IN THE ENVIRONMENT COURT **ENV-2018-CHC-000030**

AT CHRISTCHURCH

I TE KOOTI TAIAO O AOTEAROA

KI OTAUTAHI

IN THE MATTER	of the Resource Management Act 1991
AND	appeals under clause 14 of the First Schedule of the Act
BETWEEN	**WILKINS FARMING CO LIMITED**
	Appellant
AND	**SOUTHLAND REGIONAL COUNCIL**
	Respondent

STATEMENT OF SECTION 274 PARTY EVIDENCE OF SEAN WILKINS
TOPIC B TRANCHE 1

4 FEBRUARY 2022

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MAY IT PLEASE THE COURT:

EXECUTIVE SUMMARY

1. Through its section 274 notices Wilkins seek to amend Rule(a)(iii)(1) so that intensive winter grazing (**IWG**) is restricted to 15% of the area of the landholding and not to 100ha (where that is less than 15%).

2. My evidence explains the critical role that IWG has in our pasture rotation and arable cropping cycle, and what will happen if the restriction is less than 15%.

INTRODUCTION

3. My full name is Sean Patrick Wilkins. I have been farming with my family in Waipounamu and Wendonside all my life. I am the 5th generation of my family to be farming in Southland.

4. Wilkins Farming Co Limited (**Wilkins**) is the company established by my family to run a number of family-owned farms. We operate 6 different farming entities across Northern Southland, covering 7000ha of mostly flat farmland, with the balance a combination of rolling to extensive hill country.

5. Land use activity area is split approximately half cropping and half livestock:

   (a) the livestock area is evenly divided between sheep+ beef, dairy and deer

   (b) the cropping area is rotated through the livestock model as part of a critical interdependent rotation.

6. Wilkins employs approximately 100 permanent staff and supports a significant amount of local community families through direct and indirect employment.

7. I have been employed by Wilkins as farm manager for 15 years. I have also worked on other farms in Southland, North Otago, Canterbury, the United Kingdom and Scandinavia. I prepared and filed the Wilkins' submission on the proposed Southland Water and Land Plan (**pSWLP**) in

August 2016, the Wilkins' appeal on the pSWLP in April 2018 and the Wilkins' section 274 notices in June 2018.

8. I am giving this evidence on behalf of Wilkins and am authorised to do so.

SCOPE OF SECTION 274 INTEREST

9. Wilkins lodged s274 notices on the appeals of Aratiatia Livestock Limited, Campbells Block Limited, Peter Chartres (Te Anau Downs Station), Robert Grant, Stoney Creek Station Limited and The Terraces.

10. Wilkins' interest in the Aratiatia Livestock Limited appeal is in support of the request to amend Rule 20(a)(iii)(3)(D). The evidence of Ms Sharon Dines circulated in December 2021 addresses that matter.

11. The appeals by Peter Chartres, Stoney Creek Station Limited and The Terraces have all been withdrawn in their entirety.

12. Campbells Block Limited and Robert Grant also sought to withdraw their appeals. Wilkins successfully opposed the withdrawal of the parts of those appeals relating to Rule 20(a)(iii)(1) so that Wilkins could continue to seek the removal of the words "or 100 hectares, whichever is the lesser area".[1] This evidence has been prepared to support that request.

WILKINS FARMING

13. As a multi-generational Southland family farming business, we have a long term sustainable investment strategy. As the current generation running the farms my brothers and I are motivated to maintain and forge a constructive and transparent relationship with our Council and community, where both the environmental and economic objectives are met.

14. We are progressive and open-minded. We are continuously exploring ways to fine tune our operating philosophy, with keen consideration to both environmental and economic factors in responsible decision making.

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[1] Decision No [2021] NZEnvC 177.

15. We have been industry leaders in early adoption of resourceful irrigation strategies for the Southland region. For examples:

(a) We were the first to apply fine spray irrigation pivots in Southland;

(b) We were the first to use Electro Magnetic soil mapping combined with variable rate water application to ensure efficient water use;

(c) We were the first to irrigate from a confined aquifer rather than a source connected to a surface body;

(d) We have a comprehensive understanding of our water quality. On top of our 5 compulsory compliance monitoring sites, we have a further 40 monitoring sites across our Northern Southland properties (from Wendonside to Fairlight) with 3.5 years of water quality data collected to national environmental monitoring standard (NEMS) to understand our state and trend of water quality;

(e) We recently instigated the formation of a Mataura River Water Users Group connecting a group of 40 farmer consent holders to facilitate a transparent robust investigation and efficient collaborated dialogue between users and council to address the Council's potential over-allocation of the water resource;

(f) My father Ray was a trustee in the Oreti MAR initiative that recently achieved significant council and PGF funding to investigate a managed aquifer recharge project. This was intended as a means of providing a productive water resource for the benefit of the community and the environment by harvesting water at high flows and storing it for later use while also diluting nutrient concentration of ground water;

(g) We are founding members and significant contributors to the Wendonside Catchment Group (WCG) who undertake several significant environmental community projects:

(i) Quarterly monitoring of water quality at 40 representative locations across 30,000ha in Wendonside for the last 3.5 years. WCG utilise live stream water quality monitoring technology that will use

machine learning modelling to predict stream water quality without lab testing. These initiatives are farmer-funded according to farm size.

(ii) Recently instigated a landscape modelling project in association with Thriving Southland funding to investigate the catchments soil and water profiling and interrelated behaviours to a higher resolution than previously documented using a combination of (but not limited to) topographical maps, radiometric data, satellite data, LiDAR survey data, bore log data, water quality data and geologist investigation, all validated by industry leading scientists and local farmer knowledge and experience. This is to provide land users with next generation data sets with high resolution paddock scale knowledge of water and soil behaviours, landscape susceptibility and the risks associated with specific activities and areas of their farm. This allows more appropriate application of land use in an environmental context than what has been done traditionally.

16. We have been recognised by this Court as having the capability, capacity and willingness to contribute to the improvement of water quality in the Mataura River. We understand we have a part to play in providing for the health of the environment, the waterbody and the people of the catchment and that more may be required of us over time. We operate as custodians of the land and water for future generations and are committed to doing so.

PASTURE / CROP ROTATION CYCLE

17. Intensive winter grazing (**IWG**) plays a critical role in our pasture rotation and arable cropping cycle.

18. Cereal crops can be grown across the majority of our farms. In these areas we operate a 10-year pasture rotation cycle: 6 years of grass, followed by 2 years IWG crop, followed by 2 years cereal and then back to pasture. This rotation results in 60% pasture, 20% IWG and 20% cereal crop year on year across the arable cropping areas.

19. In the medium hill country where it is too steep to harvest cereal, the rotation is 8 years of grass followed by 2 years IWG and back to grass. This rotation results in 80% pasture and 20% IWG year on year of the medium hill country.

20. In the steeper hill country there is no IWG. Across the entire Wilkins' landholding, approximately 15% is steeper hill country.

21. The percentage of each farm that falls into these three categories is different, but IWG is always within the range of 15 - 20% of each landholding.

22. This is driven by the 10-year pasture rotation cycle which is supported by robust reasoning. I use the arable cropping rotation cycle as my example below:

Six years of grass

(a) Young grass species are highly productive. As pasture species age their productivity wanes and clover is outcompeted by the more persistent ryegrass that it typically accompanies in a pasture.

(b) Ryegrass is more robust & resistant to grazing than clover and has a longer growing season- it is a natural progression overtime to ryegrass dominance and the clover content of pastures diminish.

(c) Managing pasture renewal in a manner favorable to clover is beneficial for many reasons such as pasture productivity, stock health and nutrient management.

(d) Clover compliments ryegrass as it maintains higher feed quality later in spring and summer when ryegrass goes reproductive (the part of its life cycle where it is of lower quality). Clover will grow at higher temps when ryegrass is suppressed maintaining feed quality and quantity through the growing season. The prostrate growth habit of white clover suppresses weeds that threaten ryegrass and its upright growth habit.

(e) Stock will perform better with clover in their diet vs straight rye grass and clover reduces the need for supplementary Nitrogen (N) to be applied as legume properties of clover mean it will produce a significant amount of the pasture's N requirements. 25-30kgN/t DM (Dry Matter)/ha clover production, or approx. 100-150kgN/ha/yr depending on the clover content and productivity.

(f) Improved clover content of pastures not only mean higher feed quality, but also mean greater pasture resilience. The companion ryegrass will have a deeper root mass increasing access to moisture and nutrients. This sustains the pasture through moisture deficient periods and increases the pastures' ability to retain nutrients.

(g) Clover content is excellent for biodiversity strongly supporting the bee population which improve the potential for adjacent flowering species to be pollinated. It's prostrate growth habit also minimizes the amount of bare soil in the pasture, further enhancing the positive environmental aspects of the pasture.

(h) Breaking up a pasture phase with a diverse crop rotation is good integrated management (organic technique) and considered good management practice (GMP). This rotation breaks weed, pest and disease cycles. Diversity of crops also protects the chemistry options to farmers for pest and weed control as resistant life biotypes are exposed to different modes of control e.g cultivation and grazing. Hard to control weeds such as thistles, pests such as clover root weevil and diseases such as white clover mosaic virus are effectively controlled through a well-designed crop rotation.

(i) Integrating four different crops throughout a rotation allows for balanced nutrient absorption as they all have different nutrient spectrum demands. For example the swede root crop will have potential to absorb more phosphate, the kale and barley will absorb more nitrogen, the barley will also absorb potash

surpluses, setting the platform back up level for the next ryegrass/clover pasture phase. By contrast, a continuous monoculture (in Southland's case typically being a pasture phase only renovated once every 10 or 15 years) will accumulate surplus certain nutrient which can be toxic to plant production or pose a risk to the environment as leachate or run-off. This is especially the case when it is eventually renovated after a very long period of time, opposed to a careful balanced and moderated approach doing it more regularly where the nutrient is harvested into saleable produce or in the form of crop that is fed to animals and converted to meat, milk and fibre.

Two years of IWG

(j) Our farm rotation has two years of IWG in the same paddock as part of our farm systems approach to minimizing environmental impacts.

(k) Two crops gives time to effectively break pest and disease cycles. Alternating crops utilizes nutrient build ups from one crop to another reduces toxicity or propensity for nutrient loss. A brassica crop will absorb nutrient surplus from a pasture phase as will a cereal crop from brassica phase. This rotation philosophy is to consider a 'farm systems' approach rather than a crop in a season or a single year. This rotation is designed with the intent of capturing and utilizing nutrients created by or left over from the preceding crop.

(l) Rotating crops, will result in better crops than growing one in isolation, there's a range of complimentary factors contributing to superior yields including but not limited to those outlined in this comment attributing to an 'hybrid vigor' effect.

(m) Brassica is required to feed our stock May-Aug when pasture growth is either non-existent or unreliable. Not only does this sustain the animals but it protects the existing pastures, so they are not damaged from pugging in wet months and means they are more productive during the growing season.

(n) Southland has few wintering alternatives to growing fodder crop, there are some exceptions which the sustainability has not been market tested at scale. With wintering barns, the capital outlay could have the potential to make some businesses unsustainable, the expense and lack of supply of grass wintering could have the same effect. Grass wintering does not completely alleviate the challenges of IWG.

(o) It is expensive to introduce a paddock to IWG, winter cropping two years in a row spreads that cost further and improves our farm resilience.

Two years of cereal

(p) By alternating crop type with a cycle of swedes-kale-spring barley-autumn barley to grass allows management to target four different weed spectrums and absorb four different nutrient dynamics going from a root crop to leaf crop to a cereal and back to grass. Again, crop diversity is the key approach.

(q) This approach acts as a nutrient management catch crop after the brassica crop.

(r) The grain is grown to supplement our stock during the shoulders of the growing season or key nutritional periods i.e. 'flushing' stock pre mating, late pregnancy and lactation. Our crop rotation is an efficient feed producer which minimizes the environmental impact of our farm system. The winter feed, the pasture and the grain combine to give us a high degree of certainty around feed self-sufficiency. This further reduces the farm emissions intensity and provides productive reliability, much like irrigation does also.

(s) Strategically supplementary feeding stock grain has scientifically proven to improve nutritional efficiency of stock and reduce pollution by improving digestion efficiency, reducing N concentration of excreta and reduce methane emissions, while

improving productivity as demonstrated by a Lincoln University trial undertaken on our farm in 2019.

Back to grass

(t) Sowing our pastures in Autumn after cereal crops rather than going grass-grass or going brassica-grass has given us superior pasture establishment. We experience less weed pressure after the weed management from the cropping phase, better clover establishment because the nitrogen has been depleted in the soil from the cereal phase and better clover establishment because the late summer/early Autumn has a warmer soil temp than springtime when pasture is traditionally sown after a brassica.

(u) Less weed pressure means less dependence on chemical inputs, and stronger establishment means less susceptibility to insect pressure and less dependence on insecticide. By minimizing the stress of plants, their natural immunity to potentially harmful pathogens, pests and competitors is strengthened which ultimately reduces the need for manufactured or synthetic crop support aids such as chemicals. Irrigating has a similar effect.

23. This rotation model has been developed over years of evolution with multiple contributing dynamic factors including environmental, market, agronomic and productive. The example outlined has proven to be a best match fit for our pasture model, and similar models have been common for farmers traditionally to renovate pastures using a brassica-cereal break-crop for generations.

pSWLP RULE 20(a)(iii)(1)

24. The pSWLP (Decisions Version) restricts IWG to 15% or 100ha, whichever is the lesser.

25. As explained above, we operate 6 different farming entities across Northern Southland covering 7000ha. Our farms are generally 1000ha or more. Using 1000ha as an example to illustrate the impact of the IWG rule:

(a) 15% is 150ha;

(b) 100ha is 10%.

26. On our farms, the lesser of these two areas is 100ha. If the 100ha restriction is retained, this will limit IWG to below 15% on any farm that is over 667ha (this is because 100ha is 15% of 667ha. For any farm over 667ha, the 100ha control is the restriction).

27. We lodged s274 notices in support of the appeals seeking to remove the reference to 100ha. This would result in a simple cap on IWG at 15% of land area.

28. As noted above, we are currently operating within the range of 15 – 20% on each of our farms. With compromise we will be able to amend our rotation cycle to achieve 15% IWG.

29. However, amending it to achieve less than 15% will create environmental effects.

30. For example, at 10%, only one year in ten could be IWG. This means:

    (a) Higher yielding crops will need to be utilized for IWG across the smaller area to provide sufficient feed. The ability to have moderate yielding crops across a larger area allows soils maximum opportunity to utilize and retain nutrients in the root zone where they remain productive and less threat to the environment than in aquifers, waterways or the atmosphere. This nutrient management strategy is lost by requiring smaller areas and higher yielding crops.

    (b) The alternative to higher yielding crops is more imported supplement, which itself creates higher concentration of nutrient loadings and more potential for nutrient wastage and pollution.

    (c) Pasture is not renewed after six years, but only after seven years. The benefits of a younger and more productive pasture are lost in that seventh year. On our farm scale that is a 15% increase in average pasture age which has a significant cumulative effect. A greater reliance will be placed on manufactured fertilizer to sustain pasture productivity. One of our key strategic tools to improving nutrient use efficiency will be lost.

(d) The benefits of two years of IWG (as outlined above) are lost.

31. Rather than restricting IWG land areas to a percentage, the threat of nutrient loss is more appropriately managed in a broader nutrient budget context with recognition of the broader benefits of a well-considered rotation. This is why we initially challenged the percentage approach in our original submission to Council. However, we are now accepting of the approach as a compromise provided it is set at no less than 15% of the landholding.

32. In saying this we acknowledge that the National Environmental Standard: Freshwater currently intends to restrict IWG to 50ha or 10%, whichever is greater. On our farms the greater area is 10%. However, this limitation does not apply if a certifier certifies that the adverse effects of our rotation cycle are no greater than the effects of restricting IWG to 10%. This is the option we intend to use if (or when) the IWG rule in the NES: Freshwater comes into force.

CONCLUSION

33. We support flexibility of the area allowed to be used for IWG as a permitted activity as it enables well designed crop rotations. These give more crop diversity, more pasture renewal opportunity and ultimately efficient nutrient management and farm production as part of complimentary and interdependent rotations. Generations of farmers have redefined these rotations over time to achieve a symbiotic relationship between livestock species and other livestock species, plant species and other plant species, livestock and plants that complement each other to achieve a 'hybrid vigour' effect efficiently managing resources. IWG is a permanent staple component of livestock farming in Southland - whether it be sheep, beef, deer or dairy. These models are complex, evolving and require intimate farm knowledge to inherently comprehend. Interfering in an arbitrary way that limits crop area determines crop type and crop placement and crop timing in a way which is counterproductive and is going to have a major impact on the ability to winter the province's capital stock and the general dynamics of pasture-based farm systems. The costs and benefits of restricting IWG below 15% of a landholding have not been suitably assessed by Council and there is no justification for doing so. The perverse effects of such restriction have not been appropriately considered. If the objective is to achieve improved nutrient management and water quality,

then this is more appropriately managed specifically in the nutrient budget component of the compulsory FEP.

Sean Wilkins
4 February 2022