

## Expert Conference – Land Management / Farm Systems

Topic: Proposed Southland Water and Land Plan – Southland Regional Council

Date of conference: 6<sup>th</sup> December 2021





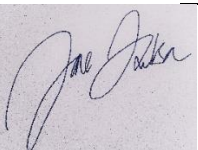
Venue: Remote AVL

Facilitator: Anne Leijnen

Recorder: Isabelle Harding

### Attendees

1. Witnesses who participated and agreed to the content of this Joint Witness Statement (JWS) by signing it on 6<sup>th</sup> of December 2021

Name	Employed or engaged by	Signature
Cain Duncan	Fonterra	
Anna Wilkes	Ravensdown	
Dr Antony Roberts	Ravensdown	<i>Anty Roberts</i>
Dr Ross Monaghan	Southland Regional Council	
Dr Ton Snelder	Southland Regional Council	
Dr Dawn Dalley	DairyNZ	
<del>Sarah Elmes</del>	<del>Ballance</del>	
<del>Jim Risk</del>	<del>Ballance</del>	
Kate McArthur	Fish and Game / Forest and Bird	
Jane Kitson	Nga Runanga	

2. For ease of reference throughout this JWS, all experts had some relevant expertise in land management except the following:

- Dr Ton Snelder is a water quality expert, not a farm systems expert
- Jane Kitson is an ecologist/water quality expert, not a farm systems expert
- Kate McArthur is an ecologist/water quality expert, not a farm systems expert

### **Environment Court Practice Note**

3. All participants confirm that they have read the Environment Court Consolidated Practice Note 2014 and in particular Section 7 (Code of Conduct, Duty to the Court and Evidence of an expert witness) and Appendix 3 – Protocol for Expert Witness Conferences and agree to abide by it.
4. Dawn Dalley has acknowledged that she is an employee of DairyNZ and may not be considered to be independent simply because of that employee status. Notwithstanding that, she confirms that she prepared and will present her evidence in all other respects as an independent expert in compliance with the Code of Conduct.
5. Dr Jane Kitson acknowledges that she is a member of Te Runanga o Oraka-Aparima and also whakapapa to Te Runanga o Awarua and Waihopai Runaka. She notes that her expertise is partially derived from those cultural associations. She recognises that whilst she is of Ngāi Tahu descent, she is required to be impartial and unbiased in her professional opinions expressed.

### **Experts' qualifications and experience**

6. These are set out in each experts' statement of evidence.

### **Purpose of expert conference**

7. The purpose of the expert witness conferencing is to enhance the efficiency of the court hearing process by providing for expert witnesses to confer and identify the issues on which they agree, with reasons. They are also to clearly identify the issues on which they do not agree and give reasons for their disagreement. This will enable the court to focus primarily on matters that remain in dispute, while understanding the basis for agreed matters.

### **Attachments to this JWS**

8. Attached to this JWS is the answered questions from the previous Farm Systems JWS, alongside additional comments and amendments as well as some questions that were deferred to the Farm Systems Experts from the Science JWS.

### **Conference outcomes**

9. The Farm Systems conference answered a number of technical questions that was provided by the Planning experts. These were answered in the previous JWS. This conference provided amendments and additions to the previous Farm Systems JWS and to resolve any outstanding issues.

**Attachment:**

**1. To what extent will there be water quality improvements achieved by farming in accordance with farm environmental management plans prepared and implemented under Appendix N?**

An analysis that shows the net benefit to water quality improvements from implementing FEMP's would be complex. It is possible to evaluate these benefits. However, this expert group is unable to quantify the extent of water quality improvement based on the implementation of Appendix N. We can say with certainty, that the implementation of Appendix N practices on farm will reduce losses of contaminants in Table 1. However, ultimately the overall effect will depend on how well all farms within a catchment can address these losses.

Table 1:

<b>Attribute</b>	<b>Mitigation change/improvement potential</b>	<b>Agreement/disagreement</b>
Phosphorus, sediment, microbial pathogens	<ul style="list-style-type: none"> <li>- Appendix N would be effective at achieving some improvements.</li> <li>- <u>Except for</u>, Mole-pipe drains soils where there will continue to be significant sources of P, sediments and faecal loss from farms in catchments where these soils occupy a significant proportion of area. Some of the actions in Appendix N can reduce but will not eliminate these losses.</li> </ul>	<ul style="list-style-type: none"> <li>- <i>All agree to the extent that expertise allows.</i></li> <li>- <i>R.C has no opinion</i></li> </ul>
Nitrogen	<ul style="list-style-type: none"> <li>- Measures in the Plan may not change nitrogen leakages as nothing specifically addresses this.</li> <li>- There is an implicit expectation that the measures in the plan will reduce leakages in Nitrogen, but this is not explicit. The Plan should contain additional incentives to reduce nitrogen leakages.</li> <li>- Explicit references are needed in farm management plans that will manage N losses. Clear objectives are needed in Appendix N and Farm plans</li> </ul>	<ul style="list-style-type: none"> <li>- <i>A.W agrees with the last statement</i></li> <li>- <i>C.D agrees with last statement</i></li> <li>- <i>D.D agrees with the last statement</i></li> <li>- <i>T.O has no opinion</i></li> <li>- <i>KM agrees</i></li> <li>- <i>AR agrees with last statement</i></li> <li>- <i>JK agrees</i></li> </ul>

	<p>should deal with nitrogen as a key component (if degraded catchments for N)</p> <ul style="list-style-type: none"> <li>- Certification, audit process should help to get water quality improvement.</li> <li>- There are measures in place in Appendix N via provisions 5(c) and 6(a) and (b) to specifically deal with nutrient losses and their reduction. This could be strengthened by 5(c) specifically referencing nitrogen as a contaminant where losses need to be avoided or minimised.</li> </ul>	
Habitat (instream)	<i>KM suggests the science experts should fill in the remainder of this table in conferencing.</i>	<i>JK agrees</i>
Habitat (outstream/riparian margins)		
Aquatic health		
Considerations for taonga species and mahinga kai species		
Human health aspects		
Connection to place/understanding what it was		
All water types (groundwater, springs, drains that were streams, wetlands)		
Biodiversity components		

**Additional comment added at second conferencing day 6 Dec 2021:**

Science experts have adequately addressed the additional provisions in Table 1. Some of the attributes in Table 2 of the science JWS are already covered by rules in the pSWLP and NES-FW. Farm systems experts defer to the planners in terms of what attributes are already covered by rules in the plan and could be removed from the recommendations to go into Appendix N.

**3. Could improvements from an implementation perspective be made to Appendix N?**

Appendix N could be improved with clearer objectives. Implementation will be driven through objectives which people will be required to document and implement.

Existing guidance helping to inform those developing FEMP's needs to be brought together (consolidated) and additional guidance needs to be developed for addressing hauora, including ecological health.

Wherever physiographic zones are mentioned in Appendix N, it should always also reference the variants.

KM has no opinion on the statements below here.  
Timeframe and measurement wording in 6(c) and (d) require clarification as can be interpreted several ways.

It is impossible for farmers to measure leakages but can document inputs or record completion of specific actions. Research on the impact of specific mitigations/actions on water quality in FEMPs, is a way of estimating improvements.

Is ensuring the implementation of mitigations rather than measuring water quality outcomes the purpose of 6(d)? Suggested change to wording of 6(d): Records to be kept for demonstrating mitigations have been actioned and are achieving the objectives

Is the intent for FEMPs to deliver continuous improvement, driven by the audit framework proposed, appropriately reflected in Appendix N and elsewhere in the Plan?

*T.O has no opinion*

*R.C has no opinion*

*T.S has no opinion*

*JK has no opinion*

**Additional comment added at second conferencing day 6 Dec 2021:**

**The farm system experts consider Appendix N and other provisions of the pSWLP should reflect the intent for FEMPs to deliver continuous improvement, driven by the proposed audit framework.**

#### **4. How can Ngāi Tahu indicators of health be incorporated into Appendix N? What would their purpose be?**

Indicators would be useful for farmers to understand hauora. Section 3 requires land owners to understand the locations of attributes of hauora. With the aim to progress towards hauora, incorporating Ngāi Tahu indicators of health somewhere in the Plan will be needed and should be referenced by Appendix N.

Is cultural degradation part of the consideration of what sites are degraded? Will sites that are assessed as culturally degraded be listed in Schedule X? The journey towards hauora would require them to be in the Plan.

*T.O has no opinion*

R.C has no opinion  
A.R has no opinion  
A.W has no opinion  
D.D has no opinion  
C.D has no opinion  
R.M has no opinion  
T.S has no opinion

Additional comment added at second conferencing day 6 Dec 2021:

K.M, T.S and J.K have an opinion that cultural degradation should be part of the consideration of what sites are degraded. It is currently not clear if cultural degradation will be a consideration of what sites are degraded. If not, it should be and culturally degraded sites should be listed in the Schedule X. The journey towards hauora would require them to be in the Plan.

### **Setbacks for cultivation**

- 7. Rule 25 (cultivation) regarding effectiveness of setback differences: how much more effective at reducing sediment and nutrient runoff would it be to have 10m for 4-16 degree slopes and 20m above 16 degree slopes than the current suggestion of 5m up to 10 degree slopes and 10m between 10 and 20 degree slopes?**

Quantification of the effectiveness of different setback widths on reducing contaminant runoff is a question for science.

Setback buffers should ideally be delineated where convergent runoff flow occurs i.e. CSAs; edge-of-field set distances for setbacks is a less efficient way of achieving a good outcome (takes out a lot of productive land, potentially)

No amount of buffer will prevent contaminants reaching water in high intensity storms

Buffer size will be important because the wider buffer the more productive land is removed from the farm business. However, wider buffers are more effective at capturing fine sediment and adsorbed nutrients/microbes (KM).

Buffer length is probably an important consideration - long narrow buffers in zones of convergent flow (such as gullies and swales) have been shown to be effective (60-70%) for reducing sediment and P transport.

Outside of CSAs a minimum buffer width is still required for paddocks not bisected by flow paths (CSAs) to capture sediment flows from paddocks to waterways.

K.M stated that a 10m grass buffer is highly effective at capturing fine sediment before it reaches water (Lui et al. 2008) however research cited in [LandCare Report \(envirolink.govt.nz\)](#) reported that a 5m buffer will remove 70% of sediment (Death 2018) (D.D). As stated above, quantification of the impact of buffer width on contaminant loss needs to be addressed in the Science conferencing. Discussion on the farm system impacts of alternative buffer options will be readdressed by the Farm

System experts at their next conferencing following feedback from the Science group and additional information provided by the Planners (see NB below).

NB - Planners to prepare summary of Rule 25 and cultivation definition for the next conference.

*A.W defers to those with greater expertise in this matter.*

*R.C has no opinion*

*T.O has no opinion*

*T.S has no opinion*

*J.K has no opinion*

Additional comment added at second conferencing day 6 Dec 2021:

There is evidence that wider buffers will be beneficial (refer to Science JWS), but there is limited science to quantify the effectiveness of different buffer widths to deal with increased risk of sediment and phosphorus loss at higher slopes. We cannot assess the different options provided without a clear idea of the contaminant load reduction required in different catchments/water bodies.

K.M's view is identified in the Science JWS and has not changed.

J.K's view is identified in the Science JWS.

Farm systems experts<sup>1</sup> support the Councils position in terms of increasing the buffers to 10m on sloping land between 10-20 degrees. This increase in buffer width will impact farm management with loss of productive land, which could be significant on some farms. In addition, there will be re-fencing costs of wider buffers. One unintended consequence of the wider buffer option is that to meet feed budget requirements, more individual paddocks will be cropped potentially increasing the risk of sediment loss. An assessment is required to determine which has higher risk – fewer paddocks with narrower buffers or more paddocks with wider buffers.

R.M is uncertain that he agrees with this statement.

In setting the width of buffers for the reduction in contaminant loss risk consideration needs to be given to the practicalities and economic impact for the farm system.

If additional grazing area is removed for wider setbacks it will impact on the amount of pasture available for grazing. To balance feed supply and demand farmers could either increase the amount of imported supplementary feed or reduce stocking rate, both of which will have a farm systems impact.

---

<sup>1</sup> Refer to Paragraph 2 of JWS.

## Questions from Science JWS

### Question 5

***In the context of farming, do you think there needs to be any changes to the plan provisions to better achieve hauora, from your point of view? For instance, Appendix N?***

Appendix N does not list specific mitigations but requires land owners to meet specific objectives (part B section 5 of Appendix N). In order to strengthen Appendix N to better achieve hauora, additional objectives in Table 2 of the Science JWS could be added to Appendix N that specifically relate to ecological and cultural health.

Appendix N in itself cannot achieve a state of Hauora as it only deals with farm management practices and is not intended to bring about land use change. It is designed to reduce the environmental footprint of a current land use by adopting good farming principles, efficiency gains and mitigations. BUT it can certainly make progress towards a less degraded state.

There are other provisions in the plan that will also move Southland towards a state of Hauora. FEMPs are designed to engage landowners. For farmers that don't already have some form of FEMP, completing a FEMP achieves a significant first step for farmers understanding the risk of specific farming practices on their farm. The second key step is through the first and subsequent audits where the farmer's efforts in implementing mitigations are assessed and the plan revised. Appendix N will require a consistency in FEMP so that those who already have a FEMP will need to update it to be consistent with Appendix N

K.M's opinion is in the Science JWS and has not changed.

J.K's opinion is in the Science JWS and has not changed.

### Question 13

***What (if any) is the science to support mandating portable feeders or other methods of preventing stock from trampling supplementary feed?***

The farm systems experts are not aware of any science to support this proposed farming practice in terms of benefiting water quality.

The farm systems experts assumed that the proposed inclusion of this practice relates to trampling of supplementary feed. This is a farm management issue and not a water quality issue. There are some farming practices developing that support having some feed e.g hay and straw lying on the ground to protect the soil and provide comfortable bedding areas to



reduce animal movement. Potentially the benefits of this practice are less soil compaction and retention of labile nitrogen.

K.M has no expertise in relation to this question.

T.S has no expertise in relation to this question.

JK has no expertise in relation to this question.

AW will defer to the greater expertise of others in relation to this question.

**Question 14 was addressed in the previous JWS.**