ENVIRONMENTAL ETHOS

DINGO LANE SOLAR FARM

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Prepared For Byron Shire Council

October 2020

ENVIRONMENTAL
ETHOS

Prepared By Environmental Ethos on behalf of
Byron Shire Council

REF NO. 19010

FINAL ISSUE: 08 October 2020

Cover Image: Photograph Project Site - Environmental Ethos

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GLOSSARY AND ABBREVIATIONS

Baseline Studies	Studies to determine and describe the environmental conditions against which any future changes can be measured or predicted and assessed.
Characteristics	Elements, or combinations of elements, which make a contribution to distinctive landscape character.
Designated Landscape	Areas of landscape identified as being of importance, defined by statute or identified in development plans or other documentation.
Digital Terrain Model (DTM)	A digital mapping dataset representing the bare surface of the landscape without vegetation or buildings.
Geographical Information System (GIS)	A system that captures, stores, analyses, manages and presents data linked to location.
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another.
Landscape Character Type (LCT)	Distinct landscape character area which broadly shares similar combinations of geology, topography, drainage patterns, vegetation, land use, settlement pattern, and perceptual and aesthetic attributes.
Landscape effects	Effects on the landscape as a resource in its own right.
Landscape feature	Prominent or eye-catching element in the landscape.
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for different reasons.
Magnitude (of effect)	A term that combines judgements about the size and scale of the effect.
Perception	Combines the sensory (experienced through the senses) with cognitive (understanding based on knowledge and experiences).
Photomontages	A visualisation which superimposes an image of a proposed development on a photograph or series of photographs
Scenic Amenity	The aesthetic experience of the landscape, often associated with cultural/social values and identity.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development and the value related to that receptor.
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Visual Amenity	The aesthetic experience and appreciation of views of the landscape.
Visual Absorption Capacity (VAC)	The extent to which the landscape can accommodate change of a particular type and scale without unacceptable adverse effects on the existing landscape character.
Visual effects	Effects on specific views and on the general visual amenity experienced by people
Viewshed	An area of land visible from a point or series of points, the ‘seen area’.
Zone of Theoretical Visibility (ZTV)	A map, usually the product of a GIS desktop mapping process using a DTM, showing areas of the landscape within which a development is theoretically visible.

1. INTRODUCTION

This report has been prepared by Environmental Ethos on behalf of Byron Shire Council to assess the potential Landscape and Visual Impact (LVI) of the proposed Dingo Lane Solar Farm (the Project). The Project comprises of the installation and operation of a solar farm up to 5MW AC, which will utilise photovoltaic (PV) modules to generate electricity. The Project is a key component of Byron Shire Council's Net Zero Emissions Strategy.

The Project site is located on Lot 15 DP1178892, which is part of the buffer land to the west of Bryon Resource Recovery Centre. The footprint of the proposed development will cover an area of approximately 13.1 hectares (ha), with the solar array area covering an area up to 11ha. The PV panels will run east/west and will be mounted on a fixed frame supporting system at a nominal 20 degree incline to north. This assessment also considered an alternative option to mount the PV panels on a single axis horizontal tracking system. The solar panels, including the mounting structures, will be a maximum height of 2 metres for the fixed frame option, and 3 meters for the tracking system option.

Location

The Project site is located approximately 3 kilometres south of Mullumbimby, *refer Figure 1.* The Project site adjoins Dingo Lane on the north-western boundary, which is a gravel access road to the rear of Bryon Resource Recovery Centre. The Project site is zoned RU2 Rural Landscape and is currently used for grazing. Grazing is the predominant land use within the low lying valley surrounding the site. To the north, east and west are areas of RU5 Large Lot Residential, located on undulating hills. The majority of the remaining land surrounding the site is zoned RU1 Primary Production. The resource recovery centre is zoned SP2 Waste or Resource Management Facility.

Figure 1: Site Location Plan

2. SCOPE OF THE ASSESSMENT

The scope of this landscape and visual impact assessment is outlined below:

- Summary of the policy context relevant to the study.
- Description of the methodology used to undertake the study.
- Description of the elements of the Project with the potential to impact landscape character and visual amenity.

- Assessment of the potential visibility of the Project (visual catchment) and baseline conditions (existing visual context and conditions).
- Description of existing landscape character, views and visual amenity.
- Assessment of potential changes to landscape character resulting from the Project.
- Assessment of the visual effect and impact of the Project including potential changes to views and visual amenity.
- Assessment of potential mitigation measures to avoid, mitigate or manage potential impacts.

3. Policy Context

3.1. BYRON LOCAL ENVIRONMENTAL PLAN

The Project site is located within the *Rural Landscape* zone *(RU2)* as identified in the *Byron Local Environmental Plan 2014*[1] (Byron LEP), refer *Figure 2*.

The objectives for this land use zoning, relevant to the scope of this assessment, include the following:

- "To maintain the rural landscape character of the land; and
- To protect significant scenic landscapes and to minimise impacts on the scenic quality of the locality."

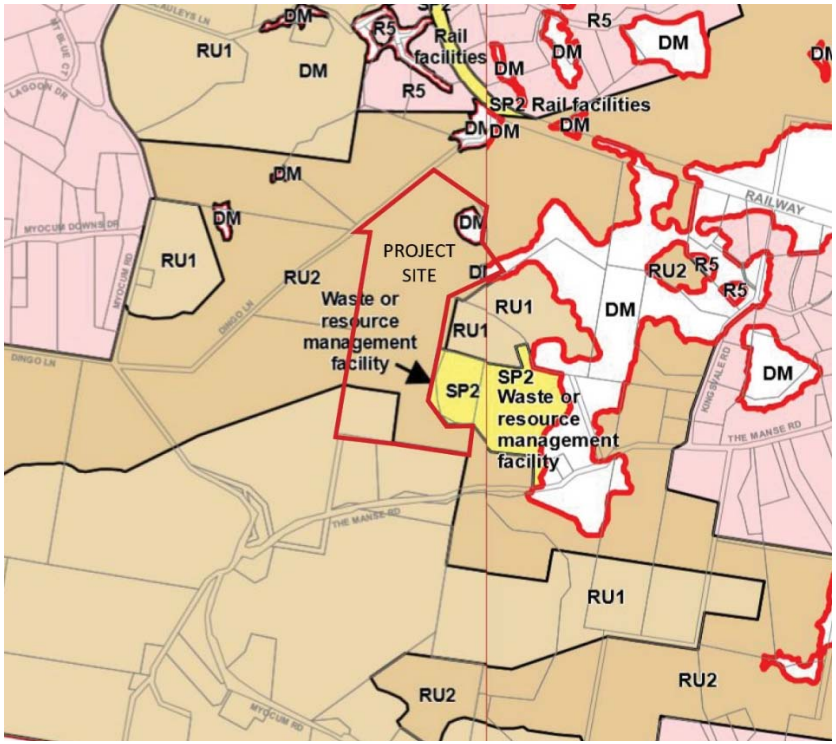


Figure 2: Excerpt from Byron Local Environmental Plan Land Zoning Maps.

Byron LEP Heritage Map identifies two (2) heritage listed properties within 2 km of the Project site, refer *Figure 3*. The closest property is Walker Family Farm (I165) listed as a fine example of a working dairy farm, the statement of significance noting "*The siting, landscape, house and farm building provide*

[1] https://www.byron.nsw.gov.au/Services/Building-development/Plans-maps-and-guidelines/Byron-LEP-2014-and-1988

a fine example of the local type that is now rare."[2] The second property, Tulloch House (I166) is listed as "*A fine example of a large scale timber homestead set in established gardens built by one of the settler families, the Macgregors*."[3]

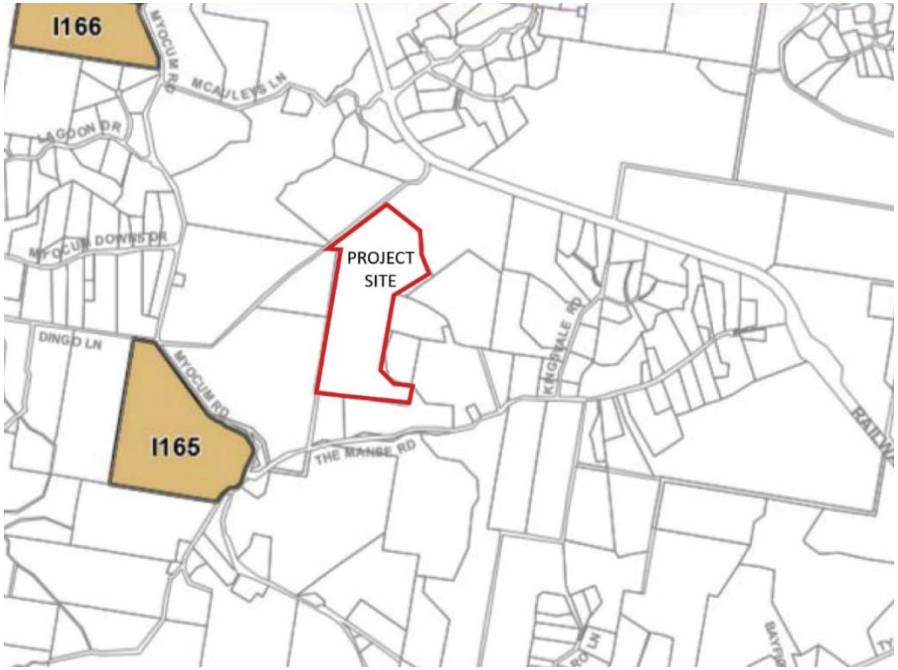


Figure 3: Excerpt from Byron Local Environmental Plan Heritage Map HER_002.

3.2. BYRON SHIRE DEVELOPMENT CONTROL PLAN

Byron Shire Development Control Plan (DCP), 2014, Chapter C3 Visually Prominent Sites, Visually Prominent Development and View Sharing[4], aims to maintain the Shire's landscape and visual qualities through control of development on visually prominent sites and locations. These include land in the coastal zone, ridgetops and nearby lands, escarpments, environmentally sensitive sites on sloping land and any site where development has the potential to degrade visual amenity. The Project site is not within the vicinity of land identified as visually prominent, refer *Figure 4*.

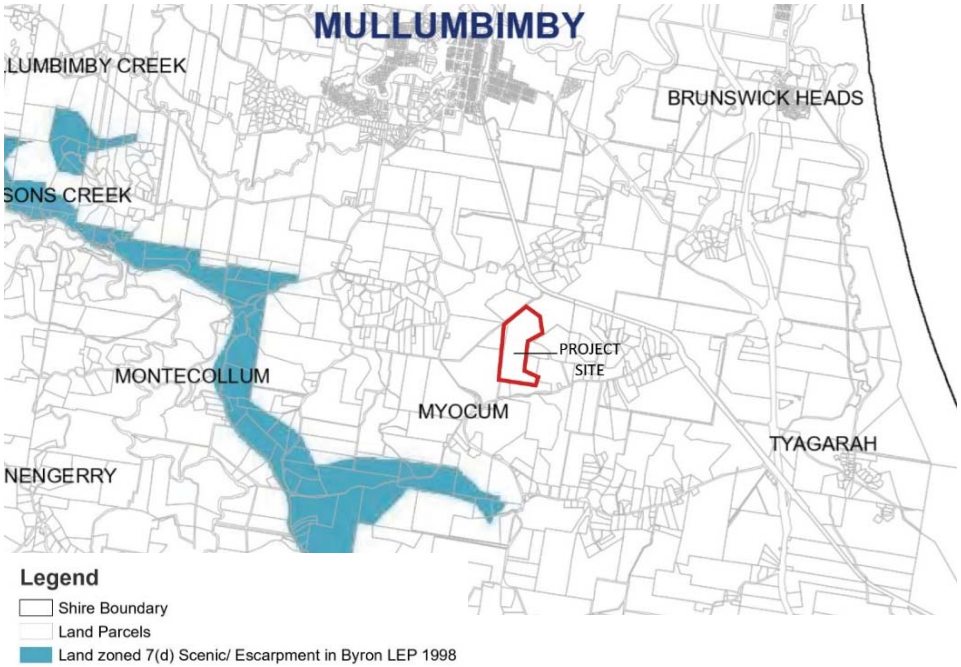


Figure 4: Excerpt from Draft Byron Rural Land Use Strategy, Map 15, Assessable Land: Scenic Amenity and Rural Landscape.

[2] https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1260106

[3] https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1260107

[4] Development Control Plan, 2014, Byron Shire Council

3.3. NSW Government Large-Scale Solar Energy Guideline

The NSW Government Large-Scale Solar Energy Guideline for State Significant Development, 2018[5] (the Guideline), provides guidance to State significant solar energy projects. Dingo Lane Solar Farm is below the threshold of capital investment value and is therefore not considered State significant. However, whilst not directly applicable, the Guideline provides assistance in highlighting some of the common key issues for consideration in the development of solar farms. These issues includes the consideration of potential impacts on landscape character and values, and the visual amenity of landholders and communities.

4. METHODOLOGY

The methodology used in this assessment is based on the *Guideline for Landscape Character and Visual Impact Assessment 2018*[6], *AILA Guidance Note for Landscape and Visual Assessment (Queensland) 2018*[7], and the *Guidelines for Landscape and Visual Impact Assessment (GLVIA)* 2013[8].

4.1. Desktop Assessment

A desktop study of base information was undertaken including topography, drainage, vegetation, land use, transport corridors, surrounding properties, local communities, and other sensitive land uses. The Zone of Theoretical Visibility (ZTV) was identified using GIS mapping based on 5m contours and DTM grid resolution 24m. ZTV mapping is used to determining the potential visibility of a project based on topography, and informs the scope and focus of the detailed field study.

4.2. Field Study

A field study was undertaken and photographs collected from publically accessible locations. The screening potential of existing landform, as identified in the ZTV modelling, was confirmed on site. The type, location and density of existing vegetation was assessed in relation to the character of the landscape and effect on the visual catchment or viewshed. The landscape character of the Project site and surrounding areas was assessed and evaluated in relation to the visual absorption capacity of the landscape, the condition, and contribution to scenic amenity.

The assessment of potential changes to views from rural and large lot residential dwellings within the viewshed was undertaken using the desktop viewshed analysis and site assessment from publically accessible locations. Assessment from private properties was not undertaken as part of the initial field study. However a second field study was undertaken following community consultation on the draft LVIA. The second field study included the assessment of potential impacts to the amenity of private properties with views of the Project site. This was undertaken at the request of individual property owners.

[5] https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/large-scale-solar-energy-guideline-2018-12-11.pdf?la=en

[6] https://www.rms.nsw.gov.au/documents/projects/planning-principles/urban-design/guideline-landscape-character-and-visual-impact.pdf

[7] http://www.aila.org.au/imis_prod/documents/AILA/QLD/2018/AILA_GNLVA_June_2018V2.pdf

[8] *Guidelines for Landscape and Visual Impact Assessment (GLVIA)*, Third edition, Landscape Institute and Institute of Environmental Management & Assessment, 2013

4.3. Impact Assessment

The assessment of landscape and visual impacts includes changes in the character of the landscape resulting from the Project, and changes in the visual amenity of visual receptors. The assessment process takes into consideration the baseline conditions for both landscape character and visual amenity, and assesses these against the proposed effects of change resulting from the Project. The assessment of potential impacts to landscape character, separate to the study of visual amenity, enable the value of a landscape to be considered regardless of whether people can view it or not. Conversely, the assessment of visual amenity, separate to the study of landscape character, focussed on the effects of the Project on specific views and the values different groups of people may place on a view.

Landscape character and visual amenity are equally important and fundamentally interrelated, the dual assessment process assists in identifying a range of potential effects and consequentially provides the basis for improved decision making. The process for assessing landscape character and visual impacts is briefly outlined below.

Landscape Character

Landscape Character Types (LCT) were identified and broadly mapped within the viewshed. The sensitivity of each LCT was assessed in relation to the extent to which the landscape would be affected by the type and scale of change resulting from the Project. The extent to which a landscape can accept such change is dependent on the physical characteristics of the landscape, and the scale and nature of the change in contrast to the receiving environment. Landscape sensitivity is also dependent on the relative importance of landscape values (often designated by legislation) identified for each LCT.

Visual Amenity

The viewshed of the Project was mapped and Visual Sensitive Receptors (VSR) (individuals and/or defined groups of people who have the potential to be visually affected by the project) were identified. A selection of representative viewpoints was recorded and the sensitivity of VSRs exposed to the view was considered. Sensitivity to changes in the view resulting from the Project is dependent on the extent and nature of change, and the location and activity of the VSR. The value a community places on views may be recognised through designation, for example the designation of a lookout or scenic route. In some cases, duration of a view may influence value, for example, long duration from a dwelling's veranda is generally considered of high value, whereas short duration, such as that experienced while travelling, has a lesser value. However, some views even when short, contribute to how people experience a sense of place. These views notably of key landscape features (mountains, ridges, coast line, lakes, significant group of trees, etc.) are important in forming an overall identity of a landscape, especially at a regional scale.

Magnitude of Change

Evaluation of the magnitude of change to landscape character resulting from the Project was undertaken for each LCT. The criteria for evaluating change to landscape character is generally based on scale (extent of area affected), nature of the change (consistent or fundamentally different), and duration (short, long term, permanent or temporary).

The magnitude of change to the visual amenity of visual receptors is dependent on the proportion the Project occupies in a viewer's field of vision, the extent of intrusion into the foreground, middle-ground and

background, the capacity or ability of the landscape to accommodate the change, the duration of the effect, and the reversibility of the effect.

4.4. Evaluation of significance and mitigation of potential impacts

Impact Significant

Evaluation of the significance of landscape and visual impacts is undertaken using a process similar to a risk assessment matrix, where the significance of impacts are determined by comparing the impact magnitude against the sensitivity of landscape character and visual receptors. It should be noted the matrix approach provides a guide to potential severity of impacts; to ensure potential impacts are detailed such that mitigation measures are identified and assessed, a narrative section is included in the evaluation.

Mitigation Measures

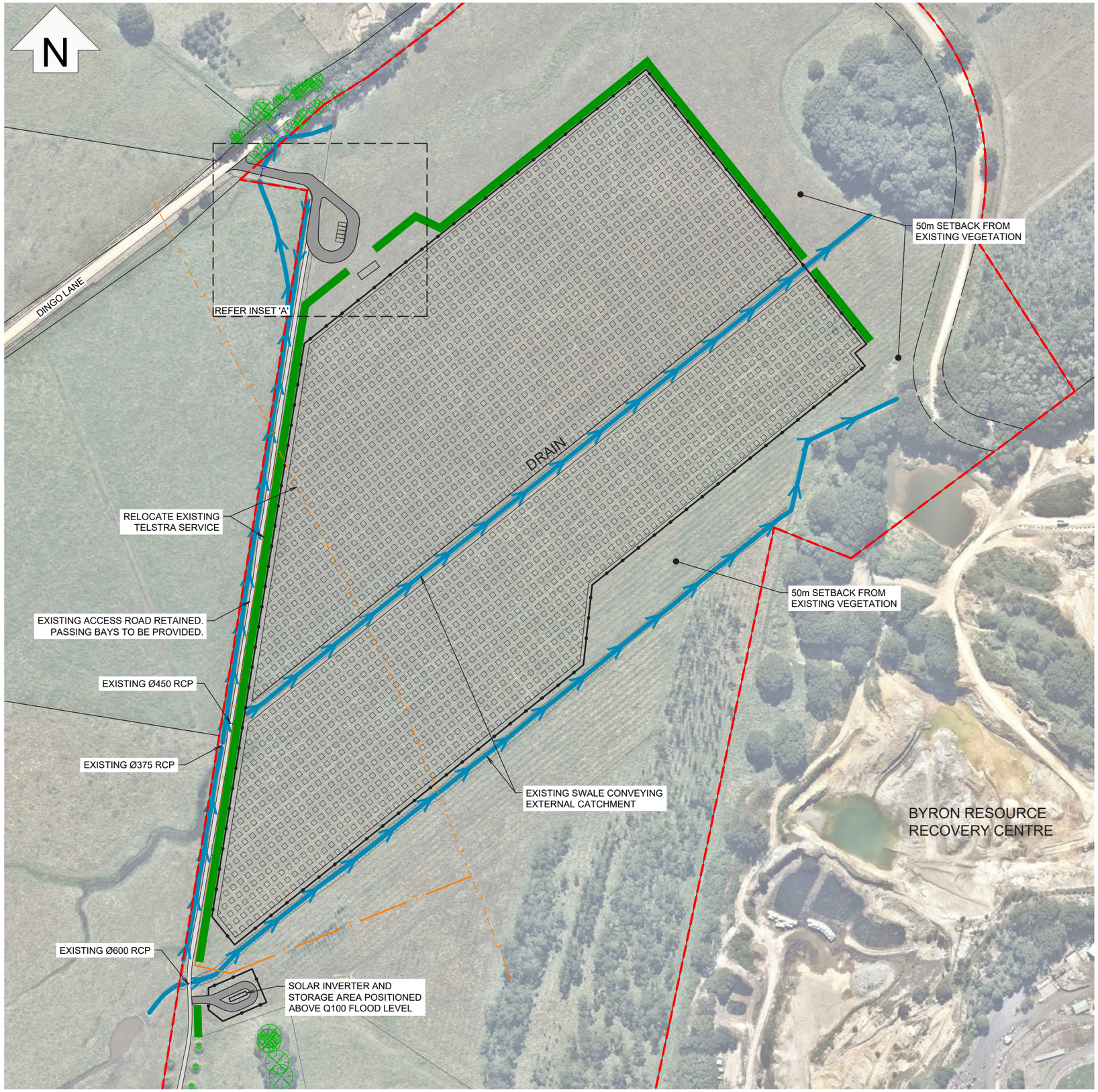
Where potential landscape and visual impacts are identified, mitigation measures to avoid, reduce or manage those impacts are provided.

The Project includes 'embedded' mitigation measures, that is, the design of the Project has taken into consideration the requirement for visual screening and incorporated vegetation screening into the layout of the Project as detailed in the Project's Statement of Landscape Intent [9]. Embedded mitigation measures will vary over time as vegetation grows and the screens become established. Long term impacts to landscape character, views and visual amenity, referred to in this report, are defined as residual impacts after the implementation of embedded mitigation measures.

5. PROJECT DESCRIPTION

The general layout of the Project is as shown in *Figure 5*. The main elements of the Project with the potential to effect landscape and visual change are the construction and operation of the solar panels and support system, and the associated infrastructure (inverters, tracks, and office buildings). Perimeter (security) fencing is also proposed as part of the Project and this element will also effect change to landscape character and visual amenity. The key components of the Project with the potential to result in landscape and visual change are summaries in *Tables 1 and 2.*

[9] Planit Consulting, 2020, Dingo Lane Solar Farm – Statement of Landscape Intent



PLAN
SCALE 1:2,000

SOURCE:
PLANIT CONSULTING
SK0001 - A

ENVIRONMENTAL ETHOS

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DATUM GDA 1994,
PROJECTION MGA ZONE 56

SCALE 1:2,000 @ A1

LEGEND

- SITE BOUNDARY
- PROPERTY BOUNDARY
- EXISTING SWALE
- EXISTING ROAD
- SOLAR ARRAY AREA (11ha)
- ROAD
- SECURITY FENCE
- LANDSCAPE SCREENING
- EXISTING TELSTRA SERVCE
- TELSTRA SERVICE DIVERSION

NOTES:

SOLAR ARRAY AREA ASSUMPTIONS:
- 5m SPACING BETWEEN PANEL ROWS
- SURFACE TO BE NAVIGABLE BY LIGHT VEHICLE FOR MAINTENANCE

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DINGO LANE SOLAR FARM

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

PROJECT LAYOUT PLAN

FIGURE 5.0

5.1. Construction Processes

Table 1. Processes during Construction

Clearing and minor earthworks: clearing of small patches of non-mapped vegetation and surface rock.	
Installation of supports or tracking system and solar modules: including support piles.	
Construction of plant and associated infrastructure: including control room and inverters.	
Security fencing: a chain wire security fence is proposed around the boundary of the solar farm. Typical approximate height 2.3 m, chain wire with 3 strands of barbed wire above.	
Screen planting: native vegetation planted to screen the Project.	

5.2. Project Elements and Operational Processes

Table 2. Project Elements and Processes during Operation

Solar panels and tracking system:

Solar panels: approximate size 1 m x 2 m

Solar arrays: approximately 4.05m wide

Rows: 5m apart

Fixed frame system and solar array: maximum 2m above natural ground

Tracking system and solar array: maximum 3m above natural ground

Operational processes include tracking, cleaning, and minor maintenance.

Solar Inverters: Typical approximate size 2.5 m wide x 3.2 m high x 12.2 m long

Operational processes include minor maintenance.

Substation and switch/control building: Typical approximate height of main elements

Lightening pole: approximately 22 m high

Gantry: approximately 16 m high

Transformers: approximately 8 to 9 m high

Operational processes include minor maintenance.

Screen planting: establishment and maintenance of vegetation screens.

6. BASELINE CONDITIONS

The baseline for the landscape and visual impact assessment is an understanding of the existing landscape character and visual qualities within the site and surrounding area that may be affected by the proposed development.

6.1. Viewshed Analysis

The topography within the Project site consists of generally flat low-lying land, part of a board valley, rising to higher ground in the south. The Zone of Theoretical Visibility (ZTV) for the Project, refer *Figure 6*, identified potential visibility extends furthest to the west, along the valley within which the Project is located, to a ridgeline approximately 4km from the site. Potential visibility to the north, south and east is constrained by surrounding hills and ridges.

The ZTV mapping shows potential visibility of the solar farm may occur when viewed from the ridgelines to the north and south of site, and from hill-slopes facing the Project. Potential visibility of the solar farm is limited to the east of the site due to topography and existing vegetation. Visibility of the site to the west extends along the valley to the ridgeline, however views are interrupted in places due to undulations in topography.

Solar Farms generally have a low horizontal profile, the major elements of a solar farm (PV models and support frames or trackers) are typically 2 to 3 metres above ground level. In this study a maximum height of 3 metres above ground level was used in the assessment. At distances greater than 1 km a 3 metre high horizontal object in the landscape becomes visually insignificant (perceived as a narrow line in the distance) when viewed across a flat plain. Views of the solar farm from the flatter parts of the valley to the west of the Project site will be limited by distance, with the main elements of the Project being just discernable at 1km, and barely visible at distances greater than 2 km from the Project site.

Views from elevated locations, looking down onto the solar farm such as from the hill slopes and ridgelines, may have greater capacity to view the solar farm due to the angle of view in relation to the Project. The potential impact of the Project on these elevated views is dependent on the direction and distance of the view, and intervening vegetation.

The desktop mapping of the viewshed provides a theoretical basis for potential visibility, in reality many other factors influence visibility in the landscape including minor variations in terrain (beyond that measures in the DTM), vegetation, and buildings. The extent of the viewshed taking into consideration these additional factors is detailed in *Section 7*.

6.2. Landscape Character

The landscape within which the Project is located is part of the North Coast Bioregion which is characterised by a complex diversity of landscape types. In the north of the bioregion, soils derived from basalts support sub-tropical and warm temperate rainforests, or wet sclerophyll forests. Forests occurring on soils derived from granites are mainly eucalyptus vegetation communities.

Prior to European settlement this area was inhabited by the Bunjalung people. Settlers moved into the area, initially timber gatherers, followed by broad-acre clearing, and the establishment of dairy farms. The Walker Family Farm to the west of the Project site, is acknowledged (heritage listed) as a fine example of the early dairy farming history of the area. With the demise

ENVIRONMENTAL ETHOS

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DATUM GDA 1994,
PROJECTION MGA ZONE 56

0 0.25 0.5 1 Kilometers

SCALE 1:25,000 @ A3

LEGEND

- PV ARRAYS
- SITE BOUNDARY
- DISTANCE FROM PROJECT
- DWELLING (no impact identified)
- DWELLING (with potential view of project)
- RIDGELINE

Least Visible

ZONE OF THEORETICAL VISIBILITY*

Most Visible

*(Analysis based on Digital Terrain Model)

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DINGO LANE SOLAR FARM

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

VIEWSHED ANALYSIS

FIGURE **6.0**

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

of the dairy industry, current agricultural land use is predominantly board-acre beef cattle farming.

The scenic qualities of the region has made this area an attractive holiday destination. In addition, people seeking an alternative lifestyle to urban centres have moved to the area, creating a diversity of land uses and business, mainly located on land outside the flood plains.

The Landscape Character Types (LCT) within the viewshed are broadly mapped in *Figure 7*, and detailed below:

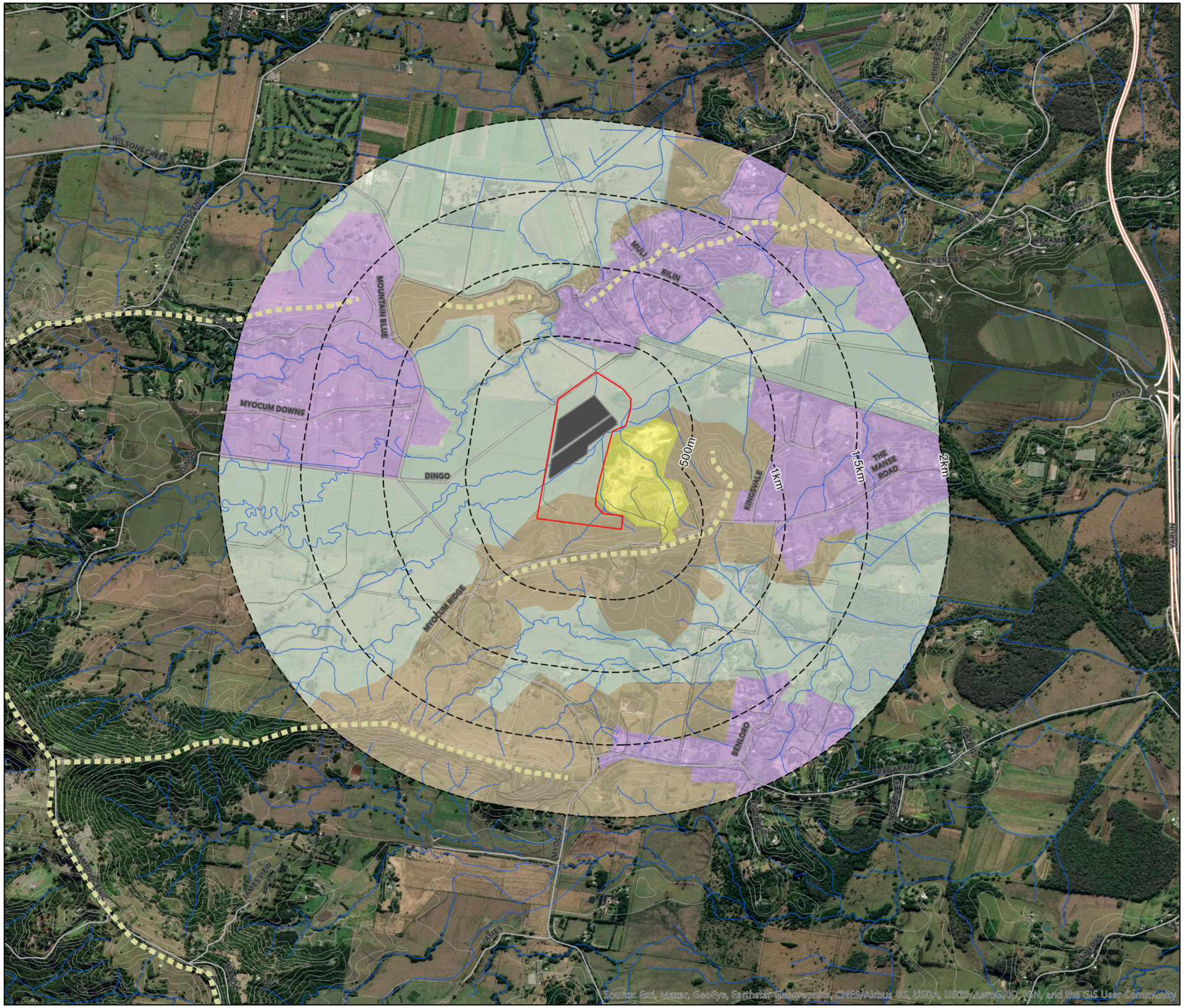
Flat to Gently Undulating Rural Landscape

The Project is located within the Flat to Gently Undulating Rural LCT, which generally comprises of a series of valleys, including flood plains, draining creeks east to the coast or north-east to Brunswick River. This landscape is rural in character, comprising of open grazing land, interspersed with riparian vegetation along creek lines, scattered groups of remnant vegetation and shade trees. Views are long distance and framed by vegetated ridges and hills extending to the horizon. Built infrastructure occupies a small percentage of the landscape and includes scattered homesteads, roads, power lines, and rural fences.

The importance of maintaining the rural character of this landscape is recognized in Byron LEP, 2014. The LEP also highlights the importance of protecting significant scenic landscapes and minimize impacts on scenic quality. Key issues in retaining the character of these largely cleared pastoral valleys includes; maintaining the overall pattern of the landscape (the combination of grazing land and native vegetation), preventing the intrusion of infrastructure into views across the landscape (long distance views to hills and ridges in the background), and avoiding a noticeable increase in the extent of built infrastructure within the landscape.

Plate 1: Flat to Gently Undulating Rural Landscape, view of the Project site.

Plate 2: The landscape setting to the heritage listed Walker Family Farm.



ENVIRONMENTAL ETHOS

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DATUM GDA 1994,
PROJECTION MGA ZONE 56

0 0.25 0.5 1 Kilometers

SCALE 1:25,000 @ A3

LEGEND

- PV ARRAYS
- SITE BOUNDARY
- DISTANCE FROM PROJECT
- RIDGELINES
- Flat to Gently Undulating Rural LCT
- Large Lot Residential LCT
- Resource Recovery LCT
- Undulating to Steep Rural LCT

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LANDSCAPE AND VISUAL IMPACT ASSESSMENT

LANDSCAPE CHARACTER TYPES

FIGURE 7.0

Plate 3: Riparian vegetation along Pipeclay Creek

Plate 4: Existing infrastructure including power lines, roads and rural fences.

Undulating to Steep Rural Landscape

On the surrounding hills and ridges within the viewshed, the character of rural land transitions from large grazing paddocks to smaller production areas include macadamia orchards. These areas support a greater diversity of tree cover including remnant vegetation and cultivated tree crops. Views include both short-range (enclosed by trees) or long range across the valleys. Existing infrastructure includes rural dwellings, roads, power lines, a communications tower, and rural fences.

Plate 5: Undulating to Steep Rural Landscape Type

Plate 6: Existing infrastructure within the Undulating to Steep Rural Landscape.

Large Lot Residential Landscape

The Large Lot Residential areas are located on undulating hills within the viewshed. This LCT has a typical rural residential character, with local access roads and residential dwellings set-back within large landscaped lots. Some areas have substantial tree cover, a mixture of native and exotic species. Built infrastructure includes buildings, roads, power lines, and fences. Views are mainly short to middle-range.

Plate 7: Large Lot Residential Landscape

Plate 8: View towards Large Lot Residential Landscape

Resource Recovery Landscape

To the east of the Project site is Byron Resource Recovery Centre which has a distincly man-modifed character. The landform has been shaped to a series of plateforms stepping down the hill slope to excavated pits at the base of the hill. Vegetation within the highly disturbed areas is cleared, however some vegetation has been retained for visual screening and along drainage lines. The surrounding buffer zone includes areas of retained remnant vegetation for screening, and planted screening vegetation. As a result of the vegetation screens, there is limited visibility of this modified landscape from surrounding locations.

Plate 9: View towards Resource Recovery Landscape Type

7. ASSESSMENT OF VISIBILITY AND VISUAL AMENITY

Impacts on views and the visual amenity may occur during both construction and operational stages of the Project. The magnitude of change to views and visual amenity is dependent on the extent of visual exposure or visibility of the various Project elements, the compatibility of the development with the surrounding landscape, and the duration of the impacts.

The visual amenity assessment has been undertaken based on representative viewpoints from publically accessible locations within the viewshed. The location of the viewpoints are shown in *Figure 8* and representative views are detailed in *Table 3*.

7.1. Photomontages

Photomontages (photo–realistic images) of the project were prepared for four (4) views where the Project was considered most likely to be visible to sensitive receptors (refer *Table 3: VP4, VP6, VP22 and VP24)*. The photomontages included images with and without landscape screen planting to demonstrate the mitigating effect of established screening vegetation on visibility of the Project.

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DATUM GDA 1994,
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0 0.25 0.5 1 Kilometers

SCALE 1:25,000 @ A3

LEGEND

- SITE BOUNDARY
- PV ARRAYS
- DISTANCE FROM PROJECT
- RIDGELINES
- VIEWPOINT

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DINGO LANE SOLAR FARM

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

VIEWPOINT LOCATIONS

FIGURE **8.0**

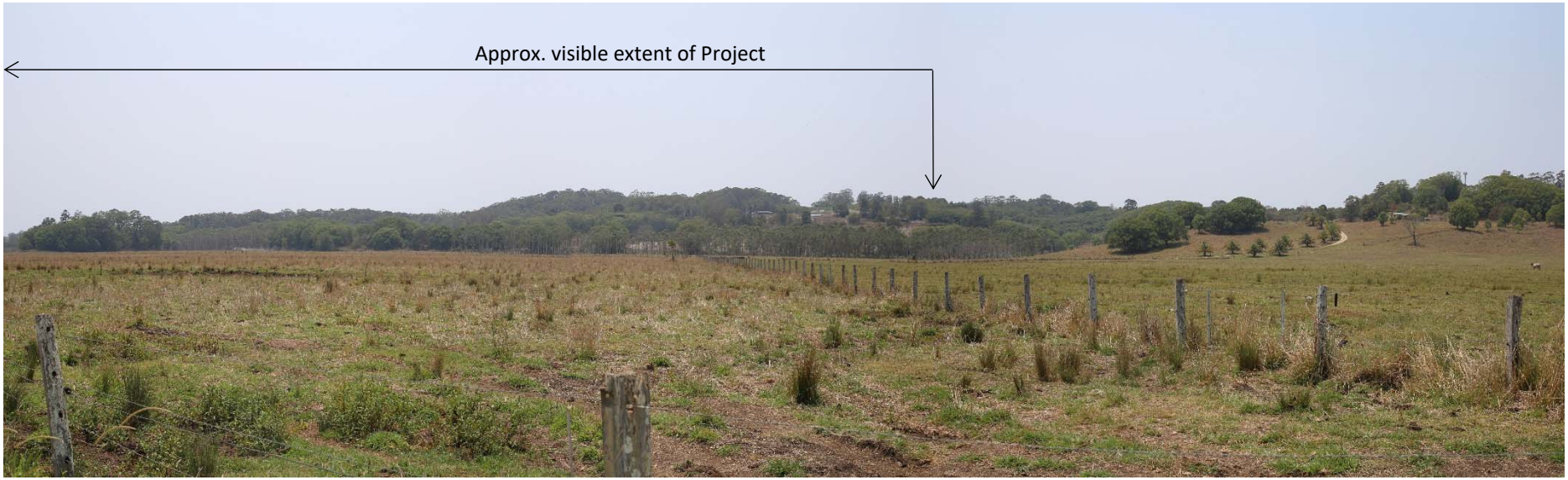
Table 3. Representative Viewpoints

		DINGO LANE	*VP1*

LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	Mainly rural character however some visibility of the resource recovery centre presents evidence of a degraded landscape in the background impacting rural landscape values from this viewpoint.	DISTANCE TO PROJECT	254m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a significant visual change in land cover from grassland typical of a rural landscape to PV arrays. The introduction of associated infrastructure (inverters and security fencing) will also contrast with the rural landscape. These changes will be moderated by the relatively low profile of the solar panels (less than 3 m above ground level) which limits vertical disruption to the horizon. The Project will result in minimal disruption to topography. Existing tree cover will remain unchanged. Proposed landscape screen planting will mitigate views from this direction.	LOCATION IN FIELD OF VIEW	Middle ground
MAGNITUDE OF CHANGE IN VISUAL BASELINE	The main long term change in the visual baseline will be the shortening of views as a result of the landscape screen planting along the Project's northern and western	DURATION	Short

	boundaries. Prior to establishment of the screen planting, the Project will be visible resulting in a visual change from a rural landscape to a low profile infrastructure element (solar farm). Views to vegetated hills in the background will be retained.		
PREDICTED VISUAL IMPACT	Short term – Moderate impact as a result of the change from grazing land to solar farm. Long term – Negligible, the Project will not be visible as a result of the landscape screen planting.	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Project's Statement of Landscape Intent, for the duration of the Project life.		

		DINGO LANE	*VP2*



LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	View similar to VP1.	DISTANCE TO PROJECT	390m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	As for VP1.	LOCATION IN FIELD OF VIEW	Middle ground
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Visual change will be from a rural landscape to a low profile infrastructure element (solar farm). Proposed vegetation screens along the western boundary will screen the proposed development and assist in blending with the visual baseline.	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – Moderate impact as a result of the change from grazing land to solar farm. Long term – Negligible, the Project will not be visible as a result of the landscape screen planting.	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	As for VP1		

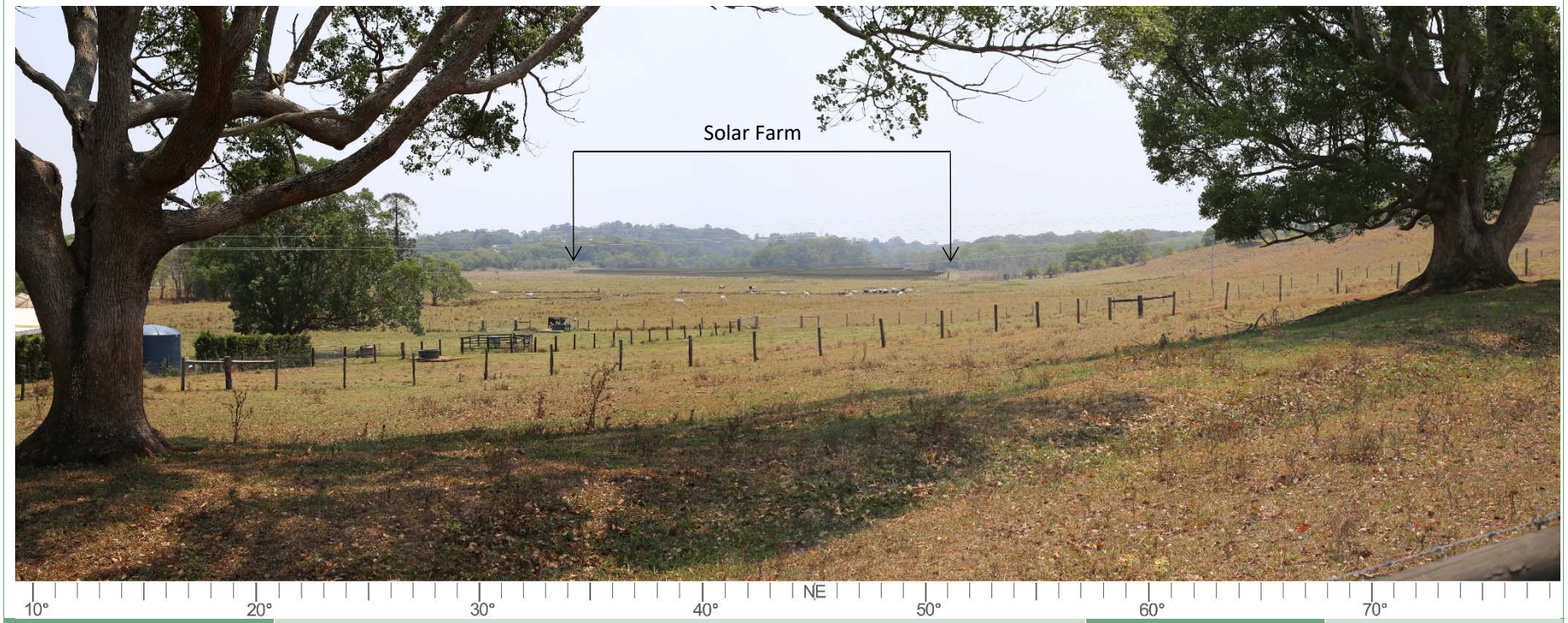
		MYOCUM ROAD	*VP3*

LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	North East
VISUAL AMENITY	Long distance view of the board valley in which the Project is located. View includes significant mature trees and vegetated hills in the background. Visible infrastructure includes power lines.	DISTANCE TO PROJECT	786m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	As for VP1.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	At this distance the Project will appears as a low horizontal element in the background of the view. Screen planting will mitigate impacts and blend with the background.	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – Low impact due to distance, some perceptible change from grazing land to solar farm. Long term – Negligible - once the screen planting is established.	VIEWER NUMBERS	Moderate
MITIGATION CONSIDERATIONS	As for VP1		

		MYOCUM ROAD	*VP4*

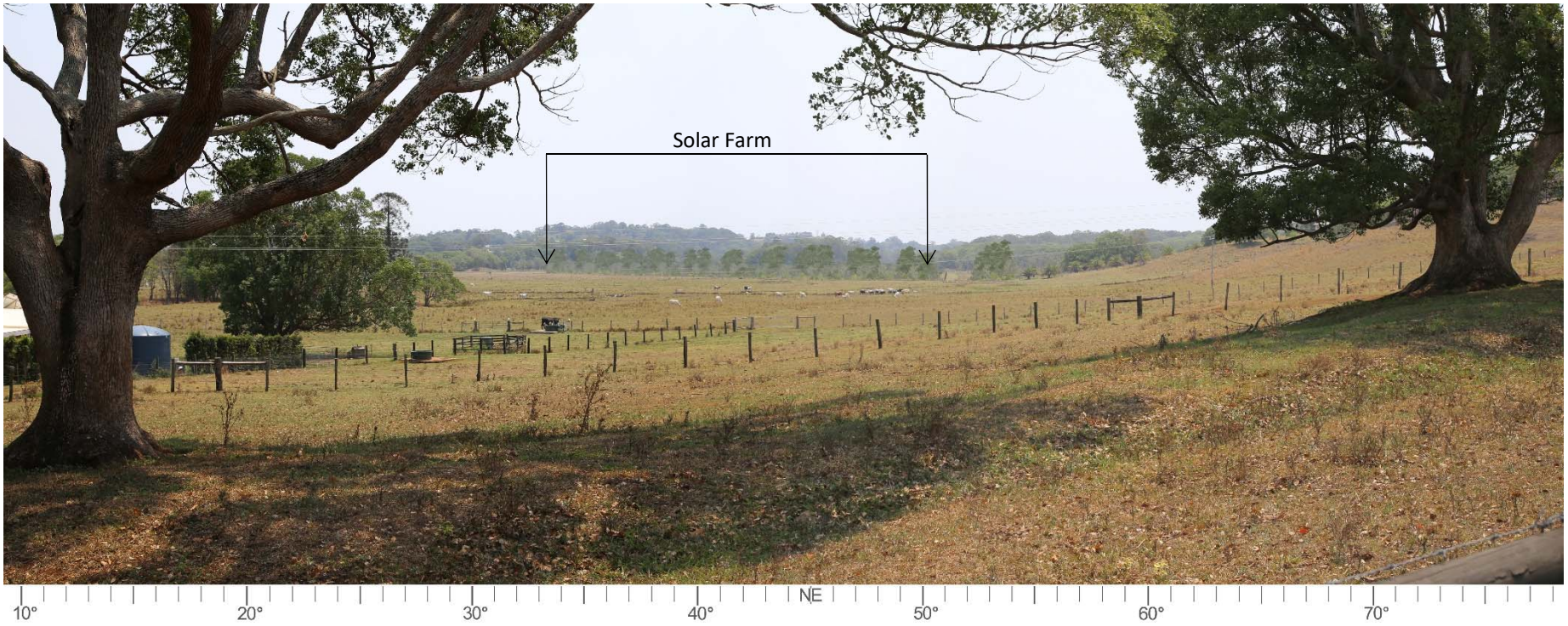
LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	North East
VISUAL AMENITY	Long distance view of the board valley in which the Project is located. View includes significant mature trees and vegetated hills in the background. Visible infrastructure includes power lines and rural property in the foreground.	DISTANCE TO PROJECT	630m

PHOTOMONTAGE VP4 – WITHOUT SCREEN PLANTING



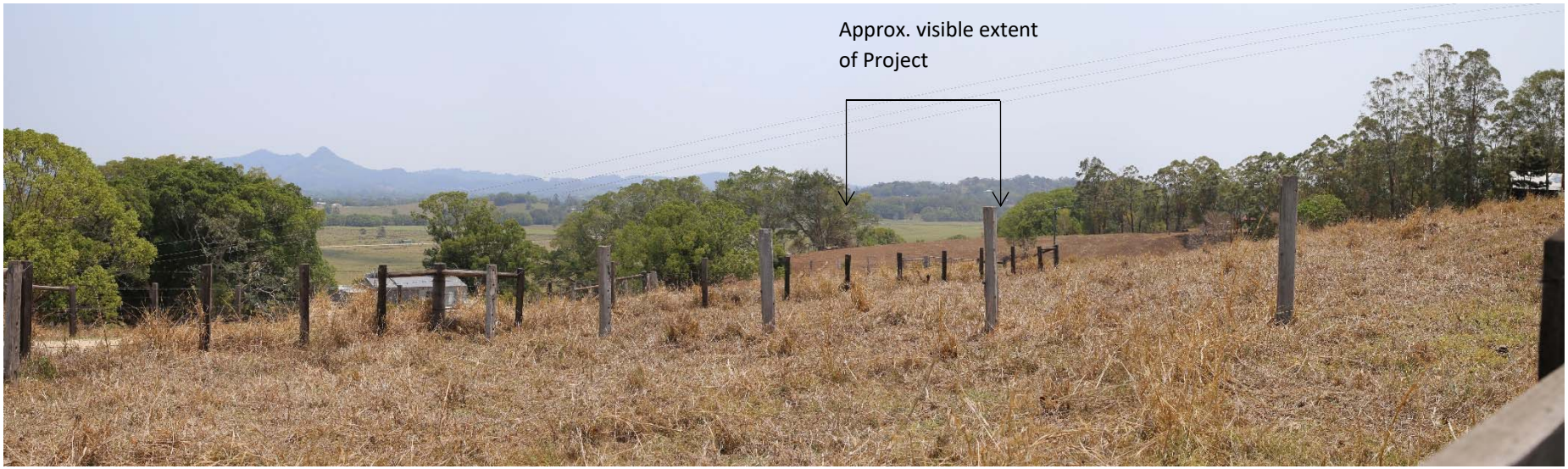
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a visual change in land cover from grassland typical of a rural landscape to PV arrays. The introduction of associated infrastructure (inverters and security fencing) will also contrast with the rural landscape. These changes will be moderated by the relatively low profile of the solar panels (less than 3 m above ground level) which limits vertical disruption to the horizon. The Project will result in minimal disruption to topography. Existing tree cover will remain unchanged. Proposed landscape screen planting will mitigate views from this direction.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Screen planting on the western boundary will reduce the visible change in land cover.	DURATION	Short

PHOTOMONTAGE VP4 – WITH SCREEN PLANTING



PREDICTED VISUAL IMPACT	Short term – Low to Moderate impact due to distance, some perceptible change from grazing land to solar farm. Long term – Negligible, the Project will not be visible as a result of the landscape screen planting.	VIEWER NUMBERS	Moderate
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Statement of Landscape Intent, for the duration of the Project life.		

		THE MANSE ROAD	*VP5*

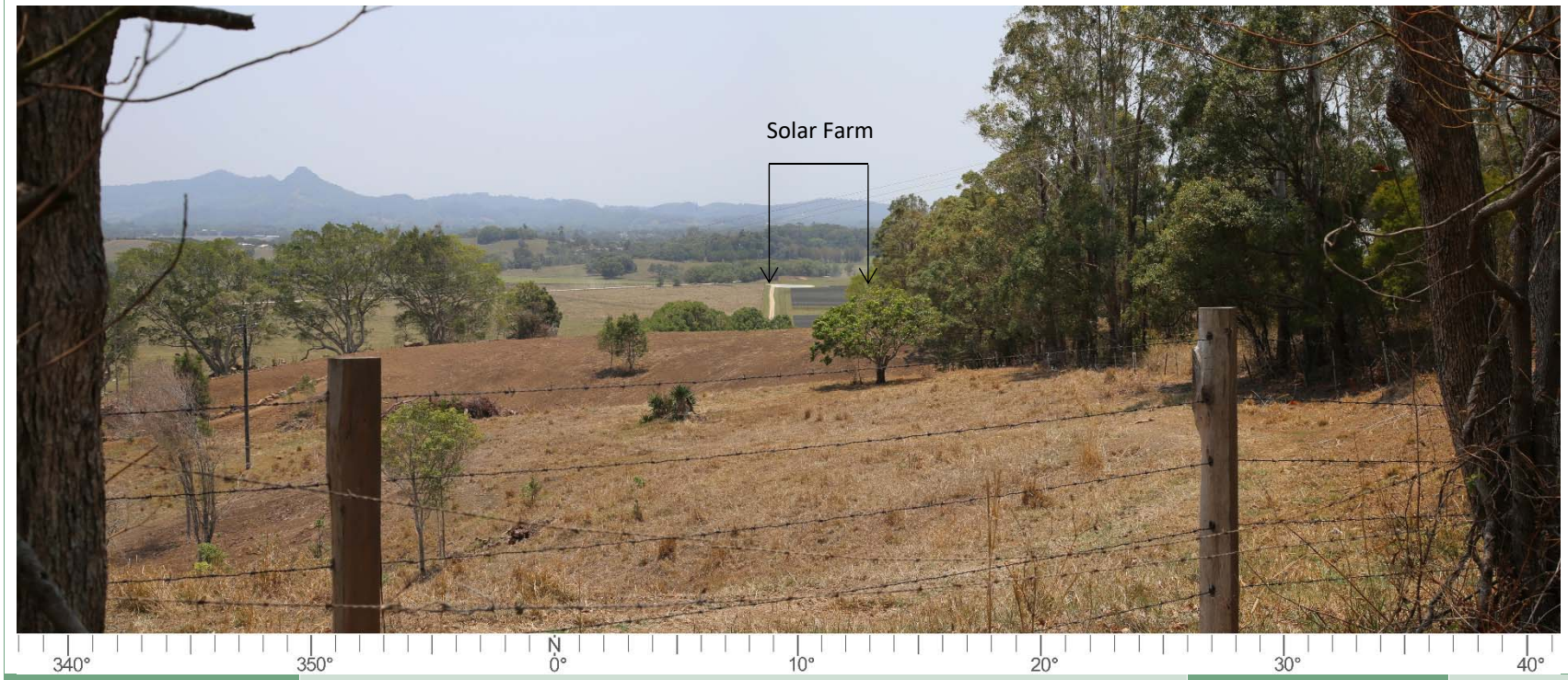


LANDSCAPE CHARACTER	Undulating to Steep Rural Landscape	DIRECTION OF VIEW	North- northeast
VISUAL AMENITY	Elevated viewpoint with long range views over a largely rural landscape. The distinctive ridgeline on the horizon provides a scenic backdrop and sense of place.	DISTANCE TO PROJECT	435m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a visible change in land cover from grassland typical of a rural landscape to PV arrays, however from this viewpoint the extent of visible change covers a small proportion of the landscape.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Existing vegetation and topography screen the majority of the Project.	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – Low impact as a result of the change from grazing land to solar farm, limited visibility will reduce the extent of perceptible change. Long term – Low, screen planting will assist in blending the Project with the background, however a small portion of the Project will remain visible.	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	Where practical, infrastructure elements such as inverters and control room buildings should be a colour compatible with the surrounding landscape.		

		THE MANSE ROAD	*VP6*

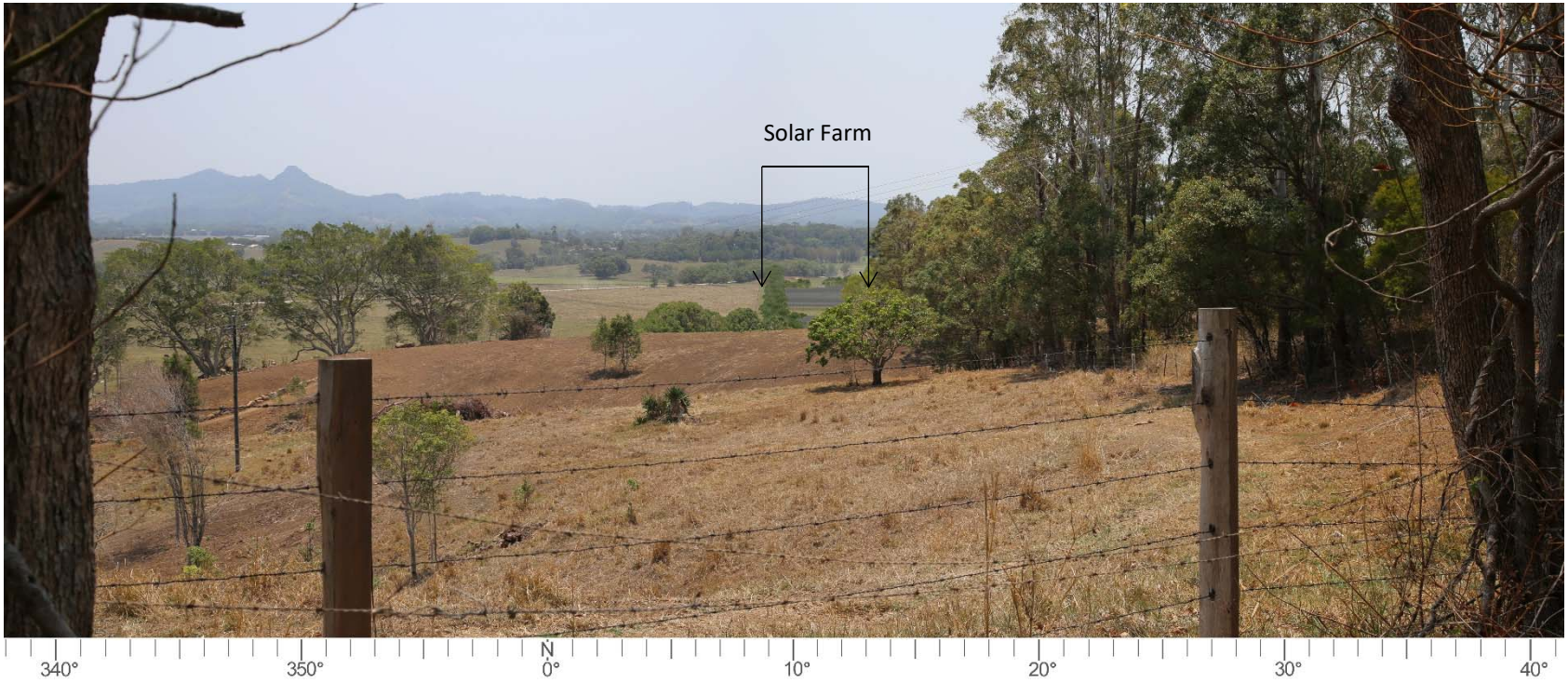
LANDSCAPE CHARACTER	Undulating to Steep Rural Landscape	DIRECTION OF VIEW	North- northeast
VISUAL AMENITY	Elevated viewpoint with long range views over a largely rural landscape. The distinctive ridgeline on the horizon provides a scenic backdrop and sense of place.	DISTANCE TO PROJECT	354m

PHOTOMONTAGE VP6 – WITHOUT SCREEN PLANTING



COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a visible change in land cover from grassland typical of a rural landscape to PV arrays, however from this viewpoint the extent of visible change covers a relatively small proportion of the landscape.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Existing vegetation and topography screen the majority of the Project.	DURATION	Short

PHOTOMONTAGE VP6 – WITH SCREEN PLANTING



PREDICTED VISUAL IMPACT	Short term – Low impact as a result of the change from grazing land to solar farm, limited visibility will reduce the extent of perceptible change. Long term – Low, screen planting will assist in blending the Project with the background, however part of the Project will remain visible due to the elevation of the viewpoint.	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	Where practical, infrastructure elements such as inverters and control room buildings should be a colour compatible with the surrounding landscape.		

		THE MANSE ROAD	*VP7*

LANDSCAPE CHARACTER	Undulating to Steep Rural Landscape	DIRECTION OF VIEW	North- northwest
VISUAL AMENITY	As for VP5 with macadamia orchard in foreground	DISTANCE TO PROJECT	150m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a slight visible change in land cover from grassland typical of a rural landscape to PV arrays, however from this viewpoint the extent of visible change covers a very small proportion of the landscape.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Existing vegetation and topography screen the majority of the Project.	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – Low impact as a result of the change from grazing land to solar farm, limited visibility will reduce the extent of perceptible change. Long term – Low	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	Where practical, infrastructure elements such as inverters and control room buildings should be a colour compatible with the surrounding landscape.		

		THE MANSE ROAD	*VP8*

LANDSCAPE CHARACTER	Undulating to Steep Rural Landscape	DIRECTION OF VIEW	West
VISUAL AMENITY	View of buffer zone to Resource Recovery Centre, mainly introduced species with low ecological value.	DISTANCE TO PROJECT	150m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible	LOCATION IN FIELD OF VIEW	Not Visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

		KINGSVALE ROAD	*VP9*

LANDSCAPE CHARACTER	Transition between Undulating to Steep Rural Landscape and Large Lot Residential Landscape	DIRECTION OF VIEW	West
VISUAL AMENITY	View towards Resource Recovery Centre, screened by existing native vegetation with distance views to horizon	DISTANCE TO PROJECT	950m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

		MYOCUM RIDGE ROAD	*VP10*

LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	North
VISUAL AMENITY	A panoramic view of the rural landscape with the heritage listed Walker Family Farm located in the centre of the view. The composition of long distance views to the distinctive horizon, minimal infrastructure and historic connections creates a highly attractive rural landscape.	DISTANCE TO PROJECT	1.07km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible	LOCATION IN FIELD OF VIEW	Not Visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	None	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

		DINGO LANE	*VP11*

LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	View from local access road across open rural landscape.	DISTANCE TO PROJECT	1.56km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Very limited, almost imperceptible change to the background of this rural view.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Slight	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – slight change due to the limited visibility of the Project. Long term – Negligible, the Project will not be visible as a result of the landscape screen planting.	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Statement of Landscape Intent, for the duration of the Project life.		

		MYOCUM ROAD	*VP12*

LANDSCAPE CHARACTER	Transition between Rural Landscape and Large Lot Residential Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	View includes Resource Recovery Centre in the background, partially screened by existing vegetation along Pipeclay Creek	DISTANCE TO PROJECT	862km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not likely to be visible due to screening by existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Moderate
MITIGATION CONSIDERATIONS	None		

		MYOCUM DOWNS ROAD	*VP13*

LANDSCAPE CHARACTER	Large Lot Residential Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	Leafy street with large trees and landscaped gardens	DISTANCE TO PROJECT	1.24km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to screening by existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

MYOCUM DOWNS ROAD	*VP14*	

LANDSCAPE CHARACTER	Large Lot Residential Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	Leafy street with large trees and landscaped gardens	DISTANCE TO PROJECT	1.68km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to screening by existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

		LAGOON DRIVE	*VP15*

LANDSCAPE CHARACTER	Large Lot Residential Landscape	DIRECTION OF VIEW	East - southeast
VISUAL AMENITY	Existing vegetation with rural outlook, Resource Recovery Centre visible in the background	DISTANCE TO PROJECT	1.47km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to screening by existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

	MOUNTAIN BLUE COURT	*VP16*

LANDSCAPE CHARACTER	Large Lot Residential Landscape	DIRECTION OF VIEW	East - southeast
VISUAL AMENITY	Existing vegetation.	DISTANCE TO PROJECT	1.28km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to screening by existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	No change	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – None Long term – None	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	None		

		MYOCUM ROAD	*VP17*

LANDSCAPE CHARACTER	Gently Undulating Rural Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	Rural character with riparian vegetation in the middle-ground	DISTANCE TO PROJECT	890m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Project not visible	DURATION	Short
PREDICTED VISUAL IMPACT	Project not visible	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	N/A		

		MACAULEYS ROAD	*VP18*

LANDSCAPE CHARACTER	Transition between Gently Undulating and Steep Rural Landscape	DIRECTION OF VIEW	South-East
VISUAL AMENITY	Rural character	DISTANCE TO PROJECT	950m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to intervening topography	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Project not visible	DURATION	Short
PREDICTED VISUAL IMPACT	Project not visible	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	N/A		

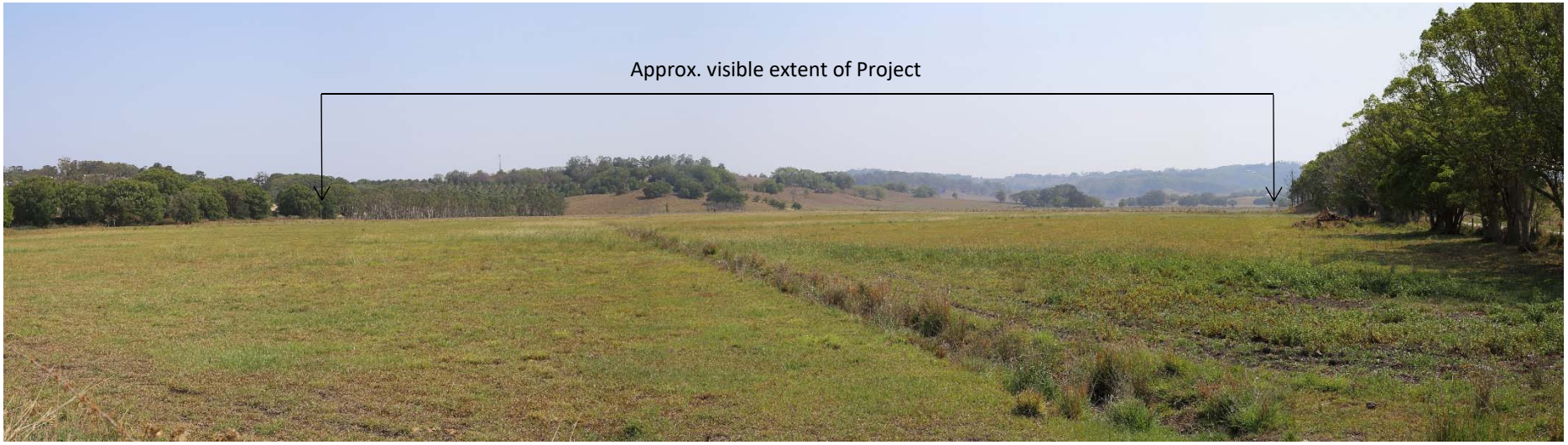
		MACAULEYS ROAD	*VP19*

LANDSCAPE CHARACTER	Large Lot Residential Landscape	DIRECTION OF VIEW	South-East
VISUAL AMENITY	Existing vegetation with rural outlook, Resource Recovery Centre visible in the background	DISTANCE TO PROJECT	1.05km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to screening by topography and existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Project not visible	DURATION	Short
PREDICTED VISUAL IMPACT	Project not visible	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	N/A		

		BILIN ROAD	*VP20*

LANDSCAPE CHARACTER	Large Lot Residential Landscape	DIRECTION OF VIEW	South
VISUAL AMENITY	Existing vegetation	DISTANCE TO PROJECT	1.1km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Project not visible due to screening by existing vegetation	LOCATION IN FIELD OF VIEW	Not visible
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Project not visible	DURATION	Short
PREDICTED VISUAL IMPACT	Project not visible	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	N/A		

		DINGO LANE	*VP21*



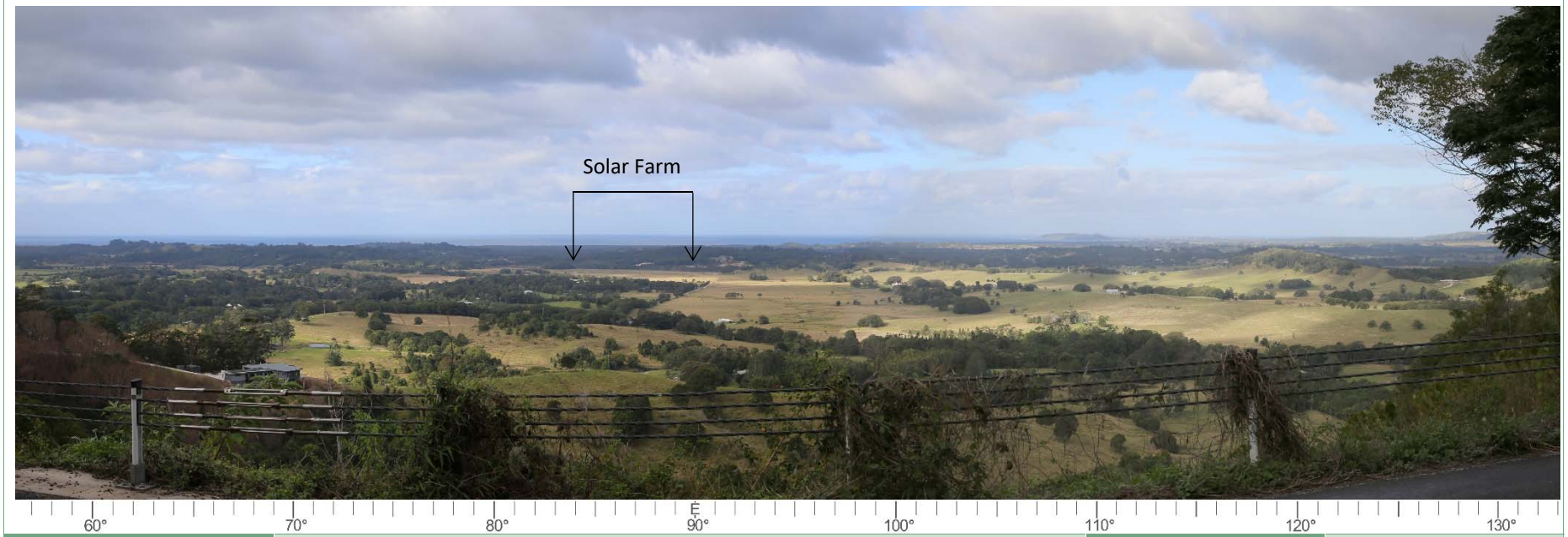
LANDSCAPE CHARACTER	Flat to Gently Undulating Rural Landscape	DIRECTION OF VIEW	South
VISUAL AMENITY	Mainly rural character however some visibility of the resource recovery centre to the left of the view.	DISTANCE TO PROJECT	270m
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	Similar to VP1, the solar farm will present a significant visual change in land cover from grassland typical of a rural landscape to PV arrays. The introduction of associated infrastructure (inverters and security fencing) will also contrast with the rural landscape. These changes will be moderated by the relatively low profile of the solar panels (less than 3 m above ground level) which limits vertical disruption to the horizon. The Project will result in minimal disruption to topography.	LOCATION IN FIELD OF VIEW	Middle ground
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Visual change will be from a rural landscape to a low profile infrastructure element (solar farm). Views to vegetated hills in the background will be retained. This is a minor access road to the rear of the Resource Recovery Centre, therefore few people will experience this view. The activity of VSR's	DURATION	Short

	using this road mainly consists of people driving to and from the Resource Centre, their sensitivity to changes in the visual landscape is considered low.		
PREDICTED VISUAL IMPACT	Short term – Low impact due to the type of activity of VSR's Long term – Low impact.	VIEWER NUMBERS	Low
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Statement of Landscape Intent, for the duration of the Project life.		

	COOLAMON SCENIC DRIVE	*VP22*

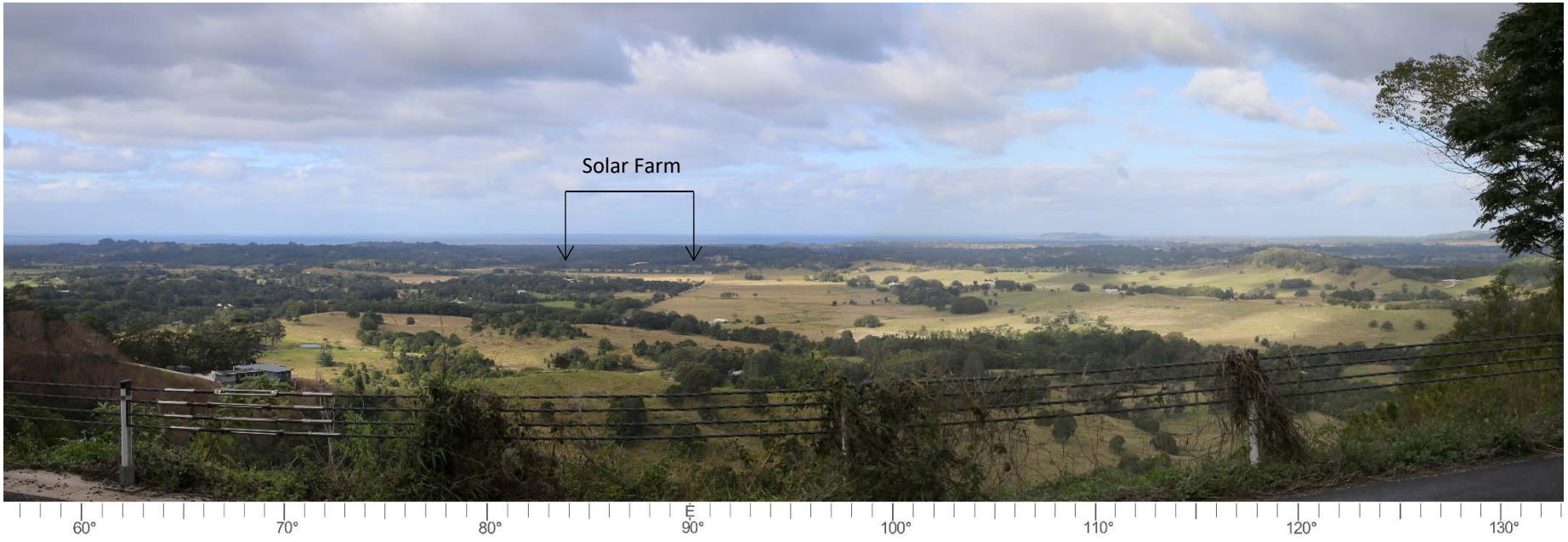
LANDSCAPE CHARACTER	Gently Undulating to Steep Rural Landscape	DIRECTION OF VIEW	East
VISUAL AMENITY	Panoramic view over rural landscape extending to the ocean with Bryon Lighthouse visible in the far distance. The composition of long distance view and iconic build feature (lighthouse) creates a sense of place. Visible infrastructure includes buildings (including new residential properties) roads, transmission lines, and the resource centre.	DISTANCE TO PROJECT	3.96km

	PHOTOMONTAGE VP22 – WITHOUT SCREEN PLANTING



COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a noticeable visual change in land cover from grassland typical of a rural landscape to PV arrays. Due to the angle of view the PV arrays are viewed from the side reducing visibility of the PV module surface area. From this viewpoint the extent of visible change covers a small proportion of the landscape.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Screen planting on the western boundary will reduce the visible change in land cover.	DURATION	Short

PHOTOMONTAGE VP22 – WITH SCREEN PLANTING



PREDICTED VISUAL IMPACT	Short term – Low impact due to distance, some perceptible change from grazing land to solar farm. Long term – Negligible as the Project will barely be visible once the screen planting is established.	VIEWER NUMBERS	Moderate
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Statement of Landscape Intent, for the duration of the Project life.		

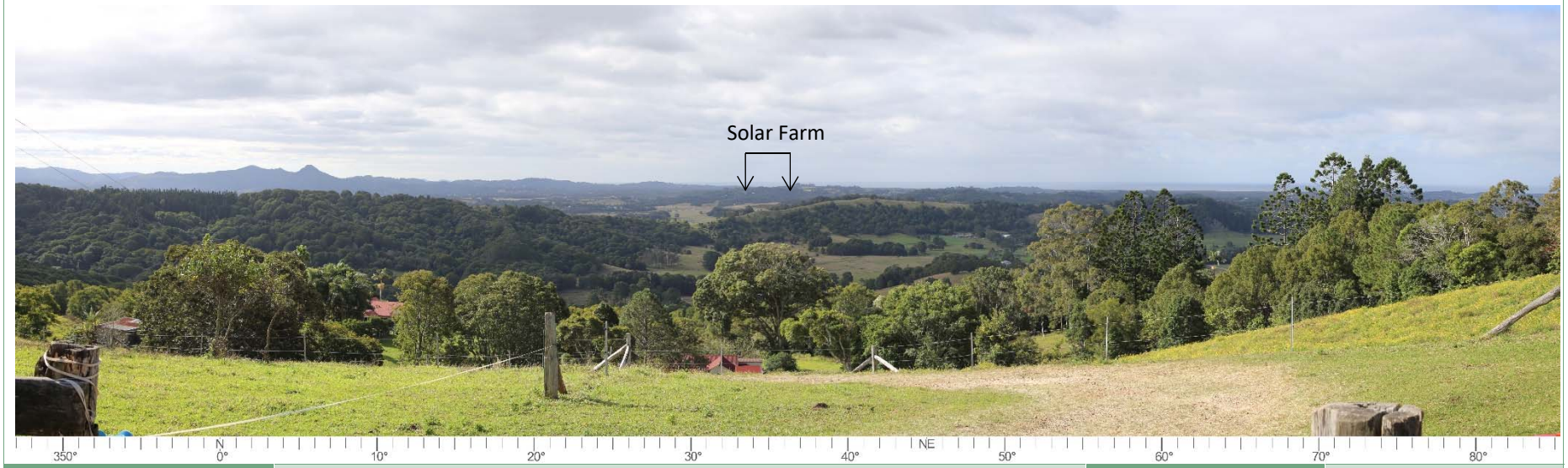
		COOLAMON SCENIC DRIVE	*VP23*

LANDSCAPE CHARACTER	Gently Undulating and Steep Rural Landscape	DIRECTION OF VIEW	North East
VISUAL AMENITY	Panoramic view over rural landscape extending to the ocean. The distinctive ridgelines and tree canopy create a sense of place.	DISTANCE TO PROJECT	4.0km
COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a noticeable visual change in land cover from grassland typical of a rural landscape to PV arrays. Due to the angle of view the PV arrays are viewed from the back reducing visibility of the PV module surface area. From this viewpoint the extent of visible change covers a small proportion of the landscape.	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Screen planting on the western boundary will reduce the visible change in land cover.	DURATION	Short
PREDICTED VISUAL IMPACT	Short term – Low impact due to distance, some perceptible change from grazing land to solar farm. Long term – Negligible as the Project will barely be visible once the screen planting is established.	VIEWER NUMBERS	Medium
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Statement of Landscape Intent, for the duration of the Project life.		

		COOLAMON SCENIC DRIVE	*VP24*

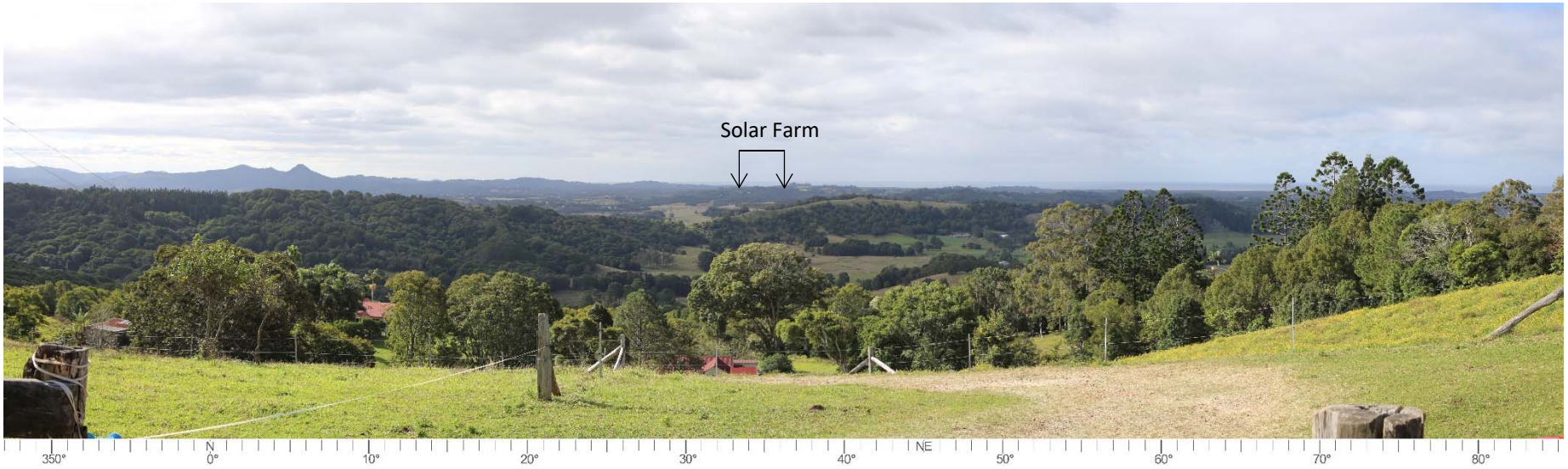
LANDSCAPE CHARACTER	Gently Undulating to Steep Rural Landscape	DIRECTION OF VIEW	North East
VISUAL AMENITY	Panoramic view over rural landscape extending to the ocean. The distinctive ridgelines and tree canopy create a sense of place.	DISTANCE TO PROJECT	4.0km

	PHOTOMONTAGE VP24 – WITHOUT SCREEN PLANTING



COMPATIBILITY OF PROJECT WITH VISUAL BASELINE	The solar farm will present a noticeable visual change in land cover from grassland typical of a rural landscape to PV arrays. Due to the angle of view the PV arrays are viewed from the back reducing visibility of the PV module surface area. From this viewpoint the extent of visible change covers a small proportion of the landscape	LOCATION IN FIELD OF VIEW	Background
MAGNITUDE OF CHANGE IN VISUAL BASELINE	Screen planting on the western boundary will reduce the visible change in land cover.	DURATION	Short

	PHOTOMONTAGE VP24 – WITH SCREEN PLANTING



PREDICTED VISUAL IMPACT	Short term – Low impact due to distance, some perceptible change from grazing land to solar farm. Long term – Negligible as the Project will barely be visible once the screen planting is established.	VIEWER NUMBERS	Moderate
MITIGATION CONSIDERATIONS	Establish and maintain landscape screen planting as detailed in the Statement of Landscape Intent, for the duration of the Project life.		

8. ASSESSMENT OF LANDSCAPE IMPACTS

The site assessment identified the main Landscape Character Types (LCT) within the viewshed as a *Flat to Gently Undulating Rural Landscape* transitioning to *Undulating to Steep Rural landscapes* on the hills and ridges, with pockets of *Large Lot Residential*, and a small area covered by the *Resource Recovery Centre*.

Potential changes to the existing landscape character resulting from the Project, both in the short term and long term, are detailed below.

8.1. Short Term Changes to Landscape Character

The *Flat to Gently Undulating Rural Landscape* within and surrounding the Project site is considered likely to have a 'moderate' visual absorption capacity relative to the type of change resulting from the Project. The large scale and undulating open pasture land is considered likely to be able to absorb the low horizontal profile of the solar farm without significant disruption to the pattern of the landscape. The Project results in minimal change to the topography of the landscape and will not disrupt the horizon line. Vegetation surrounding the Project site is retained, however due to the lack of existing vegetation on the western boundary, the Project is visually exposed from this direction. The change in land cover from grassland to PV arrays will result in a significantly alteration to the rural character over a small area. This will be most noticeable when viewed from elevated locations immediately to the north, and to a lesser extent to the south, of the Project site. However, as a result of the large scale of the broad open valley this type of change over a small areas is not considered likely to alter the overall character and values of the rural landscape. In addition, this section of the valley is already modified in character by the presence of the Resource Recovery Centre.

In the short term the Project is considered likely to have a 'Low' magnitude of change on landscape character within the *Flat to Gently Undulating Rural Landscape* immediately surrounding the Project site since the scale and nature of change is unlikely to alter the overall rural character within the viewshed.

There is no direct disturbance of land within the *Undulating to Steep Rural LCT* and the *Large Lot Residential LCT* since the Project is located on flat rural grazing land. Visibility of the Project from within these LCTs is limited and not considered sufficient to alter the character of these landscape types.

There is no direct disturbance of land within the *Resource Recovery Centre* LCT.

In the short term the magnitude of change to the character of surrounding *Undulating to Steep Rural LCT, Large Lot Residential LCT,* and the *Resource Recovery Centre LCT* is considered negligible.

8.2. Long Term Changes to Landscape Character

In the long term the proposed landscape screens on the Project's northern and western boundaries will assist in integrating the Project into its landscape setting. However this will not substantially alter the effect of land cover change from grassland to PV panels, the long term impact level is likely to remain 'Low' for the life of the Project.

At cessation of operation of the solar farm the infrastructure can be dismantled and the land returned to rural uses. Therefore beyond the life of the Project the impact on landscape character will be negligible.

9. ASSESSMENT OF VISUAL IMPACTS

The visual effect of the Project on views and visual amenity within the viewshed is outlined below.

9.1. Changes to views from Surrounding Roads

Prior to the establishment of the landscape screen planting, the solar farm will be visible for a short period of time as people travel along Myocum Road through the valley to the west of the Project site. Due to the low horizontal nature of the solar farms, the Project will be perceptible as a low infrastructure element in the background (refer *Table 3: VP4*). The proposed landscape screen planting along the site's western boundary will screen the Project once established. Therefore in the long term the resulting change to views and visual amenity along this section of the Myocum Road is considered 'negligible: the Project is expected to blend with the baseline view'.

Dingo Lane is a minor access road to the Resource Recovery Centre and passes close to the northern and western boundaries of the Project. Existing vegetation to the north will provide partial screening, however the Project will be visible from open sections of this minor access road. Proposed screen planting on the western boundary will mitigate views from this direction. Additional screening to the north may be considered, however as the main purpose of this section of the road is to access the Resource Recovery Centre the sensitivity of people using this road is considered low.

A limited extent of the Project may be briefly visible through gaps in existing vegetation when travelling along The Manse Road (refer *Table 3: VP6*). However, these glimpses of the Project are not considered likely to impact the visual amenity of people using this road and the impact is considered 'slight'.

Prior to the establishment of the landscape screen planting, the Project may be briefly visible from Coolamon Scenic Drive as a slight change in surface cover within the context of a panoramic view (refer *Table 3: VP22 and VP24).* Once the screen planting becomes established the change in view is imperceptible, therefore the Project does not alter the visual amenity of people travelling along this scenic route.

The Project is not considered likely to be visible from other surrounding roads within the viewshed.

9.2. Changes to views from Rural and Residential Dwellings

The initial assessment of views from private dwellings was limited to desktop assessment and the assessment of views from adjoining public roads in close proximity to rural and residential dwellings. A second site assessment was undertaken following community consultation, which focused on potential views from Coolamon Scenic Drive and residential properties along that route. In addition, one (1) property on an elevated site to the north of the Project was also assessed.

Approximately 204 dwellings were identified within 2km of the Project site. The majority of these are located within the Large Lot Residential areas to

the north, east, and north-west of the Project site. An additional 49 properties in elevated locations along the western ridgeline, and to the east of the site were also considered.

The visibility assessment identified dwellings within the Large Lot Residential areas to the east of the Project are screened by intervening topography and existing vegetation.

Dwellings within Large Lot Residential areas to the north and north-west of the Project site were shown in the ZTV mapping as having potential views of the Project site, however extensive areas of existing vegetation are considered likely to screen most views from this direction. One (1) property (OP34) (refer *Figure 6*) located in an elevated position, may have distant views of the Project. However existing vegetation is likely to provide partial screening, and the proposed landscape screen planting will mitigate views from this direction.

The assessment of properties located along the ridgeline 4km to the west of the Project site identified many will be screened by existing vegetation. Some properties with panoramic views to the east, extending to the ocean, will include views of the Project site however at this distance the Project covers a small proportion of the overall view.

Further consideration of the potential impacts of the Project on views from private properties (refer *Figure 6* for locations) is outlined as follows:

- Two (2) dwellings (OP1 and OP2) on the northern side of The Manse Road between Myocum Road and the Resource Recovery Centre may have partial views of the Project. OP1 is considered likely to be substantially screened by existing vegetation. Views north from OP2 are considered similar to *VP6* and may be partially screened by existing vegetation. Proposed landscape screen planting will assist in blending the Project into its landscape setting, however due to the elevated position of the dwelling some change to the visual baseline will remain.
- One (1) rural dwelling (OP6) to the west of the Project site may have partial views of the Project site. Views east from OP6 are considered similar but more elevated than *VP12*. Existing vegetation along Pipeclay creek is considered likely to substantially screen the Project. Views from this property would be impacted by the Resource Recovery Centre. The proposed landscape screen planting along the Project's northern and western boundaries will screen views from this direction, therefore there will be minimal long-term impacts on visual amenity.
- Three (3) rural dwellings (OP5, OP22 and OP23) to the west of the Project site may have partial views of the solar farm. These properties include the heritage listed Walker Family Farm (OP22). Views east from these properties are considered similar to *VP3* and *VP4*. Views are partially screened by existing vegetation. The proposed screen planting along the western boundary of the Project will mitigate impacts to visual amenity from this direction.
- Rural properties to the north of the Project site are considered likely to be screened by existing vegetation along Pipeclay Creek as shown in *VP17*. Views from a property off McAuley's Lane (OP42) were assessed on site. No visual impacts were identified for the dwelling and guest accommodation, however a small studio was found to have partial views of the Project.

- Assessment of the potential impact on views from properties located on the ridgeline to the west of the Project site found a number of properties are likely to have views of the solar farm due to their elevated locations (RP13, RP14, RP18, RP20, RP21, RP23, RP24, RP30, RP36, RP38 and RP39). Views from these properties are panoramic and at approximately 4km from the site, the Project covers a small percentage of the total view. These views are considered similar to viewpoints along Coolamon Scenic Drive as shown in *VP22* and *VP24*. Views from two private properties were assessed on site (RP18 and RP39). In both cases the Project will be visible in the background of extensive panoramic views to the ocean. The proposed screen planting along the western boundary of the Project will substantially mitigate visual impacts from this direction.

10. Significance of Predicted Impacts

The significance of predicted impacts on landscape character and visual amenity have been summarised in *Tables 4 and 5.*

Table 4. Significance of predicted impacts on affected landscape character

Landscape Character	*Sensitivity to Change*	*Predicted change*	*Magnitude of Change*	*Predicted Impact Significance*
Flat to Gently Undulating Rural Land	Medium: a landscape protected by local designation (Byron LEP, 2014) and/or widely acknowledged locally for its quality and value and with 'moderate' capacity to accommodate the type of change envisaged	Land cover change from grazing land to PV arrays and associated infrastructure. Project will not change the pattern of the landscape or intrude on the horizon.	Low: some perceptible changes to the landscape character over a restricted area, but will not alter the fundamental character of the landscape	Minor to Moderate
Undulating to Steep Rural Land	Medium: a landscape protected by local designation (Byron LEP, 2014) and/or widely acknowledged locally for its quality and value and with 'moderate' capacity to accommodate the type of change envisaged	No change	No change	Negligible
Large Lot Residential Land	Low-Medium: a landscape with some local quality and value and has some capacity to accommodate the type of change envisaged	No change	No change	Negligible
Resource Recovery Land	Low: a landscape with little to no value, and has the capacity to accommodate the type of change envisaged	No change	No change	Negligible

Table 5. Significance of predicted impacts on affected views and visual amenity

Views and View Corridors	*Sensitivity to Change of Visual Sensitive Receptors (VSR)*	*Predicted change (Long Term)*	*Magnitude of Change*	*Predicted Impact Significance*
Views from Myocum Road	Medium: The nature of the VSRs are sensitive to adverse change in the landscape, however the visual landscape is not the entire focus of	The Project will be not be visible behind screen planting on the western boundary.	No change	Negligible

	attention, e.g. people in public places and in transit.			
Views from Dingo Lane	Low: The nature of the VSRs are not sensitive to adverse change in the landscape, the visual landscape is not the focus of attention, e.g. people at work.	The Project will be visible for a short duration as people travel along the section of Dingo Lane to the north of the site. Views along the valley from this direction will change from grazing land to one that includes a low infrastructure element. People using this section of road are accessing the rear of the Resource Recovery Centre. Views from the section of Dingo Lane to the west of the Project will be screened by the proposed screen planting.	Low: a potentially noticeable change to the visual baseline affecting a small part of the view, or visible for a short duration.	Negligible
Views from The Manse Road	Medium: The nature of the VSRs are sensitive to adverse change in the landscape, however the visual landscape is not the entire focus of attention, e.g. people in public places and in transit.	Views of the Project will be limited to brief glimpses through existing vegetation.	Slight: a small change to the visual baseline which is insignificant, not distinct and is expected to blend with the baseline view	Minor
Views from Coolamon Scenic Drive	Medium - High: The VSRs are sensitive to adverse change in the landscape and the visual landscape is important but not the entire focus of attention, e.g. people travelling a scenic route.	Once established the proposed screen planting along the western boundary will mitigate potential impacts to visual amenity	No change	Negligible
Views from other surrounding local roads within the viewshed	Medium: The nature of the VSRs are sensitive to adverse change in the landscape, however the visual landscape is not the entire focus of attention, e.g. people in public places and in transit.	No change	No change	Negligible

Views from rural and residential dwellings less than 500m from the Project site	High: The VSRs are sensitive to adverse change in the landscape and the visual landscape is the focus of attention	The Project will be partially visible through existing vegetation. Screen planting will assist in blending the Project with the surrounding landscape, however some visibility will remain due to the elevated location of the properties	Low: a potentially noticeable change to the visual baseline affecting a small part of the view, or visible for a short duration.	Moderate
Views from rural and residential dwellings between 500m to 2km from the Project site	High: The VSRs are sensitive to adverse change in the landscape and the visual landscape is the focus of attention	Once established the proposed screen planting along the northern and western boundary will substantially mitigate potential impacts to visual amenity	Slight: a small change to the visual baseline which is insignificant, not distinct and is expected to blend with the baseline view	Minor
Views from rural and residential dwellings greater than 2km from the Project site	High: The VSRs are sensitive to adverse change in the landscape and the visual landscape is the focus of attention	Approximately 11 properties located on the ridgeline to the west of the Project site are considered likely to have views of the Project due to their elevated location. Views are panoramic and the Project covers a small proportion of the view. Proposed screen planting on the western boundary will substantially mitigate visual impacts for these properties.	Low: a potentially noticeable change to the visual baseline affecting a small part of the view, or visible for a short duration.	Moderate

11. POTENTIAL MITIGATION MEASURES

The draft landscape and visual impact assessment included the recommendation to provide screen planting along the Project site's western boundary as a mitigation measure to avoid potential visual impacts on views from roads and properties to the west of the site. The subsequent Project plans now include 'embedded mitigation measures' in the form of screen planting to the western and northern boundaries as detailed in the Project's Statement of Landscape Intent.

The landscape screen planting have been developed in accordance with the following recommendations:

- Screen planting of native plant species to a minimum height of 8m on the western boundaries of the Project.
- Perimeter security fencing to be located behind the screen planting (on the Project side of the planting).
- Landscape screen planting areas to be a width of 4 to 5m to enable dense planting of a mixture of species.
- Plant species to include a mixture of small trees, shrubs and groundcovers to provide a dense screen, a variety of plants with different growth rates to be selected to provide both quick growing and long-lived species.
- Plant species selection to be based on local endemic and native species suitable for screening purposes.
- Screen planting to be installed during the early stages of construction.
- A landscape maintenance plan should be implemented to establish and manage screening vegetation.

In addition, the following recommendation is provided in relation to associated infrastructure:

- Where possible infrastructure elements such as solar inverters and control buildings, etc. should use materials and colours that blend with the surrounding landscape.

12. CONCLUSION

In conclusion, based on the assumptions and parameters of this assessment, the following results were identified:

- The Project site is located within the *Flat to Gently Undulating Rural Landscape*. Byron LEP, 2014 identifies the importance of maintaining rural character and protecting and minimize impacts on scenic quality. Key issues in retaining the character of this rural landscape type includes; maintaining the overall pattern of the landscape (the combination of grazing land and native vegetation), preventing the intrusion of infrastructure into views across the landscape (long distance views to hills and ridges in the background), and avoiding a noticeable increase in the extent of built infrastructure within the landscape.
- The *Flat to Gently Undulating Rural Landscape* is considered likely to have a 'moderate' visual absorption capacity relative to the type of change resulting from the proposed solar farm. The large scale and undulating open pasture land is considered likely to be able to absorb the low horizontal profile of the solar farm without

significant disruption to the pattern of the landscape. The Project results in minimal change to the topography of the landscape, vegetation surrounding the site is largely retain, and Project elements will not disrupt the horizon line.

- In the long term, changes to landscape character as a result of the Project were considered to be of 'Minor to Moderate' significance, whilst there will be some perceptible change over a restricted area, this small area of change will not alter the fundamental character of the landscape type.
- The Project is not considered likely to impact the character of nearby *Undulating to Steep Rural Landscape, Large Lot Residential Landscape*, and the *Resource Recovery Land*.
- The assessment of potential impacts on the view corridor of surrounding roads identified the following;
    - Myocum Road - the PV arrays and associated infrastructure will be visible in the background as a low infrastructure element. The proposed landscape screen planting along the site's western boundary will screen the Project once established resulting in 'slight' change to the view in the long term, which is expected to blend with the background.
    - Dingo Lane - existing vegetation to the north will provide partial screening, however the Project will be visible from open section of this minor access road. Proposed screen planting on the western boundary will mitigate views from this direction. Additional screening to the north may be considered, however as the main purpose of this section of the road is to access the Resource Recovery Centre the sensitivity of people using this road is considered low.
    - The Manse Road - a limited extent of the Project may be briefly visible through gaps in existing vegetation when travelling along The Manse Road. However, these glimpses of the Project are not considered likely to impact visual amenity of people using this road.
    - Coolamon Scenic Drive - the PV arrays and associated infrastructure will be visible from some locations as a change in landscape cover over a small area within the context of a panoramic view. The proposed landscape screen planting along the site's western boundary will screen the Project once established resulting in a 'slight' change to the view in the long term, which is expected to blend with the background.
    - The Project is not considered likely to be visible from other surrounding roads within the viewshed.
- The effect of the Project on views and visual amenity from surrounding rural and residential dwellings was assessed from publically accessible locations and select properties at the owners' request. Most properties have none to slight change in the visual baseline, however a small number of properties were considered likely to have a 'low' magnitude of change to the visual baseline. This included two (2) properties within 500m of the Project site. As the sensitivity of change to the visual amenity of residential

properties is considered 'high', the resulting impact on effected residential dwellings was considered 'moderate'.

- Assessment of the potential impact on views from properties located on the ridgeline to the west of the Project site found a number of properties are likely to have views of the solar farm due to their elevated locations. Views from these properties are panoramic and at approximately 4km from the site, the Project covers a small percentage of the total view. Views from two private properties were assessed on site (RP18 and RP39). In both cases the Project will be visible in the background of extensive panoramic views to the ocean. The proposed screen planting along the western boundary of the Project will substantially mitigate visual impacts from this direction. The magnitude of change in the views from these properties was considered 'low' (a potentially noticeable change to the visual baseline affecting a small part of the view). As the sensitivity of change to the visual amenity of residential properties is considered 'high', the resulting impact on effected residential dwellings was considered 'moderate'.
- Landscape screen planting is proposed as a mitigation to potential changes in landscape character and visual amenity as a result of the Project. Vegetation native to the local area will assist in blending with the visual baseline character of the grazing landscape.
- A landscape maintenance program is recommended to ensure the successful establishment and management of vegetation to ensure the minimum height and density is achieved to effect the visual mitigation.

APPENDIX A – IMPACT MATRIX TABLES

		Sensitivity of Landscape Character				
		Low: a landscape character with little to no value, and has the capacity to accommodate the type of change envisaged	**Low-Medium:** a landscape with some local quality and value and has some capacity to accommodate the type of change envisaged	**Medium:** a landscape protected by local designation and/or widely acknowledged locally for its quality and value and with some capacity to accommodate the type of change envisaged	**Medium-High:** a landscape protected by State/Regional designation and/or widely acknowledged regionally for its quality and value and with low capacity to accommodate the type of change envisaged	**High:** a landscape protected by International/National designation and/or widely acknowledged nationally for its quality and value and with low capacity to accommodate the type of change envisaged
Magnitude of Change	**Slight:** a small change almost imperceptible under certain conditions	Negligible	Negligible	Minor	Minor	Minor
	Low: some perceptible changes to the landscape character over a wider area or a considerable change over a restricted area, but will not alter the fundamental character of the landscape	Negligible	Minor	Minor to Moderate	Moderate	Moderate
	Moderate: a perceptible change in landscape character, frequent or continuous over a wide area, or dominant over a restricted area resulting in some alteration to the fundamental character of the landscape	Minor	Minor to Moderate	Moderate	High	High
	High: a dominant change in landscape character, frequent or continuous affecting an extensive area resulting in a fundamental change to the character of the landscape	Minor to Moderate	Moderate	High	Major	Major

		Sensitivity of Visual Receptor				
		Low: The nature of the VSRs are not sensitive to adverse change in the landscape, the visual landscape is not the focus of attention, e.g. people at work.	**Low-Medium:** The nature of the VSRs are moderately sensitive to adverse change in the landscape, the visual landscape is partially the focus of attention, e.g. commuters.	**Medium:** The nature of the VSRs are sensitive to adverse change in the landscape, however the visual landscape is not the entire focus of attention, e.g. people in public places and in transit.	**Medium-High:** The VSRs are sensitive to adverse change in the landscape and the visual landscape is important but not the entire focus of attention, e.g. people at a place of sport/recreation.	**High:** The VSRs are sensitive to adverse change in the landscape and the visual landscape is the focus of attention, e.g. people at a place of cultural significance, nature based recreation, tourism, place of residence, designated lookout.
Magnitude of Change	**Slight:** a small change to the visual baseline which is insignificant, not distinct and is expected to blend with the baseline view (generally occupying less than 2.5^0 of the horizontal field of view and less than 0.5^0 of the vertical field of view)*	Negligible	Negligible	Minor	Minor	Minor
	Low: a potentially noticeable change to the visual baseline affecting a small part of the view, or visible for a short duration (generally occupying between 2.5^0 to 30^0 of the horizontal field of view and between 0.5^0 to 2.5^0 of the vertical field of view)*	Negligible	Minor	Minor to Moderate	Moderate	Moderate
	Medium: A noticeable change to the visual baseline affecting part of the view, or continuously visible for a moderate duration or obstructing a part of an important element of the view (generally occupying between 2.5^0 to 30^0 of the horizontal field of view and than 0.5^0 to 2.5^0 of the vertical field of view)*	Minor	Minor to Moderate	Moderate	High	High
	High: a dominant change in the visual baseline affecting a substantial part of the view, or continuously visible for a long duration or obstructing a substantial part of an important element of the view (generally occupying greater then 30^0 of the horizontal field of view and greater than 2.5^0 of the vertical field of view)*	Minor to Moderate	Moderate	High	Major	Major