

**BEFORE THE OTAGO REGIONAL COUNCIL**

**IN THE MATTER** of the Resource Management Act  
1991 ("the Act")

**AND**

**IN THE MATTER** Proposed Plan Change 5A:  
Lindis Integrated Water  
Management

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**STATEMENT OF GRANT ALEXANDER PORTER  
EVIDENCE ON BEHALF OF THE LINDIS CATCHMENT GROUP LTD**

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## **INTRODUCTION**

### **QUALIFICATIONS AND EVIDENCE**

1. My name is Grant Alexander Porter. I work for Compass Agribusiness Management Limited as a farm consultant.
2. Compass Agribusiness Management Limited is a privately owned company that provides agricultural and rural business consultancy. Located in Otago, New Zealand as well as Victoria, Australia, we have a strong client base throughout the South Island of New Zealand as well as in Victoria, Tasmania and New South Wales in Australia. We have acted in advisory roles for the Manuherikia and NOIC irrigation schemes and provide consultancy work for many large scale irrigated farms throughout the South Island. We have many customers in the Central Otago region including several in the Tarras / Lindis area who fall within the scope of this report.
3. Our services include the full range of farm consultancy and advisory as well as planning and business management. We also assist large scale commercial and family farming entities with financial management.
4. I have been working with farmers in an advisory capacity for over eighteen years. Originally from a sheep and beef farm in Southland, I have a Bachelor of Commerce and Management from Lincoln University. I then trained as a farm accountant and am a Member of the New Zealand Institute of Chartered Accountants. After consultancy roles overseas in 1999 to 2001 I returned to work in rural finance in Auckland and Canterbury.
5. I specialise in advising and assisting customers in the capital raising process for agri-development projects. In addition, I sit alongside many of our customers as an independent advisor to provide strategic direction and general agribusiness advice. I combine my accountancy and finance background to assist with customers succession planning.
6. My customers range from Canterbury to Southland and I have been involved in many irrigation and dairy conversion projects throughout the last eighteen years. I joined Compass in July 2014.

7. I confirm that I have read and agree to comply with the Environment Court Practice Note 2014 with regard to Expert Witnesses. This evidence is within my area of expertise, except where I state that I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## **SCOPE OF EVIDENCE**

### **Overview**

8. In my evidence I evaluate the financial impacts and viability of water restrictions imposed on farmers using the Lindis River for irrigation water.
9. The proposed irrigation restrictions (which will result from the implementation of a minimum flow on the Lindis River) on farm water takes from the Lindis River have been analysed through feed budgets based on research and actual on farm data. A base model has been built on the current usage and adjusted to show the impacts of irrigation restrictions resulting from proposed increases to the minimum flows on the Lindis River. The results indicate that a minimum flow of 450l/s or 750l/s would have serious and detrimental effects on a typical farming business reliant of the Lindis river water for irrigation.
10. The resulting irrigation restrictions on existing irrigated farms would make them unsustainable and current value and equity would be eroded which would put the farm owners under pressure from stakeholders and lending providers. The minimum flows that result in irrigation restrictions would turn existing profitable farms into farms that incur losses and this would make these farms no longer financially viable.
11. Our analysis shows reductions in farm income of between 21% and 41% from these restrictions. On top of this, there are also reductions in the asset values of between 12% and 25% due to the irrigation restrictions.

12. The flow on effect from the reduced returns and losses incurred and reduced land values, impacts not only on investment on farm but would also have flow on effects to the local community and region.

## **METHODOLOGY**

13. We have modelled two farming scenarios to demonstrate the effects of irrigation restrictions for a 400 hectare irrigated sheep and beef farm based in the Tarras area using irrigation water from the Lindis River. We have modelled a breeding unit and a finishing unit. The breeding unit is the system that the majority of farmers in the Lindis catchment are running, there are a smaller number of purely finishing units in the Lindis which are the highest and best use of irrigation water on farm.
14. The base case model for each system shows a current status quo return under existing irrigation and it is then compared against two scenarios where irrigation restrictions would have to be imposed due to the proposed minimum flows in the Lindis River being set at 450l/s and 750l/s.
15. We have relied upon Aqualinc's reliability data (contained in its report "Lindis River Irrigation Reliability" that is attached as an appendix to this evidence) for the minimum flow levels which give an average reliability of 78% and 56% during January to March. This results in restricted irrigation rates of 1mm/ha/day and 2mm/ha/day. The comparison between the models is used to draw conclusions on the financial impacts and viability of these restrictions.
16. The base case farming model works from a feed budget that shows the total feed grown on farm versus feed demand from stock for the farm. This feed budget and the stocking rates work through to a full farm financial budget to show the financial return for the farm under a fully irrigated (unrestricted) scenario.
17. The feed budget is then modified to show the impacts of irrigation restrictions. The impact of irrigation restrictions uses the pasture production model "Climate-driven, soil fertility dependant, pasture production model" Moir et al (2000) which shows how a reduction in moisture impacts on pasture growth. This model is commonly referred to and used in pasture growth trials and models as the standard for evaluating the effects of evapotranspiration on pasture growth in New Zealand.

18. The resulting feed budgets derived from the lower pasture grown under irrigation restrictions are then run through stock reconciliations and the financial budget model to show the financial impacts of the restrictions.
19. The model farms are indicative of a Lindis catchment farm given the land type, capital employed and pasture growth and we have used two different systems which show the true impact of restrictions. While there will be a wide variability in the size and type of farms in the Lindis catchment our models take out this variability and show what the average farmer is doing in the area. Within the area, there will be farms doing better or worse than this model but we believe that with capable management and adequate capital employed the model farm is representative of what Lindis farms are achieving in the current farming environment.

#### **ASSUMPTIONS FOR FARM MODELS**

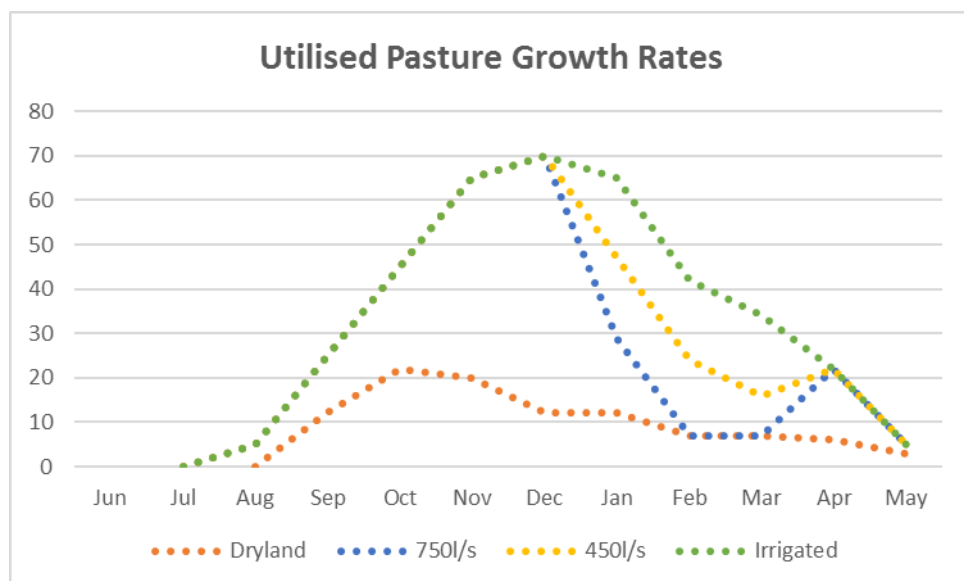
20. The assumptions used have been based on both research carried out by institutions, and also on our own experience in pastoral farming within the region. While every farm is different, we have refined our information to base models which is what we see as a representative farm which can be easily translated and adapted to show the effects of variations in assumptions.
21. The model farms are based on a 400ha property of which 85% (340ha) is fully irrigated, with the remaining 60ha, in dryland pasture. The breeding farm operates a conventional sheep and beef breeding/finishing policy with a stocking rate of 15 stock units/ha on the irrigated land and 5 stock units/ha on the dryland. This brings the total stock units for the farm to 5400 stock units.
22. The finishing farm is a much more intensive operation which has no breeding stock and utilises the same feed grown by trading and finishing 8000 lambs and 1000 yearling cattle per annum along with wintering 6000 ewes on crop.

#### **Pasture Growth Rates**

23. The key to the model is the pasture growth. It is important to note that Central Otago has a very unique climate. While New Zealand is generally regarded as having a temperate maritime climate, Central Otago reflects many characteristics of a continental style climate. This

means that the climatic changes can be very rapid in which within 24 hours a 30 degrees change in temperature can be experienced.

24. We have used actual growth rates from customers in the Central Otago area that have kept records to form our judgement on assumptions on pasture growth. Our pasture growth rates differ to the AusFarm program developed in Australia for Australian conditions. While AusFarm has been referenced to sites in New Zealand to evaluate the accuracy, the results which the model has produced look very different to what is actually experienced in real life scenarios on farm.
25. AusFarm as a model is widely accepted but it should just be a starting point - if localised factors can be taken into account then they should. This is particularly important for the Lindis farms because of the climate.
26. When the pasture is fully irrigated, we have determined that 14.4 tonnes of dry mater is grown per hectare of which 80% of the feed is utilised. The pasture growth rates and yields have been based on actual farm data which we see in commercial situations. The pasture growth rates of the dryland area are completely reliant on seasonal rainfall. Therefore, the yields seen on this area are very low in comparison at around 3 tonnes of dry matter per ha.



### **Irrigation & Water Restrictions**

27. The irrigation on the farm is in the form of spray irrigation. This is either Centre Pivot, Traveling irrigator, K Line or Static Sprinklers. An

average of 4.5mm/day of water is applied per annum over a 3200 hour irrigation season which is a total of 600mm/ha/year. If restrictions were to be implemented, the effect would be either a 1mm/ha/day reduction if the minimum flow was 450l/s or 2mm/ha/day reduction if the minimum flow was 750l/s this reduction would occur between January and March.

28. To determine the effects on pasture of water restrictions, we used the industry benchmark (Moir) of a decrease in 18KgDM grown for every drop of 1mm water reduction. This is an industry recognised benchmark initially determined by Moir et al (2000), and is a figure which we have seen to be very accurate in actual on farm scenarios. We assume this restriction is experienced from January to March.

### **Cropping**

29. In the breeding model a combined area of 35ha of winter crops (Brassicas and Fodder Beet) are grown to supplement feed supply from June to August. This is increased to 80 hectares in the finishing model. The cropped area remains the same, even with less stock under the restricted scenarios however the crop yields would be compromised which means that less feed would be available, and a greater area of crop, relative to stock numbers, is required. A total of 400 and 1500 bales of bailage are harvested over the summer in the models to support the winter feeding regime.
30. In terms of stock units in the breeding scenario, sheep make up 75% of the farm policy with the remaining in cattle. This is a typical ratio on many sheep and beef farms as the balance between stock classes complements the farm system. For the finishing scenario the balance is similar for animal health purposes with 8000 lambs and 1000 steers finished off on the property all year round. A surplus of grass is grazed by 6000 breeding ewes for 60 days in winter.

### **BREEDING FARM**

31. The breeding farm system and policy we have modelled is made up of the following key assumptions:

<b>Key Farm System Assumptions</b>			
	<b>Irrigated</b>	<b>450l/s</b>	<b>750l/s</b>
<b>Sheep</b>			
Ewe Number	3200	3200	3000
Hogget Number	800	800	750
Lambing %	140%	140%	140%
Lambs sold Prime	100%	50%	0%
Lambs sold Store	0%	50%	100%
<b>Cattle</b>			
MA Cow Number	150	150	150
Replacement Heifers	30	30	30
Cow Calving %	90%	90%	90%
Steers finished Prime	100%	0%	0%
Steers sold Store	0%	100%	100%
Heifers finished Prime	100%	0%	0%
Heifers sold Store	0%	100%	100%
<b>Pasture</b>			
Irrigated Pasture Yield (TDm/ha)	14.4	12.4	10.7

32. Under full irrigation the farm policy allows for all stock classes to be finished prime. This includes all cattle being taken through to 540KgsLW at 18 months and all lambs going from weaning through to finishing at 18KgCW by the end of March.
33. The feed budgets indicate that the drop in pasture production from the restrictions in water availability under the minimum flow scenarios would mean that it would be necessary that potential finishing stock are unloaded earlier. In the 2mm restriction scenario, the overall stocking of the farm would have to drop by 250 stock units. This means that the stock would return less for the farmer.
34. Due to the pasture production being limited by the water restrictions, the farm would have to drop stock numbers from where they currently sit. Under the 450l/s reduced allocation scenario, the farm would go from finishing all stock, to having to sell all cattle store at weaning and only being able to finish 50% of lambs. This has a significant effect on the financial viability of the farm as it means that the cattle would only return about half the income compared to being sold at finished weights.
35. The stocking rate and stock performance in these models have been matched to feed supply. However, one key factor which has not been highlighted is the effect of water restrictions on pasture quality. When



the irrigation restrictions are incurred, the plant comes under moisture stress which causes the grass to go reproductive and also the dry matter content to increase. These key factors cause the metabolisable energy content of the pasture to decline, which would potentially flow through to a decrease in animal performance such as growth rates and reproductive performance.

### Financial Return Breeding Farm

36. The feed budgets and stocking policies developed have been followed through into financial budgets to determine the effects of the changes on the financial viability of the farms. The summary is shown below:

<b>Budget Summary</b>						
	<b>Irrigated</b>		<b>450l/s</b>		<b>750l/s</b>	
	<b>Total</b>	<b>per ha</b>	<b>Total</b>	<b>per ha</b>	<b>Total</b>	<b>per ha</b>
Income	\$661,837	\$1,655	\$522,860	\$1,307	\$430,900	\$1,077
Farm Expenses	\$373,411	\$934	\$362,448	\$906	\$351,482	\$879
<b>Trading Surplus</b>	<b>\$288,425</b>	<b>\$721</b>	<b>\$160,412</b>	<b>\$401</b>	<b>\$79,418</b>	<b>\$199</b>
Interest and Rent	\$135,000	\$338	\$135,000	\$338	\$135,000	\$338
<b>Business Surplus</b>	<b>\$153,425</b>	<b>\$384</b>	<b>\$25,412</b>	<b>\$64</b>	<b>-\$55,582</b>	<b>-\$139</b>
CAPEX & Drawings	\$110,000	\$275	\$110,000	\$275	\$110,000	\$275
<b>Financial Surplus</b>	<b>\$43,425</b>	<b>\$109</b>	<b>-\$84,588</b>	<b>-\$211</b>	<b>-\$165,582</b>	<b>-\$414</b>
Interest Coverage Ratio	2.14		1.19		0.59	

37. The table indicates there is a significant decline in profitability of the farming enterprise as a result of the reduction in irrigation ability. Pasture growth in autumn is important for finishing progeny of the breeding stock in time to sell them before winter. By limiting autumn growth through water restrictions the profitability of the breeding property is significantly compromised and leads to finishing on-farm being unsustainable.
38. The irrigation restrictions caused under the minimum flow scenarios would result in the business being unable to cover the interest expense which would mean that the farm would become a high risk exposure to its bank. Banks credit criteria require a minimum of 1.5 times interest cover which is the trading surplus divided by the interest. The full budgets behind this summary are attached at the end of this report.
39. The balance sheet below was used to determine how the return on investment is affected by the water restrictions. An assumed level of debt of \$2.4m has been used in this model which is 22% of the asset value. This is based on the assumption that many of the affected

farms in this area are older family farms with lower debt levels prior to development. They have then made the investment, through debt funding, into efficient forms of irrigation which generally costs about \$7000/ha to install the infrastructure and develop the land.

40. As the reliability of irrigation decreases, the value of the farm would also decline due to the higher risk from lower production being achieved. This reduces the farmers equity and raises their debt. With banks lending criteria now pricing debt based on risk the higher debt and risk levels would increase the lending margins and interest rates to these farmers. This will limit further investment and lead to higher financial costs.

<b>Balance Sheet</b>									
<b>Assets</b>	<b>Irrigated</b>			<b>450l/s</b>			<b>750l/s</b>		
Irrigated Land	340	\$28,000	9,520,000	340	\$24,000	8,160,000	340	\$20,000	6800000
Dryland	60	\$4,000	240,000	60		240,000	60		240,000
Plant and Machinery			450,000			450,000			450,000
Livestock	5,400	\$120	648,000	5,400	\$120	648,000	4,710	\$120	565,200
			<b>10,858,000</b>			<b>9,498,000</b>			<b>8,055,200</b>
<b>Liabilities</b>									
Term Loan	\$444	22%	<b>2,400,000</b>	\$444	25%	<b>2,400,000</b>	\$510	30%	<b>2,400,000</b>
<b>Net Worth</b>		78%	<b>8,458,000</b>		75%	<b>7,098,000</b>		70%	<b>5,655,200</b>
Return on Capital			2.7%			1.7%			1.0%
Return on Equity			1.8%			0.4%			-1.0%

41. The balance sheet table above shows the effects of restrictions on land prices. Our assumption for the reduction in land price comes from the discounts applied by registered valuers in other irrigated farming areas where irrigated land comes under restrictions due to reliability issues. Farms irrigating from the Waimakariri Irrigation Scheme and Amuri Irrigation Scheme in North Canterbury typically sell at a discount of between \$4,000 and \$7,000 per hectare. These schemes have supply reliability of between 80% to 90%. In our model we have applied a discount of \$4,000 per hectare to the 450l/s minimum flow restriction and \$8,000 per hectare to the 750l/s minimum flow restriction model. The land prices arrived at would still be considered high based on the irrigation reliability and the farms low productivity. These land prices may still be hard to justify by buyers or investors looking at investing in land.

#### **FINISHING FARM**

42. The finishing farm system and policy we have modelled is made up of the following key assumptions:

<b>Key Farm System Assumptions</b>			
	<b>Irrigated</b>	<b>450l/s</b>	<b>750l/s</b>
<b>Sheep</b>			
Lambs Traded	8,000	6,400	4,800
Ewes Grazed	6,000	6,000	6,000
<b>Cattle</b>			
Steers Traded	1,000	800	700
<b>Pasture</b>			
Irrigated Pasture Yield (TDM/ha)	14.4	12.4	10.7

43. The unrestricted policy allows for the finishing of 8000 lambs per annum through December to April. 1000 rising one year old steers are bought in April / May each year and finished over the next twelve months. In addition there is the ability to graze 6000 ewes in the winter on crop with 55 hectares of fodder beet and 25 hectares of swedes grown under irrigation to winter all stock.
44. The feed budgets indicate that the drop in pasture production from the restrictions would mean that the number of lambs and steers traded annually drops reducing income and some costs but effectively the same principles in the breeding model apply here where there is lower pasture growth and quality limiting the ability of the farm to finish the number of stock it could handle under current irrigation.

### Financial Return Finishing Farm

45. The feed budgets and stocking policies developed have been followed through into financial budgets to determine the effects of the changes on the financial viability of the farms. The summary is shown below:

<b>Budget Summary</b>						
	<b>Irrigated</b>		<b>450l/s</b>		<b>750l/s</b>	
	<b>Total</b>	<b>per ha</b>	<b>Total</b>	<b>per ha</b>	<b>Total</b>	<b>per ha</b>
Income	\$1,104,300	\$2,761	\$830,580	\$2,076	\$651,800	\$1,630
Farm Expenses	\$631,280	\$1,578	\$617,824	\$1,545	\$605,568	\$1,514
<b>Trading Surplus</b>	<b>\$473,020</b>	<b>\$1,183</b>	<b>\$212,756</b>	<b>\$532</b>	<b>\$46,232</b>	<b>\$116</b>
Interest and Rent	\$140,000	\$350	\$135,000	\$338	\$135,000	\$338
<b>Business Surplus</b>	<b>\$333,020</b>	<b>\$833</b>	<b>\$77,756</b>	<b>\$194</b>	<b>-\$88,768</b>	<b>-\$222</b>
CAPEX & Drawings	\$110,000	\$275	\$110,000	\$275	\$110,000	\$275
<b>Financial Surplus</b>	<b>\$223,020</b>	<b>\$558</b>	<b>-\$32,244</b>	<b>-\$81</b>	<b>-\$198,768</b>	<b>-\$497</b>
Interest Coverage Ratio	3.38		1.58		0.34	

46. The table again shows under this system there is an even larger decline in profitability from the breeding model as a result of the reduction in irrigation ability. The restrictions would result in the business being unable to cover the interest expense which would mean that the farm would become a risky investment for any bank. The full budgets behind this summary are attached at the end of this report.
47. The balance sheet below is similar to that of the breeding model with only changes being to the stock on hand. The same assumptions have been used for land values and capital employed as for the breeding system.

Balance Sheet									
Assets	Irrigated			450l/s			750l/s		
Irrigated Land	340	\$28,000	9,520,000	340	\$24,000	8,160,000	340	\$20,000	6,800,000
Dryland	60	\$4,000	240,000	60		240,000	60		240,000
Plant and Machinery			450,000			450,000			450,000
Livestock	1,000	\$700	700,000	800	\$700	560,000	700	\$700	490,000
			<b>10,910,000</b>			<b>9,410,000</b>			<b>7,980,000</b>
<b>Liabilities</b>									
Term Loan		22%	<b>2,400,000</b>		26%	<b>2,400,000</b>		30%	<b>2,400,000</b>
<b>Net Worth</b>		78%	<b>8,510,000</b>		74%	<b>7,010,000</b>		70%	<b>5,580,000</b>
Return on Capital			4.3%			2.3%			0.6%
Return on Equity			3.9%			1.1%			-1.6%

### SUMMARY OF RETURNS

48. In the two models the returns per hectare and per kilogram of dry matter grown are often used as Key Performance Indicators by farmers for benchmarking purposes.
49. In the models presented the summary of returns for the unrestricted irrigated farms is:

Summary of Returns		
	Breeding	Finishing
Gross Income / ha	\$1,655	\$2,761
Gross Drymatter Grown	<b>4,193,600</b>	<b>4,499,200</b>
Average KgDM/ha	10484	11248
Return /kgDM	\$ 0.16	\$ 0.25

50. Based on Farmax modelling for current returns the gross returns currently are as follows.

System	Gross Return / KgDM
Breeding Cows – Selling progeny store	8.6
Breeding Ewes – 140% finishing lambs @17.5kg	14.5
Trading Lambs – growing at 200g/day	24.8
Friesian Bulls – finished to 600kg @ \$4.50/kg	25.7
Beef Steers – finished to 520g @ \$4.50/kg	25.3

51. The analysis below shows the higher return from finishing stock versus breeding stock. The detailed gross margins are outlined below.

FARMAX YOUR ADVANTAGE		Gross Margin for Cattle						
		Store Beef (Jul 14 - Jun 15)						
		Number	kg/hd	\$/kg	\$/hd	\$ Total	c/kg DM	
Revenue	Stock	Store Sales	92	235.1	2.12	498.67	45,877	
		Works Sales	21	230.3	4.37	1,006.26	21,131	
		less Purchases	16	386.6	2.78	1,075.00	17,200	
		<b>Total</b>					<b>49,809</b>	<b>11.7</b>
	Change in Capital Value						-7,004	
	<b>Total Revenue</b>						<b>42,805</b>	<b>10.1</b>
Expenses	Stock	Animal Health	104		11.40	1,181		
		<b>Total</b>				<b>1,181</b>		
		Interest on Capital						5,043
	<b>Total Variable Expenses</b>						<b>6,225</b>	<b>1.5</b>
<b>Gross Margin</b>						<b>36,580</b>	<b>8.6</b>	

FARMAX YOUR ADVANTAGE		Gross Margin for Standard Sheep 6500SU			
		Aug 14 - Jul 15			
			\$/ha	\$ Total	c/kg DM
Revenue	Sheep	Sales - Purchases	877	723,798	
		Wool	141	115,956	
		<b>Total Sheep</b>	<b>1,018</b>	<b>839,754</b>	<b>17.4</b>
	Crop & Feed	Capital Value Change	0	-43	
<b>Total Feed</b>		<b>0</b>	<b>-43</b>	<b>0.0</b>	
	<b>Total Revenue</b>		<b>1,018</b>	<b>839,712</b>	<b>17.4</b>
Expenses	Crop & Feed	Conservation	7	5,625	
		Forage Crops	29	24,000	
		<b>Total Crop &amp; Feed</b>	<b>36</b>	<b>29,625</b>	
	Stock Costs	Animal Health	32	26,608	
		Shearing	36	29,909	
	<b>Total Stock Costs</b>	<b>69</b>	<b>56,517</b>		
	Interest on Capital (livestock & feed)		63	51,687	
	<b>Total Variable Expenses</b>		<b>167</b>	<b>137,829</b>	<b>2.8</b>
<b>Gross Margin</b>			<b>851</b>	<b>701,882</b>	<b>14.5</b>

<b>FARMAX</b> YOUR ADVANTAGE		<b>Gross Margin for Finishing : Trade lambs</b>						
		<i>Jul 14 - Jun 15</i>						
		<b>Number</b>	<b>kg/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$ Total</b>	<b>c/kg DM</b>	
Revenue	Stock	Store Sales				0		
		Works Sales	980	18.3	5.50	100.44	98,427	
		less Purchases	1,000	30.0	2.50	75.00	75,000	
		<b>Total</b>					<b>23,427</b>	<b>22.9</b>
	Wool	980	1.4	4.50	6.38	6,253		
		Change in Capital Value				0		
		<b>Total Revenue</b>				<b>29,680</b>	<b>29.0</b>	
Expenses	Stock	Animal Health	191			2.40	457	
		Shearing	980	1.4	2.12	3.00	2,940	
		<b>Total</b>					<b>3,397</b>	
			Interest on Capital				920	
			<b>Total Variable Expenses</b>				<b>4,318</b>	<b>4.2</b>
<b>Gross Margin</b>						<b>25,362</b>	<b>24.8</b>	

<b>FARMAX</b> YOUR ADVANTAGE		<b>Gross Margin for Bull Beef : Freisian Bulls</b>					
		<i>Jul 14 - Jun 15</i>					
		<b>Number</b>	<b>kg/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$ Total</b>	<b>c/kg DM</b>
Revenue	Stock	Store Sales				0	
		Works Sales	343	317.8	4.50	1,430.06	490,511
		less Purchases	350	100.0	4.00	400.00	140,000
		<b>Total</b>					<b>350,511</b>
			Change in Capital Value				0
		<b>Total Revenue</b>				<b>350,511</b>	<b>27.1</b>
Expenses	Stock	Animal Health	418			12.86	5,377
		<b>Total</b>					<b>5,377</b>
			Interest on Capital				13,684
		<b>Total Variable Expenses</b>				<b>19,061</b>	<b>1.5</b>
<b>Gross Margin</b>						<b>331,450</b>	<b>25.7</b>

<b>FARMAX</b> YOUR ADVANTAGE		<b>Gross Margin for Beef Finishing : R1 Steer</b>					
		<i>Jul 14 - Jun 15</i>					
		<b>Number</b>	<b>kg/hd</b>	<b>\$/kg</b>	<b>\$/hd</b>	<b>\$ Total</b>	<b>c/kg DM</b>
Revenue	Stock	Store Sales				0	
		Works Sales	784	282.3	4.50	1,270.43	996,014
		less Purchases	800	220.0	2.50	550.00	440,000
		<b>Total</b>					<b>556,014</b>
			Change in Capital Value				0
		<b>Total Revenue</b>				<b>556,014</b>	<b>27.1</b>
Expenses	Stock	Animal Health	645			7.74	4,991
		<b>Total</b>					<b>4,991</b>
			Interest on Capital				31,653
		<b>Total Variable Expenses</b>				<b>36,644</b>	<b>1.8</b>
<b>Gross Margin</b>						<b>519,370</b>	<b>25.3</b>

## IMPLICATIONS OF IRRIGATION RESTRICTIONS

### Financial Viability

52. The financial models show the reduction in profitability from restrictions to irrigators. The models effectively show that any

restriction would make the farm over capitalised in terms of the irrigation infrastructure in place and make the farm unsustainable long term.

53. In addition, there would be an erosion of farm value given the lower productivity from the farm. The combination of the lower capital value and trading losses would make it hard for the business to continue being funded by external debt providers. There would be insufficient cash able to support staff and owners.
54. The impacts of lower financial returns also flow through to personal stress as seen currently with the effects of continued droughts on farmers in North Canterbury at present and the impact of low dairy returns at present. The impacts reach further than the farm gate with reduction in revenue flowing through to local communities.

### **Environmental**

55. The ability to irrigate allows for farming systems to re-invest back into the land with a much higher standard of farm infrastructure afforded. It allows for farmers to destock sensitive areas (native bush, waterways etc.), invest in shelter and control of noxious weeds and pests and invest in efficient irrigation practises if they are able to efficiently and profitably farm to a high standard.

### **CONCLUSION**

56. My analysis shows that the impact of the increased minimum flows on the Lindis River under plan change 5A will result in the farms becoming uneconomic with returns dropping between 21% and 41%. This makes the farm unsustainable. In addition there would also be considerable wealth reductions based on the land asset values reducing by between 12% and 25%. These reductions in value and returns would happen as soon as restrictions are implemented.
57. I believe that to impose minimum flows to the proposed levels will severely affect the farmers and community who depend on this water for their livelihoods and will cause some farmers to have to exit their farms. I believe that if the minimum flow of 450l/s is set with the restrictions that will be in place due to the reliability of the river during January to March it will mean that financial viability is severely compromised.

58. My analysis is based on sound practical farming systems representative of current Lindis irrigated farms with irrigation restrictions imposed due to lifted minimum flows. I believe the farming models presented are truly representative of current farming practises and returns based on our practical experience with farmers in the area.

Dated this 18 day of March 2016

Grant Porter

**Appendices:**

**Appendix A: Breeding Feed Budget**

- Feed budget
- Stock reconciliation
- Financial budget

**Appendix B: Finishing Feed Budget**

- Feed budget
- Stock reconciliation
- Financial budget

**Appendix C:** Brown, P.(2016) "Lindis River Irrigation Reliability" Aqualinc Research Limited