

BEFORE THE CANTERBURY REGIONAL COUNCIL

UNDER

The Resource Management Act 1991

IN THE MATTER

of the Proposed Canterbury Land and Water Regional Plan

**MEMORANDUM OF COUNSEL
FOR THE SHAREHOLDERS OF BENMORE IRRIGATION COMPANY LIMITED
IN RESPONSE TO MATTERS RAISED IN THE GROUP 2 HEARINGS**

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INTRODUCTION

1. This memorandum is filed on behalf of the Shareholders of Benmore Irrigation Company Limited (“BICL”), a submitter (submitter ID number 0275) on the proposed Land and Water Regional Plan for the Canterbury region (“pLWRP”).
2. During the Group 2 hearing members of the hearing committee afforded BICL witnesses an opportunity to respond to particular questions and to provide further information at a later stage. This memorandum contains the answers to those questions.
3. Commissioner van Voorthuysen questioned Mr Heller on his estimate of the lag time for groundwater to make its way into Kellands Pond. A supplementary statement of evidence from Mr Heller, containing his response can be found in **Appendix 1** to this memorandum.
4. Commissioner van Voorthuysen questioned Mr Shepherd whether the major small seed operator (referred to at paragraph 7.2 of Mr Shepherd’s evidence in chief) was certified. A supplementary statement of evidence from Mr Shepherd, containing his response can be found in **Appendix 2** to this memorandum.
5. **Appendix 3** contains a compilation of planning maps 94, 95, 100 and 101, the nutrient allocation zones afforded to the BICL irrigation command area under the pLWRP; and
6. **Appendix 4** contains a map illustrating those revisions that BICL seeks to the above nutrient allocation zones:
 - 6.1 The pink/hatched “sensitive lake” zone be reduced in area to include only that strip of land that contributes to the water quality of Kellands Pond;
 - 6.2 The balance of the pink zone (land contributing to the water quality of the Wairepo Arm and Lake Ruataniwha) be changed to orange “at risk” zone;
 - 6.3 The orange zone to the North left of the BICL command area be changed to green “meets water quality outcomes” zone; and

- 6.4 The red "water quality outcomes not met" zone be changed to orange.
7. Due to the format of the maps and the level of overlay required it has not been possible to mark in the waterways in blue. Despite this, it is possible to locate the waterways from Appendix 4:
- 7.1 Both Kellands Pond and the Wairepo Arm of Lake Ruataniwha are located outside of the BICL command area;
- 7.2 Kellands Pond is located at the very tip of the reduced pink zone strip;
- 7.3 The Wairepo Arm adjoins Kellands Pond to the right and is easier to locate due to shading;
- 7.4 Lake Ruataniwha adjoins the Wairepo Arm, is shaded, borders the green and orange zones and is located above and to the left of both Kellands Pond and Wairepo Arm.

CONCLUSION

8. If the hearing committee has any further questions, the witnesses are happy to respond.

Dated 18 June 2013


KE FORWARD

Solicitor for the Shareholders of Benmore Irrigation Company Limited

APPENDIX 1

Supplementary statement of evidence of Mr Heller

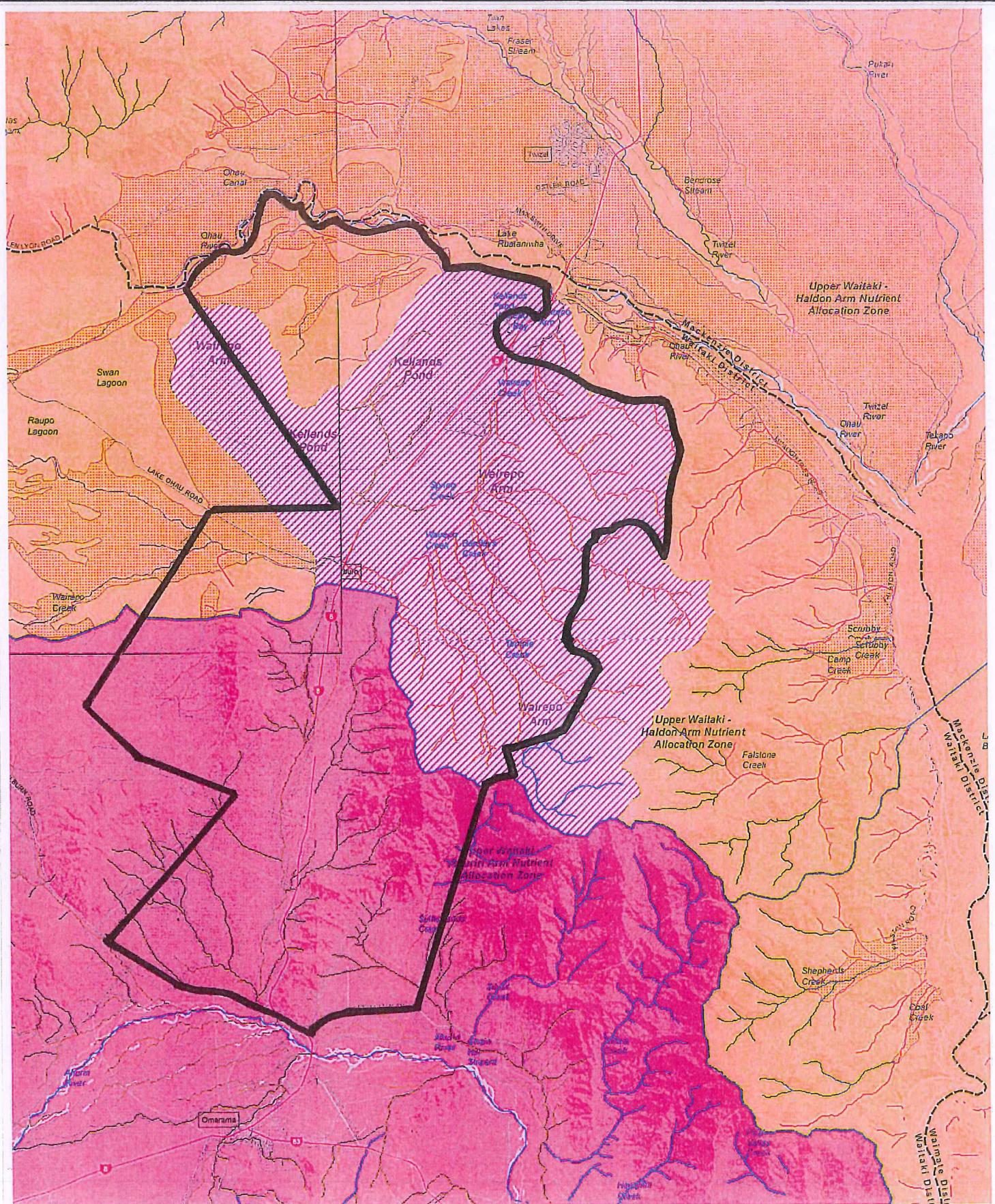
1. My name is Thomas Brendon Heller and I have the qualification and experience described in my evidence in chief dated 2 April 2013.
2. I have prepared this supplementary evidence in response to a question asked by hearing Commissioner van Voorthuysen in relation to my evidence in chief for the Group 2 hearing. Specifically, the question related to my estimate of the lag time for groundwater to make its way to Kellands Pond.
3. I provide the following estimate and methodology:
 - The average distance up-gradient of Kellands Pond to developed land and/or land within the BICL command area = 3.15 km (max distance = 6.3 km)
 - The measured groundwater gradient = 0.02 m/m
 - The estimated bulk hydraulic conductivity = 100 m/day (from Waitaki Catchment Groundwater Information, MFE 2004).
 - The estimated specific yield = 0.2 (from Waitaki Catchment Groundwater Information, MFE 2004).
 - Thus average groundwater velocity = $K \times I = 2 \text{ m/day}$
 - Maximum (Darcy) groundwater velocity = $AV \times 1/Sy = 10 \text{ m/day}$
4. Therefore, the range of possible lag times for potential change to groundwater nutrient measurement in Kellands Pond is based on the average distance to developed land = 0.9 to 4.3 years. This is notwithstanding any significant lag time for nutrient flux to groundwater from the land surface.
5. Please note that the above estimate is reasonably simplistic for the purposes of a general guide and should be used for context only.

APPENDIX 2

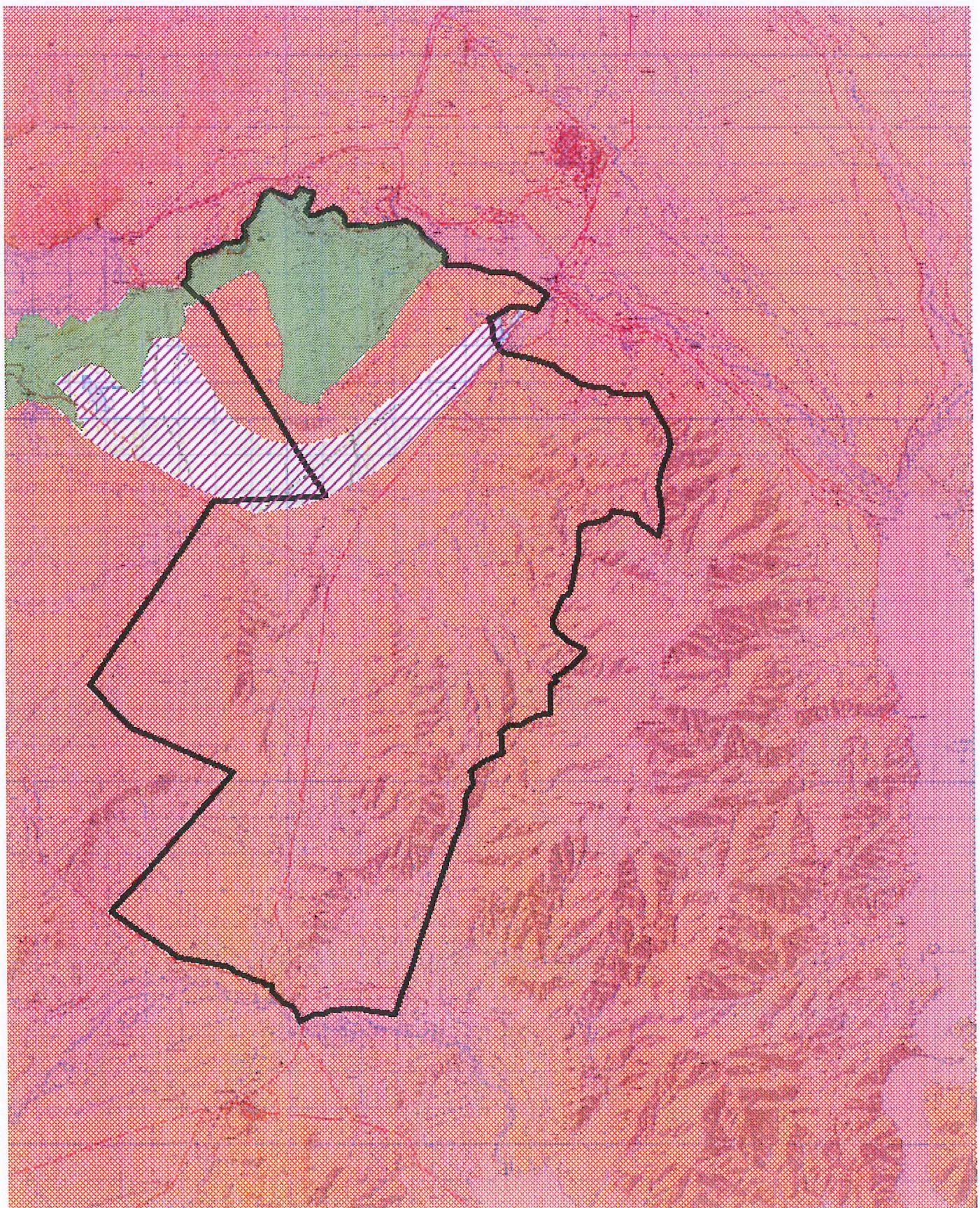
Supplementary statement of evidence of Mr Shepherd

1. My name is Barry Shepherd and I have prepared this supplementary evidence in response to a question asked by hearing Commissioner van Voorthuysen in relation to my evidence in chief for the Group 2 hearing. Specifically, the question was to whether the major small seed operation within the BICL irrigation command area was certified.

2. I can confirm that the operation is certified with AsureQuality and the registration number is Y6807.



APPENDIX 3



APPENDIX 4