Landscape character & visual impact assessment

Lots 130-133 & 136-139 DP 2493 Meads Lane, Boorowa, NSW

Boorowa 1B Solar Farm



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Attachment A: Photographs

Attachment B: Visual catchment details

Attachment C: Photomontages



Document Control

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1. Introduction

The purpose of this report is to assess the landscape character and visual impacts of a proposed solar farm at Boorowa, located in Hilltops local government area and to be known as the Boorowa Solar Farm.

The scope of this report is to evaluate the potential impacts on landscape character and visual amenity. To achieve this end the report addresses:

- the location and physical characteristics of the site on which the works are proposed,
- the character or the surrounding landscape and the visual catchment within which the proposed works may be of significance,
- potential impacts on the landscape, viewpoints and receivers located within the visual catchment, and
- means to avoid or mitigate potential impacts.

A site visit was carried out on 9 November 2020 and a meeting with Hilltops Council staff was held on the same day.

2. Methodology

Impacts on the visual and scenic amenity of the proposed Boorowa Solar Farm have been assessed by Zenith Town Planning Pty Ltd using the RMS guideline *Environmental Impact Assessment Practice Note– Guideline for Landscape Character and Visual Impact Assessment* (EIA-N04 Version 2.1 released on 14 December 2018). Details of methodology are given below.

A site inspection of the location of the proposed works and the surrounding area has been carried out to identify the visual catchment, the context of the site of the proposed works and observation points. Land uses and characteristics of the environment such as topography, vegetation, architecture of neighbouring buildings and any heritage values of any significant sites in the vicinity of the proposed solar farm were noted and the capacity of the area to absorb physical change is assessed.

Development plans for the solar farm have been reviewed and the likely impacts on landscape character identified. This is determined by the sensitivity of the landscape to physical change and the magnitude, or relative size and scale, of the works.



The visual significance of the site to observation points and receivers within the visual catchment is described in terms of proximity to the site, landscape character, the composition of views and the sensitivity to change that will affect scenic values. The visual impacts that will be experienced by each receiver are identified and evaluated in terms of the sensitivity of each receiver to change and the magnitude of that change in terms of the proposed works.

The impacts are calculated and ranked according to negligible, low, moderate or high impact based on the following matrix (Table 1).

 Table 1: Landscape character and visual impact grading matrix. Source: RMS Guideline for Landscape

 Character and Visual Impact Assessment, 2018

Landscape character and visual impact grading matrix							
	Magnitude						
		High	Moderate	Low	Negligible		
vity	High	High impact	High-moderate	Moderate	Negligible		
siti	Moderate	High-moderate	Moderate	Moderate-low	Negligible		
Ser	Low	Moderate	Moderate-low	Low	Negligible		
	Negligible	Negligible	Negligible	Negligible	Negligible		

An explanation of the rankings of impacts on landscape character and visual amenity are provided in Table 2, sourced from *Pacific Highway HW10 and Wyong Road MR335 intersection and approaches upgrade Tuggerah* by Peter Andrews & Associates Pty Ltd/Corkery Consulting Pty Ltd, September 2012.

Table 2: Explanation of rankings based on sensitivity and magnitude.

Rank	Landscape character	Visual amenity		
High	The development would be the dominant	There is a substantial change to visual		
	feature in the landscape and would	amenity or a total loss of view towards key		
	significantly affect and alter character	features caused by the introduction of new		
		elements that contrast with existing		
		landscape character		
Moderate	The development introduces a new element	There is partial loss or change of visual		
	to the landscape and would form a	amenity towards key features caused by the		
	significant and recognisable part of the	introduction of new elements that may be		
	landscape that alters character	prominent but not substantially in contrast		
		with existing landscape character.		
Low	The development constitutes a minor	There is a minor loss or change of visual		
	element of the wider view that merges with	amenity towards key features caused by the		
	other land uses	introduction of new elements that		



		consistent with existing landscape character
Negligible	The development is either not visible or only a small part is visible that due to distance separation does not alter character	There is very minor loss or change to visual amenity towards key features caused by the introduction of new elements that are consistent with existing landscape character approximating no change

Where magnitude and sensitivity impacts differ, the ranking would be a hybrid of the two impacts, e.g. moderate-high. Such a ranking would combine elements of both the explanation of a moderate rank and that of a high rank.

The RMS methodology has been validated by the Land and Environment Court for uses other than roads and bridges. For example, in the case of Houghton V Shoalhaven City Council [2016] NSWLEC 1195 the commissioner upheld an appeal by the applicant and agreed with the findings of the visual assessment that was prepared using this methodology to consider the impact of tourist development.

The methodology of the guidelines addresses impacts in both qualitative and quantitative terms. The qualitative assessment involves the use of descriptive and conceptual data such as descriptions of landscape characteristics and the setting of the development or viewpoint. The quantitative assessment uses numbers and values such as the distance of a viewpoint from the development and the direction of the view towards the development. The purpose of the assessment is to identify impacts and to determine whether these impacts are acceptable given the benefits of the development to the community and economy.

Although the proposed development is not classified as a state significant project reference has been made to the Large-Scale Solar Energy Guideline during the preparation of plans, drawings and reports. The document provides the following guidance for assessing visual impacts:

The impacts on landscape character and values and the visual amenity of landholders and communities.

Using the RMS methodology, which is based on the magnitude (size and scale) of the development and the sensitivity of the landscape and visual receivers to change, ensures that an objective judgement of impacts is made by the assessor. The methodology prevents the assessor from making subjective judgements. Sensitivity is a measure of how sensitive the character of the setting is to the proposed change and its capacity to absorb the change. Magnitude refers to the scale, form and character of a development proposal.



Planning principles established by the NSW Land and Environment Court were also considered as a check on the findings of the landscape character and visual assessment. These principles are derived from the case *Tenacity Consulting v Warringah* [2004] NSWLEC 140 when considering the acceptability of the impact of a proposed development on views enjoyed from private property in the vicinity of that development, and from *Rose Bay Marina Pty Ltd V Woollahra Municipal Council and Anor* [2013] NSWLEC 1046 when assessing the impact of a development on the public domain.

THE RMS methodology has been compared with that required by government guidelines that apply in other states, i.e. South Australia, Victoria and Queensland. South Australia's guideline is silent on the issue of visual assessment and the Queensland guideline suggests that visual amenity and proximity to sensitive receptors should be investigated when assessing the feasibility and impacts of a project. The Victorian guideline includes advice on minimising impacts on landscape values and on providing screening to reduce visual impacts. It also recommends that design includes visual simulations (photomontages) to illustrate the development in the context of the surrounding area and key viewpoints, and that an assessment of the impacts have regard to the scale of the project, the sensitivity of the landscape to change, visibility to private property and public places, the locations and distances from which a facility may be seen, the significance of the landscape and landscape/environmental values. This assessment applies a methodology that would comply with the Victorian guidelines.

The findings of the landscape character and visual impact assessments are summarised in the conclusion. Recommendations as to refinements of the development plans to avoid or mitigate significant landscape and visual impacts are made if necessary.

3. Proposed works

ITP (Development) Pty Ltd proposes to develop a solar farm and ancillary facilities with an AC output of 5.0MW at Meads Lane, Boorowa, NSW. The site is located approximately 2.4 kilometres to the south of the town centre of Boorowa and is an irregular shape with a total area of 38.4 hectares. The proposed development would occupy 11.99 hectares of the total site. The land is generally flat with a slight fall to the north and is sown with crops.

Components of the facility which would impact on the landscape and visual amenity are:

• 12,100 solar modules ranging in height from 1.5 metres to 2.75 metres installed in rows running north to south with approximately 6.25 metres centre to centre spacing between each row,



- Two 3MW inverter stations that are 3 metres high and each mounted on a 12.2 metre long skid,
- A battery storage system that is 12.2 metres long, 2.4 metres wide and 2.9 metres high,
- A temporary car parking and materials laydown area,
- A 2.5 metre high kiosk is to be located at the north-eastern corner of the array,
- A 1.8 metre high security fence topped with three rows of barbed wire to give a total height of 2.3 metres, and
- Perimeter landscaping on the outer side of the security fence on all sides of the array with shrubs that will grow to a height of 2.5 to 3 metres except the south-eastern corner

The layout of the solar farm is shown on General Arrangement Plan (Drawing No BOO1B-G-2100) prepared by ITP Renewables.

4. Description of the landscape

The character of the landscape near the development site of the Boorowa Solar Farm is summarized in Table 3 below.

ltem	Description						
Land use	The development site is zoned RU1 Primary Production. The closest part of urban						
	area of Boorowa is approximately 1.1 kilometres from the site to the north. This area						
	is developed as large lot residential. Land to the east, south and west of the site is						
	sed for agriculture. Land to the immediate north of Meads Lane is also farmland						
	but has been subdivided into 109 lots of approximately 2,000m ² each, some of						
	which have been developed for residential purposes. Known as Boorowa South this						
	area has been identified by Council for investigation for future residential						
	development. Land diagonally opposite on the western side of Lachlan Valley Way						
	has been identified for future industrial development. Land to the north-east is						
	known as Boorowa East and is also identified for rural residential development						
Structures	The parcel is occupied by a dwelling house and farm sheds located at the centre of						
	the property near the western boundary. The development area of Lots 130-133 and						
	136-139 is vacant other than two dams; one at the north-eastern corner and the						
	other at the south-eastern corner. Structures within the vicinity of the site comprise						
	scattered farm houses and sheds on neighbouring agricultural land						

Table 3: Landscape character in the vicinity of the development site



Item	Description				
Topography	The topography of the site is flat with a gentle fall to the north. A creek runs north-				
	south on adjoining land to the east which meanders through the centre of Boorowa				
	and enters the Boorowa River. This river forms the northern boundary to the town.				
	The broader landscape is similar with low close hills to the east and south of the				
	settlement of Boorowa but flat in other directions				
Vegetation Most of the rural landscape has been cleared in the past for agricultural u					
	than scattered native trees and shrubs along roadsides and boundaries and riparian				
	getation along watercourses. There are a few scattered paddock trees, a row of				
	trees near the western boundary and clustered trees in the vicinity of the dwelling.				
	Minimal vegetation remains on the low hills surrounding the area.				
Infrastructure	Lachlan Valley Way, a classified road, forms the western boundary of the site.				
	Meads Lane and other local roads are adjacent the site. An 11kV power line runs in				
	a north-south direction within an easement parallel to the western boundary of the				
	site that connects to the Essential Energy Boorowa substation				

Below is an aerial image of the development site. Photographs of the landscape and surrounding development are appended as Attachment A. All photographs were taken by Zenith Town Planning Pty Ltd at the time of the site inspection.



Figure 1: Aerial image of the development site. Source: SIX Maps, 7 February 2015



Hilltops 2040 – Hilltops Council Local Strategic Planning Statement 2020-2040

Hilltops LSPS 2040 identifies future growth precincts in Boorowa. The development site lies directly south of and adjoining the Boorowa South precinct which is nominated for large lot residential development on the eastern side of Lachlan Valley Way (shown as E in Figure 2 below) and industrial development to the east of Lachlan Valley Way and diagonally opposite to the north-west of the site (shown as C in Figure 2 below). Residential lots are proposed to be an average of 2,000m² to match the existing paper subdivision and industrial development is to comprise commercial and light industry.

Land use and infrastructure planning are designed to support liveability, strong communities, economic development, the environment, and a strong and sustainable LGA. Relevant actions are:

- to increase the local provision and integration of renewable energy in areas identified for future growth, and
- investigate land requirements for renewable energy development and capacity to accommodate medium scale solar projects.



Figure 2: Boorowa growth precincts (indicative only). Source: Hilltops Council LSPS



5. Assessment of impacts on landscape character

The character of the landscape near the site of the Boorowa Solar Farm has been significantly modified since European settlement for the purposes of agriculture. Very little native vegetation remains with patches on the low hills near the town and along creek lines and boundaries. There are expansive views across farmland and towards these low hills in most directions from the township.

The landscape in the immediate vicinity of the development site is generally flat and cleared of vegetation although some remnant/regrowth vegetation exists along the creek line to the east of the site. Structures within the vicinity of the site comprise rural farm buildings and large lot residential development to the north.

The project occupies 11.99 hectares and the 12,100 panels have a maximum height of 2.75 metres. The development footprint is situated at the intersection of a classified road (Lachlan Valley Way) and a local road (Meads Lane).

The size and scale, or magnitude, of the project and impact on landscape character is considered to be high due to the introduction of a new type of development that is substantial in size and scale, and will change the nature of the rural landscape to the south of Boorowa township. It will be visible from an arterial road and local roads and there will be distant views over the site from elevated locations.

The sensitivity of private property to landscape change is considered moderate given the existing open modified agricultural landscape. The flat topography of land to the north would reduce visibility of the facility from most urban dwellings in that direction. The works would be highly visible from Lachlan Valley Way Road and farm dwellings on elevated positions to the south-west of the site. The sensitivity of Lachlan Valley Way to landscape change would be moderate particularly on approach from the south whilst descending the hill towards town. The sensitivity is low for local roads near the site due to the flat topography and boundary vegetation on intervening land.

The overall impact on landscape character is assessed to be moderate-high. However, distance and topography temper influence on landscape character from most surrounding land. The presence of a solar farm in the rural landscape will eventually be accepted without question as the need for alternative sources of energy becomes greater and apparent. Over time, solar farms will become a common component of rural landscapes as they are less intrusive than all other forms of electricity generation and the visual impact can be managed through appropriate screening.



Residential and commercial/industrial development in the Boorowa South growth precinct is anticipated to occur over the next two decades. Although indicative at this stage and yet to be formally planned and endorsed, urban development of this land will bring substantial and irreversible change to the rural landscape.

As it is intended to carry out landscape planting on all sides of the solar array including along the northern boundary to the growth precinct, the impact on the landscape will gradually soften as vegetation matures and provides an effective screen to neighbouring development. The solar farm is expected to have an operational life of about 35 years after which time decommissioning will take place and all panels and ancillary works will be removed, returning the development site to unoccupied rural land.

6. The visual catchment

The visual impact of solar farms depends on the scale and type of infrastructure, the prominence and topography of the site relative to the surrounding environment; vegetation; and any proposed screening measures to reduce visibility of the site. Some potential observation points may not have a clear line of sight towards the solar farm because of significant existing features such as built structures and vegetation. The greater the distance from the development site the less clear is the view of the solar farm. The ability to distinguish the type of land use and the actual composition of materials diminishes with distance.

For the purposes of this analysis the visual catchment of the site of the proposed development is defined by an area within 2 kilometres of the development site from which the works may be visible as shown on the visual catchment map below (Figure 3). The visibility of the site from properties located beyond 2 kilometres would be negligible.

Observation points are also shown in Figure 3. The observation points located within the visual catchment coincide with those used to assess potential impacts in the *Glare and Glint Assessment* prepared by ITP Renewables. There are 49 residential dwellings, three commercial properties and 10 road routes within the visual catchment. These are shown as observation points within two quadrants (sections A and B) and a half (section C) of the visual catchment in Figure 4 with details in Attachment B. The observation points are all located within 2 kilometres of the centre of the development footprint. There are additional observation points just beyond the 2 kilometre radius, however, the assessment of impact of nearby properties that are within the catchment is representative of those just beyond.





Figure 3: Map showing potential visual receivers within the visual catchment. Source: ITP Renewables

The building on the development site that is in the same ownership (OP48) and located 430 metres south-west of the centre of the proposed facility would have unimpeded views towards the facility from. This observation point is a shearing shed and not considered in the assessment as the land owner has entered contractual arrangements with ITP Development Pty Ltd and supports the proposed development. Commercial properties (OP41 and OP42) are not considered sensitive receivers in terms of visual impact and consequently an impact rating is not assigned to these properties. Each of these properties are considered 'not applicable' in Table 4.



7. Assessment of visual impacts

The magnitude of the proposed solar farm in terms of the quantum of change to views and proximity to each observation point, and the degree of sensitivity based on the quality of the view, is assessed in Table 4 below. The assessment takes into account whether the site is clearly visible or obscured by landform or vegetation, and the direction and composition of the view. An impact rating is then given based on magnitude and sensitivity using the landscape character and visual impact grading matrix provided in section 2 *Methodology*.

The separation distances from each dwelling to the nearest point of the development area are based on straight-line measurements from the nearest point of the dwelling to the centre of the solar array. Whilst it is acknowledged that the array may be visible from unoccupied parts of a property, it is considered that the view from a dwelling is more critical than from yards and paddocks.

Observation point	Relative location	Sector	Magnitude	Sensitivity	Impact rating
OP1 Residential	1.64 km east	С	Low	Moderate	Low- moderate
OP2 Residential	1.80 km east	С	Low	Moderate	Low- moderate
OP3 Residential	0.73 km northeast	А	High	High	High
OP4 Residential	0.77 km northeast	А	High	High	High
OP5 Residential	0.81km northeast	А	Moderate	Moderate	Moderate
OP6 Residential	0.76 km northeast	А	Moderate	Moderate	Moderate
OP7 Residential	0.90 km northeast	А	Moderate	Moderate	Moderate
OP8 Residential	0.93 km northeast	А	Low	Low	Low
OP9 Residential	0.88 km northeast	А	Low	Low	Low

Table 4: Visual impacts on observation points



Observation point	Relative location	Sector	Magnitude	Sensitivity	Impact rating
OP10 Residential	1.02 km northeast	A	Low	Low	Low
OP11 Residential	1.92 km northeast	A	Moderate	Moderate	Moderate
OP12 Residential	1.91 km northeast	A	Moderate	Moderate	Moderate
OP13 Residential	1.86 km northeast	A	Negligible	Negligible	Negligible
OP14 Residential	1.83 km northeast	A	Negligible	Negligible	Negligible
OP15 Residential	1.76 km northeast	A	Negligible	Negligible	Negligible
OP16 Residential	1.74 km northeast	A	Negligible	Negligible	Negligible
OP17 Residential	1.71 km northeast	A	Negligible	Negligible	Negligible
OP18 Residential	1.62 km northeast	А	Negligible	Negligible	Negligible
OP19 Residential	1.66 km northeast	А	Negligible	Negligible	Negligible
OP20 Residential	1.58 km northeast	А	Negligible	Negligible	Negligible
OP21 Residential	1.54 km northeast	А	Negligible	Negligible	Negligible
OP22 Residential	1.48 km northeast	А	Negligible	Negligible	Negligible
OP23 Residential	1.73 km northeast	А	Negligible	Negligible	Negligible
OP24 Residential	1.84 km northeast	А	Negligible	Negligible	Negligible
OP25 Residential	1.82 km northeast	А	Negligible	Negligible	Negligible
OP26 Residential	1.68 km northeast	А	Negligible	Negligible	Negligible
OP27 Residential	1.57 km northeast	А	Negligible	Negligible	Negligible



Observation point	Relative location	Sector	Magnitude	Sensitivity	Impact rating
OP28 Residential	1.41 km north	А	Negligible	Negligible	Negligible
OP29 Residential	1.52 km north	A	Negligible	Negligible	Negligible
OP30 Residential	1.81 km north	A	Negligible	Negligible	Negligible
OP31 Residential	1.73 km north	A	Negligible	Negligible	Negligible
OP32 Residential	1.68 km north	A	Negligible	Negligible	Negligible
OP33 Residential	1.64 km north	A	Negligible	Negligible	Negligible
OP34 Residential	1.72 km north	А	Negligible	Negligible	Negligible
OP35 Residential	1.50 km north	А	Negligible	Negligible	Negligible
OP36 Residential	1.47 km north	А	Negligible	Negligible	Negligible
OP37 Residential	1.47 km north	А	Negligible	Negligible	Negligible
OP38 Residential	0.88 km north	А	Low	Low	Low
OP39 Residential	0.85 km north	А	Low	Low	Low
OP40 Residential	0.84 km north	А	Low	Low	Low
OP41 Commercial	1.16 km north	А	n/a	n/a	n/a
OP42 Commercial	1.29 km north	А	n/a	n/a	n/a
OP43 Residential	1.94 km north	В	Low	Low	Low
OP44 Residential	1.96 km north	В	Low	Low	Low
OP45 Residential	1.97 km northwest	В	Low	Low	Low



Observation point	Relative location	Sector	Magnitude	Sensitivity	Impact rating
OP46 Residential	0.45 km west	В	Low	Low	Low
OP47 Residential	0.51 km west	В	Low	Low	Low
OP48 Residential	0.43 km south west	С	n/a	n/a	n/a
OP49 Residential	1.96 km south west	С	Negligible	Negligible	Negligible
OP50 Residential	1.96 kmsouth	С	Moderate	Low	Moderate- Low
Boorowa Harden Rd/Cunningar Road	South west		Moderate	Low	Moderate- Low
Cemetery Road	East		Negligible	Negligible	Negligible
Dillon Street	North		Negligible	Negligible	Negligible
Lachlan Valley Way	Adjoining -west		High	High	High
Long Street	East		Negligible	Negligible	Negligible
Market Street	North		High	Moderate	High- moderate
Meads Lane	Adjoining -north		High	Moderate	High- moderate
Nelsons Lane	North		Negligible	Negligible	Negligible
Parnell Street	North		Negligible	Negligible	Negligible
Trucking Yard Rd	North		Negligible	Negligible	Negligible

The visual impact of the proposed works is assessed based primarily on the visual sector within which the observation point is located with some allowance for elevation and topography, and vegetation and structures on intervening land.



The impact on dwellings located in sector A which is the urban and peri-urban area of Boorowa is assessed to range from negligible for those dwellings located on flat land close to the centre of Boorowa to low for those dwellings located on or near Nelsons Lane to moderate for those dwellings in close proximity to the development site located on Market Street and elevated positions to the north-east, to high for the two dwellings located within 1 kilometre to the north along Market Street. The proposed landscaping along the southern boundary is likely to mitigate visual impacts to all properties other than those in elevated positions.



Plate 1: Looking towards observation points within sector A

The visual impact on dwellings located in sector B is assessed to be low. The magnitude and sensitivity of the development in relation to these dwellings is mitigated by the substantial boundary setbacks of the array and distance separation in the case of OP43, OP44 and OP45. The dwellings noted as OP46 and OP47 would be effectively screened by existing mature vegetation on private property and proposed screening around the array.





Plate 2: Looking towards observation points within sector B

There are expected to be low-moderate to negligible impacts on dwellings located in sector C except the property directly south (OP50) which is elevated above the development site and will look across the development towards the township. The property is sufficiently distant (1.96 kilometres) to result in the development being a small proportion of the total view captured from this dwelling. Dwellings on elevated positions to the south-east may have vies over the development, however, intervening vegetation such as the riparian vegetation along the corridor of Ryans Creek would distract views and provide some limited screening.





Plate 3: Looking south towards sector C

The security fence surrounding the array is setback 117.2 metres from Meads Lane and a minimum of 146.4 metres from Lachlan Valley Way ranging up to 313.1 metres. The development would be visible from Meads Lane, the southern end of Market Street, from Cunningar Road near the intersection with Lachlan Valley Way and from Lachlan Valley Way near the intersection with Meads Lane and on approach from the south whilst heading downhill.

Impacts are assessed to be high for motorists using Lachlan Valley Way due to the slope of the land and lack of roadside vegetation. There would be clear uninterrupted views over the array. Landscaping along the western boundary of the array will provide some screening to the edges of the array once mature, however, the development will remain visible when travelling downslope and elevated above the site. Once arriving at the bottom of the hill on level ground the array would be fully screened from motorists travelling in either direction along Lachlan Valley Way, including from the intersection of



Meads Lane. A moderate-low impact is also expected at the intersection of Cunningar Road and Lachlan Valley way.

The impact on users of Meads Lane is assessed to be high-moderate. The development will be of significant bulk and scale, however, the impact is tempered by the moderate sensitivity of a road that carries a relatively low volume of traffic. Roadside vegetation is minimal, however, screening is likely to mitigate views of the development once mature noting that the array is setback more than 100 metres from this public road. Impacts are similar on the southern end of Market Street, particularly for motorists, cyclists and pedestrians heading south towards the development.

The impacts on other public roads is assessed to be negligible as there would be no direct line of sight to the development due to trees and structures on intervening land and topography. The development would not be visible from any other public place.

Photomontages that show the site prior to development and after completion of the solar farm with and without landscape screening are provided as Attachment C. Due to the complexity of rural landscapes and solar farm design, photomontages can be difficult to produce and do not necessarily provide a realistic view of how the constructed solar farm will look. These are indicative only and the actual development may differ from these images.

However, the photomontages confirm that the panels will be visible from Meads Lane, Lachlan Valley Way, other local roads and some neighbouring private properties. The depiction of vegetation through stages of growth demonstrates that landscaping will provide effective screening from all directions once mature.

8. Assessment against planning principles

The Land and Environment Court consistently applies a set of planning principles derived from the case *Tenacity Consulting v Warringah* [2004] NSWLEC 140 when considering the acceptability of the impact of a proposed development on views enjoyed from private property in the vicinity of that development. These planning principles are addressed below in relation to the proposed solar farm.

The planning principles are not predicated on a position that a landowner or occupant has a proprietary right to retain all or part of the views enjoyed from their land. The Court has acknowledged that even entire view loss is reasonable in certain circumstances (Lindsay Taylor Lawyers, November 2015).



Impact on private property

Step 1: The views to be affected

The solar farm would be visible to dwellings immediately to the north of the development site and to dwellings located in elevated positions to the north-east and south. Elsewhere vegetation, topography and distance would obstruct direct visibility of the array. The view enjoyed from close properties on flat land is one of adjoining cultivated rural land with distant hills. The view enjoyed from elevated properties is one of a cleared rural farm landscape interspersed with remnant or regrowth native vegetation along road reserves and boundaries and within private properties and district views over the urban centre of Boorowa. These views will remain unaffected.

Step 2: From what part of the property the views are obtained

Views are available from dwellings and yards/paddocks.

Step 3: The extent of the impact

The array will occupy 12 hectares of the 38.4 hectare property, i.e. covering a third of the property. Topography comprises low close hills to the east and south of the settlement of Boorowa but flat in other directions. The extent of the impact for dwellings in close proximity is considerable although landscape screening will mitigate impacts to these properties. The extent of the impact to elevated properties is considered minimal given that the array will occupy a small proportion of the total views due to distance separation.

Step 4: The reasonableness of the proposal that is causing the impact

The proposed solar farm is a project that is suited to a rural location. The property is currently a working farm. The production of solar energy is an activity that is mandated by *SEPP (Infrastructure)* as permissible in a rural zone and the land owner has a reasonable expectation to develop a use that is permissible.

Impact on the public domain

The case Rose Bay Marina Pty Ltd V Woollahra Municipal Council and Anor [2013] NSWLEC 1046 established planning principles to be considered when assessing the impact of a development on the



public domain. The process must account for reasonable development expectations as well as the enjoyment of members of the public of outlooks from public places.

Step 1: The nature and scope of existing views

Views from the public domain towards the development site are from Lachlan Valley Way, Meads Lane, Market Street and Cunningar Road. The site is highly visible from these roads and is not obscured by existing roadside vegetation. The site is not visible to open space or other public lands.

Step 2: The locations from which the potentially interrupted view is enjoyed

The development site is visible from the adjoining section of Meads Lane, the southern end of Market Street, from Cunningar Road near the intersection with Lachlan Valley Way and from Lachlan Valley Way near the intersection with Meads Lane and on approach from the south whilst heading downhill.

Step 3: The extent of the obstruction at each relevant location

The extent of obstruction of views from public roads is minimal given the expansive views from each. The setbacks of over 100 metres from Meads Lane and almost 146 to 313 metres from Lachlan Valley Way serve to place the facility within a farm landscape. Landscape plantings will obscure views from Meads Lane and Market Street once mature, and to some extent from Lachlan Valley Way.

Step 4: The intensity of public use of those locations where that enjoyment will be obscured

Lachlan Valley Way is a classified road with high intensity use. Meads Lane, Market Street and Cunningar Road are local roads with low volumes of usage attributable to local traffic accessing the centre of Boorowa and/or the highway for long distance journeys.

Step 5: Whether or not there is any document that identifies the importance of the view

There is no strategic plan of Hilltops Council or the NSW Government that identifies the importance of the view. It is not mapped as a scenic landscape or as visually sensitive land in *Boorowa LEP 2012*.

In summary, assessment against the planning principles established by the NSW Land and Environment Court finds that the potential impacts of the proposed solar farm on views from both private



property and the public domain are acceptable. It is important to note that all development has a visual impact, irrespective of the size or scale of that development.

9. Conclusion and recommendations

The character of the landscape near the site of the Boorowa Solar Farm has been significantly modified since European settlement for the purposes of agriculture. Very little native vegetation remains with patches on the low hills near the town and along creek lines and boundaries. There are expansive views across farmland and towards these low hills in most directions from the township.

The landscape in the immediate vicinity of the development site is generally flat and cleared of vegetation although some remnant/regrowth vegetation exists along the creek line to the east of the site. Structures within the vicinity of the site comprise rural farm buildings and large lot residential development to the north.

The size and scale, or magnitude, of the project and impact on landscape character is considered to be high due to the introduction of a new type of development that is substantial in size and scale, and will change the nature of the rural landscape to the south of Boorowa township. The sensitivity of private property to landscape change is considered moderate given the existing open modified agricultural landscape. The sensitivity of Lachlan Valley Way to landscape change would be moderate and low for local roads. The overall impact on landscape character is assessed to be moderate-high. However, distance and topography temper influence on landscape character from most surrounding land.

The presence of a solar farm in the rural landscape will eventually be accepted without question as the need for alternative sources of energy becomes greater and apparent. Over time, solar farms will become a common component of rural landscapes as they are less intrusive than all other forms of electricity generation and the visual impact can be managed through appropriate screening.

The visual impact of the proposed works is variable depending upon the sector within the visual catchment. Dwellings in close proximity to the facility and those in elevated locations above the development site are likely to be more affected. The proposed landscaping on the outer side of the security fence will provide effective screening for occupants of dwellings on flat land and distance separation will temper the effects for elevated dwellings. Elsewhere the relatively flat landscape coupled with vegetation and structures on intervening land will interrupt views towards the site. The location of the BESS and inverters at the centre of the array ensures minimal visual intrusion by these components.



The security fence surrounding the array is setback 117.2 metres from Meads Lane and a minimum of 146.4 metres from Lachlan Valley Way ranging up to 313.1 metres. The development would be visible from Meads Lane, the southern end of Market Street, the unnamed road that runs through the property, from Cunningar Road near the intersection with Lachlan Valley Way and from Lachlan Valley Way near the intersection with Meads Lane and on approach from the south whilst heading downhill.

Impacts are assessed to be high for motorists using Lachlan Valley Way due to the slope of the land and lack of roadside vegetation. Landscaping along the western boundary of the array will provide some screening to the edges of the array once mature, however, the development will remain visible when travelling downslope and elevated above the site. The impact on users of Meads Lane is assessed to be high-moderate. The development will be of significant bulk and scale however the impact is tempered by the moderate sensitivity of a road that carries a relatively low volume of traffic. Roadside vegetation is minimal, however, screening is likely to mitigate views of the development once mature noting that the array is setback more than 100 metres from this public road. Impacts are similar on the southern end of Market Street, particularly for motorists, cyclists and pedestrians heading south towards the development. A moderate-low impact is also expected at the intersection of Cunningar Road and Lachlan Valley way.

The findings of the assessment acknowledge that there will be impacts on the landscape and visual amenity as there are with any type of development. However, there is no view loss; the impact is a change to the view – a new element within the landscape. Impacts are greatest in close proximity to the solar farm as the further the distance a viewpoint is from the site the less the overall visual impact as the development occupies a lesser proportion of the total view.

Residential and commercial/industrial development in the Boorowa South growth precinct is anticipated to occur over the next two decades. Although indicative at this stage and yet to be formally planned and endorsed, urban development of this land will bring substantial and irreversible change to the rural landscape.

As it is intended to carry out landscape planting on all sides of the solar array including along the northern boundary to the growth precinct, the impact on the landscape will gradually soften as vegetation matures and provides an effective screen. The solar farm is expected to have an operational life of about 35 years after which time decommissioning will take place and all panels and ancillary works will be removed, returning the development site to unoccupied rural land.



To mitigate impacts on the landscape and visual amenity, it is recommended that a vegetation screen be planted around all sides of the array. Native plants that grow to a maximum height of 2.5 to 3 metres should be selected. It is recommended that Hilltops Council be consulted to determine appropriate plant species. This landscaping will shield visibility not just to the array from each viewpoint but will also screen ancillary items including the inverters, the BESS and the kiosk which are all beneath 3 metres in height.

On balance and having regard to other matters for consideration under section *4.15 Evaluation* of the *Environmental Planning and Assessment Act 1979*, the impacts are considered acceptable given that:

- the solar farm will contribute to renewable energy generation and provide a source of electricity for local domestic and commercial use whilst at the same time assisting to reduce greenhouse gas emissions and our reliance on fossil fuels,
- It will also generate employment opportunities during the construction phase and once operational will provide employment for maintenance crews,
- The placement of the array within the property downslope has been chosen to maximise distance separation from neighbouring dwellings,
- Existing vegetation along road reserves and property boundaries is to be maintained,
- The proposed landscaping will grow to a height that will screen the facility from observation points including public roads that are on level ground with the development site and elsewhere will soften the visual impact from land that is slightly elevated above the development site.



Attachment A

Photographs



Plate 1: Looking across the site from the intersection of Lachlan Valley Way and Meads Lane



Plate 2: Looking north-east across the farm to the north of Meads Lane sown with canola



Plate 3: Looking south across the development site



Plate 4: Looking south along Lachlan Valley Way



Plate 5: Looking north towards town from the intersection of Meads Lane and Lachlan Valley Way



Plate 6: Dwelling on hill to the south-east of the development site



Plate 7: Looking north-east across the development site from Lachlan Valley Way



Plate 8: Looking east along Meads Lane



Plate 9: Looking north-west from Meads Lane



Plate 10: Farm buildings south-west of the site on Lachlan Valley Way



Plate 11: Looking north towards Boorowa from Meads Lane



Plate 12: Looking north-east from Meads Lane



Plate 13: Looking north along Market Street towards Boorowa



Plate 14: Looking west along Meads Lane towards Lachlan Valley Way



Plate 15: The creek that crosses Meads Lane



Plate 16: Vegetation in road reserve on Meads Lane



Attachment B

Visual catchment details



Figure 1: The visual catchment showing observation points within 2 kilometres of the site



Figure 2: Detail showing observation points in Section A



Figure 3: Detail showing observation points in Section B



Figure 4: Detail showing observation points in Section C



Attachment C

Photomontages



Directions of images for photomontages



Plate 1: Image 1 – Looking south-east from the intersection of Meads lane and Lachlan Valley Way before development



Plate 2: Image 1 – Looking south-east from the intersection of Meads lane and Lachlan Valley Way after development before landscaping



Plate 3: Image 1 – Looking south-east from the intersection of Meads lane and Lachlan Valley Way after development with initial planting



Plate 4: Image 1 – Looking south-east from the intersection of Meads lane and Lachlan Valley Way after development with semi-mature planting



Plate 5: Image 1 – Looking south-east from the intersection of Meads lane and Lachlan Valley Way after development with mature planting



Plate 6: Image 2 – Looking east across the site from Lachlan Valley Way before development



Plate 7: Image 2 – Looking east across the site from Lachlan Valley Way after development before landscaping



Plate 8: Image 2 – Looking east across the site from Lachlan Valley Way after development with initial planting



Plate 9: Image 2 – Looking east across the site from Lachlan Valley Way after development with semi-mature planting



Plate 10: Image 2 – Looking east across the site from Lachlan Valley Way after development with mature planting



Plate 11: Image 3 – Looking south across the site from Meads Lane before development



Plate 12: Image 3 – Looking south across the site from Meads Lane after development before landscaping



Plate 13: Image 3 – Looking south across the site from Meads Lane after development with initial planting



Plate 14: Image 3 – Looking south across the site from Meads Lane after development with semi-mature planting



Plate 15: Image 3 – Looking south across the site from Meads Lane after development with mature planting