Please find attached two documents relating to this submission.
Please kindly reply to this email acknowledging receipt of this submission form and Attachment 1

Yours sincerely,
Christina McLachlan
Submission on Proposed Plan
Change 7 to the Canterbury
Land and Water Regional Plan

Form 5: Submissions on a Publicly Notified Proposed Policy Statement or Regional Plan under Clause 5 of Schedule 1 of the Resource Management Act 1991

Return your signed submission by 5.00pm Friday 13 September 2019 to:
Proposed Plan Change 7 to the Land and Water Regional Plan
Environment Canterbury
P O Box 345
Christchurch 8140

Full Name:  Christina McLachlan
Organisation*:  n/a
* the organisation that this submission is made on behalf of
Postal Address: 116 Shepherd Ave, West Melton
Email: christinayls@yahoo.co.nz

Trade Competition

Pursuant to Schedule 1 of the Resource Management Act 1991, a person who could gain an advantage in trade competition through the submission may make a submission only if directly affected by an effect of the proposed policy statement or plan that:
   a) adversely affects the environment; and
   b) does not relate to trade competition or the effects of trade competition.

Please tick the sentence that applies to you:

☐ I could not gain an advantage in trade competition through this submission; or
☐ I could gain an advantage in trade competition through this submission.

If you have ticked this box please select one of the following:
  ☐ I am directly affected by an effect of the subject matter of the submission
  ☐ I am not directly affected by an effect of the subject matter of the submission

Signature:  C. McLachlan  Date:  29/08/2019
(Signature of person making submission or person authorised to sign on behalf of person making the submission)

Please note:
(1) all information contained in a submission under the Resource Management Act 1991, including names and addresses for service, becomes public information.

☐ I do not wish to be heard in support of my submission; or
☐ I do wish to be heard in support of my submission; and if so,
☐ I would be prepared to consider presenting my submission in a joint case with others making a similar submission at any hearing
(1) The specific provisions of the Proposed Plan that my submission relates to are:

(2) My submission is that:
(include whether you support or oppose the specific provisions or wish to have them amended and the reasons for your views.)

<table>
<thead>
<tr>
<th>Section &amp; Page Number</th>
<th>Sub-section/ Point</th>
<th>Oppose/support (in part or full)</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.4.25</td>
<td>8.4.25</td>
<td>Oppose</td>
<td>Please see attachment 1.</td>
</tr>
</tbody>
</table>

(3) I seek the following decisions from Environment Canterbury:
(Please give precise details for each provision. The more specific you can be the easier it will be for the Council to understand your concerns.)

- Time period for nitrate reductions needs to be shortened and the overall reduction required (eg the 30% reduction in current levels for sub area A) needs to be significantly increased. The proposed targets for water nitrate levels are too high to protect our ecosystems and are highly likely to be too high to protect our health.

Add further pages as required – please initial any additional pages.
Human health effects

- There is growing evidence that increased levels of nitrates in drinking water cause increased cancer risk in humans.
- Schullehner J (1) found that nitrate levels above 0.87mg/L are associated with an increased rate of colorectal cancer. The highest nitrate exposure level that they assessed, of levels above 2.1mg/L, resulted in a 15% increase in the rate of colorectal cancer. Our private well, located on the Old West Coast Road just south of the Waimakariri River, was recently tested and found to have nitrate levels of 8.3mg/L. I am concerned for the health of myself and my family due to this level of nitrates. I am further concerned because the proposed regulation change is not going to adequately address this health risk, and is in fact going to allow it to worsen. It is estimated that 1 in 18 New Zealanders will develop bowel cancer in their lifetime, and bowel cancer occurs in people as young as their 20’s (2). For a population of Canterbury of 574,300 (3), a 15% increase in bowel cancer rate would mean an additional 4791 cases of bowel cancer. Approximately 25% of bowel cancer in New Zealand is incurable at the time of diagnosis (2), therefore a 15% increase in bowel cancer would mean an additional 1198 Cantabrians diagnosed with terminal bowel cancer.
- Temkin A (4) performed a meta-analysis of eight studies of drinking water nitrates and colorectal cancer, and used United States wide data to assess the number of colorectal cancer cases attributable to nitrate levels in drinking water. They concluded that between 2300 and 12,594 cases of cancer per annum in the US are attributable to nitrate drinking water levels.
- Ward MH (5) published a review in 2018 of more than 30 studies into the health effects of nitrate levels. They concluded that “many studies observed increased risk with ingestion of water nitrate levels that were below regulatory limits”, and that “the strongest evidence for a relationship between drinking water nitrate ingestion and adverse health outcomes (besides methemoglobinemia) is for colorectal cancer, thyroid disease, and neural tube defects”.
- ECAN should not allow the health of Cantabrians to come second to economic growth or the profits of private individuals or companies. The current NZ Drinking Water Standard MAV took into account only the risk of methemoglobinemia, but now that other risks associated with nitrate levels have been identified, these must be taken into account when planning for the future of our province.

Environmental effects

- The proposed waterways limit of 3.8mg/L will be detrimental to the health of 10% of aquatic species, according to the 2017 National Policy Statement for Freshwater Management. Aiming to adversely affect “only” 10% of freshwater species, potentially resulting in the loss of these species from waterways, is not acceptable. In NIWA’s 2013 report (6), systems with median nitrate levels of 3.8mg/L are classified as “highly disturbed systems” and “measurably degraded ecosystems”.
- The default guideline value the NIWA report states is applicable to most waters is a lower level of 2.4mg/L, which results in protection of 95% of aquatic species. This level of nitrate is described as a “slightly to moderately disturbed system” where “biological diversity may have been adversely affected to a relatively small but measurable degree by human activity... and could include rural streams receiving runoff from land disturbed to varying degrees by grazing or pastoralism”. This is a more appropriate level to limit our waterway damage to, with regards to effects on freshwater species.
• Nitrate contributes to harmful algal blooms of cyanobacteria (7), resulting in waterways which are highly toxic to people and animals, preventing recreation and food gathering and potentially causing illness or death.

• The proposed nitrate limits will result in significant further degradation of our waterways and must not be allowed to occur.

References

2. Bowelcancernz.org.nz
3. Archive.stats.govt.nz