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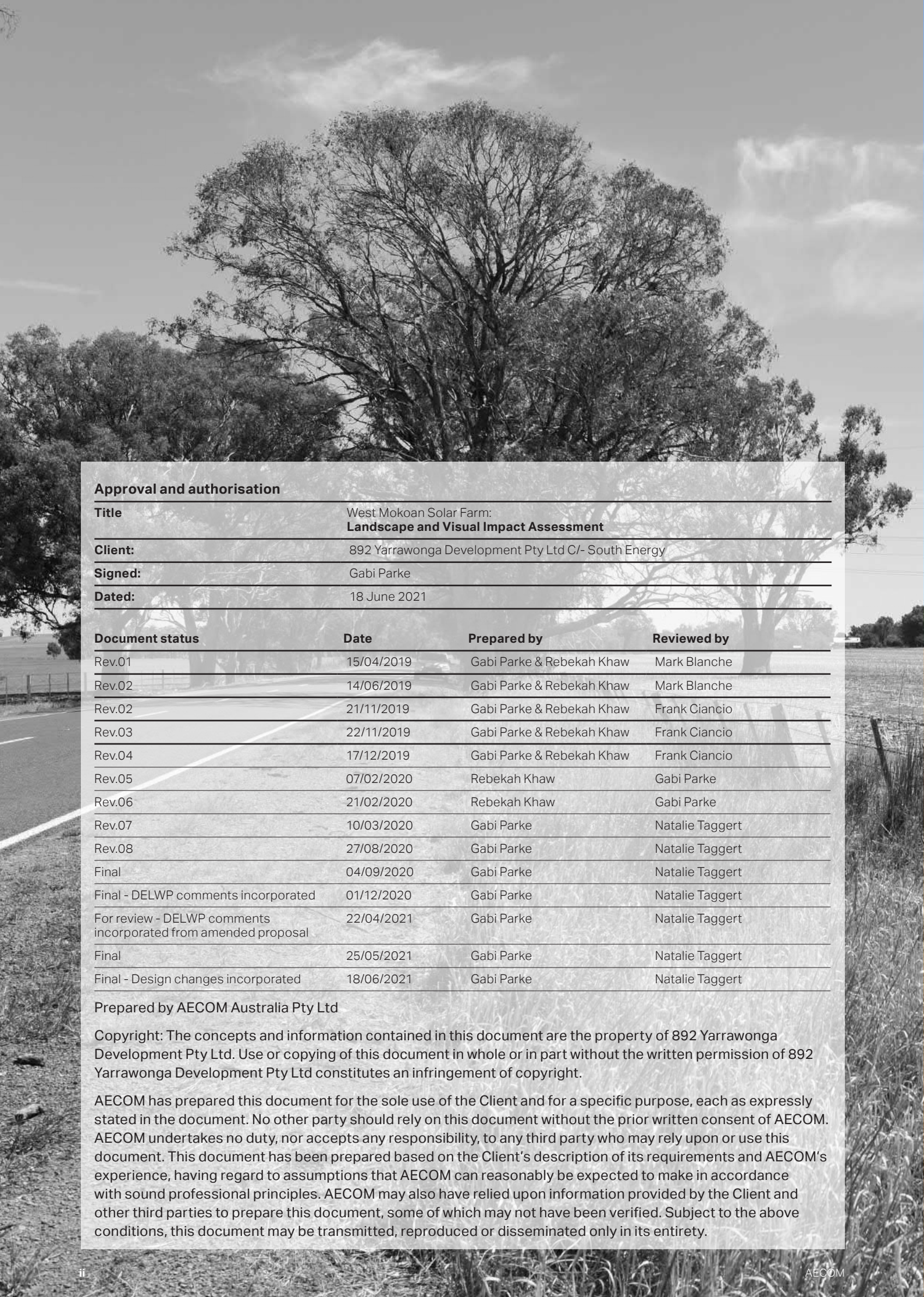
West Mokoan Solar Farm

Landscape and Visual Impact Assessment

18 June 2021



Approval and authorisation

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Signed:	Gabi Parke
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Table of Contents

EXECUTIVE SUMMARY II

1. INTRODUCTION 2
1.1. Overview 2
1.2. Background 2
1.3. Study Area 2
1.4. Description of Proposal 4

2. METHODOLOGY 8
2.1. Environmental and Planning Baseline 8
2.2. Impact Assessment 10
2.3. Mitigation Measures and Landscape Strategy Response 13
2.4. Report Preparation 13

3. EXISTING ENVIRONMENT 16
3.1. Site Context 16
3.2. Topography and Hydrology 17
3.3. Land Use 20
3.4. Vegetation 22
3.5. Heritage and Tourism 26
3.6. Landscape Character Zones 30

4. LANDSCAPE CHARACTER IMPACT ASSESSMENT 42
4.1. LCZ 1: Infrastructure Corridor 42
4.2. LCZ 2: Rural Agricultural 43
4.3. LCZ 3: Rural Industrial 45
4.4. LCZ 4: Wooded Hillsides 46
4.5. LCZ 5: Benalla township 47
4.6. LCZ 6: Waterways and Wetlands 48

5. VISUAL IMPACT ASSESSMENT 52
5.1. Visibility of the Proposal 52
5.2. Visual Receptors 52
5.3. Assessment of Viewpoints 54

6. SUMMARY & MITIGATION OF IMPACT 92
6.1. Summary of Landscape character impact 92
6.2. Summary of Visual impact 93
6.3. Cumulative impact 94
6.4. Landscape Strategy Response 96

7. CONCLUSION 102
7.1. Conclusion 102
7.2. References 103
7.3. List of Tables 104
7.4. List of Figures 105

Executive Summary

Introduction

AECOM Australia Pty Ltd (AECOM) has been commissioned by South Energy on behalf of 892 Yarrawonga Development Pty Ltd to undertake a Landscape and Visual Impact Assessment (LVIA) for the proposed West Mokoan Solar Farm (the proposal). The LVIA assesses the project impacts of the solar farm development with regard to potential landscape and visual impacts at operation.

The proposal site is located within the rural city of Benalla which forms part of the Hume Region in North-Eastern Victoria. The subject site is on the periphery of Goorambat township, approximately ten kilometres north east of Benalla and 180 kilometres north east of Melbourne. Larger regional cities nearby within the Hume Region include Shepparton, Wangaratta and Wodonga.

This project would run in conjunction with the approved Kennedys Creek Solar Farm, positioned 5.8 kilometres south east of the West Mokoan Solar Farm. This solar farm is also proposed by South Energy.

The landscape surrounding the proposal is relatively flat and open, with trees clustered at property boundaries and along drainage lines. The scattered trees and flat topography limit the views that would be available to the proposal, therefore the study area has been determined as a 4 kilometres offset from the external site boundary of the proposal.

Description of the Proposal

The proposed solar farm will have an installed capacity of up to 192 MW Alternating Current (AC) (233 MW DC Capacity). The proposed solar farm development would comprise of:

+ Approximately 531,216 solar PV panels on a single-axis tracking system mounted on aluminium or steel piles.
+ Approximately 57 Power Conversion Units (PCU – Inverter buildings with hard standings).
+ Direct Current (DC) and AC cabling for electrical reticulation.
+ A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS) of up to 20MW/20MWh capacity, a control building, substation transformers, office and amenities.
+ Internal all-weather access tracks and a laydown area.
+ The creation of access to Benalla-Yarrawonga Road and Lake Mokoan Road.
+ Landscaping.
+ Potential removal of native vegetation.
+ Security fencing, CCTV and Infra-Red lighting.
+ Business identification signage (totalling 3 m^2 (3 signs of 1 m^2 each) along Lake Mokoan Road and Benalla-Yarrawonga Road).
+ Retention of the existing high voltage power line that runs through the site
+ Realignment of easements.

There are currently two proposed options regarding the electrical connection of the solar farm. The ultimate connection would be determined following detailed design and subject to separate approvals.

Main site access would be via the existing access frontages on Benalla-Yarrawonga Road to the west and Lake Mokoan road (local) to the south and north which cuts through the site. The proposal is located adjacent to Stockyard Creek (refer Figure 5) and the layout is orientated to align with the proposal site boundaries. Most vegetation along Stockyard Creek has been retained and the designated substation and O&M facility area in the centre of the site, immediately adjacent to the overhead power lines and facing Lake Mokoan Road.

Methodology

The method for this assessment has been developed with reference to *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013), developed by the Landscape Institute and Institute for Environmental Management (UK, hereafter referred to as GLVIA3). GLVIA 3 is widely recognised as comprising an example of 'best practice' in this field.

The following methodology was employed in the assessment of impact on landscape character and views arising from the proposal:

+ Existing data was gathered and reviewed, including site inspection protocols, sensitive visual receptors, proposal design, GIS mapping, including visual envelope mapping, zoning / land use, topography and land cover;
+ The likely visibility of the proposal from surrounding areas was broadly mapped to define a visual envelope;
+ A site inspection was undertaken by two AECOM team members on the 4th of March 2019;
+ The above information was summarised into a broad description of the landscape within which the proposal is located, and identification of elements and features relevant to assessment of the proposal, including site setting, topography, land use, landscape and heritage values;
+ A landscape character assessment was undertaken, including:
    - identification and mapping of Landscape Character Zones (LCZs), and
    - assessing landscape effects using a matrix to combine the ratings for sensitivity and magnitude to provide an overall 'Significance of Landscape Effects' finding, described as being High, High to Moderate, Moderate, Moderate to Low, Low or Negligible in relation to the existing environment. Ratings of High and High to Moderate are considered to be significant.
+ A visual impact assessment was undertaken, assessing the changes to views seen by receptors surrounding the proposal:
    - The visibility of the proposal within the landscape was considered using the visual envelope mapping and site investigation;
    - A series of representative viewpoints were selected from which to assess the changes to views;
    - The potential effects on visual amenity was then assessed based on the sensitivity of the viewpoint (and the visual receptors it represents) to change, and the magnitude of change arising from the proposal that is likely to occur. A matrix was used to combine the ratings for sensitivity and magnitude to provide an overall 'Significance of Visual Effects' rating, described as being High, High to Moderate, Moderate, Moderate to Low, Low or Negligible in relation to the existing environment.
    - A series of photographs were arranged to produce a panorama from each viewpoint. These provided a baseline from which to assess changes arising from the proposal.
+ A landscape concept plan has been prepared in response to identified landscape character and visual impact issues identified in this report.

Summary of Impact

Landscape character impact

Six LCZs were identified within the study area. Of these, LCZ 6: Waterways and Wetlands was assessed as having High sensitivity due to the culturally sensitive nature of waterways and waterbodies, the recreational and landscape amenity value these areas have, and the close proximity of this LCZ to the proposal.

The changes on site would fall within LCZ 2: Rural Agricultural, which was assessed as having Moderate sensitivity. This rating was due to the picturesque quality of the landscape, the cultural aspect of the landscape in that it expressed the cultural grazing use of the land, and the large area over which it stretched.

While picturesque from a landscape perspective, LCZ 4: Wooded Hillsides was considered to have a Low sensitivity rating due to the distance between this LCZ and the proposal.

Due to their utilitarian focus, LCZ 1: Infrastructure Corridor and LCZ 3: Rural Industrial were assessed as having a Low sensitivity.

The magnitude of change due to the proposal was Negligible for three LCZs, Moderate to Low for LCZ 3: Rural Industrial, Moderate for LCZ 2: Rural Agricultural, and High to Moderate for LCZ 6: Waterways and Wetlands.

The majority of the changes would occur within LCZ 2: Rural Agricultural. The proposal would change the character of the proposal site from LCZ 2: Rural Agricultural to LCZ 3: Rural Industrial, and in doing so, substantially increase the coverage of LCZ 3 within the landscape.

Overall, the highest change to landscape character would occur within LCZ 6: Waterways and Wetlands. This rating is in part due to the high sensitivity of the LCZ, coupled with the changes occurring close to it (both adjacent to Stockyard Creek and Winton Wetlands.

The majority of the changes would occur within LCZ 2: Rural Agricultural. The proposal would result in a shift in the character of the proposal site from LCZ 2: Rural Agricultural to LCZ 3: Rural Industrial, and in doing so, substantially increase the coverage of LCZ 3 within the landscape, effectively consolidating fragmented industrial sites. However, while solar farm development characteristically lies within an industrial land use and has industrial qualities (including, but not limited to, the substation and PV solar modules), there are agricultural characteristics that would be retained, including the amount of space between the panels which would remain as pasture grass, and the potential to run livestock within the site during operation.

The individual and overall ratings for all LCZs are listed in Table i.

Visual impact

A selection of representative viewpoints surrounding the proposal site were used to assess the visual impact from key locations within the study area. The topography of the surrounding area is flat, resulting in a visually compartmentalised landscape with few opportunities for viewing long distances. Sporadic bands and stands of trees and fully structured vegetation (i.e. trees, shrubs and groundcovers) within paddocks, lining the road corridors and along boundary fences and creek lines also limits the opportunity for distance views.

Table i: Impact rating for Landscape Character Zones

Landscape Character Zone	Sensitivity	Magnitude	Overall rating
LCZ 1: Infrastructure Corridor	Low	Negligible	Negligible
LCZ 2: Rural Agricultural	Moderate	Moderate	Moderate
LCZ 3: Rural Industrial	Low	Moderate	Moderate to Low
LCZ 4: Wooded Hillsides	Moderate	Negligible	Negligible
LCZ 5: Benalla township	Low	Negligible	Negligible
LCZ 6: Waterways and Wetlands	High	Moderate	High to Moderate

The exception to this is from the dam wall adjacent to the Winton Wetlands, were the recreational hiking trail positioned on top of the wall offers views to the surrounding landscape from an elevated position. This trail passes directly adjacent to the proposal, resulting in uninterrupted views to the site.

The highest overall ratings were recorded from the Dam Wall Hiking Trail and from two residences adjacent to the proposal. Recreational receptors are very sensitive due to the reliance of the surrounding landscape for enjoyment of the recreational experience of hiking and cycling. This group would view changes due to the proposal from short distances away. Residential receptors are sensitive due to proprietary interest in views from their properties, however, there are a low number of residential receptors surrounding the proposal.

The roadways surrounding the proposal received Moderate visual impact ratings, while the road running through the proposal returned a High to Moderate rating. This was in part due to the close proximity views that passers by would receive to the proposal, which would be somewhat mitigated in the boundary road by proposed landscaping.

As discussed above, although residential receptors are typically a highly sensitive receptor group, there were low numbers of residential receptors. Often, the proposal was positioned at distances from the residences that reduced the visual impact, or the proposal boundary was bordered by existing screening vegetation that either partially or fully screened views to the proposal from these residences. Proposed landscaping along the proposal boundary would screen views to solar infrastructure from these receptors.

Overall, the proposal would significantly alter the view from a handful of locations. The proposal would be seen predominantly from areas directly surrounding the site, such as roads, the dam wall, and few scattered residences.

The visual quality of the resulting landscape is subjective, however, the proposal could be considered to be visually comparable to industrial elements dotted throughout the local rural landscape. A solar farm would be of great interest to some, and could be a landmark within the landscape. As such, the landscape response aims to partly screen the proposal from key roads, but use an informal planting approach so to still allow some views through to the proposal.

Refer Table ii the impact ratings for the selected viewpoints.

Table ii: Visual impact rating for viewpoints

Viewpoint	Sensitivity	Magnitude	Overall rating
Viewpoint 1: Benalla-Yarrawonga Road North	Moderate	Moderate	Moderate
Viewpoint 2: Lake Mokoan Road	Moderate	High	High to Moderate
Viewpoint 3: Benalla-Yarrawonga Road Mid	Moderate	Moderate	Moderate
Viewpoint 4: Benalla-Yarrawonga Road South	Moderate	Moderate	Moderate
Viewpoint 5: South Eastern Proposal Boundary	High	High	High
Viewpoint 6: Dam Wall Hiking Trail South	High	High	High
Viewpoint 7: Dam Wall Hiking Trail Mid	High	High	High
Viewpoint 8: Dam Wall Hiking Trail North	High	High	High
Viewpoint 9: Farnley Road East	Moderate	Low	Moderate to Low
Viewpoint 10: Farnley Road West	Moderate	Moderate	Moderate
Viewpoint 11: 81 Lake Mokoan Road	High	High	High

Conclusion

+ Of the six LCZs identified within the study area, one (LCZ 6: Waterways and Wetlands) was assessed as having High overall landscape character impact rating due to the proposal. This rating is in part due to the high sensitivity of the LCZ, coupled with the changes occurring close to it (both adjacent to Stockyard Creek and Winton Wetlands).
+ LCZ 2: Rural Agricultural was the next most affected LCZ, returning a Moderate landscape impact rating, as the changes occur within it and result in a change in the character of the proposal site. Three LCZs returned an overall Negligible landscape character impact rating, typically due to the distance of the proposal to these LCZs.
+ The visual impact of the proposal on the surrounding landscape was impacted by the flat topography of the surrounding area in combination with sporadic bands and stands of trees and fully structured vegetation (i.e. trees, shrubs and groundcovers) within paddocks, lining the road corridors and along boundary fences and creek lines, which limits the opportunity for distance views.
+ The dam wall adjacent to the Winton Wetlands has a recreational hiking trail positioned on top of the wall. This offers views to the surrounding landscape from an elevated position. This trail passes directly adjacent to the proposal, resulting in uninterrupted views to the site.
+ Views from viewpoints on this elevated walking trail returned the highest visual impact ratings. Views from surrounding road corridors returned the next highest visual impact ratings.
+ The landscape response to the proposal considers these factors, as listed in Table iii.
+ The proposed landscape strategy responds to the landscape character and visual impacts, helping to visually integrate the proposal into the existing rural landscape and mitigate the visual impacts from more sensitive receptor locations. With the implementation of the proposed landscape concept, the proposal is considered appropriate within its landscape setting.

Table iii: Landscape strategy response

Issue/observation	Landscape response
The vegetation adjacent to Stockyard Creek is seen as a backdrop of trees from several locations.	Preserve existing vegetation and provide additional planting of indigenous trees and shrubs along the southern boundary of the proposal.
The Dam Wall Hiking Trail provides recreational receptors with close proximity, elevated views to the proposal.	Provide screening along the eastern boundary of the proposal, as well as bands of internal screening vegetation to visually break up the development when viewed from this recreational trail. Tree planting along the boundary to be intermittent, with informal groupings of trees to allow occasional views across the proposal site for interest. Utilisation of plant species from indigenous vegetation communities to reinstate 'native' plant associations.
A number of residences to the north and south of the site would potentially obtain views of the proposal.	Provide targeted fully structured vegetation (i.e. trees, shrubs, grasses and groundcovers) to screen the solar infrastructure from these locations. Utilisation of plant species from indigenous vegetation communities to reinstate 'native' plant associations.
The proposal would be visible from a number of roads, including Benalla-Yarrawonga Road, which is part of the Silo Tourist Trail, and Lake Mokoan Road (also part of the tourist trail) where the proposal would lie on either side of the road corridor.	Informal screening vegetation comprising scattered eucalypt trees and occasional shrubs, with an understorey of pasture grass would provide effective partial screening of the proposal, while still maintaining the open, partly compartmentalised rural character. Targeted denser planting could be used to completely screen views from more sensitive locations such as nearby residences. Provide informal planting along the road corridor to provide some screening, while still allowing views through to the solar infrastructure. Provide some screen planting within the solar farm site boundary to limit the seen amount of solar infrastructure to smaller paddocks.
Existing screen planting surrounding the site provides screening from some locations. Existing paddock trees within the site visually compartmentalise the site and would reduce the seen area of the proposal from any viewpoint.	Conserve screen planting and other vegetation on and surrounding the site, where practicable.

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1.0
INTRODUCTION

1. Introduction

1.1. Overview

AECOM Australia Pty Ltd (AECOM) has been commissioned by South Energy on behalf of 892 Yarrawonga Development Pty Ltd to undertake a Landscape and visual impact assessment (LVIA) for the proposed West Mokoan Solar Farm (the proposal). The LVIA assesses the project impacts of the solar farm development with regard to potential landscape and visual impacts at operation.

Figure 1 Proposal site boundary (Source: AECOM)

1.2. Background

The proposal site (refer Figure 1) is located within the rural city of Benalla which forms part of the Hume Region in North-Eastern Victoria. The subject site is on the periphery of Goorambat township, approximately ten kilometres north east of Benalla and 180 kilometres north east of Melbourne. Larger regional cities nearby within the Hume Region include Shepparton, Wangaratta and Wodonga.

This project would run in conjunction with the approved Kennedys Creek Solar Farm, the northern boundary of which is positioned approximately 2.3 kilometres south east of the southern boundary of the West Mokoan Solar Farm (refer Figure 2). This solar farm is also proposed by South Energy.

1.3. Study Area

The landscape surrounding the proposal is relatively flat and open, with trees often lining property boundaries and along drainage lines. The scattered trees and flat topography limit the views that would be available to the proposal, with the majority of views contained within a 1 kilometre radius. The study area has been determined as a 4 kilometres offset from the external site boundary of the proposal due to this boundary encompassing all relevant nearby landscape character zones. (Refer Figure 2).

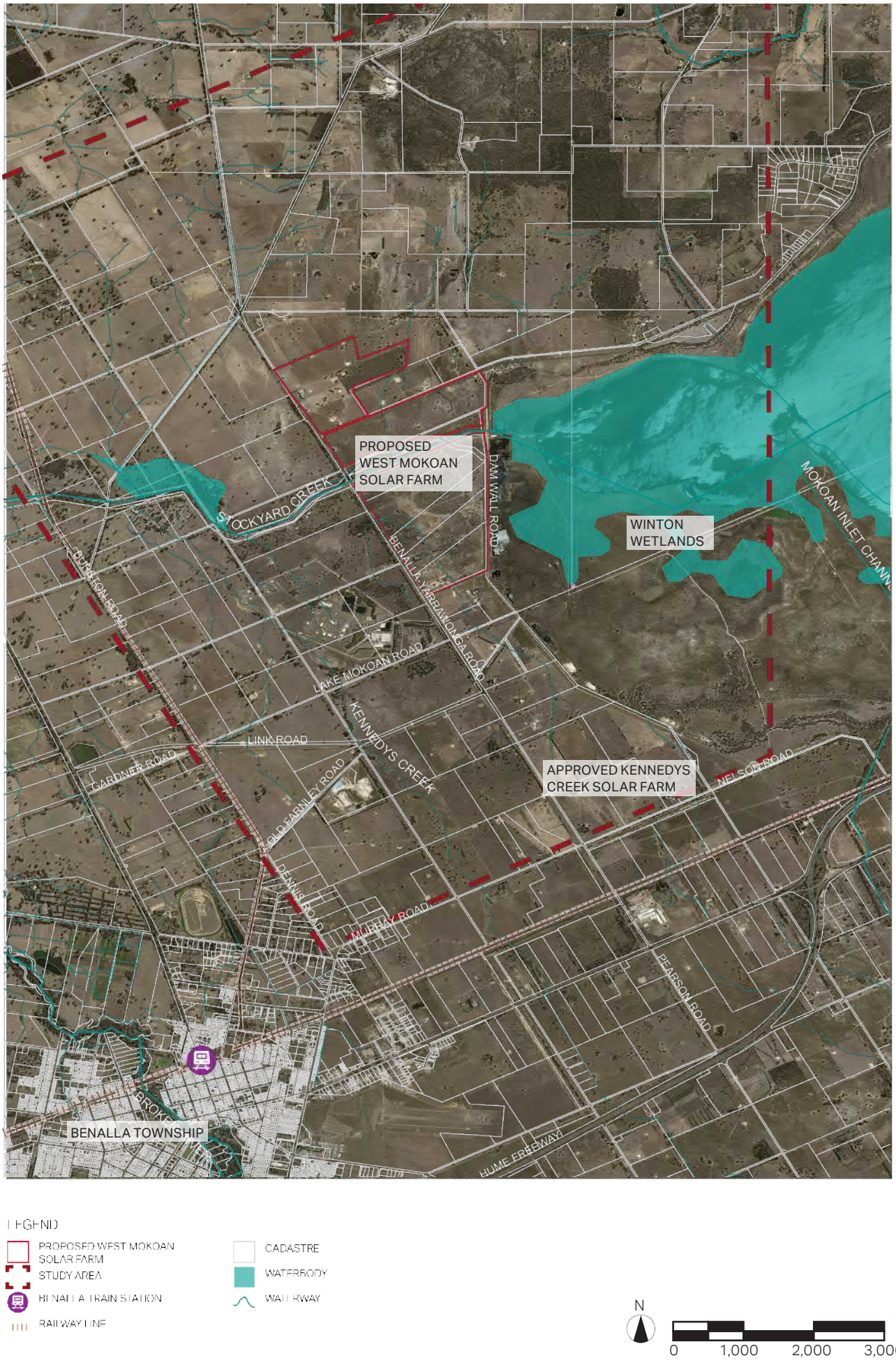

Figure 2 Site context map with study area (Source: AECOM)

1.4. Description of Proposal

The following section provides a summary of the proposal and should be read in conjunction with the accompanying application drawings prepared by AECOM. The primary project components will consist of:

+ Approximately 531,216 solar PV panels on a single-axis tracking system mounted on aluminium or steel piles with an installed capacity of up to approx. 192 MW Alternating Current (AC) (233 DC Capacity).
+ Approximately 57 Power Conversion Units (PCU – Inverter buildings with hard standings).
+ Direct Current (DC) and AC cabling for electrical reticulation.
+ A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS) of up to 20MW/20MWh (TBC) capacity, a control building, substation transformers, office and amenities.
+ Internal all-weather access tracks and a laydown area.
+ The creation of access to Benalla-Yarrawonga Road and Lake Mokoan Road.
+ Landscaping.
+ Removal of 1.891 hectares of native vegetation.
+ Security fencing, CCTV and Infra-Red lighting.
+ Business identification signage (totalling 3 m^2 (3 signs of 1 m^2 each) along Lake Mokoan Road and Benalla-Yarrawonga Road).
+ Maintenance.
+ Realignment of easements.

The modules likely to be selected for this project will be 440W, 144 cell monocrystalline modules with dimensions of approximately 2.115 metres by 1.052 metres. These modules are attached to mounting structures and will be set back by approximately:

+ 30 m from the Northern Boundary;
+ 20-30 m from the Southern Boundary;
+ 20-30 m from the Eastern Boundary;
+ between 15 and 20 m from the Western Boundary; and
+ 20-30 m from Lake Mokoan Road.

A typical Single Axis Tracker System comprises PV modules mounted on steel or aluminium racking systems aligned north to south with a maximum height above ground level of approximately 4.14 metres. Within flood prone areas the minimum height above ground level would be raised approximately 300mm above this height.

The tracking structures would be mounted on piles, which would be screwed or pile driven depending on final geotechnical analysis. This eliminates the need for concrete and foundations which significantly reduces the impact of construction. In turn, this enables the retention of native grasslands and habitats under the array.

This construction methodology keeps ground disturbance to a minimum and allows the final site design to follow the existing lie of the land. The proposal site would be maintained by grazing sheep as much as possible.

There are currently two proposed options regarding the electrical connection of the solar farm. The ultimate connection would be determined following detailed design and subject to separate approvals.

Main site access would be via the existing access frontages on Benalla-Yarrawonga Road to the west and Lake Mokoan Road (local) to the south and north which cuts through the site. The proposal sits adjacent to Stockyard Creek (refer Figure 5) and the layout is orientated to align with the proposal site boundaries. Most vegetation along Stockyard Creek has been retained, and the designated substation and O&M facility area in the centre of the site, immediately adjacent to the overhead power lines and facing Lake Mokoan Road.

The construction period is expected to be 12-18 months in duration, commencing in the first half of 2021 (to be confirmed).

Figure 3 Typical Single Axis Tracking System with Two Modules in Portrait Orientation (Source: SRPS)

Figure 4 Typical example of power conversion station (Source: ABB)

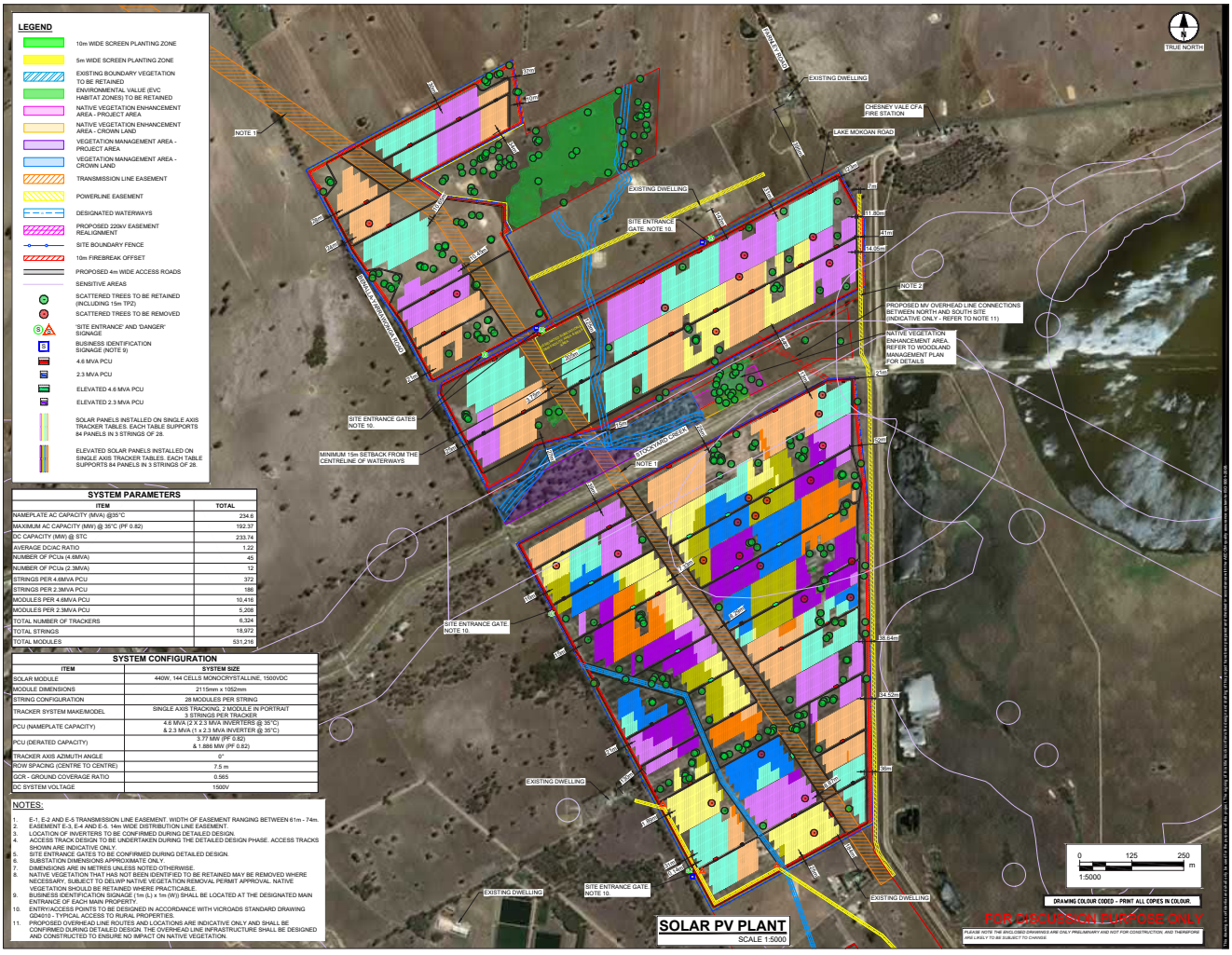

Figure 5 Key features of the proposal, not for construction (Source: AECOM)


North Rd

2.0
METHODOLOGY

2. METHODOLOGY

Landscape and visual impact assessment (LVIA) is a tool used to identify and assess the effects of , and the significant of change resulting from development on both:

+ the landscape as an environmental resource in its own right; and
+ on people's views and visual amenity.

There is no accepted national published guidance on LVIA specific to Australia. Therefore, the industry typically refers to guidance from elsewhere for producing LVIA reports. The method for this assessment has been developed with reference to *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013), developed by the Landscape Institute and Institute for Environmental Management (UK, hereafter referred to as GLVIA3). GLVIA 3 is widely recognised as comprising an example of 'best practice' in this field.

This report undertakes an assessment of the proposal using GLVIA 3. The method distinguishes between the:

+ 'impact', defined as the action being taken; and the
+ 'effect', defined as the change resulting from that action.

The following section outlines the detailed methodology undertaken for the preparation of this LVIA report.

2.1. Environmental and Planning Baseline

2.1.1. Desktop Analysis

Existing data was gathered and reviewed, including:

+ Site inspection protocols, available information on sensitive visual receptors, proposal design, and photos of similar examples of key infrastructure elements;
+ GIS mapping, including visual envelope mapping (refer Section 2.1.1.1), zoning / land use, topography and land cover;
+ Google Earth and Google Street View.

Using this data, a preliminary assessment of the landscape and visual resource was undertaken and used to inform the site inspection.

2.1.1.1. Visual Envelope Mapping

The likely visibility of the proposal, once operational, from surrounding areas was broadly mapped to define a visual envelope. This provides an indication of which parts of the proposal are likely to be viewed from surrounding areas. The mapping typically shows 'worst case', i.e. some receivers may only see the top of the proposal or partial views, while other receivers may view more substantial areas of the proposal.

This map was generated using the function tool 'Viewshed' in ArcMap (version 10.8).

2.1.2. Site Inspection

Site inspections were undertaken by two AECOM team members on the 4th of March 2019 and on the 29th of October, 2019 between the hours of 10am and 4pm. The purpose of the inspections were to:

+ Ground truth information gathered during the desktop analysis;
+ Identify views from sensitive visual receptors within publicly accessible locations using information generated within the visual envelope mapping and assess landscape character; and
+ Undertake site photography suitable for preparation of photomontages, to record key views and landscape character.

2.1.2.1. On ground photography

A series of photographs were captured at each location over a the dates listed above in Section 2.1.2 using a Nikon D810 digital camera with a Sigma 24mm f/1.4 DG HSM lens. The camera has a full frame sensor equal in size to that of 35mm film and therefore there is no crop factor to be considered. The lens was selected for its excellent image quality and low levels of distortion.

For general site photography (i.e. recording landscape character or to illustrate typical environmental conditions) the camera was hand-held to take photos.

For the creation of panoramas (refer 2.2.3.1) and photomontage (refer 2.2.3.2), the camera was mounted in a vertical position on a level tripod using an RRS panoramic head (i.e. with no tilt angle). This allows the camera to be rotated around the nodal point of the lens, removing any parallax error from the photography. A series of Images were then captured from left to right in 30° increments, until a minimum of 150° had been recorded. Camera positions were recorded using aerial mapping data.

All images were recorded from a camera height of 1.7m from ground level.

2.1.3. Existing Environment

The above information was summarised into a broad description the landscape within which the proposal is located, and identification of elements and features relevant to assessment of the proposal, including site setting, topography, land use, landscape and heritage values.

Mapping of the existing environmental features (including topography, hydrology etc) was generated using GIS information generated from ArcMap (version 10.8) and overlaid in Adobe Illustrator. Mapping of Landscape Character Zones (refer Section 2.1.3.1) was generated by hand over base mapping (including aerial photography) generated as described above.

2.1.3.1. Landscape Character Zones

Drawing from the above, a Landscape Character Assessment was undertaken. This identifies what makes a place distinctive, without necessarily assigning a value to it. It considers the way different components of the environment – both natural (e.g. the influences of geology, soils, climate, flora and fauna), and cultural (e.g. the historical and current impact of land use, settlement, enclosure and other human interventions) – interact together and are perceived to form a distinct pattern, which gives its particular sense of place.

To provide a framework for more clearly describing the area and assessing how the proposal would affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character, distinct parts of the overall landscape have been separately defined and mapped as 'Landscape Character Zones' (LCZs).

2.2. Impact Assessment

2.2.1. Landscape Effects

Assessment of landscape effects deals with the effect of change and development on landscape as a resource in its own right. Landscape effects are assessed at operation.

The consideration of potential impacts on landscape character is determined based on the sensitivity of the existing landscape to change and the magnitude of change that is likely to occur. The sensitivity of a landscape is judged on the extent to which it can accept change of a particular type and scale without adverse effects on existing landscape character. The magnitude of change to landscape character depends on the nature, scale and duration of the change that is expected to occur.

The sensitivity and magnitude of landscape effects address the following specific criteria:

+ Sensitivity of landscape to proposed change, based on:
  - susceptibility to change (this means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular LCZ, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the existing situation and/or the achievement of landscape planning policies and strategies);
  - value of landscape; and
+ Magnitude of landscape effect, based on:
  - size or scale of change;
  - geographical extent of effects; and
  - duration and reversibility of effects.

The extent of sensitivity and magnitude are each assessed and graded as being High, Moderate, Low or Negligible.

A matrix is used to combine the ratings for sensitivity and magnitude to provide an overall 'Significance of Landscape Effects' finding, described as being High, High to Moderate, Moderate, Moderate to Low, Low or Negligible in relation to the existing environment. Ratings of High and High to Moderate are considered to be significant (refer Table 1).

Table 1: Landscape and visual impact assessment matrix

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

2.2.2. Visual Effects

Assessment of visual impact deals with the effects of change on the views available to people and their visual amenity. It assesses how the surroundings of individuals or groups of people (visual receptors) may be specifically affected by changes in the context and character of views as a result of the change or loss of existing elements of the landscape and/or the introduction of new elements (GLVIA 3). Visual effects are assessed at operation.

2.2.2.1. Selection of viewpoints

A series of viewpoints were selected from which to assess the visual effects of the proposal. Potential visual receptors were identified from the initial visual envelope mapping. These were then used to identify a series of viewpoints from which to assess the visual effects due to the Proposal. Factors such as proximity to the changes, number of visual receptors at each location, and the type of visual receptors were taken into account to select the viewpoints. Viewpoints were chosen to assess the changes from publicly accessible locations, although some viewpoints were used to approximate the changes seen from private locations such as residences or community facilities.

Selection of visual simulation locations

Visual simulations (photomontages, refer 2.2.3.2) were produced from viewpoints which were deemed to have the greatest potential effects from the proposal. These included places which were positioned closest to the proposal and would include the most sensitive visual receptors.

Visual simulations were not produced from locations for several reasons, including:

+ they were deemed too far from the proposal to receive clear views to the proposal;
+ where the changes would be screened from view by landform or vegetation;
+ had very few receptors; where receptors were deemed less sensitive or were present in very few numbers; and / or
+ similar visual simulations had been provided.

2.2.2.2. Assessment of visual impact

The evaluation of potential effects on visual amenity is based on the sensitivity of the viewpoint (and the visual receptors it represents) to change, and the magnitude of change arising from the proposal that is likely to occur.

The sensitivity of each viewpoint is mainly a function of:

+ the occupation or activity of the people experiencing the view at particular locations, and
+ the extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations, e.g.:
  - people who are engaged in outdoor recreation where their attention or interest is likely to be focused on views and the visual amenity they experience, are likely to be more sensitive to a proposed change in that view; rather than
  - people at their place of work whose attention may be focused on their work, not on their surroundings, and where the setting is not important to the quality of working life.
+ value attached to the view experienced, e.g.:
  - in relation to heritage assets, or through planning designations; or
  - indicators of value attached to views, e.g. through appearing on tourist maps, or provision of facilities for their enjoyment (such as parking places, sign boards and interpretative material).

The magnitude of change to views and visual amenity depends on:

+ size or scale of change in the view with regard to the:
  - loss or addition of features in the view and changes in its composition;
  - degree of contrast or integration of any new features with the existing landscape, in terms of form, scale and mass, line, height, colour and texture; and
  - nature of the view of the proposed development in terms of amount of time it would be experienced, and whether the views would be full, partial or glimpses.

+ geographical extent of the visual effect with different viewpoints including the:
  - angle of view in relation to the main activity of the receptor;
  - distance of the viewpoint from the proposed development; and
  - extent of area over which the changes would be visible.
+ duration and reversibility of visual effects, e.g.:
  - duration in terms of short term (0-5 years), medium term (6-15 years) or long term (16-30+ years); and
  - reversibility with regard to the prospects and practicality of a proposed change being reversed in say a generation, e.g. housing can be considered permanent, but wind energy developments for example are often argued to be reversible since they have a limited life, and could eventually be removed and the land reinstated (GLVIA 3).

The extent of sensitivity and magnitude are each assessed and graded as being High, Moderate, Low or Negligible.

A matrix is used to combine the ratings for sensitivity and magnitude to provide an overall 'Significance of Visual Effects' rating, described as being High, High to Moderate, Moderate, Moderate to Low, Low or Negligible in relation to the existing environment (refer Table 1). Ratings of High and High to Moderate are considered to be significant. Importantly, the rating itself does not contain a value judgement regarding the nature of the visual change (i.e. if the change is a positive or negative impact on the landscape character or on the views seen by receptors).

2.2.3. Photos and Photomontages

2.2.3.1. Creation of panoramas

A series of photographs were arranged to produce a panorama from each viewpoint. These provided a baseline from which to assess changes arising from the proposal.

Photographs captured on site (refer Section 2.1.2.1 for photo capture methodology) were post processed to remove any elements of lens distortion and stitched together using specialised panoramic software (PTGui Pro, version 11.18). Each photograph was tied to its adjacent image using relative tie points to create an accurate panorama. A minimum of 10 control points were used to ensure a high level of accuracy with average control point divergence measured at <1 pixel.

Panoramic photographs are then generated with a horizontal Field of View of 124° using a true rectilinear projection to accurately simulate a camera lens with a FoV equal to 124°.

2.2.3.2. Creation of photomontages

Visual simulations were produced to depict the changes at selected viewpoints. Visual simulations are a type of photomontage which provides the most accurate representation of relative position and size of the proposal from a chosen viewpoint.

Visual simulations were prepared for key viewpoints to show the unmitigated effect of the proposal (i.e. the proposal on the day of completion), and the view to the proposal after the landscaping had matured (e.g 5 to 10 years post completion). Refer to Section 2.2.2 for method of selecting key viewpoints from which visual simulations were to be produced.

Once the accurate background image (panorama, refer 2.2.3.1) had been created, it was aligned into visualisation software (Autodesk 3ds Max 2016) with a virtual camera. Virtual cameras do not suffer the same distortion as real lenses because they are based on the scientific principles of a perfect lens. The virtual camera is set to the needed FoV with no need for correction.

The 3D model of the proposed solar farm development was supplied to AECOM as an AutoCAD file. The proposed landscape plan was prepared by AECOM landscape architecture team and supplied to the visualisation specialist.

The models and plans were imported into 3DS Max and were aligned to a local datum offset from MGA56. Once the virtual and real cameras had been aligned, the image was rendered using a 3D model and photo editing software (Adobe Photoshop, 2020) to combine the two into a seamless simulation. During the photo editing process any vegetation or structures to be removed during the construction process was removed from the image.

2.2.3.3. Assumptions

The following assumptions were used in creation of visual simulations:

+ Solar panels shown in visual simulations include elevated panels at full tilt;
+ Visual simulations showing the unmitigated effect of the proposal 'at the day of completion' do not take into account any landscaping due to the early works proposal; and
+ Proposed landscaping is illustrated at approximately 5 to 10 years maturity.

2.2.4. Cumulative Impacts

Cumulative impacts of the proposal on landscape character and views within the context of the surrounding local area have been discussed.

2.3. Mitigation Measures and Landscape Strategy Response

A landscape concept plan has been prepared in response to identified landscape character and visual impact issues identified in this report (refer Section 6.4). Opportunities have been listed where they are identified but would not necessarily respond to visual and landscape character impacts arising from the proposal.

2.4. Report Preparation

This report was prepared by the AECOM Design and Planning Landscape Character and Visual Impact Assessment specialist team, comprising:

+ **Gabi Parke**
  Principal Landscape Architect (specialising in LVIA).
  Qualifications: Bachelor of Landscape Architecture; Bachelor of Science (Environmental and Urban Horticulture); Bachelor of Science (Environmental Science).
  Responsibility: lead author, collection of images for visualisual simulations.
+ **Rebekah Khaw**
  Graduate Landscape Architect
  Qualifications: Bachelor of Landscape Architecture; Bachelor of Urban and Regional Planning.
  Responsibility: support author, collection of images for visualisual simulations.
+ **Leo Orjalo**
  Senior Visualisation Specialist
  Qualifications: Bachelor of Science (Architecture).
  Responsibility: preparation of visualisual simulations.
+ **Mark Blanche**
  Technical Director (specialising in LVIA)
  Qualifications: Bachelor of Landscape Architecture; Masters in Environmental Management.
  Responsibility: checking and verification.
+ **Frank Ciancio**
  Associate Director, Design and Planning.
  Qualifications: Bachelor of Landscape Architecture.
  Responsibility: checking and verification.

3.0
EXISTING ENVIRONMENT

3. Existing Environment

3.1. Site Context

The proposal is located approximately 10 kilometres north-east of Benalla CBD, predominantly at the following addresses:

+ Benalla-Yarrawonga Road, Goorambat;
+ 892 Benalla-Yarrawonga Road, Goorambat; and
+ 616 Benalla-Yarrawonga Road, Benalla.

The proposal site has frontages to Benalla – Yarrawonga Road to the west and Lake Mokoan Road, which intersects the site. Access to the subject site is provided from these two roads.

The main road corridors in the region include the Hume Freeway which connects Melbourne city centre to the Hume region and the Midland Highway which connects Bendigo through northern Victoria east towards Shepparton and to Benalla. The Midland Highway is located approximately 2 kilometres west of the site and the Hume Freeway is approximately 9 kilometres south of the site. In addition, there are various other notable road corridors including:

+ Benalla-Yarrawonga Road which abuts the site to the west
+ Benalla-Tocumwal Road to the west of the site
+ Benalla-Winton Road to the south of the site.

The North East railway line passes approximately 4 kilometres south of the southern boundary of the proposal, linking Albury Railway Station to Melbourne CBD.

The landscape surrounding the proposal predominantly comprises farming land (refer Figure 6), with occasional industrial pursuits such as timber processing, quarrying activity, precast concrete fabrication and munitions manufacturing. The Winton Wetlands lie to the east of the proposal.

There is a tourist route that passes through the proposal site, which links up a number of silos that have been painted by artists. The 'Silo Art Trail' is a continuation of a street art festival that was first held in 2015 in Benalla township, and most recently in early April 2019, and is an attraction to the area.

Within the site boundaries of this proposal are a number of easements, all of which are listed below;

+ E-1, E-5 (PS 625748F) and C (TP 173518C): Transmission of Electricity;
+ E-2 (PS 625748F): Transmission of Electricity and Telecommunications;
+ E-3 (PS 625748F): Powerline; and
+ E-4, E-5 (PS 625748F): Powerline.

Figure 6 Typical farming landscape surrounding the site, with trees clustered along property boundaries and watercourses (Source: AECOM)

3.2. Topography and Hydrology

The proposal site and its surrounds predominantly comprises farming land, with relatively flat, open pasture areas with tree stands clustered along property boundaries and along watercourses (refer Figure 6 and Figure 9). Some stands of paddock trees also remain.

The land is relatively flat, however topography rises to the north of the proposal site, with the upper areas of hillsides covered in mature eucalyptus woodland vegetation. The hillside to the north rises approximately 150 metres above the ground level of the site.

To the east of the site lies the Winton Wetlands, comprising 8,750 hectares of Wetlands bordered by a dam wall (refer Figure 7). The dam wall surrounding the Winton Wetlands pass directly east of the southern part of the site boundary (south of Lake Mokoan Road). This dam wall has a hiking trail that runs along the top of it, providing visitors with elevated views of the surrounding landscape (refer Figure 7).

There are a number of dams and overland drainage paths present on site. Stockyard Creek borders the southern boundary of the proposal. The creek has been channelised from the dam wall of the Winton Wetland (refer Figure 8) to where it meets the Broken River.

Figure 7 View of Winton Wetlands from the elevated Dam Wall Hiking Trail (Source: AECOM)

Figure 8 View west along Stockyard Creek from the dam wall of Winton Wetlands (Source: AECOM)

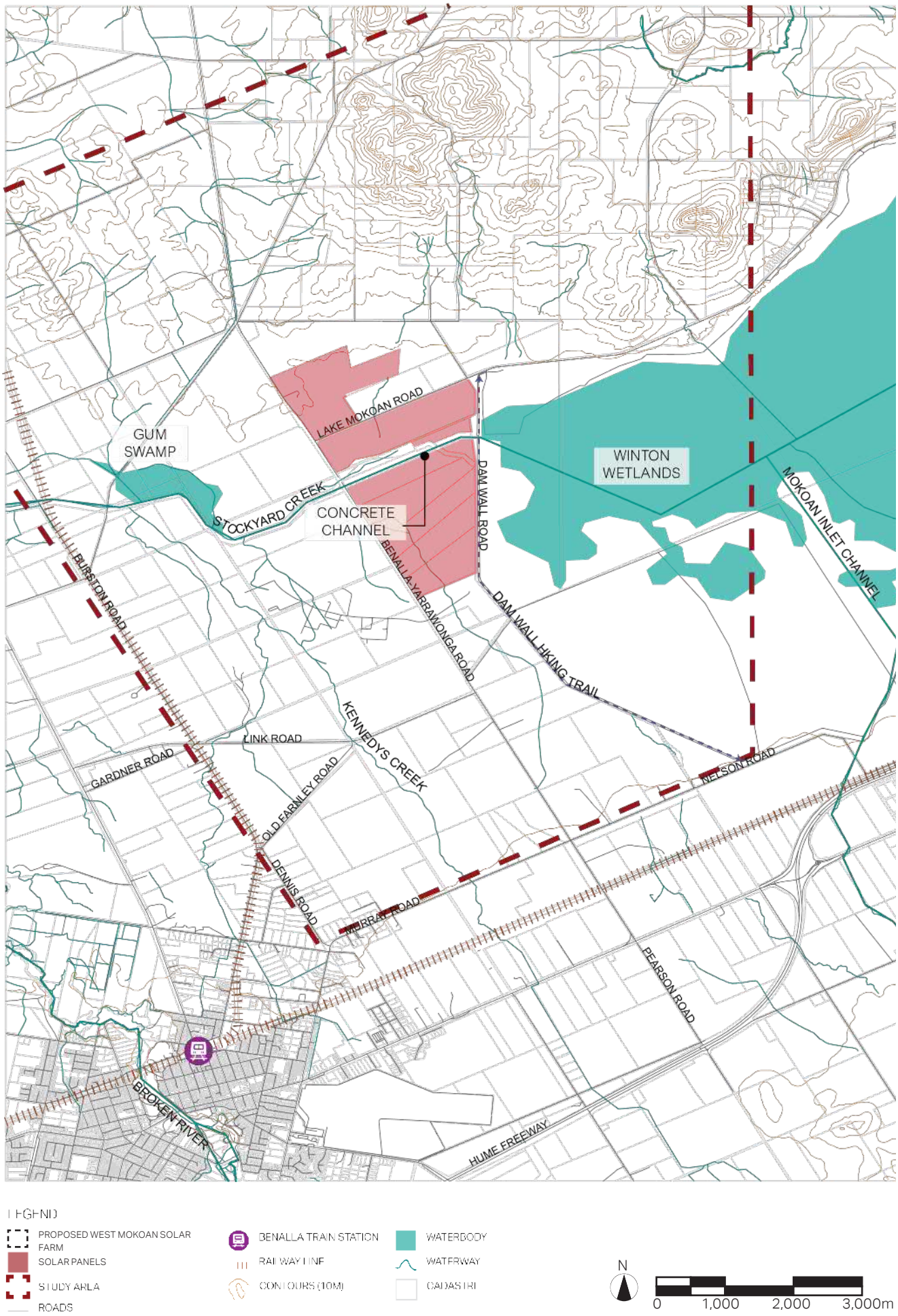

Figure 9 Topography Map (Source: AECOM)

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3.3. Land Use

Within the study area there are seven land zones. The proposal site is zoned Farming (refer Figure 11). The study area and proposal sits entirely within the Benalla Rural City.

Currently the site is being used for broadacre farming and it is envisaged that throughout the operation of the project, the proposal site would also be used for the purposes of grazing livestock. There are three dwellings within the site; two of which are set back approximately 180 metres from Benalla-Yarrawonga Road. The other dwelling is setback about 100 metres from Lake Mokoan Road.

To the south of the site is the constructed channel of Stockyard Creek which connects to the nearby Winton Wetlands, both of which are zoned as a Public Use Zone-Service Utility. To the east of the site is a Special Use Zone used for defence purposes and north east of the site is an area zoned for Rural Living and for Public Conservation and Resource Zone.

Surrounding the site are several land use overlays, the closest of which are a Bushfire Management Overlay and a Regional Flood Overlay (refer Figure 10).

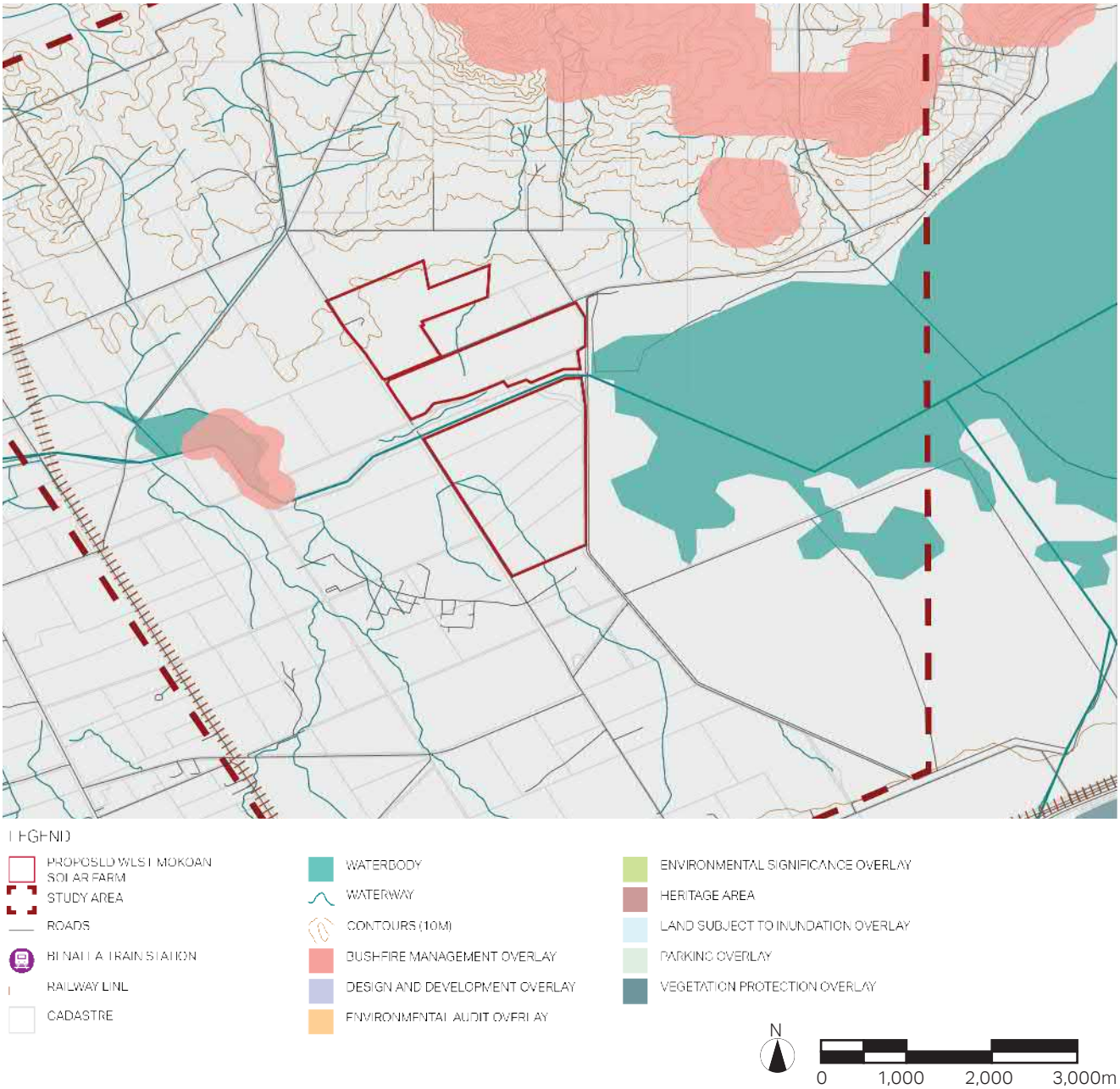


Figure 10 Land Use Overlay Map (Source: AECOM)

Figure 11 Land Use Zoning Map (Source: AECOM)

3.4. Vegetation

Within the study area, tall vegetation cover is sparse, mainly located along major roads and waterways with scatterings of paddock trees within the lots. The strips of trees along the major roads are consistently spaced and sized, clearing out around intersections (refer Figure 12 and Figure 13), and all appear to be native to Australia, if not indigenous to the region itself. Running immediately adjacent to the site is one such major road; Benalla-Yarrawonga Road. The mature and consistently planted trees along the road edge provides screening from the road into the site of the proposal. Refer Figure 14.

Within the wider region, there is dense vegetation coverage in the forested hills to the north as well as along the waterway running through the Benalla township (refer Figure 16). While all of the vegetation along roads and waterways appear to be native, the vegetation that borders lots and provides screening are a mix of exotic and native species.

The surrounding lots typically have mature trees planted along the property boundaries, with and extra layer of vegetation closer to the nearby dwellings and along driveways (refer Figure 15).

Figure 12 View south along Benalla-Yarrawonga Rd at the Lake Mokoan Rd intersection (Source: AECOM)

Figure 13 View into lot south of the proposal site (Source: AECOM)

Figure 14 Trees along Benalla-Yarrawonga Road (Source: AECOM)

Figure 15 Entry to residence on Benalla-Yarrawonga Road with planted avenue (Source: AECOM)

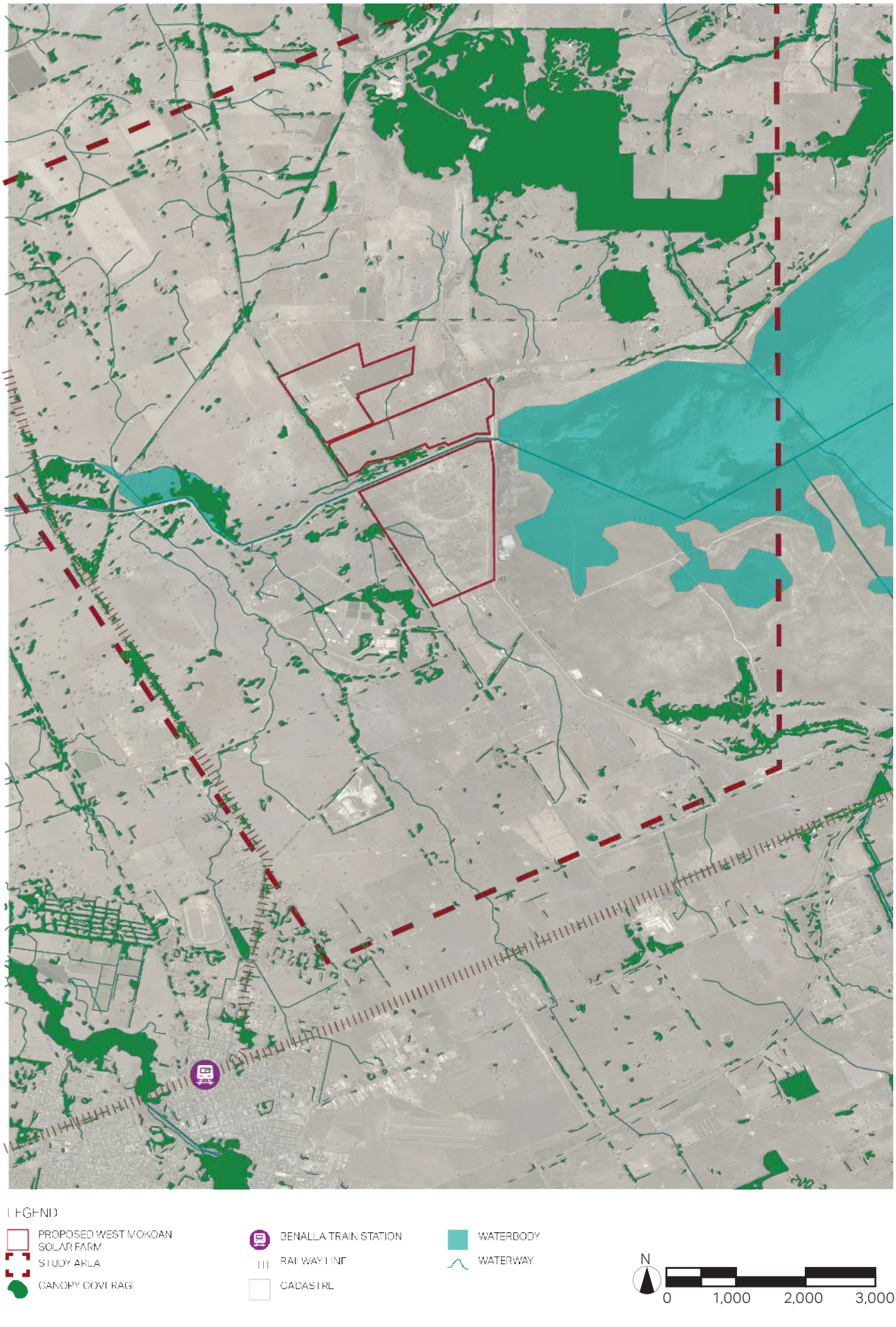


Figure 16 Vegetation Coverage Map (Source: AECOM)

3.4.4.1. Ecological Vegetation Classes

As shown in Figure 17, the pre-1750 Ecological Vegetation Class (EVC) within the site boundaries of the proposal predominantly consisted of 'Plain Woodland Forests' with a small portion designated as 'Lower Slopes or Hills Woodlands'. Within the wider study area 'Wetlands' and 'Box Ironbark Forests' were also present. From the 2005 EVC mapping in Figure 18, the 'Wetland' EVC is no longer present and the 'Plain Woodland Forests' are scattered and patchy. The non-existence of the 'Wetland' EVC is due to flooding of Winton (Mokoan) Swamp in 1971 to create Lake Mokoan for economic, agricultural and recreational purposes. The flooding of this area killed around 150,000 river red gums and Aboriginal scar trees, which still stand within the Wetlands as dead stags. Winton (Mokoan) Wetlands is now subject to a restoration project that commenced in 2010, led by the Winton Wetlands Committee of Management.

In the elevated areas to the north of the site, a significant portion of these pre 1750s areas still remain although it does scatter into remnant patches at lower elevations of the hills.

While there are no protected flora or fauna species within the proposal's site boundaries, there are several species within the wider study area (refer Figure 19). The flora species are; *Digitaria divaricatissima var dicaricatissima, Prasophyllum gilgai, Diuris punctata, Persicara attenuata subsp. attenuata* and *Goodie medicaginea*. The protected fauna species are; musk duck, brown tree-creeper (south-eastern ssp.), latham's snipe, white-bellied sea-eagle, grey-crowned babbler and a range of species within the Public Conservation and Resource Zone to the north of Winton Wetlands.

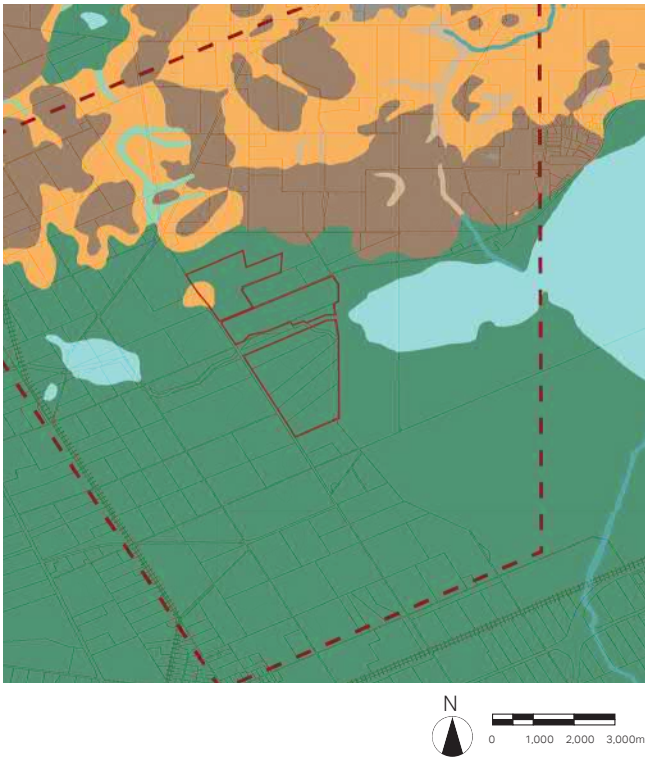


Figure 17 Pre 1750's EVC Map (Source: AECOM)

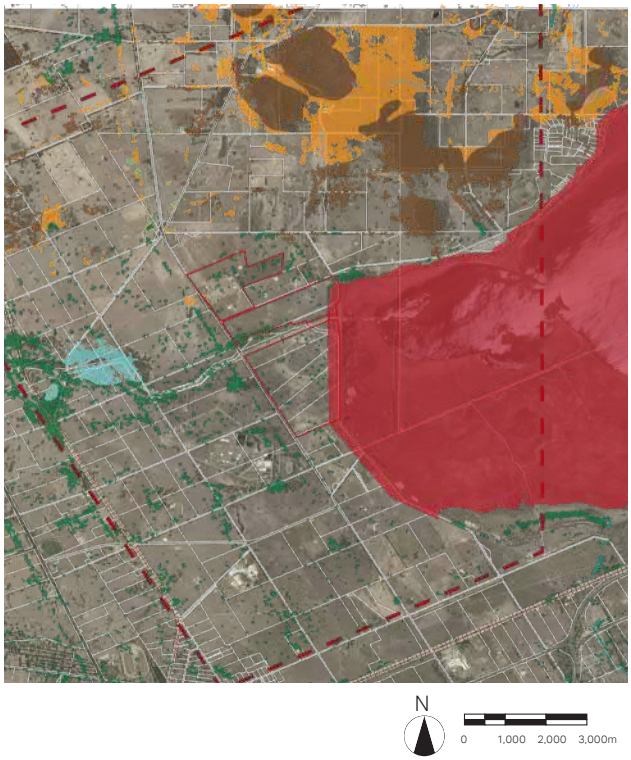
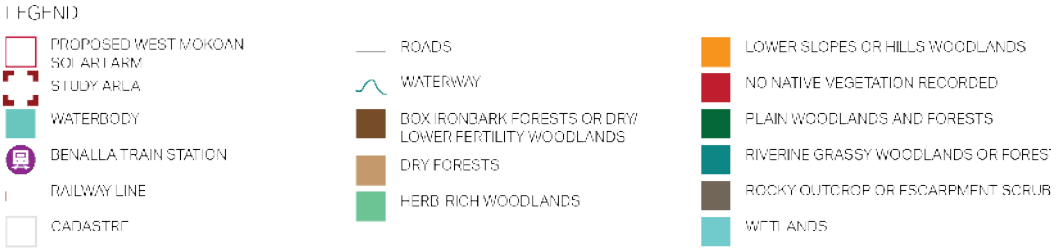


Figure 18 2005 EVC Map (Source: AECOM)



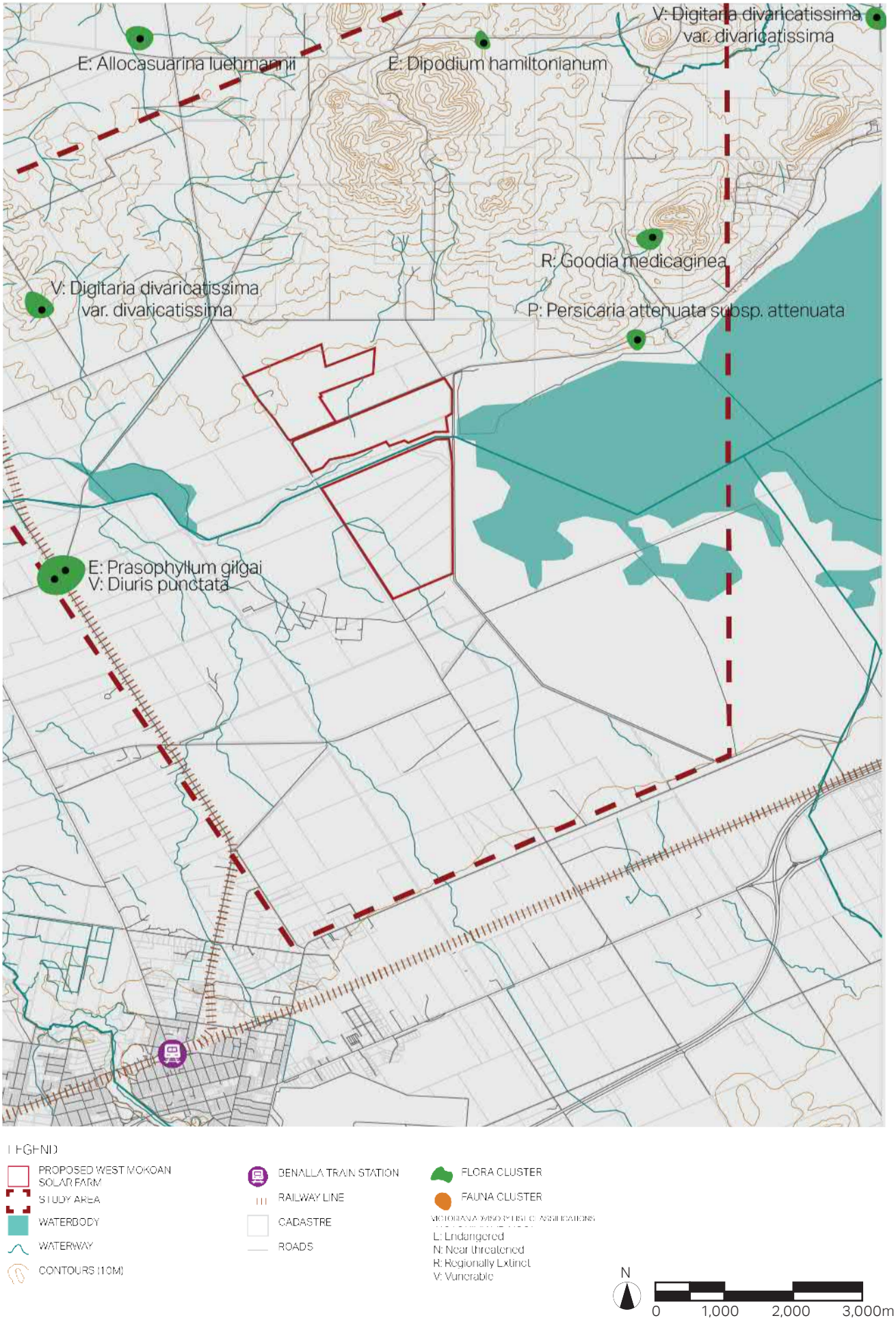


Figure 19 Protected flora and fauna Map (Source: AECOM)

3.5. Heritage and Tourism

3.5.1. Heritage Overlays and Culturally Sensitive Areas

As seen in Figure 20, there is an extensive network of culturally sensitive areas across the study area.

Running directly south of the site is Stockyard Creek which is a site of Aboriginal cultural sensitivity. The cultural sensitivity overlay extends east where it connects with Winton Wetlands, and to the west where it connects to Gum Swamp and meets Kennedys Creek.

Kennedys Creek and Winton Wetlands are also subject to Aboriginal cultural sensitivity. Winton Wetlands covers the south east corner of the wider study area and connects to Stockyard Creek which runs along the eastern border of the study area and as mentioned connects to Gum Swamp.

The Winton Wetlands is a historically significant landscape to both Aboriginal and European heritage. As mentioned in section Section 3.4.4.1, the Winton Wetlands (previously Lake Mokoan), is subject to a landscape restoration project due to the flooding of the area in 1971 to create Lake Mokoan. At present, Winton Wetlands has several swamps and Wetlands, including Winton Swamp, Greens Swamp, Sergeants Swamp, Boggy Bridge Swamp, and 7 Mile Wetland.

Within the Wetlands are educational facilities for school tours, a hub which houses a cafe and spaces for functions and an art trail integrated into the landscape. A network of walking and cycling trails allow for recreational activities such as birdwatching, bush walking, cycling, camping and kayaking.

Near the south west corner of the study area is Broken River and Lake Benalla within the Benalla CBD, which are also subject to an Aboriginal cultural sensitivity. Also nearby, just outside of the study area are the heritage overlays within Benalla CBD which pertain to European history. A full list can be found in the Benalla Planning Scheme - Schedule to Clause 43.01 Heritage Overlay. None of the local or state listed heritage items fall within the wider study area.

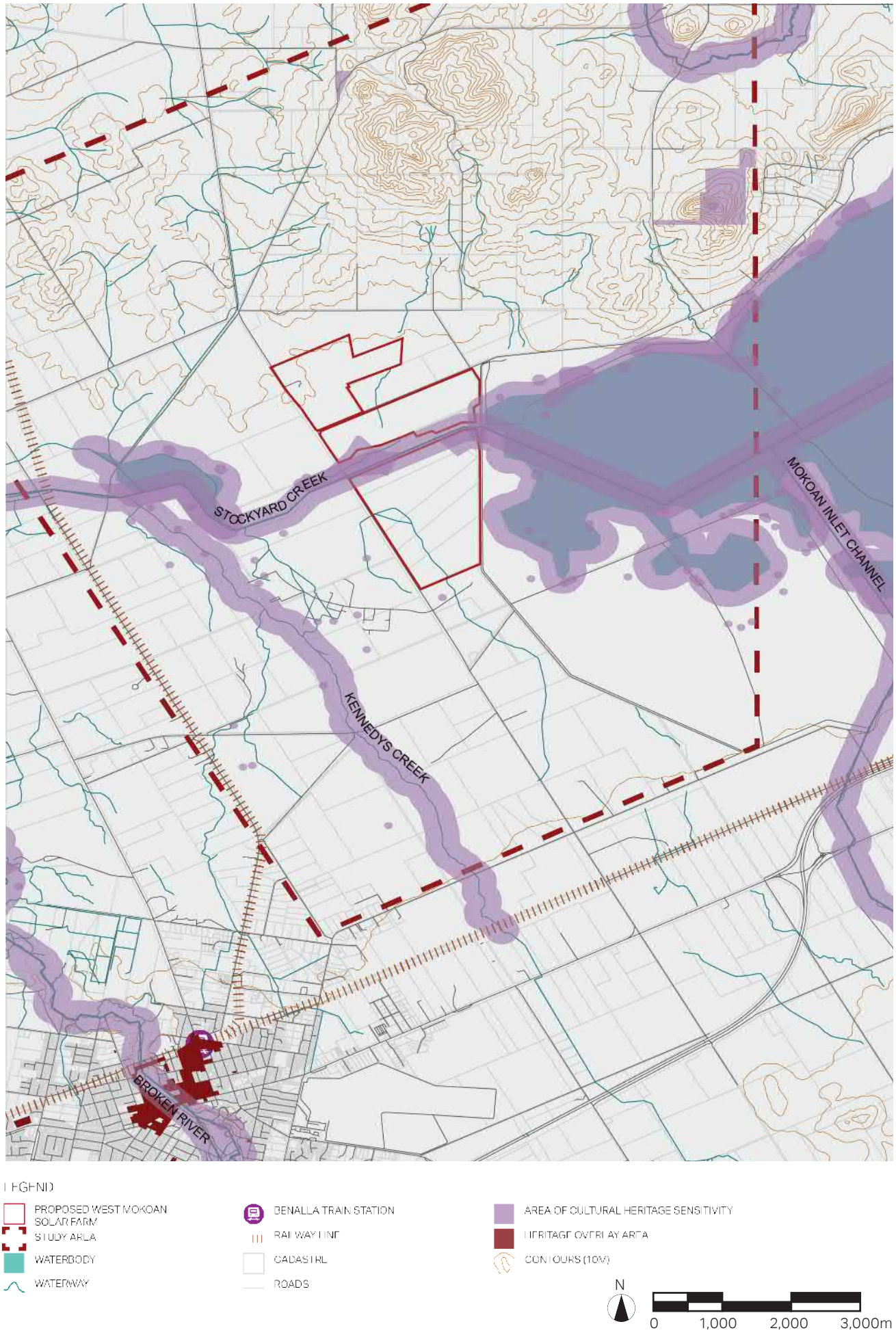


Figure 20 Aboriginal Cultural Sensitivity and Heritage Map (Source: AECOM)

3.5.2. Silo Art Trail

Although not listed on the heritage register for Benalla LGA, the Silo Art Trail is a significant tourist attraction within the State of Victoria. The majority of silos are located along a trail in western Victoria near Rupanyup, however there are several located in the towns north of Benalla and within Winton Wetlands. There is no official map for the Silo Art Trail but signs denoting the route are posted along the major roads in and out of Benalla and when visiting the tourist centre in Benalla. The Silo Art Trail is marked out on a map as shown in Figure 22. The trail runs alongside the western edge of the proposal (Benalla-Yarrawonga Road) as well as bisecting the site it in an east-west direction (Lake Mokoan Road) as the trail heads along the northern boundary of the Winton Wetlands.

There are five attractions located across four locations on the Silo Art Trail; Goorambat Silo Art (Figure 21), Goorambat Uniting Church (located within close proximity to Goorambat Silo Art), Devenish Silo Art, Tungamah Silo Art and the Fire Tank within Winton Wetlands. Tungamah Silo Art is approximately 41 kilometres north-west of the proposal and is located too far away to be impacted directly by the proposal, however the return trip from the Tungamah has been taken into consideration.

Within Benalla are various other art installations, all part of the annual Wall to Wall festival. The majority of the art installations in this festival are located within Benalla CBD and appear to be transformed regularly, but the Silo Art Trail is advertised as part of the festivities. Also located within Benalla CBD is a heritage walking trail which consists of historic buildings, memorials, the botanical gardens and boulders commemorating critical events to Benalla's history.

Within the Winton Wetlands are a number of facilities that cater to tourism as discussed in Section 3.5.1 . These facilities include camping grounds, bush walking and cycling trails and kayaking. These facilities are also used by the local community.

Along the eastern edge of Winton Wetlands is the Dam Wall Hiking Trail which is in close proximity to both the approved Kennedys Creek and proposed West Mokoan Solar Farms.

Although not an officially listed heritage item, the railway into Benalla is part of the V-line network which is sometimes used by tourists to visit regional areas of Victoria. The railway line runs parallel to the southern boundary of the study area, offset by about 6.5 kilometres and appears to be partially lined by vegetation, obscuring most views into the surrounding landscape. The other section of the railway line runs along the western edge of the study area along North Road, a major road for traffic in and out of Benalla.

Figure 21 Goorambat Silo Art (Source: AECOM)

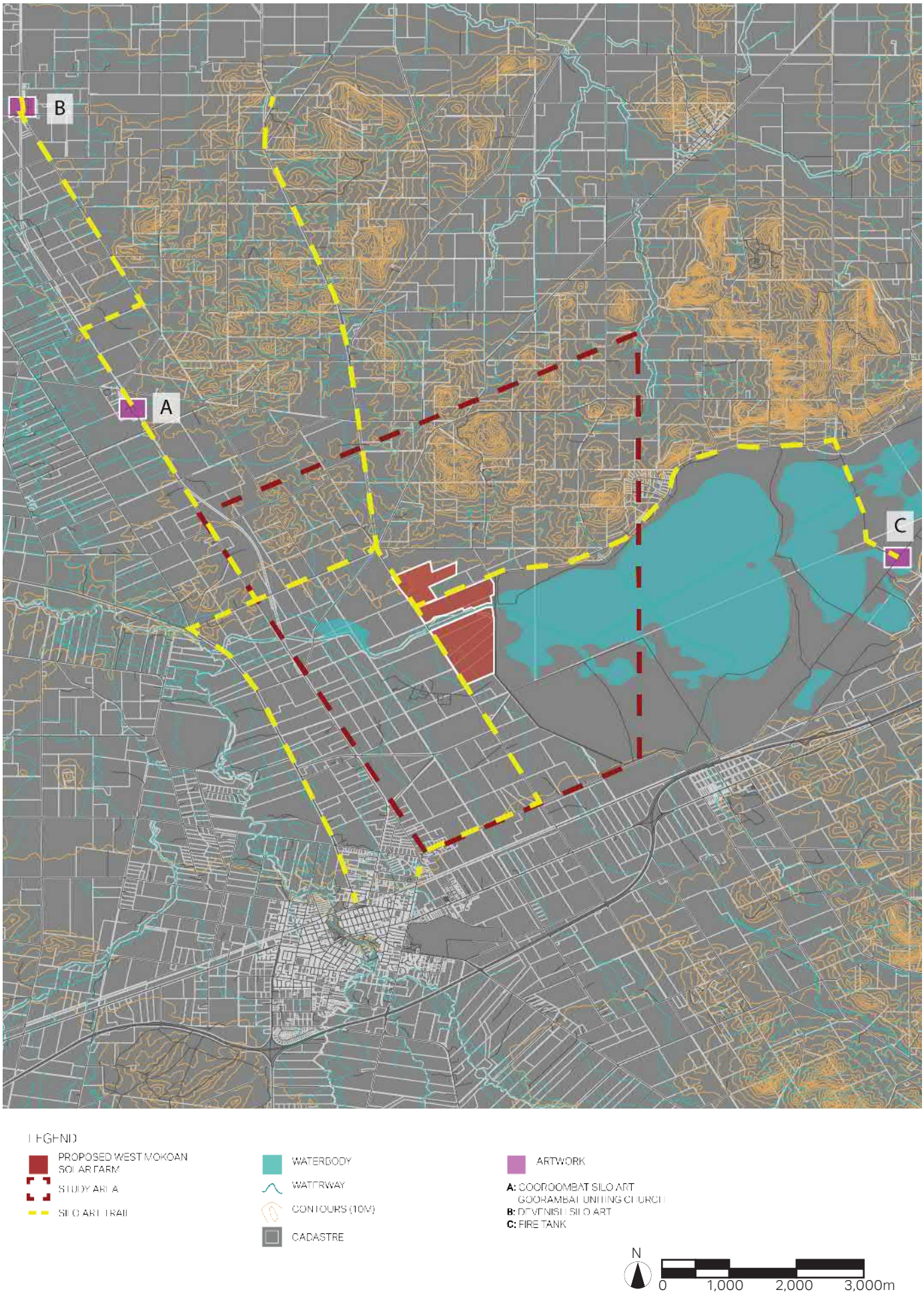


Figure 22 Silo Art Trail Map (Source: AECOM)

3.6. Landscape Character Zones

Six Landscape Character Zones (LCZs) were identified by grouping zones within the study area with broadly homogeneous characteristics or spatial qualities (refer Figure 23). These are:

+ LCZ 1: Infrastructure Corridor;
+ LCZ 2: Rural Agricultural;
+ LCZ 3: Rural Industrial;
+ LCZ 4: Wooded Hillsides;
+ LCZ 5: Benalla township; and
+ LCZ 6: Waterways and Wetlands.

The proposal lies exclusively within LCZ 2: Rural Agricultural, although it is immediately adjacent LCZ 6: Waterways and Wetlands. The other LCZs listed lie within the study area, but not on or adjacent to the proposal site.

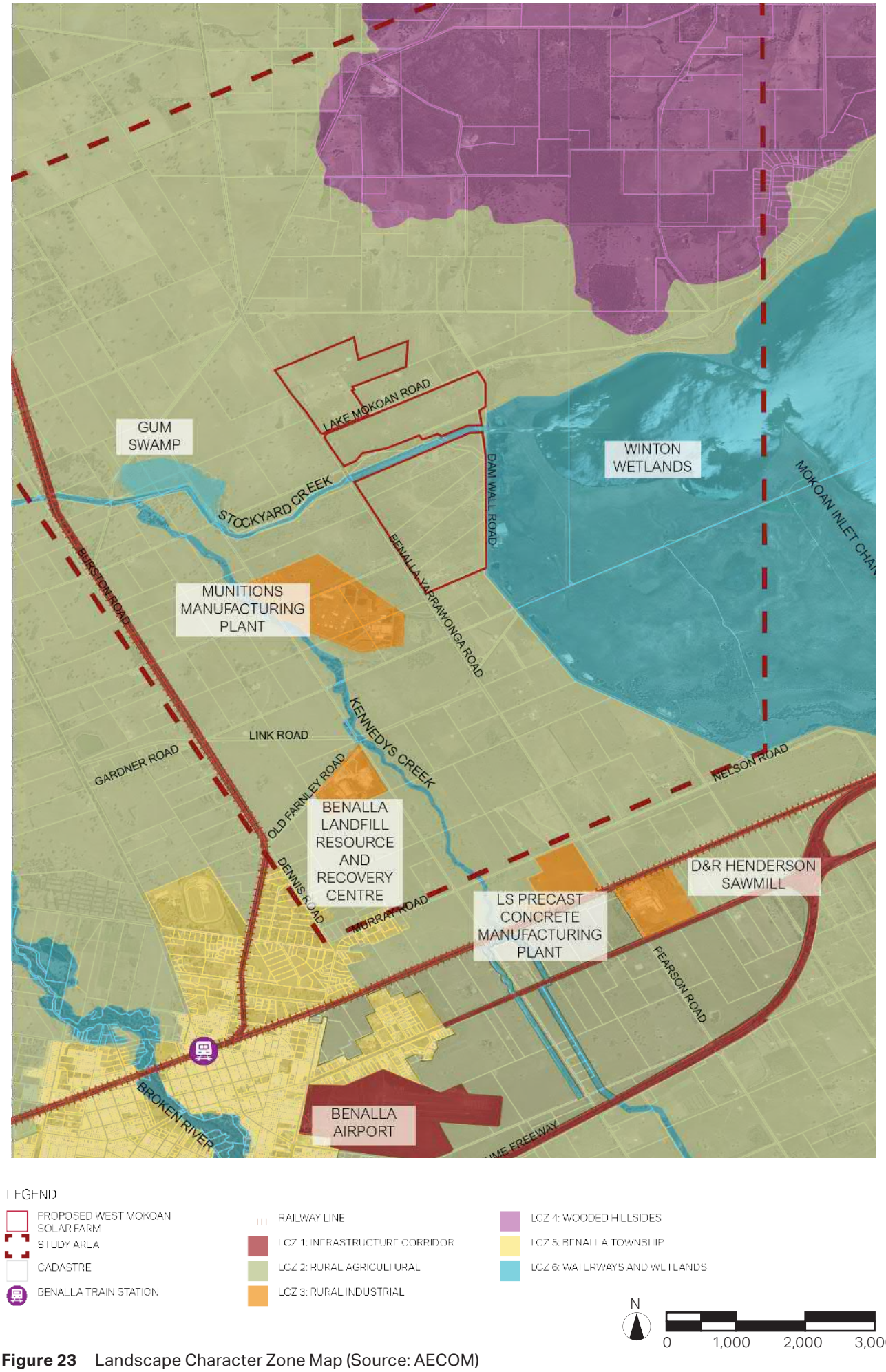


Figure 23 Landscape Character Zone Map (Source: AECOM)

3.6.1. LCZ 1: Infrastructure Corridor

This LCZ comprises a number of different types of infrastructure, including:

+ Primary and secondary road corridors;
+ Rail corridors; and
+ Airport and airstrips.

However, the only instance of this LCZ within the study area is a rail corridor, which runs within the study area approximately 3 kilometres west of the proposal site.

Although the three Infrastructure Corridors listed above are zoned differently in terms of land use, they share typical characteristics as follows:

+ Roads and rail corridors are linear elements that traverse the landscape;
+ they are all utilitarian in character, in that their primary function is the conveyance of traffic;
+ they are typically visually separated from the landscape in that they are often fringed with vegetation; and
+ earthworks have often been undertaken to allow these areas to be as flat as possible, leading to earth berms and bridges taking up the level difference between the infrastructure and the surrounding landscape.

There are no primary road corridors within the study area, although the closest example is the Hume Freeway (refer Figure 25). Secondary road corridors are the most typical occurrence of this LCZ within the study area, comprising two lane arterial roads connecting townships within the landscape. While these are major roads, they often have no formalised kerbs and verges, and are visually integrated into the rural landscape by the palette of roadside vegetation (refer Figure 24). Both primary and secondary road corridors are classified as Road Zone - Category 1 under the Planning Scheme.

Minor roads that link properties with major roads are often narrow, unsealed roads with no formalised kerbs and verges. These have been grouped within the greater LCZ within which they lie, mostly within LCZ 2: Rural Agricultural as they are a visually integral part the character of this LCZ. Most of these roads are classified under a variety of land use zones, however the frequently used connectors are designated Road Zone - Category 2.

With the exception of secondary road corridors, LCZ 1: Infrastructure Corridor areas typically require drainage to have been designed as a separate element from the landscape. Secondary roads in this area do not have formalised kerbs and therefore drain to the surrounding landscape.

Airports and airstrips are classified under this LCZ as it is an integral piece of infrastructure and is zoned under Public Use-Transport in the Planning Scheme. This LCZ is typically surrounded by scattered trees, sometimes screening these corridors from the landscape and allowing views between tree stands. The LCZ is typically flat, as is the majority of the wider Benalla landscape (with the exception of LCZ 3), and apart from the Benalla Airport building, is mostly devoid of buildings.

Figure 24 View south along Benalla-Yarrawonga Road, showing a typical secondary road corridor (Source: AECOM)

Figure 25 Aerial photo showing the Hume Freeway (M31) with carriageways separated by a vegetated median (Source: Google Earth)

3.6.2. LCZ 2: Rural Agricultural

This LCZ comprises the flat, rural landscape that makes up a majority of the study area surrounding the proposal. This is an open, pastoral landscape with dry, golden brown grasses punctuated with scattered stands of paddock trees. The entirety of the proposal lies within this LCZ.

Vegetation comprises agricultural grazing / pastoral landscape with paddock trees. The landscape is visually compartmentalised by linear bands of informally positioned trees, typically eucalypts, along property boundaries and creek lines (refer Figure 26). Distant views across the flat landscape are typically screened by these trees, but short range views through to adjacent properties are seen through these tree bands.

Minor drainage corridors run across this landscape, although many appear to be ephemeral or dry from aerial photography. Major waterways and waterbodies are grouped within LCZ 5: Waterways and Wetlands.

The majority of this LCZ falls under 'Farming Zone' in the Planning Scheme although portions do fall under Industrial Zone 1, 2, Special Use Zones and the Rural Living Zone.

Roads within this LCZ traverse the landscape, typically fringed by trees. More major roads (excluding those considered within LCZ1: Infrastructure Corridors) connect townships and are sealed, with one lane travelling in either direction but with no formalised kerbs or verges. Minor (local) roads between properties and major roads are often unsealed, or if they are sealed, have no formal lane markings, and with no formalised verges or kerbs (refer Figure 28). As per with the more major roads, they are often fringed with scattered trees.

Rural homesteads are scattered within this LCZ and form an integral part of the landscape character (refer Figure 27). Homesteads typically comprise a cluster of buildings, including a house, sheds and garages. Exotic and native gardens surround dwellings, with productive gardens typically contained within these domestic settings.

Figure 26 Typical landscape within LCZ 2: Rural Agricultural. Open, pastoral land is traversed by roads and bands of trees on property boundaries and creek lines. Paddock trees remain dotted within the fields. (Source: AECOM)

Figure 27 Rural homesteads lie within this LCZ, typically near minor roads or long unsealed driveways (Source: AECOM)

Figure 28 Typical minor road is unsealed and fringed by trees (Source: AECOM)

3.6.3. LCZ 3: Rural Industrial

This LCZ comprises the non-farming related industries that sit within the rural landscape of the wider region, outside of the Benalla township. Typically, this LCZ comprises isolated sites of industrial development, with utilitarian character specific to the industry of each site.

Within the study area, this LCZ includes:

+ Benalla Landfill and Resource Recovery Centre (refer Figure 29); and
+ Munitions manufacturing plant (refer Figure 30).

South of the study area lies the following rural industrial sites;

+ D&R Henderson Sawmill; and
+ LS precast concrete manufacturing plant.

Built form within this zone varies according to specific use, although unified by the utilitarian character of the buildings and landscape. Buildings are often large, metal structures, with access points scaled to accommodate large vehicles.

Landscaping within this zone also varies. Some sites, such as the munitions manufacturing plant and the D&R Henderson Sawmill, are surrounded by bands of screening vegetation, limiting views from public areas to inside the site. Other sites are surrounded by vegetation, but are sparser, providing clear views into the sites and the industrial processes that occur.

Typically, this LCZ comprises private businesses with internal road networks, so views into the sites are limited from the public road network.

Sites within this LCZ in the study area are located within Industrial 1 Zone under the Planning Scheme or within Special Use or Public Use Zone for Service and Utility.

Figure 29 Benalla Landfill and Resource Recovery Centre. (Source: Google Earth)

Figure 30 Munitions manufacturing plant (Source: Google Earth)

3.6.4. LCZ 4: Wooded Hillsides

This LCZ comprises of the heavily vegetated elevated topography to the north of the proposal, as well as the quarry that sits within it (refer Figure 31).

This LCZ sits within close proximity to the proposal, located within the north east corner of the study area. While there is little interaction with the proposal, the hillsides are visible in the distance, with the lower, gentler slopes cleared of vegetation (refer Figure 32). The hills are also visible from the Dam Wall Hiking Trail along the western edge of Winton Wetlands (refer Figure 33).

Although the LCZ provides elevated views into the proposal there is no public access to it, and the traffic through this area is from workers in the quarry.. There are a number of different hillsides within this LCZ, with the heights ranging from 40 metres to 160 metres above the proposal's ground level.

As shown in Figure 17 a large portion of this character zone is vegetated under the same classification as the 1788's EVCs, although it is likely to be regrowth rather than remnant.

At the lower elevations of the hillsides are several unnamed watercourses, some of which are tributaries of Stockyard Creek and Winton Wetlands.

Few roads pass through this LCZ: a private access road into the quarry within the LCZ passes a nearby residence, while two other roads circumvent the hills; Old Thoona Road and Chesney Vale Road.

Within this LCZ are several areas of Aboriginal cultural sensitivity. Katamatite Creek and some elevated remnant vegetation fall under this classification.

This LCZ is typically zoned as 'Farming' under the Planning Scheme, however there are several small sections zoned as Public Conservation and Resource Zone and Rural Living Zone just to the north-east of the study area. The areas zoned Public Conservation and Resource Zone appear to be part of the Mount Meg Nature Conservation Reserve.

This LCZ can also be characterised by the Bushfire Management Overlay, as the majority of the hillsides are subject to it. This overlay follows the vegetation coverage and a small portion of it overlaps into the study area.

Figure 31 Quarry within wooded hillsides (Source: Google Earth)

Figure 32 Wooded hillsides seen in the distance, with the lower, gentler slopes cleared of vegetation (Source: AECOM)

Figure 33 View north towards the wooded hillsides from the dam wall, with the Winton Wetlands to the east (right of frame) (Source: AECOM)

3.6.5. LCZ 5: Benalla township

This LCZ comprises the Benalla central business district (CBD) and two rings of residential development surrounding it: an 'inner ring' of residential development on smaller blocks positioned on a typical grid of streets; and an 'outer ring' of residential development, with dwellings on larger lots positioned on a less structured road network bleeding into the surrounding rural agricultural landscape. The proposal lies approximately 4.5 kilometres north-east from the Benalla township CBD.

The LCZ contains a range of different land uses, including;

+ residential development;
+ central business district (CBD);
+ parks and other recreational landscapes (both public and private); and
+ cultural, education and community land uses.

Benalla township is typically flat, with the street grid lined with mature trees as shown in Figure 34. The vast majority of houses appear to be detached dwellings, although the lot size varies along the outskirts of the township.

Running through the centre of the CBD, almost perpendicular to Broken River is a commercial spine, lined with shops, restaurants, service centres and community facilities. Within this spine are predominantly attached, one storey terrace buildings utilised by retail stores in a strip mall fashion. The CBD and surrounding residential areas contain a number of painted walls and buildings which were developed as part of the 2015 'Wall to Wall' street art festival. These public artworks contribute to the overall character of the CBD and surrounds (refer Figure 35).

Public recreational facilities such as ovals and fields are offset from this spine by at least a few blocks. Broken River bisects the town in a north south direction, with some recreational land fringing the river. The Benalla Bandits Baseball Club, Benalla Pony Club and the Benalla Racecourse and Recreation Reserve lie further out of the centre of town, in the residential outskirts. Other community facilities such as schools and churches also tend to be located nearer to the outskirts of town.

Figure 34 Typical streetscape along the major road in Benalla township, east of Broken River (Source: AECOM)

Along the Broken River (within LCZ 5) there are a number of cultural facilities, including the Benalla Art Gallery (refer Figure 36) and Benalla Botanical Gardens. These contribute to the tourism industry within Benalla (refer Section 3.5) and are closely positioned to the commercial spine mentioned previously.

Benalla train station forms part of the V-Line network and is located in the north-east corner of the township, with the railway line running parallel to the commercial spine, albeit nearer to the outskirts of the township.

Although areas within the township have varying character and fall across a range of different land use zones, all are situated within the more densely populated region of Benalla and form part of the township. The township forms a distinct area of densely populated land within an otherwise open, sparsely populated, rural landscape.

Figure 35 Street art within Benalla township. (Source: Explore Australia)

Figure 36 Benalla Art Gallery (Source: Loretta Florance, ABC News)

3.6.6. LCZ 6: Waterways and Wetlands

This LCZ comprises all major waterways and waterbodies within the study area. It has been divided into three classifications;

+ natural waterways:
  - Kennedys Creek;
  - Broken River;
+ constructed waterways:
  - Stockyard Creek (drainage channel connecting to Winton Wetlands) (refer Figure 37 and Figure 38);
  - Mokoan Inlet Channel;
+ waterbodies; Wetlands and swamps:
  - Winton Wetlands (refer Figure 39); and
  - Gum Swamp.

While the proposal is within close proximity to both Winton Wetlands and Stockyard Creek, the latter sharing a property boundary with the proposal immediately south of the site.

Vegetation fringing and within these waterbodies varies. Broken River, Gum Swamp and parts of Stockyard Creek are heavily vegetated with mature trees and some understorey vegetation. Other creeks and waterways listed above have sporadic stands and individual trees. Vegetation within the Winton Wetlands is patchy and uneven. Areas within the Wetlands are devoid of trees and understorey vegetation, or feature scattered dead trees, due to the historic inundation of the landscape to create Lake Mokoan. A recent restoration project of the Winton Wetlands has begun, with juvenile trees and areas of low wetland vegetation dotted across the landscape within the dam walls.

This LCZ bisects LCZ 4: Benalla township, with the Broken River flowing through the township, contributing to the cultural landscape. The Benalla Art Gallery and Benalla Botanical Gardens lie on the banks of the river, as discussed in Section 3.6.5.

Figure 37 Drainage channel from Winton Wetlands to tributary (Stockyard Creek) (Source: AECOM)

Figure 38 View of Stockyard Creek fringed with eucalyptus woodland (Source: AECOM)

Figure 39 Winton Wetlands as seen from the Dam Wall Hiking Trail (Source: AECOM)

Waterways and waterbodies are an integral part of the local recreation and tourism network. The Mokoan Inlet Channel forms part of a recreational bike network that connects Winton Wetlands to nearby roads, providing connectivity and local amenity. Winton Wetlands is a local tourist destination, including the decorated water tank within the area, painted as part of the 'Wall to Wall' street art festival. Walkways and bike paths offer recreational opportunities within the Wetlands, with the Dam Wall Hiking Trail taking advantage of the elevated dam wall to provide visitors with viewing opportunities to the Wetlands and surrounding landscape (refer Figure 39).

This LCZ predominantly falls within the following three more specifically designated zones;

+ Public Use Zone - Service And Utility;
+ Special Use Zone - Schedule 1; and
+ Urban Floodway Zone.

Sections of this LCZ also fall within the Farming Zone and Industrial Zone 1 and are also subject to Rural Floodway overlay.

4.0
LANDSCAPE CHARACTER IMPACT ASSESSMENT

4. Landscape Character Impact Assessment

4.1. LCZ 1: Infrastructure Corridor

Anticipated change

The nearest instance of this LCZ to the proposal is the rail line which passes approximately 3kms west of the proposal site.

No changes due to the proposal fall within or directly adjacent to this LCZ.

Sensitivity

Contributing factors regarding the sensitivity of this LCZ to the proposal include:

+ The LCZ has no overall cultural values, although there are heritage items embedded within it;
+ Perceptually, this LCZ is a utilitarian landscape in that the design and placement of roads, rail and airports are predominantly based on functionality. However, there are scenic elements of this landscape, particularly in the integration of the major roadways into the landscape and particularly within the rural setting;
+ Due to the flat to gently undulating topography, changes within this LCZ are typically visually contained, provided they are relatively close to the ground;
+ The proposal is positioned far enough away from this LCZ that it is unlikely to impact the landscape character of this LCZ; and
+ Only a very small amount of this LCZ falls within the study area.

Within the above context, the sensitivity of LCZ 1 to the proposed change is considered to be **Low**.

Magnitude

The proposal falls wholly outside (and not adjacent to) this LCZ, therefore the magnitude of change is considered to be **Negligible**.

Overall Assessment

Using the landscape and visual impact assessment matrix (refer Table 2), the impact of the proposed works on LCZ 1 is therefore considered to be **Negligible**.

Table 2: Landscape and visual impact assessment matrix - LCZ 1: Infrastructure Corridor

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	**Negligible**
Negligible	Negligible	Negligible	Negligible	Negligible

4.2. LCZ 2: Rural Agricultural

Anticipated change

The proposal falls completely within this LCZ. Changes within this LCZ due to the proposal include:

+ Approximately 531,216 solar PV panels on a single-axis tracking system mounted on aluminium or steel piles.
+ Approximately 57 Power Conversion Units (PCU – Inverter buildings with hard standings).
+ Direct Current (DC) and AC cabling for electrical reticulation.
+ A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS) of up to 20MW/20MWh capacity, a control building, substation transformers, office and amenities.
+ Internal all-weather access tracks and a laydown area.
+ The creation of access to Benalla-Yarrawonga Road.
+ Landscaping.
+ Potential removal of native vegetation.
+ Security fencing, CCTV and Infra-Red lighting.
+ Business identification signage (totalling 3 m^2 (3 signs of 1 m^2 each) along Lake Mokoan Road and Benalla-Yarrawonga Road).
+ Retention of the existing high voltage power line that runs through the site
+ Realignment of easements.

Sensitivity

Contributing factors regarding the sensitivity of this LCZ to the proposal include:

+ the landscape is picturesque, and is typical of a majority of the surrounding area;
+ the landscape has cultural importance in that it is an expression of the farming activity historically conducted in the area;
+ the proposal is visually different from typical activities that have historically been conducted on this landscape, however, there are a number of 'industrial' activities that are positioned in the surrounding landscape, including timber processing and munitions manufacturing sites;
+ the proposal site is zoned Farming Zone, reflecting the farming pursuits that occur within the area; and
+ this LCZ comprises open pasture land punctuated with stands, bands and individual trees and vegetation. This, coupled with the flat to gently undulating topography, visually compartmentalises the landscape and limits the impact of change in any one area within the LCZ. Therefore local changes are somewhat visually absorbed into the landscape at a larger scale.

Within the above context, the sensitivity of LCZ 1 to the proposed change is considered to be **Moderate**.

Magnitude

Within this LCZ, the proposal comprises the addition of a feature of interest within the landscape over a moderately sized site, considering the greater extent of the LCZ. The PV solar modules are an uncharacteristic element within the LCZ however, they are 'industrial' in character and could be likened to the utilitarian elements within this landscape that make up the character of the overall LCZ, such as water tanks, silos and sheds. Livestock would be allowed to graze between the PV solar cells, which would reinforce the agricultural use of the site, regardless of the change in primary land use (refer Figure 40).

The change to the landscape would be ongoing, with the PV solar cells positioned in place for the foreseeable future.

The change would be a low profile development which visually would be recessive within the greater landscape. The PV solar cells would be positioned within a landscape visually compartmentalised by bands and stands of vegetation, to which the proposed landscape strategy responds.

As such, the magnitude of change arising from the proposed works is considered to be **Moderate**.

Overall Assessment

Using the landscape and visual impact assessment matrix (refer Table 3), the impact of the proposed works on LCZ 2 is therefore considered to be **Moderate**.

Table 3: Landscape and visual impact assessment matrix - LCZ 2: Rural Agricultural

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	**Moderate**	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

4.3. LCZ 3: Rural Industrial

Anticipated change

The nearest instances of this LCZ to the proposal are:

+ the munitions manufacturing plant approximately 1.2 kilometres south-west of the proposal site; and
+ Benalla Landfill and Resource Recovery Centre approximately 4 kilometres south-west of the proposal site.

No changes due to the proposal fall within or directly adjacent to this LCZ.

Sensitivity

Contributing factors regarding the sensitivity of this LCZ to the proposal include:

+ this LCZ is utilitarian in character, with no scenic qualities. The requirements of function of the industry undertaken at each site are the driving force behind the character of these areas;
+ there are no cultural or recreational elements within this LCZ. The sites are often highly developed, with landscape areas significantly altered from their natural state with earthworks and industrial activity; and
+ the proposal would not directly be within this LCZ, although the proposal is sited very closely to two occurrences of this LCZ.

Within the above context, the sensitivity of LCZ 3 to the proposed change is considered to be **Low.**

Magnitude

No changes occur directly within this LCZ due to the proposal. However, the proposal would effectively change the proposal site from LCZ 2: Rural Agricultural to LCZ 3: Rural Industrial. This would result in an increase in the amount of LCZ 3 within the study area, changing the overall composition and pattern of infrastructure within the landscape.

As such, the magnitude of change arising from the proposed works is considered to be **Moderate.**

Overall Assessment

Using the landscape and visual impact assessment matrix (refer Table 4), the impact of the proposed works on LCZ 3 is therefore considered to be **Moderate to Low**.

Figure 40 Livestock would be run between the PV solar panels, reinforcing the rural character of the proposal

Table 4: Landscape and visual impact assessment matrix - LCZ 3: Rural Industrial

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Low	Moderate	**Moderate to Low**	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

4.4. LCZ 4: Wooded Hillsides

Anticipated change

This LCZ is positioned approximately 1.5kms north-east of the proposal, to the north of the Winton Wetlands.

No changes due to the proposal fall within or directly adjacent to this LCZ.

Sensitivity

Contributing factors regarding the sensitivity of this LCZ to the proposal include:

+ The site is clearly visible from the surrounding, flat rural landscape, and appears as a series of wooded hillsides above a plateau. They are a source of interest within an otherwise flat landscape.
+ The hillsides have a picturesque quality, and are distinct within the landscape.
+ However, the proposal is situated a moderate distance away from this LCZ, with little possibility of impact on landscape character due to this distance.

Within the above context, the sensitivity of LCZ 4 to the proposed change is considered to be **Low**.

Magnitude

The proposal falls wholly outside (and not adjacent to) this LCZ, therefore the magnitude of change is considered to be **Negligible**.

Overall Assessment

Using the landscape and visual impact assessment matrix (refer Table 5), the impact of the proposed works on LCZ 4 is therefore considered to be **Negligible.**

Table 5: Landscape and visual impact assessment matrix - LCZ 4: Wooded Hillsides

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Low	Moderate	**Moderate to Low**	Low	**Negligible**
Negligible	Negligible	Negligible	Negligible	Negligible

4.5. LCZ 5: Benalla township

Anticipated change

The outskirts of this LCZ lies approximately 7.5kms south-west of the proposal. No changes due to the proposal fall within or directly adjacent to this LCZ.

Sensitivity

Contributing factors regarding the sensitivity of this LCZ to the proposed change include:

+ The LCZ has high cultural value, with the township of Benalla a focal point within the regional landscape. This is a community hub, with residential development radiating from the central CBD.
+ The township has inherent scenic qualities, with consistent built form and street trees fringing picturesque streets. Residential dwellings are also picturesque, some situated within heritage conservation zones within the town. Street art created for the 2015 'Wall to Wall' festival adds to the unique character of the township.
+ However, the distance of the proposal from this LCZ, coupled with the containment of the changes to a distinct site reduce the potential for the proposal to effect the character of this LCZ. This reduces the sensitivity of the LCZ substantially.
+ Within the above context, the sensitivity of the LCZ to the proposed change is considered to be **Low**.

Magnitude

The proposal falls wholly outside (and not adjacent to) this LCZ, therefore the magnitude of change is considered to be **Negligible**.

Overall Assessment

The impact of the proposed works on LCZ 5 is therefore considered to be **Negligible** (refer Table 6).

Table 6: Landscape and visual impact assessment matrix - LCZ 5: Benalla township

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	**Negligible**
Negligible	Negligible	Negligible	Negligible	Negligible

4.6. LCZ 6: Waterways and Wetlands

Anticipated change

The closest instances of this LCZ which would be impacted by the proposal are Stockland Creek, which runs adjacent to the proposal site to the south, and the Winton Wetlands, which lies directly east of the proposal site. Changes within the proposal site lie predominantly within LCZ 2: Rural Agricultural.

While no changes directly within this LCZ would occur due to the proposal, the following changes would occur adjacent to this LCZ;

+ PV solar modules mounted on steel piles;
+ centralised power conversion stations;
+ a control building including office, supervisory control, staff amenities and associated car park;
+ Internal access tracks;
+ Security fencing; and
+ Landscaping.

Sensitivity

Contributing factors regarding the sensitivity of this LCZ to the proposal include:

+ Waterways and waterbodies are subject to indigenous cultural sensitivity;
+ Winton Wetlands has historical significance for the local community as it was previously flooded to create Lake Mokoan. As discussed in Section 3.6.6 this has sparked a regeneration project that is important to the local community;
+ waterbodies, such as the Winton Wetlands (formally Lake Mokoan) are an integral part of the tourism industry within the area;
+ the changes are positioned directly adjacent or nearby two instances of this LCZ; and
+ the character of the proposal is visually different from activities that have historically been conducted within the proposal site, however, there are a number of 'industrial' activities that are positioned in the surrounding landscape, including timber processing and munitions manufacturing sites.

Within the above context, the sensitivity of LCZ 6 to the proposed change is considered to be **High.**

Magnitude

While the proposal does not physically alter this LCZ, the effects alter the setting within which this LCZ lies (the pasture land of LCZ 2: Rural Agricultural).

Adjacent to this LCZ, the proposal comprises the addition of a new, uncharacteristic feature within the landscape over a moderately sized site. However, the PV solar modules are 'industrial' in character and could be likened to the industrial, utilitarian elements that lie within the surrounding LCZ 2: Rural Agricultural, or within LCZ 3: Rural Industrial, which also lie within the study area. Livestock would be allowed to graze between the PV solar cells, which would reinforce the agricultural use of the site, regardless of the change in primary land use.

The change to the landscape would be ongoing, with the PV solar cells positioned in place for the foreseeable future.

The change would be a low profile development which visually would be recessive within the greater landscape. The PV solar cells would be positioned within a landscape visually compartmentalised by bands and stands of vegetation, to which the proposed landscape strategy responds.

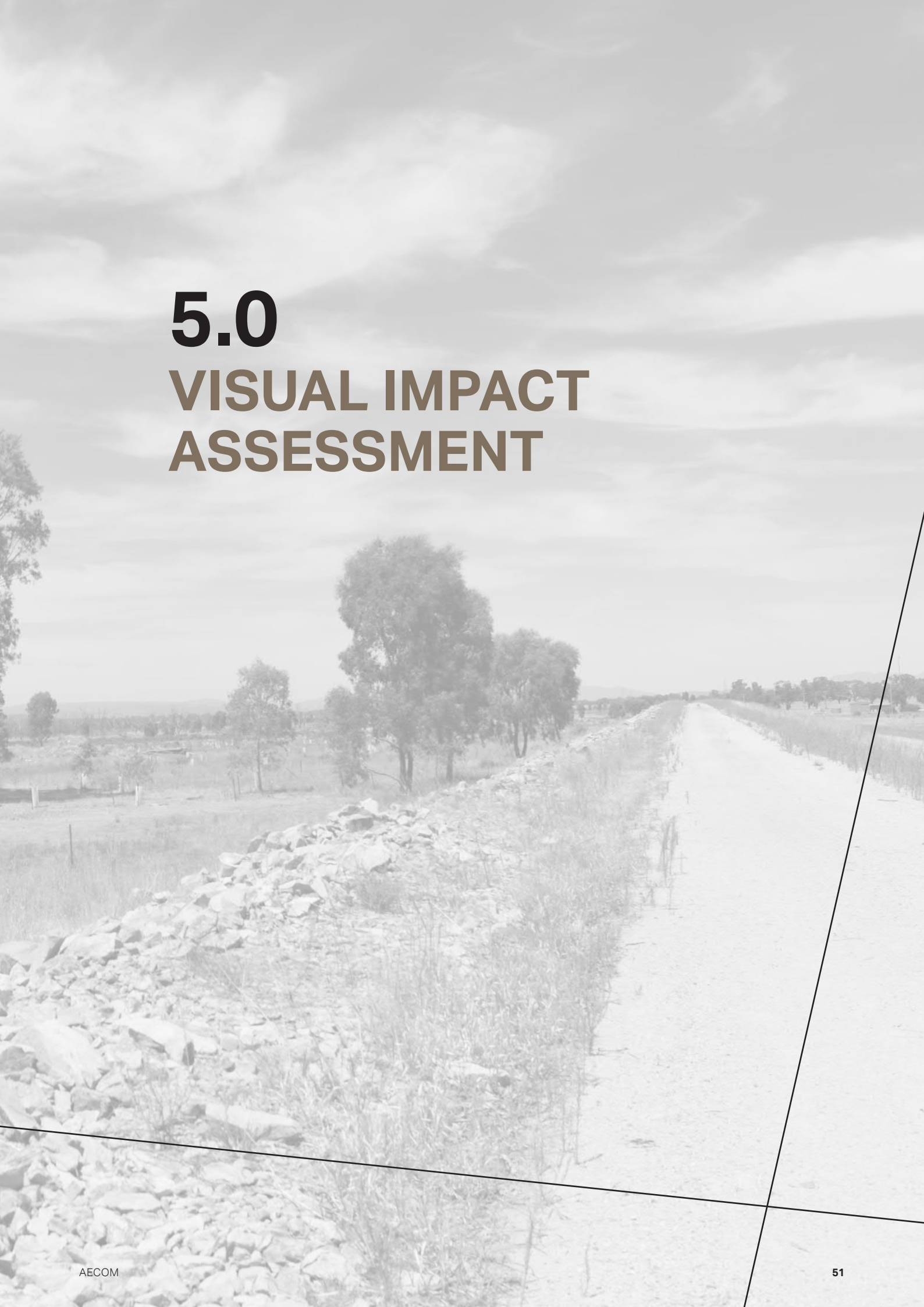
As such, the magnitude of change arising from the proposed works is considered to be **Moderate**.

Overall Assessment

The impact of the proposed works on LCZ 6 is therefore considered to be **High to Moderate** (refer Table 7).

Table 7: Landscape and visual impact assessment matrix - LCZ 6: Wetlands and Waterways

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	**High to Moderate**	Moderate	Negligible
Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible



5.0
VISUAL IMPACT ASSESSMENT

5. Visual Impact Assessment

5.1. Visibility of the Proposal

The visual envelope map (refer Figure 42) shows the theoretical area in the surrounding landscape that would receive views to the proposal if no screening structures were present in the landscape. While the visual envelope map suggests that due to the flat topography surrounding the proposal, views to the proposal could be seen from over 6kms away, the proposal would actually be more visually contained. Vegetation in the surrounding environment includes stands of paddock trees, bands of trees and shrubs along roads and property boundaries, and remnant stands of trees and fully structured vegetation along water courses. These trees and shrubs visually compartmentalise the landscape, limiting views across the paddocks to the nearest boundary, road or watercourse.

This visual containment is shown in Figure 41, where although the landscape is flat and open, the view to the distance is limited by scattered paddock trees and trees along a nearby road corridor. Vegetation associated with homesteads further visually break up the landscape and limit the extent of the views to the proposal.

5.2. Visual Receptors

Visual receptors within the surrounding landscape include:

+ travellers on local roads surrounding and traversing the proposal site, which would include local and tourist traffic, particularly considering the informal 'Silo Art Trail' passes directly through the proposal site;
+ residents in dwellings directly surrounding the proposal site;
+ workers on properties surrounding the proposal site; and
+ recreational users (walkers and bike riders) of the Dam Wall Hiking Trail to the east of the proposal, bordering the Winton Wetlands.

Figure 41 Views across the landscape are visually compartmentalised by bands and stands of trees. This image shows the view from Farnley Road looking north-east across the pasture landscape (Source: AECOM)

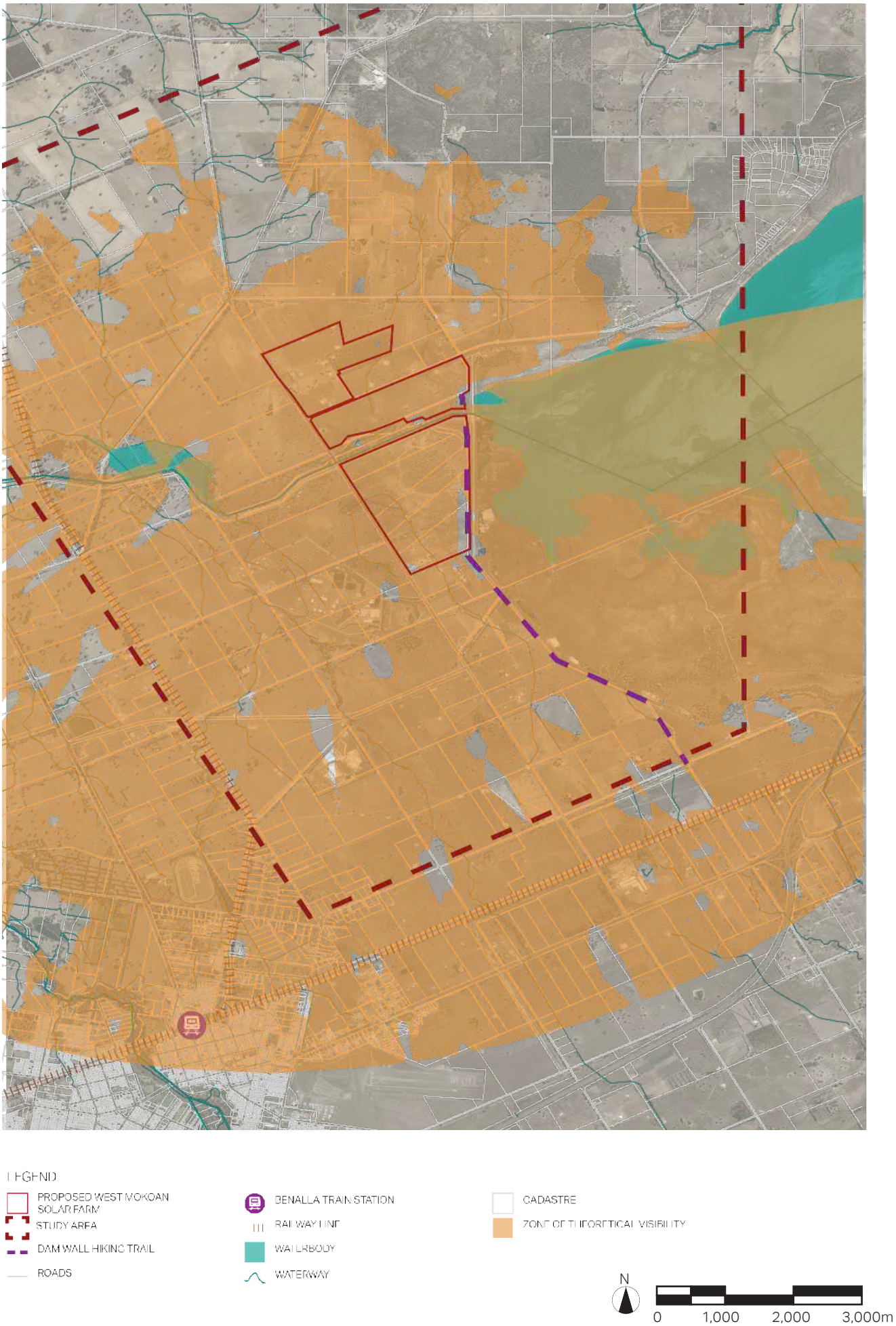


Figure 42 Area of Theoretical View of the proposal (Source: AECOM)

5.3. Assessment of Viewpoints

5.3.1. Representative Viewpoints

Eleven representative viewpoints were chosen to assess the visual impact of the proposal from the surrounding landscape (refer Figure 43). These viewpoints encompass the views seen by receptors listed in Section 5.2.

These viewpoints are as follows:

+ **Viewpoint 1: Benalla-Yarrawonga Road North**
  Approximately 1.7 km north of the intersection of Stockyard Creek and Benalla-Yarrawonga Road on Benalla-Yarrawonga Road. This viewpoint captures the view of the proposal by motorists heading south along the road, which is part of a tourist trail heading to Benalla.
+ **Viewpoint 2: Lake Mokoan Road**
  Approximately 400 metres east of the intersection of Benalla - Yarrawonga Road and Lake Mokoan Road, heading east. This viewpoint captures the view of the proposal from within the site, heading towards the dam wall of the Winton Wetlands.
+ **Viewpoint 3: Benalla-Yarrawonga Road Mid**
  Approximately 125 metres north of the intersection of Stockyard Creek and Benalla-Yarrawonga Road on Benalla-Yarrawonga Road. This viewpoint captures the view of the proposal by motorists heading north along the road, which is part of a tourist trail heading to Benalla and also captures the Stockyard Creek corridor crossing Benalla-Yarrawonga Road.
+ **Viewpoint 4: Benalla-Yarrawonga Road South**
  Approximately 1.2 kilometres south of Stockyard Creek on Benalla-Yarrawonga Road. This viewpoint captures the view of the proposal heading north along the road, which is part of a tourist trail heading back to Benalla and also captures the approximate view seen by residents in a dwelling at this location.
+ **Viewpoint 5: South Eastern Proposal Boundary**
  Located on the Dam Wall at the south eastern corner of the proposal. Captures view seen from the dam wall, as well as approximating the view seen from the private residence to the south of the southern boundary of the proposal.
+ **Viewpoint 6: Dam Wall Hiking Trail South**
  On the Dam Wall Hiking Trail, approximately 800 metres south of the spillway, adjacent to the eastern boundary of the site. This viewpoint captures the view from a hiking trail to the proposal.
+ **Viewpoint 7: Dam Wall Hiking Trail Mid**
  On the Dam Wall Hiking Trail, just north of the spillway, on the eastern boundary of the site near Stockyard Creek. This viewpoint captures the view from a hiking trail to the proposal.
+ **Viewpoint 8: Dam Wall Hiking Trail North**
  On the Dam Wall Hiking Trail, just south of the entry point to the trail, on a north-east corner of the site. Captures the view from a hiking trail to the proposal
+ **Viewpoint 9: Farnley Road East**
  Approximately 450 metres north of the intersection of Farnley Road and Lake Mokoan Road. Captures view seen from a private residence on Farnley Road, looking west towards the proposal
+ **Viewpoint 10: Farnley Road North**
  Approximately 1.2kms east of the intersection of Farnley Road and Benalla-Yarrawonga Road, opposite the driveway to a private residence. This viewpoint captures the approximate view seen by residents looking south towards the proposal.
+ **Viewpoint 11: 81 Lake Mokoan Road**
  On the northern boundary of the proposal on Lake Mokoan Road looking south. This viewpoint captures the approximate view seen by residents looking south towards the proposal and travellers on the road.

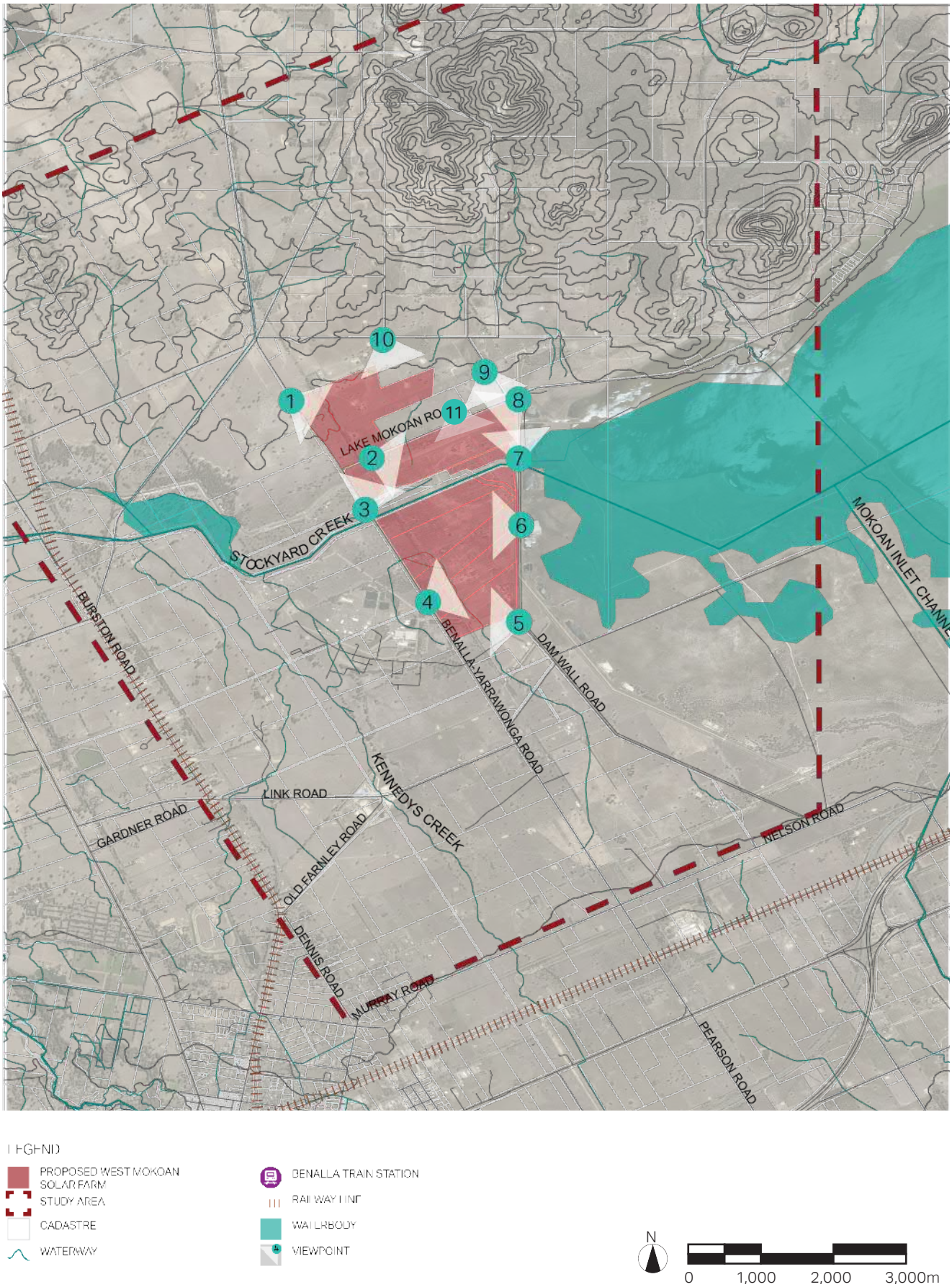


Figure 43 Representative viewpoints selected to assess visual impact of the proposal (Source: AECOM)

5.3.2. Viewpoint 1: Benalla-Yarrawonga Road North

This viewpoint assesses the changes to views due to the proposal seen by motorists travelling south towards the proposal along Benalla-Yarrawonga Road (refer Figure 44).

Receptors

From this location, receptors seeing the view to the proposal would include:

+ travellers on Benalla-Yarrawonga Road heading south-east along the road; and
+ workers on this property and other nearby properties with a similar proximity to the proposal at this location.

Existing view

The viewpoint has been positioned at the north-western corner of the proposal site on Benalla-Yarrawonga Road, heading south-east.

The foreground of the view from this viewpoint looking south-east is dominated by the road and verge of Benalla-Yarrawonga Road, and the post and wire boundary fencing of the proposal site (refer Figure 45).

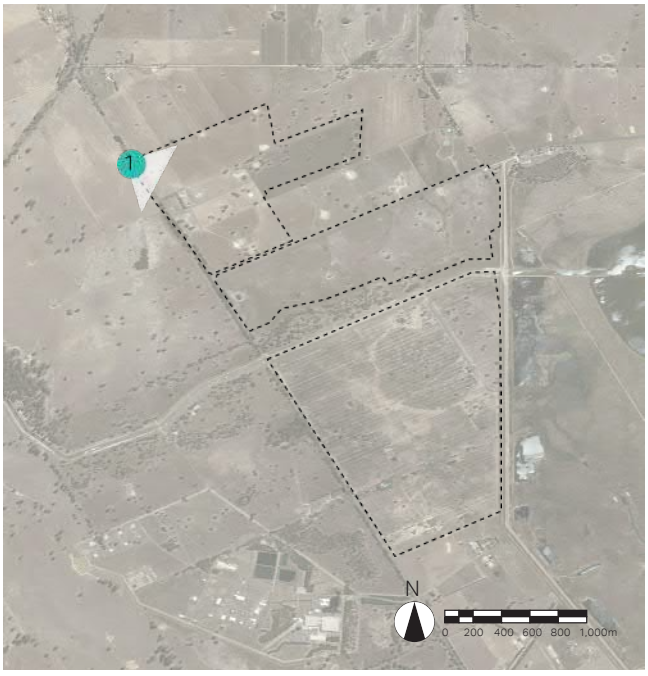


Figure 44 Key plan showing the location of Viewpoint 1 at the north western corner of the proposal (Source: AECOM)

Wide, brown paddocks dominate the middleground of the view, with stands of paddock trees and livestock scattered throughout. Paddock trees and trees planted on internal boundaries visually compartmentalise the view, with the horizon terminating in bands of darker eucalypt vegetation. An electricity easement passes through the site, with the tall stanchions seen in the middle to background of the view.

The background of the view includes a long, dark line of vegetation, comprising paddock trees and vegetation along paddock boundaries and watercourses. The low hills to the north east of the proposal site can be seen to the right of frame of Figure 45.

Travellers along Benalla-Yarrawonga travelling both north and south along the road and tourists travelling north along the Silo Art Trail obtain unobstructed views into the proposal site from this location.

Residents and workers travelling past this viewpoint would include those from the nearby industrial facilities and others travelling from nearby work sites, would obtain unobstructed views to the proposal while travelling along the road.

Sensitivity

Contributing factors regarding the sensitivity of the view from this location include:

+ This view would be clearly seen by receptors travelling along Benalla-Yarrawonga Road. This road would be used predominantly by local residents and workers, but also by a number of tourists travelling along the Silo Art Trail. Tourists would be a more sensitive receptor group as their enjoyment of the activity of driving is somewhat based on the quality of the view to the landscape;
+ A high number of receptors are anticipated at this viewpoint due to the amount of traffic on Benalla-Yarrawonga Road; and
+ There are no heritage listed items within the view from this location, although the vegetation around Stockyard Creek can potentially be seen from this viewpoint when looking south along the road corridor, and is a culturally sensitive area.

For these reasons, the sensitivity of the view from this location is assessed as **Moderate**. The more sensitive receptors in the immediate area surrounding the viewpoint are tourists travelling along the Silo Art Trail.

Figure 45 The view looking south-east from Benalla-Yarrawonga Road towards the proposal site (Source: AECOM)

Figure 46 Photomontage showing the proposed solar farm with no landscaping seen from the viewpoint (Source: AECOM)

Figure 47 Photomontage showing the proposed solar farm with landscaping seen from the viewpoint (Source: AECOM)

Anticipated change in view

Key features of the proposal visible from this location include (refer Figure 46 and Figure 47):

+ PV solar modules;
+ Internal all-weather access tracks;
+ security fencing surrounding the site; and
+ landscaping.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up much of the view from this viewpoint to the south-east (including the part of the foreground and middleground) and be situated within close proximity from the receptors as they pass the site;
+ The proposal would result in a series of new elements within the surrounding landscape, including security fencing, perimeter landscaping and PV solar modules. This is in contrast to the existing views to open rural, agricultural land. However, there are other industrial processes in the immediate area and as such, the proposal fits with the industrial, utilitarian character of the surrounding area and the proposed landscaping surrounding the site would be similar in character to that existing within the road corridor;
+ The proposal comprises low profile elements, with the tallest structures reaching 4 metres at their tallest (PV solar modules). These structures would be visible within the landscaped bands of vegetation, but not visible beyond that;
+ Most passers by would obtain close views of the proposal as they travelled along Benalla-Yarrawonga Road; and
+ A high number of motorists are expected along Benalla-Yarrawonga Road.

Due to the above, the magnitude of change for this viewpoint has been assessed as **Moderate.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 8), the overall visual impact of the proposal at this viewpoint would be **Moderate**.

Table 8: Landscape and visual impact assessment matrix - Viewpoint 1: Murray Road South-West

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	**Moderate**	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.3.3. Viewpoint 2: Lake Mokoan Road

This viewpoint assesses the change in view from Lake Mokoan Road, which passes through the proposal heading to the Winton Wetlands. The viewpoint is approximately 400 metres east of the intersection of Benalla-Yarrawonga Road and Lake Mokoan Road and looks east along the road corridor with the proposal on either side (refer Figure 48 and Figure 49).

Receptors

From this location, travellers on Lake Mokoan Road (including local residents, workers and tourists) heading east and west along the road would be the only receptor group.

Existing view

This viewpoint has been taken from the northern verge of Lake Mokoan Road, approximately 400 metres from Benalla-Yarrawonga Road (refer Figure 48).

The foreground of the view from this location includes the road itself, the sloping gravel verge with pasture grass, and the fence line that delineates the property boundary comprising a typical post and wire fence, with paddocks beyond. No trees or shrubs line the road at this location.

The middle-ground of the view predominantly compromises grazing land, with paddocks separated by post and wire fences. Occasional paddock trees are scattered throughout the paddocks, and a high voltage transmission easement runs through the paddocks, with stanchions and wires seen within the view.

The view culminates in a dark band of trees, particularly those seen to the right of frame in Figure 49, which are the trees associated with the Stockyard Creek corridor.

To the left of frame, low hillsides can be seen in the distance, with the lower slopes vegetated with brown paddock grass, and the upper slopes with darker trees and shrubs.

Travellers on Lake Mokoan Road (including tourists, residents and local workers) receive unobstructed views to the site when heading both east and west along the road corridor at this location on either side of the road.

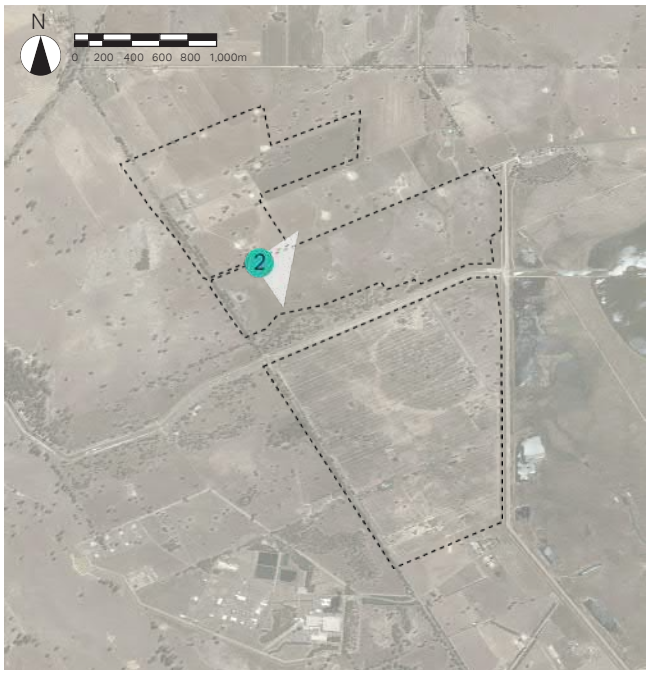


Figure 48 Key plan showing the location of Viewpoint 2 on Lake Mokoan Road approximately 400 metres east of the intersection with Benalla-Yarrawonga Road (Source: AECOM)

Figure 49 The view from Lake Mokoan Road approximately 400 metres east of the intersection looking east within the proposal site (Source: AECOM)

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be clearly seen by receptors travelling along Lake Mokoan Road. This road would be used by local residents and workers, but also by a number of tourists travelling along the Silo Art Trail. Tourists would also use this route to access the beginning of the Dam Wall Hiking Trail, which has a car parking area just east of the project at the northern end of the dam wall. Tourists would be a more sensitive receptor group as their enjoyment of the activity of driving is somewhat based on the quality of the view to the landscape;
+ A high to moderate number of receptors are anticipated at this viewpoint due to the tourist attractions that are accessed by this road; and
+ There are no heritage listed items within the view from this location, although the vegetation around Stockyard Creek can be seen from this viewpoint when looking south along the road corridor, and is a culturally sensitive area.

For these reasons, the sensitivity of the view from this location is assessed as **Moderate**. The more sensitive receptors in the immediate area surrounding the viewpoint are tourists travelling along the Silo Art Trail or to the Dam Wall Hiking Trail.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules would be seen to the north, south and west from this location;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ A designated substation and operations and management facility (O&M) facility area that includes a substation, a Battery Storage Facility / Energy Storage System (ESS), a control building, substation transformers, office and amenities;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing; and
+ Landscaping.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up the entirety of the view for this viewpoint and be situated within a close proximity, extending from the fore to middleground of the view;
+ The proposal would result in a series of new elements within the surrounding landscape, including tall security fencing on either side of the road, PV solar modules and a series of built elements including a substation, which is in contrast to the existing open rural, agricultural land. However, there are other industrial processes in the surrounding area and as such, the proposal fits with the pockets of industrial, utilitarian character within the surrounding landscape;
+ All passers by would obtain close-up, uninterrupted views of the proposal on either side of the road as they travelled along Lake Mokoan Road at that location, reducing to the proposal seen on the southern side of the road east of the high voltage electricity easement; and
+ A moderate number of motorists are expected along the road.

Due to the above, the magnitude of change for this viewpoint has been assessed as **High.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 9), the overall visual impact of the proposal at this viewpoint would be **High to Moderate.**

Table 9: Landscape and visual impact assessment matrix - Viewpoint 1: Murray Road South-West

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High to Moderate	Moderate	Negligible
	Moderate	**High to Moderate**	Moderate	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

5.3.4. Viewpoint 3: Benalla-Yarrawonga Road Mid

This viewpoint assesses the changes to views due to the proposal from the local workers and residents travelling north along Benalla-Yarrawonga Road as well as tourists travelling north along the Silo Art Trail. The viewpoint also captures the creek corridor crossing the road. Located on Benalla-Yarrawonga Road, the viewpoint is approximately 125 metres north of where it intersects with Stockyard Creek (refer Figure 50).

Stockyard Creek is channelised from the dam wall at the western end of the Winton Wetlands, however an informal drainage corridor lies within a band of vegetation to the north of the channelised creek.

Receptors

From this location, receptors seeing the view to the proposal would include:

+ travellers along Benalla-Yarrawonga heading north along the road, including tourists travelling along the Silo Art Trail; and
+ workers on nearby properties with a similar proximity to the proposal at this location.

Existing view

The viewpoint is positioned at the intersection of Benalla-Yarrawonga Road and an informal drainage corridor associated with Stockyard Creek, which crosses the road corridor via culvert under the road. This view looks north east into the proposal site as well as north along the road corridor (refer Figure 50 and Figure 51).

The foreground of the view looking north east comprises the road verge and property boundary, which is dotted with trees and fenced with a post and wire fence. To the east is a band of vegetation comprising scattered trees with some shrubs (refer Figure 52), which lies to the north of the Stockyard Creek itself, which is not visible from this location. Within the vegetation band is an informal drainage corridor which passes under the road in a culvert.

The middle ground of the view looking north east comprises flat, open paddocks with dry brown grasses separated by post and wire fences, with occasional scattered paddock trees comprising predominantly of eucalypts.

In the background of the view, darker bands of trees are seen on the lower ground plane, with localised hillsides rising above them. The lower bands of tree vegetation are made up of the vegetation scattered along boundary fences, road corridors, and within paddocks. These appear as a band when they are scattered throughout the landscape.

Travellers along Benalla-Yarrawonga heading north along the road and tourists travelling north along the Silo Art Trail get views into the site framed within roadside tree clumps.

Workers within nearby properties would get views to the proposal site at least partially screened by roadside vegetation, but in some areas completely screened by trees and shrubs.

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by receptors travelling north along Benalla-Yarrawonga Road. This road would be used by local residents and workers, but also by a number of tourists travelling along the Silo Art Trail. Tourists would be a more sensitive receptor group as their enjoyment of the activity of driving is somewhat based on the quality of the view to the landscape;
+ A high number of receptors are anticipated at this viewpoint due to the tourist attractions that are accessed by this road, as well as local traffic;
+ Workers in nearby properties would have at least partially screened views to the proposal, although workers are typically not a sensitive receptor group as their attention is anticipated to be focused on their daily tasks; and
+ Views to a culturally sensitive area (Stockyard Creek and surrounding vegetation corridors) are seen from this location.

For these reasons, the sensitivity of the view from this location is assessed as **Moderate**. The more sensitive receptors in the immediate area surrounding the viewpoint are the tourists following the Silo Art Trail, as the experience of travelling is somewhat dependant on the quality of the surrounding landscape.

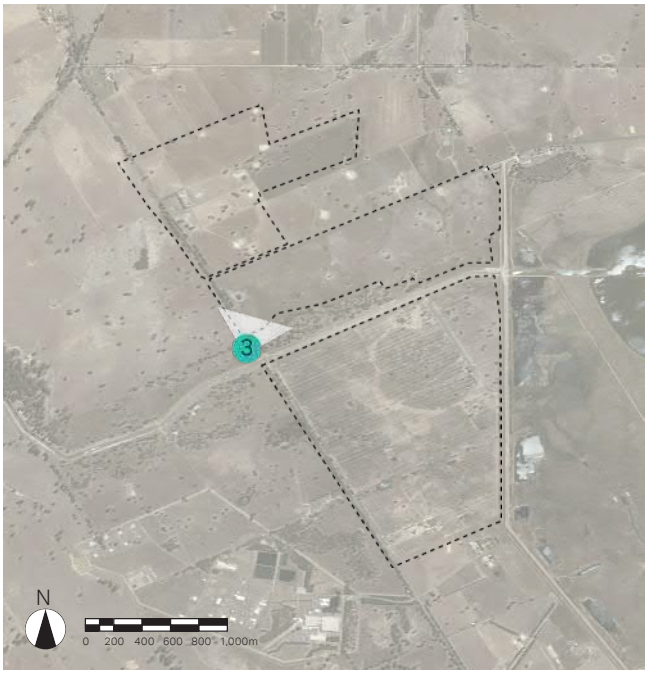


Figure 50 Key plan showing the location of Viewpoint 3: at the Benalla-Yarrawonga and Murray Road intersection (Source: AECOM)

Figure 51 View looking north east from the western edge of the proposal where the site boundary meets Stockyard Creek (Source: AECOM)

Figure 52 View of the vegetation lining Stockyard Creek (Source: AECOM)

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ A designated substation and operations and management facility (O&M) facility area that includes a substation, a Battery Storage Facility / Energy Storage System (ESS), a control building, substation transformers, office and amenities;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing; and
+ Landscaping.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up only a proportion of the view to the north-east, seen to the east of the road corridor and partly screened by roadside vegetation;
+ The view to the proposal would be seen from close proximity, extending from the middle-ground to the north-east; and
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace. However, there are other industrial and infrastructure projects seen in the surrounding area and as such, the proposal is more likely to be absorbed into the landscape.

Due to the above, the magnitude of change for this viewpoint has been assessed as **Moderate.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 10), the overall visual impact of the proposal at this viewpoint would be **Moderate**.

Table 10: Landscape and visual impact assessment matrix - Viewpoint 3: Benalla-Yarrawonga Road Mid

		Magnitude				
		High	Moderate	Low	Negligible
Sensitivity	High	High	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	**Moderate**	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

5.3.5. Viewpoint 4: Benalla-Yarrawonga Road South

This viewpoint assesses the changes to views due to the proposal from the local workers and residents travelling north along Benalla-Yarrawonga Road as well as tourists travelling north on the Silo Art Trail. The viewpoint also captures the approximate view seen by neighbouring residential receptors. The viewpoint is approximately 1.2 kilometres south of the intersection of Benalla-Yarrawonga road and Stockyard Creek (refer Figure 53).

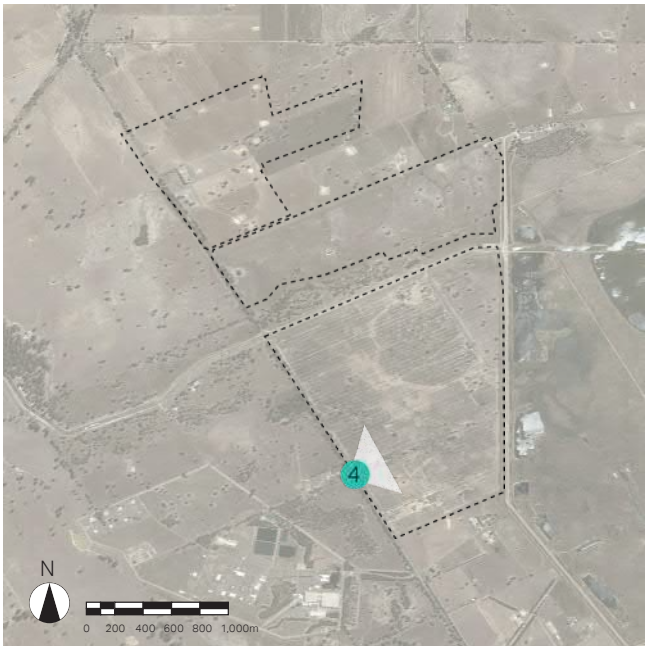


Figure 53 Key plan showing the location of Viewpoint 4 (Source: AECOM)

Receptors

From this location receptors would include:

+ travellers heading north on Benalla-Yarrawonga Road, including tourists travelling on the Silo Art Trail;
+ Residents in neighbouring properties; and
+ workers on nearby properties with a similar proximity to the proposal at this location.

Existing view

The viewpoint is positioned on Benalla-Yarrawonga Road approximately 1.2 kilometres south of Stockyard Creek. This view looks north east from the road into the proposal site as well as north along the road corridor (refer Figure 54).

The foreground of the view looking north east comprises the road corridor, verges and property boundaries, to the east the verge is dotted with a single band of irregularly spaced trees and secured with a post and wire fence. The western verge of the road is lined with a wider band of mature eucalypt canopy vegetation, with an unsealed driveway to the left of frame.

The middle ground of the view looking north east comprises flat, open paddocks with paddock grasses with occasional scattered paddock trees comprising predominantly of eucalypts.

Figure 54 View looking north east from Benalla-Yarrawonga Road across the proposal site (Source: AECOM)

In the background of the view, localised hillsides are seen rising behind the paddocks in the middle ground. These are often heavily vegetated with dark eucalypt forest and woodland, with others partially cleared and vegetated with occasional trees scattered throughout grassland.

Travellers along Benalla-Yarrawonga heading north along the road and tourists travelling north along the Silo Art Trail and on the way to the Winton Wetlands get views into the site which are sometimes partly screened or framed within roadside tree clumps and bands.

Workers within nearby properties would get views to the proposal site at least partially screened by roadside vegetation both within their properties and surrounding the proposal site, but in some areas completely screened by trees and shrubs.

Residents in a nearby homestead would get views to the proposal which would be partially to fully screened from their residence due to boundary vegetation and vegetation surrounding their house.

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by receptors travelling north along Benalla-Yarrawonga Road. This road would be used by local residents and workers, but also by a number of tourists travelling along the Silo Art Trail or to visit the Winton Wetlands. Tourists would be a more sensitive receptor group as their enjoyment of the activity of driving is somewhat based on the quality of the view to the landscape;
+ A high number of receptors are anticipated at this viewpoint due to the tourist attractions that are accessed by this road, as well as local traffic;
+ There is a nearby residence to this viewpoint. Residents are typically a sensitive receptor group due to proprietary interest in views from their properties, however, there are a low number of residential receptors at this location; and
+ Workers in nearby properties would have at least partially screened views to the proposal, although workers are typically not a sensitive receptor group as their attention is anticipated to be focused on their daily tasks.

For these reasons, the sensitivity of the view from this location is assessed as **Moderate**. The more sensitive receptors in the immediate area surrounding the viewpoint are the tourists following the Silo Art Trail or heading to the Winton Wetlands and nearby residents.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing; and
+ Landscaping.

It is unlikely that the substation and O&M facility area would be seen from this location.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up a large proportion of the view to the east, seen to the east of the road corridor and partly screened by roadside vegetation;
+ The view to the proposal would be seen from close proximity, extending from the middle-ground to the east;
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace, however, the landscaping surrounding the proposal would be consistent with existing screening vegetation lining the road, lessening the impact of the proposal; and
+ The changes would be long term.

Due to the above, the magnitude of change for this viewpoint has been assessed as **Moderate.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 11), the overall visual impact of the proposal at this viewpoint would be **Moderate**.

Table 11: Landscape and visual impact assessment matrix - Viewpoint 4: Benalla-Yarrawonga Road South

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	**Moderate**	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.3.6. Viewpoint 5: South Eastern Proposal Boundary

This viewpoint assesses the changes to views due to the proposal from the Dam Wall Hiking Trail approximately 2 kilometres south of the spillway (refer Figure 55). This location captures views to the proposal from the hiking trail to the west, but also from a nearby residence approximately 180 metres south of the southern boundary of the proposal.

Receptors

From this location receptors would include:

+ users of the Dam Wall Hiking Trail (including walkers and cyclists) heading north along the train;
+ workers maintaining the Dam Wall Hiking Trail; and
+ residents in the nearby residence.

Existing view

The foreground of the view from this location comprises the Dam Wall Hiking Trail the banks of the dam wall dropping to the ground level of the surrounding landscape to the east and west (refer Figure 56).

The view to the west (towards the proposal) comprises flat grassed paddocks in the fore and middle ground, punctuated with occasional paddock trees and electrical stanchions associated with the high voltage electrical easement. A maintenance track runs parallel to the dam wall.

A residence is seen in the middle ground, with a single storey dwelling surrounded by mature trees within an inner yard surrounding the immediate house. The southern boundary of the proposal comprises a post and wire fence.

A thin, dark band of trees are seen on the horizon, which are a culmination of all paddock trees, vegetation lining road corridors, and ultimately vegetation lining Broken River.

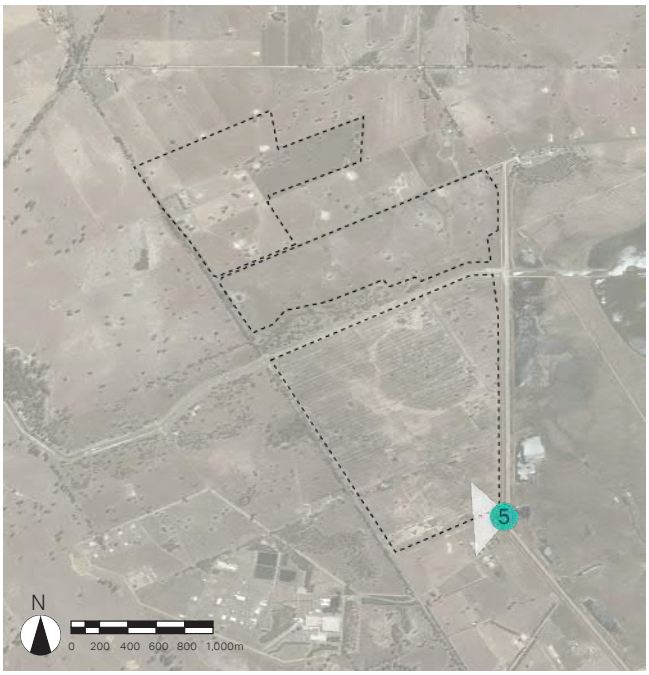


Figure 55 Key plan showing the location of Viewpoint 5 (Source: AECOM)

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by locals and tourists using the Dam Wall Hiking Trail. Recreational users of public spaces are a sensitive receptor group, as the enjoyment of outdoor activity is somewhat reliant on the quality of the landscape within the greater view;
+ There is a nearby residence to this viewpoint. Residents are typically a sensitive receptor group due to proprietary interest in views from their properties, however, there are a low number of residential receptors at this location (one house), but it is positioned close to the proposal;
+ A clear, unobstructed view to the proposal would be seen from this viewpoint. This view would be seen from a reasonably close distance and from an elevated position;
+ Winton Wetlands, a site of cultural significance, is visible from this viewpoint (but in the opposite direction) and plays a crucial role in the view, as it is one of the primary reasons for walking along the trail; and
+ A moderate to low number of receptors would see the view from this viewpoint.

Workers maintaining the dam wall would not be a sensitive receptor group as their attention would be focussed on their daily tasks rather than the quality of the view, and there would only be a low number of these receptors anticipated.

Due to the recreational receptors using the dam wall, the sensitivity of the view from this location is assessed as **High**.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing; and
+ Landscaping.

It is unlikely that the substation and O&M facility area would be seen from this location.

Figure 56 View looking west from the dam wall to the proposal site (right of frame) and existing residence (left of frame) (Source: AECOM)

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up a large portion of the view to the west;
+ The view to the proposal would be seen from close proximity, both from the dam wall and from the nearby residence; and
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace.

Due to the above, the magnitude of change for this viewpoint has been assessed as **High.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 12), the overall visual impact of the proposal at this viewpoint would be **High.**

Table 12: Landscape and visual impact assessment matrix - Viewpoint 5: South Eastern Proposal Boundary

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	**High**	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.3.7. Viewpoint 6: Dam Wall Hiking Trail South

This viewpoint assesses the changes to views due to the proposal from the Dam Wall Hiking Trail approximately 800 metres south of the spillway (refer Figure 57). This location captures views to the proposal from the hiking trail to the west.

The trail is a popular tourist attraction, with the nearby Mokoan Hub and Cafe offering bike hire to cycle the 7.7 kilometres dam wall track.

Receptors

From this location receptors would include:

+ users of the Dam Wall Hiking Trail (including walkers and cyclists) heading north along the train; and
+ workers maintaining the Dam Wall Hiking Trail.

Existing view

The foreground of the view from this location comprises the Dam Wall Hiking Trail the banks of the dam wall dropping to the ground level of the surrounding landscape to the east and west (refer Figure 58). The trail itself is a flat gravel path approximately 5 metres wide with a steep embankment on either side.

The elevated view from the dam wall to the surrounding landscape seen in the middle to background differs on either side of the dam wall. To the west (towards the proposal), flat grassed paddocks are visible, punctuated with occasional paddock trees. A maintenance track runs parallel to the dam wall. A thin, dark band of trees are seen on the horizon, which are a culmination of all paddock trees, vegetation lining road corridors, and ultimately vegetation lining Broken River (refer Figure 59).

To the east, the Winton Wetlands are seen in the middle to background. The Wetlands are visible as fragmented stands of vegetation and occasional pools of water fringed with grasses and reeds. Stands of dead trees are scattered across the Wetlands from when the area was flooded.

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by locals and tourists using the Dam Wall Hiking Trail. Recreational users of public spaces are a sensitive receptor group, as the enjoyment of outdoor activity is somewhat reliant on the quality of the landscape within the greater view;
+ A clear, unobstructed view to the proposal would be seen from this viewpoint. This view would be seen from a reasonably close distance and from an elevated position;

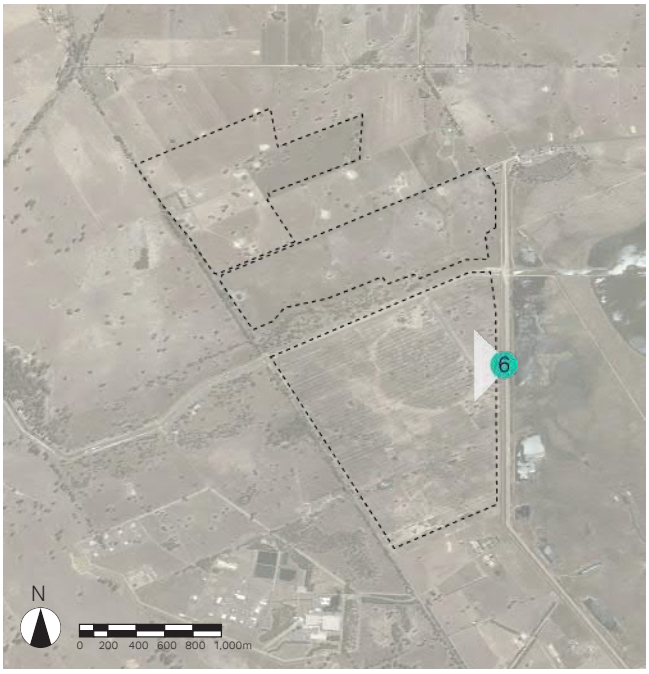


Figure 57 Key plan showing the location of Viewpoint 6 (Source: AECOM)

Figure 58 View looking north along the Dam Wall Hiking Trail (Source: AECOM)

Figure 59 The view looking west from the Dam Wall Hiking Track towards the proposal site (Source: AECOM)

Figure 60 Photomontage showing the proposed solar farm with no landscaping seen from the viewpoint (Source: AECOM)

Figure 61 Photomontage showing the proposed solar farm with landscaping seen from the viewpoint (Source: AECOM)

+ Winton Wetlands, a site of cultural significance, is visible from this viewpoint and plays a crucial role in the view as it is one of the primary reasons for walking along the trail; and
+ A moderate to low number of receptors would see the view from this viewpoint.

Workers maintaining the dam wall would not be a sensitive receptor group as their attention would be focussed on their daily tasks rather than the quality of the view, and there would only be a low number of these receptors anticipated.

Due to the recreational receptors using the dam wall, the sensitivity of the view from this location is assessed as **High**.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing;
+ Tree removal; and
+ Landscaping.

It is unlikely that the substation and O&M facility area would be seen from this location.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up a large portion of the view to the west;
+ The view to the proposal would be seen from close proximity; and
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace.

Due to the above, the magnitude of change for this viewpoint has been assessed as **High.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 13), the overall visual impact of the proposal at this viewpoint would be **High.**

Table 13: Landscape and visual impact assessment matrix - Viewpoint 6: Dam Wall Hiking Trail South

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	**High**	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

5.3.8. Viewpoint 7: Dam Wall Hiking Trail Mid

This viewpoint assesses the changes to views due to the proposal from the Dam Wall Hiking Trail, on the northern side of the spillway (refer Figure 62 and Figure 63). This location captures views to the proposal from the hiking trail to the west and north-west.

The trail is a popular tourist attraction, with the Mokoan Hub and Cafe offering bike hire to cycle the 7.7 kilometres dam wall track.

Receptors

From this location receptors would include:

+ users of the Dam Wall Hiking Trail (including walkers and cyclists) heading north along the train; and
+ workers maintaining the Dam Wall Hiking Trail.

Existing view

The foreground of the view from this location comprises the Dam Wall Hiking Trail heading in a northerly direction and the banks of the dam wall dropping to the ground level of the surrounding landscape to the east and west. The trail itself is a wide flat gravel path approximately 5 metres wide with a steep grassed embankment on either side (refer Figure 64).

The elevated view from the dam wall to the surrounding landscape seen in the middle to background differs on either side of the dam wall. To the north west (towards the proposal site), flat fields of grass are visible, punctuated with occasional paddock trees. Linear bands of scattered trees can be seen lining roads and along property boundaries. A maintenance track runs parallel to the dam wall.

To the north east, the Winton Wetlands are seen in the middle to background. The Wetlands are visible as fragmented stands of vegetation and occasional pools of water fringed with grasses and reeds.

Stands of dead trees are scattered across the Wetlands from when the area was flooded.

On the horizon a low bank of hills is seen to the north and north east. These hills are cleared on the lower slopes and the western side, and wooded on the eastern side and the upper slopes and crest.

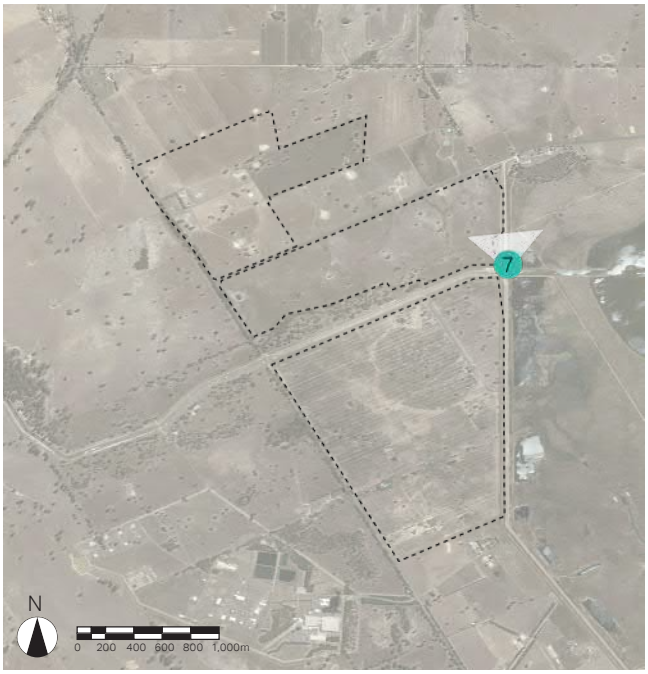


Figure 62 Key plan showing the location of Viewpoint 7 the just north of the spillway in the south east corner of the site
(Source: AECOM)

Figure 63 The hiking trail continues over the spillway heading south along the wall
(Source: AECOM)

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by locals and tourists using the Dam Wall Hiking Trail. Recreational users of public spaces are a sensitive receptor group, as the enjoyment of outdoor activity is somewhat reliant on the quality of the landscape within the greater view;
+ A clear, unobstructed view to the proposal is anticipated from this viewpoint. This view would be seen from a reasonably close distance (approximately 250m) and from an elevated position;
+ Winton Wetlands, a site of cultural significance, is visible from this viewpoint and plays a crucial role in the view, as it is one of the primary reasons for walking along the trail; and
+ A moderate to low number of receptors would see the view from this viewpoint.

Workers maintaining the dam wall would not be a sensitive receptor group as their attention would be focussed on their daily tasks rather than the quality of the view, and there would only be a low number of these receptors anticipated.

Due to the recreational receptors using the dam wall, the sensitivity of the view from this location is assessed as **High**.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS), a control building, substation transformers, office and amenities;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing; and

Figure 64 View from Dam Wall Hiking Trail looking north towards the proposal (Source: AECOM)

+ Landscaping.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up a moderate portion of the view to the north-west, eventually taking up approximately 50% of the view to the west and north west as the hikers or cyclists moved north along the hiking trail;
+ The view to the proposal would be seen from close proximity, about 250 metres from this viewpoint, but from approximately 100 metres to the west from the Dam Wall Hiking Trail as the receptor moves north along the trail; and
+ The proposal would comprise a new series of elements within the flat rural, agricultural land.

Due to the above, the magnitude of change for this viewpoint has been assessed as **High.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 14), the overall visual impact of the proposal at this viewpoint would be **High.**

Table 14: Landscape and visual impact assessment matrix - Viewpoint 7: Dam Wall Hiking Trail Mid

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	**High**	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

5.3.9. Viewpoint 8: Dam Wall Hiking Trail North

This viewpoint assesses the changes to views due to the proposal from the northern end of the Dam Wall Hiking Trail heading south west. The viewpoint is positioned approximately 90 metres from the car park on Lake Mokoan Road (refer Figure 65).

Receptors

From this location receptors would include:

+ users of the Dam Wall Hiking Trail (including walkers and cyclists) heading north along the train; and
+ workers maintaining the Dam Wall Hiking Trail.

Existing view

The foreground of the view from this location comprises the Dam Wall Hiking Trail, edged with sandstone boulders (refer Figure 66) as the path turns the corner from the ramp from the carpark to the east, to the main length of the dam wall, heading south west. The banks of the dam wall drop to the ground level of the surrounding landscape to the east and west. The trail itself is a wide flat gravel path approximately 5 metres wide with a steep grassed embankment on either side.

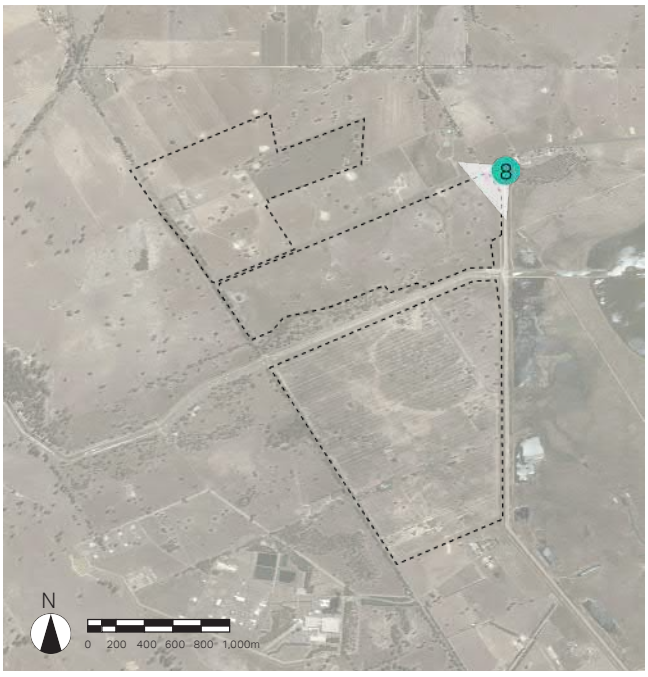


Figure 65 Key plan showing the location of Viewpoint 8 near the north east corner of the proposal along the Dam Wall Hiking Trail (Source: AECOM)

The view to the surrounding landscape is elevated from the dam wall. To the west, flat fields of grass are visible, punctuated with occasional paddock trees and shrubs. Linear bands of scattered trees can be seen lining roads and along property boundaries. A maintenance track runs parallel to the dam wall in a southerly direction, and Lake Mokoan Road and an unsealed driveway run parallel to one another, seen to the west of the viewpoint (refer Figure 66).

On the horizon to the north west the land rises to the north, building up to a low bank of hills just out of frame of Figure 66. Trees seen in the background of the view comprise a collection of paddock trees and the trees and shrubs associated with boundary plantings and along roads.

To the east (at the receptors back from this location), on the eastern side of the dam wall lie the Winton Wetlands, which visually comprise fragmented stands of vegetation and occasional pools of water fringed with grasses and reeds. Stands of dead trees are scattered across the Wetlands from when the area was flooded.

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by locals and tourists using the Dam Wall Hiking Trail. Recreational users of public spaces are a sensitive receptor group, as the enjoyment of outdoor activity is somewhat reliant on the quality of the landscape within the greater view;
+ A clear, unobstructed view to the proposal to the south and south west is anticipated from this viewpoint. This view would be seen from a reasonably close distance (approximately 50m) and from an elevated position;
+ Winton Wetlands, a site of cultural significance, is visible from this viewpoint to the east, and plays a crucial role in the view, as it is one of the primary reasons for walking along the trail; and
+ A moderate to low number of receptors would see the view from this viewpoint.

Figure 66 The existing view from the viewpoint looking south west, with the Dam Wall Hiking Trail in the foreground to the left of frame, and Lake Mokoan Road and an unsealed driveway to the right of frame in the middleground (Source: AECOM)

Figure 67 A photomontage showing the proposal overlaid onto the existing landscape (refer Figure 66). No landscaping is shown in this photomontage. No solar panels would be seen north of Lake Mokoan Road (Source: AECOM).

Figure 68 A photomontage showing the proposal overlaid onto the existing landscape (refer Figure 66) including proposed landscaping at the perimeter of the proposal. No solar panels would be seen north of Lake Mokoan Road.

Workers maintaining the dam wall would not be a sensitive receptor group as their attention would be focussed on their daily tasks rather than the quality of the view, and there would only be a low number of these receptors anticipated.

Due to the recreational receptors using the dam wall, the sensitivity of the view from this location is assessed as **High**.

Anticipated change in view

Key features of the proposal visible from this location are illustrated in Figure 67 and Figure 68 and include:

+ PV solar modules;
+ Internal all-weather access tracks;
+ Security fencing; and
+ Landscaping.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up a large portion of the view to the west and south west as the hikers or cyclists moved west along the hiking trail;
+ The view to the proposal would be seen from moderately close proximity from this viewpoint; and
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace.

Although within the photomontage the changes due to the proposal are partly screened due to a patch of vegetation, the view to the proposal would open up substantially as the receptor moved along the Dam Wall Hiking Trail. Due to the above, the magnitude of change for this viewpoint has been assessed as **High.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 15), the overall visual impact of the proposal at this viewpoint would be **High.**

Table 15: Landscape and visual impact assessment matrix - Viewpoint 8: Dam Wall Hiking Trail North

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	**High**	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

5.3.10. Viewpoint 9: Farnley Road East

This viewpoint assesses the changes to views due to the proposal seen by travellers on Farnley Road, approximately 450 metres north of the intersection of Farnley Road and Lake Mokoan Road (refer Figure 69). This location also captures the view seen from a private residence on Farnley Road looking west towards the proposal.

Receptors

From this location, visual receptors of this view would include:

+ travellers on Farnley Road heading south along the road;
+ residents living on Farnley Road at this location; and
+ workers on this property and other nearby properties with a similar proximity to the proposal at this location.

Existing view

This viewpoint is positioned on the western verge of the road, heading south along the road.

The view from the road corridor to the surrounding landscape is framed by a row of mature trees lining it. The view to the west comprises the road verge, roadside trees and the post and wire fence delineating the property boundary.

Beyond this, framed by roadside trees, the middleground of the view is dominated by flat grazing land, with paddocks covered with dry brown grasslands dotted with sporadic stands of paddock trees (refer Figure 70). To the south is a residence on Farnley Road, with the dwelling surrounded by mature trees and gardens (some of these trees surrounding the dwelling can be seen in Figure 70 to the left of frame).

In the distance, a band of dark vegetation can be seen, comprising the stands of paddock trees in surrounding paddocks, as well as trees lining the road corridor of Benalla-Yarrawonga Road.

It is likely that most receptors travelling on this road would be local residents and workers. Farnley Road connects a local quarry to the major road into Benalla (Benalla-Yarrawonga Road).

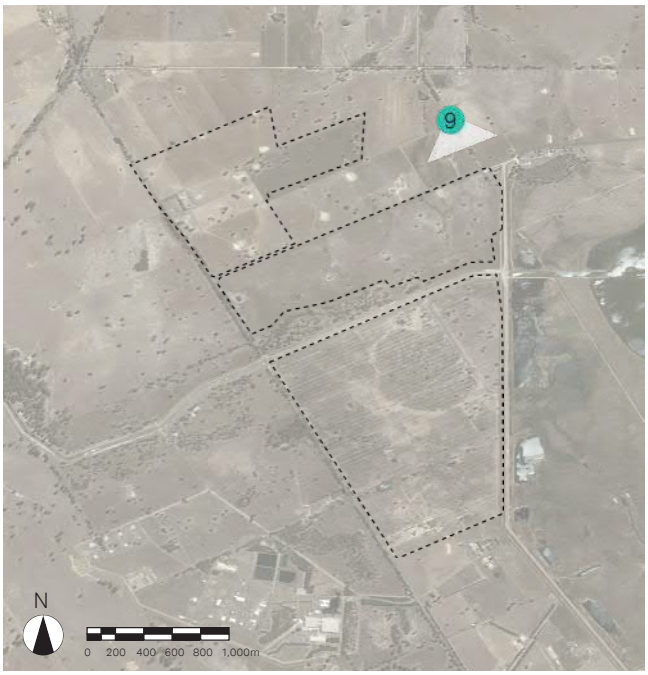


Figure 69 Key plan showing the location of Viewpoint 9 on Farnley Road close to the nearby dwelling (Source: AECOM)

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by local travellers on the road, as well as residents living in the dwelling on this road;
+ Residents are typically a sensitive receptor group due to proprietary interest in views from their properties, however, there are a low number of residential receptors at this location;
+ The road is a local road, therefore a low number of receptors would travel along it on a daily basis;
+ These receptors would be viewing the proposal from a moderate distance away - approximately 400 metres to the south at the closest point, but the changes would be seen from an oblique view along the northern boundary of the nearest portion of the solar farm;
+ Workers on neighbouring properties would be expected to have their attention focussed on their daily tasks, and are therefore less sensitive receptors; and
+ There are no elements of heritage value within the view from this location.

For these reasons, the sensitivity of the view from this location is assessed as **Moderate**. The more sensitive receptors in the immediate area surrounding the viewpoint are the residents and visitors to the nearby dwelling.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules would be seen to the south of this location;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS), a control building, substation transformers, office and amenities;
+ Security fencing; and
+ Landscaping.

Figure 70 Existing view to the west from the western verge of Farnley Road. The trees to the left of frame are associated with a residence at this location (Source: AECOM)

Figure 71 A photomontage showing the proposal overlaid onto the existing landscape (refer Figure 70 for original image, Source: AECOM). Refer Figure 72 for a detail view of the area shown in the dashed box.

Figure 72 Detail of proposal as shown in Figure 71 (Source: AECOM)

Figure 73 A photomontage showing the proposal overlaid onto the existing landscape including proposed landscaping at the perimeter of the proposal (refer Figure 70 for original image, Source: AECOM).

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal may be seen to the south west from the road corridor, but would take up a small portion of the view and would be at least partially screened by vegetation;
+ The view would be seen in the background (the closest point of the project boundary would be approximately 400 metres away); and
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace. However, the project would be seen from a flat location (i.e. not an elevated view) therefore the most prominent aspect of the change would be the landscaping surrounding the proposal, with glimpse views to the PV solar panels and other infrastructure.

Due to the above, the magnitude of change for this viewpoint has been assessed as **Low.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 16), the overall visual impact of the proposal at this viewpoint would be **Moderate to Low.**

Table 16: Landscape and visual impact assessment matrix - Viewpoint 9: Farnley Road East

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	Moderate	**Moderate to Low**	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.3.11. Viewpoint 10: Farnley Road West

This viewpoint assesses the changes to views due to the proposal seen by travellers on Farnley Road, approximately 1.2kms east of the intersection of Farnley Road and Benalla-Yarrawonga Road, opposite the driveway to a private residence. This viewpoint captures the approximate view seen from the residence looking south towards the proposal.

Receptors

From this location, receptors seeing the view to the proposal would include:

+ travellers on Farnley Road heading both east and west along the road;
+ residents living on Farnley Road at this location; and
+ workers on this property and other nearby properties with a similar proximity to the proposal at this location.

Existing view

This viewpoint is positioned on the southern verge of the road looking south from the road corridor towards the proposal. This view would be seen by travellers heading in both directions along Farnley Road.

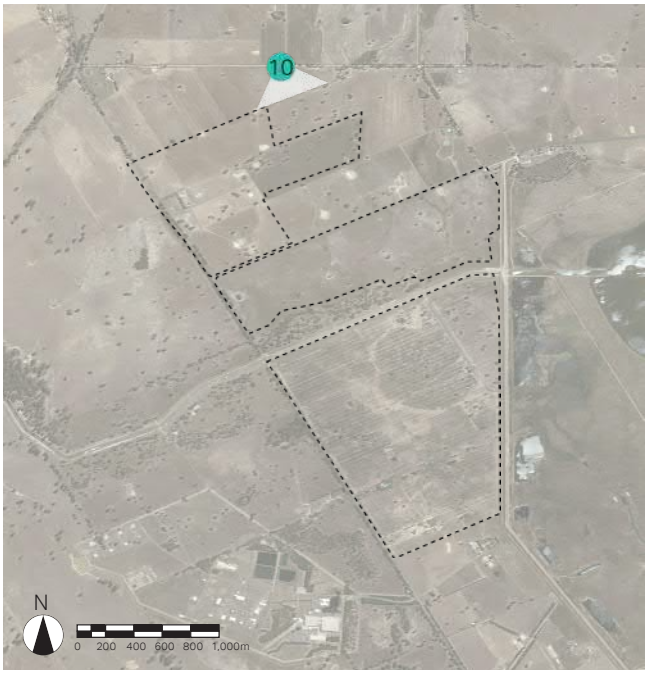


Figure 74 Key plan showing the location of Viewpoint 10 on Farnley Road at the end of the driveway for 139 Farnley Road (Source: AECOM)

At this location Farnley Road is open, with no roadside trees or tall vegetation. The view to the south comprises the unsealed road corridor and verge in the foreground, along with the post and wire fence delineating the property boundary.

The middleground of the view is dominated by flat grazing land, with paddocks covered with dry brown grasslands dotted with sporadic stands of paddock trees (refer Figure 75).

In the distance, a band of dark vegetation can be seen, comprising the stands of paddock trees in surrounding paddocks. A low vegetated hillside can be seen on the horizon between the paddock trees.

It is likely that most receptors travelling on this road would be local residents and workers as this location is not part of the Silo Art Trail. Farnley Road connects a local quarry to the main road into Benalla (Benalla-Yarrawonga Road).

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by local travellers on the road, as well as residents living on this road;
+ Residents are typically a sensitive receptor group due to proprietary interest in views from their properties, however, there are a low number of residential receptors and at this location the residence is set approximately 750 metres north of the road;
+ The view occurs along a local road, therefore a low number of receptors would travel along it on a daily basis;
+ These receptors would be viewing the proposal from a moderate distance away - approximately 250 metres at the closest point;
+ Workers on neighbouring properties would be expected to have their attention focussed on their daily tasks, and are therefore less sensitive receptors; and
+ There are no elements of heritage value within the view from this location.

Figure 75 View from Farnley Road looking south towards the proposal (Source: AECOM)

Figure 76 View from Farnley Road facing north showing residence positioned approximately 750 metres from the road behind a stand of paddock trees (Source: AECOM)

For these reasons, the sensitivity of the view from this location is assessed as **Moderate**. The more sensitive receptors in the immediate area surrounding the viewpoint are the residents and visitors to the nearby dwelling.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules would be seen to the north, south and west from this location;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS), a control building, substation transformers, office and amenities;
+ Security fencing; and
+ Landscaping.

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up a large portion of the view to the west and south west from the road corridor;
+ The view would be seen in the middle to background (the closest point of the project boundary would be approximately 250 metres away); and
+ The proposal would comprise a new series of elements within the view which is in contrast to the flat rural, agricultural land it would replace. However, the project would be seen from a flat location (i.e. not an elevated view) therefore the most prominent aspect of the change would be the landscaping surrounding the proposal.

Due to the above, the magnitude of change for this viewpoint has been assessed as **Moderate.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 17), the overall visual impact of the proposal at this viewpoint would be **Moderate.**

Table 17: Landscape and visual impact assessment matrix - Viewpoint 10: Benalla-Yarrawonga Road North

Sensitivity \ Magnitude	High	Moderate	Low	Negligible
High	High	High to Moderate	Moderate	Negligible
Moderate	High to Moderate	**Moderate**	Moderate to Low	Negligible
Low	Moderate	Moderate to Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.3.12. Viewpoint 11: 81 Lake Mokoan Road

This viewpoint assesses the changes to views due to the proposal seen from 81 Lake Mokoan Road looking south towards the proposal (refer Figure 77).

Receptors

From this location, visual receptors of this view would include:

+ residents living on Lake Mokoan Road at this location;
+ workers on this property ; and
+ travellers on Lake Mokoan Road.

Existing view

This viewpoint is positioned on the northern side of the road approximately 1.3km east of the intersection with Benalla-Yarrawonga Road. The existing view is shown in Figure 79.

The foreground of the view from this location includes the road itself, the gravel driveway and fence and gateway that delineates the property boundary, with paddocks beyond. No trees or shrubs line the road at this location. A group of small trees are clustered near the entry to the property on the road, one of which has died.

The middle-ground of the view predominantly compromises grazing land, with paddocks separated by post and wire fences. Occasional paddock trees are scattered throughout the paddocks, with denser bands of trees positioned along paddock boundaries.

Travellers on Lake Mokoan Road (including tourists, residents and local workers) receive unobstructed views to the site when heading both east and west along the road corridor at this location on either side of the road.

The residents of 81 Lake Mokoan Road would see a similar view to that seen in Figure 79 from their residence, but from approximately 100m north of Lake Mokoan Road.

Sensitivity

Contributing factors to the sensitivity of the view from this location include:

+ This view would be seen by local and tourist travellers on the road, as well as residents living in the dwelling on this road;
+ Residents are typically a sensitive receptor group due to proprietary interest in views from their properties, however, there are a low number of residential receptors at this location;
+ A moderate to high number of receptors would travel along the road on a daily basis. These receptors would be viewing the proposal from close proximity as they travelled along the road;
+ The residents and workers at 81 Lake Mokoan Road would be viewing the proposal from a close to moderate proximity from within the property;

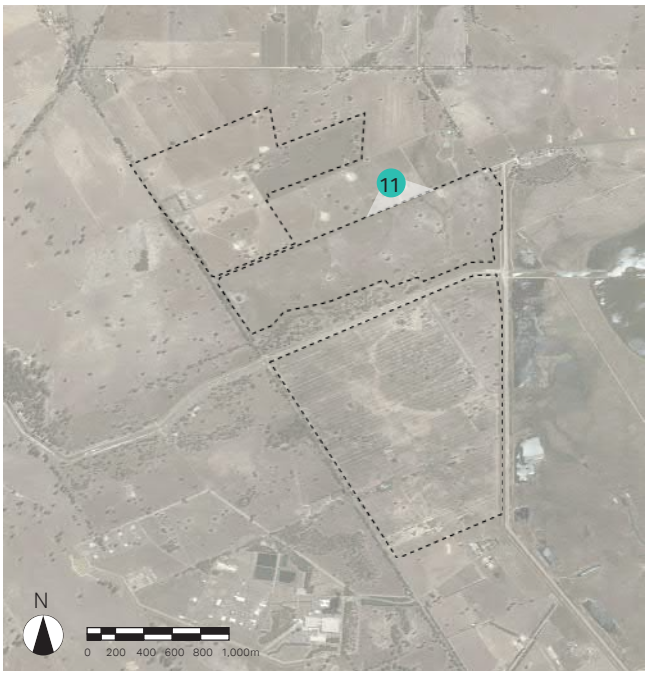


Figure 77 Key plan showing the location of Viewpoint11 (Source: AECOM)

Figure 78 Entry and residence at 81 Lake Mokoan Road (Source: South Energy)

+ Workers would be expected to have their attention focussed on their daily tasks, and are therefore less sensitive receptors; and
+ There are no elements of heritage value within the view from this location.

For these reasons, the sensitivity of the view from this location is assessed as **High**. The more sensitive receptors at this location are the residents and visitors to the nearby dwelling.

Anticipated change in view

Key features of the proposal potentially visible from this location include:

+ PV solar modules would be seen to the north, south and west from this location;
+ Centralised power conversion stations, containing electrical switchgear, inverters and transformers;
+ A designated substation and O&M facility area & BESS area (although this would be positioned approximately 800m south west of the veiwpoint;
+ DC and AC cabling for electrical reticulation;
+ Internal all-weather access tracks;
+ Security fencing; and
+ Landscaping.

Figure 79 Existing view south from the driveway on Lake Mokoan Road (Source: South Energy)

Magnitude of Change

From this viewpoint, contributing factors to the magnitude of change include:

+ The proposal would take up the entirety of the view to the south for this viewpoint and be situated within a close proximity, extending from the fore to middleground of the view;
+ The proposal would result in a series of new elements within the surrounding landscape, including tall security fencing on either side of the road, PV solar modules and a series of built elements including a substation, which is in contrast to the existing open rural, agricultural land. However, there are other industrial processes in the surrounding area and as such, the proposal fits with the pockets of industrial, utilitarian character within the surrounding landscape;
+ All passers by would obtain close-up, uninterrupted views of the proposal on either side of the road as they travelled along Lake Mokoan Road at that location, reducing to the proposal seen on the southern side of the road east of the high voltage electricity easement; and
+ A moderate number of motorists are expected along the road;
+ The proposed solar infrastructure would be somewhat screened from view by proposed landscaping, however, this would somewhat 'enclose' the view, changing it from one of expansive rural landscape to that of a road lined with screening vegetation.

Due to the above, the magnitude of change for this viewpoint has been assessed as **High.**

Overall Assessment

Using the Landscape and visual impact assessment Matrix (refer Table 18), the overall visual impact of the proposal at this viewpoint would be **High.**

Table 18: Landscape and visual impact assessment matrix - Viewpoint 11: 81 Lake Mokoan Road

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	**High**	High to Moderate	Moderate	Negligible
	Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

6.0 SUMMARY & MITIGATION OF IMPACT

6. Summary & Mitigation of Impact

6.1. Summary of Landscape character impact

Six LCZs were identified within the study area. Of these, LCZ 6: Waterways and Wetlands was assessed as having High sensitivity due to the culturally sensitive nature of waterways and waterbodies, the recreational and landscape amenity value these areas have, and the close proximity of this LCZ to the proposal.

The changes on site would fall within LCZ 2: Rural Agricultural, which was assessed as having Moderate sensitivity. This rating was due to the picturesque quality of the landscape, the cultural aspect of the landscape in that it expressed the cultural grazing use of the land, and the large area over which it stretched.

While picturesque from a landscape perspective, LCZ 4: Wooded Hillsides was considered to have a Low sensitivity rating due to the distance between this LCZ and the proposal.

Due to their utilitarian focus, LCZ 1: Infrastructure Corridor and LCZ 3: Rural Industrial were assessed as having a Low sensitivity.

The magnitude of change due to the proposal was Negligible for three LCZs, Moderate to Low for LCZ 3: Rural Industrial, Moderate for LCZ 2: Rural Agricultural, and High to Moderate for LCZ 6: Waterways and Wetlands.

The majority of the changes would occur within LCZ 2: Rural Agricultural. The proposal would change the character of the proposal site from LCZ 2: Rural Agricultural to LCZ 3: Rural Industrial, and in doing so, substantially increase the coverage of LCZ 3 within the landscape, effectively consolidating fragmented industrial sites. However, while solar farm development characteristically lies within an industrial land use and has industrial qualities (including, but not limited to, the substation and PV solar modules), there are agricultural characteristics that would be retained, including the amount of space between the panels which would remain as pasture grass, and the potential to run livestock within the site during operation.

Overall, the highest change to landscape character would occur within LCZ 6: Waterways and Wetlands. This rating is in part due to the high sensitivity of the LCZ, coupled with the changes occurring close to it (both adjacent to Stockyard Creek and Winton Wetlands).

LCZ 2: Rural Agricultural was the next most affected LCZ, as the changes occur within it and result in a change in the character of the proposal site. Overall Negligible ratings for the other LCZs were typically due to the distance of the proposal.

The individual and overall ratings for all LCZs are listed in Table 19

Table 19: Impact rating for Landscape Character Zones

Landscape Character Zone	Sensitivity	Magnitude	Overall rating
LCZ 1: Infrastructure Corridor	Low	Negligible	Negligible
LCZ 2: Rural Agricultural	Moderate	Moderate	Moderate
LCZ 3: Rural Industrial	Low	Moderate	Moderate to Low
LCZ 4: Wooded Hillsides	Moderate	Negligible	Negligible
LCZ 5: Benalla township	Low	Negligible	Negligible
LCZ 6: Waterways and Wetlands	High	Moderate	High to Moderate

6.2. Summary of Visual impact

A selection of representative viewpoints surrounding the proposal site were used to assess the visual impact from key locations within the study area. The topography of the surrounding area is flat, resulting in a visually compartmentalised landscape with few opportunities for viewing long distances. Sporadic bands and stands of trees and fully structured vegetation (i.e. trees, shrubs and groundcovers) within paddocks, lining the road corridors and along boundary fences and creek lines also limits the opportunity for distance views.

The exception to this is from the dam wall adjacent to the Winton Wetlands, were the recreational hiking trail positioned on top of the wall offers views to the surrounding landscape from an elevated position. This trail passes directly adjacent to the proposal, resulting in uninterrupted views to the site.

The highest overall ratings were recorded from the Dam Wall Hiking Trail and from two residences adjacent to the proposal. Recreational receptors are very sensitive due to the reliance of the surrounding landscape for enjoyment of the recreational experience of hiking and cycling. This group would view changes due to the proposal from short distances away. Residential receptors are sensitive due to proprietary interest in views from their properties, however, there are a low number of residential receptors surrounding the proposal.

The roadways surrounding the proposal received Moderate visual impact ratings, while the road running through the proposal returned a High to Moderate rating. This was in part due to the close proximity views that passers by would receive to the proposal, which would be somewhat mitigated in the boundary road by proposed landscaping.

As discussed above, although residential receptors are typically a highly sensitive receptor group, there were low numbers of residential receptors. Often, the proposal was positioned at distances from the residences that reduced the visual impact, or the proposal boundary was bordered by existing screening vegetation that either partially or fully screened views to the proposal from these residences. Proposed landscaping along the proposal boundary would screen views to solar infrastructure from these receptors.

Table 20: Visual impact rating for viewpoints

Viewpoint	Sensitivity	Magnitude	Overall rating
Viewpoint 1: Benalla-Yarrawonga Road North	Moderate	Moderate	Moderate
Viewpoint 2: Lake Mokoan Road	Moderate	High	High to Moderate
Viewpoint 3: Benalla-Yarrawonga Road Mid	Moderate	Moderate	Moderate
Viewpoint 4: Benalla-Yarrawonga Road South	Moderate	Moderate	Moderate
Viewpoint 5: South Eastern Proposal Boundary	High	High	High
Viewpoint 6: Dam Wall Hiking Trail South	High	High	High
Viewpoint 7: Dam Wall Hiking Trail Mid	High	High	High
Viewpoint 8: Dam Wall Hiking Trail North	High	High	High
Viewpoint 9: Farnley Road East	Moderate	Low	Moderate to Low
Viewpoint 10: Farnley Road West	Moderate	Moderate	Moderate
Viewpoint 11: 81 Lake Mokoan Road	High	High	High

Overall, the proposal would significantly alter the view from a handful of locations. The proposal would be seen predominantly from areas directly surrounding the site, such as roads, the dam wall, and few scattered residences.

The visual quality of the resulting landscape is subjective, however, the proposal is considered to have visually comparable elements to industrial and agricultural sites scattered throughout the landscape, and therefore acceptable within the land zones. In addition, a solar farm would be of great interest to some, and could be a landmark within the landscape, with potential benefits including eco-tourism. As such, the landscape response aims to partly screen the proposal from key roads, but use an informal planting approach to allow some views through to the proposal.

Refer Table 20 the impact ratings for the selected viewpoints.

6.3. Cumulative impact

The Victorian Government aims to reach a 50% renewable energy target by 2030. This will result in an increase in solar and wind farms in suitable areas. Within the local vicinity of the proposed West Mokoan Solar Farm, seven solar farms have been proposed, approved or completed in the rural cities of Benalla and Wangaratta. These include (refer Figure 80):

+ Goorambat Solar Farm: proposed network capacity of 75 megawatts, unknown project timing;
+ Goorambat East Solar Farm: proposed network capacity of 250 megawatts, unknown project timing;
+ Kennedy's Creek Solar Farm: proposed network capacity of up to 145 megawatts, construction to commence in 2022 and be fully operational by late 2023;
+ Winton Solar Farm: proposed network capacity of 85 megawatts, in operation;

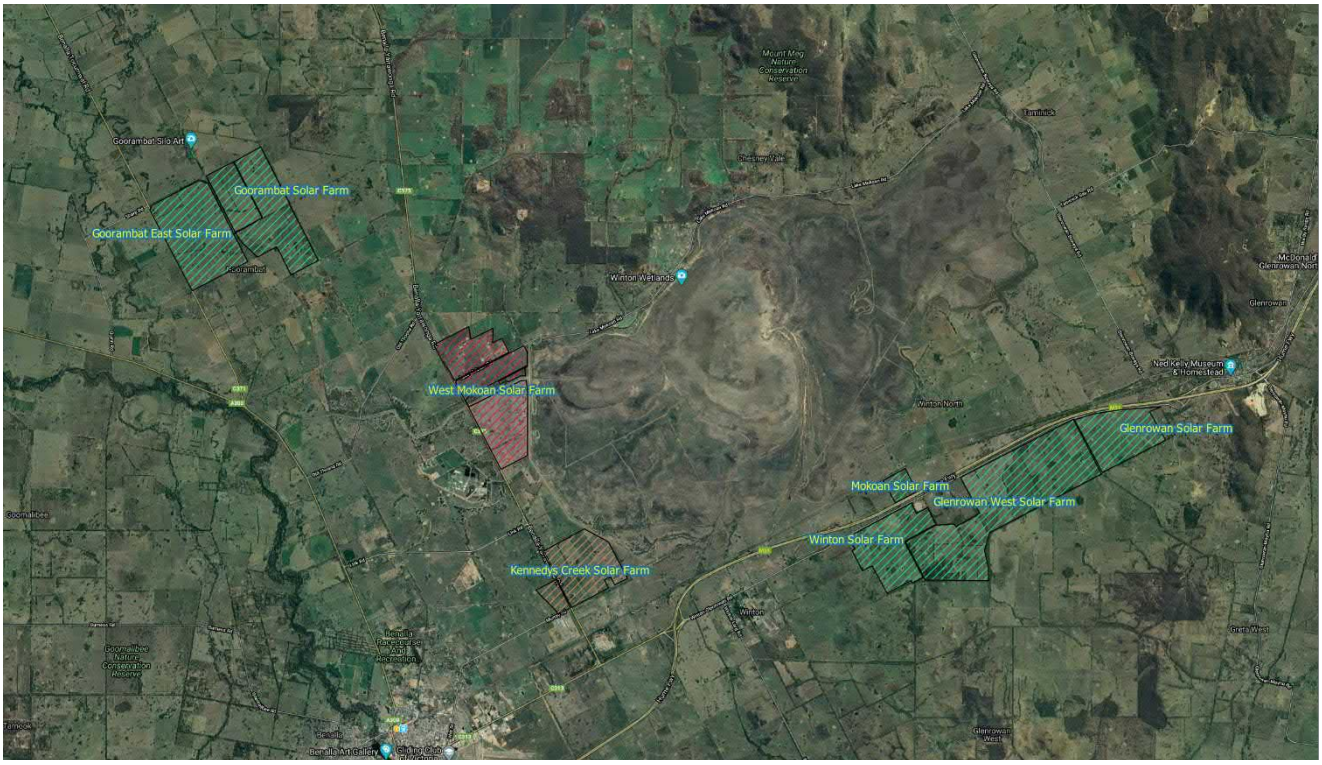


Figure 80 Existing and proposed solar farms in the local area. Note: project outlines are indicative only (Source: AECOM)

+ Mokoan Solar farm: proposed network capacity of 15 megawatts of solar power capacity, unknown project timing;
+ Glenrowan Solar Farm: proposed network capacity of 110 megawatts, unknown project timing;
+ Glenrowan West Solar Farm: proposed network capacity of 140 megawatts, in operation.

The closest of these is the approved Kennedy's Creek Solar Farm, the northern boundary of which is positioned approximately 2 km south east of the southern boundary of the West Mokoan Solar Farm.

From a landscape character impact perspective, solar farms typically fall within LCZ 3: Rural Industrial, as described in Section 4.3, although it does share characteristics with LCZ 2: Rural Agricultural as well. The predominant LCZ within the local area shown in Figure 80 is LCZ 2: Rural Agricultural. Broadly, the increase in solar farms in the area would result in an increase in LCZ 3 and a decrease in LCZ 2 within the locality. However, the elements of solar farms that fall within the character of LCZ 2 (namely the typical proposed boundary landscaping of the proposals, the retention of grazing capability of the land beneath the solar panels, and the low profile of the infrastructure) would reduce the impact of these developments on the overall landscape.

From a visual impact perspective, proposed solar farms in the local area are typically seen by the following visual receptors:

+ Residents in nearby dwellings;
+ Drivers on major and minor roads surrounding the proposals, including local residents and tourists;
+ Workers in adjacent farming paddocks; and
+ Recreational hikers and cyclists in nearby hiking trails (in this area, trails associated with the Winton Wetlands).

Cumulative impacts related to several solar farms proposed within a local area would typically affect visual receptors which are not viewing from static locations, i.e. drivers on local and major roads, and hikers and cyclists using trails in the area. These receptors are likely to see more than one solar farm as they move throughout the landscape, with drivers travelling on roads likely to see the highest number of solar farms due to the distance between the projects.

These solar farms would be viewed as intermittent developments within a predominantly rural landscape, with mostly glimpse views through to the electrical infrastructure seen through proposed screening vegetation.

Overall, considering adverse impacts caused by climate change and the need to increase renewable energy production within Victoria, renewable energy projects such as solar farms are expected to be in a more frequent sight within rural landscapes, given their appropriate physical attributes for development. Within the rural cities of Benalla and Wangaratta, given the presence of solar resources and well-developed infrastructures, solar farms would occur more frequently, visible on major roads, including the Hume Freeway and Benalla-Yarrawonga Road.

While the proposed West Mokoan Solar Farm would increase the number of solar farms seen in the area (particularly on Benalla-Yarrawonga Road, which makes up part of the Silo Art Trail), it is considered appropriate given the proposed mitigating boundary landscaping, which would assist in screening the proposal, and the fact that there would be a number of solar farms clustered in the area, with a majority of the surrounding landscape remaining agricultural.

6.4. Landscape Strategy Response

The following design recommendations respond to a number of observations on the impact of the proposal on landscape character and views (refer Table 21 and Figure 81).

These have been developed into a landscape concept plan and details, as shown in Figure 80 and Figure 83.

Opportunities identified (but not necessary to mitigate any visual or landscape character impact issues) are listed in Table 22.

Table 21: Landscape strategy response

	Issue / observation	Landscape response
LS1	The vegetation adjacent to Stockyard Creek is seen as a backdrop of trees from several locations.	Preserve existing vegetation and provide additional planting of indigenous trees and shrubs along the southern boundary of the proposal.
LS2	The Dam Wall Hiking Trail provides recreational receptors with close proximity, elevated views to the proposal.	Provide screening along the eastern boundary of the proposal, as well as bands of internal screening vegetation where possible to visually break up the development when viewed from this recreational trail. Tree planting along the boundary to be intermittent, with informal groupings of trees to allow occasional views across the proposal site for interest. Utilisation of plant species from indigenous vegetation communities to reinstate 'native' plant associations.
LS3	A number of residences to the north and south of the site would potentially obtain views of the proposal.	Provide targeted fully structured vegetation (i.e. trees, shrubs, grasses and groundcovers) to screen the solar infrastructure from these locations. Utilisation of plant species from indigenous vegetation communities to reinstate 'native' plant associations.
LS4	The proposal would be visible from a number of roads, including Benalla-Yarrawonga Road, which is part of the Silo Tourist Trail, and Lake Mokoan Road (also part of the tourist trail) where the proposal would lie on either side of the road corridor.	Informal screening vegetation comprising scattered eucalypt trees and occasional shrubs, with an understorey of pasture grass would provide effective partial screening of the proposal, while still maintaining the open, partly compartmentalised rural character. Targeted dense planting could be used to completely screen views from more sensitive locations such as nearby residences. Provide informal planting along the road corridor to provide some screening, while still allowing views through to the solar infrastructure. Provide some internal screen planting to limit the seen amount of solar infrastructure to smaller paddocks.
LS5	Existing screen planting surrounding the site provides screening from some locations. Existing paddock trees within the site visually compartmentalise the site and would reduce the seen area of the proposal from any viewpoint. 	Conserve screen planting and other vegetation on and surrounding the site, where practicable.

Table 22: Opportunities

	Issue / observation	Landscape response
O1	Potential to facilitate an ecological corridor between the Winton Wetlands and Broken River via Stockyard Creek. 	Consider the restoration of this bush corridor (Broken River Corridor) adjacent to the channelised Stockyard Creek to provide a vegetative screen from certain locations, including from the southern portions of the Dam Wall Hiking Trail. This ecological corridor could potentially connect to Winton Wetlands, partnered with local environmental groups such as Landcare etc. This corridor could also contain a regional bike link, linking Broken River to the Winton Wetlands and potentially beyond.

Figure 81 Landscape observations and issues, refer Table 21 and Table 22 (Source: AECOM)

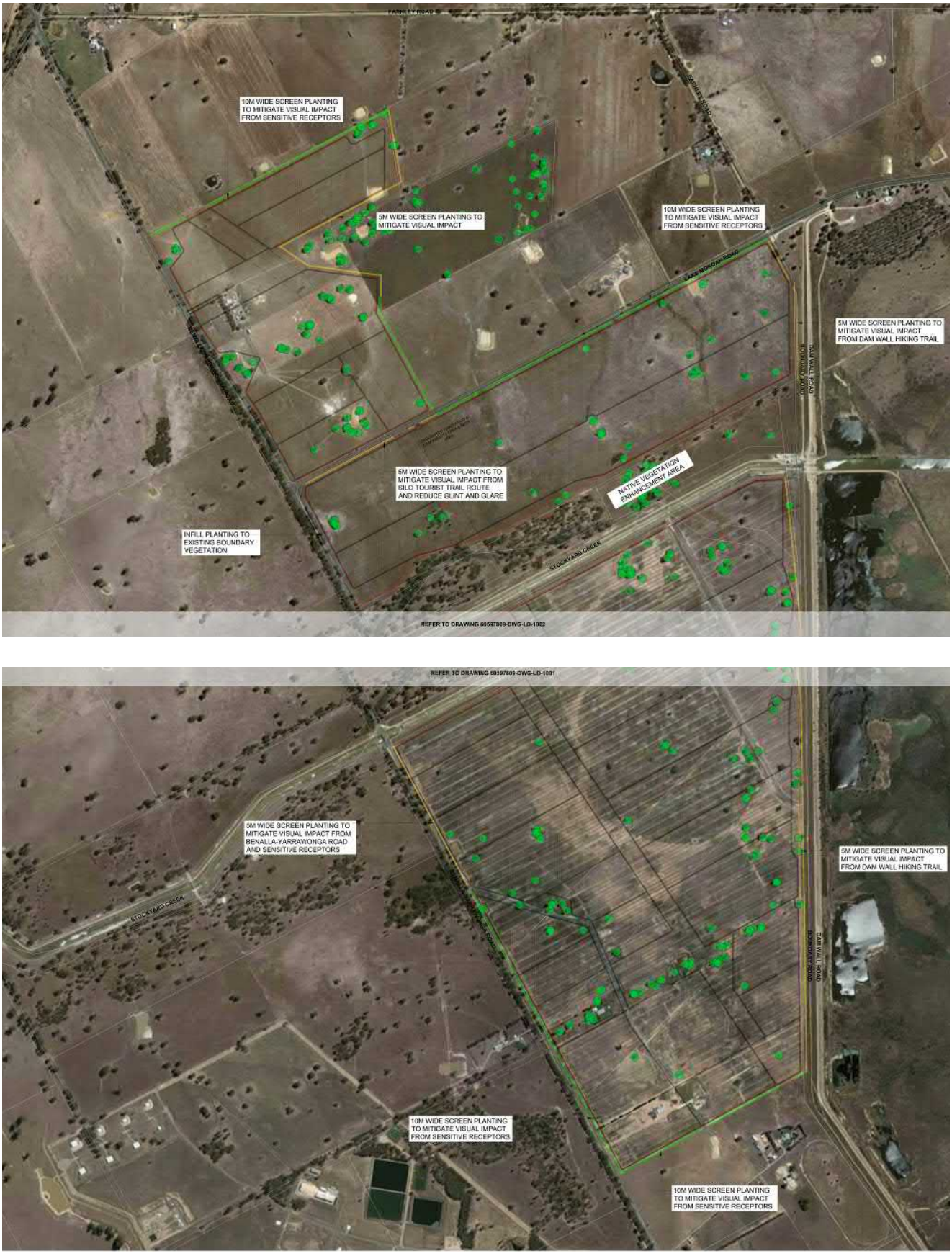
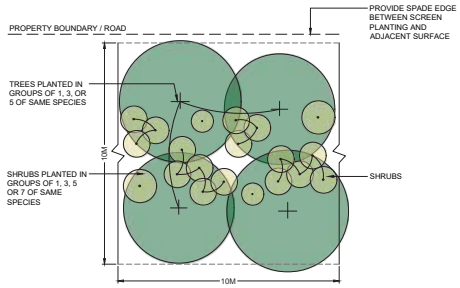
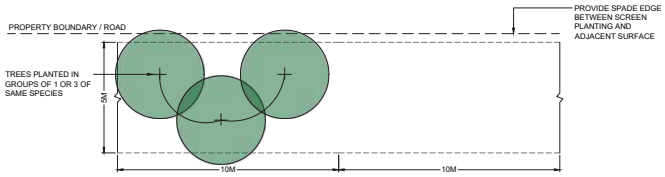


Figure 82 Landscape concept plan (Source: AECOM)



03 - PLANTING PLAN FOR 10M WIDE PLANTING ZONE - TARGETED
1:200 AT A3



4 - PLANTING PLAN FOR 5M WIDE PLANTING ZONE - TYPICAL
1:200 AT A3

02 - PLANTING SECTION FOR 10M WIDE PLANTING ZONE - TARGETED
1:100 AT A3

PLANT SCHEDULE

Botanical Name	Common Name	Ecological Vegetation Class (EVC)	Height (m)	Spread (m)	Installation Size	Installation Rate	Proportion	Approx Quantity
Eucalyptus melliodora	Yellow Box	EVC 55_61	15	10	150mm pot	See below	30%	599
Eucayptus microcarpa	Grey Box	EVC 235	25	15	150mm pot	See below	20%	399
Allocasuarina luehmannii	Buloke	EVC 235	8	4	150mm pot	See below	20%	399
Eucalyptus albens	White Box		25	15	150mm pot	See below	15%	299
Eucalyptus camaldulensis	River Red Gum	EVC 55_61	20	15	150mm pot	See below	15%	299
						4 no. trees per 100m2 (10 x 10m area)		
Acacia acinacea s.l.	Gold-dust Wattle	EVC 55_61	3	2	Tubestock	See below	20%	1437
Acacia paradoxa	Hedge Wattle	EVC 55_61 & EVC 235	4	2	Tubestock	See below	20%	1437
Acacia pycnantha	Golden Wattle	EVC 55_61 & EVC 235 & EVC 61	5	2	Tubestock	See below	15%	1078
Bursaria spinosa	Sweet Bursaria	EVC 55_61	4	3	Tubestock	See below	15%	1078
Melaleuca parvistaminea	Rough-barked Honey-myrtle		4	5	Tubestock	See below	15%	1078
Callistemon sieberi	River Bottlebrush		5	4	Tubestock	See below	15%	1078
						20 no. shrubs per 100m2 (10 x 10m area)		

EVC Number	EVC Class	Bioregion
EVC 55_61	EVC 55_61 Plains Grassy Woodland	Victorian Riverina Bioregion
EVC 235	EVC 235 Plains Woodland / Herbrich Gilgai Wetland Mosaic	Victorian Riverina Bioregion
EVC 61	EVC 61_Box Ironbark Forest	Central Victorian Uplands Bioregion

Note:
1. Plant selection is based on the above Ecological Vegetation Classes and recommendations from the Regent Honeyeater Group. All three are indigenous and currently found on or surrounding the site, according to NatureKit Interactive Mapping, on the Department of Environment, Land, Water and Planning Website.
2. The plant schedule is subject to further review and confirmation on the appropriate species for the local conditions.

PLANT IMAGES


Eucalyptus melliodora


Eucalyptus microcarpa


Allocasuarina luehmannii


Eucalyptus camaldulensis


Acacia acinacea


Acacia paradoxa


Bursaria spinosa


Melaleuca parvistaminea


Callistemon sieberi

Figure 83 Landscape concept details (Source: AECOM)

7.0
CONCLUSION

7. Conclusion

7.1. Conclusion

Of the six LCZs identified within the study area, one (LCZ 6: Waterways and Wetlands) was assessed as having High overall landscape character impact rating due to the proposal. This rating is in part due to the high sensitivity of the LCZ, coupled with the changes occurring close to it (both adjacent to Stockyard Creek and Winton Wetlands).

LCZ 2: Rural Agricultural was the next most affected LCZ, returning a Moderate landscape impact rating, as the changes occur within it and result in a change in the character of the proposal site. Three LCZs returned an overall Negligible landscape character impact rating, typically due to the distance of the proposal to these LCZs.

The visual impact of the proposal on the surrounding landscape is an outcome of the flat topography of the surrounding area in combination with sporadic bands and stands of trees and fully structured vegetation (i.e. trees, shrubs and groundcovers) within paddocks, lining the road corridors and along boundary fences and creek lines, which limits the opportunity for distance views.

An elevated viewing location was within the study area: the dam wall adjacent to the Winton Wetlands, where the recreational hiking trail positioned on top of the wall offers views to the surrounding landscape from an elevated position. This trail passes directly adjacent to the proposal, resulting in uninterrupted views to the site.

The highest overall ratings were recorded from the Dam Wall Hiking Trail and from two residences adjacent to the proposal.

Recreational receptors are very sensitive due to the reliance of the surrounding landscape for enjoyment of the recreational experience of hiking and cycling. This group would view changes due to the proposal from short distances away.

Although residential receptors are typically a highly sensitive receptor group, the proposal was either positioned at distances from the residences that reduced the visual impact, or the residences and proposal boundary were bordered by screening vegetation that either partially or fully screened views to the proposal.

Two houses are within close proximity to the proposal, within 200m of the proposal boundary. The impacts to these sensitive receptors would potentially be mitigated by a vegetation buffer which would screen views to the proposal.

The roadways surrounding the proposal received Moderate visual impact ratings, while roads passing through the proposal returned a High to Moderate rating. This was in part due to the close proximity views that passers by would receive to the proposal, which would be somewhat mitigated from the boundary roads by proposed landscaping.

Overall, the proposal would significantly alter the view from a handful of locations. The proposal would be seen predominantly from areas directly surrounding the site, such as roads, the Dam Wall Hiking Trail, and few scattered residences.

The visual quality of the resulting landscape is subjective, however, it is considered that the proposal would be visually comparable to industrial elements scattered throughout the local rural landscape. A solar farm would be of great interest to some, and could be a landmark within the landscape. As such, the landscape response aims to partly screen the proposal from key roads, but use an informal planting approach to allow some views through to the proposal.

The proposed landscape strategy responds to the character and visual impacts, to integrate the proposal into the existing rural landscape and mitigate the visual impacts from more sensitive receptor locations. With the implementation of the proposed landscape concept, the proposal is considered appropriate within its landscape setting.

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7.3. List of Tables

Table 1: Landscape and visual impact assessment matrix 10
Table 2: Landscape and visual impact assessment matrix - LCZ 1: Infrastructure Corridor 42
Table 3: Landscape and visual impact assessment matrix - LCZ 2: Rural Agricultural 44
Table 4: Landscape and visual impact assessment matrix - LCZ 3: Rural Industrial 45
Table 5: Landscape and visual impact assessment matrix - LCZ 4: Wooded Hillsides 46
Table 6: Landscape and visual impact assessment matrix - LCZ 5: Benalla township 47
Table 7: Landscape and visual impact assessment matrix - LCZ 6: Wetlands and Waterways 49
Table 8: Landscape and visual impact assessment matrix - Viewpoint 1: Murray Road South-West 58
Table 9: Landscape and visual impact assessment matrix - Viewpoint 1: Murray Road South-West 61
Table 10: Landscape and visual impact assessment matrix - Viewpoint 3: Benalla-Yarrawonga Road Mid 64
Table 11: Landscape and visual impact assessment matrix - Viewpoint 4: Benalla-Yarrawonga Road South 67
Table 12: Landscape and visual impact assessment matrix - Viewpoint 5: South Eastern Proposal Boundary 70
Table 13: Landscape and visual impact assessment matrix - Viewpoint 6: Dam Wall Hiking Trail South 73
Table 14: Landscape and visual impact assessment matrix - Viewpoint 7: Dam Wall Hiking Trail Mid 76
Table 15: Landscape and visual impact assessment matrix - Viewpoint 8: Dam Wall Hiking Trail North 79
Table 16: Landscape and visual impact assessment matrix - Viewpoint 9: Farnley Road East 83
Table 17: Landscape and visual impact assessment matrix - Viewpoint 10: Benalla-Yarrawonga Road North 86
Table 18: Landscape and visual impact assessment matrix - Viewpoint 11: 81 Lake Mokoan Road 89
Table 19: Impact rating for Landscape Character Zones 92
Table 20: Visual impact rating for viewpoints 93
Table 21: Landscape strategy response 96
Table 22: Opportunities 96

7.4. List of Figures

Figure 1 Proposal site boundary (Source: AECOM) 2

Figure 2 Site context map with study area (Source: AECOM) 3

Figure 3 Typical Single Axis Tracking System with Two Modules in Portrait Orientation (Source: SRPS) 4

Figure 4 Typical example of power conversion station (Source: ABB) 5

Figure 5 Key features of the proposal, not for construction (Source: AECOM) 5

Figure 6 Typical farming landscape surrounding the site, with trees clustered along property boundaries and watercourses (Source: AECOM) 16

Figure 7 View of Winton Wetlands from the elevated Dam Wall Hiking Trail (Source: AECOM) 17

Figure 8 View west along Stockyard Creek from the dam wall of Winton Wetlands (Source: AECOM) 17

Figure 9 Topography Map (Source: AECOM) 18

Figure 10 Land Use Overlay Map (Source: AECOM) 20

Figure 11 Land Use Zoning Map (Source: AECOM) 21

Figure 12 View south along Benalla-Yarrawonga Rd at the Lake Mokoan Rd intersection (Source: AECOM) 22

Figure 13 View into lot south of the proposal site (Source: AECOM) 22

Figure 14 Trees along Benalla-Yarrawonga Road (Source: AECOM) 22

Figure 15 Entry to residence on Benalla-Yarrawonga Road with planted avenue (Source: AECOM) 22

Figure 16 Vegetation Coverage Map (Source: AECOM) 23

Figure 17 Pre 1750's EVC Map (Source: AECOM) 24

Figure 18 2005 EVC Map (Source: AECOM) 24

Figure 19 Protected flora and fauna Map (Source: AECOM) 25

Figure 20 Aboriginal Cultural Sensitivity and Heritage Map (Source: AECOM) 27

Figure 21 Goorambat Silo Art (Source: AECOM) 28

Figure 22 Silo Art Trail Map (Source: AECOM) 29

Figure 23 Landscape Character Zone Map (Source: AECOM) 31

Figure 24 View south along Benalla-Yarrawonga Road, showing a typical secondary road corridor (Source: AECOM) 32

Figure 25 Aerial photo showing the Hume Freeway (M31) with carriageways separated by a vegetated median (Source: Google Earth) 32

Figure 26 Typical landscape within LCZ 2: Rural Agricultural. Open, pastoral land is traversed by roads and bands of trees on property boundaries and creek lines. Paddock trees remain dotted within the fields. (Source: AECOM) 33

Figure 27 Rural homesteads lie within this LCZ, typically near minor roads or long unsealed driveways (Source: AECOM) 33

Figure 28 Typical minor road is unsealed and fringed by trees (Source: AECOM) 33

Figure 29 Benalla Landfill and Resource Recovery Centre. (Source: Google Earth) 34

Figure 30 Munitions manufacturing plant (Source: Google Earth) 34

Figure 31 Quarry within wooded hillsides (Source: Google Earth) 35

Figure 32 Wooded hillsides seen in the distance, with the lower, gentler slopes cleared of vegetation (Source: AECOM) 35

Figure 33 View north towards the wooded hillsides from the dam wall, with the Winton Wetlands to the east (right of frame) (Source: AECOM) 35

Figure 34 Typical streetscape along the major road in Benalla township, east of Broken River (Source: AECOM) 36

Figure 35 Street art within Benalla township. (Source: Explore Australia) 37

Figure 36 Benalla Art Gallery (Source: Loretta Florance, ABC News) 37

Figure 37 Drainage channel from Winton Wetlands to tributary (Stockyard Creek) (Source: AECOM) 38

Figure 39 Winton Wetlands as seen from the Dam Wall Hiking Trail (Source: AECOM) 38

Figure 38 View of Stockyard Creek fringed with eucalyptus woodland (Source: AECOM) 38

Figure 40 Livestock would be run between the PV solar panels, reinforcing the rural character of the proposal 45

Figure 41 Views across the landscape are visually compartmentalised by bands and stands of trees. This image shows the view from Farnley Road looking north-east across the pasture landscape (Source: AECOM) 52

Figure 42 Area of Theoretical View of the proposal (Source: AECOM) 53

Figure 43 Representative viewpoints selected to assess visual impact of the proposal (Source: AECOM) 55

Figure 44 Key plan showing the location of Viewpoint 1 at the north western corner of the proposal (Source: AECOM) 56

Figure 45 The view looking south-east from Benalla-Yarrawonga Road towards the proposal site (Source: AECOM) 57

Figure 46 Photomontage showing the proposed solar farm with no landscaping seen from the viewpoint (Source: AECOM) 57

Figure 47 Photomontage showing the proposed solar farm with landscaping seen from the viewpoint (Source: AECOM) 57

Figure 49 The view from Lake Mokoan Road approximately 400 metres east of the intersection looking east within the proposal site (Source: AECOM) 59

Figure 48 Key plan showing the location of Viewpoint 2 on Lake Mokoan Road approximately 400 metres east of the intersection with Benalla-Yarrawonga Road (Source: AECOM) 59

Figure 50 Key plan showing the location of Viewpoint 3: at the Benalla-Yarrawonga and Murray Road intersection (Source: AECOM) 63

Figure 51 View looking north east from the western edge of the proposal where the site boundary meets Stockyard Creek (Source: AECOM) 63

Figure 52 View of the vegetation lining Stockyard Creek (Source: AECOM) 63

Figure 53 Key plan showing the location of Viewpoint 4 (Source: AECOM) 65

Figure 54 View looking north east from Benalla-Yarrawonga Road across the proposal site (Source: AECOM) 65

Figure 55 Key plan showing the location of Viewpoint 5 (Source: AECOM) 68

Figure 56 View looking west from the dam wall to the proposal site (right of frame) and existing residence (left of frame) (Source: AECOM) 69

Figure 57 Key plan showing the location of Viewpoint 6 (Source: AECOM) 71

Figure 58 View looking north along the Dam Wall Hiking Trail (Source: AECOM) 71

Figure 59 The view looking west from the Dam Wall Hiking Track towards the proposal site (Source: AECOM) 72

Figure 60 Photomontage showing the proposed solar farm with no landscaping seen from the viewpoint (Source: AECOM) 72

Figure 61 Photomontage showing the proposed solar farm with landscaping seen from the viewpoint (Source: AECOM) 72

Figure 62 Key plan showing the location of Viewpoint 7 the just north of the spillway in the south east corner of the site (Source: AECOM) 74

Figure 63 The hiking trail continues over the spillway heading south along the wall (Source: AECOM) 74

Figure 64 View from Dam Wall Hiking Trail looking north towards the proposal (Source: AECOM) 75

Figure 65 Key plan showing the location of Viewpoint 8 near the north east corner of the proposal along the Dam Wall Hiking Trail (Source: AECOM) 77

Figure 66 The existing view from the viewpoint looking south west, with the Dam Wall Hiking Trail in the foreground to the left of frame, and Lake Mokoan Road and an unsealed driveway to the right of frame in the middleground (Source: AECOM) 78

Figure 67 A photomontage showing the proposal overlaid onto the existing landscape (refer Figure 66). No landscaping is shown in this photomontage. No solar panels would be seen north of Lake Mokoan Road (Source: AECOM). 78

Figure 68 A photomontage showing the proposal overlaid onto the existing landscape (refer Figure 66) including proposed landscaping at the perimeter of the proposal. No solar panels would be seen north of Lake Mokoan Road. 78

Figure 69 Key plan showing the location of Viewpoint 9 on Farnley Road close to the nearby dwelling (Source: AECOM) 80

Figure 70 Existing view to the west from the western verge of Farnley Road. The trees to the left of frame are associated with a residence at this location (Source: AECOM) 81

Figure 71 A photomontage showing the proposal overlaid onto the existing landscape (refer Figure 70 for original image, Source: AECOM). Refer Figure 72 for a detail view of the area shown in the dashed box. 82

Figure 72 Detail of proposal as shown in Figure 71 (Source: AECOM) 82

Figure 73 A photomontage showing the proposal overlaid onto the existing landscape including proposed landscaping at the perimeter of the proposal (refer Figure 70 for original image, Source: AECOM). 82

Figure 74 Key plan showing the location of Viewpoint 10 on Farnley Road at the end of the driveway for 139 Farnley Road (Source: AECOM) 84

Figure 75 View from Farnley Road looking south towards the proposal (Source: AECOM) 85

Figure 76 View from Farnley Road facing north showing residence positioned approximately 750 metres from the road behind a stand of paddock trees (Source: AECOM) 85

Figure 77 Key plan showing the location of Viewpoint11 (Source: AECOM) 87

Figure 78 Entry and residence at 81 Lake Mokoan Road (Source: South Energy) 87

Figure 79 Existing view south from the driveway on Lake Mokoan Road (Source: South Energy) 88

Figure 80 Existing and proposed solar farms in the local area. Note: project outlines are indicative only (Source: AECOM) 94

Figure 81 Landscape observations and issues, refer Table 21 and Table 22 (Source: AECOM) 97

Figure 82 Landscape concept plan (Source: AECOM) 98

Figure 83 Landscape concept details (Source: AECOM) 99

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