

# **AGRICULTURAL ASSESSMENT**

## **ELAMBRA WEST URBAN RELEASE AREA**

**Lot 2 DP 1168922  
Campbell Street  
Gerringong**

**Prepared for  
Pearse & Campbell**

**November 2020**

## Agricultural Assessment

Project	Elambra West Urban Release Area
Address	Lot 2 DP 1168922 and Lot 11 DP 1045242 Gerringong
Our ref:	19/70
Prepared by	Peter Cowman
Draft	9 November 2020
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### Town Planning, Agricultural & Environmental Consultants

Stephen Richardson, M.App.Sc., BTP, Grad. Dip. Env. Mgt, RPIA  
Stuart Dixon, B. Urb. & Reg. Plan., RPIA

Associates: Peter Cowman, B.Sc.Agr., MAIA  
Angela Jones, BA Hons, MSc, MSSA  
Toni Wearne, BA (Hist.), Grad. Dip. Urb. & Reg. Plan.



Nowra: 31 Kinghorne Street, Nowra NSW 2541 (02) 4423 6198  
Wollongong: 166 Keira Street, Wollongong NSW 2500 (02) 4208 2205  
Email: [info@cowmanstoddart.com.au](mailto:info@cowmanstoddart.com.au)

PO Box 738, Nowra NSW 2541  
Fax: (02) 4423 1569  
[www.cowmanstoddart.com.au](http://www.cowmanstoddart.com.au)



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## **1.0 INTRODUCTION**

This report is an agricultural assessment of a planning proposal to rezone an area of 13.8 hectares (approx.) of rural land to allow residential development. An area of 2.36 hectares will become a Public Reserve and is considered a part of the proposal. The site is immediately south and west of Gerringong township and is described as Lot 2 DP 1168922 of 45.83 ha (see **Figure 1** and **Photo No. 1**). The total development area is 16.19 ha with the residue of 29.64 ha continuing as agricultural land.

The land will be an extension of the township with an approximate yield of 166 residential lots plus a Public Reserve and a residue. See **Figure 2**.

This agricultural report is an annexure to the Planning Proposal Report which has been prepared by Allen, Price & Scarratts Pty Ltd – Land and Development Consultants.



**Photo No. 1**

General view of site. The land is undulating with permanent pasture and is used for beef cattle grazing.



**Figure 1: Aerial photo with outline of subject land.**





**NOTE:**

This plan was prepared for the client as an indicative structure plan to accompany a planning application to Kiama Municipal Council.

The information shown on this plan is not suitable for any other purpose.

The property dimensions, contours and other physical features have been compiled from existing information and have not been verified by field survey.

The dimensions, areas etc shown on this plan are subject to field survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation.

In particular, no reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Allen Price & Scarratts Pty Ltd therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying an application to council for planning purposes and which may be subject to alteration for reasons beyond the control of Allen Price & Scarratts Pty Ltd.

Unless stamped by Council, this plan is not a plan of an approved subdivision.

This note is an integral part of this plan.

<u>PROPOSED DEVELOPMENT AREA</u>		
LOT 2	DP 1168922	13.833ha
APPROX. YIELD @12 DWELLINGS/ha - <u>166 DWELLINGS</u>		

## LEGEND

- EXISTING DWELLING
- PRINCIPAL ROADS
- RESIDENTIAL AREA
- PUBLIC RESERVE
- FIG TREE / PUBLIC RESERVE
- SUBJECT LOT
- INDICATIVE DEVELOPMENT AREA
- WATERCOURSE DERIVED FROM DCDB
- RIPARIAN OFFSET - APPROX 5m CHANNEL  
+20m EACH SIDE (CAT 2)  
+10m EACH SIDE (CAT 3)

### KIAMA LEP MAPPING

- WATERCOURSE CATEGORY
- ACID SULFATE SOILS

**NOTE:**

CADASTRAL INFORMATION HAS BEEN OBTAINED FROM NSW LAND & PROPERTY INFORMATION (LPI) DIGITAL CADASTRAL DATA BASE (DCDB) AND IS SUBJECT TO SURVEY. IT SHOULD BE VIEWED AS APPROXIMATE ONLY.

CONTOURS ARE AT 2m INTERVALS AND HAVE ALSO BEEN DERIVED FROM DCDB MAPPING.



**Figure 2: Cadastral overlay of subject land with contours.**

K:\Projects-Kiama\128000\K128069\Drawings\K128069-07 ELAMBRA WEST- Lot 2 DP1168922 STRUCTURE PLAN.dwg

RATIO:  1:2500  (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY	DCDB	REV	DESCRIPTION	BY	DATE		PROPOSED STRUCTURE PLAN OVER LOT 2 DP 1168922 ELAMBRA WEST URA CAMPBELL ST GERRINGONG FOR CAMPBELL	DRAWING STATUS  PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
	ORIGIN: DCDB	DESIGN								DRAWING NUMBER  K128069-07	SHEET 1 OF 1	REVISION  0
		DRAWN	DS									
		CHECK'D	MJP									
	DATE OF PLAN: 26.10.2020											



## **2.0 TOPOGRAPHY, VEGETATION AND AGRICULTURE**

### **2.1 TOPOGRAPHY**

The western part of Lot 2 is alluvial flood liable creek flats which will be retained for agriculture (see **Photo No. 2**).

The eastern part is a low hill with slopes in the range 10 – 15%. Maximum elevation 30 metres a.s.l. (see **Photo No. 3**).

The site drains to two intermittent watercourses which are tributaries of Crooked River.



**Photo No. 2**

Alluvial creek flats will continue to be used for agriculture.



**Photo No.3**

Hillside with development above the vehicle. Tree line is crest in the distance.



**Photo No. 4**

Low lying land adjoining Union Creek will become a Public Reserve.



## **2.2 VEGETATION**

Permanent kikuyu pasture on the hillside over sown with ryegrass/clover. Occasional cropping on the creek flats in rotation with ryegrass/clover pasture.

## **2.3 AGRICULTURE**

The land is used for beef cattle grazing with forage crops on the alluvial flats. See Section 5.0.

### 3.0 GEOLOGY SOIL LANDSCAPES AND SOILS

The document “Soil Landscapes of the Kiama 1:100,000 Sheet” (Hazelton 1992) and accompanying map shows the development site as comprising two soil landscapes determined by topography. See **Figure 3**.

#### 3.1 ELEVATED LAND – KIAMA SOIL LANDSCAPE (ka)

Geology is Blow Hole Latite with soils being krasnozems on crests and upper slopes. Prairie soils on lower slopes.

Notes:

**Fertility**

*General fertility is moderate to low. The topsoil is friable. The subsoils are deep, well structured, freely drained on crests and upper slopes. They are strongly acid with low to moderate CEC.*

**Erodibility**

*The topsoil has moderate erodibility. The subsoils have high erodibility.*

**Erosion Hazard**

*Erosion hazard for non-concentrated flows is extreme. The calculated soil loss for the first 12 months of urban development ranges up to 1300t/ha for topsoils and 900t/ha for exposed subsoils. The erosion hazard for concentrated flows is moderate.*

**Surface Movement Potential**

*These moderate to deep clay soils are slightly reactive. The subsoil is moderately reactive.*

**Landscape Limitations**

*Steep slopes (localised)*

*Run-on*

*Water erosion hazard (localised)*

**Urban Capability**

*Generally low limitations for urban development. Moderate limitations on steeper slopes.*

**Rural Capability**

*Generally high to severe limitations for regular cultivation. Low to moderate limitations for grazing.*



### 3.2 FLAT LAND – SHOALHAVEN SOIL LANDSCAPE (sf)

Geology is alluvium with alluvial soils on the floodplain.

Notes:

**Fertility**

*General fertility is moderate to low.*

**Erodibility**

*Erodibility of the topsoil is low. The erodibility of the subsoils is high.*

**Erosion Hazard**

*Erosion hazard for non-concentrated flows is slight. The erosion hazard for concentrated flows is low.*

**Surface Movement Potential**

*Moderately reactive topsoil. Non-reactive subsoils.*

**Landscape Limitations**

*Flood hazard*

*Permanent waterlogging (localised)*

*Permanently high watertable*

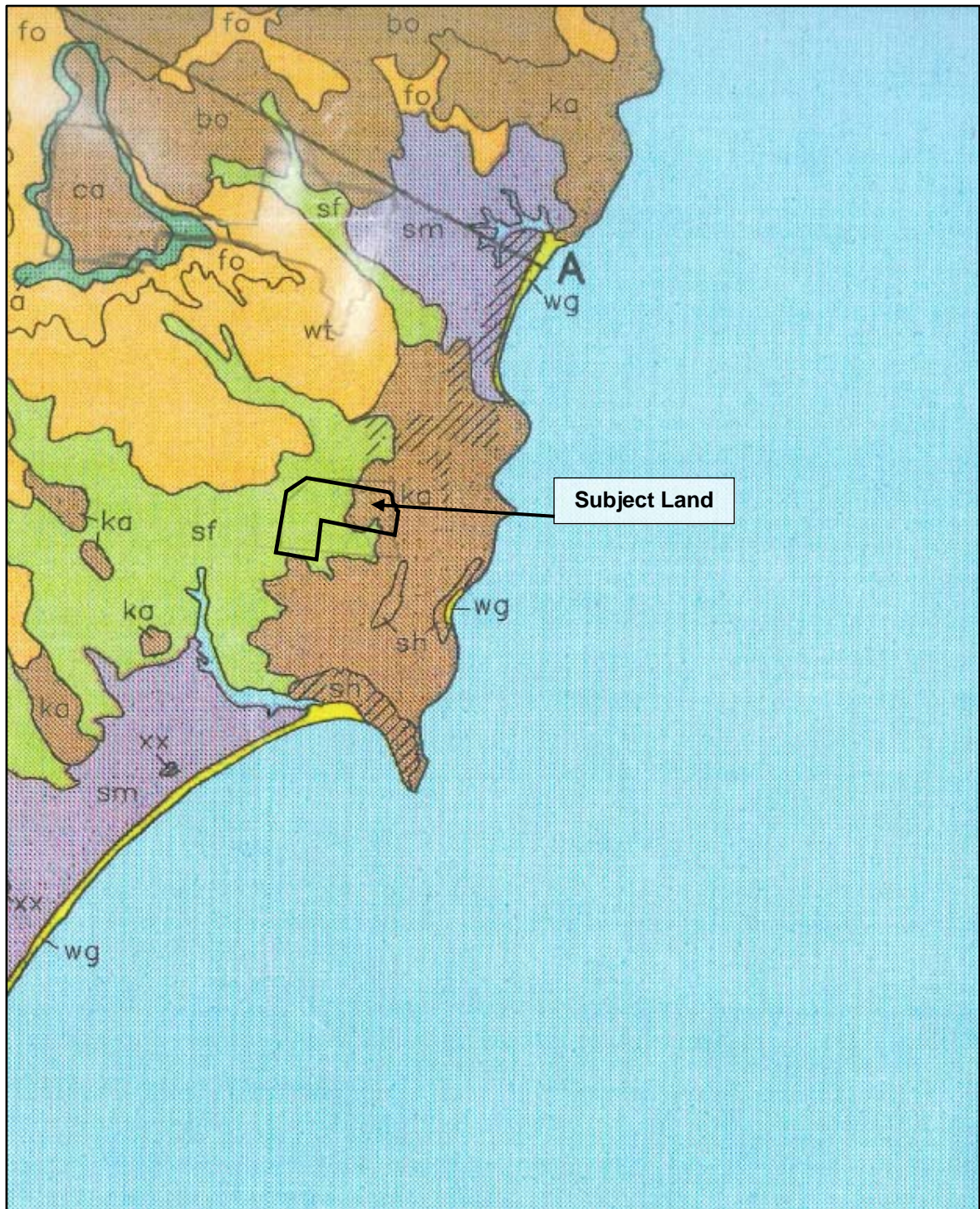
*Seasonal waterlogging*

**Urban Capability**

*Generally high to severe limitations for urban development. (Note: There is no urban development proposed on this soil landscape.)*

**Rural Capability**

*Generally low to moderate limitations for regular cultivation and grazing.*



**Figure 3: Soil landscape mapping (Soil Conservation Service)**  
Scale: 1:70,000 (approx.)



## **4.0 AGRICULTURAL SUITABILITY**

The Department of Agriculture uses a 5 class system to map rural land on the basis of its suitability for agriculture. It is a hierarchical system such that Class 1 is the best agricultural land and Class 5 has virtually no value for agriculture. Classes 1, 2 and 3 are grouped as prime crop and pasture land.

### **Class 1**

*Arable alluvial land with deep, fertile soils having a very good capability for agriculture. These lands have only minor or no constraints to sustained high to very high levels of production.*

### **Class 2**

*Arable lands having a very good capability for agriculture. Minor to moderate constraints to sustained high levels of production are present.*

### **Class 3**

*Grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with sown pasture. The overall production level is moderate because of edaphic factors or environmental constraints. Erosion hazard, soil structural breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required.*

### **Class 4**

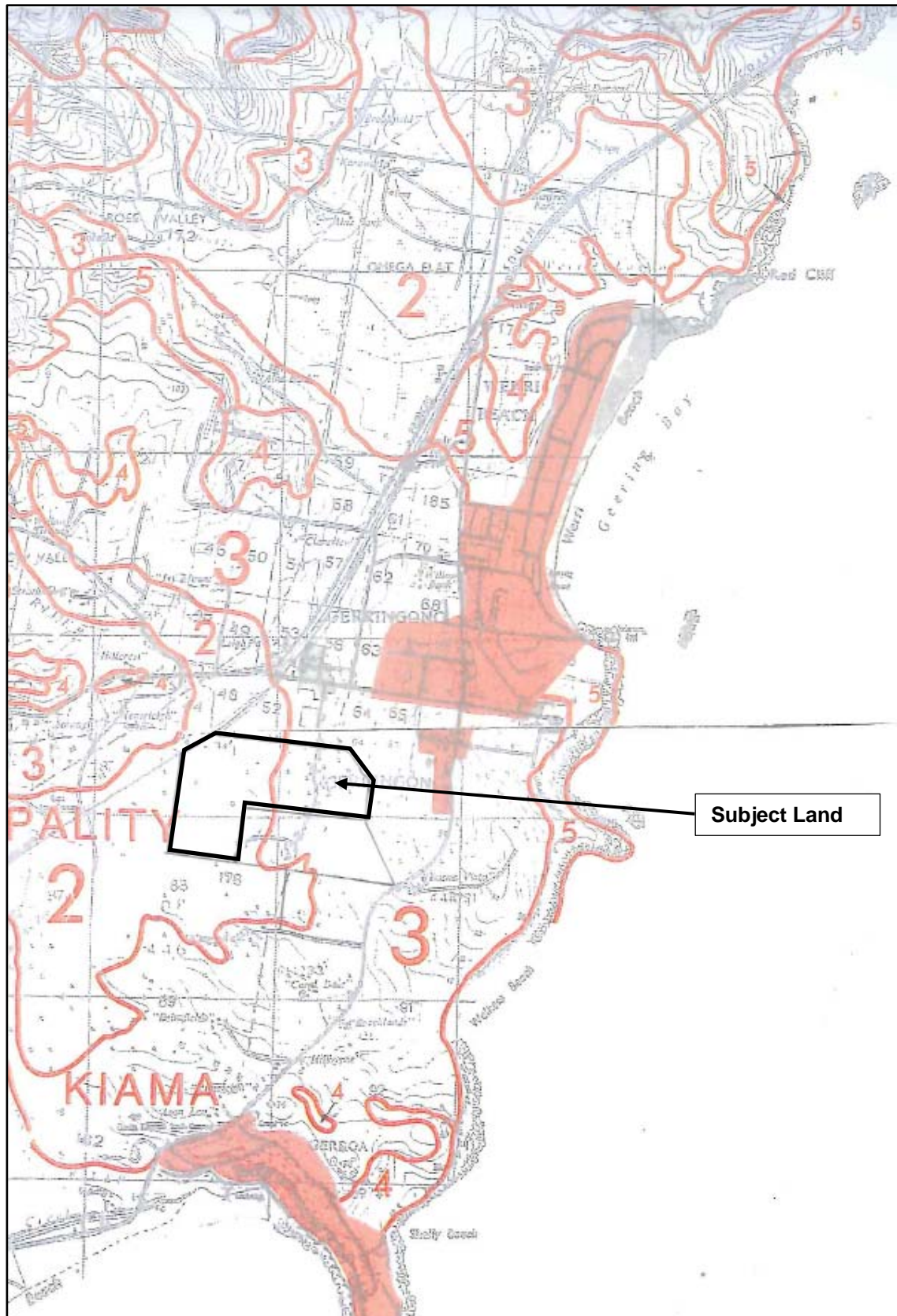
*Land suitable for grazing but not for cultivation. Agriculture is based on native pastures or improved pastures established using minimum tillage techniques. Production may be seasonally high, but the overall production level is low as a result of major environmental constraints.*

### **Class 5**

*Land unsuitable for agriculture or at best suited only to light grazing. Agricultural production is very low or zero as a result of severe constraints, including economic factors which preclude land improvement.*

The subject land appears on the “Kiama” Agricultural Land Classification Map prepared as part of the Illawarra Region Maps (1986) at a scale of 1:50,000. **Figure 4** is an extract and shows that the creek flats are mapped as Class 2 land and the sloping land is Class 3 land.

The Class 2 land is flood liable and is not proposed to be developed. The Class 3 land, above the 1 in 100 year flood line, is the grazing land proposed for residential development.



**Figure 4: Land suitability mapping (NSW Agriculture)**  
Scale: 1:35,000 (approx.)



## 5.0 AGRICULTURAL POTENTIAL

### 5.1 CARRYING CAPACITY

Livestock carrying capacity is related to land suitability classes such that the better the land suitability, the higher the potential carrying capacity.

Stocking rates generally used for beef cattle on improved pastures in the district are:

Class 2 land	1.5 cow/hectare	(18 d.s.e./hectare)
Class 3 land	1.0 cow/hectare	(12 d.s.e./hectare)
Class 4 land	0.5 cow/hectare	(6 d.s.e./hectare)

### 5.2 LAND USE

Lot 2 was used for dairying until 1991 and since then for beef cattle.

In a normal year 50 – 60 breeding cows graze on the property turning off weaners for sale at 8 – 9 months of age.

The property has all necessary improvements for beef cattle including farm shed, stockyards, boundary and internal fencing. Reticulated (town) water is used throughout the property for stock water. Irrigation is not available.

The agricultural potential can thus be calculated as follows:

**Table 1**  
**Current Agricultural Potential**

<i><b>Land Class</b></i>	<i><b>Carrying Capacity (cows/ha)</b></i>	<i><b>Area (ha)</b></i>	<i><b>Stock (cows)</b></i>
2	1.5	27	40
3	1.0	18	18
<b>Total</b>		<b>45 ha</b>	<b>58 cows</b>

ie. in a good season, Lot 2 is able to run about 58 beef cows which corresponds with the landowner's records.

#### 5.2.1 Effect of Rezoning

The eastern part of the property (16 ha approx.) will be excised for residential housing and an environmental protection zone on the flood liable land along Union Creek. See **Photo No. 4**.

This will leave 30 ha (approx.) of the most productive Class 2 land for the beef cattle enterprise to continue.

**Table 2**  
**Agricultural Potential after Rezoning**

<i>Land Class</i>	<i>Carrying Capacity (cows/ha)</i>	<i>Area (ha)</i>	<i>Stock (cows)</i>
2	1.5	27	40
3	1.0	3	3
<b>Total</b>		<b>30 ha</b>	<b>43 cows</b>

ie. there will be a 25% reduction in carrying capacity from 58 cows to 43 cows.

Vehicle access through Lot 2 to the adjoining rural land (Lot 11 DP 1045242) will continue as at present. (See **Figure 2**).

### **5.3 FINANCIAL RETURN**

The latest farm budget from NSW Department of Primary Industries indicates a gross margin of \$35,489.00 from coastal weaners on improved pasture from a 100 cow herd. See **Appendix A**.

**Table 3**  
**Effect on Financial Returns**

<b>Property</b>	<b>Current Potential</b>		<b>After Rezoning</b>	
	Stock (cows)	Gross Margin	Stock (cows)	Gross Margin
Lot 2 DP 1168922	58	\$20,583.00	43	\$15,260.00 Reduction in return – 25%



## **7.0 CONCLUSION**

This report is an agricultural assessment of a rural property at Gerringong, parts of which are proposed to be rezoned for residential development.

The land is mapped by NSW Agriculture as prime crop and pasture land. It is partly mapped as Class 2 and partly mapped as Class 3. The Class 2 land generally comprises the more fertile alluvial creek flats which are subject to occasional flooding. The Class 3 land comprises the hilly grazing land above the flood line. All the development will be on the Class 3 land and the Class 2 land will continue to be used for agriculture.

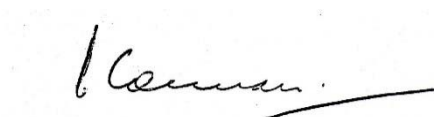
The rezoning will affect the property as follows:

- Lot 2 DP 1168922. An area of 16 ha (approx.) will be excised from a property of 45.83 ha resulting in a 25% reduction in carrying capacity from 58 to 43 cows. At this level of production it can continue as a viable part-time enterprise.

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The township of Gerringong is surrounded by prime agricultural land. If it expands outwards, there is no poor quality agricultural land which could be utilised. This proposal, fortuitously, is confined to Class 3 land and allows the continued use of the Class 2 land for agriculture.

There will only be a minor loss in agricultural production resulting from the proposed rezoning.



Peter Cowman  
AGRICULTURAL CONSULTANT

# APPENDIX A

## **Beef Cattle Gross Margin Budget (April 2019) Coastal Weaners on Improved Pasture**

Lot 2 DP 1168922  
Campbell Street, Gerringong



## BEEF CATTLE GROSS MARGIN BUDGET

Farm enterprise Budget Series: April 2019

Enterprise: Coastal weaners improved pasture

Enterprise Unit: 100 cows

INCOME:			Standard Budget	Your Budget
42	steer weaners @	\$630.88 /hd	\$26,497	
19	heifers weaners @	\$424.65 /hd	\$8,068	
0.6	CFA Bull @	\$1,760.00 /hd	\$1,056	
7	CFA cows @	\$963.20 /hd	\$6,742	
15	Other culls @	\$963.20 /hd	\$14,448	
<b>A. Total Income:</b>			<b>\$56,812</b>	
<b>VARIABLE COSTS:</b>				
Replacements	1 Bull @	\$3,500 /hd	\$3,500	
Livestock and vet costs: see section titled beef health costs for details.			\$2,426	
Fodder crops / hay / grain			\$0	
Drought feeding costs.			\$0	
Pasture maintenance (173 Ha of improved pastures)			\$10,813	
Livestock selling cost (see assumptions on next page)			\$4,584	
<b>B. Total Variable Costs:</b>			<b>\$21,323</b>	
<b>GROSS MARGIN (A-B)</b>			<b>\$35,489</b>	
<b>GROSS MARGIN/COW</b>			<b>\$354.89</b>	
<b>GROSS MARGIN/DSE*</b>			<b>\$25.68</b>	
<b>GROSS MARGIN/HA</b>			<b>\$205.14</b>	
			GM including pasture cost	GM excluding pasture cost
			\$35,489	\$46,301
			\$354.89	\$463.01
			\$25.68	\$33.50
			\$205.14	\$267.64

### Change in gross margin (\$/cow) for change in price &/or the weight of sale stock

(Note: Table assumes that the price and weight of other stock changes in the same proportion as steers. As an example if steer sale price falls to 242c/kg and steer weight to 230 kg, gross margin would fall to \$291 per cow. This assumes that price and weight of all other sale stock falls by the same percentage.

Liveweight (kg's) of Stock sold	Steer sale price cents/kg live				
	232	242	252	262	272
Steer wt.					
-40 kgs 210	229	248	267	285	304
-20 kgs 230	270	291	311	331	351
0 250	311	333	355	377	399
+20 kgs 270	352	376	399	422	446
+40 kgs 290	393	418	443	468	493

GM \$ per Cow

An increase of 5% in weaning percentage increases gross margin per cow by \$23.78

**Summary of gross margins for NSW beef enterprises, April 2019**

Enterprise	No. of hectares		GM/ha	GM/DSE
	imp	nat		
Inland Weaners		372	129.78	32.45
Coastal weaners- unimproved pasture		254	67.20	16.83
Coastal weaners- improved pasture	173		205.14	25.68
Butcher vealers	209		239.26	29.98
MSA at 20 mths	80	306	194.12	40.24
Feeder steers		424	173.81	43.50
Grow out early weaned calves 160-340kg	80		416.47	52.30
Growing out steers 240-460kg	108		412.04	51.57

Gross Margins quoted include pasture costs.

Individual budgets also report gross margins without pasture costs.