

**In the matter of**            the Resource Management Act 1991

And a Notice of Requirement to Selwyn District Council and  
Applications to Canterbury Regional Council for resource  
consents.

**By**                                Central Plains Water Trust

**And**                              Central Plains Water Ltd

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**SUBMISSION OF HUGH MAXWELL BLAKE-MANSON  
ON BEHALF OF THE SELWYN DISTRICT COUNCIL**

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- 1.1 My name is Hugh Maxwell Blake-Manson. I am the Asset Manager Utilities for Selwyn District Council (SDC). I have provided evidence to the hearing in May 2008 regarding impacts on various Selwyn Council water services arising from the irrigation scheme.
- 1.2 This submission has been prepared to support the SDC evidence. The following SDC community activities, which are listed as strategic assets in the Long Term Council Community Plan, are considered to be *directly affected by particular conditions*:
- Wastewater Schemes – particularly Rolleston and Leeston;
  - Community Drinking Supplies and Stock Water Schemes;
  - Waterrace Schemes – particularly the Malvern, Ellesmere and part of Paparua;
  - Land Drainage networks including Te Waihora/ Lake Ellesmere sea openings;
- 1.3 A summary of potential effects on these water systems is provided in Appendix 1.
- 1.4 It is considered essential that the Council managed strategic assets continue to perform in the manner they were designed and that this is safeguarded because they:
- Are vital to the health, well-being and sustainability of the District;
  - Are vital for the long term growth and development of the district;
  - Make a valuable contribution to the Region's biodiversity
- 1.5 The applicant seeks to undertake activities that will result in ground and surface water flows occurring at 1990 values.
- 1.6 A process for managing responsibilities of possible adverse issues and compensation – Appendix 2 has been provided by the applicants agent.
- 1.7 Establishing reliable baseline data is considered vital to any discussions regarding the root cause of future issues. The baseline data gathered from the area down gradient of CPWT is not likely to be of sufficient quality to reliably infer whether anthropocentric and/or environmental events are the cause of any issue.
- 1.8 While Selwyn District Council has access to a reasonable pool of data relating to its water supply schemes, there are a number of substantial gaps in other areas - land drainage being one. Reliance

on local land owners knowledge is not ever entirely satisfactory as its accuracy has been shown to reduce with time.

1.9 The cause of, and therefore responsibility for ownership of adverse effects is in my opinion very difficult to substantiate within an appropriate level of certainty.

1.10 A concern therefore remains that the targeted rate users of the respective schemes will unfairly incur lifecycle costs over and above their projected levels.

1.11 I consider that as presented – Appendix 2, few legitimate issues will be taken up by claimants, with fewer being completed due to time, cost and uncertainty.

1.12 Should the commissioners be of a mind to grant the consent applications, then I request that any relevant consent conditions should be worded to provide for an independent body which is tasked with carrying out specific monitoring. This body would provide greater opportunity for legitimate claimants to seek advice and where appropriate lodge claims. It would be entirely the responsibility of CPWT to implement mitigation measures, unless they can demonstrate conclusively that prior issues existed, or the issue has not worsened or that it was due to some other explicit matter.

**END – APPENDICIES FOLLOW**

## Appendix 1 – CPWT and the Effects on SDC Water Related Utilities

### To be read in conjunction with Evidence of May 2008- Asset Manager Utilities

Utility	Issue	Effect	Most Affected	Health Issues	Comments	Resolution – Procedure #
Community Water Supply	Disruption (breakages, rerouting etc) during construction	<ul style="list-style-type: none"> <li>Water outages of varying degrees and timing</li> <li>Cost to community</li> <li>LOS failed</li> <li>Ingress of contamination into water supply</li> </ul>	Rural water supplies or the RWS component of community water supplies	Dependant on period of outages and the extent of contamination	Experience has shown that even with the best written contracts the contractor will break mains to the detriment of the Council	<p>Bonding during construction</p> <p>An agreement be made that the design team, during the detailed design phase of the project, works closely and constructively with SDC.</p> <p>A procedure during construction to avoid damage to and to minimise interruption of water supply mains has to be clearly defined.</p>
	Water mains under CPW structures	Costly to repair Hard to ascertain if/when failed	Rural water supplies Critical Rising mains			<p>All pipes to be ducted under CPW structures or durable infrastructure over.</p> <p>An agreement be made that the design team, during the detailed design phase of the project, works closely and constructively with SDC.</p>
	Effect on water quality of wider community source water		Individual well users	Dependant the extent of contamination		Bonding
	SDC requires secure legal access to all water pipes which are located under or adjacent to CPW infrastructure.					An agreement between CPW and SDC in order to insure legal access to SDC assets and facilities
	SDC wells reduction in quality or quantity	No compliance with NZDWS 2005				<p>Formal CPW's commitment to ensure appropriate drinking water quality if it reduces in quality/quantity and the appropriate lifecycle funding</p> <p>Bonding CPW to provide at its own cost a potable water supply which meets Drinking water standard that is applicable to the Health Amendment Act 2007 Additional costs associated with the above to be at CPW cost for 10 years (includes additional mtce and power etc)</p>
Wastewater	Higher GWL increases infiltration into system	<ul style="list-style-type: none"> <li>Increased pumping and mtce costs</li> <li>Treatment systems capacity reduced i.e. less users can be accommodated</li> <li>Higher risk of not complying with resource consents</li> </ul>	Upper Selwyn Huts, Springston, Lincoln, Leeston and Prebbleton		<p>Any activity which aggravates this beyond current planning will be a cost on the community of interest.</p> <p>LW in his evidence notes "Upgrade reticulation systems to reduce infiltration"</p>	Bonding

Utility	Issue	Effect	Most Affected	Health Issues	Comments	Resolution – Procedure #
	Treatment disposal systems comprised	Ability for land disposal systems to continue to treat to their design requirements.  The ability for towns to develop or the rate of development may be compromised	Rolleston and Leeston	Plume of influence increases along with the contamination and nitrogen levels within the plume	Over the last 18 years the Council has instigated considerable resources into obtaining resource consents for effluent disposal in the face of significant opposition.	
Land Drainage	Increased flow in drainage system by increase in GWL	Increased in flooding events as spare capacity taken by CPW. Ground water staying at higher level for longer periods. Increased cleaning requirements (as noted in WL evidence)	Farming – period that land is not usable or reduced capacity after a flood/high GWL event	Nil		
Water Races	Disruption (breakages, rerouting etc) during construction	<ul style="list-style-type: none"> <li>– Water outages of varying degrees and timing</li> <li>– Cost to community</li> <li>– LOS failed</li> </ul>	All users		Experience has shown that even with the best written contracts the contractor will cause delays to the detriment of the Council and supply of water to stock	<p>Bonding during construction</p> <p>An agreement be made that the design team, during the detailed design phase of the project, works closely and constructively with SDC.</p> <p>A procedure during construction to avoid damage to and to minimise interruption of water supply mains has to be clearly defined.</p> <p>A funding mechanism that will not penalise Council or its users.</p> <p>Agreement to supply water to effected farms if delays are more than 4 hours per day</p>
	Ongoing problems with the operation of a open race system in heavy irrigated and predominately dairy farming area		Those who are not using CPW and reliant on the continued operation of the water race system	Nil		Investigate single scheme – stockwater and irrigation
	The extent of funding required to installing all the new crossings both off and on farm					A water race crossing on a main race is 50m wide, siphon required i.e.2 manholes plus 1200mm Dia pipe at 5-7m deep Estimated cost
Storm water	Increased in GWL	Reduction in ability to treat and dispose via infiltration	Lincoln, Leeston, Springston, Tai Tapu, Southbridge	Nil		

**Appendix 2 – Groundwater and Lowland Drainage Conditions provided by Mr. W Lewthwaite URS (12.02.2010)**

***Groundwater and Lowland Drainage***

1. The consent holder shall avoid, remedy or mitigate adverse effects on groundwater and lowland drainage which occur as a result of the exercise of this consent.
2. Prior to the commencement of any activities authorised by these consents (including the finalisation of the Groundwater and Drainage Plan listed in condition x), the consent holder shall appoint a Groundwater Technical Review Panel (GTRP).
3. The GTRP shall comprise of five to seven people. The panel members shall be selected so that collectively they provide expertise in the following areas:
  - (a) The operation of the Central Plains Water Enhancement Scheme
  - (b) Lowland drainage network operations in Canterbury
  - (c) Hydrogeology
  - (d) Land drainage
  - (e) Groundwater quality monitoring
4. The GTRP shall comprise at a minimum the following:
  - (a) A technical representative appointed by Central Plains Water Enhancement Scheme management,
  - (b) A technical representative of drainage schemes management from the lower plains,
  - (c) An engineer with expertise and experience in both large scale and localised solutions to land drainage needs,
  - (d) An engineer or scientist with expertise and experience in Canterbury groundwater systems
  - (e) A technical representative from the Canterbury Regional Council
5. The role of the GTRP shall be to :
  - (a) To review the Groundwater and Drainage Plan described in condition x, and recommend its adoption with amendments as it considers appropriate;
  - (b) To receive and review reports on the environmental monitoring and mitigation undertaken by the consent holder and any other relevant monitoring results and reports prepared by the Canterbury Regional Council or other bodies;
  - (c) To review reports submitted by the consent holder, and within two months of the receipt of these reports, convey recommendations to the consent holder regarding the validity of the interpretation of monitoring data and implementation of mitigation measures undertaken by the consent holder;
  - (d) To determine the cause of reported problems with drainage or groundwater including using information gathered in accordance with condition (8), propose mitigation or remedial measures and determine the extent to which the consent holder must implement them, or contribute to the cost of implementing them, given the consent holder's degree of contribution to the problem identified;
  - (e) To resolve complaints as detailed in condition (x);
  - (f) To advise the Canterbury Regional Council if there are grounds to review conditions of consent in the event that an adverse effect arises which is not mitigated or remedied by the consent holder to the extent recommended by the GTRP;
  - (g) To address other matters that may arise from the exercise of consent CRCXXXXX
6. The GTRP shall
  - (a) Meet no less frequently than once a year
  - (b) Be funded by the consent holder.
  - (c) Operate on a majority basis.
  - (d) Report no less frequently than once a year on its conclusions and recommendations including any complaints referred to it to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Officer and the consent holder.

## 7. Groundwater and Drainage Plan

- (a) Prior to the first exercise of this consent, the consent holder shall develop a Groundwater and Drainage Plan outlining the measures that will be undertaken to monitor and mitigate potential adverse effects that may arise in regard to the following issues:
  - (i) Loss of Waimakariri River seepage on the Christchurch-West Melton and Kaiapoi aquifer systems;
  - (ii) Increase in the concentrations of nitrate-nitrogen or other contaminants in the groundwater both beneath and downstream from the Scheme area; and
  - (iii) Raised groundwater levels both beneath and downstream from the Scheme area
- (b) The key objectives of the Groundwater and Drainage Plan shall be to outline the groundwater monitoring and reporting programme and to describe how the consent holder will avoid, remedy or mitigate adverse effects on groundwater and lowland drainage which occur as a result of the exercise of this consent.
- (c) The Groundwater and Drainage Plan shall include:
  - (i) The location of all farms using water from the Central Plains Water Enhancement Scheme and the associated land use.
  - (ii) The location, depth and screened interval of specific monitoring bores for assessing effects of the scheme activities on groundwater: specifically groundwater levels, groundwater quality, surface water flow and surface water quality.
    - A There shall be at least twenty monitoring bore clusters within the scheme area. At least ten clusters shall be located at the down-gradient boundaries of ten different farms that are irrigated by the scheme. At least ten other clusters shall be located at the down-gradient boundaries of farms that are not irrigated by the scheme. The farms selected shall represent a variety of farm types.
    - B Individual monitoring bores within each cluster shall have a screen no longer than 3 metres.
    - C Each monitoring bore cluster shall include a sufficient number of individual bores to cover the fluctuations of the water table at that site, ensuring that the water table will be intercepted by at least one bore screen at all times.
    - D The diameters of individual bores shall be sufficient to allow the bores to be purged and sampled according to the sampling procedure specified in condition x.
    - E If one of the scheme farms associated with a monitoring cluster no longer irrigates using water from the scheme, a new cluster shall be established immediately down-gradient of another scheme farm. Similarly, if one of the non-scheme farms associated with a monitoring cluster joins the scheme, a new cluster shall be established immediately down-gradient of another non-scheme farm.
    - F A monitoring bore shall be replaced by a deeper monitoring bore if a monitoring bore is dry for more than six months..
  - (iii) A description of the mitigation measures that may be implemented to address all the potential adverse effects related to groundwater level, groundwater quality and surface water flow and quality issues;
  - (iv) A description of the specific triggers that will initiate the implementation of the mitigation measures in response to the monitoring outcomes for any effects that may arise related to groundwater levels, groundwater quality, surface water flows and surface water quality;
  - (v) The strategy for monitoring and reporting on the effectiveness of the mitigation measures to the Canterbury Regional Council, the GTRP and the affected land owners.
- (d) Groundwater level monitoring
  - (i) Groundwater levels in the monitoring bores identified in the Groundwater and Drainage Plan shall be measured at least once per month or any subsequent frequency agreed upon by the GRTP.
  - (ii) Groundwater level measurements shall commence at least one year prior to the use of water under resource consent CRCXXXXXX.
  - (iii) The frequency of the water level measurements may only be reviewed by the GRTP two years after the commencement of the use of water under resource consent CRCXXXXXX.

- (e) No later than six months prior to the use of water under resource consent CRCXXXXXX, the consent holder shall undertake a baseline survey of the lowland drainage systems of the Central Plains taking into consideration historical data, and submit a report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager. The report shall build on existing data, and include:
- (i) An inventory of drains and streams, their location, size and capacity,
  - (ii) An inventory of sewerage systems (reticulated and individual septic tanks),
  - (iii) The conditions of these facilities, their capacities, maintenance activities, dates of installation, histories of water-level related issues,
  - (iv) Records of stream and drain flows and groundwater levels,
  - (v) Existing management and administration arrangements for the drainage schemes,
  - (vi) Current costs of maintenance and operation of the drainage schemes.
  - (vii) *[need to specify water quality items to be recorded in this survey]*
- (f) Using the existing groundwater level data and data collected from the groundwater level monitoring, the consent holder shall identify specific groundwater levels that shall trigger a response from the consent holder to avoid, mitigate or remedy any adverse effects related to increased groundwater levels, as a result of exercising this consent, including increased groundwater levels or increased duration of high groundwater levels. Specific trigger levels shall be submitted to the GTRP for its input. Final agreed trigger levels shall be submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager.
- (g) In the event that the trigger levels specified in accordance with condition (X)(X)(iv) are reached, the consent holder shall undertake measures to avoid, mitigate or remedy any adverse effects related to groundwater levels that may arise as a result of exercising this consent. Mitigation measures may include but not be limited to;
- (i) *additional monitoring*
  - (ii) *restricting the use of water for irrigation;*
  - (iii) *the widening and/or deepening of drains to increase their capacity;*
  - (iv) *the installation of more drains;*
  - (v) *providing pumped drainage for affected properties or facilities;*
  - (vi) *upgrading sewerage reticulation systems to reduce groundwater infiltration into pipes;*
  - (vii) *more frequent maintenance of existing drains, including cleaning*
  - (viii) *financial compensation in lieu of remedial works.*
- (h) Groundwater quality monitoring
- (i) For two years prior to, and three years after the use of water under CRCXXXXXX commences, groundwater quality samples shall be taken from the bores identified in the Groundwater and Drainage Plan in March, June, September and December each year.
  - (ii) Ten years after the use of water under CRCXXXXXX commences, the frequency of groundwater quality sampling shall reduce to twice per year, where each sample shall be taken during August-September and April-May each year.
  - (iii) Water quality sampling shall be undertaken in accordance with the latest version of the Canterbury Regional Council guidelines for the collection of groundwater quality samples.
  - (iv) As a minimum, the water quality analyses shall include *E.coli*, pH, electric conductivity, alkalinity, chloride, ammonia-N, nitrate-nitrogen, total-N, dissolved reactive phosphorus and sulphate.
  - (v) If any bore within the area shown on the attached Plan CRCXXXXXX exceeds a nitrate-nitrogen concentration of 11.3 grams per cubic metre and the bore supplies domestic water to a dwelling that has infants under the age of six months at the time of the exceedance, then the consent holder shall supply an alternative drinking water supply to those dwellings until it can be demonstrated that the concentration of nitrate-nitrogen in the subject bore is below 11.3 grams per cubic metre, **unless it can be demonstrated that** the concentration of nitrate-nitrogen in the subject bore exceeded 11.3 grams per cubic metre **on at least one occasion** prior to the use of water by the consent holder or unless it is concluded in accordance with condition (10) (f) that the use of water by the consent holder was not the likely cause of the exceedance.

- (i) The consent holder shall submit the Groundwater and Drainage Plan to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Officer prior to the use of water by the Scheme for irrigation. Written confirmation that the Groundwater and Drainage Plan complies with the requirements of this condition must be obtained from the Canterbury Regional Council prior to using water for irrigation. Confirmation shall not be unreasonably delayed or withheld.
8. The consent holder shall prepare a report describing the results of the environmental monitoring outlined in the Groundwater and Drainage Plan, for the period from 1 July to the following 30 June for each year. The consent holder shall submit the report to the GTRP by the following 1 September. The groundwater report shall include all the monitoring data and an interpretation of background conditions and impacts arising from the consented activities.
9. Prior to 1 October each year, the GTRP shall review the report described in condition (x) and make recommendations to the consent holder regarding the validity of the interpretation of monitoring data and the implementation of mitigation measures undertaken by the consent holder. Within 20 working days of any meeting of the groundwater technical review panel, the consent holder shall provide the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Officer, a copy of the recommendations made by the GTRP.
10. Response to Groundwater Complaints

When the consent holder is notified by a “complainant” of an adverse environmental effect, then:

- (a) Within 10 working days of receipt of the complainant, the consent holder (or a suitably qualified nominee) shall commence an investigation of the complaint,.
- (b) Within five working days of completion of its investigation, the consent holder shall notify the complainant of
  - (i) the outcome of the investigation, including a description of the assessment process that the consent holder has undertaken regarding the issue raised by the complainant and options to mitigate or remedy the effects;
  - (ii) descriptions of mitigation options, including details of timing and cost sharing;
  - (iii) the complainant’s right to refer the complaint to the GTRP, and the contact details of the GTRP.
- (c) The consent holder may offer to mitigate or remedy the situation immediately subject to the complainant agreeing to reimburse the consent holder for the relevant portion of the cost of any such remedy as in condition (b)(ii). Such reimbursement will not extend to the consent holder’s cost in assessing the complaint or any costs of reviews of the complaint by the GTRP.
- (d) The consent holder may, instead of undertaking any remedial work or completing the assessment process, with the agreement of the complainant choose to negotiate with the complainant to undertake or pay the cost of those remedial works directly to the complainant, or otherwise reach agreement with the complainant in respect of any damage. Any agreement for the consent holder to pay costs directly to the landowner shall be registered on the title of the subject property/ies.
- (e) For the purpose of this condition, mitigation or remedy shall include works to an extent that alleviates the significance of the adverse effects of the exercise of this consent
- (f) The consent holder and the Groundwater Technical Review Panel referred to in condition x shall reach their conclusions on causes and solutions to groundwater and drainage needs on the basis that there shall not be a burden of proof on either a complainant or the consent holder but conclusions will be made on an assessment of the most probable causes and a fair and just allocation of responsibilities for mitigations and remedies.
- (g) The consent holder shall notify the Canterbury Regional Council, Attention: Compliance and Enforcement Manager of any complaints made, any recommendation made by the GTRP, whether or not the consent holder and the complainant are satisfied with the recommendation, and any actions undertaken to remedy the situation

To include: Monitoring of drainage levels, Lake Ellesmere levels and quality, add adverse effects on groundwater and drainage as assessed by GTRP to the purposes of ECan review of conditions. Will discuss with Ross Vesey or other staff members in his section. (AD)