PHILLIPS
AGRIBUSINESS

Statement of Expert Evidence

SHEPPARTON SOLAR PROJECT

Neoen Australia Pty Ltd

Phillips Agribusiness
66 Linacre Road
Hampton Vic 3188
May 2018

1. Introduction

I was commissioned by White & Case, Lawyers, Level 32, 525 Collins Street, Melbourne to prepare an expert witness statement on the agricultural value of rural land that is potentially to be used to construct and operate as a 1000MW photovoltaic solar farm.

The Project land is located in the Lemnos district. The land is in five land ownerships with individual holding sizes of 120, 40, 80, 40 and 202ha respectively. The consolidated area of the Project land is 482ha.

My Agricultural Report is attached as **Appendix A.** The report considers the agricultural value of the Project land particularly in relation to the objectives and strategies for the protection of agricultural land within Clause 14.01 of the Greater Shepparton Planning Scheme. The issues addressed by my report include:

(a) The agricultural quality and productivity of the Project land;
(b) The strategic significance of the Project land in the local, regional and state context;
(c) The economic importance of the Project land for the agricultural production and processing sectors within the Shepparton region.

I formally adopt the information, analysis and conclusions contained in the Agricultural Report and this statement as the basis of my Expert Evidence to the Panel which has been convened to consider such issues.

2. Qualifications and Experience

Name and address
Raymond Neil Phillips, 66 Linacre Road, Hampton, Victoria 3188

Qualifications
Bachelor of Agricultural Science, Massey University of Manawatu, New Zealand;
Master of Business Administration, Melbourne University.

Experience
My specialist skills are in farm and business management, environmental and land use surveys, water recycling and irrigation developments, industry studies and strategic planning. My experience is in agriculture under temperate climatic conditions, usually in the livestock, cropping and intensive agricultural industries.

I have been engaged in numerous studies which consider the impact that development has on farming practice and its sustainability. My experience has been at a State, regional and local level.

A copy of my curriculum vitae is provided in **Appendix B**

3. Instructions and Information

I was instructed by White & Case to consider the agricultural quality and productivity of the Project land, its strategic significance in the local, regional and state context and its economic importance for agricultural production and processing in the Shepparton region.

My investigation included:

- A review of the documentation provided by White & Case namely, scope of the study, a copy of the planning permit application with supporting documentation, further information requested by Greater Shepparton City Council, objections received, summary of Neoen response, unconfirmed minutes, Ordinary Council meeting and Guide to Expert Evidence;
- An inspection of the Project site to determine agricultural capability, discussions with all land owners on current management practices and a broader inspection of surrounding land holders and the types of agricultural use.
- Brief discussions with government agencies including Goulburn Murray Water and Department of Economic Development, Jobs, Transport and Resources.

The information I relied upon when preparing my report were the various reports and instruction notes from White & Case detailed above, aerial photography from Google Earth and numerous technical reports and records available on line and referenced in my Agricultural Report.

4. Summary of opinion

The natural resource characteristics of the Project site favour broadacre cropping and grazing activities over intensive agriculture. Soil types and drainage patterns are unsuited to horticulture and only moderately well suited to irrigated perennial pastures.

The environmental suitability of the Project site to broadacre cropping and grazing means that there is no conflict of use between the more rapidly growing and higher value enterprises such as horticulture and dairying. The Project site is neither strategically significant to the rural industries it currently supports, nor of value to the more rapidly growing industries that are seeking to expand or restructure west of the Goulburn River.

The conclusion of this investigation is that the development of a solar farm on the Project site will result in a minor loss to the Shepparton region's agricultural economy through the removal of land from agriculture.

Expert's declaration

I have made all inquiries that I believe are desirable and appropriate and that no matters of significance which I regard as relevant have to my knowledge been withheld from the Tribunal.

R N Phillips
7 May 2018

APPENDIX A

PHILLIPS
AGRIBUSINESS

SHEPPARTON SOLAR PROJECT

Neoen Australia Pty Ltd

Phillips Agribusiness
66 Linacre Road
Hampton Vic 3188

May 2018

Agricultural Management Consultants
Ph: 03 9598 4018; e-mail: ray@phillipsagribusiness.com.au

Contents

1.0 INTRODUCTION

Neoen Australia has lodged a planning application for a permit to construct and operate a 100MW photovoltaic solar farm in Lemnos, approximately 5km north east of Shepparton (Project). The Project site is considered suitable due to its rural location, large area of relatively flat land, the availability of an abundant solar resource, proximity to existing electricity supply infrastructure and ease of access to the site.

The Project would be located across nine parcels of land in five land holdings with a total site area of approximately 482 hectares. Current use is broadacre cropping and grazing.

This report considers the agricultural value of the Project land particularly in relation to the objectives and strategies for the protection of agricultural land within Clause 14.01 of the Greater Shepparton Planning Scheme. A number of issues are to be addressed including:

(a) The agricultural quality and productivity of the Project land;
(b) The strategic significance of the Project land in the local, regional and state context;
(c) The economic importance of the Project land for the agricultural production and processing sectors within the Shepparton region.

The Panel, which is considering the four solar farm applications in the Shepparton district, wish to be informed on the economic value of agriculture within a defined catchment and how the loss from all four developments would impact on the catchment's economy.

This report is specific to the characteristics and impacts that the Neoen Australia Lemnos Project might have and has not considered the impact of the other three projects.

2.0 REGIONAL CHARACTERISTICS

2.1 Regional catchment area

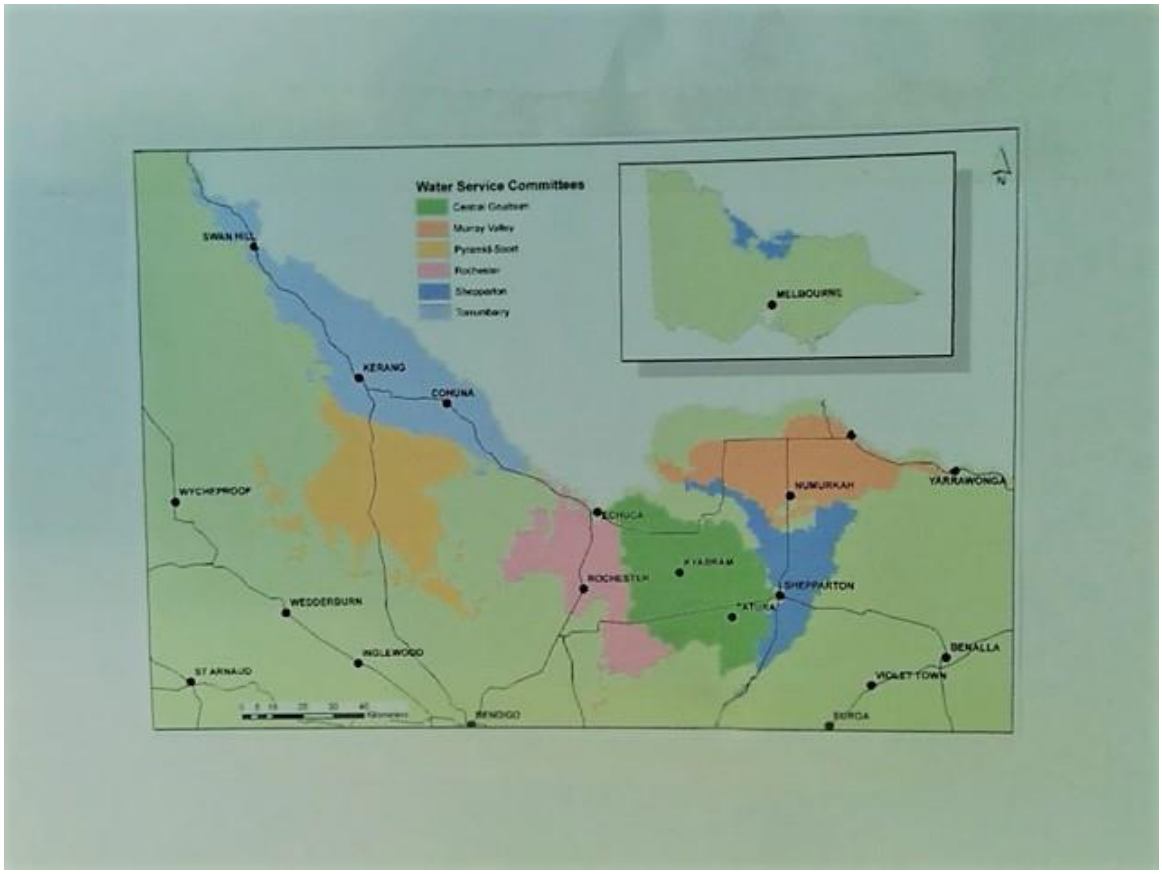
The Project land is located in the Lemnos district where forms part of the Goulburn-Murray Irrigation District (GMID). This GMID is broken up into six water service areas, two of which have relevance to the site because of similarity in soils and land use patterns. The site's location is within the Shepparton water service area but the Central Goulburn water service area has similar characteristics.

Figure 1 shows the six water service areas within the GMID and the location of Shepparton (dark blue) and Goulburn (green). It is sourced from Regional Irrigated Land and Water Use Mapping in the Goulburn Murray Irrigation District Technical Report 2017[1] which conducted a survey of water users across the GMID to better understand how water is being used and where it is being directed.

The natural features that influence the pattern of farming in the region are discussed below. They include climate, irrigation, groundwater, drainage, soil types and land use.

[1] GMID Technical Report

Figure 1: Water service areas, GMID



2.2 Climate

The annual average rainfall for the Shepparton region is 450-500mm. Its distribution is predominantly over the April to October period at around 50mm per month, while for the late spring-summer period it falls to 30-35mm per month. The highest temperatures are recorded in the January-February period at around a mean of 28-30ºC. Because of these summer temperatures, the district is subject to high evaporation rates. The interaction of rainfall, temperature and evaporation provides a growing season under dryland conditions that commences with the autumn break, normally mid to late April and continues through until mid to late October. The availability of irrigation is a strongly modifying feature to crop growth and an essential prerequisite to intensive agricultural systems such as horticulture and dairying.

2.3 Irrigation

The Shepparton district is serviced by the Shepparton Irrigation Area to the east and the Central Goulburn Irrigation Area to the west. The Goulburn River separates the two irrigation districts.

Each property within the irrigation district was originally allocated a water right normally 3.6 ML per commandable[2] hectare. However, in July 2007 water entitlements were unbundled from land and split into water shares which gave the capacity to trade the entitlements independently without reference to delivery, extraction or use.

This has allowed water to move to uses which are considered most profitable, particularly horticulture and to a lesser extent, dairying. It also has an effect on price, where enterprises that have a higher return per ML of water are prepared to pay more than less competitive industries.

Horticulture and dairying provide the highest returns per ML of water, with broadacre cropping, fodder cropping and irrigated pastures for cattle or sheep, significantly less.

The cost of water is also increasing, a function of demand and tighter supply as a significant proportion of water is directed to the environment. Water authorities are upgrading their infrastructure while farmers are doing the same by trying to increase the efficiency of usage, either through growing higher value crops, or implementing more efficient systems of distributing and using water.

This is occurring in the orchard areas through replacing furrow systems with low pressure piped trickle or spray systems. Redevelopment of broadacre cropping and irrigated pasture areas occurs through designing larger bays, laser grading to achieve more efficient water distribution and electronic control systems to reduce labour input.

2.4 Groundwater

The ground water tables in the Shepparton district have been rising over the last 35 years which has caused considerable concern because of the potential deterioration in land quality and the subsequent loss of high value agricultural production.

The aquifers to the east of the Goulburn are localised and complex, and groundwater tables generally fall within the range of 1-3 meters depth. The most effective form of control is via groundwater pumping and this needs to be managed on an individual farm basis because of the complexities of the aquifers.

West of the Goulburn the hydrological characteristics of the region are quite different. They are determined by the Prior Goulburn River course and as a result, the aquifers are more continuous and extensive in their influence. A single pump, with an average pumping rate of 1 ML/day, is able to provide watertable control for 50 or more hectares.

Over the last decade, the initiatives based on groundwater pumping appear to have provided effective groundwater control.

2.5 Drainage

The major drainage line affecting the Project site is O'Keefe Creek, which flows north-westward across the site and forms a floodplain depression. Flooding is subject to periodic events and localised in impact with duration limited to a few days. Crop damage may occur through waterlogging.

[2] Commandable hectare, is that area which is suited to irrigation.

2.6 Soil Types

There are four main soil associations within the Shepparton Irrigation District, namely Shepparton, Lemnos, Goulburn and Congupna. Individual soil types are fully described in "Soils and Land Use in part of the Goulburn Valley"[3]. A brief description of each association is as follows:

Shepparton
The dominant soil type association within the immediate region is Shepparton fine sandy loam which origin was as levees in the prior stream sequence. The surface profile is 15-20 cm in depth and overlies a red brown medium clay which grades into a mottled brown, yellow-grey fine sandy clay of low to variable permeability.

It is considered a high quality soil due to its suitability to irrigation and ability to support a wide range of crops, principally horticulture. Its major constraint is a susceptibility to winter waterlogging when the permeability of the clay subsoil is low.

Lemnos
The Lemnos loam is the dominant soil type of this association. Its profile is a dull or greyish brown loam to 15 cm, overlying a reddish-brown medium or heavy clay. With irrigation, its main use is for pasture, both perennial and annual, although still suitable for fruit and vegetables providing there is a good depth of topsoil, and subsoil permeability is moderate to high.

Goulburn
The heavier and less well drained soil types form this association with the dominant soil types being Goulburn loam and Goulburn clay loam. Their incidence is mostly east of the Goulburn River.

The surface soil profile is a grey brown loam, or clay loam to 10 cm, sharply separated from a yellowish-brown medium or heavy clay. Under irrigation it is used for both pastures and horticulture. However, it is not recommended for stone fruits and vegetables because of its shallow surface profile, and waterlogging hazard.

Congupna
The dominant soil types of this association are Congupna clay loam and Congupna clay.

The Congupna clay loam profile is a grey to brownish clay loam, with rusty colours along root channels, hard and brittle when dry, with variable amounts of buckshot. Surface soil depth is 0-10 cm, and is sharply separated from a brownish grey, to dark yellow grey heavy clay subsoil.

The soil type occupies low plains and shallow depressions within the landform, with Congupna clay occurring in the more marked depressions. It is the least favoured soil for irrigation but can satisfactorily support irrigated perennial and annual pastures.

Regional effect
Within the Shepparton District the better soil types, including Shepparton fine sandy loam and Lemnos loam, are west of the Goulburn River where their lighter texture, deeper profiles and moderate to high permeability are well suited to horticulture. The soils to the east of the Goulburn River where the Project site is located, tend to be heavier in texture, more complex in their distribution and possess a greater on farm requirement for groundwater control.

[3] Poutsma T J & Skene J K M, *Soils and Land use in part of the Goulburn Valley, Victoria,* Victorian Department of Agriculture, Technical Bulletin No.14, 1962.

2.7 Land Use

Table 1 below is also sourced from the GMID Technical Report accompanying Figure 1. The Shepparton and Central Goulburn water service areas are shown by land use.

Table 1: GMID Land Use 2016

	Shepparton			Central Goulburn		
Category	**No**	**Area ha**	**%**	**No**	**Area ha**	**%**
Dairy	103	8049	10.4	363	37493	21.6
Associated dairy	81	3678	4.7	220	11454	6.6
Agistment & fodder	44	3250	4.2	328	14243	8.2
Perennial horticulture	227	6482	8.3	179	5460	3.1
Annual horticulture	12	283	0.4	28	2203	1.3
Cropping	271	19792	25.5	508	45845	26.4
Mixed farming	292	21561	27.8	471	35451	20.4
Grazing	99	6901	8.9	113	7578	4.4
Horses/intensive ag	32	1929	2.5	63	2799	1.6
Lifestyle	645	5755	7.4	1454	11014	6.3
Totals	**1806**	**77680**	100	**3727**	**173540**	100

Some of the key features of this table are:

- The horticultural industries are significant to both irrigation districts, in value and area. They are localised to East Shepparton (Shepparton) and Mooroopna-Tatura districts (Central Goulburn). Orchards are the primary use which include pome fruit (apples & pears) and stone fruit;
- Values are not provided in this data source. However, they are provided in Regional Rural Land Use Strategy, Greater Shepparton Issues Paper 2009 but occur under municipality boundaries rather than irrigation district;
- Dairying is significant to Central Goulburn, less so for Shepparton. Agistment and fodder production are important associated uses;
- Cropping, mixed farming and grazing require similar land and water resources. They are lower value enterprises to horticulture and dairying and are often dryland rather than irrigated.

3.0 SITE CHARACTERISTICS

3.1 Location

The Project land is located at 1190 Cosgrove-Lemnos Road, 1220 Cosgrove-Lemnos Road, 875 Boundary Road, 260 Tank Corner East Road and 85 Crooked Lane. All are within the district of Lemnos.

The Project land is in five land holdings with individual land holdings of 120, 40, 80, 40 and 202ha respectively to form a consolidated area of 482ha. Two of the land holdings are farmed as a single family unit.

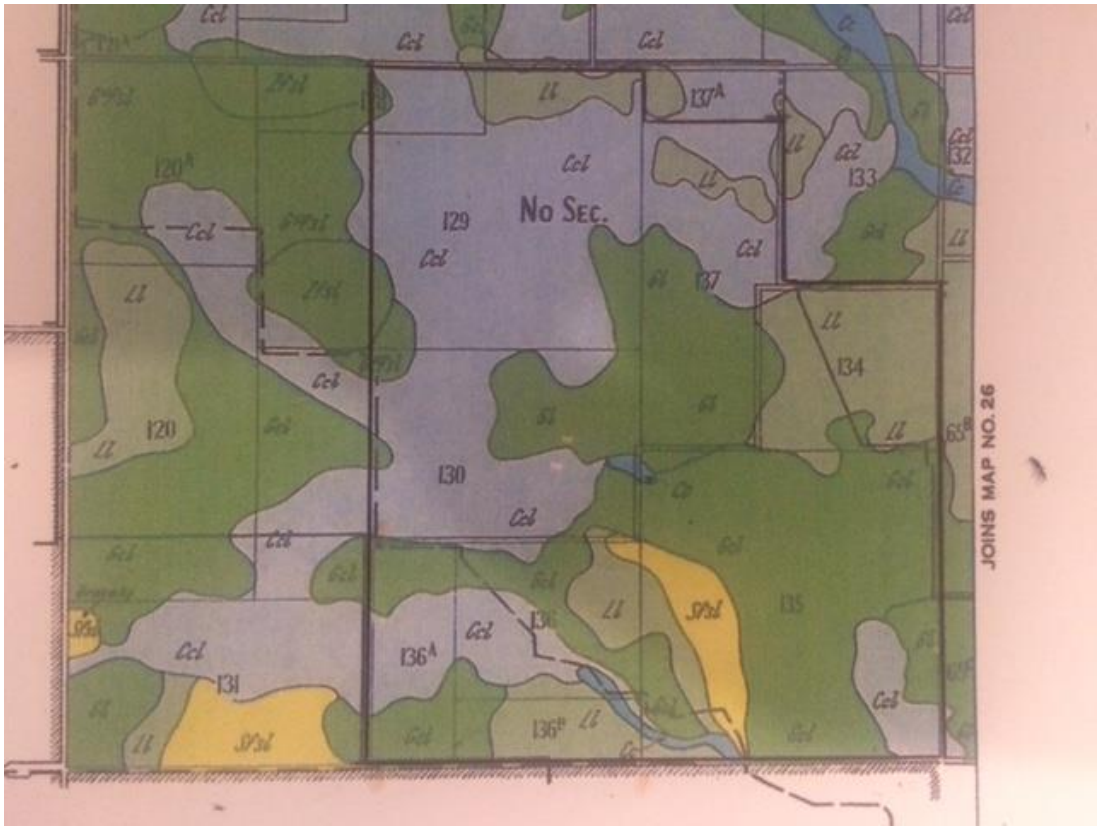
3.2 Natural features

The consolidated land holding is rectangular in shape with road boundaries on three of its four sides. The boundaries are highlighted in black. Landform is flat, the major drainage line being O'Keefe Creek which drains in a north-west direction with its outfall eventually to Broken Creek. The effect of the creek line is to cause localised flooding under high rainfall events which may result in waterlogging of crops.

The soils of the Project site are the five types described earlier but with their distribution a complex overlay varying significantly in area. Figure 2[4] shows the distribution pattern within the site boundaries while Table 2 indicates area, quality class and recommended use.

The soils research was conducted during the period 1944-1962 and has proven to be an accurate representation of soil types and an essential input to irrigation development.

Figure 2: Soil type and distribution on site



[4] Soils and land use in part of the Goulburn Valley, Victoria, JKM Skene & TJ Poutsma, 1962

Table 2: Soils by area, class and use

Table 1: Soil types & crop suitability

Soils, code & colour	Area %	Area ha	Q Group	Crop suitability
Congupna clay loam: *Ccl-purple*	45	217	V	Perennial pastures & cropping
Goulburn loam: *Gl-green*	10	48	1V	Summer & winter cropping, perennial pastures
Goulburn clay loam: *Gcl-green*	30	145	1V	Summer & winter cropping, perennial pastures
Lemnos loam: *Ll-light green*	12	58	111	Pome, pears & stone fruit, field vegetables, irrn pastures
Shepparton fine sandy loam: *Sfsl-yellow*	3	14	11	All horticultural crops
Totals	**100**	**482**		

Table 2 shows the quality group ranking for irrigation suitability (Q Group). The ranking is from 1 to V1 with 1 best and V1 worst (not recommended for irrigation).

Most of the Project site is suited to cropping and perennial pastures. Although there are some areas suited to horticulture (Lemnos loam, 12%, Shepparton fine sandy loam,3%) they tend to be small in area and dispersed throughout the Project site making it difficult to support a commercial horticultural operation.

Broadacre cropping and grazing are the preferred agricultural uses. Irrigation of these enterprise types is of marginal value as the capital cost of development and high operating costs may not be offset through higher yields. The price of water is a critical variable in this calculation.

3.3 Land Management

Four of the five land holders practice dryland cropping on a continuous basis using minimal till techniques. The rotation followed is wheat, wheat, canola. Expected yields for wheat are 4.0-4.5t/ha and canola 2.0-2.5t/ha. One land holder is currently not actively farming his property.

The property and land holder characteristics that determine how the land is being managed are as follows:

- Four land holders own other farming property where they are resident. Hence this land represents only part of their farming portfolio and managed as an extension of the main farm;
- Although all properties possess high reliability water rights only one land holder is using water on farm. For the rest, the water is either being transferred to a home property or sold on the allocation (temporary) water market. In one case, some high reliability water has been permanently sold to fund irrigation redevelopment on site;
- The current land owners consider the Project land to be most suited to broadacre cropping under dryland conditions. The land holder who has redeveloped the irrigation layout on some of his property considers the benefits of higher yields under irrigated broadacre cropping to be less than the cost of capital irrigation upgrade and higher associated operating costs;

- Broadacre cropping under dryland or irrigated conditions is considered the best use of the Project land. The land has a low suitability to horticulture because of its soil type characteristics and flooding susceptibility. Perennial pastures are less constrained but can only be justified if used for high value grazing enterprises such as dairying.
- The area surrounding the Project site is quite diverse in use, varying from livestock grazing under dryland and irrigation, broadacre cropping, irrigated dairying and small holdings essentially of a rural living nature. The East Shepparton horticultural district commences south of the Cosgrove-Lemnos Road and extends further south to Broken River.

3.4 Enterprise economics

Table 3[5] provides indicative gross margins[6] for the two crops commonly grown on a continuous crop rotation cycle. Overhead costs such as operator labour, rates, farm repairs, financing etc are not included and need to be deducted if calculating net farm income.

Table 3: Indicative gross margins: Dryland

		Wheat	Canola
Yield	t/ha	4.25	2.25
Net price	$/t	250	500
Gross income	$/ha	1063	1125
Variable costs	$/ha	431	590
Gross margin	**$/ha**	**632**	**535**

Price and yield are the most significant variables when estimating crop performance, with farmer consensus that a gross margin of $500/ha is a reasonable expectation under dryland cropping. Irrigated broadacre cropping (cereals, oilseeds) is considered a higher risk venture when irrigation layout has to be redeveloped and the price of water is high.

Equivalent gross margins for livestock enterprises (beef, prime lamb) are likely to be in the $350/ha-$800/ha range depending on whether the system is being conducted under dryland or irrigated conditions.

However, the more intensive industries such as irrigated dairying and horticulture have significantly higher gross margins (dairying $1500-$2500/ha, horticulture $6000-$30000/ha) but also quite a different capital and overhead cost structure. Horticulture is reliant on good soils and no restriction to irrigated water supply. Dairying requires larger land areas (industry average 210ha, 332 milking cows) with most of the industry located north-west of Shepparton where soils are more suited to intensive production.

[5] Data source is from Agriculture Victoria templates using local physical and financial values
[6] Gross margin is gross income less variable costs including seed, fertiliser, sprays, cultivation, harvest etc.

4.0 STRATEGIC SIGNIFICANCE OF SITE

4.1 Water market trends

Water and land are the two crucial inputs to northern Victorian agriculture. The de-bundling of water from land in 2007 has provided the opportunity of more readily meeting water demand and shifting water use to where the returns were potentially the greatest. However, a constraint is the loss of water to the environment which has meant a smaller pool being available to agriculture.

The strongest regional demand has come from perennial horticultural (almonds, grapes, olives)[7] where adequate water is crucial to maintain plant health and satisfactory yields. Their share of available agricultural water is increasing. Conversely, mixed farming (cropping, stock) are less able to afford the price of water and there has been a reduction in allocation through the sale of permanent allocation. Dairying appears to be maintaining its position although it has recently suffered both seasonal (drought) and economic (price) difficulties which has led to the sale of some high reliability water to offset debt or redevelop irrigation land.

The traditional position of owning land and water no longer applies. The anticipated outcome of water being an independent asset is that it will now move to its highest and best use resulting in a more dispersed distribution. Irrigators are increasing their reliance on the allocation (temporary) trade and reducing their permanent (high reliability) capital exposure as a means of getting a better return on assets and potentially, a reduction in risk.

4.2 Industry significance of local agriculture

Grain

Current farming practice on the Project site is to service the grains market, both cereals and oilseeds. The major marketing channel is GrainCorp Limited. The company's core business is the receival and storage of grain and is listed on the Australian Stock exchange. Its operations extend throughout Australia and into North America and Europe with the closest receival depot being Dookie.

There are a number of other privately owned stock feed companies in the Shepparton region that serve as alternative market outlets.

Grain is a readily transportable commodity and is not dependent on location for its handling and processing.

Horticulture

The local horticultural industries are the most significant industry to the Shepparton region. They are orchard based and include apples, pears and stone fruit. Tomato processing is a more dispersed industry. The fruit industries location is historical and cultural being centred on East Shepparton and Mooroopna-Tatura. They service both the fresh and processing market.

Processing facilities include SPC-Ardmona (fruit), Campbell Soups, Unilever, Simplot, Cedenco, Heinz Watties and Henry Jones Foods (all vegetables & tomato processing).

Although the horticultural industries are the most valuable to the region through commodity value and employment, their land base is relatively small with a strong dependence on water security.

[7] Swan Hill region

The unbundling of water from land has strengthened the water security of horticulture and allowed its distribution to other horticultural locations. The local horticultural industries are expected to continue to grow but with a selective approach to land quality as well as water security. The Project site has marginal to poor soils for horticulture and not expected to attract this form of development.

Dairying

The dairy industry is the second most important industry to the Shepparton region in value and employment but is the most significant user of water because of the area it commands. The industry has recently suffered economic hardship because of drought and low milk prices but is expected to recover after a period of consolidation.

The local industry's centre is north west of the Goulburn River through the combination of land availability and soil suitability. The industry has suffered a fall in cow numbers and milk volume and is in a period of recovery with considerable adjustment occurring in the processing sector.

Major milk processors in the region include Tatura Milk (Bega), Fonterra (Stanhope) and Murray Goulburn (Saputo Corporation).

Future growth is likely to come from consolidation of existing farms and increases in technical efficiency rather than in the establishment of new farms. The Project land is unlikely to attract intensive dairying interest due to the high proportion of Congupna clay loam soils and their propensity towards waterlogging, making rotational grazing management difficult.

4.3 Land removal impact

A critical feature of the proposal is what impact the removal of the site land will have on regional agriculture. There are several relevant issues to consider:

1 The natural resource characteristics of the Project site favour broadacre cropping and grazing activities rather than intensive agriculture. Soil types and drainage patterns are unsuited to horticulture and only moderately well suited to irrigated perennial pastures.

2 The significant rural industries to the region are horticulture and dairying. A critical input to horticulture is water security which it can achieve through the water market. Any land expansion of the horticultural and dairying industries is likely to be west of the Goulburn River due to soil suitability, whereas the Project land is east of the river. Deregulating the water market is also having the effect of facilitating major horticultural expansion in more distant locations such as the Swan Hill district, where almond, olive and wine grape enterprises are being developed.

3 Dairying is in a state of restructure, recovering from the effects of drought and low commodity prices. Farm sizes are likely to continue to increase but through consolidation of existing farms rather than developing new farms. There is also a shift to rain fed dairying areas due to the cost and lack of certainty of irrigation.

4 The water market has seen a shift of water to the higher value industries, horticulture in particular. Conversely, the lower value enterprises such as cropping and grazing are reducing their permanent water allocations due to the economic disincentives of capital upgrades and higher water prices. They appear to be placing a greater reliance on dryland farming.

5 The loss of agricultural land to develop a solar farm on the Project site represents a small proportion of the total available land to irrigated agriculture within the Shepparton region. This position is further emphasised when the land resource is viewed against its most appropriate use, namely broadacre agriculture, a relatively low value use. One of the basic elements of making the land more productive through irrigated agriculture is not being

universally applied because of the lack of economic value. However, the value of irrigation is still being realised through diverting water to other locations and uses.

6 Due to the characteristics of the natural resource base of the Project land, there is no competitive impact on the more rapidly growing and higher value enterprises such as horticulture and dairying. The Project site is neither strategically significant to the rural industries it currently supports nor of value to the more rapidly growing industries that are seeking to expand or restructure west of the Goulburn River.

5.0 CONCLUSION

The natural resource characteristics of the Project site favour broadacre cropping and grazing activities over intensive agriculture. Soil types and drainage patterns are unsuited to horticulture and only moderately well suited to irrigated perennial pastures.

The environmental suitability of the Project site to broadacre cropping and grazing means that there is no conflict of use between the more rapidly growing and higher value enterprises such as horticulture and dairying. The Project site is neither strategically significant to the rural industries it currently supports, nor of value to the more rapidly growing industries that are seeking to expand or restructure west of the Goulburn River.

The conclusion of this investigation is that the development of a solar farm on the Project site will result in a minor loss to the Shepparton region's agricultural economy through the removal of land from agriculture.

Ray Phillips
Phillips Agribusiness
7 May 2018

APPENDIX B

CONSULTANT PROFILE

FULL NAME	Raymond Neil PHILLIPS
ADDRESS	66 Linacre Road, Hampton Victoria 3188
TELEPHONE	Work: (03) 9598 4018 Mobile: 0419 161 041 Email: ray@phillipsagribusiness.com.au
QUALIFICATIONS	Bachelor of Agricultural Science, Massey University of Manawatu, New Zealand Master of Business Administration, Melbourne University

SPECIAL FIELDS OF COMPETENCE

Specialist skills are in farm and business management, environmental and land use surveys, water recycling and irrigation developments, industry studies and strategic planning. Experience is under temperate climatic conditions, usually in the livestock, cropping and intensive agricultural industries. Activities include whole farm planning, farming system analysis, irrigation investigations, economic analysis and market research. Clients include Government, industry and private sector individuals and companies.

RELEVANT PROFESSIONAL EXPERIENCE

Farm Management Consulting
Provide farm management advice to farmers throughout Australia. Clients embrace a wide range of enterprises including dairying, beef, sheep, broadacre and intensive cropping. The services provided include farm management advice, rural property investment, loss assessment, technical services and expert representation in legal matters.

Agricultural Management Studies
The following project list indicates the nature of domestic studies undertaken. In many cases I was principal consultant or project leader; however in multi-disciplined projects I also act as a specialist sub consultant to larger consulting organisations.

2013 Loddon-Mallee Strategic Rural Land Use study, Regional Development Victoria;

2011-12 Western Highway Duplication: Ballarat to Stawell, Vic Roads via GHD;

2012-13 Airport Link to OMR/Bulla Bypass: Vic Roads via GHD;

2010-13 Victorian Desalination Project: Land Rehabilitation via Ecology Australia;

1998-13 Melbourne Airport Land Management Program: Melbourne Airport;

2012 Agricultural Impacts: Thompson Road Duplication, VicRoads;

2011 Land Capability Assessments, Glenrowan & Tungamah Sites, N E Water via Beca Pty Ltd;

2011 Agricultural Assessment, Point Cook South Logical Inclusions Area, via Tract Consulting;

2011 Position Paper, Bunyup Food Belt, GHD;

2010-11 Bandicoot Protection Project Kooweerup-Bayles Area, Dept. Sustainability & Environment;

2009-11 Agricultural report, Eastern Golf Club Relocation, via Robert Luxmoore Project Management;

2009 Agricultural Capability, Brompton Lodge, Cranbourne West: Watsons Pty Ltd;

2008 Agricultural input into Desalination Project EES, Department Sustainability & Environment via GHD/Maunsell Australia;

2008 Black Rock Salinity Reduction Project: Soil and Water Thresholds for Agriculture, Barwon Water via KBR;

2008 Werribee Irrigation Futures: Werribee and Bacchus Marsh Irrigation Districts, Southern Rural Water;

2008 Macedon Ranges Shire Rural Living Strategy; Macedon Ranges Shire;

2008 Ballarat Goldfields Pipeline: Rural Loss Assessment for rural landowners;

2008 Water Demand for Recreational Reserves in the Mornington Peninsula, SE Water via Beca Australia;

2008 Agricultural input into Frankston Bypass EES, SEITA via Maunsell Australia;

2007-09 Allocation of Emergency Irrigation Supplies to the Bacchus Marsh Irrigation District: Southern Rural Water;

2007 The development of a Water Quality Policy within the Shire of Macedon: Western Water and other water authorities;

2007 Trenching Method and Rehabilitation Procedures: Bacchus Marsh Sewer, Western Water;

2006-07 The development of a Water Quality Policy within the six catchments servicing the Barwon Water Region: Barwon Water;

2006 Surf Coast Shire Intensive Horticulture Recycled Water Project: Avia Tomatoes and other landholders;

2006 Soil Salinity and Irrigation Practice, Barwon Water Demonstration Farm, Black Rock, Barwon Water;

2006 Future Treatment and Reuse Options for Bannockburn and Winchelsea Water Reclamation Plants, Barwon Water via KBR;

2006 Agricultural Impacts of Proposed Ballarat Livestock Selling Centre: Ballarat Council.

2005 Investigation of alternative sites for irrigation with recycled water, Bacchus Marsh district; Dept of Sustainability & Environment via URS.

2005 Agricultural Assessment: Readymix Mt Shamrock Quarry Proposed Extension: Readymix Holdings Pty Ltd.

2005	Irrigation management report for the Bacchus Marsh Wastewater Treatment Plant, Parwon South: Western Water via Beca Australia.
2005	Irrigation Feasibility of different sites, Brimbank Recycled Water Project: City of Brimbank via Parsons Brinckerhoff.
2005	Horticultural characteristics of the Keilor Irrigation District: City of Brimbank via Parsons Brinkerhoff
2005	Farm Management Analysis, VCAH Dookie Estate, Melbourne University;
2004-05	Geelong Bypass Study: Assessment of agricultural land and anticipated Bypass impacts: VicRoads.
2003	Structural adjustment of farming enterprises within NSW and Victoria through reduced water allocations from the Murray system, Department of Sustainability and Environment.
2003	Rural Industries Strategy: Shire of Yarra Ranges.
2002	Intensive Animal Industries Management and Location: Barwon Region Municipalities.
2002	A Review of Irrigation Practices in the Werribee Irrigation District: Southern Rural Water.
2002	Organic Farming Opportunities in the Cardinia Region: Shire of Cardinia.
2001–02	Agricultural Impact Assessment: The Bass Gas Project: Origin Energy Resources Ltd;
2000–02	Survey of Business, Tourism and Agricultural Impacts: Yarra Glen Bypass Planning Study: VicRoads.

PROFESSIONAL ASSOCIATIONS

- Corporate Member Australian Association of Agricultural Consultants
- Member, Australian Institute of Agricultural Science and Technology
- Member, Melbourne Business School Alumni