Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Change 80 to the Operative District Plan

and: **Two Chain Road Limited**
Applicant

Evidence of Mark Everest (agriculture and primary industry)

Dated: 5 October 2022

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EVIDENCE OF MARK EVEREST

INTRODUCTION

1 My full name is Mark Rutherford Everest.

2 I hold a Bachelor of Agricultural Science (Hons) from Lincoln University and a certificate in Advanced Sustainable Nutrient Management.

3 I am a member of the New Zealand Institute of Primary Industry Management (NZIPIM), the regulating body for primary sector advisory professionals.

4 I have training in the use of Farmax, a farm modelling tool, and Overseer, a nutrient budgeting tool.

5 I have been working as a farm consultant at Macfarlane Rural Business (MRB) since January 2010. For the 12 years I've been with MRB, I have been operating as a farm management consultant working closely with farmers and industry to advise on best business strategy and management to run profitable businesses while balancing compliance requirements. As well as working with farmers I have also worked alongside industry and provided guidance on the Hinds limit setting process, nutrient management advice to Barrhill Chertsey Irrigation Ltd, Rangitata Diversion Race Management Ltd and Central Plains Water Ltd. I have also provided advice to District Councils on productivity and economic viability of land holdings with respect to subdivision plans.

6 I am familiar with private plan change 80 (PC80).

CODE OF CONDUCT

7 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 7 of the Environment Court Practice Note 2014. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material

facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

8 My evidence covers the following:

8.1 Availability constraints of nutrients and irrigation water required to enable the use of land for productive agricultural purposes.

8.2 Regional impacts of land productivity of increased productive intensity of the 18.1ha LUC3 land.

8.3 Potential constraints to traditional productive agricultural uses as a result of reverse sensitivity.

8.4 The agronomic and economic viability of using the land classified as LUC 3 land for productive agricultural purposes.

9 In preparing my evidence, I have reviewed:

9.1 Officers Section 42a Report to Private Plan Change 80;

9.2 Appendix E (Versatile Soils Report) of proposed Private Plan Change 80;

9.3 Statement of Evidence of Tim McLeod (5 October 2022); and

9.4 Statement of Evidence of Victor Mthamo (5 October 2022).

Availability constraints of nutrients and irrigation water
Resource Availability – Water

10 Ground water for irrigation purposes is not available for this property as it is located in an over-allocated zone.

11 Table 5 of the evidence of Mr Mthamo provides an estimate of annual average irrigation requirements for pastoral land use on the applicants land. From Table 5 in Mr Mthamo's evidence, I estimate that the average annual water required to productively irrigate the land holding subject to proposed Private Plan Change 80 would be 4870m^3/ha/year.

12 Surface water may be available via Central Plains Water Ltd (CPWL), an irrigation scheme, which the Private Plan Change 80 site could potentially utilise.

13 To provide irrigation water to the property, CPWL would need to install a pipeline 3,780 metres from the corner of Aylesbury Road and Two Chain Road, along Two Chain Road, to the property boundary.

14 Water sales from CPWL to new shareholders are considered on an economic viability basis. Typically, water take applications of less than 20 litres per second (33ha) are not granted. On this basis, the LUC3 block of land could only be irrigated by CPWL if the LUC4 land was also irrigated. Thus, creating a constraint to just the LUC3 land.

15 The cost of getting CPWL water conveyed to the property (assuming this is possible) is estimated at $19,806/irrigated hectare as derived from Table 1 below. Note that the property titles add to 98.3ha, however, most properties are only 90% irrigated due to infrastructure complexities and capital cost trade-offs. In this instance, 90% irrigated is 88ha. As shown in Table 1 below, I have calculated the estimated total cost of conveying CPWL water (should this be possible) to the PC80 site as being $1,743,000.

Table 1: Costs of Irrigation Water Acquisition

Convey water to farm gate.	3780m	$567,000
Turnout Connection	1 unit	$80,000
Consenting for easements	PC sum	$150,000
Water Shares	88ha	$946,000
Total Cost		$1,743,000

16 I consider the possible conveyance water from CPWL to be the only feasible way to irrigate the site given the zone is over-allocated. The acquisition of CPWL water would, of course, be subject to private and commercial negotiations and agreements with CPWL.

Resource Availability - Nutrient

17 Under the Canterbury Land and Water Regional Plan (CLWRP), for the Selwyn - Te Waihora catchment, Rule 11.4.13, farms must reduce their nitrogen loss to water from the baseline (defined as the nutrient loss averaged over the 48 month consecutive period within the period 1 January 2009 to 31 December 2013), in accordance with Sub-Regional Policy 11.4.16(1)(b).

18 Satellite imagery of both the LUC3 and LUC4 land in proposed Private Plan Change 80 indicate that the land use through the baseline period was low intensity stock farming.

19 Overseer indicates that a basic farm system representative of grass only sheep and beef farming would result in a nitrogen loss of 6kgN/ha/year. As the farm is not located in a Phosphorus Risk Zone, it could increase losses to 15kgN/ha/year.

20 The relatively low nutrient baseline limits the productive activities that might be undertaken on the site to dryland farming or low intensity irrigated farming.

21 Land use under the National Environment Standards for Freshwater 2020 (NES-F) apply further restrictions on land, precluding operators from undertaking intensification changes from the "reference period" defined as 1 July 2014 to 30 June 2019. These restrictions include:

21.1 Clause 22: Changing land to land use to include dairy or dairy support requiring a land use consent.

21.2 Clause 26(4)(a): A farm seeking to increase intensive winter grazing to an area greater than 10% or 50ha of the total area of the farm, whichever is the greater, and exceeding that which occurred in the reference period, also requires consent.

22 If the property were to obtain water resource from CPWL, there is nutrient allocation available (subject to application), however, due to the overarching NES-F and CLWRP regulations, the property would be precluded from introducing intensive winter grazing area, introducing dairy heifers, or converting to dairy farming. The

property could therefore only consider trading livestock, horticulture and arable crops as farm system options.

REGIONAL IMPACTS OF INCREASED INTENSITY OF LUC3 LAND

23 Selwyn-Te Waihora catchment is zoned as over allocated with respect to nutrient losses.

24 CPWL have nutrient load available to be allocated. Nutrient is allocated on a case-by case basis. CPWL have indicated that dryland conversion would generally be granted a relatively conservative nutrient allocation.

25 While any increase in operational intensity could possibly be provisioned by CPWL through their nutrient discharge consent held with Environment Canterbury, the most efficient use of those nutrients within the catchment should be a consideration if we are to satisfy Part 2, Section 5 of the Resource Management Act 1991 (RMA) which promotes the sustainable management of natural and physical resources:

25.1 By allocating nutrient to the LUC3 land and the adjoining LUC4 land, future catchment productivity will be constrained. The predominant soil types within both the LUC3 and LUC4 land are Lismore and Eyre types which are characterised as shallow and free draining.

25.2 Within the catchment there are properties that are supported by Templeton soils (LUC1, LUC2), which are characterised as moderately deep and moderately well drained.

25.3 LUC3 and LUC4 classification of the parcels of land subject to proposed Private Plan Change 80 reflect the productive capacity of these soils. In my role as a farm consultant, I observe LUC3 and LUC4 land requiring 10% more nutrient to achieve the 95% of the output of an LUC1 or LUC2 soil. The consequence of increased requirements for similar outputs is that losses of nutrient from the system are greater.

25.4 When modelled in OverseerFM nutrient budgeting software, the same farm programme on Lismore and Eyre Soils (such as PC80 land) leaches 13% more nitrogen than the comparable farm on Templeton Soils. The same allocation of nutrient to a Templeton Soil would permit the intensification of 13% greater area. As 95% of the soils in the LUC3 land are Eyre soil, to productively manage the LUC3 block it will require similar inputs of fertiliser and irrigation to the requirements of the LUC4 land. By permitting the intensification of LUC3 land over LUC1 or LUC2 land, the catchment is constraining productivity growth potential by 12.5%.

25.5 With finite nutrient available for allocation within the catchment, allocating nutrient to less efficient land (despite being classed as LUC3), results in overall catchment productivity being constrained, which conflicts with Part 2 section 5 of the RMA.

25.6 Applying irrigation water to LUC3 land could also constrain the potential overall irrigated footprint of the catchment.

25.7 Irricalc estimates that water requirements on a Templeton soil are 3640m^3/ha/year on average. For the same climate and production system, Lismore soils require 4870m^3/ha/year (evidence of Mr Mthamo, Table 5).

25.8 To productively irrigate Lismore soils, 34% more water is required to achieve similar production outcomes to that of Templeton soils. Templeton soils require less irrigation water than Lismore soils because Templeton effectively capture rainfall and store it for plant use.

25.9 Allocating water to LUC3 land in favour of LUC1 and LUC2 land constrains productivity growth of the catchment by 25%.

25.10 Therefore, the allocation of water to LUC3 rather than LUC1 and LUC2 is an inefficient allocation of water. Inefficient allocation of water results in lower overall catchment

productivity, and this conflicts with Part 2 section 5 of the RMA.

REVERSE SENSITIVITY CONSIDERATIONS

26 As lifestyle block subdivision encroaches into areas traditionally dominated by board-acre productive agriculture there is increased social pressure on farmers to comply with the convention of a residential setting.

27 Productive agriculture requires a different set of amenity values to be able to sustain itself, including:

27.1 Residentially objectionable noise later than 7pm and before 7am on a regular basis as a consequence of land management and stock management activities.

27.2 Residentially objectionable odour beyond the property boundary resulting from livestock or agricultural activities such as spraying.

27.3 Residentially objectionable air pollution from time to time related to cropping activities such as burning residues as part of an integrated pest management strategy or dust originating from cultivation.

28 The listed activities above are considered part of the amenity value in areas dominated by productive agriculture farms. If they are not compatible with residential neighbours, then the productive capability of the land will be constrained. Practices relating to productive agriculture are often time critical, therefore altering timing to manage the above effects impacts productivity.

29 As the land in proposed Private Plan Change 80 is surrounded by lifestyle or commercial business on all boundaries, any occupant of the land would likely expect to have to operate a more conservative farm programme to comply with residential expectations. A more conservative farm programme results in poorer profitability and often makes properties economically unviable.

ECONOMIC VIABILITY

30 MRB define economic viability of a farming business as being able to satisfy two objectives:

30.1 Objective One: Remunerate the owners of the land (if they are owner operators) equivalent to the weighted average salary of employees in the agricultural sector, scaled pro rata based on the amount of time required to run the "farm". The average remuneration for agricultural employees in the 2022 Federated Farmers – Rabobank Farm Remuneration Report is $67,567; and

30.2 Objective Two: Generate a Return on Capital (RoC) acceptable for the class of country. On flat land in Canterbury, RoC should be at least 4.0%.

31 I have assessed the productive capability of the land and prepared financial budgets for four farm systems (Irrigated livestock and arable trading; irrigated apples, irrigated grapes, Dryland livestock and arable).

32 The farm system and productivity would be indifferent between the LUC3 and LUC4 land owing to the fact that the predominant soil type in the LUC 3 land is the same. Both soils have very limited productive capacity if unirrigated.

33 Assuming water is available from CPWL, the following economic likelihoods are probable. A summary of the capital and operational budgets for the four farm systems I have considered are outlined in Table 2 below.

Table 2: Financial Analysis of Farm System Options

	Irrigated Trading Livestock and Arable	Apples	Grapes	100% Dryland Livestock and Arable
Operating Budget				
income	$5,255 /ha	$54,945 /ha	$19,425 /ha	1780 /ha
Cash Expenses	$3,518 /ha	$41,326 /ha	$13,733 /ha	$830 /ha
Depreciation	$677 /ha	$3,640 /ha	$2,157 /ha	$135 /ha
Total Expenses	$4,195 /ha	$44,966 /ha	$15,890 /ha	$965 /ha
Earnings Before Interest and Tax (EBIT)	$1,060 /ha	$9,980 /ha	$3,535 /ha	$815 /ha
EBIT/18ha	$19,080	$179,631	$63,638	$14,676
EBIT/98ha	$103,880	$977,991	$346,474	$79,903
Owner Remuneration	$95,400	(contract labour)	(contract labour)	$73,380
Capital				
Land (Rating Valuation)	$226,588 /ha	$226,588 /ha	$226,588 /ha	$226,588 /ha
Irrigation Water	$19,806 /ha	$19,806 /ha	$19,806 /ha	0 /ha
Land Improvements	$8,000 /ha	$141,667 /ha	$95,667 /ha	$4,000 /ha
Plant and Machinery	$2,500 /ha	$2,092 /ha	$2,092 /ha	$1,500 /ha
Total Capital	$256,894 /ha	$390,153 /ha	$344,153 /ha	$232,088 /ha
Return on Capital	0.4%	2.6%	1.0%	0.4%

34 The cost of getting irrigation water (assuming this is possible) to the property is high. Unless the whole 98ha block is operated as an irrigated farm (LUC3 and LUC4 land together), the capital cost of conveying water from the existing CPWL pipe network for 18.1ha LUC3 land is prohibitively expensive and flow rate is insufficient for CPWL to deliver the water.

35 Apples and Grapes were horticultural land use options considered in this analysis because they result in nitrogen leaching of between 6kgN/ha/year and 9kgN/ha/year. Which aligns with the expected nutrient baseline and requirements for the site.

36 While I have considered Apples and Grapes as viable economic options, there is considerable agrichemical spraying (even for organic production) activities undertaken to enable healthy plants generate a viable yield. Some crops can be sprayed up to 30 times per year. If spraying is deemed by neighbours as objectionable (i.e. reverse sensitivity effects constrain the farming operation), then these crops would not be viable as the disease build up makes the end produce unsaleable.

37 With residential and lifestyle properties present within 200 metres of the northwest and southeast boundaries of the property boundary, there is significant risk of neighbourly objection to agricultural process.

38 I note that all of the farm system options for either the whole land management unit of 98ha or the pro-rata Owner Remuneration for the 18.1ha LUC3 land are in excess of the target $67,567 p/a remuneration target.

39 While the Remuneration target of Objective One is met, none of the farm system options meet the 4.0% RoC threshold. The most productive land use (Apples) generates a 2.8% RoC.

40 With the most profitable land use option not fulfilling the minimum capital cost allocation requirement of 4.0%, the LUC3 land could not be considered as land that would be economically viable for land-based primary-production (whether or not the LUC4 land is included). With no higher-vale land use alternatives emerging, and a history of erosion of real profits, I cannot say that the economic viability of the LUC3 land for land-based primary-production viability will change for at least 30 years.

41 Despite the land in LUC3 allotment of the proposed Private Plan Change 80 being classed as productively capable, due to both its small scale, and the high capital cost, I cannot find an economically or productively viable land use.

42 As agricultural profitability has reduced (relative to costs of living) over time, the scale of farms have needed to increase to remain viable. If there were marginally viable agricultural land options available currently, it is unlikely that they would remain viable in 30 years.

43 My concern for productive and economic viability for the LUC3 land in proposed Private Plan Change 80 is extenuated by the threat of neighbouring properties objecting to necessary agricultural practices such as late night noise and chemical spraying in future years.

RESPONSE TO OFFICER'S REPORT

44 In response to Officers Section 42a Report to Private Plan Change 80, I make comment on paragraphs 124-128.

44.1 Paragraph 123. I do not believe that the 18ha classified as LUC3 land is "prime growing or productive land" as set out in the submission of Mr Horne as it is constrained by residential pressures against productive agricultural practices, and, it is not economically viable as productive land (as shown above).

44.2 Paragraph 125. While the land is classed as LUC3 and highly productive, my analysis indicates the land is not capable of being highly productive due to social pressures regarding agricultural practices and deficiency of available irrigation water and nutrient allocation.

44.3 Paragraph 126(c). The Council should, where appropriate, allow the rezoning of highly productive land for industrial or urban development as the environmental, social and economic outcomes for the community will be preserved or enhanced by permitting more efficient use of water and nutrient resources in other more productive parts of an over-allocated catchment.

44.4 Paragraph 128. I agree with the Assessment on NPS-HPL Policy 3.6, sub clause (1)(c), that by re-zoning the LUC3 land for industrial development, that the objectives of Policy 3.6, sub clause (1) (c) will be met for the community and catchment.

CONCLUSION

45 The National Policy Statement for Highly Productive Land, Section 3.6(1)(c) permits the re-zoning of highly productive land if, among other factors, the environmental, social, cultural and economic benefits of rezoning outweigh the costs of losing highly productive land to land-based primary production.

46 I believe that retaining the LUC3 land as highly productive agricultural land will result in increased nutrient loss to the catchment. The nutrient loss and water use required to make the LUC3 land sufficiently productive, would be at the cost of a further 13-25% of land remaining elsewhere in the region being less productive. Allowing the LUC3 land to be re-zoned as industrial

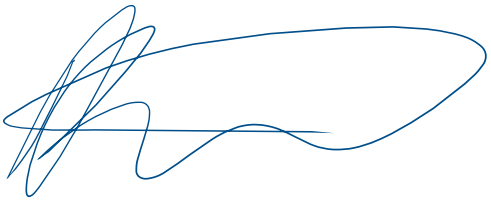
would result in higher environmental (and consequentially cultural) and productive (social) outcomes for the Selwyn-Te Waihora catchment.

47 The scale of the LUC3 land precludes it from being irrigated on its own. The LUC3 land is only productively viable if the whole 98ha block on Two Chain Road is retained as productive agricultural land.

48 While the land units (LUC3 on its own or LUC3 and LUC4 run contiguously) can theoretically generate sufficient cash surpluses to provide the owner adequate remuneration for their efforts, the return on capital of any assessed productive farm system option fails to meet the 4.0% ROC threshold. I therefore do not consider productive agriculture to be an economically viable use (having considered this over a 30 year timeframe) of the LUC3 land in proposed Private Plan Change 80.

49 The rezoning of proposed Private Plan Change 80 from agricultural land to industrial will have positive economic, social and environmental impacts on the local community and catchment.

Dated: 5 October 2022



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