BEFORE THE INDEPENDENT HEARING PANEL

UNDER the Resource Management Act 1991 ("**RMA**")

IN THE MATTER OF Proposed Far North District Plan ("**PDP**")

STATEMENT OF EVIDENCE OF IAN HANMORE

ON BEHALF OF AUDREY CAMPBELL-FREAR

SOILS

(HORTICULTURE ZONE TOPIC)

18 November 2024

1. Qualifications & Experience

1.1 My name is Ian Hanmore. I am the Director of Hanmore Land Management Limited, a company specialising in land management and environmental consultancy. Prior to this I contracted my services through AgFirst Northland. I provide services to a range of private clients, planners, Regional and District Councils, and Māori Trusts throughout New Zealand, with a particular focus on the Waikato, Auckland, and Northland regions.

1.2 I hold a Master of Applied Science majoring in Natural Resource Management from Massey University, I am an approved competent mapper for the National Environmental Standards for Plantation Forestry Erosion Susceptible Classification with MPI. I have an Advanced Nutrient Management Certificate from Massey University and am a member of the New Zealand Association of Resource Managers, the New Zealand Institute of Primary Industry Management and the New Zealand Society of Soil Science.

1.3 I have been a consultant in the above capacity for 17 years and have worked extensively throughout Northland. As part of my work I carry out soil and land use capability mapping. This work involves detailed surveys to map soils suitable for specific horticultural crops, to identify prime, elite, high class and highly versatile soils in regard to subdivisions and land use consents, assisting farmers matching their production policy to their land resource, identifying land use development opportunities and enterprise diversification.

1.4 I confirm that the evidence I present is within my area of expertise and I am not aware of any material facts which might alter or detract from the opinions I express. I have read and agree to comply with the Code of Conduct for expert witnesses as set out in the Environment Court Consolidated Practice Note 2023. The opinions expressed in this evidence are based on my qualifications and experience and are within my area of expertise. If I rely on the evidence or opinions of another, my evidence will acknowledge that position.

2. Scope of Evidence

2.1 I have been engaged by Ms Audrey Campbell-Frear to provide independent evidence with respect to highly productive land for PDP Hearing 9 – Rural.

2.2 I understand that Ms Campbell-Frear's submission opposes the introduction of the proposed Horticulture Zone as a planning mechanism to protect highly productive land.

2.3 My position is that I support the protection of highly productive land but that needs to be based on accurate information. How to protect highly productive land in a district plan is a matter I leave to planning evidence.

3. LUC 4 land and irrigation

3.1 I have been asked to provide evidence in response to statements in the section 42A report that LUC 4 land in the proposed Horticulture Zone has productive potential given the presence of the irrigation infrastructure.[1]

3.2 The section 42A report footnotes the statement above to page x (Executive Summary) of the FNDC Rural Environmental Economic Analysis – Update report, dated August 2020, which states *"alternative soil types [to LUC 1-3] are less suitable for horticultural production (although plentiful water supply can help counter that)."* No reference is included in that economic report to the source of or reasoning for that statement.

3.3 Land Use capability is broken into eight classes numbered 1-8, with classes 1-4 considered arable, 5-7 suitable for grazing and forestry and class 8 having no productive use and suitable for retirement.

[1] Rural Issues section 42A report at paragraphs 109 and 115.

3.4 The eight classes are broken into four subclasses based on the major limitation to productive use and include erosion (e), wetness (w), soil (s) and climate (c).

3.5 A unit number is then assigned grouping areas within the same class and subclass to a unit with similar resources that requires similar management.

3.6 Class 1 land is the most versatile, multi-use land we have and has minimal production limitations. Class 2 land has slight limitations to productive use that are readily control by management and soil conservation practices. Class 3 land has moderate limitations to arable use that restrict the types of crops that can be grown and the intensity of cultivation. Class 4 land has severe physical limitations to arable use.

3.7 There are four subcategories of land in LUC class 4. 4e, 4w, 4s and 4c. One for each of the major production limitations (erosion, wetness, soil and climate). In Northland there are no current LUC 4c (climate) units.

3.8 LUC subclass 4e has a severe limitation to arable use due to the erosion potential of the land. This is primarily based on the risk of erosion based on the slope of the land and the soil type present. Of the twelve 4e units identified by Harmsworth (1996) ten have a moderate to severe erosion risk under cultivation while two have a moderate erosion risk.

3.9 LUC subclass 4w has a severe limitation to arable use due to wetness. Land in this subclass is general flat to undulating and has all or some of the following factors. High water tables, poor internal drainage, high flooding risk and receiving runoff from the surrounding slopes.

3.10 LUC subclass 4s has severe limitations to arable use due to the characteristics of the soil. These characteristics include, extreme stoniness, excessive drainage, poor water holding capacity, low natural fertility, shallow soil depth, poor drainage characteristics, poor structure, very strong leaching and a hard pan.

3.11 Adding irrigation to the majority of these subclasses with not overcome their major limitation and in many instances will further exacerbate them. Irrigating areas of subclass 4e land may enable crops to be grown more readily but it will not remove the moderate to severe risk of erosion and will ultimately be unsustainable. Production that does not require cultivation such as tree crops could be grown without the risk of erosion but slopes are generally considered too steep to safely operate machinery.

3.12 Any land within the 4w subclass is already limited by excess wetness so irrigation would generally not assist in lifting production in this subclass.

3.13 There are five units within the 4s subclass identified by Harmsworth (1996). Two of these, units 4s 1 and 4s 5 would benefit from irrigation and could assist in raising productivity. The 4s 5 unit is flat to rolling sand country and is being used to successfully grow avocados in the Far North and in the Kaipara. Irrigation is essential for this enterprise.

3.14 Unit 4s 1 has flat to rolling young basalt terrain generally found at the edge of old lava flows. The soils on this unit can be very shallow and overlay sheet basalt, have a very stony/gravelly profile and includes surface and profile boulders. In some instances irrigation will allow crops to be grown and lift the productivity above that of a typical class four unit.

3.15 Of the class 4 land included in the irrigation scheme area and included in the proposed Horticulture Zone there is only one 4s subclass unit and one 4w subclass unit, neither of which would receive a sustainable production benefit from irrigation. LUC unit 4e 2 accounts for by far the majority.

3.16 The LUC unit 4e 2 is described as young basaltic terrain found on rolling to strong rolling slopes. The soils on this unit are prone to moisture deficiencies over the summer and as such would gain production benefits from irrigation. However, such benefits are not sustainable as under cultivation there is a moderate to severe risk of sheet, rill wind and gully erosion. This would result in a loss of topsoil and a degrading of the soil profile. The steepness of the slopes on this unit would also limit the use of machinery. Industry recommendations are that machinery can be operated safely on slopes up to 15^0 (rolling slopes). This unit includes slopes up to and including 20^0 and as such has limited potential for safe machinery operation.

Conclusions

3.17 There are limited LUC class 4 units within Northland that have the potential to sustainably lift production above their class 4 classification by irrigation.

3.18 LUC class 4 units within the proposed Horticulture Zone that are within the Kerikeri irrigation scheme are dominated by land that has moisture deficits over the summer but that could not sustainably lift production through irrigation due to the risk of erosion and slope steepness.

Ian Hanmore

Date: 18 November 2024