

**BEFORE A HEARINGS PANEL OF THE CANTERBURY REGIONAL COUNCIL**

**Under** the Resource Management Act 1991

**In the matter** of resource consent applications by various parties to take and use water in the Upper Waitaki Catchment

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**RIGHT OF REPLY ISSUES – HAIDEE MCCABE  
2010**

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## **Introduction**

1. The purpose of this right of reply evidence is to address matters raised by the s42 reporting officers with respect to UWAG clients for whom I have prepared evidence in chief.

### **Glentanner:**

#### *Irrigation of Moraine Area*

2. The landscape areas associated with the northern moraine area of Catherine Fields have already been explained in my evidence and in the Committee's discussions with Mr Ross Ivey at the hearing.
3. My report details that there is an adequate buffer between the current command irrigation area and the DOC land containing the kettle holes, in the northern area. Minor levelling of moraines may be required at specific locations for pivot tracks but the majority of this land is already modified or excluded from the command area as detailed above.
4. Furthermore, the finalisation of the FEMP provides for a 50 metre buffer from the ephemeral water courses which effectively reduces the command area shown.

### **Lilybank:**

#### Landscape

5. Mr Andrew Craig has already clarified issues relating to irrigation of the foothills.
6. It is proposed to irrigate the flats and foothills but there is a clear separation on the property between the grassed foothill areas proposed to be irrigated and the steeper slopes behind the irrigation area remaining in natural vegetation, which are not proposed to be irrigated. I understand Mr Craig has clarified the buffer with respect to the Godley/McCauley Rivers.
7. The FEMP is now based on an extra 70ha, totalling 242ha, given the strategic watering proposal detailed in my evidence. The reporting

officer had noted some doubt that with the total irrigation area, whether nutrient thresholds could still be met. The final FEMP has shown compliance with nutrient thresholds – irrespective of whether 172ha or 242ha is irrigated. Therefore the effect on water quality is still considered acceptable.

8. The FEMP has been developed, including the level of monitoring, in consideration of Policy 32 given this is a High Natural Character Waterway. As detailed in the FEMP, monitoring of waterways has already commenced in order to establish a baseline. Station Stream has one water quality site proposed but is has not been focused on given the physical characteristics of the land, with large terraces either side and land sloping away from the Station Stream. Smaller waterways within the irrigation area have been focused on, as these are considered more likely to be effected by the development.
9. Concerns have been raised by submitters that the irrigation command area is within SSWI and WERI areas. As identified in the my evidence, a change in command area to avoid the DOC conservation land (wetland area) and increase the buffer to the Godley River was made by the applicant which may not have been available to submitters. Consequently we consider the amended command area should address these concerns.

#### Minimum flow

10. The MALF minimum flow and incremental flow reduction regime proposed by Lilybank has been developed in close consultation with ECan (including the reporting officer) and F&G. However another flow-sharing regime has been proposed which has subsequently been supported by the reporting officer.
11. Firstly an element of confusion needs to be cleared up in relation to Dr Dean Olsen evidence. Table 1 proposed an incremental flow reduction which was consistent with that proposed by Mr Boraman. However later in Dr Olsen's evidence it referred to 1:1 flow sharing above the minimum flow starting at 510l/s, which was verbally confirmed during presentation of evidence as an error and that this should in fact read "incremental reduction" regime as detailed by

Table 1. Therefore Dr Olsen did not support that preference for 1:1 flow sharing as identified in the reporting officer's Addendum Report.

12. The reporting officer considers 1:1 flow sharing (still however with 25l/s steps) starting at 520l/s rather than 420l/s as proposed by the applicant, would provide additional mitigation against potential for reduced water velocity to adversely affect habitat of koaro as identified by Dr Allibone (DOC). Furthermore periodic surveys of fish species and invertebrates have also been proposed by the reporting officer based on Dr Allibone evidence.
13. As detailed in my evidence, the reason the incremental flow reduction was developed above the MALF, was to avoid the potential of flat-lining at the minimum flow. The reporting officer is now proposing a 1:1 flow-sharing regime to protect stream velocity by starting restrictions at 520l/s rather than 420l/s.
14. Dr Olsen has since considered this recommendation on behalf of Lilybank, and does not consider the reporting officer's 1:1 flow-sharing to provide any ecological advantage to Station Stream. As detailed in Dr Olsen's evidence the minimum flow set at MALF will essentially provide for habitat of trout and native fish including, koaro habitat.
15. In the evidence of Dr Olsen he specifically considers the effect of the abstraction creating reduced water velocity on native fish including koaro. His conclusion was the effect was less than minor for the following reasons:
  - 15.1 *"This opinion is based on widespread distribution of both the species collected in the electric fishing survey, the abundance of similar habitat upstream of the intake and elsewhere in the Tekapo catchment, consideration of the habitat preferences of the fish species that may be present, the relatively short length of river affected by the residual flows (1.5km) and the fact that the proposed residual flows is set at MALF which is the lowest flows expected to occur annually (although naturally these low flows are expected to occur in winter)."*
16. I also note from Dr Olsen's evidence that Koaro are expected to spawn: *"between autumn and spring, with adult spawning probably*

*occurring in river habitats. Larve then travel downstream to lakes soon after hatching where they live and feed before returning to rivers in late autumn. Spawning events and any significant fish movement will coincide with natural freshes when the residual reach is unlikely to represent a barrier to migration".* I further note that this timing falls outside the irrigation season and therefore abstraction should not be occurring during the spawning period. A condition limiting the irrigation season from 1<sup>st</sup> October to 31<sup>st</sup> April in the following year is proposed.

17. Consequently the incremental flow reduction proposed by the applicant is considered to be appropriate to protect instream values for koaro as detailed in Dr Olsen's evidence and subsequent comments.
18. Periodic monitoring of fish species and invertebrates is not considered to be warranted given the widespread nature of koaro and Canterbury galaxias throughout the Waitaki catchment and considering the level of effect this take has on Station Stream. Furthermore invertebrate populations were also not considered to be adversely affected, and reduced flow may even favour some invertebrate taxa.
19. In summary the incremental flow regime proposed by the applicant starting at 420l/s is still sought by the applicant. The reporting officer has advised that clarity needs to be provided on what happens between 345l/s and 320l/s. The applicant accepts this comment and the mechanism proposed by the reporting officer to add to the applicants condition, that between 320l/s and 345l/s the maximum rate at which water is taken shall not exceed half of the amount available above 320l/s.

**Twin Peaks:**

20. Details of a small storage pond were provided with Twin Peaks proposal to outline how irrigation could be managed during times of low flows. Consents for damming are not part of this application. Should they be deemed necessary in the future whereby ECan de minimis requirements cannot be meet, consent will be applied for at that time.

### Manuka Creek

21. The evidence originally prepared was on the basis that Manuka Creek is outside what is defined as the protected waters under the Ahuriri Water Conservation Order. The evidence for the applicant confirmed by Mr Stewart for ECan establishes that when Manuka Creek goes underground there is no direct correlation with the Omarama Stream. Groundwater flows, move potentially into the Omarama Swamp, the Omarama Stream or to groundwater. Time lag issues are relevant to the imposition of any condition linking this take directly to Ahuriri Water Conservation Order flows.
22. Furthermore surface water, does not flow into the Omarama Stream except under flood events – and even then only for periods of very short duration – confirms that there is no direct or immediate correlation with Omarama Stream flows. Under this scenario to impose a condition effectively bringing Manuka Creek into the “protected waters” category under the Ahuriri Conservation Order is not justified. It is more appropriate to apply the 5 year/7 day low flows as determined for Manuka Creek under Table 3, Line 22.

### **Waitangi**

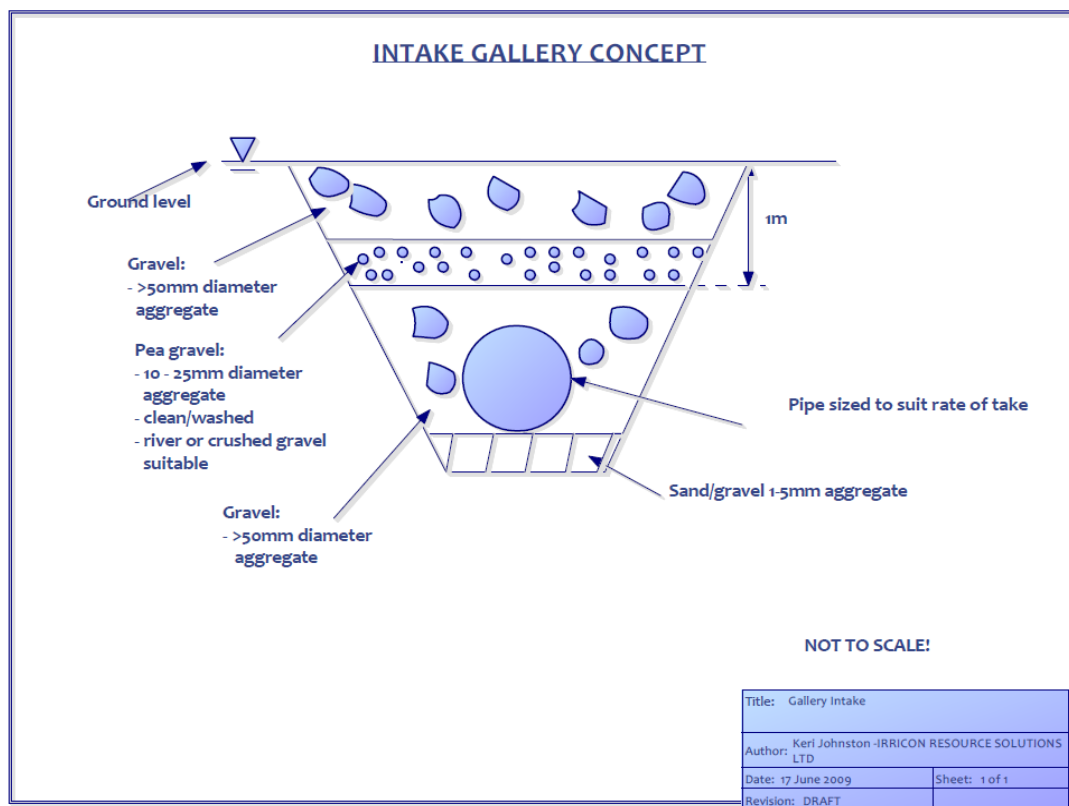
23. Waitangi Station wishes to maintain its position in requiring 8,000m<sup>3</sup> of water for stockwater, based on figures detailed in my evidence. Lactating beef cows like dairy cows, require a high level of drinking water.
24. Furthermore with the takes from Gibson and Sutton Stream the existing race system is proposed to be upgraded but will still require 15 l/s to ensure conveyance to the end of the race system rather than to provide for loses within the race.

### **General re Gallery Intakes: Twin Peaks, Waitangi & Bellfield.**

25. During the course of the hearing there has been some discussion around whether there has been adequate detail provided in relation to gallery intakes. Gallery intakes with a gravel cover proposed of 1mtr, will be located in streams or locations within streams where the stream velocity is not high. Many of the streams have “pooled” and

protected locations whereby velocity is low and potential for scouring is minimal.

26. For example with Twin Peaks further details were provided to Yvette Rodrigo on the 3<sup>rd</sup> November 2009, detailing Manuka Streams velocities, which from gaugings by Mr Boraman varied from 0.22m/s to 0.33m/s. Ms Johnston (Engineer) reviewed this information and considered the velocities low and scouring potential minor for the intake proposed. In my opinion the Henburn and Gibson Stream are low gradient streams with lower velocity and therefore 1mtr of gravel cover should be sufficient. In high velocity streams such as Station Stream at Lilybank, 2mtrs gravel cover has been accepted.
27. The attached concept details how the galleries will be backfilled



## **Gallery construction issues: Temporary Diversion**

28. There appears to be some divergence of opinion between reporting officers regarding the need for separate diversion consent to be required, for the purposes of temporary gallery construction and maintenance. Ms Rodrigo for Twin Peaks has referred to the need for a further consent to be applied for, but Ms Penman for Otamatapaio and Bellfield have noted the requirement for conditions of consent to be added. The response from officers as to whether a new consent is required is set out in the reporting officers' response to questions addendum. For consistency purpose I point out that the Lilybank consent granted for Micro Hydro activities when this matter became apparent, further conditions were simply added to the water permit applied for which was set out as detailed below:

*Water shall only be temporarily diverted within the bed of XXXX Stream as follows: (i) diversion shall only be for the purpose of installation and maintenance of a submerged gallery intake, in accordance with consent CRCXXXX; (ii) diversion shall only be over a length of the bed of less than 50 metres, between grid references NZMS 260 XXX and XXX; and (iii) diversion shall not impede fish passage or cause the stranding of fish in pools or channels.*

Dated

2010

Haidee McCabe