**IN THE MATTER** **of the Resource Management Act 1991**

**AND**

**IN THE MATTER** **appeals under clause 14(1) of Schedule 1 of the Act in respect of Proposed Southland Water and Land Plan**

*between:*

**TRANSPOWER NEW ZEALAND LIMITED**
(ENV-2018-CHC-26)

**FONTERRA CO-OPERATIVE GROUP**
(ENV-2018-CHC-27)

**HORTICULTURE NEW ZEALAND**
(ENV-2018-CHC-28)

**ARATIATIA LIVESTOCK LIMITED**
(ENV-2018-CHC-29)

**WILKINS FARMING CO**
(ENV-2018-CHC-30)

*(Continued on next page)*

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# STATEMENT OF EVIDENCE OF GERARD MATTHEW WILLIS FOR FONTERRA COOPERATIVE GROUP LTD AND DAIRYNZ LTD

## (PLANNING – TOPIC B)

## 4 FEBRUARY 2022

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**GORE DISTRICT COUNCIL, SOUTHLAND DISTRICT COUNCIL & INVERCARGILL DISTRICT COUNCIL** (ENV-2018-CHC-31)

**DAIRYNZ LIMITED**
(ENV-2018-CHC-32)

**H W RICHARDSON GROUP**
(ENV-2018-CHC-33)

**BEEF + LAMB NEW ZEALAND**
(ENV-2018-CHC-34 & 35)

**DIRECTOR-GENERAL OF CONSERVATION**
(ENV-2018-CHC-36)

**SOUTHLAND FISH AND GAME COUNCIL**
(ENV-2018-CHC-37)

**MERIDIAN ENERGY LIMITED Act 1991**
(ENV-2018-CHC-38)

**ALLIANCE GROUP LIMITED**
(ENV-2018-CHC-39)

**FEDERATED FARMERS OF NEW ZEALAND**
(ENV-2018-CHC-40)

**HERITAGE NEW ZEALAND POUHERE TAONGA**
(ENV-2018-CHC-41)

**STONEY CREEK STATION LIMITED**
(ENV-2018-CHC-42)

**THE TERRACES LIMITED**
(ENV-2018-CHC-43)

**CAMPBELL'S BLOCK LIMITED**
(ENV-2018-CHC-44)

**ROBERT GRANT**
(ENV-2018-CHC-45)

**SOUTHWOOD EXPORT LIMITED, SOUTHLAND PLANTATION FOREST COMPANY OF NZ, SOUTHWOOD EXPORT LIMITED** (ENV-2018-CHC-46)

**TE RUNANGA O NGAI TAHU, HOKONUI RUNAKA, WAIHOPAI RUNAKA, TE RUNANGA O AWARUA & TE RUNANGA O**

**ORAKA APARIMA**
(ENV-2018-CHC-47)

**PETER CHARTRES**
(ENV-2018-CHC-48)

**RAYONIER NEW ZEALAND LIMITED**
(ENV-2018-CHC-49)

**ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND**
(ENV-2018-CHC-50)

*Appellants*

*and:*

**SOUTHLAND REGIONAL COUNCIL**
*Respondent*

## CONTENTS

## 1. EXECUTIVE SUMMARY

1.1 This planning evidence addresses the matters that were subject to the section 274 notices lodged by Fonterra and DairyNZ ('the dairy interests') that have not already been resolved by the Topic A Court decisions or mediations on Topic B.

1.2 The provisions I propose are set out in full in **Attachment 1**. Note, these are consistent with the provisions attached to the Planning Joint Witness statement dated 10 December 2021 (**Planning JWS**) except for:

(a) One very minor change to Policy 16 to correct for a syntax error (as indicated in my 20 December evidence);

(b) One additional note to section 6 of Part B of Appendix N to clarify the relationship of that section to the maps of catchments of waterbodies in need of improvement (as indicated in my 20 December evidence); and

(c) Several very minor amendments to address what I consider to be typographical or grammatical errors.

(d) Amendments to resolve the two issues left outstanding following the December planning conferencing. These are:

(i) Confirmation that the set back that should apply to Intensive winter grazing (**IWG**) in Rule 20A should be 10 metres; and

(ii) Amendments to Appendix N to ensure that it expressly addresses risks associated with winter grazing on pasture (an activity not covered by Rule 20A - IWG).

1.3 This evidence also comments on three further issues that had been agreed by planners in the Planning JWS but which appear remain to dispute by the Royal Forest and Bird Protection Society (**Forest and Bird**) and Southland Fish and Game Council (**Fish and Game**). These are:

(a) How ephemeral flow paths should be referred to and managed. On this matter I hold a different opinion to Mr Farrell, planning

witness for Forest and Bird and Fish and Game. In my opinion, the Planning JWS appropriately refers to these features as 'flow paths' and requires the risks they pose be managed by the provisions applying to critical source areas (Rules 20A (IWG), 25 (cultivation) and by farm environment management plans (**FEMPs**).

(b) Whether the catchments identified as being in 'need of improvement' should be referred to as being 'degraded'. The Planning JWS agreed that they should not. I agree with that because the preferred term "water body in need of improvement" it is more positive and action-orientated language. Furthermore, I do not consider that the approach proposed to be used to identify catchments of water bodies in need of improvement is consistent with the specific definition of 'degraded' provided in the National Policy Statement for Freshwater Management (**NPS-FM**) 2020.

(c) Whether Appendix N (contents of FEMPs) should include a longer list of objectives than that considered and agreed in the Planning JWS to more directly focus on ecological and cultural health indicators. I do not consider that it should because to do so would change the nature of a FEMP and would not assist in engaging farmers in the FEMP development and implementation process.

1.4 I understand that all other dairy interests' section 274 issues have been resolved as per amendments to the provisions attached to the Planning JWS.

## 2. INTRODUCTION

2.1 My full name is Gerard Matthew Willis. I have the qualifications and experience set out in my primary evidence dated 20 December 2021 (**my 20 December evidence**).

## 3. BACKGROUND

### Code of conduct

3.1 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. I confirm that the issues

addressed in this brief of evidence are within my area of expertise, except where I state I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

**Scope of evidence and preliminaries**

3.2 I have been asked to prepare this evidence for Fonterra Co-operative Group Ltd (**Fonterra**) and DairyNZ Ltd (**DairyNZ**), collectively referred to as the 'dairy interests'. My evidence covers the Topic B provisions that are subject of the dairy interests' section 274 notices. These provisions and the associated issues of concern are as follows:

(a) Policy 16 – Farming activities that affect water quality

(b) Rule 20 - Farming

(c) Rule 24 – Incidental discharges from farming

(d) The approach to intensive winter grazing (IWG) – and in particular how winter grazing on pasture should be managed

(e) Managing land use in the catchments of waterbodies in need of improvement via Appendix N

(f) The question of how ephemeral flow paths are treated in Rules 20, 20A, 35, 70 and Appendix N

3.3 Except as indicated below, all the provisions relating to the dairy interests appeals have been agreed by planners as set out in the Planning JWS. There is also some overlap with the issues I have already addressed in my 20 December evidence.

3.4 The outstanding issues not agreed in the Planning JWS or which are not already addressed in my 20 December evidence relevant to the Dairy Interests' 274 matters are:

(a) What setbacks from water bodies should apply to intensive winter grazing; and

(b) How winter grazing on pasture should be managed;

3.5 In addition, based on the evidence of Mr Farrell, it appears that, despite Mr Farrell's agreement with the provisions attached to the Planning JWS, the following issues remain 'live' for Forest and Bird and Fish and Game:

(a) How ephemeral rivers/flow paths should be referenced;

(b) Whether waterbodies in need of improvement should be referred to as being 'degraded'; and

(c) What objectives should be included in Appendix N to guide FEMPs.

3.6 Hence, while this evidence addresses all the matters listed in paragraph 3.2 above, it is structured to focus on the issues in paragraphs 3.4 and 3.5.

3.7 The section 274 notices relevant to the issues addressed in this evidence were lodged by the Dairy Interests in relation to appeals made by Fish and Game, Forest and Bird and Ngā Rūnunga.

3.8 In preparing this evidence I have read:

(a) the evidence dated 4 February 2021 of Dr Depree, Mr Duncan and Dr Dalley, witnesses for the Dairy Interests; and

(b) the evidence dated 20 December 2021 of Mr Ben Farrell and Ms McArthur, witnesses for Fish and Game and Forest and Bird; and

(c) the evidence dated 20 December 2021 of Ms Treena Davidson, Dr Jane Kitson and Ms Ailsa Cain witnesses for Ngā Rūnunga

(d) The following joint witness statements:

(i) Planning JWS (dated 10 December 2021)

(ii) Science JWS 26 (dated November 2021)

(iii) Farm systems JWS (dated November 2021)

(iv) Second Farm Systems JWS (dated 6 December 2021)

(v) Ecology JWS (dated 26 November 2021)

## 4. RELEVANT PLANNING INSTRUMENTS

4.1 My understanding of the relevant statutory planning framework is as set out in my 20 December evidence. I do not repeat that here.

4.2 In addition, where relevant I refer to specific provisions of the NPS-FM and the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (**NES-F**) in the planning analysis set out later in this evidence.

## PART A - MATTERS REMAINING UNRESOLVED FOLLOWING PLANNING CONFERENCING

## 5. INTENSIVE WINTER GRAZING: REQUIRED SETBACKS

5.1 Intensive winter grazing is defined in the proposed Southland Water and Land Plan (**pSWLP**) as the "*Grazing of stock between May and September (inclusive) on forage crops (including brassica, beet and root vegetable crops), excluding pasture and cereal crops…*".

5.2 This definition is not exactly the same as, but is broadly consistent with, the definition included in the NES-F.

5.3 The version of the farming provisions attached the Planning JWS proposes that intensive winter grazing be split from the general farming Rule 20 to become Rule 20A.

5.4 The one issue that remained outstanding following planning conferencing on this matter was whether the required setback should remain at 5 metres (as per the decisions version of pSWLP), or be increased to 10 metres as sought by (in part) by Fish and Game[1].

5.5 The Planning JWS records that I considered that there was insufficient evidence to support an increase in setback from 5 to 10 metres[2]. Having

[1] The Fish and Game appeal seeks that a 5m setback be required for slopes under 4 degrees with 10m setbacks only required for slopes between 4 and 16 degrees. 20m setbacks are sought by the Forest and Bird appeals for land with a slope greater than 16 degrees. (This would not apply to intensive winter grazing which is only allowed as a permitted activity on slopes less than 10 degrees). Fish and Game's alternative relief proposed an entirely new rule which sought a 20m setback only from Regional Significant Wetlands or Sensitive Waterbodies listed in Appendix A, an estuary or the Coastal Marine Area.

[2] In taking this view I was conscious of the Hearing Panel's decision Report which noted at paragraph 197 that *"the evidence was that increasing a setback from 5 metres to 10 metres would*

now considered the evidence of Mr Duncan and Dr Dalley I agree that a 10m setback would provide a higher level of sediment removal sufficient to warrant the additional cost to farmers of lost production, and on that basis, I agree that the setback required in respect of intensive winter grazing on crop should be 10m.

5.6 For the avoidance of doubt, I do not support a 20m set back as appears to be suggested by Ms McArthur and supported by Mr Farrell (although Mr Farrell does not propose this amendment in his revised provisions - his Appendix 1). I take that view because:

(a) As pointed out by both Mr Duncan (paragraph 64 of his evidence) and Dr Depree (from paragraph 4.10 of his evidence) the marginal benefit in terms of sediment removal from buffers larger than 10m appears minimal; and

(b) Under Rule 20A, intensive winter grazing can only occur as a permitted activity on slopes less than 10 degrees so any benefit from applying a wider buffer where land is steeper does not apply

5.7 It is also important to recall that, while buffers are important for mitigating sediment and, by association, phosphorus losses, for the reasons set out by Mr Duncan (paragraphs 53-55 of his evidence) and Dr Depree (paragraphs 4.3-4.7 of his evidence) they have low effectiveness in addressing nitrogen and only partially effective for microbial contaminants. Hence wider buffers of streams, no matter how wide, will never present the complete solution to managing excessive diffuse contaminant losses.

## 6. WINTER GRAZING ON PASTURE

6.1 The issue of winter grazing livestock on pasture (as opposed to crop) was discussed at planning conferencing but the planners were unable to agree a response. From my perspective, that was because of a lack of evidence about the nature and scale of the activity at issue and the risk and effect it is having on freshwater. The potential for a range of possible planning responses was noted. A possible additional Rule 20B was indicated as one potential response but that rule was not agreed.

*only increase the predicted sediment removal efficiency by around 10%. We do not consider that small gain in sediment removal efficiency justifies removing additional land from production."*

6.2 Based on the evidence of Dr Dalley (in particular), I am now in a much better position to propose a planning response to the issue of concern to Forest and Bird and Fish and Game.

6.3 I understand that winter grazing on pasture is an unavoidable part of farming livestock. However, as Dr Dalley explains from paragraph 28 of her evidence, there are many different forms of winter grazing and not all present the same risk to water quality. In terms of risk and effect, there tends to be significant differences between, on the one hand, winter grazing on pasture where grass comprises the majority of the animals' diet and, on the other hand, grazing on pasture where the majority of the feed is brought to the paddock (in the form of baleage/silage or other supplements).

6.4 Based on the evidence of Dr Dalley it seems clear to me that it is the latter practice that presents the higher risk to water quality.

6.5 There are, however, other factors that determine the potential for environment effects from winter grazing, including stocking class and the biophysical features/conditions on the farm. Thus, the questions are; how should high-risk wintering on pasture be defined, and, once defined, how should it be managed? Mr Farrell supports the Fish and Game and Forest and Bird proposal that the pSWLP's existing definition of 'intensive winter grazing' be simply extended to include wintering on pasture.

6.6 I do not support that proposal for four reasons:

(a) As discussed above, not all winter grazing on pasture has the potential to contribute equally to adverse water quality outcomes. Mr Farrell's proposal would effectively make all farming (including all sheep and deer farming) during winter in Southland subject to Rule 20A as well as Rule 20.

(b) The conditions that apply to intensive winter grazing under Rule 20A include area limits (50ha or 10% of the farm). Dr Dalley's evidence (paragraph 22) is that farm systems relying on pasture-based wintering are likely to require significantly more of the farm for grazing than those area limits allow.

(c) Because (based on Dr Dalley's evidence), complying with conditions of Rule 20A (including but not limited to area limits) would be unachievable for farms wintering on pasture, resource consents would likely be required for the majority of Southland's farms. This would make permitted farming under Rule 20 misleading and largely redundant.

(d) As discussed above, the term 'Intensive Winter Grazing' is defined in, and for the purposes of, the NES-F. In my opinion, that definition has developed a common understanding amongst practitioners and across many parts of the agricultural sector. I consider it would be confusing if the same term was used in Southland to include a practice that is specifically excluded from the NES-F and the national understanding of the term. (I note that Dr Dalley makes a similar point at paragraph 25 of her evidence.)

6.7 For those reasons, I do not support broadening the pSWLP's definition of intensive winter grazing as sought by Fish and Game and Forest and Bird.

**An additional rule for winter grazing on pasture?**

6.8 In my opinion, whatever regime applies needs to differentiate between, on the one hand, 'traditional' grazing of livestock on pasture over winter and, on the other, the more intensive and potentially higher risk practice of keeping livestock on pasture over winter and bringing the majority of the diet to the animals as conserved feed (eg. baleage, hay, straw).

6.9 While a separate Rule 20B focusing on this 'high risk winter grazing' (also supported, in the alternative, by Mr Farrell) might appear to be a viable option, it relies on the activity of 'high risk winter grazing' being clearly defined. While a draft rule was included (as an example) in the Planning JWS, that rule relies on the term 'high risk winter grazing' being defined. The Planning JWS provided no such definition.

6.10 In my opinion, defining the activity to be subject to a specific winter grazing on pasture rule is particularly challenging because of the various factors that contribute to the potential risk profile.

6.11 While Dr Dalley's evidence identifies the proportion of supplement in the diet as a key factor that does not seem a suitable matter around which to base a definition that would trigger when a rule should apply. That is because:

(a) As noted above, there are confounding factors, mostly notably, stock class and biophysical conditions (particularly soils and rainfall) that will be highly influential on the severity of de-vegetation and contaminant loss. In simple terms, a herd fed on (say) 75% supplement in free draining soils in a lower rainfall area will have much less impact than another herd also fed 75% supplements in an area of high rainfall and heavy soils. Similarly, winter pasture grazing dairy cows in a winter milking system will have a very different effect from grazing non lactating cows.

(b) Determining whether the maximum proportion of the animals' feed needs are met by supplements (and hence whether the rule applies to the activity) would be very difficult for the council to determine and verify. Hence it would be difficult to know if the grazing practice is, or is not, caught by any specific winter grazing rule. Moreover, whether a grazing practice is caught by a rule would vary depending on what part of winter the assessment was made and even the mildness of the winter (and hence how much grass growth occurs).

6.12 In summary, I do not support a new permitted activity 'Rule 20B' for 'high risk winter grazing'. In my opinion, such a rule would require the term 'high risk winter grazing' to be defined, and based on Dr Dalley's evidence, I do not consider that could be done in an appropriately clear and targeted manner.

**Managing winter grazing on grass through the FEMP**

6.13 In my opinion, the issue of winter grazing on pasture that is better suited to being addressed by the FEMP. That approach would require the risk associated with winter grazing on pasture to be assessed for each farm. Factors, as suggested by Dr Dalley, such as the class of livestock, the area allocation per cow per day, soil type, winter rainfall, age and type of pasture (as well as factors such as the presence of critical source areas) could all

be considered in determining what mitigations and limitations to put in place.

6.14 To ensure this issue is effectively managed by the FEMP, Appendix N should be amended to:

(a) Require paddocks being used for winter grazing on pasture that are intended to be resown after the winter grazing, or which will be used to contain livestock fed with at least 50%[3] supplements over the May to September period, to be shown on a map. Note this requires amendment to existing Part B Section 3 (i).

(b) Include an additional objective focusing on grazing livestock on pasture over winter.

(c) Expand the scope of Part B section 7 so that the 'winter grazing plans' required as part of the FEMP address not just intensive winter grazing on crop but also grazing on pasture where supplements comprise 50% or more of the livestock's feed needs.

(d) Add specification of practices to be used to manage risks (as identified through the risk assessment process already required under Part B section 6.) These should include, as a minimum, reference to the following matters:

(i) Excluding critical source areas from grazing

(ii) Providing a minimum 5m setback from rivers, lakes artificial watercourse and wetlands

(iii) A commitment to resow the pasture as soon as practicable after grazing

6.15 I set out the proposed amendment in detail in **Attachment 1**.

[3] Note a proportion of feed as supplement is used here as a trigger for consideration rather than a firm threshold as would apply in a permitted activity rule.

## PART B – ISSUES RESOLVED IN PLANNING CONFERENCING BUT NOW SEEMINGLY BACK IN DISPUTE

### 7. EPHEMERAL FLOW PATHS

7.1 The decisions version of the pSWLP contains the defined term *ephemeral river*. That definition reads:

*"Rivers which only contain flowing or standing water following rainfall events or extended periods of above average rainfall"*

7.2 Rule 20 (aa) allows farming on the 'bed' of an ephemeral river unless otherwise controlled. It also excludes ephemeral rivers from the requirement that stock be excluded during intensive winter grazing. Rule 25 excludes ephemeral rivers from the requirement not to be cultivated. Rule 35A excludes ephemeral rivers from the requirement to site feed pads/lots at least 50m from rivers. Rule 70 excludes ephemeral rivers from the stock exclusion requirements (except where the bed is the roosting or nesting area of several bird species).

7.3 The reason for these exclusions is twofold. First, by referring to these ephemeral features as 'rivers' the inference is that they have 'beds' and that section 13 of the Act therefore applies. Accordingly, without the exclusion provided by Rule 20(aa) (and elsewhere as noted above), the presumption under section 13 of the Act would be that, the occupation and disturbance of these areas requires resource consent.

7.4 Second, the first issue is problematic because the term "ephemeral river" is very broadly defined in the pSWLP as noted above.

7.5 Because the applicable definition of "river" is also broad[4], an ephemeral river potentially includes anywhere across the landscape that water might flow or pool after heavy rain. That potentially encompasses very large areas of productive farmland as discussed further below. Hence the exclusion was intended to avoid unintended consequences for land that would not, in common use, be regarded as a 'river' being caught by rules that would severely, but unnecessarily, inhibit land use.

[4] This relies on the Act's definition of "*a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)"*

7.6 Fish and Game's appeal effectively seeks that ephemeral 'rivers' (as these features are referred to in the decisions version of the pSWLP) be treated like any other river and be subject to setbacks, stock exclusion and other restrictions as per the rules referenced in paragraph 7.2 above.

**River or flow path?**

7.7 In my opinion, the features that would come within the definition of ephemeral river are not, in fact, rivers and using that term to describe them is unhelpful. Mr Duncan's evidence (particularly his Figures 1-3) illustrates the point.

7.8 Rivers contain flowing water (at least some of the time) that contribute flow, and with it contaminants, to larger rivers and to receiving environments (ie. lakes, wetlands and coastal water). However, not every episodic flow of water across the landscape that might contribute contaminants can be considered a river - if that were the case, every slope where there is overland flow would be considered a 'river'.

7.9 In my opinion, a 'river' must, in addition to at least sometimes containing flowing water, have a defined channel and a *bed* that is either de-vegetated, or, has vegetative cover that is reliant on standing or flowing water for at least part of the year (ie.'aquatic vegetation'). In other words, it must have aquatic ecosystem value by constituting habitat for aquatic plant or animal species and/or provide a pathway for the movement of aquatic fish species at times of high flow. In my opinion, if the landscape feature has a pasture 'base', it should not be considered a 'river' even though it may, from time to time, contribute flow and contaminants to a receiving environment (as will any adjoining sloping land).

7.10 The distinction I make here is essentially between a river, with all the ecological value that term infers, and a *flow path* – being simply a pathway where water flows across land after heavy rain.

7.11 I accept that there is not always a hard and fast line between a river, an ephemeral flow path and simply an indistinct depression in the landscape, but rather a continuum. Figure 7 in Dr Depree's evidence depicts the continuum of flow path to river. He draws a line between terrestrial features and aquatic features based on the presence/absence of aquatic macroinvertebrates in the flow channels.

7.12 From a planning perspective, it is necessary to draw a line as best we are able while ensuring there is flexibility to address flow paths that pose particular risk to water quality outcomes.

7.13 In my opinion, the way to do that is to:

(a) ensure *intermittent* water ways (ie. rivers with clear ecological value) are clearly provided for within the definition of river. In my opinion, pSWLP already does that by use of the separately defined term *intermittent river*. That term is defined by the pSWLP as:

*A river which does not contain permanently flowing or standing water and where the bed is predominantly devoid of terrestrial vegetation and comprises sand, gravel, boulders, or similar material or aquatic vegetation.*

For the avoidance of doubt, I agree that *intermittent rivers* (as defined) should be treated like any other river with stock exclusion and setbacks applying accordingly. As Dr Depree says, even though these are sometimes dry, they are intrinsically 'aquatic' systems.

(b) Manage the risk posed by ephemeral flow paths through the provisions relating to *critical source areas*. These provisions include:

(i) the requirement in Rule 20A (as proposed in the Planning JWS) that critical source areas have stock excluded from them and not be cultivated for intensive winter grazing.

(ii) the corresponding requirement in Rule 25 (as proposed in the Planning JWS) that critical source areas are excluded (ie. not cultivated) when forage crops to be used for intensive winter grazing are established.

(iii) the requirement that critical source areas be identified in FEMPs and managed to achieve the various objectives

set out in Appendix N (including where winter grazing of pasture occurs, as I propose in this evidence).

7.14 To achieve that, all that is needed is to delete all references to 'excluding ephemeral rivers' from Rules 20, 24, 35A and 70 (and various other provisions[5]). With that term not used the definition of 'ephemeral rivers' is no longer needed and may also be deleted. With no inference that an ephemeral flow path is a river, the issues I have identified no longer arise.

7.15 This is essentially the solution agreed in the Planning JWS. The planning JWS does record agreement that the term 'ephemeral flow path' be included within the definition of critical source area (as an example of the type of feature that could be a critical source area).

7.16 While I stand by my agreement with the JWS I do not consider the inclusion of reference to ephemeral flow path in the definition of critical source area to be strictly necessary since that definition already contains the terms "swale" and "depression" which, in my opinion, are generic terms that encompass what I understand to be an ephemeral flow path. My preference would be to delete entirely any reference to 'ephemeral flow path' from the definition of critical source area. Doing this would address the residual uncertainty with the definition of critical source area that I discuss from section 7.28 below.

**Issues raised by Mr Farrell**

7.17 Mr Farrell indicates at paragraph 55 of his 20 December evidence that he has 'revised his position' with regard to where and how the pSWLP refers to ephemeral flow paths from that agreed to in the Planning JWS.

7.18 He now proposes that the ephemeral flow paths be referred to as ephemeral *waterbodies* and that that term be defined.

7.19 He describes the consequences of that amendment as 'negligible'. With respect, I consider that Mr Farrell may have over-looked the implications of 'ephemeral flow paths' being potentially considered as rivers or lakes. As explained above, if these ephemeral features are rivers or lakes then they have a *bed* and section 13 of the Act applies. If that is the intention

[5] I understand there is scope to delete reference to "ephemeral rivers" from all provisions of the pSWLP arising from Ngā Runūnga's appeal.

then the implications are not, in my opinion, 'negligible' since farming of the land that the ephemeral flow path occupies after heavy rain would need to comply with the stock exclusion and setback provisions of Rule 20A, 25, 35A and 70 or apply for and be granted resource consent. As Mr Duncan has shown, ephemeral flow paths can be common and extensive across Southland farms.

7.20 In my opinion, at the very least, use of the term "waterbody" introduces uncertainty. Landowners will rightfully ask whether the exclusion and setback requirements apply to all depressions and swales on their properties by virtue of them being described as 'waterbodies'.

7.21 The Hearing Panel report[6] recognised the same point when it noted at paragraph 257, the need to be very clear on how farming activities in ephemeral rivers (as it termed it) are dealt with in the rules.

7.22 I agree with the Hearing Panel on that point.

7.23 Mr Farrell does not propose a definition of 'waterbody' meaning that the Resource Management Act's definition would apply. Under that definition waterbody means:

*fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area*

7.24 In my reading, the uncertainty referred to above is compounded by the fact that the definition of water body (as above) suggests it is the water in the river or lake and not the river or lake itself that is the 'waterbody'.

7.25 This raises the question of whether an "ephemeral water body" would only exist while there is flowing or standing water. In which case, the rules affecting ephemeral water bodies might be said to apply "intermittently" (during and after every heavy rainfall but not otherwise). In my opinion, that would not be a tenable planning approach given the provisions that apply.

[6] Report and recommendations of the hearing commissioners, 29 January 2018.

7.26 For all those reasons, I do not agree with Mr Farrell's changed position nor do I agree that the consequences of his change proposed would be negligible.

7.27 I note also that the definition of critical source area is not subject to specific appeal by any party.

**Issues raised by Mr Duncan and Dr Depree**

7.28 Both Mr Duncan and Dr Depree discuss the concept of a 'critical source area'. Based on that evidence, it is my opinion that the concept does not lend itself to a single, specific and exclusive definition that can be applied without judgement, expertise and discretion. Accordingly, the definition should be descriptive rather the prescriptive. The person preparing and certifying the FEMP should be guided by the definition but retain some flexibility as to (a) whether an area should be identified as a critical source area (based on how 'critical' the source area is); and (b) what controls and constraints should apply to that area.

7.29 This is important because, as noted in the Farm Systems JWS dated 22 November, that some critical source areas are riskier than others and that there are a range of factors that determine the riskiness of a source area. These factors include physical factors like slope and soils but also the land use being undertaken.

7.30 As Mr Duncan and Dr Depree note, an area that should properly be regarded as a critical source area in the context of intensive winter grazing may not be a critical source area when not used for such intensive use.

7.31 In my opinion, the issue lends itself to being the subject of a Council prepared implementation guideline. I would support the preparation of such a guideline.

7.32 For all those reasons, notwithstanding my agreement with the Planning JWS version, if the matter is being reopened as sought by Mr Farrell, my preference is that the definition of 'critical source area' should remain unchanged from the decisions version.

## 8. FARMING IN CATCHMENTS OF WATER BODIES IN NEED OF IMPROVEMENT

8.1 The Planning JWS version of provisions uses the term 'catchments of waterbodies in need of improvement" in Policy 16, Rules 20 and 20A and in Appendix N.

8.2 As discussed in my 20 December evidence, I support these provisions and the terminology used.

8.3 Mr Farrell has altered his position from the Planning JWS. At paragraph 90 of his evidence, he suggests that the change provides "clarification/reinforcement of the intent of the agreed provisions" and that the changes have no material changes to the intent of the provisions. I consider that Mr Farrell's proposed amendment to be more significant than he suggests. As I discussed in my 20 December evidence, I support the use of the term *waterbodies in need of improvement* rather than *degraded waterbodies* for two reasons.

(a) First, I think that language speaks more directly to the purpose of why the catchments are being identified. It is more positive and more purposeful language. It is my understanding that the wording proposed in the Planning JWS version is more consistent with the concepts of hauora and Te Mana o te Wai.

(b) Second, the term 'degraded' has a specific, defined meaning in the NPS-FM 2020. It means:

*in relation to an FMU or part of an FMU, means that as a result of something other than a naturally occurring process:*

*(a) a site or sites in the FMU or part of the FMU to which a target attribute state applies:*

*(i) is below a national bottom line; or*

*(ii) is not achieving or is not likely to achieve a target attribute state; or*

*(b) the FMU or part of the FMU is not achieving or is not likely to achieve an environmental flow and level set for it; or*

*(c) the FMU or part of the FMU is less able (when compared to 7 September 2017) to provide for any value identified for it under the NOF*

8.4 Setting aside the question of whether part (a) of this definition applies before target attribute states have been established under the NPS-FM, I

consider that a site is degraded if it has an attribute state below the national bottom-line. Dr Depree's mapping set out in his 20 December evidence uses, in part, the MCI bottom-line consistent with the Science JWS and in that regard the term 'degraded' would not be inappropriate in respect of that attribute.

8.5 Dr Depree's mapping also uses the C band for *E.coli*. There is no national-bottom line for *E.coli* in Table 9 of the NPS-FM. Therefore, a strict reading of the NPS-FM would suggest that Dr Depree's mapping of *E.coli* does not represents 'degradation' as contemplated by part (a) of the NPS-FM's definition of that term.

8.6 Similarly, *values* have not been identified for the mapped catchments under the NOF (national objectives framework) as set out in Subpart 2 of the NPS-FM, this suggest that the mapping does not represent degradation as contemplated by part (c) of the NPS-FM's definition of that term.

8.7 Dr Depree's other criterion used in mapping is the state of coastal receiving waters (ie. estuaries). The NPS-FM does not expressly address coastal water in the sense that there are no national bottom-lines nor do target attribute states need to be established (because the coastal waters cannot be part of a Freshwater Management Unit). Hence, using the NPS-FM terminology of 'degradation' is not anticipated.

8.8 Moreover, I consider that labelling catchments as 'degraded' ahead of Plan Change Tuatahi's target attribute setting process to be unhelpful and confusing for the public. That exercise should be done once and done right. Policy 6 of the pSWLP refers to water quality being 'degraded' and 'not degraded'. However, I do not consider that necessitates that the word 'degraded' be used in the mapping. The policy also includes the word 'improved', so identifying catchments in need of 'improvement' links appropriately to the policy. Plan change Tuatahi will need to map 'degraded' FMUs (or part FMUs) and in that case Policy 6 will remain relevantly worded.

8.9 In summary, describing the catchments mapped using Dr Depree's method as mapping "degraded" catchments is valid only insofar as a national bottom line value has been applied to MCI in lowland streams. In terms of

the other attributes used in Dr Depree's mapping the term 'degradation' is not appropriate according to a strict reading of the NPS-FM definition.

8.10 Finally, I note that maps produced according to the various thresholds suggested by the Water Quality JWS would be even less accurately described as mapping degradation according to the NPS-FM definition of that term. That is because those thresholds are generally not national bottom lines or target attributes states (or even NPS attributes in the case of dissolved inorganic nitrogen (**DIN**)) as explained by Dr Depree from paragraph 7.9- 7.10 of his evidence.

8.11 For those reasons, I do not agree with Mr Farrell's proposal to, despite the agreed Planning JWS, refer to 'degraded water bodies' in Policy 16, Rule 20, Rule 20A and Appendix N.

## 9. APPENDIX N – FARM ENVIRONMENT MANAGEMENT PLANS

9.1 Planners agreed to significant amendments and additions to Appendix N as recorded in Planning JWS.

9.2 Despite that agreement, in his 20 December evidence Mr Farrell now expresses doubt on the adequacy of Appendix N and proposes further additions to Appendix N. I comment on those matters as follows.

### Additional contents of Appendix N

9.3 Mr Farrell draws on Table 2 on the November 2021 Science JWS to propose that Section 5 of Appendix N should be significantly expanded to include (in effect) an additional 15 objectives in relation to ecological and cultural health. These would be additional to the existing six objectives already included in section 5 of Appendix N.

9.4 In my opinion, the nature of the objectives proposed by Mr Farrell are very different from those already included in Appendix N. The six objectives already in section 5 of Appendix N focus on specific farm management considerations being matters that are in the direct control of the farm operator (eg. irrigation design, installation and management, collected effluent management, nutrient management , drain maintenance etc). By contrast the objectives proposed by Mr Farrell focus on the people farming the land 'having an understanding' of certain ecological and cultural

outcomes. The inclusion of those objectives would, in my opinion significantly alter the tone and nature of the FEMP from something that all farmers should understand from a practical farm management perspective to something that is more of a 'planners document' and which, based on the evidence of Mr Duncan, may not resonate with many farmers.

9.5 While I agree that many of the matters in the proposed additional objectives are important and valid outcomes from a *planning* perspective (consistent as they are with the concepts of ki uta ki tai and hauora as I understand them), I am not certain that they are all matters that councils can, or should, expect all farmers to understand intimately (although I agree that it would be helpful for farmers to develop an understanding of these concepts over time). The situation is analogous to urban water users in a time of water shortage. As resource managers councils do not expect the public to understand the technical detail of flows and the values that may be being comprised by low flows. But they do expect them to take action that addresses the water shortage based on technical advice about the measures needed.

9.6 For that reason, I am of the opinion that requiring *"a description of how… an understanding by people farming the land … recognise how mauri provide for te hauora o te taia…hauora o te wai … and hauora o te tangata…"* is not a practicable or necessary part of a FEMP.

9.7 I also consider that the manner in which the various additional objectives are phrased would (should they be included in Appendix N) lead to considerable uncertainty amongst farmers and their advisers/certifiers. As noted above, emphasis seems to be placed on describing how farmers *understand* a particular value or outcome as though the FEMP is itself an educational tool or a verification that farmers have passed some 'test' of ecological and cultural knowledge. I am not aware of farm environment plans being used in that way elsewhere in the country. Based on Mr Duncan's evidence, I consider it unlikely that using plans in that way, would assist farmer engagement with, and commitment to the value of farm planning.

9.8 I also consider that these concepts remain poorly understood in the Southland context at this stage even amongst many resource management professionals. Given that uncertainty and evolving understanding, I

consider it inappropriate to expect farmers to demonstrate knowledge of the concepts. Plan change Tuatahi will give practical and 'concrete' expression to the concepts in due course. Once that point arrives, I would support building greater awareness of these values and concepts amongst farmers. However even then, \I consider there would be more effective means of doing that (eg. field days, catchment discussion groups etc) than the FEMP.

9.9 Finally, I note that a number of the proposed additional objectives appear to duplicate matters already required by Appendix N. Most notably, Mr Farrell's new (h) focuses on farms needing to make reductions in contaminant losses in the catchments of waterbodies in need of improvement (what he refers to as 'degraded' catchments). However that same matter is already captured in section 6 (b) which reads:

*Where a farm is located within a catchment of a water body that requires improvement identified in Schedule X, the mitigations that will achieve a reduction in the discharge of the contaminants where relevant to the farming activity…"*

9.10 Similarly, section 3 of Appendix N already requires farmers to identify taonga species (where known). I do not see the value in then asking for a description of farmers' understanding of taonga and mahinga kai species. I do agree though that if taonga species are known to be present, the FEMP should acknowledge that by ensuring land and water management practices (for example drain maintenance) is undertaken in ways that minimise impact to habitat. Again though, Appendix N Part B 5(f) already requires that, in my opinion, when it refers to drain maintenance needing to "avoid where practicable or otherwise minimise …damage to aquatic habitat".

9.11 For all those reasons, I do not support Mr Farrell's changes to the objectives of Appendix N.

**Targeting of nitrogen losses by FEMPs**

9.12 Mr Farrell suggests at paragraph 75 of his evidence that *"we (planners) appear to have missed some key recommendations/observations by some of the science and farm systems experts"*. The example he provides is the "*observation that the Farm Systems JWS 22 November identified among*

*other things that the Plan fails to explicitly address nitrogen loss".* He then quotes from the farm systems JWS implying agreement that nitrogen is not expressly addressed by Appendix N.

9.13 The structure of the November 2021 Farm Systems JWS is difficult to follow in places and it appears Mr Farrell may have misread the section from which he quotes. The statement that the *"measures in the Plan may not change nitrogen leakages as nothing specifically addresses this"* was only agreed to by Ms McArthur (ecologist/water quality expert) and Ms Kitson (ecologist/water quality expert). The farm systems experts who signed the JWS (with the exception of Mr Orchiston who expressed no opinion and Dr Monaghan whose opinion is not recorded) all only agreed with the following statement:

*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.*

9.14 In my opinion, there is no question that the FEMP addresses all contaminants. Nitrogen is not excluded. The requirement to 'minimise' and to 'reduce' in catchments of waterbodies in need of improvement (consistent with Objective 6) is very clear in the requirements of FEMPs. It is simply that the term 'nutrients' is used in sections 4, and 5 (c) of Appendix N instead of 'nitrogen and phosphorus' and the broader term 'contaminants' is used in section 6 (b). I agree that the words 'nitrogen and phosphorus' could be used instead of the collective 'nutrients'. Similarly, it could be made clear that contaminants include nutrients but I do not think such a semantic change is necessary because any farm systems expert preparing or certifying FEMPs will understand that the term contaminants includes nutrients and that nutrients includes nitrogen.

9.15 From paragraph 78 of his evidence Mr Duncan outlines how nitrogen losses are managed by FEMPs. As he says, the first priority in minimising/reducing nitrogen losses is to reduce the amount of excess (unused) nitrogen in a farming system. This may involve managing stocking rates, fertiliser use, imported supplementary feed, irrigation, collected effluent and cropping/cultivation.

9.16 Table 2 in Mr Duncan's evidence illustrates how the specific actions/mitigations that he expects to be considered (and are already the sorts of mitigations included in existing Fonterra-produced FEMPs) are consistent with the mitigations identified by a range of experts as being suitable for nitrogen reduction.

9.17 In addition to the express requirement for a nutrient budget/risk assessment in section 4 of Appendix N, in my opinion, the matters identified by Mr Duncan are all matters that are relevant to the assessment of whether the Objectives of section 5 of Appendix N will be met.

9.18 Accordingly, while Appendix N does not require specific, numeric levels of reduction in N losses (and doesn't prescribe specific mitigations measures for nitrogen), it does require 'minimisation' (and, in catchments in need of improvement, 'reduction') of all contaminant losses. That is consistent with Objectives 6 and 16 of the pSWLP. In that respect, I consider Appendix N to give effect to the relevant objectives and agree with the farm systems experts who considered that Appendix N does address the need to address nitrogen losses.

9.19 Mr Farrell's concern seems to be that the magnitude of the reduction in nutrients likely to be achieved through FEMPs prepared in accordance with Appendix N will be insufficient to achieve hauora. I agree with that. However, two points are worth noting:

(a) Objective 2 of the pSWLP sets a clear direction that the mauri of water provides for te haurora o te taiao, te hauora o te wai and te hauora o te tangata but it does not specify a date by which this state is to be achieved. It is apparent that the task is a significant one and is reliant on Plan Change Tuatahi and a longer-term response (ie. well beyond that life of this plan and the methods it includes). Mr Farrell himself acknowledges this point at paragraph 84 of his evidence.

(b) Mr Farrell's analysis relies on comparisons with reduction numbers that are yet to be confirmed. My understanding is that these numbers are derived from modelling but that that modelling remains subject to continuing review. I note that Dr Depree comments on this matter at paragraph 6.10 of his evidence. I

understand him to say that while there is no dispute amongst water quality scientists that significant nutrient loss reductions will be required, whether they as a large as indicated in paragraph 76 (d) of Mr Farrell's evidence, remains to be seen. Dr Depree is of the opinion that they will not be.

9.20 For those reasons, I do not think the fact that Appendix N may not, by itself, achieve hauora is material to the question of whether the content of Appendix N is appropriate as an interim planning response.

## PART C - ISSUES RESOLVED AT PLANNING CONFERENCING AND REMAINING AGREED IN PLANNING EVIDENCE

### 10. POLICY 16 AND RULE 20– FARMING

10.1 Policy 16 and Rule 20 were discussed and agreed in planning conferencing. As I set out in my 20 December evidence, I continue to agree with the versions of those provisions attached to the Planning JWS[7].

10.2 Apart from the issue of whether the term 'degraded' should be used (now proposed by Mr Farrell as discussed above) I understand Policy 16 and Rule 20 to remain 'agreed' by other planners.

10.3 In my 20 December evidence I pointed out that there may be a need to *stage implementation* to ensure that all FEMPs can be completed before the requirement (under Rule 20) to have one in place applies. That is particularly in light of the need for FEMPs to be 'certified' and for the certifiers to be a suitably qualified persons approved by the Regional Council. This was not a matter that I recall was discussed in conferencing.

10.4 While I continue to think that a short but realistic 'phase-in' would be appropriate, I consider that this could be achieved by the Regional Council adopting a pragmatic implementation plan (rather than specific further amendment to the Rule). This is particularly in light of the short timeframes that apply before the Plan Change Tuatahi is due to be notified and the 'interim' nature of the FEMPs.

[7] Note that in my 20 December evidence I propose a very slight amendment to wording to improve the syntax of part 1 (b) of the policy as has now been redrafted in the Planner JWS. I also note that my 20 December evidence contained two errors. The

## 11. RULE 24 – INCIDENTAL DISCHARGES FROM FARMING

11.1 Fish and Game appealed Rule 24 seeking an amendment that would require any incidental discharge from an activity permitted under Rule 20, 25 or 70 to not cause the water quality standards of Appendix E to be exceeded.

11.2 In his 5 November 2021 'will say' statement, Mr Farrell proposed that Rule 24 not permit any incidental discharge from an activity permitted by Rules 20, 25 or 70 if the discharge occurred in a degraded catchment or in a 'at risk' catchment where the discharge would result in the 'at risk' catchment becoming degraded.

11.3 The Planning JWS records that the amendment sought by Fish and Game was not appropriate. The reasons for that are:

(a) The incidental discharges from farming activities are properly managed through Rule 20, 25 and 70 and the associated FEMP; and

(b) The proposed amendment to Rule 24 would have meant that despite being permitted by Rule 20, 25 and 70 consent would have been required for most farming activities under Rule 24 (because of the widespread nature of 'degraded' catchments). That would have been duplicative, burdensome and confusing for landholders.

11.4 Based on other parties' 20 December planning evidence, I understand that no party now supports the proposed Fish and Game amendment to Rule 24.

## 12. PHYSIOGRAPHIC ZONES

12.1 As Ms Davidson planner for Ngā Rūnunga states in her evidence, Ngā Rūnunga appealed Rule 20 seeking that the provisions appropriately considered ki uta ki tai and matched land use with land capability as a mechanism to improve water quality. The Planning JWS agreed that physiographic zones should be considered in the preparation of FEMPs. In my opinion that is appropriate. Consideration of the applicable physiographic zones on a farm will help to understand the nature of the

risks, particularly the main transport pathways for contaminants. I agree that that it is also consistent with the concept of ki uta ki tai as Ms Davidson notes.

12.2 However, as Mr Duncan points out at paragraph 120 of his evidence, care need to be taken with the use of physiographic zones because the zones have "inherent inaccuracies at the farm scale". In my opinion, that does not mean that they should not be used, but it does mean (as Mr Duncan says) they need to be "sense checked" on the ground.

12.3 For the reasons set out by Mr Duncan, I support the use physiographic zone in FEMP development and implementation but I do not consider them suitable to demarcate where particular rules apply. This view is reflected in that way the use of physiographic zones is incorporated into Appendix N and shown in Appendix 1 to this evidence.

## 13. CONCLUSION

13.1 I consider that amendment should be made to Rule 20A to confirm that a 10m setback from waterbodies is required where there is intensive winter grazing (as that term is defined in the decisions version of the pSWLP). I also consider amendments should be made to Appendix N to ensure effective management of winter grazing on pasture.

13.2 Those amendments will address issues remaining outstanding after conferencing. I do not support any substantive change to the provisions agreed in the Planning JWS although I have identified minor errors in wording that should be corrected as set out in Appendix 1.

**Gerard Matthew Willis**

**4 February 2022**

**ATTACHMENT 1 – PROPOSED AMENDMENTS**

Text in red underscored font is used for the amendments (relative to the Decisions version) agreed in the Planning JWS. Text in blue underscored font are my proposed corrections and minor amendments to the Planning JWS version (including my proposed approach to resolving matters that remained outstanding following planning conferencing).

*Note:*

- this version replaces that version attached to my 20 December evidence in chief that contained several errors that have been corrected in the version below.
- the numbering used in Policy 16 has been corrected and differs from that shown in the Planning JWS (and from that used in the body of this evidence).

## Policy 16

1. ~~Minimising~~ Avoid where practicable, or otherwise minimise, any ~~the~~ adverse environmental effects (including on the quality of water in lakes, rivers, artificial watercourses, modified watercourses, wetlands, tidal estuaries and salt marshes, and groundwater) from farming activities by:

   ~~(a) discouraging the establishment of new dairy farming of cows or new intensive winter grazing in close proximity to Regionally Significant Wetlands and Sensitive Water bodies identified in Appendix A; and~~

   ~~(b) ensuring that, in the interim period prior to the development of freshwater objectives under Freshwater Management Unit processes, applications to establish new, or further intensify existing, dairy farming of cows or intensive winter grazing activities will generally not be granted where:~~
   ~~(i) the adverse effects, including cumulatively, on the quality of groundwater, or water in lakes, rivers, artificial watercourses, modified watercourses, wetlands, tidal estuaries and salt marshes cannot be avoided or mitigated; or~~
   ~~(ii) existing water quality is already degraded to the point of being overallocated; or~~
   ~~(iii) water quality does not meet the Appendix E Water Quality Standards or bed sediments do not meet the Appendix C ANZECC sediment guidelines~~

   ~~(c) ensuring that, after the development of freshwater objectives under Freshwater Management Unit processes, applications to establish new, or further intensify existing, dairy farming of cows or intensive winter grazing activities:~~
   ~~(i) will generally not be granted where freshwater objectives are not being met; and~~
   ~~(ii) where freshwater objectives are being met, will generally not be granted unless the proposed activity (allowing for any offsetting effects) will maintain the overall quality of groundwater and water in lakes, rivers, artificial watercourses, modified watercourses, wetlands, tidal estuaries and salt marshes.~~

   (a) ensuring that ~~for~~ existing farming activities:

(i) minimise nitrogen, phosphorus, sediment or microbial contaminant discharges ~~are minimised~~; and

(ii) reduce adverse effects on water quality where the farming activity occurs within the catchment of a waterbody that requires improvement identified in Schedule X; and

(iii) demonstrate how (i) and (ii) is being or will be achieved through the implementation of Farm Environment Management Plans prepared in accordance with (c) below and in addition

(b) ensuring that the establishment of new, or further intensification of existing, dairy farming of cows or intensive winter grazing activities:

(i) does not result in an increase in nitrogen, phosphorus, sediment and microbial contaminant discharges; and

(ii) minimises nitrogen, phosphorus, sediment or microbial contaminant discharges; and

(iii) reduces nitrogen, phosphorus, sediment or microbial contaminant discharges where the farming activity occurs within the catchment of a degraded waterbody identified in Appendix X; and

(iv) is avoided in close proximity to Regionally Significant Wetlands and Sensitive Water bodies identified in Appendix A; and

(c)~~2.~~ requiring all farming activities to~~, including existing activities to~~:

(a) be undertaken in accordance with ~~implement~~ a Farm Environmental Management Plan which:

(i) identifies whether the farming activity is occurring, or would occur, in a catchment which contains a degraded waterbody identified in Schedule X;

(ii) identifies and responds to the contaminant pathways (and variants) for the relevant Physiographic Zones;

(iii) set out how adverse effects on water quality from the discharge of contaminants from farming activities will be minimised or, where the farming activity is occurring in a degraded catchment identified in Schedule X, reduced;

(iv) is certified as meeting all relevant requirements of this plan and regulation under Part 9A of the RMA; and

(iv) is independently audited and reported on;

(d) ~~actively manage~~ avoid where practicable, or otherwise minimise, sediment run-off risk from farming and hill country development activities by identifying critical source areas and implementing and maintaining practices including setbacks from water bodies, sediment traps, riparian planting, limits on areas or duration of exposed soils and the prevention of stock entering the beds of surface water bodies; and

(e) ~~manage~~ avoid where practicable, or otherwise minimise, collected and diffuse run-off and leaching of nutrients, microbial contaminants and sediment through the identification and management of critical source areas and the contaminant pathways identified for the relevant Physiographic Zones (and variants) within individual properties.

3. When considering a resource consent application for farming activities, consideration should be given to the following matters:

(a) whether multiple farming activities (such as cultivation, riparian setbacks, and winter grazing) can be addressed in a single resource consent; and

(b) granting a consent duration of at least 5 years where doing so is consistent with Policy 40.

## Rule 20A – Intensive winter grazing

(a) Intensive winter grazing is a permitted activity provided the following conditions are met:

(i) intensive winter grazing does not occur on more than 50ha or 10% of the area of the land holding, whichever is the greater; and

(ii) the slope of land that is used for intensive winter grazing must be 10 degrees or less; and

(iii) livestock must be kept at least:

(1) 20 metres from the bed of any Regionally Significant Wetland or Sensitive Water Bodies listed in Appendix A, nohoanga listed in Appendix B, mātaitai reserve, taiāpure, estuary or the coastal marine area; and

(2) ~~[5/10]~~ 10 metres from the bed of any other river, lake, artificial watercourse (regardless of whether there is any water in it at the time), modified water course or natural wetland; and

(iv) critical source areas within the area being intensively winter grazed must:

(1) be identified in the Farm Environmental Management Plan; and

(2) have stock excluded from them; and

(3) not be cultivated into forage crops for intensive winter grazing

(v) the land that is used for intensive winter grazing must be replanted as soon as practicable after livestock have grazed the land's annual forage crop; and

(vi) a Farm Environmental Management Plan for the landholding is prepared and implemented in accordance with Appendix N, that also includes a grazing plan that includes:

(1) downslope grazing or a 20 metre 'last-bite' strip at the base of the slope; and

(2) back fencing to prevent stock entering previously grazed areas; and

(3) transportable water troughs; and

(vii) no intensive winter grazing occurs at an altitude greater than 800 metres above mean sea level; and

(b) The use of land for intensive winter grazing that does not meet conditions (a)(i)-(vi) of Rule 20A is a restricted discretionary activity provided the following conditions are met:

(i) a Farm Environmental Management Plan is prepared and implemented in accordance with Appendix N; and

(ii) the area used for intensive winter grazing on the property is no greater than the average area used on the property for the five years prior to the application being made;

***The Southland Regional Council will restrict its discretion to the following matters:***

1. ~~the quality of and~~ compliance with Appendix N and the quality of the Farm Environmental Management Plan for the landholding;
2. whether the intensive winter grazing activity is being undertaken in a catchment of a waterbody that requires improvement identified in Schedule X, and if so, the mitigation actions to be implemented to improve water quality;

3. mitigation actions and good management practices to be undertaken, including those to minimise the discharge of nitrogen, phosphorus, sediment and microbiological contaminants to water from the use of land, taking into account contaminant loss pathways;
4. the potential benefits of the activity to the applicant, the community and the environment;
5. the potential effects of the farming activity on surface and groundwater quality and sources of drinking water;
6. monitoring and reporting undertaken to assess the effectiveness of any mitigation implemented.

(c) The use of land for intensive winter grazing that does not meet conditions of Rule 20A(b) is a non-complying activity.

(d) The use of land for intensive winter grazing that does not meet condition (vii) of Rule 20A(a) is a prohibited activity.

## Rule 35A – Feed pads/lots

(a) The use of land for a feed pad/lot is a permitted activity provided the following conditions are met:

(i) ~~if accommodating cattle or deer, each feed pad/lot services no more than 120 adult cattle, or 250 adult deer, or equivalent numbers of young stock at any one time;~~

(ii) animals do not remain on the feed pad/lot for longer than three continuous months;

(iii) the feed pad/lot is not located:

(1) within 50 metres from the nearest sub-surface drain, lake, river ~~(excluding ephemeral rivers),~~ artificial watercourse, modified watercourse, natural wetland, or the coastal marine area ~~or another feed pad/lot on the same landholding~~; or

(2) within a microbial health protection zone of a drinking water supply site identified in Appendix J, or where no such zone is identified, then within 250 metres of the abstraction point of a drinking water supply site identified in Appendix J; or

(3) within 200 metres of a place of general assembly or dwelling not located on the same landholding, or

(4) within 20 metres of the boundary of any other landholding; or

(5) within a critical source area;

(iv) the feed pad/lot is constructed with:

(1) a sealed and impermeable base and any liquid animal effluent or stormwater containing animal effluent discharging from the feed pad/lot is collected in a sealed animal effluent storage system authorised under Rule 32B or Rule 32D; or

(2) a minimum depth of 500 millimetres of wood-based material (bark, sawdust or chip) across the base of the feed pad/lot; and

(v) any material scraped from the feed pad/lot, including solid animal effluent, is collected and if applied to land is applied in accordance with Rule 38; and

(vi) the overland flow of stormwater or surface runoff from surrounding land is prevented from entering the feed pad/lot.

(b) The use of land for a feed pad/lot that does not meet one or more of the conditions of Rule 35A(a) is a discretionary activity.

## Rule 70 - Stock exclusion from water bodies

*Note, this rule applies in addition to the Resource Management (Stock Exclusion) Regulations 2020*

(a) ~~From 1 July 2020,~~ The disturbance of roosting and nesting areas of the black fronted tern, black billed gull, banded dotterel or black fronted dotterel located in the bed of a lake, river ~~(including an ephemeral river)~~, modified watercourse, ~~or natural wetland~~ by stock including cattle, deer, pigs or sheep is a prohibited activity.

(b) ~~From 1 July 2020,~~ The disturbance of the bed of a Regionally Significant Wetland or Sensitive Water Body listed in Appendix A by stock including cattle, deer, pigs or sheep is a prohibited activity.

(c) The disturbance of the bed of a river ~~(excluding ephemeral rivers where stock access is permitted under Rule 20(aa))~~ or modified watercourse for the purposes of moving stock including cattle, deer, pigs or sheep (but excluding dairy cattle on a dairy platform or on land used for dairy support) is a permitted activity provided the stock are being supervised and are actively driven across the water body in one continuous movement.

(ca) The disturbance of the bed of a lake, river or modified watercourse by sheep, other than as regulated by Rule 70(a) and 70(b), is a permitted activity, provided the following conditions are met:

(i) the waterbody is not already fenced to prevent sheep access;

(ii) the sheep are not being break fed or intensively winter grazed;

(iii) there is no significant de-vegetation leading to exposure of soil of the bed and banks, pugging or alteration to the profile of the bed and banks, other than at fords or stock crossings; and

(iv) a Farm Environmental Management Plan for the landholding is prepared, certified, implemented and audited in accordance with Appendix N, and shows how access by sheep will be managed;

(cb) The use of land within a natural wetland or the disturbance of the bed of a water body within a natural wetland for access or grazing by stock is a non-complying activity.

(d) Bed disturbance activities that do not comply with Rule 70(c) are a non-complying activity.

(e) Other than as provided for by Rules 70(c) and 70(d), the disturbance of the bed of a lake, river ~~(excluding ephemeral rivers where stock access is permitted under Rule 20(aa))~~, modified watercourse or natural wetland, or use of the land that is a farm drainage channel, by cattle, deer or pigs is a permitted activity prior to the dates set out in Table 1 for the land having listed land slopes after which time it is respectively a discretionary activity on that land unless it is contrary to the Resource Management (Stock Exclusion) Regulations 2020 in which case it is prohibited.

**Table 1: Timetable for stock exclusion from water bodies**

| | **Land slope (as classified by the LRI slope dataset)** | | |
|---|---|---|---|
| **Farm/stock type** | **Plains (0-3°)** | **Undulating/rolling land (>3-15°)** | **Steeper land (>15° and over)** |
| Dairy cattle (on dairy platforms) and pigs | All water bodies (including open drains) that are:<br>• over 1 metre wide from 1 July 2017 on all slopes<br>• less than 1 metre wide from 1 July 2020 on the plains and undulating/rolling land | | |
| Dairy support ~~(on either land owned/leased by the dairy farmer or third party land)~~ | All water bodies, and open drains from 1 July 2022 | All water bodies, and open drains over 1 metre wide from 1 July 2022 | All water bodies, and open drains where break feeding occurs from 1 July 2022 |
| Beef cattle and deer | All water bodies (including open drains) from 1 July 2025 | All water bodies (including open drains) over 1 metre wide from 1 July 2030, unless the average stocking rate on the land directly adjacent to the water body is less than 6 stock units per hectare | |
| | All water bodies (including open drains) where break feeding or supplementary feeding occurs from 1 July 2022 | | |

## Appendix N – Farm Environment Management Plan Requirements

A Farm Environmental Management Plan must be:

(1) A Freshwater Farm Plan prepared, implemented and audited in accordance with regulations prepared under Part 9A of the RMA and which apply within the Southland region, plus any additional information or components required by Parts B (3) and (6)(b) as below; or

(2) if Freshwater Farm Plans, under Part 9A of the RMA, are not yet required in the Southland region, a Farm Environmental Management Plan prepared and implemented in accordance with Parts A to C below.

### Part A – Farm Environment Management Plans

A Farm Environment Management Plan (FEMP) can be based on ~~either of~~ any one of the following:

1. The ~~material~~ default content set out in Part B below; or

2. Industry prepared FEMP templates and guideline material, with Southland-specific supplementary ~~material~~ default content added where relevant, so that it includes the material set out in Part B below; or

3. A management plan and nutrient budget prepared in accordance with a condition of resource consent to discharge industrial wastewater onto land that is also used for farming activity, provided it includes the material set out in Part B below in relation to each farm receiving industrial wastewater.

### Part B – Farm Environmental Management Plan Default Content

1. ~~A written FEMP that is:~~
   ~~(a) prepared and retained, identifying the matters set out in clauses 2 to 56 below; and~~
   ~~(b) reviewed at least once every 12 months by the landholding owner or their agent and the outcome of the review documented; and~~
   ~~(c) provided to the Southland Regional Council upon request.~~

2. The FEMP contains the following landholding details:
   (a) physical address; and
   (b) description of the landholding ownership and the owner's contact details; and
   (c) legal description(s) of the landholding; and
   (d) a list of all resource consents held for the landholding and their expiry dates.; and
   (e) the type of farming activities being undertaken on the property, such as "dairy" or "sheep and beef with dairy support".

3. The FEMP contains a map(s) or aerial photograph(s) of the landholding at a scale that clearly shows the locations of:
   (a) the boundaries; and
   (b) the physiographic zones (and variants where applicable) and soil types (or Topoclimate South soil maps); and
   (c) all lakes, rivers, ~~streams~~ (including intermittent rivers), springs, ponds, artificial watercourses, modified watercourses and natural wetlands; and
   (d) all existing and proposed riparian vegetation and fences (or other stock exclusion methods) adjacent to waterbodies; and

(e) places where stock access or cross water bodies (including bridges, culverts and fords); and

(f) the location of all known subsurface drainage system(s) and the locations and depths of the drain outlets; and

(g) all land that may be cultivated and land to be cultivated over the next 12-month period; and

~~(h) all land that may be intensively winter grazed and the land to be planted for winter grazing for the next period 1 May to 30 September; and~~

(h) all critical source areas not already identified above; and

(i) ~~for~~ land to be:

(i) cultivated; or

(ii) intensively winter grazed; or ~~or break fed on pasture between 1 June and 31 July~~,

(iii) used to graze livestock on pasture in the period 1 May to 30 September where the pasture will provide less than 50% of the animals' diet ~~shows~~ and the slope of the land and intended setbacks from any lake, river, artificial watercourses, modified watercourse or natural wetland and any other critical source areas; and:

~~(i) critical source areas; and~~

~~(ii) Intended setbacks from any lake, river (excluding ephemeral or intermittent rivers), artificial watercourses, modified watercourse or natural wetland; and~~

~~(iii) land with a slope greater than degrees~~

(j) any areas of the land within a catchment of a waterbody that requires improvement identified in Schedule X; and

(k) any heritage site recorded in the relevant district plan, on the New Zealand Heritage List/Rārangi Kōrero or on the New Zealand Archaeological Association website; and

(l) the presence of taonga species listed in Appendix M within water bodies on the farm (if known); and

(m) other significant values and uses (if known) on nearby land and waters.

4. Nutrient Budget/Nutrient Loss Risk Assessment

For all landholdings over 20ha, the FEMP contains either:

(a) a nutrient budget (which includes nutrient losses to the environment) calculated, using a ~~the latest version of the OVERSEER model in accordance with the latest version of the OVERSEER Best Practice Data Input Standards (or an alternative~~ model ~~nutrient loss assessment tool~~ approved by the Chief Executive of Southland Regional Council); or

(b) a nutrient loss risk assessment undertaken using a nutrient loss risk assessment tool approved by the Chief Executive of Southland Regional Council);

and the Nutrient Budget or Nutrient Loss Risk Assessment is repeated: ~~which is repeated~~:

(~~a~~1) where a material change in land use associated with the farming activity occurs (including a change in crop area, crop rotation length, type of crops grown, stocking rate or stock type) at the end of the year in which the change occurs, and also every three years after the change occurs; and

(~~b~~2) each time the nutrient budget or nutrient loss risk assessment is repeated all the input data used to prepare it shall be reviewed by or on behalf of the landholding owner, for the purposes of ensuring the nutrient budget or nutrient loss risk assessment accurately reflects the farming system. A record of the input data review shall be kept by the landholding owner; and

(3) the nutrient budget or nutrient loss risk assessment must be prepared by a suitably qualified person that has been approved as such by the Chief Executive of Southland Regional Council.

5. Objectives of Farm Environmental Management Plans

A description of how each of the following objectives will, where relevant, be met:

(a) Irrigation system designs and installation: To ensure that all new irrigation systems and significant upgrades meet Industry best practice standards;

(b) Irrigation management: To ensure efficient on-farm water use that meets crop demands, including through upgrading existing systems to meet Industry best practice standards, and ensuring that water and contaminant losses to waterbodies are avoided where practicable or otherwise minimised;

(c) Nutrient and soil management: To avoid where practicable, or otherwise minimise, nutrient and sediment losses from farming activities to ground and surface water, to maintain or improve water quality;

(d) Waterways and wetland management: To manage activities within waterways, critical source areas, natural wetlands, and their margins, by avoiding stock damage, and avoiding where practicable, or otherwise minimising inputs of nutrients, sediment and faecal contaminants to ground and surface water.

(e) Collected animal agricultural effluent management: To manage the operation of collected agricultural effluent in accordance with best industry practice, to ensure contaminants derived from collected agricultural effluent do not cause adverse effects on water quality.

(f) Drainage maintenance: To manage drainage maintenance activities to ensure contaminant losses to water bodies and damage to aquatic habitats are avoided where practicable, or otherwise minimised.

(g) Pasture-based wintering: To ensure that the grazing of animals on pasture over winter avoids damage to critical source areas and minimises both the period in which significant devegetation occurs and the risk of contaminant loss.

The FEMP must also identify additional objectives relevant to the farming activities and/or to address environmental risks associated with the land holding and the environment within which it is located.

6. The description for (5) above shall include, for each relevant objective in 5 above:

(a) an identification of the adverse environmental effects, and risks associated with the farming activities on the property, including, consideration of the risks associated with the relevant physiographic zone/s (and variants), and how the identified effects and risks will be managed and mitigated; and

(b) where the farm is located within a catchment of a waterbody that requires improvement identified in Schedule X, the mitigations that will achieve a reduction in the discharge of the contaminants where relevant to the farming activity that trigger the requiring improvement status of the catchment (noting that in catchments of waterbodies where aquatic ecosystem health requires improvement, reductions and mitigation required will address nitrogen, phosphorus and sediment losses and the effect of those losses); and

(c) defined mitigations that clearly set a pathway and timeframe for achievement of the objectives; and

(d) the records to be kept for demonstrating mitigations have been actioned and are achieving the objective; and

(e) identification of any specific mitigations required by a resource consent held for the property.

7. If any Intensive Winter Grazing, or grazing of livestock on pasture in the period 1 May to 30 September where the pasture will provide less than 50% of the animals' diet, is

occurring on the landholding, the Farm Environmental Management Plan must also include a~~n intensive~~ winter grazing plan that takes into account and responds to the risk pathways for the relevant physiographic zones (and variants). The winter grazing plan must include good management practices that respond to the risks and effects identified in accordance with section 6 (a) above. In determining the mitigations to apply to grazing covered by the winter grazing plan that is not intensive winter grazing, particular regard must be had to the potential benefit of:

(a) Excluding critical source areas from grazing;

(b) Providing a minimum 5m setback from rivers, lakes artificial watercourse and wetlands;

(c) Resowing the pasture as soon as practicable after grazing (if required);

(d) The practices set out in Rule 20A (a) (vi).

~~6. Good Management Practices~~

~~The FEMP contains a good management practices section which identifies:~~

~~(a) the good management practices implemented since 3 June 2016; and~~

~~(b) the good management practices which will be undertaken over the coming 12-month period. These must include practices for:~~

~~(i) the reduction of sediment and nutrient losses from critical source areas, particularly those associated with overland flow;~~

~~(ii) cultivation (including practices such as contour ploughing, strip cultivation or direct drilling);~~

~~(iii) the use of land for intensive winter grazing (including those practices specified in Rule 20(a)(iii);~~

~~(iv) riparian areas (including those from which stock are excluded under Rule 70) and the type of riparian vegetation to be planted, how it will be maintained and how weeds will be controlled; and~~

~~(v) minimising of the discharge of contaminants to surface water or groundwater, with particular reference to the contaminant pathways identified for the landholding.~~

~~Examples of general good management practices are provided on the Southland Regional Council, DairyNZ and Beef and Lamb New Zealand websites and in the document titled "Industry-agreed Good Management Practices relating to water quality, Version 2, 18 September 2015".~~

Part C – Farm Environmental Management Plan Certification, Auditing, Review and Amendment

1. Farm Environmental Management Plan Certification

(a) The FEMP must be certified, prior to implementation on the farm, by a Suitably Qualified Person (SQP) that has been approved as such by the Chief Executive of Southland Regional Council.

(b) The purpose of FEMP certification is to confirm that the farming activities on the farm will be carried out in a way that will achieve the Objectives in this Appendix and will comply with any resource consent for the property.
(c) The FEMP must be re-certified, prior to implementation, following any amendments to the FEMP carried out in accordance with Part C(3)(a) of this appendix.
(d) Within one month of a FEMP being certified, a copy of the certified FEMP must be provided to the Southland Regional Council.

2. Auditing of the certified Farm Environmental Management Plan
(a) Within 12 months of the landholding's first FEMP being certified, the landholding owner must arrange for an audit of the farming activities' compliance with the certified FEMP. Thereafter, the frequency of auditing will be in accordance with any conditions of consents held for the landholding, or alternatively, where there are no consent or consent conditions requiring auditing, auditing timeframes associated with the audit grade assigned. *Note: Southland Regional Council will provide, on its website, a schedule of the auditing frequency required for FEMP's based on the audit grade assigned to each landholding.*
(b) The auditor must be a Suitably Qualified Person (SQP) that has been approved as such by the Chief Executive of Southland Regional Council and must not be the same person or from the same organisation that prepared the FEMP.
(c) The auditor must prepare an audit report that:
(i) sets out the auditor's findings;
(ii) stating whether compliance has been achieved and the final compliance grade; and
(iii) any other recommendations from the auditor.

(d) Within one month, of the final audit report being prepared, the audit report must be provided to the Southland Regional Council by the auditor.

3. Review and Amendment of the Farm Environmental Management Plan
The FEMP must be reviewed, by the landholding owner, or their agent, as follows:
(a) when there is a material change to the nature of the farming activities occurring on the landholding, and where that material change is not provided for within the landholding's certified FEMP; and
(b) at least once every 12 months; and
(c) to respond to the outcome of an audit.

The outcome of the review is to be documented and amendments to the FEMP must be made where Part C(3)(a) applies and in circumstances where the annual review identifies that amendments are required.

**Glossary**

~~**Ephemeral rivers**~~
~~Rivers which only contain flowing or standing water following rainfall events or extended periods of above average rainfall~~

Note, in addition to the above, incidental changes are required to remove the term 'ephemeral rivers' from the definitions of 'artificial watercourse' and 'modified watercourse' and from Objective 16, Policy 18, Rules 14, 40 and 59A and Appendix L.2.