Farm Management Plan

Organic Horticulture and Beef Cattle Production

1363 Whittlesea-Yea Road Kinglake West

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Contents

Plan Objective:

This Farm Management Plan is drawn to provide an assessment and value of the current agricultural activities and identify the agricultural values and opportunities available from the proposed subdivision and dwelling excision.

This plan assumes approval of the subdivision and that the current horticultural and agricultural activities will be continued with some recommendations for how that could be improved.

Property Details:

Owner:	Agyakar Singh Grewal
Property Address:	1363 Whittlesea-Yea Road Kinglake West
Property Description(s):	Allotment 4B Parish of Kinglake
Area:	43.5 Hectares
Local Authority:	Murrindindi
Zoning / Overlay(s):	Farming Zone Schedule to Farming Zone Environmental Significance Overlay Environmental Significance Overlay Schedule 1 Bushfire Management Overlay
Current Use:	Horticulture and Grazing Animal Production

Property Overview:

The proposed subdivision creates two new properties, a 2-hectare house lot at the front and a farm of 42.3 hectares at the rear. The created farm lot will hold 10 hectares in a shade house, growing tens of thousands of blackberry, blueberry and kiwi berry plants. There will also be 24 hectares of grazing paddocks and a 5-hectare waterway conservation and protection area.

The proponents intend to retain the house and house lot, which is their home. The preference is to sell the horticultural business, but it will be shut down and redeveloped as grazing if the sale is not an option. That would represent a reduction in agricultural production from $2.7 million to about $60,000, assuming 40 cattle as the property capacity (MLA). There are not expected to be any major issues between the house site and the organic horticulture production, which has a low spray requirement. The farm is only operated during daylight hours.

This property is already a major agricultural producer and a leading supplier of organic blueberries and blackberries to the major supermarkets. The owners have spent the last six years creating a high-quality, organic farm, and it was always hope that one of their children would take over the property and continue the farm development, but like so many farming families, it hasn't happened that way.

The farm is a highly productive horticultural and agricultural operation already producing:

- 10,000 trays of organic blueberries (12 punnets per tray).
- 8,000 trays of organic blackberries
- 500 trays of organic kiwi berries
- 26-yearling beef cattle
- 300 rolls of hay for sale

The property has significant scope to increase productive output as well. The paddocks used for grazing are suitable for additional horticulture or an increased grazing program. A large volume of the irrigation waters remains unused most years, a function of the high rainfall the area receives.

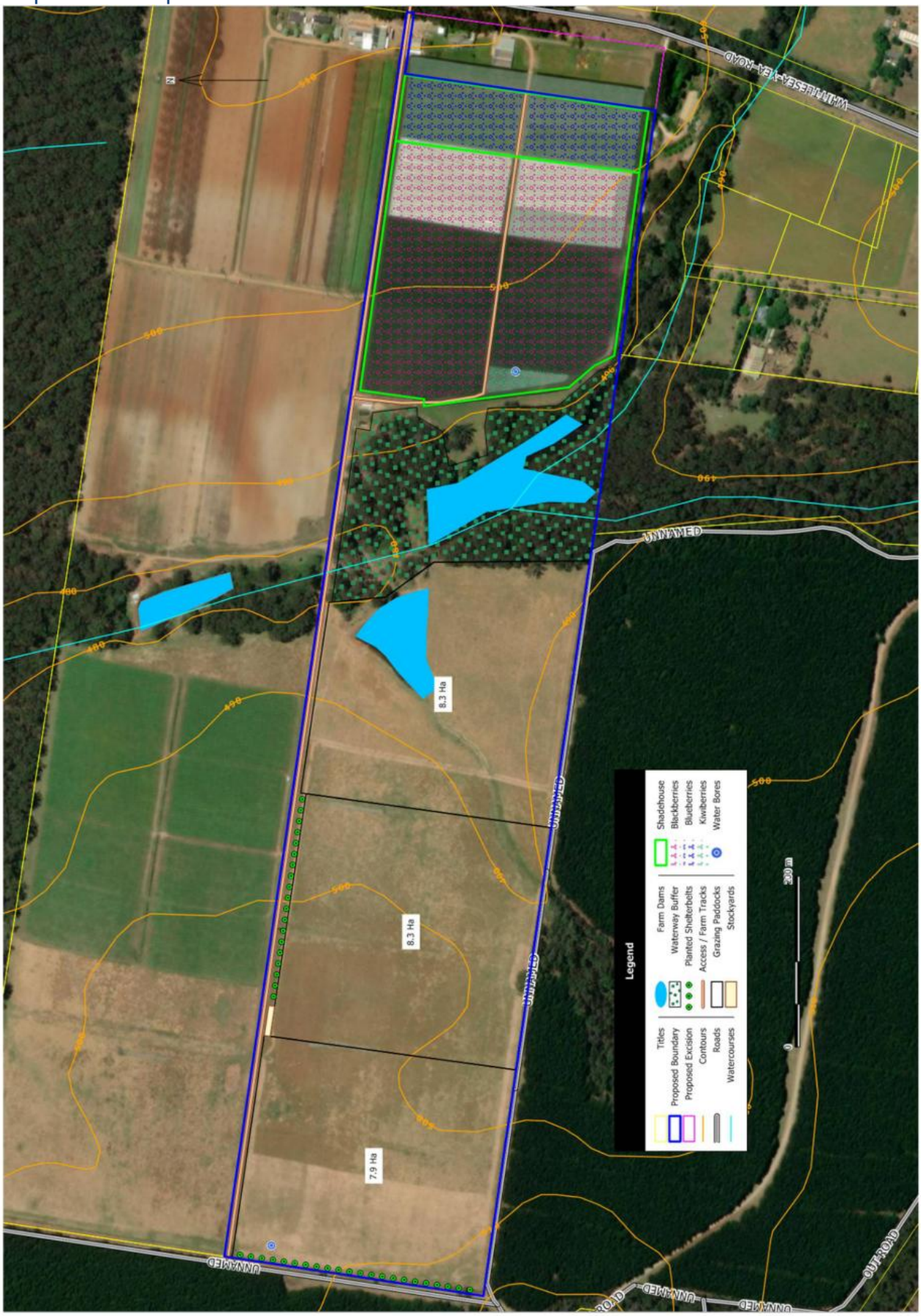
The Grewal family still farm on the adjoining property, and no doubt Mr Grewal will continue to provide guidance and management to that operation; retaining extensive agriculture knowledge and experience in the farming zone is hugely beneficial.

The proposed subdivision is seen as beneficial to agriculture. The equity in the property represents a large part of the proponents' superannuation, and they have invested heavily in creating an outstanding and successful horticultural business.

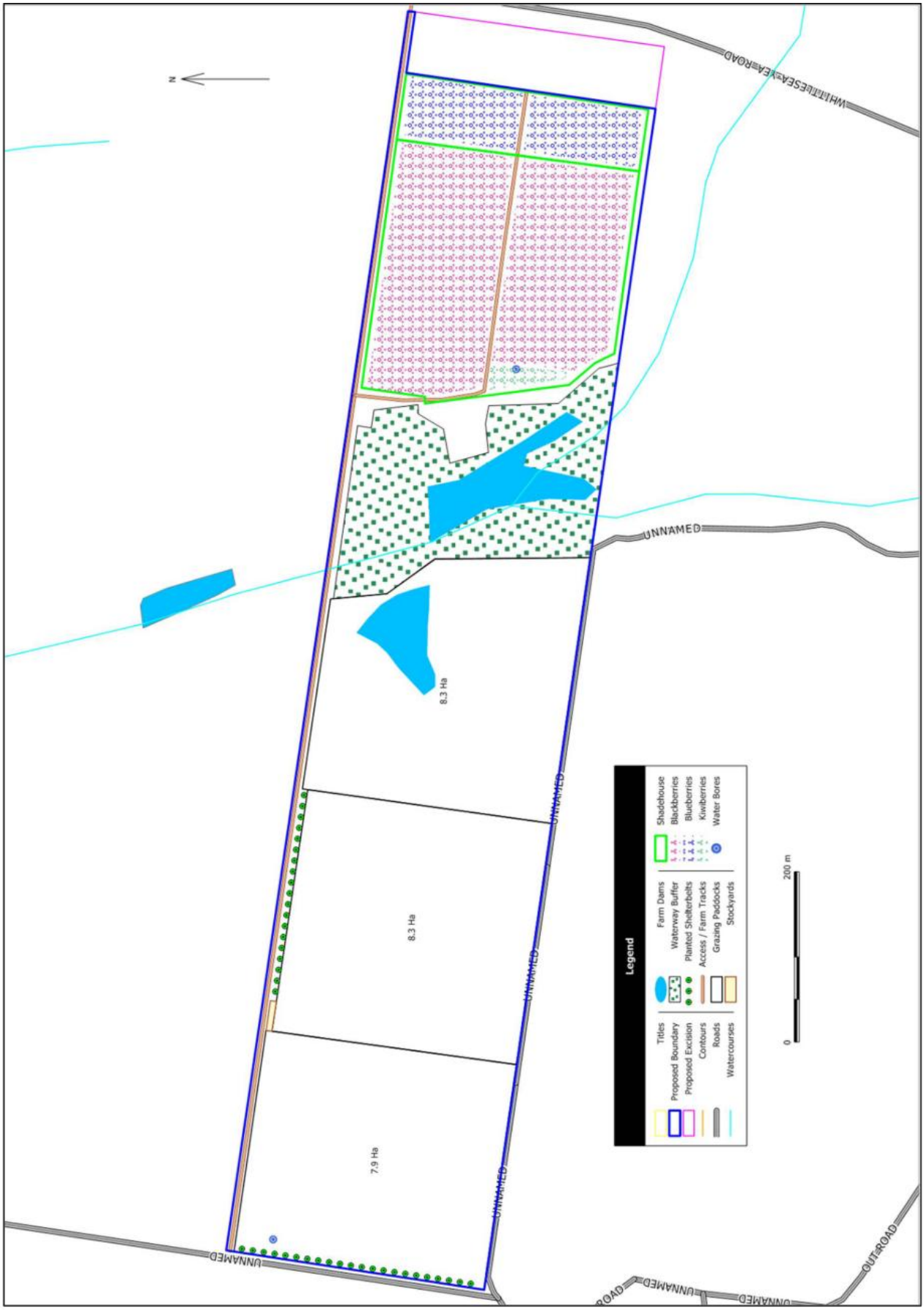
Subdividing allows the owners to retain their home and allows them to offer their horticultural farm and business to others. The new owner will be able to continue an important and successful farm with plenty of scope and land to continue improving the property's agricultural output.

Map 1: Property Location

Map 2: Farm Map



Map 3: Farm Layout



Map 4: Property Dimensions

Farming Factors:

Site Topography:

The topography of the property is described as gentle undulation with a fall from the road to King Parrot Creek, then rising again towards the rear of the site. There is a total elevation change of 20 metres across the entire property. The major topographical feature of the property is King Parrot Creek.

Climate:

Kinglake West climate statistics:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max (°C)	22.7	23.2	20.4	16.1	12.3	9.5	8.6	9.8	12.3	15.4	18.0	20.8	15.8
Mean Min (°C)	10.9	11.8	10.6	8.7	6.8	4.7	3.8	4.1	5.2	6.6	7.7	9.5	7.5
Mean Rain (mm)	71.7	59.1	62.7	88.6	91.7	110.7	100.7	117.2	104.2	93.4	99.5	83.1	1055.6
Median Rain (mm)	69.2	55.8	57.0	85.2	90.4	108.2	102.4	125.2	89.7	75.3	88.0	68.8	1056.8
Mean Rain Days	7.2	6.0	8.1	8.8	12.2	12.4	14.2	14.6	12.4	11.8	10.1	8.8	126.6

Data: BOM 86142 Toolangi, Rainfall BOM 86374 Kinglake West

The climate is the typical cool temperate type of warm, dryer summers and cool, wet winters with reliable rainfall across the entire year. The climate is ideal for the chosen agricultural activities.

Water Supply:

The property is well served for water, with three bores and two dams holding an estimated 20 megalitres of water that replenish 2-3 times each year. The irrigation for all horticulture is installed and functional, with all pumps, fertigation equipment and drippers for individual plants installed.

The stock water is provided from a bore at the rear and held in a water tank to allow gravity feed to the troughs in each paddock.

Weed and Pest Management:

The property is generally clear of weed issues, although there are some wild blackberry plants across the property which are managed by physical removal.

The outside fence is entirely high cyclone fencing to exclude pest animals such as deer, wild goats and foxes from the adjoining pine forest, and this has been effective. Kangaroos and wombats are still finding ways onto the site and are accommodated.

Soils:

The property land class is typical of the region, productive well-structured clay loams over heavy clay classed as duplex soil. The soils may be prone to waterlogging during wetter periods.

The farm's agronomist provided two soil test results to indicate the soil quality and structure. These soil results are provided for the horticultural activities, and it should be assumed that the grazing paddocks would have less fertiliser used, and so would be lower levels. The results will provide an indicator of those soils, though.

The soils have been previously tested for residual contaminants and returned clear results.

Soil observations (laboratory soil test results next page):

- Soil is rated as clay loam.
- Ideal soil pH (ph $CaCl_2$ 5.7), although blueberries prefer more acidic soil.
- Low phosphorus levels (Olsen P 7.7 & 9.7 mg/Kg)
- Elevated potassium levels (350 & 490 mg/Kg)
- Fair/elevated sulphur levels (38 & 16 mg/Kg)
- Very low nitrogen at the time of testing (seasonally variable).
- Good Organic Carbon (2.8 & 3.1 %).
- All trace element levels report low; zinc and boron particularly are important for berries.
- Cation levels are of excellent balance, indicating a very well-structured soil.
- Good electrical conductivity and sodicity, indicating no salt issues.

Recommendations:

The soil is ideal for horticulture, with excellent structure, cation balance and pH. The soil fertility is lower than ideal, specifically phosphorus. Potassium is elevated and will not need to be applied.

Soil nitrogen was very low at the time of testing, which will impact leaf and shoot development, particularly in springtime. The areas between rows are grassed, and grass can pinch soil nitrogen. The soil molybdenum is also very low, and molybdenum is an important part of the nitrogen cycle, and this may need to be corrected to improve the nitrogen cycle.

Soil trace elements report low. Zinc and boron are especially important for fruit set and leaf quality. Before any trace element corrections are made, it is always beneficial to complete plant tissue analysis to determine any detrimental deficiencies.

The found soil levels are good for pasture production except for phosphorus; at these levels, pasture grass will not tiller properly, and grass production will remain low.

Overall the correction is easily achievable, and agricultural production will increase.

Ag Soil Test Results:

Farm: Agyakar **Sample Date:** 21/09/2021

Sample Name		**Blackberry**	**Blueberry**	
Lab Sample No.		TN200000184	TN200000184	
Test Depth (cm)		0-10	0-10	
Soil Colour		Brown	Brown	
Gravel %		0%	0%	
	Unit	**Level Found**	**Level Found**	**Good Range**
pH Level (H_2O)	pH	6.0	6.5	5.6 - 6.4
pH Level ($CaCl_2$)	pH	5.7	5.7	5.0 - 6.0
Aluminium ($CaCl_2$)	mg/Kg	13.0	10.0	< 2.0
Conductivity	dS/m	0.70	0.12	< 4.0
Phosphorus Olsen	mg/Kg	7.7	9.7	25
Phosphorus Colwell	mg/Kg	23	29	60 - 90
Potassium Colwell	mg/Kg	350	490	250
Sulphur	mg/Kg	38.0	16.0	20
Organic Carbon	%	2.8	3.1	3 - 6
Ammonium Nitrogen	mg/Kg	3	2	
Nitrate Nitrogen	mg/Kg	4	2	
DTPA Copper	mg/Kg	0.31	0.27	> 1.5
DTPA Iron	mg/Kg	39	100	100 - 400
DTPA Manganese	mg/Kg	1	1	> 20
DTPA Zinc	mg/Kg	0.8	0.5	> 5
Boron (Hot $CaCl_2$)	mg/Kg	0.6	0.8	3
Cations	**Unit**	**Level Found**	**Level Found**	**Good Range**
Cation Exchange Capacity	meq/100g	9.06	15.92	10 - 20
Exchangeable Calcium	meq/100g	6.80	12.50	
	BSP %	75.06	78.52	70 - 85
Exchangeable Magnesium	meq/100g	1.30	2.00	
	BSP %	14.35	12.56	10 - 20
Exchangeable Potassium	meq/100g	0.76	1.20	
	BSP %	8.39	7.54	3 - 8
Exchangeable Sodium	meq/100g	0.10	0.12	
	BSP %	1.10	0.75	< 2
Exchangeable Aluminium	meq/100g	0.10	0.10	
	BSP %	1.10	0.63	< 2.0
Classification		Clay Loam	Clay Loam	

Paddock Layout:

Currently, there are three large paddocks that are suitable for the grow-out cattle and hay production for which this area is used. More paddocks could be created, allowing the introduction of rotational grazing, allowing a significantly higher stocking rate if desired. Rotational grazing improves pasture use efficiency and allows greater recovery time between grazings. Rotational grazing involves moving livestock through a series of paddocks, so when they have finished grazing the last paddock in the series, the first paddock has recovered to allow the rotation to recommence. Typically, rotational grazing can produce 15-50% more grass from the same grazing area.

Pasture:

The pasture quality is fair, and the cover is good. Modern perennial agricultural grass could be introduced to improve productive output. The pastoral area could double the pastoral Return by combining smaller paddocks for rotational grazing, soil fertility improvement, and higher-producing grasses.

Hay Production:

The property currently produces significantly more grass than is needed, and a contractor cuts rolls of hay for sale to other farmers. This is usually 2-300 X 500-kilogram rolls, of which 50 are kept on the farm for the stock if needed.

Horticulture Layout and Management:

A significant 10 hectares of shade house on the property houses blueberries, blackberries and kiwi berries. All horticulture is organically certified, and chemical use is avoided across the property generally. Fertility is provided from organically certified methods such as chook manure, fish emulsion, soil conditioners, and fertilisers. A propagation greenhouse is onsite to produce replacement plants for disease or plant failure.

The owners complete general maintenance, management, and major tasks such as picking and pruning using contract agricultural labour. Fruit is picked and packed daily; the season lasts 3-4 months.

The product is packed and marketed through Vibifresh, which supplies the major supermarket chains. The product is also sold through a roadside stall on the adjoining property.

Every plant has a pressure-compensated drip irrigator and a fertigation mixer in the water line. Irrigation is only used if required, and it has been several years since full-season irrigation has been required.

The proposed subdivision does divide the shade house between the new titles, the front six rows of blueberries are unproductive and have been removed, and that part of the shade house will be demolished.

Beef Cattle:

Each season calves are brought onto the property to grow out for sale and manage the pasture. This is 26 calves purchased through an agent, held for about 12 months, and sold at 300-350 kilograms of weight. The preferred breed would be Angus, but any breed will achieve similar returns in the current market. Stock is fed supplementary hay and fodder if and when required, although this property's production season is long.

Infrastructure and Business Management:

Infrastructure Investment:

All the infrastructure is in place for the proposed property to maintain and commence immediate production, although a large farm shed would be a useful addition to the farm for equipment and packaging, which is currently held off-farm. Services and access are already installed.

The property doesn't require a lot of farming equipment, and the existing equipment could be purchased with the property if required. Three to four tractors operate, and for fruit-picking, trailers hold transfer bins; the full transfer bins are sent to a processing and packing plant.

Staffing:

The proponent and his family manage the property during the off-season. During the harvest, contract farm labour is engaged, and as many as 100 people can be packing and picking during the peak. Contract labour is also used for plant shaping and pruning.

Allowance for possible future expansion:

The property offers significant development opportunities for horticultural expansion. The paddock area is underused, and that area's landform and soil quality would be readily converted to a crop or additional shade housing.

Opportunity Cost:

Horticulture is the pinnacle of soil-based agriculture, and the yields here are already high. The plants will continue to increase in yield as they further establish and mature. The pastoral areas were planned for conversion to horticulture, but age and a lack of succession mean the proponent will not do that. That opportunity is available to a new owner.

Environment/ Neighbourhood Factors:

Natural Resource Management:

The property is typical of high-quality farmland, mostly cleared for agriculture. Some good quality vegetation and regrowth are retained and fenced out along the creek frontage as ecological habitat and water buffering.

Erosion and Compaction:

The property is not seen as prone to water erosion, and there is no evidence of erosion occurring. There are no high-energy water flows, a gentle landscape, and no water run-on, the soil is of good structure, and good vegetation cover will remain that way.

The property is in high rainfall areas, and compaction of soils in the paddocks could occur in areas where the animals camp or traffic areas such as gateways, fence lines, stock troughs and shelters. Heavy vehicle traffic should be confined to constructed tracks, particularly during wetter seasons.

Drainage:

The property has no constructed drainage relying on overland flow to the waterways and soil infiltration for water clearance. There are no run-on and run-off waters from the roadway and neighbouring properties apart from the waterway, and that flow will not be altered in any way.

Fire Management:

The property is entirely located within a bushfire management overlay, and fire plans have been drawn. The farming use itself is not seen to contribute to fire risk, and conversely, managed and irrigated horticulture offers resistance to fire run. The property is generally well maintained, and pasture is cut for hay before each fire season.

Firefighting water will be available in water tanks and the farm dams should that ever be required.

Adverse impacts on adjacent land:

The property is already utilised for horticulture and grazing, and there is not expected to be any change to the amenity from the subdivision.

Horticulture can be busy for long hours in season, and mechanical noise can be expected, but no different from any other farm in a farm zone. The owners actively avoid manufactured chemicals, so the drift of harmful chemicals should be near zero, and those tasks, if required, should be completed in appropriate weather conditions.

Some animal odour or noise will be generated occasionally, but the same as any similar grazing enterprise.

Adverse impacts from adjacent land:

The properties within a 500-metre radius of the proposed dwelling are utilised for grazing animals, lifestyle properties or horticulture. There is not expected to be any change in circumstance from those properties.

Animal Welfare and Biosecurity:

Animal welfare, in this instance, is expected to be very good. The practice of cattle rearing is almost entirely about animal welfare in that animals are specifically cared for, and so is generally a very good life for animals.
A list of best practice animal welfare guidelines is available from http://animalwelfarestandards.net.au/. This a comprehensive and generally common-sense approach to caring for farm animals driven largely by the buyer's expectations.

Biosecurity is about preventing and containing disease and negative issues that could impact the farm and agriculture.

Recommended (not compulsory) Procedures for Biosecurity

- The farm should have a documented Farm Biosecurity Plan.
- All stock movements onto the farm have known health status (e.g. Livestock Health Statement/Declaration or equivalent)
- All introduced stock are inspected for signs of ill health or disease on arrival at the property and kept in isolation for a period
- Livestock are inspected regularly for ill health and disease, and appropriate action is undertaken where necessary
- The risk of livestock straying onto or from the property is minimised
- There are systems to notify a veterinary practitioner or animal health officer if an unusual disease, illness or mortality is observed.
- Berries are monitored regularly for any notifiable pests and diseases.
- Woody plant material is retained onsite or treated before removal.
- Where reasonable and practical, the movement of people, vehicles and equipment entering the property is controlled and, where possible, movements recorded
- Any other procedures or practices that contribute to minimising the risk or spread of disease

The property has the required Property Identification Code (PIC) as required by AgVic for livestock trading and movement. Blackberries, blueberries and kiwi berries are not subject to licencing.

Site Photos:

Image 1: Looking west over the property from Whittlesea-Yea Road

Image 2: Inside the shade house

Image 3: Looking north over the dwelling area to be excised

Image 4: Irrigation and fertigation equipment; every plant has a pressure-compensated dripper.

Image 5: Looking east over the farm from the rear boundary

Image 6: Growout stock in one of the paddocks

Image 7: Looking east over the horticultural areas showing the irrigation water storage.

Image 8: The waterway area has well-established trees for ecological habitat and water quality improvement.

Image 9: Each paddock has a gravity water supply and troughs

Image 10: The external fencing is cyclone fencing to exclude pest animals with Allocasurina plantings for future shade and wind protection.