy will be most affected by this, but has given derogation approval.⁴⁷

Glen Eyrie

Blue Family Trust

- 6.34 The Blue Family Trust submitted on the Glen Eyrie application raising the following concerns:
- (a) *The noise (and vibration) will be a significant hum against a background of extremely low noise.*⁴⁸ SHL has offered up a condition of consent that the Glen Eyrie pump station will comply with the Waitaki District Plan noise standards.⁴⁹

⁴⁶ Ms Penman, paragraph 286 and 309, addendum report.

⁴⁷ Mr Ian McIndoe, paragraph 52, reply evidence.

⁴⁸ Blue Family Trust submissions, paragraphs 11 to 14.

⁴⁹ Mr Ian McIndoe, paragraphs 15 to 25, reply evidence.

I support Ms Penman's view that a condition be included that limits noise levels for the proposed Glen Eyrie Downs intake. The Waitaki District Plan specifies an allowable noise level outside of normal working hours of 40 db L_{Aeq} , which can be thought of as an average sound level of 40 decibels. Given that pumps generally produce a steady sound, it is an appropriate measure to use for environmental noise.

- (b) *The pipeline, powerpoles, unless all underground, will be unsightly and in our direct line of vision of the Lake.*⁵⁰ Mr McIndoe has confirmed that the infrastructure associated with the intake structure will be underground.⁵¹

Landscape

6.35 SHL has accepted the following recommendations by Mr Brown to undertake mitigation on Glen Eyrie.⁵²

- (a) Painting of cubicle barns mid-dark matt grey approximately 10% darker in tone than the surrounding land cover.
- (b) Restoration of land around and above the Lake Ohau intake and pumping structure, including the lake margins.

6.36 In relation to the specific landscape recommendations for Glen Eyrie:

- (a) *Buffer required for Quail Burn Road, Serpentine Creek, Wairepo Creek and DOC recreation reserve.*⁵³ Mr Brown:

...the DOC reserve is primarily a biophysical entity, rather than being valuable in a visual or perceptual sense. This is accentuated by the physical isolation of the reserve relative to virtually all of the public domain – focused upon Quailburn Rd, SH8, Lake Ohau Rd and even Omarama. Again, I do not believe that it comprises an ONL in the sense of a landscape or feature that is eminent, conspicuous or remarkable in terms of its perceived, as well as biophysical, values. Although Mr Glasson refers to it having 'recreational value', it is difficult to determine what this might be, apart from bird watching (possibly). The rest of the Wairepo Creek corridor, which displays even less landscape value *per se* and is virtually imperceptible from Lake Ohau Rd, would be physically protected from the proposed irrigation system and cubicle barns.⁵⁴

In all but views from Quailburn Rd, the pivot irrigation system proposed would be viewed as fine filigree of structural elements across the alluvial terraces exposed to Lake Ohau Rd and would do little to alter or diminish the essentially

⁵⁰ Blue Family Trust submission, paragraph 21.

⁵¹ Mr Ian McIndoe, paragraph 366, evidence.

⁵² Mr Stephen Brown, paragraph 135, evidence.

⁵³ Mr Glasson, paragraph 63, supplementary report.

⁵⁴ Mr Stephen Brown, paragraph 12, reply evidence.

pastoral nature and content of the Glen Eyrie Station landscape.⁵⁵

- (b) *The shed will have a very high visual impact when viewed from Ohau Road.*⁵⁶ Mr Brown is of the view that the proposed sheds would become minor components of the wider rural landscape exposed to Lake Ohau Rd.⁵⁷

Ohau Downs

Landscape

- 6.37 Five Rivers has accepted the recent advice of Mr Brown to re-locate two irrigators immediately north of Lake Ohau Rd on Ohau Downs to further mitigate the visual appearance of the irrigators from Lake Ohau Road.⁵⁸
- 6.38 In response to Mr Glasson's specific recommendations for Ohau Downs:
- (a) *Part of the proposal still needs buffering from the Lake Ohau Road.*⁵⁹ Mr Brown acknowledges that those irrigators closest to Lake Ohau Road would still intrude into view of Ben Ohau and has therefore recommended that two small pivots north of Lake Ohau Road are re-located. This will result in a setback of 100m which will reduce the visual impact.⁶⁰ However, in Mr Brown's view, any further buffering fails to recognise the "working" farmed nature of the landscape and its already highly modified nature.⁶¹
- (b) *The shed will have a very high visual impact when viewed from Ohau Road.*⁶² Mr Brown concludes that the herd homes will be an "insignificant component of the visual landscape".⁶³

⁵⁵ Mr Stephen Brown, paragraph 14, reply evidence.
⁵⁶ Mr Glasson, paragraph 64, supplementary report.
⁵⁷ Mr Stephen Brown, paragraph 13, reply evidence.
⁵⁸ Mr Stephen Brown, paragraph 37, reply evidence.
⁵⁹ Mr Glasson, paragraph 62, supplementary report.
⁶⁰ Mr Stephen Brown, paragraph 34, reply evidence.
⁶¹ Mr Stephen Brown, paragraph 32, reply evidence.
⁶² Mr Glasson, paragraph 62, supplementary report.
⁶³ Mr Stephen Brown, paragraph 36, reply evidence.

WHL Killermont and Killermont Station

Ahuriri Water Conservation Order

- 6.39 Both the Killermont Station and WHL Killermont applications seek to abstract water from the Ahuriri River and therefore must comply with the Ahuriri WCO.
- 6.40 Despite supplementary submissions⁶⁴ and further evidence by Mr McIndoe⁶⁵ in respect assessing whether the applications comply with the minimum flow restrictions in the WCO, the Council officers' opinion remains that the proposed takes could represent an 'over allocation' under the WCO.⁶⁶
- 6.41 I maintain that the WCO establishes minimum flows to be retained in the river and does not refer to maximum takes. The reasons for this position are set out the opening legal submission and were expanded on in some detail in supplementary submissions.
- 6.42 In short, the key issue to be considered in relation to any application to take water from the river is whether the take will result in the flows in the river falling below the proscribed minimum flows in the WCO.
- 6.43 Provided that the flow in the river meets the minimum threshold, water may be taken. Conversely if the water in the river falls below the threshold water may not be taken. Priority applies when the cumulative take causes the threshold to be breached. But there is no such thing as a fixed maximum take.
- 6.44 Ms Penman also notes that the difference in allocation totals of 0.5m³/s is accounted for because Mr McIndoe has only included rates of take, and not rates of diversion in his calculation. This is addressed by Mr McIndoe, who states that as water is returned to the river within a short distance of the divert point and well before any other takes occur as such it does not violate the minimum flow provision of the WCO.⁶⁷ On this point Mr McIndoe is supported by Mr Webb of Fish and Game who considers that the bypass is accommodated by clause 8(3)(c) of the

⁶⁴ Supplementary submissions on behalf of SHL, Five Rivers and Killermont Station, 16 October 2009, section 2.

⁶⁵ Mr McIndoe supplementary evidence statement, 16 October 2009.

⁶⁶ Ms Penman, paragraph 24 to 27, supplementary statement.

⁶⁷ Mr McIndoe, paragraph 65, reply evidence.

WCO as an activity relating to the management and enhancement of the habitats of fish and indigenous wildlife.⁶⁸

6.45 Ms Penman also has some concerns around how the minimum flow will be maintained. In response, Mr McIndoe has advised that calculating the flow in the river at any point can be undertaken by a number of methods including:⁶⁹

- (a) Monitoring the flows at various points along the river;
- (b) Deriving the flows at various points along the river by taking into account factors such as:
 - (i) The flows at the gorge;
 - (ii) The volumes and location of takes;
 - (iii) The surface water inflows from tributaries; and
 - (iv) Any losses for example from groundwater drawdown.

WHL Killermont

Landscape

6.46 WHL Killermont has accepted the many recommendations of Mr Brown including:⁷⁰

- (a) Restoration of land around and above the Ahuriri River intake and pumping structures, including the river margins
- (b) Use of underwater galleries at the Ahuriri River intake.
- (c) Location of a 2m bund along the northern and western faces of those cubicle barns on WHL Killermont exposed to SH8.
- (d) Planting of tussock along those same bunds.
- (e) Planting of hedgerow-type "amenity planting" along the crest of the northern-most bund.

⁶⁸ Mr Mark Webb, paragraph 187 - 190, evidence.

⁶⁹ Supplementary evidence of Mr McIndoe.

⁷⁰ Mr Brown, paragraph 135, evidence.

6.47 In response to Mr Glasson's specific recommendations for WHL Killermont:

- (a) *A significant buffer is still required between the Omarama-Lindis Pass Road (SH8) and the irrigation scheme. However, planting is not seen as a suitable mitigation measure.*⁷¹ WHL Killermont has accepted the recent advice of Mr Brown to re-locate two irrigators on the north-most part of WHL Killermont to the point where they merge with the array of shelterbelts and vegetation close to Broken Hut Rd.⁷² In response to any further mitigation, Mr Brown is of the view that the subject site is entirely impoverished and that Mr Glasson has greatly over-stated its appeal.⁷³
- (b) *The location of cow sheds is seen as having a very high impact on the landscape character and quality of the site.*⁷⁴

...the viewing distance of 1.2kms to the nearest cubicle barn, combined with the flat viewing perspective from surrounding roads, and the potential to use bunding with low level revegetation across those bunds for mitigation, would help to appreciably reduce their presence – to the point where they merge with the combination of pine woodlot, shelterbelts and farm buildings that already exist near Broken Hut Rd.⁷⁵

Killermont Station⁷⁶

Frosty Gully Application - fish passage

6.48 The Reporting Officer has indicated that a condition should be included requiring fish passage to not be impeded as a result of the Frosty Gully Dam.⁷⁷

6.49 Dr Goldsmith is of the view that, as there is no surface water connection between Frosty Gully and the Omarama Stream, an additional condition requiring that fish passage is not impeded is not necessary.⁷⁸

⁷¹ Mr Glasson, paragraph 79, addendum report.

⁷² Mr Stephen Brown, paragraph 37, reply evidence.

⁷³ Mr Brown, paragraph 19, reply evidence.

⁷⁴ Mr Glasson, paragraph 79, addendum report.

⁷⁵ Mr Brown, paragraph 22, reply evidence.

⁷⁶ Applications include:

a. Frosty Gully - CRC040180, CRC040181

b. Manukau Creek - CRC041798

c. Woolshed Block (Ahuriri River B) - CRC041777; CRC041776

d. Pebbley Block (Ahuriri River A) - CRC041331, CRC041330, CRC041332

⁷⁷ Ms Rodrigo, paragraph 164, addendum report.

⁷⁸ Ms Goldsmith, paragraph 4.4-4.5, reply evidence. This was also the view of Commissioner Bowden during questioning of the Reporting Officer.

Manuka Creek Application and Woolshed Block Application - landscape

6.50 In response to Mr Glasson's recommendations in relation to the Manuka Creek and Woolshed Block:

(a) *Intake and pipeline must be of the submerged option.*⁷⁹
Killermont Station has agreed that the intake and pipeline should be submerged.⁸⁰

(b) *A 300m buffer from SH8 to the irrigated land.*⁸¹ Mr Brown disagrees and states that the mixture of irrigators would be physically isolated east of SH8, behind the elevated river bank and therefore would be almost entirely screened from view by that same feature.⁸²

Pebbley Application

6.51 Mr Brown's recommendations have been accepted by Killermont Station to relocate the proposed K-Line irrigation to the 'alternative' locations within the southern part of Killermont Station OR the retention of a 6m strip of non-irrigated land next to SH8 within the Pebbley Block.

6.52 Mr Glasson recommends that the application be declined due to the importance of the Clay Cliffs and the landscape values associated with the Ahuriri River. In response Mr Brown states:⁸³

As stated in my evidence, greening of the Pebbley Block would create a degree of domestication and modification that is discernible by the general public. However, it would not obstruct or intrude into, views of the adjacent river and Clay Cliffs, and even though the land cover content of the immediate foreground would change, particularly when viewed from the vicinity of SH8, the Ahuriri's channels, braids, banks and foothill margins would not be physically touched by such modification. Perception of these landscape components would be affected to a limited degree.

7. RESPONSE TO SPECIFIC ISSUES RAISED BY MERIDIAN ENERGY

7.1 A number of concerns were raised by Meridian Energy's experts in respect of the Applications. In respect of Ohau Downs and Glen Eyrie, Meridian experts are of the view that increased nutrients in the Wairepo

⁷⁹ Mr Glasson, paragraph 81, addendum report.

⁸⁰ Mr McIndoe, paragraph 12, evidence.

⁸¹ Mr Glasson, paragraph 8, addendum report.

⁸² Mr Brown, paragraph 29, reply evidence.

⁸³ Mr Brown, paragraph 24, reply evidence.

Arm will stimulate didymo biomass development in the Ohau B-C Canals. Dr Ryder correctly points out that:⁸⁴

these canals are far from natural systems and to suggest they warrant nutrient management as though they were a high quality river ecosystem is in my opinion overstating their ecological values.

7.2 In relation to the specific issues raised by Meridian:

(a) Ms Sutherland criticises Dr Ryder for not assessing the implications of landuse intensification on any of the biota in the hydro-canals.⁸⁵ Dr Ryder addressed the implications of increased nutrients on the hydro canals in his evidence in chief⁸⁶ and has stated in his reply evidence that there will be relatively modest potential increases in the nutrient inputs to the Ohau C Canal (approximately 6-8% increase in relation to the Wairepo sub catchment when measured at the Ohau C Canal).⁸⁷

(b) *Ms Sutherland raises concern about the growth patterns of didymo in the Ohau B-C Canal.*⁸⁸ As with the approach taken by Meridian in the North Bank Tunnel case, the effects of didymo and whether land use practices exacerbate those effects will need ongoing analysis.⁸⁹ But there is no basis for attributing didymo to current or prospective land use. Dr Coffey for MWRL has addressed the issues of didymo in his evidence concluding that:

... the correct application of the guidelines to rivers dominated by Didymo has yet to be established. This matter is under investigation by a variety of workers including Meridian Energy and should be clarified in the foreseeable future.⁹⁰

(c) *Mr Callander has outline concerns about the "generalised" description of the possible migration of nutrients and that the uncertainties associated with these pathways have not been reviewed.*⁹¹ Mr McIndoe will explain how the lock-step adaptive

⁸⁴ Dr Ryder, paragraph 3.2, reply evidence.

⁸⁵ Ms Donna Sutherland, paragraph 16, evidence on individual applications.

⁸⁶ Dr Greg Ryder, paragraph 22.12 and 22.15, evidence.

⁸⁷ Dr Greg Ryder, paragraph 3.3, reply evidence.

⁸⁸ Ms Donna Sutherland, paragraph 15, evidence on individual applications.

⁸⁹ *Lower Waitaki River Management Society v Canterbury Regional Council* C80/2009 at paragraph 322:

⁹⁰ Mr Brian Coffey, paragraph 2.23, reply evidence for MWRL.

⁹¹ Mr Callander, paragraph 29, addendum evidence.

management process has been designed on all four properties to deal with uncertainties in the groundwater flow paths.⁹²

8. CONDITIONS, LOCKSTEP, STAGING AND RATCHET: CASE STUDY

General conditions framework

- 8.1 Mr Kyle will present final draft of conditions that are acceptable to the Applicants. These are based on the template provided to you in the MWRL case.
- 8.2 The Officer's section 42A reports make various suggestions for inclusion in the conditions. For ease of reference **Appendix C** notes those suggestions and provides a cross reference to the final draft conditions.

Case Study

- 8.3 In order to show how the conditions will work in practice, I present here the application of those conditions to the WHL Killermont proposal.

Pre-irrigation

- 8.4 The lock-step adaptive management process will apply pre-irrigation. In relation to WHL Killermont this means:
- (a) The first step will be to design and implement a pre-irrigation monitoring programme. This incorporates the recommendations of the Aqualinc Groundwater Monitoring Report⁹³ and the baseline monitoring recommended by Dr Coffey.⁹⁴
- (i) The groundwater monitoring for WHL Killermont includes the recommendations of the Aqualinc Groundwater Monitoring Report for the following catchments of concern:
- (aa) Lower Ahuriri River; and
- (bb) Omarama Stream.

⁹² Mr McIndoe, paragraph 76, reply evidence.

⁹³ *Upper Waitaki Groundwater - Proposed Monitoring Programme* Aqualinc Research Ltd, April 2010.

⁹⁴ MWRL Evidence of Dr Brian Coffey, paragraph 2.09, reply evidence.

- (b) The conditions have a 'lockstep' approach whereby if the baseline assumptions are not confirmed then irrigation cannot commence. See water use condition 6.

Setting the PNDA, operational thresholds

- 8.5 With the results from the monitoring received, and condition 6 complied with, WHL Killermont is able to move to an irrigation phase.
- 8.6 The next step is to:
- (a) Set the PNDA. This will be done by using OVERSEER to model the existing nutrient losses from the farm over a 3 year period.
- (b) The Applicant will elect to operate under one of its proposed farming systems in its FEMP.⁹⁵
- (c) The first stage of implementation of the FEMP is to take note of the mitigation and management measures for the particular farming system.⁹⁶ These measures must be implemented pursuant to water use conditions 19 - 34.
- (d) The operational thresholds for WHL Killermont, including the pNDA are set out in Table 1 of the conditions.

Staging and ratchet

- 8.7 In addition to lockstep, WHL Killermont nutrient loading will be capped at 80% of its pNDA in the first five years of full irrigation. This provides added buffer so as to confirm whether the threshold set are suitably precautionary.
- 8.8 Overlaying this, WHL Killermont will be constrained by the ratchet provisions that provide a mechanism for ratcheting back in the event that monitoring reveals that loadings are approaching 90% of the Ahuriri TLI threshold and WHL Killermont is partially or wholly responsible for any exceedance.
- 8.9 Taken together, the relevant precautionary steps directly address the uncertainties inherent in assessment exercises of this scale.

⁹⁵ *Farm Environmental Management Plan - Glen Eyrie Downs Station*, prepared for Southdown Holdings Limited, February 2010.

⁹⁶ See, for example, Table 6 of FEMP - Glen Eyrie, for measures for cubicle stables system.

9. OTHER ISSUES

Allocation

- 9.1 The Applicants have been cognisant through out of concerns raised by other applicants concerning the fairness of the WQS allocation methodology.
- 9.2 It remains the Applicants' position that the WQS sought to implement the stated objectives for individual farms and as part of that allocation in accordance with those stated aspirations without regard to priority. The ultimate objective was to get everyone over the line.
- 9.3 Consistent with this philosophical approach, a needs plus buffer solution was offered to address lingering concerns. As the name suggests, it simply seeks to allocate on a needs basis, with the balance allocated on a pro rated basis.
- 9.4 The Applicants I represent have agreed to this approach provided that a consensus is achieved.
- 9.5 We understand from Mr Chapman's submission that there appears to be agreement in principle – though it does also appear that a few applicants seek still greater dispensation.⁹⁷
- 9.6 In these circumstances, and notwithstanding the apparent reticence of a couple of applicants, you can proceed on the allocation basis now promoted by MWRL.
- 9.7 We have attached at **Appendix D** a table which shows the allocations under the 'needs plus buffer' approach.

Renewals

- 9.8 I understand that Mr Chapman has sought a 5 year window for conversion for some renewals.
- 9.9 This could present difficulties for new farmers, as the WQS thresholds are premised on all applicants adhering to their pNDA.

⁹⁷

Mr Ewan Chapman, closing legal submissions, paragraph 107.

- 9.10 In real terms the overlap is likely to be small as the period for baseline analysis and then conversion to the new farming systems will take at least 24 months.
- 9.11 In addition not all farm systems are going to be fully implemented in any event.
- 9.12 I submit therefore that while there may be a short period of overlap, the cumulative effects should nevertheless accord with the requirements of the WQS.

10. SUMMARY

- 10.1 I addressed you in opening on how the Applicants meet the statutory tests. I maintain that this position remains valid and in fact reinforced by the considerable additional steps now proposed by the applicants to ensure that they adverse effects of their activity are properly managed.
- 10.2 Uncertainties with some of the predictions are acknowledged and indeed are inevitable in a context as large and diverse as the present. But I submit that the techniques employed in the *Hectors Dolphin*, *Solid Energy* and *Biomarine* cases⁹⁸ all provide ample surety that the adverse effects of concern can both be managed and remedied.
- 10.3 Further, I reiterate that grant of consent presents an opportunity to enable the conversion of land resource to its best use, while sustaining and even improving the qualities of the Waitaki Basin's waterways. Indeed, as I have emphasised above, the proposed farming systems will result in clear ecological, economic and social benefits.
- 10.4 Overall I therefore submit that you are able to grant consent subject to the conditions proposed by the applicants.

Christian Whata

**Counsel for Southdown Holdings Limited, Five Rivers Limited and
Killermont Station Limited**

⁹⁸ *Clifford Bay Marine Farms Ltd v Marlborough District Council C62/05; Biomarine Limited v Auckland Regional Council A68/07. Solid Energy Limited v West Coast Regional Council C111/05.*

SOUTHDOWN HOLDINGS LTD ("SHL") / KLLERMONT STATION ("KS") / FIVE RIVERS LTD ("FRL") - SUMMARY OF ISSUES

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
GENERAL ISSUES - GLEN EYRIE / OHAU DOWNS / WHL KILLERMONT / KILLERMONT STATION			
<p>Evidence of Paul Horgan</p> <p>Para 18</p>	<p>Tangata whenua</p> <p>No site specific issues, concern is around cumulative impacts on the Ahuriri Delta.</p> <p>18. In this context, the Ngai Tahu position is as follows:</p> <p>A. We are opposed to the Southdown Holdings Limited, Five Rivers Limited and Killermont Station Limited applications including those applications recently lodged to store and discharge effluent, (which Ngai Tahu has lodged a separate submission on) because of the potential for these proposals to significantly degrade the Ahuriri Delta, an area that Ngai Tahu is seeking to restore for mahinga kai purposes.</p>	<p>The Applicants have adopted the MWRL Water Quality Study which is designed to ensure appropriate water quality standards. This will ensure that the properties will not adversely affect the resources that Ngai Tahu is concerned about.</p> <p>Mr Buddy Mikaere, paragraph 1.28 and 1.29, evidence:</p> <p>For the reasons I shall outline in my evidence, my professional opinion, based on my review of the evidence of Dr Bright, Mr McIndoe, Dr Ryder, Dr Goldsmith and Dr Robson, is that through a combination of design features, avoidance, remedial and mitigation measures the applications for the four properties will not have an adverse effect on the Mackenzie Basin environment and catchment. It therefore follows that there will also be no adverse effect on cultural values and related concerns.</p> <p>While the cultural values and issues are addressed here in broad detail there needs to be a mechanism to show how they will be addressed on the ground as part of the on-going operation of all the properties. This practical aspect is set out in the details of the relevant Farm Environment Management Plans ("FEMPs") described in the evidence of Dr Robson.</p>	<p>Mr Mikaere, reply evidence, para 1.26 - 1.27:</p> <p>The accompanying rider to this approach being that if there is property by property compliance with meeting TRONT concerns – as set out in the relevant Farm Environmental Management Plans ("FEMPS") then it follows that there must be wider or catchment compliance – as far as these applicants are concerned.</p> <p>Again the blanket assertion approach is not accurate in its assessment of impact on cultural values given that individual properties - Killermont Station for example – fall outside the basis for a general cultural concern. Killermont is not seeking conversion to dairy farming as part of their irrigation application so need to be assessed separately for impact on cultural values.</p> <p>Dr Robson, evidence in reply, paragraph 29 notes:</p> <p>However although WHL Killermont and the southern part of Glen Eyrie Downs do eventually drain to the Ahuriri Arm, the northern half of Glen Eyrie Downs and Ohau Downs effectively do not drain into the Ahuriri Arm of the lake, but are routed through the Wairepo Arm, into the Lower Ohau Canal and into the Northern Arm. Therefore these stations should not be objected to based on this condition.</p> <p>The Applicants have agreed to monitor water quality at the Ahuriri delta pursuant the recommendations of Dr Brian Coffey, MWRL reply evidence, paragraph 2.24:</p> <p>In paragraphs 43 to 47 of his Section 42A Addendum Report, Dr. Meredith raises similar concerns to Ms. Sutherland (paragraph 59 of evidence) with regard to the appropriateness of the Ahuriri River node and the need to monitor the ecological condition of the headwater deltas in the two arms of Lake Benmore and the Wairepo Arm of Lake Ruataniwha. On the basis that a proportion of groundwater may enter these receiving waters directly rather than surface at the Wairepo, Twizel and Ahuriri nodes, I agree there is a case to monitor the ecological condition of these three lacustrine deltas. Methodology for monitoring these sites should be consistent with Vant (1987);</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
			<p>Burns et. al. (2000), Champion et. al. (2002), Elliot and Sorrell (2002), James et. al. (2002), Rowe and Graynoth (2002) and Clayton and Edwards (2006) with a particular emphasis on aquatic plants (submerged macrophytes, periphyton and phytoplankton).</p> <p>This is reflected in the monitoring required in Table 4 – Upper Waitaki Lake Monitoring.</p>
<p>Ms Penman and Ms Bartlett (Officer's clarification table)</p> <p>Paragraph 10-27</p> <p>Ms Penman</p> <p>Paragraph 308, Addendum Report</p>	<p>Irricalc v WQN9</p> <p>The Committee asked for a comparison from the officer's in relation to WQN9 v Irricalc. Policy 16 of the Waitaki Plan provides for methods to calculate reasonable use and Irricalc is one of those methods however soil moisture measurements are required for any alternative method.</p>	<p>Mr McIndoe confirmed in evidence that the amounts applied for are reasonable (paragraph 31, 179, 315, 383, 488):</p> <p>Soil moisture monitoring is proposed to be carried out to ensure over-watering does not occur and maximum possible water use efficiency is achieved.</p> <p>MWRL response, Ian McIndoe evidence, paragraph 8 and 9:</p> <p>As the Sullivan method is not expressly specified in the Plan (it is not based on WQN9v(ii) or soil water balance modelling), allocation estimates for existing consents could be made using WQN9v(ii). If they were, the estimates for current allocation would be significantly lower than those given by the Sullivan method making the total well below the 275 Mm³/y limit.</p> <p>Likewise, if soil water balance modelling (eg Irricalc) was used to estimate allocation limits for existing consents, the allocation limits would be similar to or slightly higher than the Sullivan method for most of the spray irrigation areas, but significantly lower for the borderdyke areas. In total, the estimates would be lower than the Sullivan method.</p>	<p>Ian McIndoe's reply evidence, paragraph 50 and 51.</p> <p>It is unrealistic to compare Irricalc parameters against field measurements for specific farms before they are irrigated. They would need to be irrigated to do that.</p> <p>When the consents are being exercised, water use and soil moisture measurement will occur, and checks for reasonable and efficient use will be able to be made. Conditions have been proposed (Kyle evidence) to ensure good irrigation practices and efficient application of water</p>
GLEN EYRIE / OHAU DOWNS / WHL KILLERMONT			
<p>Ms Penman</p> <p>s42A addendum report para 275</p>	<p>Effluent over water bodies</p> <p>I note that a lack of information has been provided as to how the irrigation over water bodies would work in the context of the dairy effluent applications and the proposal to use one irrigation system for both water and effluent. However, this may be addressed through the evidence still to come for the effluent applications.</p>	<p>Dr Robson addresses this at paragraph 71.</p> <p>It is proposed that the effluent would be piped from the individual dairy farms to each centre pivot where the effluent would be injected into the irrigation water. To avoid effluent application to streams, solenoid valves were originally proposed, however this has recently been superseded and now none of the centre pivots used to irrigate the effluent will cross streams. Liquid effluent will be applied by tanker in those paddocks that have streams running through the pivot circles. A 20m layback will be observed for effluent spreading for all watercourses.</p>	<p>See also Dr Robson, evidence in reply at paragraph 39:</p> <p>In paragraph 71 of my evidence presenting the amended FEMPs, I clearly state 'To avoid effluent application to streams, solenoid valves were originally proposed, however this has recently been superseded and now none of the centre-pivot irrigators used to irrigate the effluent will cross streams. Liquid effluent will be applied by tanker in those paddocks that have streams running through the pivot circles.'</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
<p>Mr McNae</p> <p>OVERSEER audit report.</p>	<p>Overseer inputs</p> <p>Key issues from Mr McNae's report:</p> <ul style="list-style-type: none"> • Very low clover content used. • Effluent solids and sludge exported from system. • Nutrient exported off farm but in catchment. • High per row production. • 12.8+DM/ha pasture growth. 	<p>Refer also Melissa Robson's MWRL reply evidence at paragraphs 35 - 52 and 67, which states that parameters justified on a case by case basis, which is accepted by Mr McNae's addendum report.</p>	<p>Melissa Robson's evidence in reply at paragraphs 7 - 8 addresses the issue around clover content:</p> <p style="padding-left: 40px;">On page 4 of his Addendum evidence, Mr McNae agreed that in systems that involved high levels of organic N returned to the land that there will be a suppression of clover. Mr McNae's outstanding point is the confirmation of these clover levels. I agree that the clover levels must be verified as a part of the OVERSEER audit.</p> <p>Melissa Robson's evidence in reply at paragraphs 9 - 13 addresses the issue around effluent solids and sludge exported from system:</p> <p style="padding-left: 40px;">If the export of the organic manure is not required to meet the threshold on the farm, then there is sufficient capacity in the catchment to apply it elsewhere.</p> <p style="padding-left: 40px;">If the exported solids are used on another farm that is a part of these consent applications, regardless of where, the import would be recorded in their nutrient budget and its compliance assessed. If the exported solids were used on a farm that was not a part of these hearings, as long as the inorganic fertiliser applications were scaled back to account for the nutrient applied with the solids, there should be no net change in losses.</p> <p style="padding-left: 40px;">If the solids were imported onto a farm not part of these consent application without discounting inorganic fertiliser applications, if they were in a catchment with little pressure on receiving environments, there is unlikely to be any impact, however if they are imported into an area where there is already pressure on the receiving environments, this may increase overall sub-catchment losses. However to put into context, the amount of exported manure would using a rate of 200 kg/ha be sufficient to cover 15 ha.</p> <p>Melissa Robson's evidence in reply at paragraphs 15 - 19 addresses the issue around high production and 12.8+DM/ha pasture growth:</p> <p style="padding-left: 40px;">On page 12 of his Addendum evidence Mr McNae accept this evidence for the purpose of the OVERSEER audit which is the extent of his remit.. Although he goes onto state that his concern is what the farmer would do in a year where pasture production was over or under this level. As has been addressed in paragraph 61 of my Reply evidence for MWRL, the level of detail of information expected by the auditors is more appropriate</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
			<p>to OVERSEER in a monitoring mode than the auditing the predicted system.</p> <p>[...]</p> <p>On pages 5 and 11 of his Addendum evidence, Mr McNae accepts that the basis for some production inputs were based the experience of other farming operations of Mr Zeestraten and Mr Englebrecht rather than from specific modelling. It is that specific feed modelling has not been undertaken that causes concern for Mr McNae.</p> <p>To put this issue into context, the higher production modelled results in increased nutrient losses than if a lower kg MS had been used in the same system. Therefore if Mr McNae's concerns were justified this would result in higher losses being predicted than would actually occur.</p>
GLEN EYRIE / OHAU DOWNS			
<p>Dr Adrian Meredith</p> <p>Evidence para 68-78</p> <p>Ms Penman</p> <p>s42A addendum report paras 273 and 300</p> <p>Devon Christensen</p> <p>Mark Webb</p>	<p>Fish Screen / Gallery intake</p> <p>Amendments to the currently proposed conditions will be required to demonstrate compliance with the NIWA guidelines for galleries.</p> <p>Dr Adrian Meredith evidence para 68-78 (excerpts below):</p> <p>My advice on fish exclusion/screening issues is primarily based upon the NIWA Report, "Fish Screening: Good Practice Guidelines for Canterbury" published in 2007 (Jamieson et al. 2007).</p> <p>The guidelines identified seven key factors required to be addressed in an effective fish screen intake design including</p> <ul style="list-style-type: none"> - screen location – sites close to the river - low approach velocities - appropriate 'sweep velocities - bypass or 'escape' route design at the screen - bypass connectivity with the main river - appropriate screening materials - operation and maintenance <p>Gravel galleries are proposed particularly for the proposed Haldon Station applications from the Stony River, and Southdown Holdings Ltd. consents from the Ahuriri River. I agree that gravel gallery designs appear more appropriate and more adequately address issues over other existing structures (Haldon Station) or originally proposed structures (Southdown Holdings Ltd) for these two proposals. I consider they also more adequately address particular fish entrainment issues raised particularly by Mr Webb for Fish and Game on these applications.</p> <p>Proposed gravel gallery intakes from the bed of Lake</p>	<p>Evidence of Ian McIndoe that screens and galleries proposed for the properties will meet NIWA guidelines. Evidence at paragraph 73, 118, 168, 283, 365, 472 and 616.</p>	<p>Mr Ian McIndoe deals with specific concerns in relation to gallery intake construction in Lake Ohau and gives an overview of the construction process at paragraphs 26 - 41 of his reply evidence:</p> <p>Forming bunds or walls in waterways is very common in Canterbury according to Mr Woods. ECan themselves have machinery regularly used for forming bunds in waterways.</p> <p>Working from one end, a bulldozer or excavator will be used to push up natural lake bed material to form the bund. The material will contain natural lake bed sediments. Although sediment will be disturbed during construction, Mr Woods expects it to settle out quite quickly, based on his experience in other areas. If the bund is likely to cause an on-going sediment problem due to wave action, material to line the outside of the bud will be brought in. However, it is unlikely to be required.</p> <p>The trench for the gallery will be located behind this bund. The excavated material will be shingle together with a large amount of water so additional excavators may be required to swing the wet excavated material well back from the edge of the trench.</p> <p>The trenching will be carried out in water behind the bund and no pumping is envisaged for dewatering the trench. Depth masters will be used on the excavators to ensure the trench invert is correct. The</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
	<p>Ohau by Five Rivers Ltd likewise may be more appropriate than more obvious engineered structures, but as with river sited gallery intakes, will require careful scrutiny of design, installation, and maintenance, such that adequate fish exclusion performance is maintained. Once installed such installations (analogous to concrete foundation reinforcing in building construction consents) are very difficult to assess or review, so it is appropriate that consent conditions require explicit demonstration of appropriate construction phases (by inspection or photographic evidence).</p> <p>Overall, my advice to individual S42A investigating officers has been that all irrigation intakes from natural waters should be assessed relative to the principles and criteria in the recent "Fish Screening: Good Practice guidelines for Canterbury" report. Any subsequent designs should incorporate conditions ensuring those principles are complied with in both the design and long term operation of such intakes. Applications that I have seen such as Haldon Station Ltd and Southdown Holdings Ltd do not generally provide enough detail of fish screen design and operation parameters.</p>		<p>gallery pipe will be laid in the water and submerged to trench invert. The tee connection from the gallery and link to a main valve and manhole will be laid at the same time.</p> <p>The selected backfill around the gallery pipe will be sourced and screened from the excavated trench material. This will be placed carefully over the gallery pipe. The gravel will be placed over the top of the pipe so that it runs down both sides preventing lateral movement of the pipe. The remaining natural lake bed material will then be placed over the screened backfill. The site will be tidied up and left in natural state with excess material carted away or lost into the lake foreshore.</p> <p>This has been reflected in the proposed conditions of consent in relation to intake structures.</p>
<p>Ms Penman Para 310 and 287</p>	<p>Avifauna and Aquatic ecology.</p> <p>I note that conditions recommended by Dr Ryder in regards to effects on avifauna have not been included in the applicant's proposed conditions / mitigation. If these aspects are addressed, I would be satisfied that effects on aquatic ecosystems and avifauna would no longer be a concern.</p>		<p>This has been incorporated into the conditions as part of the sub catchment monitoring required – Condition 34 relating to water use and Table 2.</p>
<p>Blue Family Trust evidence</p>	<p>Issues raised around construction including noise and timing, and visual amenity.</p>	<p>Ian McIndoe evidence at para 479 and 598-600:</p> <p>Because the pumps are located underground, the potential effects of noise from the pumping will be less than minor.</p> <p>The Blue Family Trust opposes the applications. Their concerns relate to the potential effects on the amenity values in the area, in relation to both visual impact and noise.</p> <p>As discussed in the evidence, the pumping station will be discrete, and will not be visibly intrusive in the environment. The pumping station will be constructed in such a way that minimises noise, ensuring adverse effects of noise on neighbouring properties are no more than minor.</p>	<p>Addressed by Mr McIndoe at paragraphs 14 - 25.</p> <p>He notes that pump noise is well understood and able to be controlled, for example by double walls. He also notes that the pump location is further from the Blue Family camp site than is noted in the evidence of the Blues.</p> <p>The Applicant will check noise levels with a reader.</p> <p>This also addressed in proposed condition 26 relating to works in the lake bed.</p>
<p>Mr Chris Glasson Original s42A Officer Report para 166; s42A addendum report, paras 62 and</p>	<p>Landscape</p> <p><i>Glen Eyrie Downs:</i></p> <ul style="list-style-type: none"> buffer is required from Quail Burn Road, Serpentine Creek, Wairepo Creek and the DoC reserve. Buffer around the OLA removal of south-western pivots, in order for effects to be 		<p>Mr Stephen Brown, paragraph 12, reply evidence:</p> <p>...the DOC reserve is primarily a biophysical entity, rather than being valuable in a visual or perceptual sense. This is accentuated by the physical isolation of the reserve relative to virtually all of the public domain – focused</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
64.	<p>acceptable.</p> <ul style="list-style-type: none"> • Need to address where pivots are parked. • Removal of south-western pivots. • Buffering around OLA wetland area. <p><i>Ohau Downs:</i></p> <ul style="list-style-type: none"> • part of the proposal still needs buffering from Lake Ohau Road; • sheds will have a very high visual impact from Ohau Road. 		<p>upon Quailburn Rd, SH8, Lake Ohau Rd and even Omarama. Again, I do not believe that it comprises and ONL in the sense of a landscape or feature that is eminent, conspicuous or remarkable in terms of its perceived, as well as biophysical, values. Although Mr Glasson refers to it having 'recreational value', it is difficult to determine what this might be, apart from bird watching (possibly). The rest of the Wairepo Creek corridor, which displays even less landscape value per se and is virtually imperceptible from Lake Ohau Rd, would be physically protected from the proposed irrigation system and cubicle barns.</p> <p>Mr Stephen Brown, paragraph 14, reply evidence:</p> <p>In all but views from Quailburn Rd, the pivot irrigation system proposed would be viewed as fine filigree of structural elements across the alluvial terraces exposed to Lake Ohau Rd and would do little to alter or diminish the essentially pastoral nature and content of the Glen Eyrie Station landscape. ¹</p> <p>Mr Stephen Brown, paragraph 32, reply evidence:</p> <p>Again, however, this fails to recognise the 'working', farmed, nature of the landscape around Lake Ohau Rd east of Swan Lagoon and the moraine field. It is already modified by both farming activity and buildings / structures to a significant degree. Sitting within this cultural part of the wider Ohau landscape, the proposed irrigation system would therefore affirm a pattern of use, including the compartmentalisation of the landscape's more natural and modified 'halves', that is already well established. Moreover, the bulk of the northern irrigation field would be hidden behind a strip of moraine that marks the point of transition to a lower terrace on which most of the irrigators would be located.</p> <p>Mr Stephen Brown, paragraph 34, reply evidence:</p> <p>While acknowledging, therefore that those irrigators closest to Lake Ohau Rd would still intrude into views of Ben Ohau, it is considered that such effects are of a Moderate, rather than High, level. If considered necessary, the possible relocation of two smaller pivot irrigators immediately north of Lake Ohau Rd (and the sightline to Ben Ohau) would appreciably</p>

¹ Mr Stephen Brown, paragraph 14, reply evidence.

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
			<p>reduce this impact level even further. Again, a set-back of around 100m should be sufficient to sink these irrigators into the terrain below Ben Ohau, without rendering them invisible.</p>
<p>Dr Susan Walker</p> <p>Para 90 - 92.</p> <p>Officer's addendum report of Ms Penman at paragraph 287 and 310.</p> <p>Ms Cameron</p> <p>Para 58.</p>	<p>Terrestrial Ecology Issues</p> <p>Dr Susan Walker presented evidence that is in opposition to Ruth in relation to the existing ground cover of the properties. She argued a greater proportion should be protected. Dr Susan Walker para 90 - 92.</p> <p>Referred to in Officers addendum report of Claire Penman at paragraph 287 and 310.</p> <p>Dr Susan Walker presented evidence in opposition, and disagreed with Dr Bartlett's conclusions.</p> <p>Therefore at this time I cannot conclude that the effects on terrestrial ecosystems are acceptable.</p> <p>Evidence of Anna Cameron (at paragraph 58) suggests that the indigenous vegetation cover on the properties is greater than 30% and that therefore vegetation clearance cannot occur as a permitted activity there.</p>	<p>Evidence of Dr Ruth Bartlett:</p> <p>Areas of significant ecological value are found on three of the four properties proposed for irrigation, but the irrigation command areas have been designed to avoid these areas.</p> <p>[...]</p> <p>Irrigation is expected to result in an increase in exotic vegetation growth which will increase ground cover, reduce the amount of bare ground and reduce soil erosion. Increased grazing and cropping pressure is likely to result in the loss of the very limited remaining indigenous component of the vegetation on the irrigated areas, however the ecological values of these areas are already very low. In the absence of irrigation and with the continuation of existing land use practices it is unlikely that there would be any improvement in the indigenous component of the vegetation and soil loss would continue</p> <p>[...]</p> <p>It is my opinion that the proposed irrigation will have a less than minor effect on the terrestrial ecology of the properties concerned. The proposal will not irrigate areas of ecological value where native species are common and will restore vegetation cover to areas of depauperate and degraded pasture. Active management of the riparian buffers will protect native species at the expense of invasive weeds and restore habitat connectivity with other areas of natural habitat nearby.</p>	<p>Dr Ruth Bartlett has completed another site visit to confirm her findings.</p> <p>Dr Bartlett, evidence in reply, at paragraph 2.7 - 2.38 confirms that the proposed areas to be irrigated are largely modified and have a minimal indigenous vegetation cover.</p> <p>The proposed irrigation at Ohau Downs is almost entirely on fully cultivated land which retains very limited, if any, ecological value.</p> <p>[...]</p> <p>Almost all of the land at Glen Eyrie has been fully cultivated, having been ripped and disced after the removal of wilding pines.</p>
<p>Ms Sutherland</p> <p>Para 14, 17 and 19 evidence on individual farms</p>	<p>Increased nutrients in the Wairepo Arm will stimulate didymo biomass development in the Ohau B-C Canals:</p> <p>It remains my view that due to the implications of deteriorated water quality in the Wairepo Arm and didymo proliferation in the Ohau B-C Canal it is important that groundwater issues are resolved prior to consenting.</p>	<p>Dr Brian Coffey at paragraph 2.23 of his MWRL evidence explains:</p> <p>...the correct application of the guidelines to rivers dominated by Didymo has yet to be established. This matter is under investigation by a variety of workers including Meridian Energy and should be clarified in the foreseeable future.</p>	<p>Dr Ryder, paragraph 3.2, reply evidence:</p> <p>As I discussed in my evidence in chief, these canals are far from natural systems and to suggest they warrant nutrient management as though they were a high quality river ecosystem is in my opinion overstating their ecological values. Ms Sutherland's report attached to the memo from Meridian's lawyers dated 5 March 2010 discusses the distribution of Didymo in the canal and indicates that the Pukaki and Ohau canals were dewatered in late 2009 in order to undertake maintenance of the canal walls. Such activities are hardly natural, but</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
			reflect the primary nature of the canal system – to efficiently convey water for hydro generation.
<p>Ms Sutherland</p> <p>Para 15 and 16 evidence on individual farms</p>	<p>Hydro canals with their stable flows, do not fit the criteria of the Biggs model - other means of assessment - bioassay growth experiments and field trial experiments.</p>	<p>Dr Greg Ryder at paragraph 22.14 and 22.15:</p> <p>In terms of assessing the predicted and future nutrient concentrations against relevant guidelines, the difficulty with these hydro canals is that they are stable flowing systems which don't flood and are not subject to disturbance events. Also, their beds are uniform in shape and stable and this combination of stable flow and a stable bed promotes the accrual of algae and plant biomass. This is partly why hydro canals are sprayed with herbicides or have their water level lowered to treat weed growths – there are no scouring events to do this job.</p> <p>In my opinion, it is difficult to apply commonly used nutrient or algae guidelines to canals as they do not fit easily into any one category. In some respects the canals lie somewhere between a lake and a lake-fed river. In terms of guidelines, for lake fed rivers, ECan scientists (Hayward et al.,2009) have recommended water quality standards of 0.210 mg/L for DIN and 0.003 mg/L for DRP. It would appear that the GHD maximum predicted concentrations in Ohau C canal for N and P would meet either of these two water quality standards.</p>	<p>Dr Ryder, paragraph 3.3, reply evidence:</p> <p>Regardless of the debate over the ecological values of these canals, it is my understanding that there will be relatively modest potential increases in the nutrient inputs to the Ohau C Canal (approximately 6-8% increase in relation to the Wairepo sub catchment when measured at the Ohau C Canal).</p>
<p>Mr Peter Callander, evidence on individual applications</p> <p>Para 29</p>	<p>Concerns around flowpaths</p> <p>The lack of data with which to calibrate the groundwater flow model, which in turn has been used to partition the nutrient drainage between catchments.</p> <p>The lack of detail about how the allowable nutrient discharges from each farm contribute to the cumulative total at each nodal point.</p> <p>The possible contribution that these farm discharges may make to other nodes identified.</p> <p>The possible reduced effectiveness of the assumed denitrifying soils processes.</p> <p>The scaling back that may have been applied to phosphorous concentrations and the migration of that scaled back phosphorous.</p> <p>A non-conservative approach about the possible contribution of nutrients to the Wairepo Arm.</p>	<p>As described by Dr Bright in evidence for MWRL, the lock-step adaptive management process has been designed to deal with uncertainties in the groundwater modelling by carrying out a monitoring programme to test the baseline assumptions before consents are exercised.</p>	<p>Mr McIndoe has provided an example of how this will work for Glen Eyrie at paragraph 76 and 77 of his reply evidence.</p>
<p>Ms Penman, addendum report para 309 and 286.</p>	<p>Lake Ohau takes precedent effect on WCWARP:</p> <p>Granting this consent over the allocation limit may have a precedent effect as the WCWARP is an operative Plan.</p>		<p>Mr Ian McIndoe reply evidence at para 52:</p> <p>It is correct that the WCWARP limit for Lake Ohau will be exceeded with the exercise of the Southdown and Five Rivers consents, at least in some years. I am not sure how this</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
			<p>can have a precedent effect. Each case must be considered on its merits. Because Lake Ohau is operated within a small water level band (about 0.7 m), the effects on the Lake and its surrounds are minor. The party most affected by the take is Meridian Energy, and they have given derogation approval.</p>
WHL KILLERMONT / KILLERMONT STATION			
<p>Ms Penman</p> <p>Supplementary report para 24 -27</p> <p>Mr Scarf</p> <p>Para 94, 99-107</p> <p>Ms Rodrigo</p> <p>Para 183</p> <p>Ms Vessey</p> <p>Paragraph 67(f)</p> <p>Mr Webb</p> <p>Para 189-190</p>	<p>Ahuriri WCO</p> <p>I have reviewed the evidence presented in relation to the Ahuriri catchment and the Water Conservation Order (WCO), in particular the evidence of Mr John Kyle, Mr Ian McIndoe, Mr Richard de Joux and Mr Frank Scarf. Having reviewed their evidence, my opinion on the WCO, presented in my original Report 2, has not changed.</p> <p>Mr Ian McIndoe, provides in paragraphs 53 and 330 of his evidence, his calculated total allocation on the Ahuriri River for existing and proposed permits as being 2.5038 m³/s (1.4788 m³/s existing permits). This differs from the allocation identified in Report 2 of 1.9784 m³/s for existing permits plus 1.225 m³/s for proposed permits, giving a total of 3.2034 m³/s. A breakdown is provided by Mr McIndoe in Table 2 of his supplementary evidence (dated October 2009). I note that he has only included the rates of take in his calculations and not the diversion rates. This accounts for the difference of about 0.5 m³/s.</p> <p>Mr John Kyle, in his evidence for SHL Killermont and Killermont Station, provides an amended minimum flow condition (condition (7)) from that provided in Report 2, for Ahuriri River abstractions. His minimum flow condition simply sets out the flows required to be maintained in the Ahuriri River under the WCO. This condition does not set out how the minimum flow will be maintained, taking into consideration existing abstractors.</p> <p>As noted in paragraph 94 of my original report, given that existing allocation is close to 2 m³/s, without any water users group or flow sharing (which existing users are not subject to), there would be no way of identifying when water might be available for these applicants at Gorge flows of less than 25 m³/s. I note that the WCO requires the minimum flow in the river to be sustained along its whole length not at a discrete point on the river.</p>	<p>Refer supplementary evidence of Ian McIndoe. Disagreement with ECan re counting diversions and whether WCO requires flows to be maintained along whole river:</p> <p>My interpretation is that where a divert does not cause the flow to go below a designated allowable minimum flow, the divert should not be counted.</p> <p>[...]</p> <p>Adding the impact of the proposed new takes on river flow onto the impact from existing takes (using CRC's figure adjusted for the Tara Hills discharge) gives a combined total potential reduction of 2.803 m³/s. The WCO allows for a 2 m³/s reduction in flow based on South Diadem flows between 15 and 25 m³/s and 3 m³/s at flows above 25 m³/s, so all takes can easily comply with the WCO. If the takes mean that allowable flow reductions in the lower flow bands would be exceeded, then priority of takes will determine who is able to take from the river.</p> <p>The above calculations assume all takes are continuously and fully exercised concurrently. In addition, the calculations do not account for known flow gains due to contributing tributary streams, or flow changes due to groundwater recharge or discharge.</p> <p>In practice, all takes will not be continuously operated at the same time. Consent conditions such as annual allocation limits or weekly allocation limits do not allow that to happen. Also, it is known that there are significant natural flow gains in some reaches and possible losses in other reaches, so the flows remaining in the river will vary.</p> <p>Given those impacts, Killermont Station and WHL Killermont will need to be able to demonstrate that the allowable flow reductions in the Ahuriri River are maintained. This will be assessed by allowing for other takes and any natural gains and losses in the river.</p> <p>The applicants may need to establish gauging</p>	<p>Ian McIndoe in reply evidence at paragraphs 50 - 68:</p> <p>Penman (para 27) states that the WCO requires the minimum flow in the river be sustained along its whole length, not at a discrete point on the river.</p> <p>Scarf treats the allowable reduction in flow as an allocation limit, and notes that if the proposed 0.2 m³/s divert by Southdown Holdings for CRC073115 is included, the total allocation is 3.2 m³/s and exceeds the allocation limit.</p> <p>It appears that Mr Scarf has not realised that Williamson Holdings will use either CRC041788 or CRC073115, so his comments in Para 106 are not relevant.</p> <p>Webb agrees with ECan that the allocation available under the WCO is exceeded if the 0.2 m³/s is included. However, he disagrees with ECan that the proposed bypass is not an activity related to the management and enhancement of fish and indigenous wildlife.</p> <p>I agree that the total amount of water allocated for existing and proposed consents is approximately 3.2 m³/s, if divers are included. However, because the WCO requires specific flows to be maintained relative to South Diadem flows, the fact that the total exceeds 3.0 m³/s does not violate the WCO if the minimum flows are maintained, as explained by Mr Kyle and Mr Whata.</p> <p>The Southdown Holdings 0.2 m³/s divert is the first on the river and will not cause the minimum flow to be violated, as the water is returned to the river within a short distance of the divert point and well before any other takes occur. The next takes are several kilometres downstream of the proposed Southdown Holdings intake.</p> <p>With respect to the proposed bypass for</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
		<p>sites at suitable locations to enable monitoring of flow to ensure that any take complies with the WCO. They may also form water user groups to best manage the takes.</p>	<p>CRC073115, I agree with Mr Webb in part. In my view, the bypass is an activity related to the management and enhancement of fish and indigenous wildlife. That is its purpose and for that reason I don't think it should be included.</p> <p>Given that a priority order for abstraction has already been established for existing takes, the worst-case situation is that the managers of the proposed new consents operate as though the existing takes are being exercised. That way, the WCO minimum flows will be maintained, regardless of whether the 0.2 m3/s divert is included or not.</p> <p>Should the existing consents not be fully exercised, there is opportunity for the proposed consent holders to take water at lower minimum flows. In order for that to happen, they would have to reach an agreement with existing consent holders, probably through a water users group, to be able to manage the takes to ensure that the WCO is not violated. This can be done through monitoring and good communication between the various parties. I disagree with Ms Penman's statement that there is no way of identifying when water is available at Gorge flows of less than 25 m3/s.</p> <p>See also condition 5 of water take conditions for Killermont and WHL Killermont in relation to metering.</p>
WHL KILLERMONT			
<p>Ms Vesey</p> <p>Paragraph 86</p>	<p>Fish gallery conditions</p> <p>Include a mitigation condition to ensure that no works occur between 01 June - 01 December of any year for fish spawning and avifauna breeding seasons and include original condition that works will not affect recreationalists.</p> <p>Amend conditions regarding depth and surface of excavation, construction and maintenance of gallery intake, surface area of excavation, location of works.</p>	<p>Evidence of Ian McIndoe that screens proposed for the properties will meet NIWA guidelines.</p>	<p>Ian to present further information on construction of intake structures and link in with John K to ensure in conditions.</p> <p>Ian has details of construction method.</p>
<p>Ms Vesey</p> <p>Paragraph 88</p> <p>Paragraph 90</p>	<p>Stock water</p> <p>I recommend that condition 6 of my original report for these water permits be retained. This will allow the applicant to take water for stock and domestic needs.</p> <p>Mr McIndoe advises that water will also be taken under s14(3)(b) RMA when they need more water than is authorised under these water permits.</p>	<p>Evidence of Mr McIndoe:</p> <p>Stockwater Section 14(3)(b) of the Resource Management Act states the following <i>A person is not prohibited by subsection (1) from taking, using, damming, or diverting any water, heat, or energy if— In the case of fresh water, the water, heat, or energy is required to be taken or used for—</i></p>	<p>Mr McIndoe reply evidence.</p>

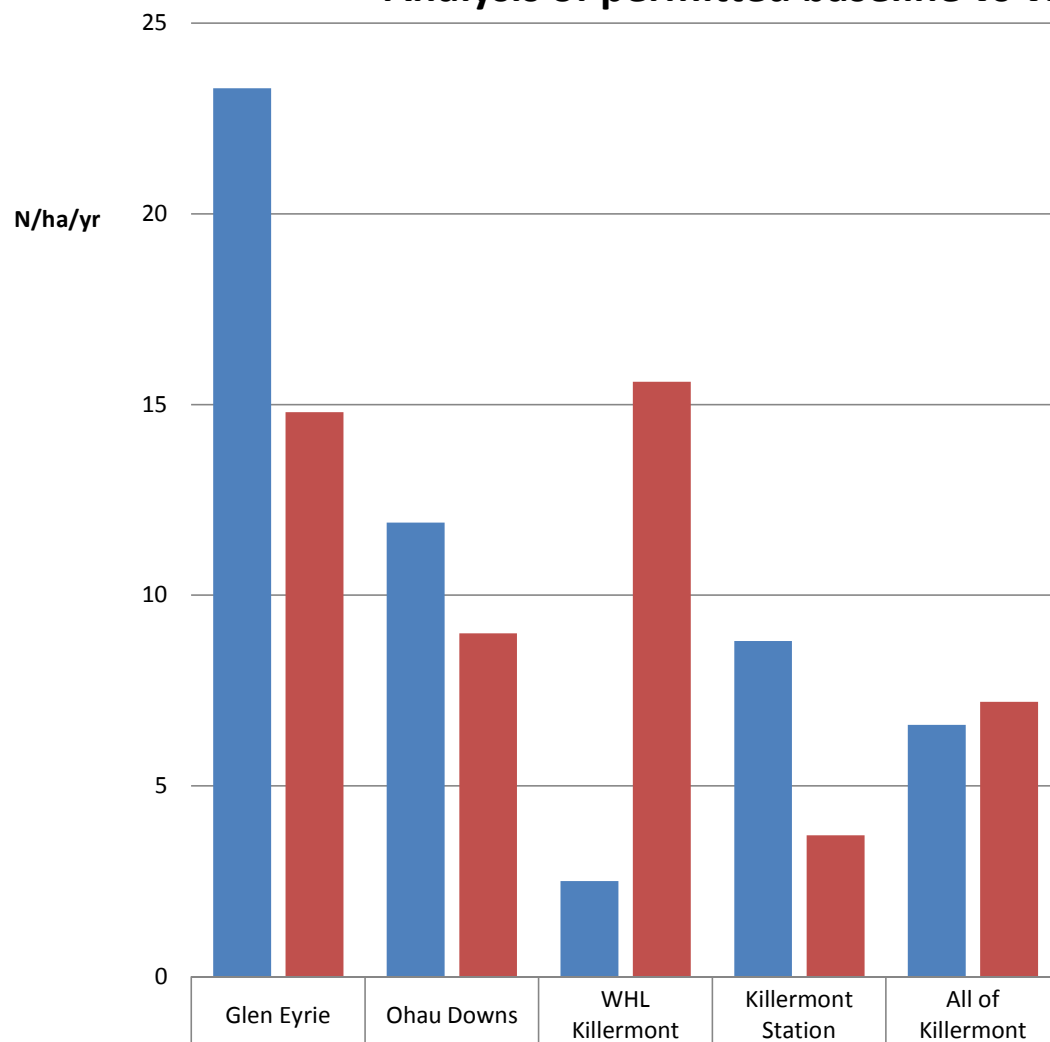
Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
	<p>Also raised at the hearing was whether s14(3)(b) actually applies when there is a cut and carry system ie no stock on land ie reasonable amount would be 4 months.</p>	<p><i>An individual's reasonable domestic needs; or The reasonable needs of an individual's animals for drinking water,— and the taking or use does not, or is not likely to, have an adverse effect on the environment.</i></p> <p>Therefore Section 14(3)(B) of the Act authorises the taking and use of water for reasonable domestic and stockwater needs, where there is no adverse effect on the environment.</p>	
<p>Ms Vesey</p> <p>Addendum report, paragraph 93</p> <p>Mr Glasson</p> <p>Original report, paragraph 183</p>	<p>Landscape</p> <ul style="list-style-type: none"> The area is adjacent to SH8 and therefore should have a buffer of 300m however planting not seen as a suitable mitigation measure. Cubicle barns would have a high impact on the landscape character and quality of this site. 	<p>Evidence of Mr Brown, in particular see paras 71-72:</p> <p>While it, together with neighbouring properties closer to Omarama, also act as the foreground in views towards the mountain ranges beyond, a number of other factors also have to be taken into account:</p> <ul style="list-style-type: none"> Some 4.4kms out of the 5.1kms of combined Williamson Holdings / Killermont Station highway frontage offers significant to complete screening of the irrigation areas and systems because of intervening terrace 'edges' and embankments. A very large expanse of land beyond those edges is concertinaed together – visually – so that little of it is clearly legible: as a result, the background ranges, foothills and even shelterbelts near Broken Hut Rd are frequently much more significant than the intervening land, which reads as little more than an intervening line or strip of undifferentiated 'pasture' (in reality, mostly coarse grasses and weeds). <p>In my assessment, this suggests that up to 3 pivot irrigators at the northern end of the WHL Killermont Block may well be visible. Of these, only the northern-most one would be readily apparent, and even this irrigator would not break the skyline or be dominant in its own right. Its effects could be further minimised by ensuring that it is parked well away from the highway. As a result, even though the proposed structures would – en masse – modify the local landscape's character to some extent, the more recessive location of the other 6 irrigators proposed, combined with the dynamic experience of seeing them in combination with other (existing) pivot irrigation systems when travelling along SH8, would limit such effects to an acceptable level.</p>	<p>Mr Brown in reply evidence, has offered further mitigation of a 100m buffer from Sh8.</p> <p>In response to other recommendations, at para 19:</p> <p>This assessment fails to recognise the depauperate state of the site at present: its present land cover is largely dominated by hieraceum and other weeds, with rabbits precluding the likelihood of any more 'natural' regrowth of tussock or pastoral grasses at present. Whether viewed from SH8 or Broken Hut Rd, the subject site is entirely impoverished, and its unremittingly flat terrain east of the Ahuriri River terraces adds little to its intrinsic character or value. Mr Glasson has greatly over-stated its appeal in my opinion.</p> <p>At para 22 and 23:</p> <p>Furthermore, the viewing distance of 1.2kms to the nearest cubicle barn, combined with the flat viewing perspective from surrounding roads, and the potential to use bunding with low level revegetation across those bunds for mitigation, would help to appreciably reduce their presence – to the point where they merge with the combination of pine woodlot, shelterbelts and farm buildings that already exist near Broken Hut Rd. In my opinion, such measures would be entirely compatible with the working nature of the farmland at present. Perhaps just as important, the combination of irrigated pasture and revegetated margins is preferable to allowing the WHL Killermont Block to physically deteriorate further – to the point where its physical decline is irreversible.</p> <p>The important point to emerge from my analysis is that the application property is NOT in a natural sate at present, nor is it the actual focus for views from either SH8 or Broken Hut Rd. Yet, this is how Chris Glasson appears to be treating it – as a landscape feature in its own right.</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
	<p>Amenity and communities</p> <p>Copy of NZTA approval for the pipeline</p>	.	Ian McIndoe to provide with evidence.
KILLERMONT STATION			
<p>Ms Rodrigo</p> <p>Paragraphs 153, 170 and 185.</p>	<p>Overseer inputs</p> <p>Mr McNae's report identifies a number of uncertainties about the parameters used in the running of OVERSEER.</p>		<p>Dr Robson evidence in reply, paragraph 21.</p> <p>All issues in relation to the OVERSEER modelling of Killermont Station are accepted as being resolved in Mr McNae's addendum report (page 14 and 15).</p>
Manuka Creek (75 ha)			
<p>Ms Penman</p> <p>Paragraph 2-9</p>	<p>Minimum Flows - Table 3, row xxii Waitaki Plan</p> <p>No minimum flow in Table 3, row xxii for Manuka Creek.</p>	<p>Ian McIndoe, paragraph 194.</p> <p>Killermont Station and Twin Peaks Station Limited have signed a Memorandum of Understanding relating to the proposed abstractions from Manuka Creek and have agreed to a joint minimum flow and flow sharing arrangement on the Creek.</p>	
Frost Gully (28 ha renewal)			
<p>Ms Rodrigo</p> <p>Paragraph 164</p>	<p>Fisheries values</p> <p>Issue around whether the outlet of the dam requires a fish screen - officer has suggested a condition to ensure fish passage not impeded.</p>		<p>Ruth Goldsmith, paragraph 4.4.</p> <p>The observation that Manuka Creek does not have a surface flow connection to Omarama Stream has consequences for fish passage requirements in Manuka Creek and Frosty Gully. In paragraphs 164 of her S42A addendum, Yvette Rodrigo recommends that, as Frosty Gully can at times be connected with Manuka Creek and the Omarama Stream, a condition be included that fish passage is not impeded as a result of the Frosty Gully Dam.</p>
<p>Mr Glasson</p> <p>Para 183 (original report)</p>	<p>Landscape</p> <p>Due to these two small and discretely located sites adjacent to the foot of the hills the adverse effects would be less than minor.</p>		
Woolshed block			
<p>Mr Glasson</p> <p>Para 81</p>	<p>Landscape</p> <ul style="list-style-type: none"> Requires that the pipeline and intake be a submerged option. Creation of a buffer approximately 300m from SH8 to the irrigated land. 	<p>Mr Stephen Brown, paragraph 81:</p> <p>It is conceivable that some, more elevated, pivot irrigation components might still be visible from SH8 and Broken Hut Road, although I consider this unlikely (some tour buses may be sufficiently elevated to accommodate such exposure). However, with the pivot irrigators set</p>	<p>Mr Stephen Brown paragraph :</p> <p>In relation to the rest of Killermont Station, Chris Glasson also retains concerns about cubicle barns and pivot irrigation. However:</p> <p>The mixture of irrigators within the main body of Killermont Station would be</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
		<p>back 600m or more from the highway, I anticipate that any such components would so small scale and light-weight that they would be entirely absorbed by the backdrop of the Ewe and Wether Ranges. They would scarcely register in their own right and are unlikely to have any appreciable impact on the character and values associated with either the southern-most reaches of the Upper Waitaki Basin or the gateway to the Lindis Pass.</p> <p>Mr McIndoe, paragraph 71 and 72, evidence:</p> <p>A gallery installed beneath the bed of the Ahuriri River is proposed for the intake. The key feature of this design is that it is buried and natural river bed material remains over the gallery.</p> <p>Mr McIndoe, paragraph 75</p> <p>The pipeline proposed is 475mm diameter PN6PVC pipe, buried with a minimum 400mm cover.</p>	<p>physically isolated east of SH8, behind the elevated river bank running south of the WHL Killermont site that extends as far as 600m east of the highway. This means that the irrigators would be almost entirely screened from view by that same feature. Even those pivot irrigating arms that are intermittently visible (and it is unclear if this would actually be the case) would be distant from the road corridor and so screened by the intervening bank that they would be all but imperceptible. Although the Dunstan and Wether Ranges comprise the immediate backdrop to Killermont Station and are part of a wider chain of outstanding mountains, the irrigators would barely intrude into views into them at all (in all likelihood, not at all). They would be very minor, light-weight elements that sit well below the main viewing axis to the mountains and, as such, would either have no impact on such views or a negligible effect.</p>
<p>Ms Rodrigo Paragraph 176</p>	<p>Stockwater Mr McIndoe states that stock water for this part of the property is now to be sourced from Manuka Creek.</p>		<p>Ian McIndoe, reply evidence.</p>
<p>Yvette Rodrigo Paragraph 175</p>	<p>Fish screens Need to provide a suitable condition that the screen be constructed in accordance with NIWA fish screen guidelines. The fish screening condition in the application relating to the Ahuriri River gallery intake is not adequate to ensure that the screen will be constructed in accordance with NIWA fish screen guidelines.</p>	<p>Mr McIndoe, paragraph 73, evidence:</p> <p>The gallery will be engineered to meet specific aims, including meeting the requirements specified in the NIWA fish screening guidelines.</p>	<p>Mr Ian McIndoe deals with specific concerns in relation to fish screening at Killermont Station at paragraphs 6 - 8 of his reply evidence:</p> <p>Webb (Para 196) states that no details have been supplied of recommended fish screen conditions, other than 2 mm mesh size for Killermont Station's Pebbly Block intake in the Tara Hills race.</p> <p>The applicant has agreed to abide by the NIWA fish screen guidelines; (para 118 in my main evidence). The proposed intake point is in the main race above the Tara Hills and Omarama Station fish screens. The race at the proposed take point is about 2.5-3.0 m wide and 0.8 m deep, with approximately 1100 l/s flow. Velocity in the race will be about 0.8 m/s.</p> <p>Also Ruth Bartlett, paragraph 4.1. The intent of Condition 25 is to ensure effective fish screening is provided and the requirements for gallery intakes recommended by Mr Verey aim to achieve this.</p> <p>Details of a screen of the type typically used in these circumstances are given at the end of this reply. Assuming a KS90 model with a No10 mesh, approach velocity 100 mm from the screen would be about 0.05 m/s and velocity</p>

Reference	ISSUE / OPPOSING CASE / RELEVANT QUERIES FROM PANEL	SHL / KS / FRL CASE	REPLY EVIDENCE
			through the mesh 0.13 m/s, assuming a take of 100 l/s. This shows that meeting the NIWA fish screen guidelines is feasible.
<p>Ms Rodrigo</p> <p>Addendum Report</p> <p>Para 178(a)</p>	<p>Transit</p> <p>There is an issue relating to the protection of Transit erosion protection works in the Ahuriri (rock walls).</p>	<p>Ian McIndoe, paragraph 99, evidence:</p> <p>The proposed riverbed works are localised and on a small scale, with respect the size of the Ahuriri River. Where any disturbance occurs to the banks of the river the applicant will undertake remedial work to restore the bank stability required. Any potential adverse changes to the riverbed will be mitigated by ensuring the riverbed is returned to its natural state.</p>	<p>Ian McIndoe at paragraph 73 and 74, reply evidence:</p> <p>As I stated in my main evidence (para 99), the rock walls are about 50 m apart and only protrude into the river by 10-15 m. The proposed gallery will be approximately mid-way between the rock walls and extend further out into the river. Allowing 10 m for gallery construction, the walls will be 20 m away. After construction has been completed, the gallery will not be visible.</p> <p>The applicant is happy to accept a condition that states that works will be undertaken to ensure no disturbance of the existing river bank protection structures occurs. In terms of compliance, there is no reason to have any doubt that such a condition cannot be complied with.</p>
Pebbley			
<p>Mr Glasson</p> <p>Paragraph 7.7, addendum report</p>	<p>Landscape</p> <p>Effects more than minor given the proximity to the road and the Ahuriri River.</p> <p>300m buffer required.</p> <p>Also has some concerns in relation to the proximity with the Clay Cliffs.</p>	<p>Mr Brown, paragraph 87, evidence.</p> <p>In my opinion, greening of the Pebbley Block would create a degree of domestication and modification that is discernible by the general, public. However, it would not - in its own right - obstruct or intrude into, views of the adjacent river and Clay Cliffs, and even through the land cover content of the immediate foreground would change, particularly when viewed from the vicinity of SH8, the Ahuriri's channels, braids, banks and foothill margins would not be physically touched by such modification. Perception of these landscape components would be affected to a limited degree.</p>	<p>Mr Brown reply evidence, paragraph 26 and 27.</p> <p>K-line irrigation is the least visually intrusive form of practicable irrigation for the Pebbley Block and would have no discernible impact on the Clay Cliffs or Ahuriri River – despite Chris Glasson still asserting that he cannot support irrigation because of such effects.</p> <p>At the end of the day, one has to judge whether the greening of the Pebbley Block is similar, worse or better than its gradual 'browning' and occupation by rose briar, hieraceum and other weeds. In my opinion, the perceived effects are similar – particularly given the framed nature of the landscape between Lake Ruataniwha and the northern entry to the Lindis Pass. However, the physical landscape effects would be more positive and should not be discounted.</p>

Analysis of permitted baseline vs WQS proposed N



Permitted Baseline:

The permitted baseline N losses are based on the following hypothetical scenarios which are considered to be 'non-fanciful'.

Glen Eyrie: 1.5 stock units per ha cattle with 1,200 ha winter wheat or lucerne grown on better quality land. Glen Eyrie has previously been almost fully cropped and while this was not successful it is not considered fanciful to have half the farm in crop with different farm management.

Ohau Downs: 500 ha cropping, 200 ha dryland lucerne, 6000 ewes, 5000 hoggets and 500 cattle. This is only a slight intensification on what is undertaken on the property currently, and is not considered fanciful.

WHL Killermont: 0.2 stock units per ha sheep. Because of the poor quality soil on WHL Killermont, without irrigation it would not be feasible to undertake any more than this.

Killermont Station: A further 200 ha of forage crops (terraces and lower hill country). Seed and super flown on to topdress hill country (100 - 150 ha per annum). Ryecorn undersown with high performance grass mix drilled with fertilizer and later lime applied to get results out of dryland flats (100 ha / annum). Pebbly regrassed over a 5 year period with dryland lucerne (high levels of fert required to establish this high cost crop)

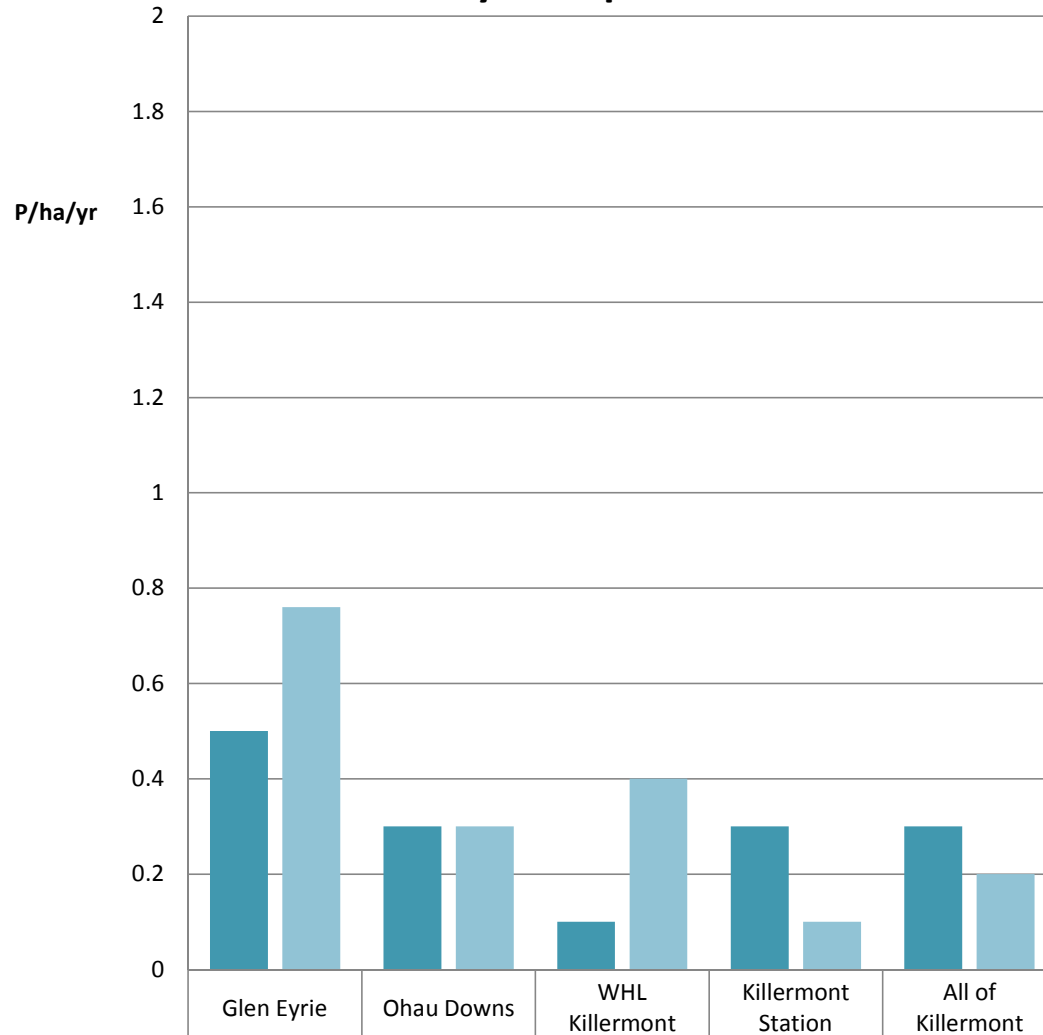
The permitted baseline scenarios were calculated by Dr Robson, using AgResearch modelling and are suitable for broad brush comparison only (see paragraph 49 of Dr Robson's reply evidence).

WQS Proposed losses:

The WQS proposed losses were referred to in Dr Robson's evidence of 8 October at paragraph 42 (Glen Eyrie), paragraph 100 (Ohau Downs), paragraph 83 (WHL Killermont) and paragraph 119 (Killermont station)(there have been minor changes due to the remodelling post the McNae audit).

The proposed N losses were calculated by Dr Robson based on developed setting, using whole farm for proposed, and using cubicle stables (where relevant) at the more conservative MS production rate.

Analysis of permitted baseline vs WQS proposed P



Permitted Baseline:

The permitted baseline losses are based on the following hypothetical scenarios which are considered to be 'non-fanciful'.

Glen Eyrie: 1.5 stock units per ha cattle with 1,200 ha winter wheat or lucerne grown on better quality land. Glen Eyrie has previously been almost fully cropped and while this was not successful it is not considered fanciful to have half the farm in crop with different farm management.

Ohau Downs: 500 ha cropping, 200 ha dryland lucerne, 6000 ewes, 5000 hoggets and 500 cattle. This is only a slight intensification on what is undertaken on the property currently, and is not considered fanciful.

WHL Killermont: 0.2 stock units per ha sheep. Because of the poor quality soil on WHL Killermont, without irrigation it would not be feasible to undertake any more than this.

Killermont Station: A further 200 ha of forage crops (terraces and lower hill country). Seed and super flown on to topdress hill country (100 - 150 ha per annum). Ryecorn undersown with high performance grass mix drilled with fertilizer and later lime applied to get results out of dryland flats (100 ha / annum). Pebbly regrassed over a 5 year period with dryland lucerne (high levels of fert required to establish this high cost crop)

The permitted baseline scenarios were calculated by Dr Robson, using AgResearch modelling and are suitable for broad brush comparison only (see paragraph 49 of Dr Robson's reply evidence).

WQS Proposed losses:

The WQS proposed losses were referred to in Dr Robson's evidence of 8 October at paragraph 42 (Glen Eyrie), paragraph 100 (Ohau Downs), paragraph 83 (WHL Killermont) and paragraph 119 (Killermont station)(there have been minor changes due to the remodelling post the McNae audit).

The proposed losses were calculated by Dr Robson based on developed setting, using whole farm for proposed, and using cubicle stables (where relevant) at the more conservative MS production rate.

■ Permitted baseline	0.5	0.3	0.1	0.3	0.3
■ WQS Proposed P losses	0.76	0.3	0.4	0.1	0.2

Appendix C - Table showing conditions recommended by reporting Officers.

Reference	Condition
GLEN EYRIE DOWNS	
<p>Claire Penman, addendum report, paragraph 273 (Glen Eyrie):</p> <p>Amendments to the currently proposed conditions will be required to provide for this staged evidence demonstrating compliance with the NIWA guidelines as discussed in the addendum s42A report of Ms Vesey. I consider this should be included on the water permit, not the land use permit, as proposed in the conditions in evidence of Mr Kyle.</p>	<p>Condition 29 and 30 relating to works in the lake bed.</p>
<p>Claire Penman, addendum report, paragraph 276 (Glen Eyrie):</p> <p>A condition could be included on the consent requiring the noise levels to be limited in some way to protect the amenity values of Maori Bay for neighbours and other users.</p>	<p>Condition 26 relating to works in the lake bed.</p>
<p>Claire Penman, addendum report, paragraph 277 (Glen Eyrie):</p> <p>Dr Ruth Bartlett has provided evidence on terrestrial ecological effects and concludes that the effects would be acceptable. She also provides details regarding the cultivation/planting proposed (paragraphs 4.27, 4.29 & 4.30) and monitoring that she would recommend be undertaken (paragraphs 4.35 & 4.36). These do not appear to have been incorporated into conditions by Mr Kyle. I consider that this would be necessary to ensure Dr Bartlett's conclusions are achieved.</p>	<p>Conditions 52 – 54 relating to water use.</p>
<p>Claire Penman, addendum report, paragraph 278 and 287 (Glen Eyrie):</p> <p>Dr Greg Ryder has provided an assessment of effects on avifauna and aquatic ecology from the proposed irrigation and pipeline installation. He concludes that with appropriate mitigation, effects will be acceptable. Examples of his recommended mitigation include (paragraphs 5.8-5.12 and paragraphs 7.1-7.7): restricting construction to outside the avifauna breeding season, and monitoring of Canada geese populations and mammalian predators. It does not appear that these mitigation measures are included in the proposed conditions in the evidence of Mr Kyle. I consider that this would be necessary to ensure Dr Ryder's conclusions are achieved.</p>	<p>Part of the sub catchment monitoring required – Condition 34 relating to water use and Table 2.</p>

<p>Claire Penman, addendum report, paragraph 282 and 290 (Glen Eyrie):</p> <p>Mr Kyle has provided conditions for the proposed land use permit. While I consider this addresses most of the mitigation proposed by the applicant, further detail of the construction methods need to be included in the scope to ensure that the works are carried out as described in the evidence of Mr McIndoe.</p>	<p>Conditions 1 – 4 relating to works in the lake bed.</p>
<p>OHAU DOWNS</p>	
<p>Claire Penman, addendum report, paragraph 300 and 310 (Ohau Downs):</p> <p>In paragraph 472, Mr McIndoe notes that the proposal is to include a fish screen gallery designed in accordance with the NIWA Guidelines. I am satisfied with this proposal. However, as noted by Dr Adrian Meredith in his addendum s42A report, <i>“these type of structures require careful scrutiny of design, installation, and maintenance, such that adequate performance is maintained. Once installed such installations (like foundation reinforcing in building construction consents) are very difficult to assess or review, so it is appropriate that consent conditions require explicit demonstration of appropriate construction phases (by inspection or photographic evidence).”</i> Amendments to the currently recommended conditions will be required to provide for this staged evidence demonstrating compliance with the NIWA guidelines as discussed in the addendum s42A report of Ms Vesey. I note that no fish screen condition has been proposed in the conditions in evidence of Mr Kyle.</p>	<p>Conditions 31 and 32 relating to works in the lake bed.</p>
<p>Claire Penman, addendum report, paragraph 301 (Ohau Downs):</p> <p>Mr McIndoe has also provided further detail about the potential effects on noise of the pump station and works required to install the pipeline. If the noise generated by the proposed pump station is as anticipated, then I would be satisfied that the effects on amenity values are acceptable. However, I note that it is difficult to be certain of the noise levels at this stage. While the proposed pump station is located some distance from any residential property, a condition could be included on the consent requiring the noise levels to be limited in some way to protect the amenity values of Maori Bay for neighbours and other users.</p>	<p>Condition 26 relating to works in the lake bed.</p>
<p>Claire Penman, addendum report, paragraph 303 and 310 (Ohau Downs):</p>	<p>Part of the sub catchment monitoring required –</p>

<p>Dr Greg Ryder has provided an assessment of effects on avifauna and aquatic ecology from the proposed irrigation and pipeline installation. He concludes that with appropriate mitigation, effects will be acceptable. Examples of his recommended mitigation include (paragraphs 11.1-11.4 and paragraphs 13.1-13.6): restricting construction to outside the avifauna breeding season, and monitoring of Canada geese populations and mammalian predators. It does not appear that these mitigation measures are included in the proposed conditions in the evidence of Mr Kyle. I consider that this would be necessary to ensure Dr Ryder's conclusions are achieved.</p>	<p>Condition 34 relating to water use and Table 2.</p>
<p>WHL KILLERMONT</p>	
<p>Susannah Vesey, addendum report, paragraph 75 (WHL Killermont):</p> <p style="padding-left: 40px;">Instream baseline monitoring before irrigation commences (as part of the FEMP process).</p>	<p>Conditions 4 – 10 relating to water use.</p>
<p>Susannah Vesey, addendum report, paragraph 75 (WHL Killermont):</p> <p style="padding-left: 40px;">Training courses for farm managers to attend on Ngai Tahu values and also implementation of the FEMPs.</p>	<p>Condition 61 relating to water use.</p>
<p>Susannah Vesey, addendum report, paragraph 76 (WHL Killermont):</p> <p style="padding-left: 40px;">The time of construction of the intake structures be extended to ensure works do not occur between 01 June to December 31 of any given year. This incorporates both the fish spawning and avifauna breeding seasons.</p>	<p>Condition 18 relating to works in the river bed provides for avifauna. This requires the consent holder to inspect the work area for bird species (Appendix A) and to ensure that no construction or maintenance work is undertaken within 100m of bird breeding or nesting sites.</p>
<p>Susannah Vesey, addendum report, paragraph 76 (WHL Killermont):</p> <p style="padding-left: 40px;">Condition LU24 be maintained as recommended in my original s42A report to address Mr Whata s comments that works will not affect recreationalists.</p>	<p>LU24 states: All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.</p> <p>This is too vague to be used as a condition.</p>
<p>Susannah Vesey, addendum report, paragraph 76 (WHL Killermont):</p> <p style="padding-left: 40px;">The scoping conditions proposed by Mr Kyle are vague I recommend the following details (as provided in figures 28-30 of Mr McIndoe's evidence) to be included to define the scope of the resource consent applications:</p>	<p>See revised conditions 1 – 6 attached to land use consent CRC041787 and revised conditions 1 - 6 attached to land use consent CRC073112 and CRC073113</p>

<p>(i) Works associated with the construction and maintenance of intake gallery and intake pipe;</p> <p>(ii) Depth of excavation (3.5 metres);</p> <p>(iii) Surface area of excavation (60 metres by 40 metres);</p> <p>(iv) Location of works (CRC041787 between NZMS 260 H39:596-285 and NZMS 260 H39:599-288; CRC073113 between NZMS 260 H39:544-287 and NZMS 260 H39:546-285).</p>	
KILLERMONT STATION	
<p>Yvette Rodrigo, addendum report, paragraph 174-175 (Killermont Station):</p> <p>Mr McIndoe described some features of the fish screens that are proposed to be used at the intake structure for this application. The applicant is proposing to use a gallery intake installed in the bed of the Ahuriri River. Condition 25 of the land use application (CRC041776) refers to this intake and the type of fish screen to be used.</p> <p>In my view, this condition is not adequate to ensure that the screen will be constructed in accordance with the NIWA Fish Screening Guidelines. Given the significance of fishery values in the Ahuriri River, I recommend that the condition developed by ECan in relation to fish screens for gallery intakes be included as part of this consent (CRC041777)</p>	<p>See revised conditions 25 and 26 relating to works in the river bed (CRC041776).</p>

