

CANNIE WIND FARM

Preliminary Landscape and Visual Impact Assessment March 2024



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March 2024

RES Australia Pty Ltd

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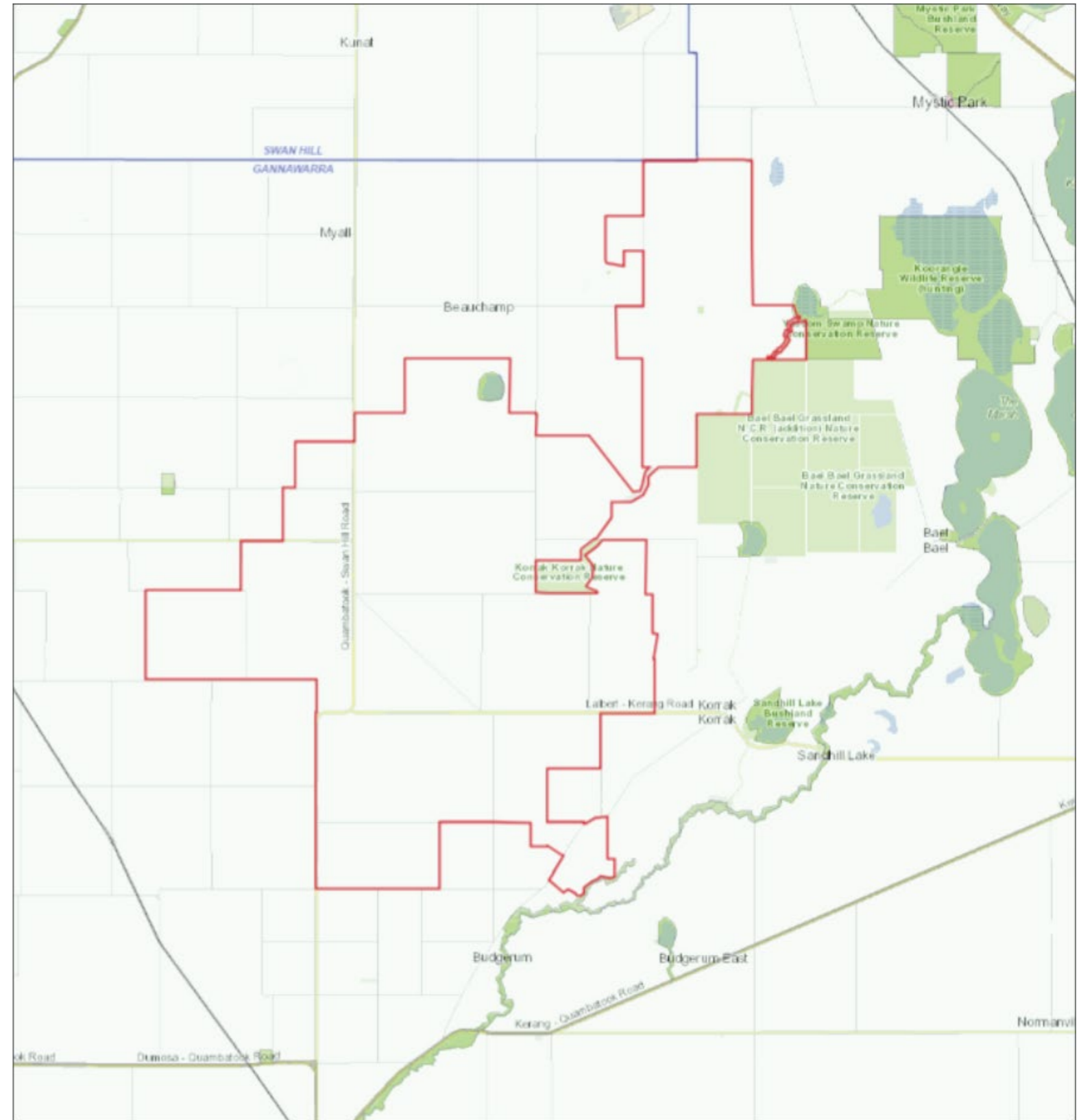
1. Introduction

RES Australia Pty Ltd (RES) is seeking a determination from the Minister for Planning (the Minister) if an Environment Effects Statement (EES) is required for the proposed Cannie Wind Farm (CWF). The CWF is proposed in farming land north of Quambatook and west of Kerang in the Loddon Valley North Region of north-western Victoria. The Project sites are entirely within the Gannawarra Shire Council.

1.1 Purpose of this report

RES has engaged Landform Architects Pty Ltd to undertake this Preliminary Landscape and Visual Impact Assessment (PLVIA) of the Project to allow the responsible authority to determine if an EES is required for the CWF.

Figure 1-1 Site Location



2. Report Structure

This assessment will support a referral under the *Environment Effects Act 1978* and provide a basis for the detailed LVIA required for a planning application to assist the Minister for Planning's assessment as to whether an EES is required.

This preliminary landscape and visual assessment is based on the guidelines set by the following documents:

- Ministerial guidelines for the assessment of environmental effects under the Environmental Effects Act 1978;
- Referral of a project for a decision on the need for assessment under the Environment Effects Act 1978 – Referral Form; and
- Policy and planning guidelines for developing wind energy facilities in Victoria, Department of Land, Water, Environment and Planning, amended January 2016.

The 'Referral Form' outlines a wind energy facility's preliminary landscape and visual assessment objectives. A preliminary landscape and visual assessment should discuss the following:

- The landscape character of the site and surrounding areas, including landform, vegetation types and coverage, water features, any other notable features and current land use;
- The location of nearby dwellings, townships, recreation areas, major roads, aboveground utilities, tourist routes and walking tracks;
- Views toward the location of proposed wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

The visual impact of the development relates to the:

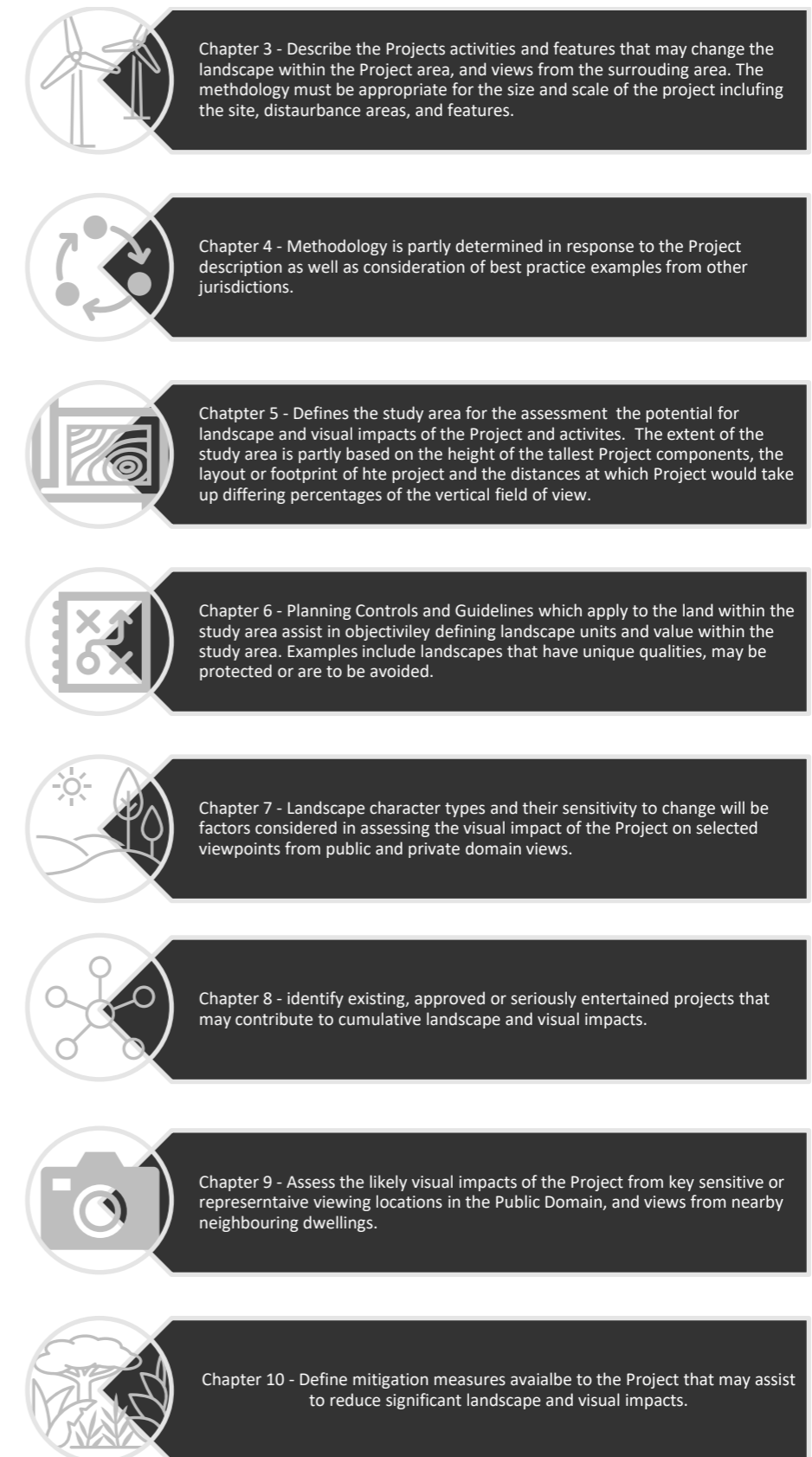
- Number, height, scale, spacing and colour of the proposed wind turbines
- Requirement (if any) for aviation obstacle lighting
- Grid connecting infrastructure (where known)
- Proximity to sensitive areas and viewing locations
- Removal or planting of vegetation
- Avoidance of visual clutter and ability to view through a (visually) well-ordered array of turbines from sensitive locations
- Location and scale of other buildings and works, including transmission lines and associated access roads
- Potential for cumulative effects due to the proximity of existing or proposed energy facilities or grid connecting infrastructure

A further assessment will be required following the Ministers determination on the planning pathway for the Project. This further assessment will be prepared in accordance with the requirements set out in Clause 52.32 (Wind Energy Facilities) and Section 5.1.3 of the Policy and planning guidelines for development of wind energy facilities in Victoria. This further assessment would consider in greater detail the implications of the:

- Visibility of the development
- locations and distances from which the development can be viewed
- The significance of landscapes described in the planning scheme as being sensitive to development (including areas recognised by the National Parks Act 1975 or Ramsar Wetlands, relevant overlays, and strategic landscape studies)

The approach and methodology is illustrated in Figure 2-1, opposite

Figure 2-1 VIA Methodology



3. Project Description

This chapter describes the key components of the Project. These features will define the assessment methodology used to assess the landscape and visual impacts of the Project. Figure 3-1 shows the Project location, proposed boundaries and preliminary layouts for the CWF.

3.1 Location

Kerang is located approximately 25 km east of the nearest proposed wind turbine. Kerang is the closest regional centre. Quambatook is approximately 9.0 km southwest and is the closest township.

3.2 Broad Layout and key features

The layout shown opposite is based on a preliminary layout comprising 174 Wind Turbine Generators (WTG's) located in farming land north of the Avoca River and Kerang Quambatook Road.

A broad investigation area has been defined in which to locate the proposed transmission line and grid connecting infrastructure. The whole of the transmission line investigation area is within the Study Area defined in Chapter 5 of this PLVIA for the wind farm components, and the focus area of this assessment. The Project would be located across multiple privately owned and neighbouring properties.

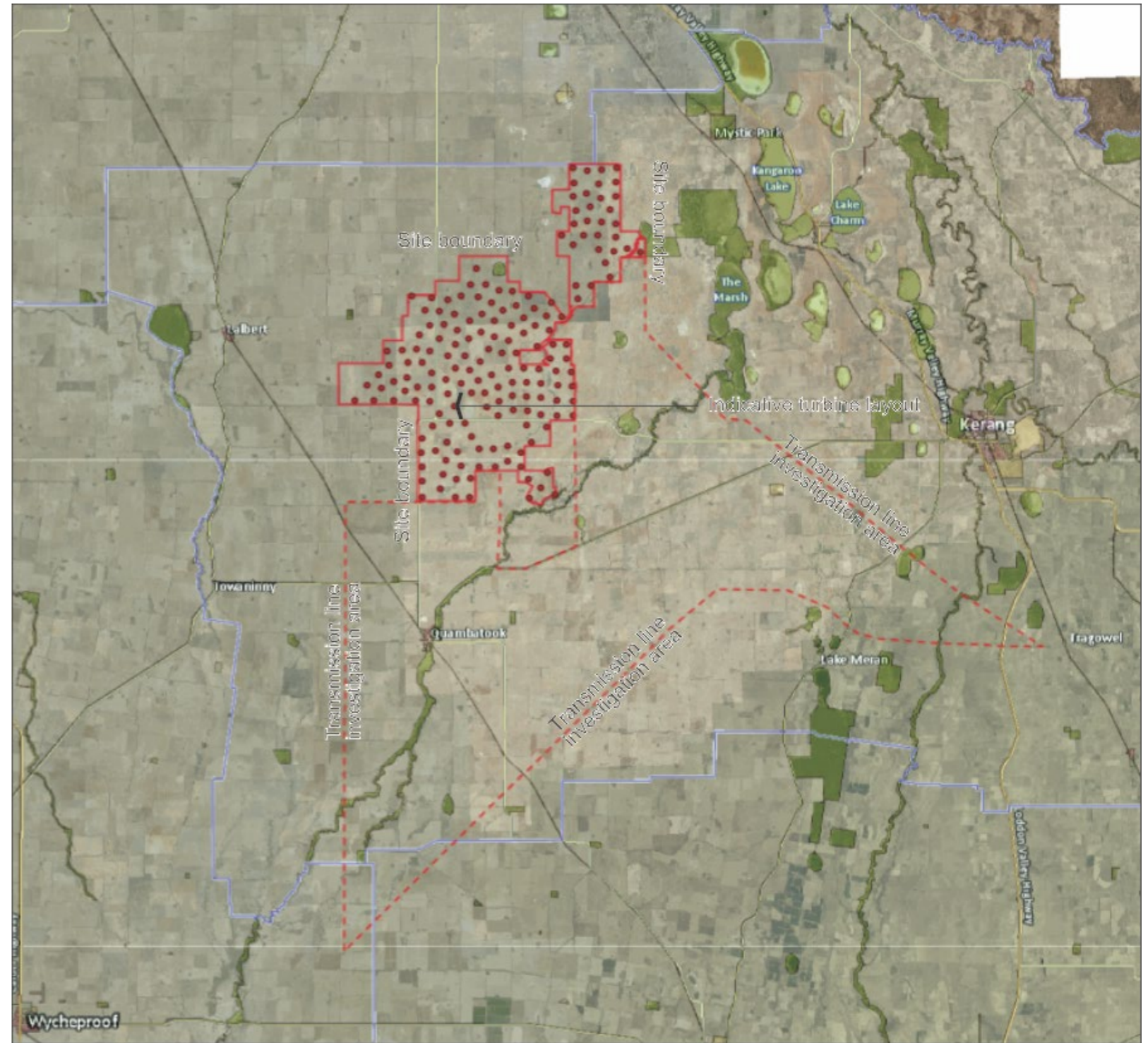
3.3 Wind Farm Components

Key features of the wind farm will comprise:

- Turbines with a maximum height to the tip of the blade not exceeding 280.5 metres (m)
- Monitoring Masts
- Access Tracks.
- grid connecting infrastructure,
- operations and maintenance facilities (O&M)
- offices parking areas,
- construction compounds and laydown areas; and
- on-site quarry.

This Preliminary Landscape and Visual Assessment focuses on the 280.5m high wind turbines. The detailed assessment will include the transmission lines and grid connecting infrastructure.

Figure 3-1 Project area and layout of key features



3.4 Turbine Specifications

A WTG's key features relevant to landscape and visual impact are the height of the tower and nacelle, the length of the turbine blade and rotor diameter, and the combined or overall height to the tip of the turbine blade.

Table 1 (below) summarises the key components of the project turbines. Figure 3-2 (opposite) shows the 230 m high constructed turbines of Murra Wind Farm. These turbines are the tallest constructed turbines in Victoria and are located in a similar landscape setting. These similarities have assisted in preparing this PLVIA for the proposed Cannie Wind Farm.

The Aviation Impact Assessment will determine the likely requirement for aviation obstacle lighting. The visual impact of any lighting would be assessed in the detailed Landscape and Visual Impact Assessment should it be deemed necessary for the Project.

Table 1 Key WTG dimensions

Item	Maximum specification
Overall height	Up to 280.5m above natural ground level
Hub height	Up to 183m above natural ground level
Rotor Swept Area/ Rotor diameter	Up to 195m
Cord width	Up to 5m
Number of turbines	Up tp 174

3.5 Substations, Operations and Maintenance Facilities

The Project will require substations and switchyards to connect the Project to the NEM. The onsite terminal stations would be located on farming land within the site boundaries shown in Figure 3-1. An off-site substation will connect the Project to the NEM. The location is yet to be determined.

A permanent site control and operations building would be constructed adjacent to or within the on-site terminal station site. The control building may serve as a joint facility for the operation of the wind farm and the terminal station.

The overall heights of various elements within the on-site collector substations and the terminal station would vary. The scale of these elements would be similar to farm structures and other utility transmission lines visible in the area.

Most wind farm projects require landscape screening to be installed external to permitter fencing and along boundaries shared with sensitive uses. The requirement for landscape screening will be considered once the location has been determined.

Figure 3-2 Murra Warra Wind Farm



3.6 Wind Monitoring Masts

A wind monitoring mast would be constructed within the site boundaries and will comprise either steel lattice or a tubular steel structure that is supported by three guy wires. Visually, wind monitoring masts are similar to radio communications towers often found in flat, open rural landscapes.

3.7 Access Tracks

The construction and operation of the Project would require the creation or upgrade of access tracks internal to the site.

Access tracks would be required to construct the wind farm and for ongoing maintenance. Access tracks would be approximately 12 m in width with the local widening of existing tracks to clear natural features or allow for the turning radius of larger vehicles. Where possible, existing farm tracks would be retained and upgraded to reduce the construction of new access tracks for the wind farm.

Construction of new access tracks would require the removal of topsoil to a suitable founding layer. The surface would be constructed by placing and compacting the road base layer. Where tracks cross drainage lines, crossings may need to be installed.

The location of any new access tracks constructed by the Project and retained beyond construction would be in consultation with host landowners and the Country Fire Authority (CFA).

3.8 Construction

Construction would likely take between 24 - 36 months. Construction activities which are likely to have a landscape and/or visual impact are likely to be the following:

- Temporary construction compound(s);
- Internal site access tracks;
- Establishing WTG foundations and crane hardstands;
- Terminal station and grid connection networks;
- Excavation of trenches and the laying of power and instrumentation cables;
- Erecting the WTGs;
- On-site concrete batching plant(s); and
- Vehicular traffic.

Temporary concrete batching plants may be required to construct the tower foundations. In addition, on-site batching plants are often a requirement to manage traffic impacts on the surrounding road network.

Temporary batching plants would be removed following the completion of the Project. Stockpiles and hardstand areas would be rehabilitated and landscaped.

The wind turbines with a proposed overall height of up to 280.5 m to the tip of the blade, will be the most conspicuous features of the Project. The methodology and key steps are described in the following chapter.

Figure 3-3 Lal Lal Falls Lookout



4. Assessment Methodology

No Australian or Victorian government legislation, methodology or policies are specifically relevant to landscape and visual impacts. However, planning, environmental, and some heritage policies refer to landscape sensitivity and managing views.

The methodology used within the LVIA for this Project is set out below. The methodology has been adapted based on previous Landscape and Visual Assessment reports for similar projects and guidelines prepared in Australia and overseas, which included:

- *Development of Wind Energy Facilities in Victoria, Policy and planning guidelines for development of wind energy facilities in Victoria* (Victorian Guidelines) November 2021
- *Guidance Note for Landscape and Visual Assessment, AILA Queensland, June 2018* recognises that the "Landscape and Visual Assessment (LVA) should be scoped to reflect the project scale".
- *The Guidelines for Landscape and Visual Impact Assessment, Third Edition*, Landscape Institute and Institute of Environmental Management and Assessment (2013) (UK Guidelines). The UK Guidelines, widely referred to internationally, combine scale, duration and reversibility to evaluate magnitude. Viewer sensitivity and landscape character inform sensitivity. These factors are *combined* to assess the overall visual impact. The UK guidelines also discuss the benefit of theoretical mapping visibility or the area from which projects may be visible. These are referred to as the Zone of Theoretical Visibility (ZTV). The UK guidelines do not consider visual scale or prominence over distance. The UK Guidelines prefer professional judgement be employed in preference to the use of matrices.
- *New Zealand Institute of Landscape Architects, NZ (2010) Best Practice Note: Landscape Assessment and Sustainable Management 10.1*. Landscape characterisation is a process of interpreting how attributes such as geomorphology, natural ecosystems, vegetation cover and land-use history come together to distinguish landscapes. The NZ Guidelines recognise that landscapes are dynamic and *continually* changing and that landscape assessment should reflect project scale. Further, the NZ Guidelines seek to manage the Direction and consequences of change and how to sustain landscape values and attributes over time instead of 'freezing' a landscape in a particular state.
- *Environmental impact assessment practice note EIA-NO4, Roads and Maritime Services, NSW, December 2018* is an established guideline for determining landscape character and visual impact assessment for road projects in NSW. This Guideline assesses visual *sensitivity*, derived from an area's qualities, and the magnitude of the change derived from the scale or prominence of the Project in a matrix framework to assess the level of impact.

The methodology of all these Guidelines has overlapping similarities. However, one point of divergence is using matrices as the basis for assessment. Matrices are still referred to in the NSW RMS Guidelines but are not recommended in the more widely applied UK guidelines. The reasoning for this is set out at Section 3.34 of the UK guidelines.

The methodology adopted to assess the landscape and visual impacts of the Project is set out below. This methodology is based upon the scale of the Projects key features, which are summarised in Chapter 3 and the Guidelines listed above.

4.1 Study area

The study area is the area that may be visually affected by Project features and is the area within which the proposed development could create a recognisable impact. It may be possible to see Project features from areas outside the study area.

The extent of the study area is established at a distance where the 280.5m high turbines will occupy less than five per cent of the "Normal" vertical field of view or 0.5° in the vertical plane¹. This anthropometric data will form the basis for determining the study area and zones of visual influence for the Project.

The vertical field of view provides a basis for calculating the extent of the viewshed.

The central field of view in human vision is approximately 10° while standing and 15° while seated. An object that takes up less than 5 per cent of this 10° cone of view may still be discernible but will not be a prominent feature in views.

A 280.5 m high turbine, when viewed from a distance of 32.08 km, will take up five per cent of the vertical field of view. The study area for landscape and visual impact is established at 32.0 km from the turbine layout.

4.2 Landscape character and viewer sensitivity

Landscape Character Units are based on physical and natural attributes within the study area. Characteristics that assist in defining the landscape units include geology, topography, vegetation, and drainage patterns as well as modifications to areas from a natural setting, land-use, and policy considerations.

Policy and guidelines implemented within the study area also provide guidance in recognising landscape character areas.

4.3 Policy Review

Government policies were reviewed to identify key objectives and considerations for the Project's landscape and visual impact assessment. A focus of this review was to objectively *Characterise the landscape, features, and values of the project area of interest and its environs*.

The review examined relevant legislation and Policy to identify landscape features, sensitive areas or locations such as key roads, tourist attractions, residential areas and communities that Policy may protect. These areas are identified in chapters 6 and 7.

4.4 Visual impact assessment

The potential visual impacts of the Project were assessed through views selected from locations within the public domain.

¹ Julius Panero & Martin Zellnik (1979) *Human Dimension and Interior Space*, Witney Library of Design
Henry Dreyfuss Associates, John Wiley & Sons (2012) *The Measure of Man and Woman*, Revised Edition.

4.4.1 Public Realm,

Viewpoints have been from locations that are either representative of key views from roadways or intersections and where it was apparent that the Project have the potential to be visible. From each location, the assessment of the overall visual impact is based on several criteria. Their relevance to the assessment of the overall visual impact from the public domain is set out below:

- **Landscape Change:** The physical change or alteration to a landscape is dependent on the nature of the Project. For example, a landscape may be transformed by a development or a project, and such may be inserted or added to a landscape. For example, a residential or industrial subdivision in a rural landscape would transform the landscape. Developments, such as a telecommunications tower, may be inserted into a landscape without fundamentally changing the character, setting or use.
- **Visibility:** The visibility of the Project elements can be affected by topography, vegetation, built form and infrastructure.
- **Distance:** Infrastructure visibility and dominance will decrease with distance. The ZVI provides an indication of visual dominance and potential impact based on distance.
- **Duration:** The duration of a view is also relevant and must be considered in the overall analysis of views. The impact of a static viewing location, where people may see the Project for an extended period, such as a reserve, roadside stop or patio, will be; as opposed to a momentary view, such as a roadway or between uses, then this duration needs to be considered in the overall examination.
- **Landscape character and sensitivity:** Landscape character of an area is based upon visual features such as topography, vegetation and the use of the land, the naturalness of the area and planning provisions. Specific landscape studies and assessments within the study area may also influence sensitivity. Typically, a modified landscape prevalent within the study area or the region is less sensitive than one ostensibly natural.
- **Viewer numbers:** The overall visual impact level may decrease from locations where there are fewer people can view the Project. Conversely, the level of visual impact may also increase where the viewing location is a recognised key vantage point or tourist route where a greater number of people may view the change.

Viewer sensitivity is based on the nature or purpose of the viewing location. For example, the sensitivity of a person who may view the Project from a reserve, lookout or trail will be higher than the same person at their place of work, travelling the local road network or from within a town.

These six criteria need to be considered when arriving at the overall visual impact from each selected location. The criteria are not assessed numerically or added through a matrix, rather, it is the examination of the qualitative aspects observed at each selected viewpoint, which is supported by the relevant quantitative (measurable) criteria listed above and shown in Figure 4-1. The UK Guidelines provide support for this approach.

4.4.2 Private Realm

The criteria considered in the assessment of views from residential dwellings differ slightly from public realm viewing locations. Viewer numbers are irrelevant, and viewer sensitivity is always considered high. The relevant criteria are shown in Figure 4-2.

The scale of effects applied to viewing locations in the public domain is also used to assess views from residential dwellings.

Figure 4-1 Visual impact – public realm

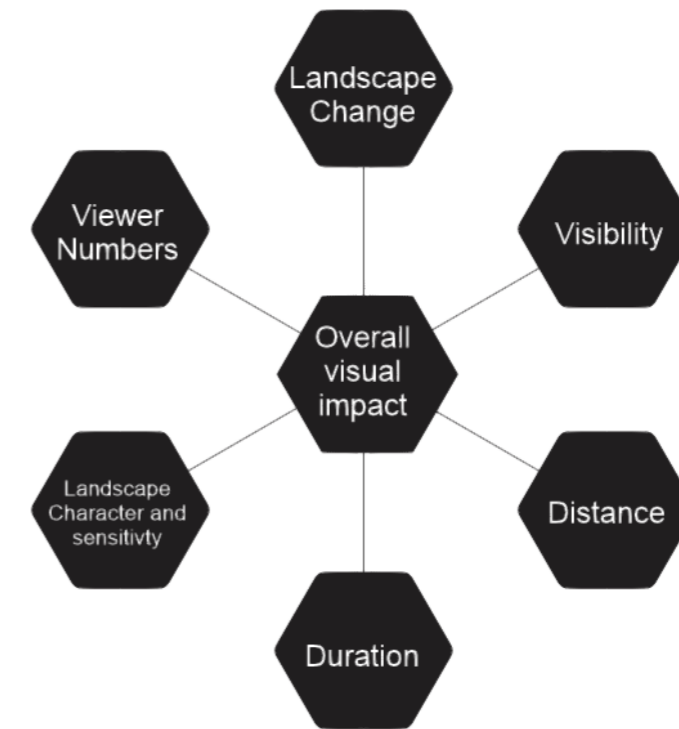
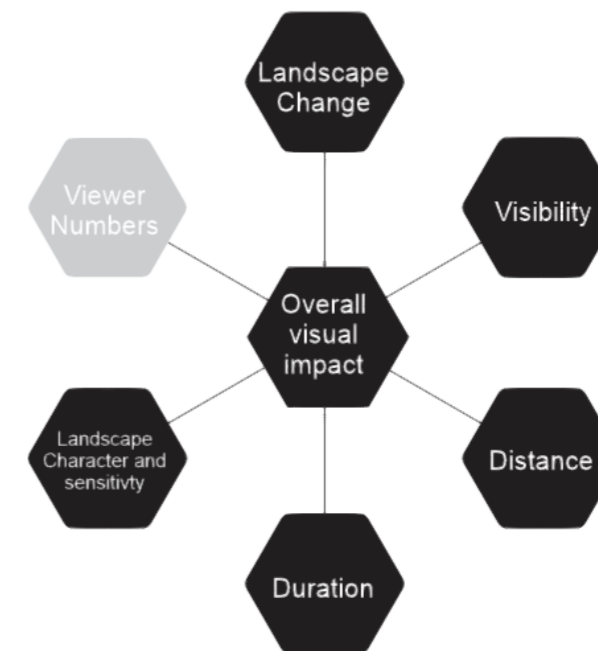


Figure 4-2: Visual impact – Residential views



4.5 Scale of effects

The following table outlines the scale of effects used to assess the overall visual impact for each viewpoint from Nil, where the Project is not visible, to High.

Table 2 Scale of effects

Overall visual impact	Definition
Nil visual impact	An overall assessment of Nil will be arrived at where the Project will be screened by topography, vegetation, buildings and other structures or project features are at such a distance that they will no longer be a readily discernible feature in views.
Negligible visual impact	An overall assessment of Negligible is a minute effect barely discernible over ordinary day-to-day views. A 'negligible' level of visual impact would typically occur where the Project will be at a distance that it would be a minute element in views, or will be filtered by vegetation or partially screened by features such as topography or buildings. An overall assessment of negligible may also be where the Project is added to views that already include many similar features.
Low visual impact	An overall assessment of Low will be arrived at where the Project is noticeable but will not cause significant adverse impacts. For example, a "low" level of visual impact will be assessed if the rating of several, but not all, assessment criteria (visibility, distance, viewer numbers and landscape sensitivity) is assessed as low. Examples of a low level of visual impact are where the Project is visible in a highly modified landscape, few people will see the Project, or where views are transient rather than stationary.
Moderate visual impact	An overall assessment of Moderate may occur where several criteria are higher than "low", or the visual effects would be mitigated/remedied from an initial rating of High.
High visual impact	An overall assessment of High will be arrived at where significant adverse effects cannot be avoided, remedied, or mitigated. For example, a highly sensitive landscape, viewed by many people, with the Project in close proximity and largely visible, will lead to an assessment of a high level of visual impact.

4.6 Landscape Mitigation

WTGs are unavoidably visible and often contrast with the environments in which they are situated. The assessment and approvals process are required to consider the acceptability of impacts on landscape values, the amenity of communities and residential dwellings and the ability of mitigation to manage these impacts.

Mitigation options available to manage the visual impact from locations that are significantly visually affected by a wind farm include:

- Vegetation screening to filter or screen the proposed WTGs from dwellings or areas of private open space.
- Re-siting of WTGs to locations where they would have less visual impact (or removal if necessary).

This PLVIA will consider the ability for landscape screening to be effective at filtering or screening views towards the Project.

4.7 Cumulative considerations

The visual assessment of the Project will also consider the cumulative visual impacts of the Project considering other constructed and approved wind farms in the area. This assessment is based on both sequential views and simultaneous views.

The cumulative impact considers key routes such as highways and local roads from which sequential views may take in a number of wind farms along a journey to consider the impact that the Project would have on viewers' perception of the landscape in which they travel. Simultaneous views are locations where a viewer may see two or more wind farms at a specific location. These can be in the same or opposing directions.

4.8 Photomontages

Photomontages can assist in the assessment by illustrating the scale of the Project. The assessment of views and visual impact at each viewpoint is based partly on photomontages prepared from representative locations that demonstrate the range of distances, viewing angles and landscape character types within the study area to support observations made at each viewing location.

The change in views is based upon a 60° horizontal field of view, which provides a consistent reference for Project visibility and prominence over varying distances. The horizontal field of view also represents the central cone of view in which symbol recognition and colour discrimination can occur. The vertical field of view is between 10 to 15°.

Each photomontage will be accompanied by a wireframe view illustrating the technical model and registration of the project features in views. In these views, registration markers such as poles, cylinders, boxes, or fences align landscape reference points, such as a group of trees, existing structures, or edges of features such as planted hedgerows. In addition, the wireline showing topography demonstrates the vertical alignment of the model in view. These reference points allow the computer model and the photograph to be aligned and ensure that Project features are accurately located within the photograph before compositing the Project into the image.

Photomontages have been prepared to assist in the assessment of the visual impact of the Project. These are discussed later in this report and are appended to this report.

It is recognised that the small photographs and the A3 photomontages included within this assessment, whilst technically accurate, photomontages cannot exactly replicate the manner in which the human eye will experience elements of the Project. The A3 images, which are annexed to this report (**Error! Reference source not found.**), are clearer than the smaller images in the body of the assessment, as these are larger. However, A0 photomontages clearly indicate the actual visual impact – these are perceptually accurate.

4.8.1 Camera data

A 60mm lens on a Nikon D850 digital camera in FX format has a horizontal picture angle of 33.4° and a vertical view angle of approximately 22.6°.^{2 1}

Figure 4-3 shows the general principles of photomontage construction and image overlap, which are used to create the base panorama of a photomontage.

² <https://shotkit.com/field-of-view/> / <https://www.nikonians.org/reviews/fov-tables>

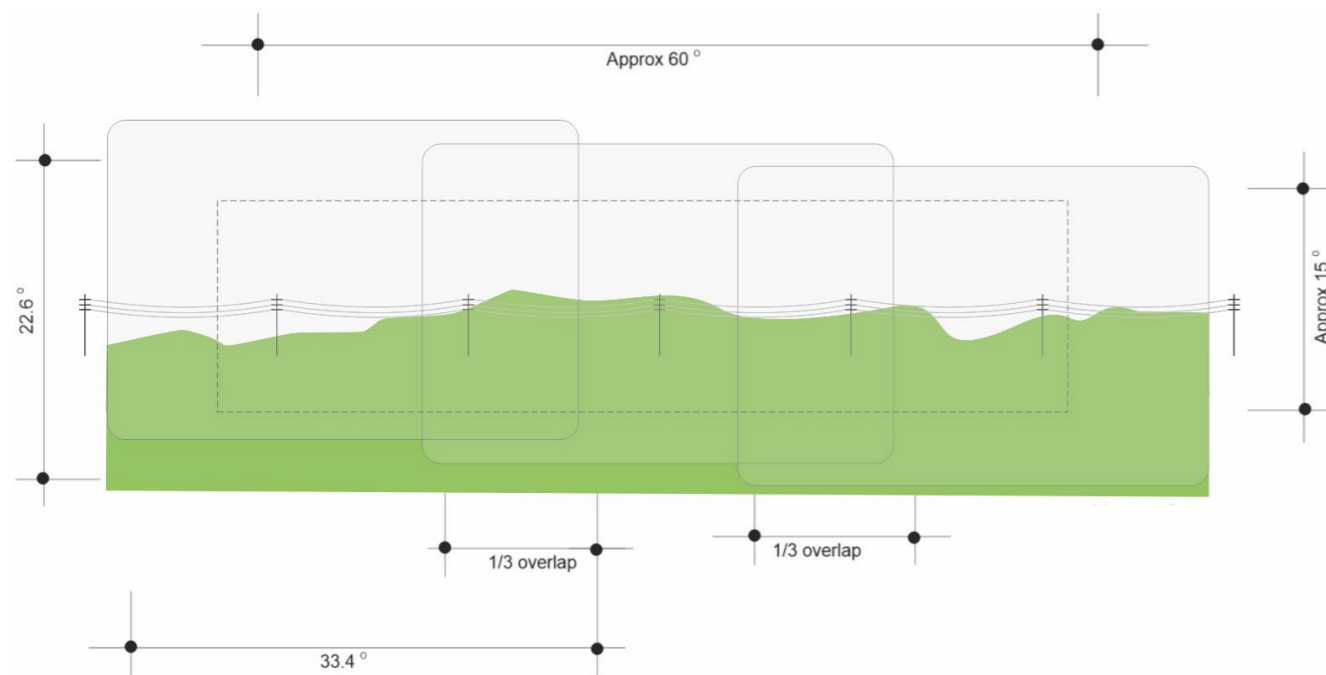


Figure 4-3: Photomontage construction

The camera is held at eye level, approximately 1.75m above ground level. Three photographs overlapped 1/3 to create approximately the same image as the central cone of view of human vision, i.e., 50 to 70° horizontal and 15° vertical.

4.9 GPS Coordinates

The Nikon D850 records the GPS coordinates, viewing Direction and image field of view, which are embedded in the image metadata via a Solmeta GMAX GPS Geotager.

GPS coordinates are also taken based on a separate handheld GPS, and the locations from which the photographs were taken are marked on a digital map within Memory Map or Google Earth Pro.

4.10 Photomontage development

Computer modelling of the Project was prepared using the following software:

- Geotager™
- Autodesk AutoCAD 2017™
- Autodesk 3D Studio Max 2016™
- Adobe Photoshop CC™
- Corel Draw™

Cadastral data and Project features are modelled within a computer program (3D Max). A virtual camera is set up in the model at the GPS coordinates for each photograph used within the panorama.

The digital model or wireframe view is then overlaid on the photographic panorama. Features and points within survey information, such as topography, building locations or other infrastructure, are registered into the base photographs (or other predetermined points). For technical accuracy, these points must align. This verifies the location and apparent height and scale of the proposed development.

Wider panoramas are used to provide a greater number of reference points for the computer model. These wide-angle views are shown in the wireframe views where reference points were aligned outside of the final 60° view.

If the panorama includes a significant number of Project features, these are also included in the analysis. However, wide-angle views, whilst technically correct, do not represent a perceptually accurate representation of the change to a landscape.

After the background reference points have been aligned, the wireframe is removed, leaving the Project features only. The Project features are rendered to match the lighting conditions at the time the photographs were taken or to increase contrast enhancing the visibility of Project features.

The following datasets were used in preparing the photomontages:

- VicMap Contour data to 5.0 m resolution
- Project design files:
 - PAUSiwf004_TurbineLocations_20231115.shp

4.11 Related Studies

This report is to be read in conjunction with and is informed by the related impact assessments listed below.

Table 3 Related studies

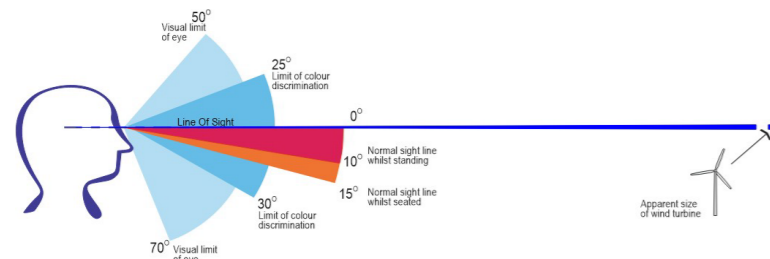
Impact assessment	Relevance to this impact assessment
Aboriginal Cultural Heritage Impact Assessment, including Cultural Values Assessments	Provides an assessment of the potential effects of the Project on Aboriginal cultural heritage values and non-tangible cultural heritage. Due to cultural sensitivities, the Cultural Values Assessments consider the potential visual impacts of the Project on those values.
Bushfire Impact Assessment	Provides an assessment of the potential effects of the Project on the effects and management of bushfires. The Bushfire Impact Assessment has assisted in the assessment of the visual impact on views from the private domain and the recommendations for landscape mitigation.
Land Use and Planning Impact Assessment	Provides an assessment of the potential effects of the Project on land use and how it aligns with Policy. Information from the Land Use and Planning Impact Assessment has assisted in identifying relevant planning policy to be considered by this assessment, land use and sensitivity expectations, sensitive viewing locations and weighting of strategic landscape assessments.
Social Impact Assessment	Validates locations of interest for inclusion in this assessment of impacts and community-held values of the study area.

5. Study area and zones of visual influence

This section establishes the extent of the Study Area for this assessment and Zones of Visual Influence (ZVI). The Study Area is defined as the distance where a 280.5m high WTG, would create a recognisable impact if visible but not greater than low. The Study area is not the same as the extent of visibility, as it may be possible to see the wind turbines from areas outside the study area. ZVI assist in considering the visual prominence of wind turbines over varying distances.

Distance assumptions have been established based on the height of the proposed wind turbines and the percentage of the vertical field of view that a 280.5m high wind turbine would occupy. The percentages of the vertical field of view are based upon the definition provided in 'The Measure of Man and Woman, Revised Edition', Henry Dreyfuss Associates, John Wiley & Sons, 2012 and 'Human Dimension and Interior Space', Julius Panero & Martin Zelnik, Witney Library of Design, 1979. The principles are shown in Figure 5-1 below.

Figure 5-1 Vertical field of view



The study area for the CWF has been established at a distance of 32.0 km, or the distance at which a 280.5m high wind turbine would occupy less than 0.5 of a degree of a personal vertical field of view. A description of the visual significance of a 280.5m wind turbine, when viewed from the extent of the study area and each of the Zones of Visual Influence (ZVI), are outlined in Table 5-1 below and shown graphically in Figure 5-2 opposite. Distances for the Study Area and the ZVI have been rounded to the nearest 50m.

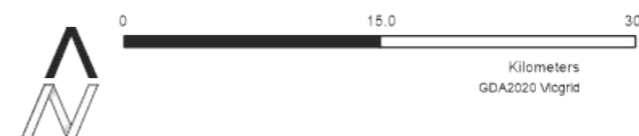
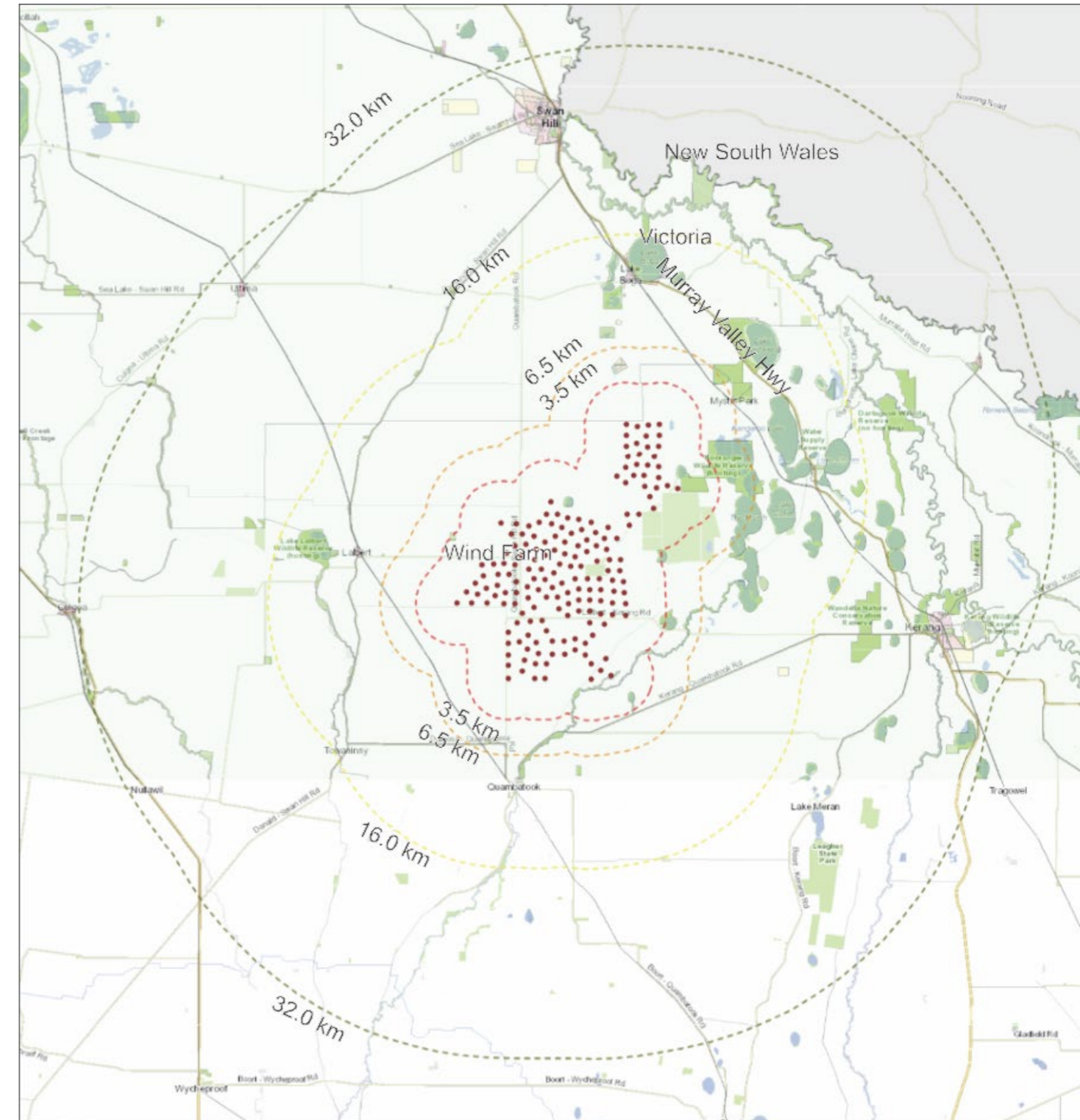
Verification of these calculations and assumptions has also been field-tested using the 230m high WTGs at the Murra Warra Wind Farm in Western Victoria. The Murra Warra turbines are currently the tallest turbines in Victoria and are situated on cleared flat farming land. The results of this testing are included in Appendix 1 of this report.

The Zones of Visual Influence are a guide only and are one of several criteria considered when assessing the overall visual impacts from viewing locations. It is recognised that the apparent size of a turbine does not dramatically change from one band to another (i.e. 5.9 km to 6.1 km). This is particularly apparent when observing turbines comparable in size.

Table 5-1: Zones of Visual Influence

Vertical angle of view (°)	Distance to a WTG	Zones of Visual Influence
<0.5	>32.0 km	Visually insignificant – Extent of the project study area A very small element in the view shed is difficult to discern and will be invisible in some lighting or weather circumstances.
0.5-1.0	16.0-32.0km	Potentially noticeable, but will not dominate the landscape The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer; however, the WTGs do not dominate the landscape.
1.0-2.5	6.5 -16.0km	Potentially noticeable and can dominate the landscape The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer.
2.5-5.0	4.5- 6.5km	Highly visible and will usually dominate the landscape The degree of visual intrusion will depend on the WTGs' placement within the landscape and factors such as foreground screening.
>5.0	<4.5 km	Will always be visually dominant in the landscape where visible in full

Figure 5-2: Study area and Zones of Visual Influence



6. Policy Review

This chapter examines the planning context and considerations relevant to this assessment of the planning schemes within the 32 km Study Area defined in the preceding section.

The following Planning Policies and Guidelines were considered as part of this assessment.

- The State Planning Policy Framework.
- Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (Department of Environment, Land, Water and Planning, November 2021).
- The local planning schemes, including the Gannawarra Planning Scheme which applies to the whole of the site .

The study area extends north of the Murray River and in to NSW. As this project features and distance areas are proposed entirely within Victoria, this section will not consider the implications of the NSW planning schemes.

The implications of these studies are discussed in the following sections.

This review has also assisted in establishing landscape character and values placed on landscapes through land-use zones and schedules to various overlays in the local planning schemes that recognise landscapes and areas for the contributions to the environment, landscape and heritage values that are added to local planning schemes.

landscape and visual impacts. However, planning, environmental, and heritage policies refer to landscape sensitivity and managing views.

6.1.1 State Planning Framework

Clause 19.01 of the State Planning Policy Framework sets out the planning policies for Renewable Energy. The objective of the policy is to "support the provision and use of renewable energy in a manner that ensures appropriate siting and design considerations are met".

Relevant strategies of Clause 19.01 seek to:

- Facilitate renewable energy development in appropriate locations.
- Protect renewable energy infrastructure against competing and incompatible uses.
- Set aside suitable land for future renewable energy infrastructure.
- Consider the economic, social and environmental benefits to the broader community of renewable energy generation while also considering the need to minimise the effects of a proposal on the local community and environment.
- Support wind energy facilities in locations with consistently strong winds over the year.

The Mallee Regional Partnership and the Mallee Outcomes Roadmap (August 2022) provide further support by recognising the region's role in "Facilitating growth of renewable energy industries.

6.1.2 Wind Farm Guidelines

Clause 19.01 of the State Planning Framework also refers to the *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria*, DELWP, November 2021 (referred to as the Victorian Guidelines). Provisions relevant to this PLIVA are set-out below.

The review and assessment of new Wind energy facilities must take into account the Wind Farm Guidelines, which inform planning decisions about a wind energy facility proposal. This document is referenced in clause 19.01-25 and 52.32-6 of the Victoria Planning Provisions (VPP). The Wind Farm Guidelines are discussed below.

Section 2.1 of the Wind Farm Guidelines outlines objectives in identifying suitable locations for wind farm developments.

Wind energy facilities should not lead to unacceptable impacts on critical environmental, cultural or landscape values. Critical values are those protected under Commonwealth and Victorian legislation and assets of state or regional significance, mapped and recognised through planning schemes, including the Planning Policy Framework (PPF).

Strategies to avoid such outcomes from a landscape and visual impact perspective are set out at Section 2.1.2 Significant landscape values. These are repeated below.

A responsible authority and proponents must consider (as relevant) clause 12.05 (Significant environments and landscapes) of the VPP.

In addition, strategic landscape studies have been completed for a number of regions across Victoria, including the Great Ocean Road Region Landscape Assessment Study (2004) and the Coastal Spaces Landscape Assessment Study (2006). These studies identify visually significant landscapes and provide appropriate recommendations for improved planning scheme guidance. Clause 12.02 (Coastal areas) of the PPF requires these studies to be considered by decision makers.

Relevant local strategic studies may also be referenced in the PPF, and significant landscapes may be recognised in overlays, such as the Environmental Significance Overlay, Vegetation Protection Overlay or the Significant Landscape Overlay.

To help guide appropriate site selection, design and layout of individual wind turbines, consideration should be given to the significance of the landscape as described in relevant planning scheme objectives, including relevant overlays and strategic studies referenced in the planning scheme.

Suggested mitigation measures to minimise the potential impact of wind energy facilities on a landscape set out in Section 5.1.3 of these guidelines should also be considered.

Wind energy facilities are not permitted in the following areas, in recognition of their landscape and environmental values:

- National Parks and other land subject to the National Parks Act 1975.

- Ramsar wetlands as defined under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
- Yarra Valley and Dandenong ranges, Bellarine and Mornington Peninsulas, the Great Ocean Road area within five kilometres of the high-water mark, and Macedon and McHarg Ranges.
- the land within five kilometres of the high-water mark of the Bass Coast, west of Wilsons Promontory.
- all land west of the Hume Freeway and the Goulburn Valley Highway.
- all land within five kilometres of the high-water mark of the coast east of the urban area of Warrnambool; and
- any other areas as identified in the schedule to clause 52.32 in the relevant planning scheme.

Section 2.1.5 Exclusion of wind energy facilities in locations that are likely to be required for future population growth. A wind energy facility is prohibited use in an Urban Growth Zone. The Project would not impact on such areas.

A wind energy facility is also prohibited on land within five kilometres of major regional cities and centres specified in the Regional Victoria Settlement Framework plan in the PPF, being: Ararat, Bairnsdale, Ballarat, Bendigo, Benalla, Colac, Echuca, Geelong, Hamilton, Horsham, Mildura, Moe, Morwell, Portland, Shepparton, Swan Hill, Traralgon, Sale, Wangaratta, Warrnambool, and Wodonga. The nearest locality identified above is Swan Hill. Swan Hill is over 32 km to the northwest of the Project.

Section 5.1.3 of the Wind Farm Guidelines sets out specific considerations for Landscape and Visual Impact. Considerations include:

The degree of visual impact of a wind energy facility depends on the extent of the change to the landscape caused by the development, taking into account:

- the visibility of the development (including all components: turbines, office compound, construction compound(s), substation(s), and power lines to connect to the electricity network)
- the locations and distances from which the development can be viewed
- the significance of the landscape as described in the planning scheme (including in an overlay, a relevant strategic study or landscape features referenced in the planning scheme)
- landscape values associated with nearby parks described in a schedule to the National Parks Act 1975 or Ramsar wetlands
- landscape values associated with nearby land included in the schedule to Clause 52.32-2 of the planning scheme, such as specified areas of landscape and environmental significance, specified coastal locations and areas identified to accommodate future population growth of regional cities and centres
- the sensitivity of the landscape features to change.

The visual impact of the development relates to:

- the number, height, scale, spacing, colour and surface reflectivity of the wind turbines
- the quantity and characteristics of lighting, including aviation obstacle lighting (subject to CASA requirements and advice)
- avoidance of visual clutter caused by turbine layout and ability to view through a cluster or array (visually well-ordered series) of turbines in an orderly manner
- the removal or planting of vegetation
- the location and scale of other buildings and works including power lines and associated access roads
- proximity to sensitive areas
- proximity to an existing or proposed wind energy facility, having regard to cumulative visual effects.

The features of the landscape include:

- the topography of the land
- the amount and type of vegetation
- natural features such as waterways, cliffs, escarpments, hills, gullies and valleys
- visual boundaries between major landscape types
- the type, pattern, built form, scale and character of development, including roads and walking tracks
- flora and fauna habitat
- cultural heritage sites
- the skyline.

Wind energy facilities will have a degree of impact on the landscape.

A responsible authority is required to determine whether or not the visual impact of a wind energy facility in the landscape is acceptable. In doing so, they should consider planning scheme objectives for the landscape, including whether the land is subject to an Environmental Significance Overlay, Vegetation Protection Overlay, Significant Landscape Overlay or a relevant strategic study that is part of the relevant planning scheme.

The visual impact of a proposal should have regard to relevant state, regional and the planning policy framework.

The following measures are suggested to reduce the visual impacts of wind energy facilities:

- siting and design to minimise impacts on views from areas used for recreation and from dwellings.

- locating arrays of turbines to reflect dominant topographical and/or cultural features, such as ridgelines, the coastline, watercourses, windbreaks or transmission lines.
- using turbine colour to reduce visual impacts from key public viewpoints.
- limiting night lighting to that required for safe operation of a wind energy facility and for aviation safety.
- reducing the number of wind turbines with obstacle lights while not compromising aviation safety.
- mitigating light glare from obstacle lighting through measures such as baffling.
- selecting turbines that are consistent in height, appearance and rotate the same way.
- spacing turbines to respond to landscape characteristics.
- undergrounding electricity lines wherever practicable.
- minimising earthworks and providing measures to protect drainage lines and waterways.
- minimising removal of vegetation.
- avoiding additional clutter on turbines, such as unrelated advertising and telecommunications apparatus.

As stated in the introduction, a key consideration of the guidelines is the provisions of the local Planning Schemes that relate to landscape significance and community values identified within the Planning Schemes within the study area. Such areas are described in Section 5 of this report.

6.2 Planning Policy Framework

State policy applies consistency across the whole of Victoria. Regional Policy provides local content to the areas within each local government area. Within the PPF, state policy is denoted with an 'S', regional Policy as 'R' and local policy as 'L'. The PPF is currently being consolidated. As such, sections of the planning scheme review may not be complete.

All landscapes are valued. However, landscape character and values assigned to areas vary, as do the levels of protection. Areas and landscape features with statutory protections at the state and local levels are summarised below.

The CWF site is entirely within the area covered by the Gannawarra Planning Scheme. The northern part of the study area includes areas covered by the Swan Hill Planning Scheme, the western part includes the area within Buloke Planning Scheme and the Loddon Planning Scheme to the south.

The Project boundary and most of the visual study area is within the Gannawarra Planning Scheme. The visual study area also includes areas within the Swan Hill Planning Scheme to the north, Loddon Shire to the south and Buloke to the west.

Although the 32 km study area would include land under New South Wales planning jurisdiction, it is considered that the NSW planning scheme is not required to be contemplated within this PLVIA.

The provisions of the local planning schemes relevant to this assessment are set out below.

6.2.1 Gannawarra – Clause 02.03-2 Environmental and landscape values

Clause 02.03-2 Environmental and Landscape Values of the Gannawarra Planning scheme recognises *The natural landscape of the municipality is characterised by the openness of irrigated and dryland farming areas. Areas of high landscape quality are generally found along vegetated streams and waterways and in the Kerang lakes area, Gunbower State Forest, the Murray River environs and other state parks and reserves. The rivers, wetlands and lakes systems provide significant habitat for flora and fauna as well as playing a key economic, social and tourism role....*

Many of the wetlands in the Kerang lakes area and Gunbower Forest have significant conservation value for native flora and fauna and are of national and international significance (under the Ramsar convention). As there are significant numbers of rare or threatened species the importance of the wetlands as breeding grounds for birdlife has been recognised by listing under JAMBA (Japanese and Australian Migratory Bird Agreement) and CAMBA (Chinese and Australian Migratory Bird Agreement). The Northern Plains Grasslands are recognised as areas of particular significance.

The stated Strategic directions for the environment are to:

- Encourage the planting of additional native vegetation for habitat and landscape enhancement.
- Protect rivers, lakes, and wetlands of international significance.
- Protect and enhance native vegetation, especially in and around rivers, lakes, and wetlands.
- Protect and enhance soil and water quality, which is essential for agriculture and ecological health.
- Provide for a range of nature-based activities including conservation, recreation, and tourism.

Although part of the stated objectives is to *Provide for a range of nature-based activities including conservation, recreation, and tourism.* This does not preclude the inclusion of wind energy facilities.

6.2.2 Loddon – Clause 02.03-2 Environmental and landscape values

Clause 02.03-2 Environmental and Landscape Values of the Loddon Planning scheme to the south of the study area recognises *The natural resource base is the economic foundation of the. The environmental values of the shire include Box Ironbark Forests, native grasslands, woodlands, wetlands, and the Loddon River....*

Of particular importance in the north of the shire is the Terrick Terrick National Park, which contains a forest of Murray Pines, grasslands, and the nationally endangered ecological community of the Buloke Woodlands.

Native grasslands were once widespread across the riverine plains of the north of the shire but are now restricted to a handful of isolated remnants on private and public land, such as roadsides and railway lines. The greatest concentrations of significant grasslands are found around Mitiamo and are of national significance, as so little of this vegetation community remains Australia wide. The ongoing survival of these grasslands could be prejudiced by overgrazing, land development and changes to land management practices, such as the introduction of cropping...

Many of the wetland systems in the shire are threatened or have been eliminated by drainage or alteration to the natural flow paths of water. Some of these wetlands are protected under international agreements such as Ramsar, JAMBA and CAMBA.

The stated objectives of the Council's strategic directions for environmental and landscape values are to:

- Protect significant native vegetation and habitat, including native grasslands.
- Maintain remnant vegetation in viable sized parcels and enhance linkages between them.
- Ensure development and use of private land does not impact any adjoining public land parcels, in particular Terrick Terrick National Park, Leaghur State Park, and Kooyoora State Park.
- Support improvements to the natural quality of the lakes and surrounds in Boort.
- Protect the forest surrounds of Wedderburn.

Although part of the stated objectives is to Ensure development and use of private land does not impact any adjoining public land parcels, in particular Terrick Terrick National Park, Leaghur State Park, and Kooyoora State Park, and to Support improvements to the natural quality of the lakes and surrounds in Boort. This does not preclude wind energy facilities.

6.2.3 Buloke – Clause 02.03-2 Environmental and landscape values

Clause 02.03-2 Environmental and Landscape Values of the Buloke Planning scheme to the west of the study area recognises *The natural environment of Buloke is highly modified as a result of settlement and agriculture. Aspects of environmental significance that need to be protected include remnant vegetation along roadsides, watercourses and rivers, and significant wetlands such as Lake Buloke, Lake Tyrrell and the Wooroonook Lakes.*

The stated objectives of the Council's strategic directions for environmental and landscape values are:

- Protecting biodiversity, native vegetation, habitat, and natural landscape values.
- Improving stormwater quality and enhancing natural waterways.

- Discouraging the expansion of development into areas of environmental sensitivity.
- The stated objectives are Discouraging the expansion of development into areas of environmental sensitivity.

6.2.4 Swan Hill – Clause 02.03-2 Environmental and landscape values

Clause 02.03-2 Environmental and Landscape Values of the Swan Hill Planning scheme to the north of the study area recognises *The Murray River and its wetlands provide significant habitat values. The threats and pressures on the Murray River and adjacent riparian vegetation from expanding development are a major challenge for waterway health.*

The municipality hosts two major wildlife corridors (the Murray River and Lalbert Creek), which are essential for the movement, development and survival of flora and fauna. The Mallee Regional Catchment Strategy and the North Central Regional Catchment Strategy provide an assessment of environmental values and actions to protect these values.

The Nyah and Vinifera State Forests of redgum and box contain a wealth of archaeological material relating to ancient Aboriginal occupation, including canoe trees, middens, burial grounds, and boundary markers. At the east end of the Vinifera State Forest is the location of the first commercial rice crop in Australia.

In undertaken commitments *In protecting environmental and landscape values, Council will:*

- Protect the environmental, visual and landscape values of the Murray River and environs.
- Improve stormwater run-off from townships into the Murray River.
- Protect and maintain remnant native vegetation for catchment health and prevention of erosion, particularly in dryland farming areas.

Key areas to be considered in the visual and landscape values of the Murray River and environs.

6.2.5 Gannawarra – Clause 02.03-9 Infrastructure

Clause 02.03-9 Infrastructure of the Gannawarra Planning Scheme recognises that *the shire has significant infrastructure advantages with an excellent power supply, world-class potable water supplies and access to the Loddon Valley and Murray Valley Highways. Further, the shire is ideally located to generate significant solar electricity.*

Amongst other things, the strategic directions for infrastructure within the shire seek to *Encourage the use and development of land for solar energy production.*

Clause 02.03-9 of the Gannawarra Planning Scheme indicates a contemplation at the policy level of the region hosting renewable infrastructure.

6.2.6 Loddon – Clause 02.03-8 Infrastructure

Clause 02.03-9 Infrastructure of the Loddon Planning Scheme recognises that *The shire, especially the northern half, has high levels of solar exposure. It is also bisected by an electricity transmission line and a 66-kilovolt line, meaning it is highly suitable for solar energy generation and distribution.*

Part of the Council's strategic directions for infrastructure are to *Direct renewable energy facilities to areas where they will not adversely affect agricultural land or production.*

Clause 02.03-9 of the Loddon Planning Scheme also indicates a contemplation at the policy level of the region hosting renewable infrastructure.

6.2.7 Land-use zones

Figure 6-1 (below) shows land-use zones applied to the study area within the local planning schemes.

All land within the Project boundaries is within the Farming Zone (FZ). Areas zoned Public Conservation and Recreation Zone (PCRZ) comprise bushland reserves beyond the Project boundaries and the Avoca River to the southeast of the Project.

The purpose of the Farming Zone is:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision; and
- To provide for the use and development of land for the specific purposes identified in a schedule to this zone.
- Under General Issues, the decision guidelines relevant to LVIA direct the responsible authorities to consider:
 - The Municipal Planning Strategy and the Planning Policy Framework...
 - Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses....
 - How the use and development make use of existing infrastructure and services.

Under Design and siting Issues, the decision guidelines relevant to LVIA direct the responsible authorities to consider:

- *The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land.*
- *The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.*
- *The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.*

The purpose of the Public Conservation and Recreation Zone is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.*
- *To provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes. To provide for appropriate resource-based uses.*

6.2.8 Relevance to this assessment

Areas with the greatest protection and most valued areas are landscape areas within the Public Conservation and Resource Zone (PCRZ), such as the Leaghur State Park Bael Bael Grasslands Nature Conservation Reserve, Water bodies and ephemeral wetlands. These areas are valued for their natural appearance, recreational uses, and biodiversity values.

Areas with the potential for more people and greater viewer numbers include townships and rural communities where the predominant land-use zone provisions are for living and recreation. These areas include land within the General Residential Zone (GRZ), Township Zones (TZ), and Rural Living Zones (RLZ). Such areas included in the study area for the CWF include Kerang to the east, Quambatook to the south, Lalbert to the west and Swan Hill, Lake Boga and Mystic Park to the north.

The Farming Zone contemplates that uses within these areas can impact the amenity of sensitive uses such as residential dwellings. Most approved and constructed wind farm projects in Victoria are within the Farming Zone. These areas are not considered to be sensitive to the levels of landscape or visual change proposed by wind energy facilities.

This observation is supported by the Panel Report for the Delburn Wind Farm, where at Section 3.4.1 it is observed that *Most Victorian wind farms are in areas with a relatively low population and in cleared flat landscapes, rated as low landscape sensitivity.*

Section 3.5 Conclusions of the same report determined that *The relevant planning schemes, the FZ and rural residential zones do not recognise landscape values and sensitivity to change in the areas around the Project.*

Areas in the FZ with higher values are recognised by schedules to the Significant Landscape Overlay, Environmental Significance Overlay, or Vegetation Protection Overlays in the local planning schemes. These are discussed below.

It is acknowledged that people live in the Farming Zone, but this is not recognised as the protection's primary purpose or focus. The protections seek to limit or preclude modifications directly impacting the integrity of the recognised features and the value of these areas.

6.3 Overlays

Overlays applied to landscapes and features in the study area that can protect landscape character, views, and amenity include the Significant Landscape Overlay, Vegetation Protection Overlay, Design and Development Overlay, and Heritage Overlays referred to above.

The following overlays have informed the definition of landscape character described in Chapter 7, which is referred to through this assessment.

6.3.1 SLO's

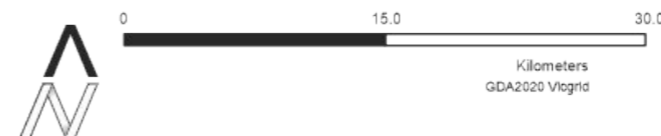
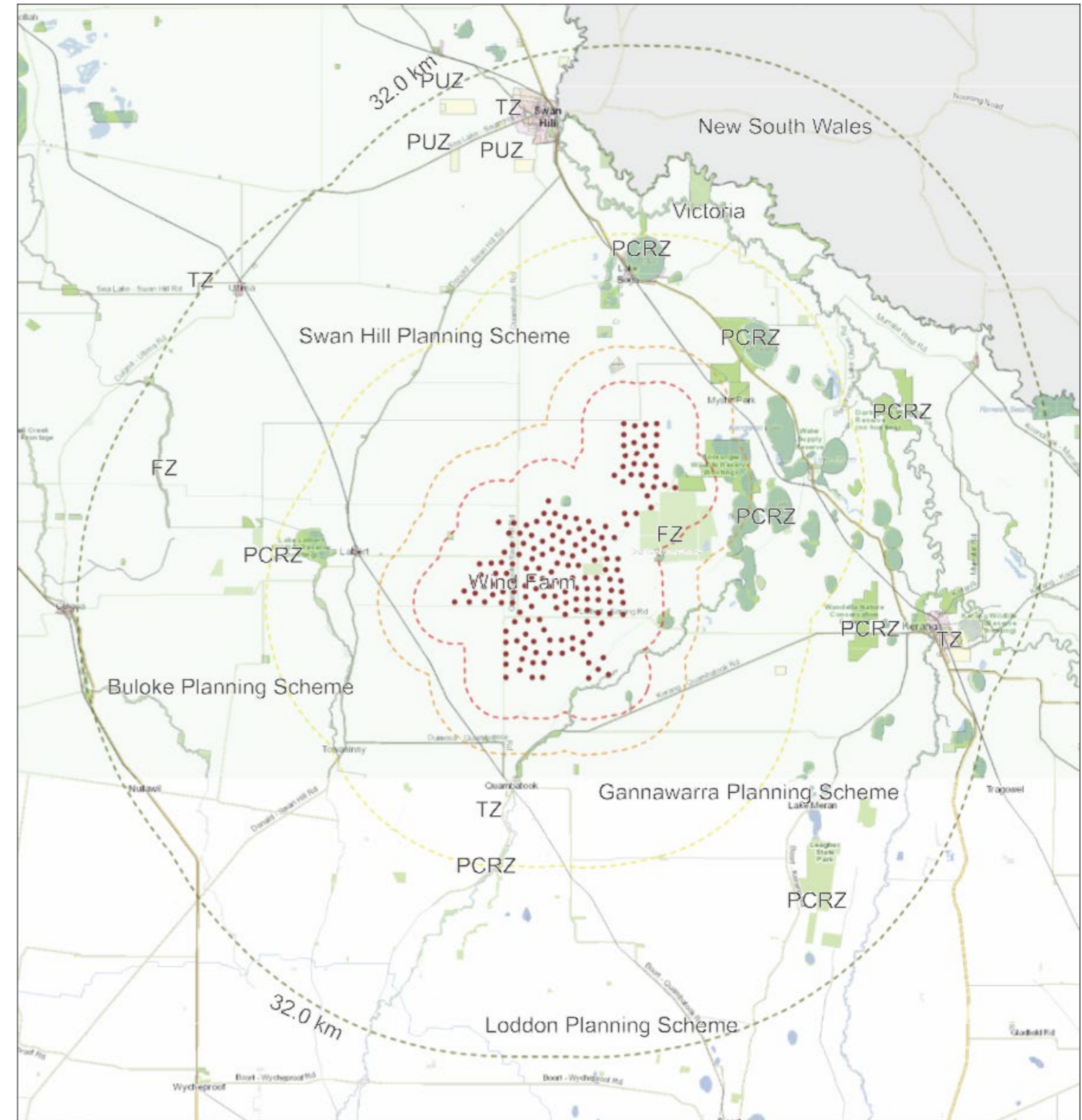
There are no Significant Landscape Overlays within the 6.5km of the site. This is relevant because the schedules to the Significant Overlay of the local planning schemes typically refer to visual impact as one of the objectives decision-makers manage or consider. Beyond this distance, the wind turbines would be at a distance where they would be in the background or would be a small component in the vertical field of view. Therefore, the impact on landscape values when the wind turbines are viewed from even greater distances is not likely to be significant.

6.3.2 ESO's

Several schedules to the Environmental Significance overlay (ESOs) apply to land and features within the study area. The objective of most ESO's seek to protect water quality across the various catchment areas to which they are applied.

The exception is Schedule 1 to Environmental Significance Overlays (ESO1) and Schedule 3 Environmental Significance Overlays to the Gannawarra Planning Scheme.

Figure 6-1 Land-use Zones



6.3.2.1 Gannawarra – Schedule 1 – Waterway Environs to Clause 42.01 Environmental Significance Overlay

Schedule 1 – Waterway Environs to the Environmental Significance Overlay recognises *The Murray River and its tributaries comprise major waterways of local, state, national and international significance.*

The Environmental objective to be achieved in the areas designated as ESO1

- *To maintain the quality and quantity of water within the waterway.*
- *To protect and enhance the natural environment of the Murray River and its tributaries.*
- *To ensure that the use of land and the construction and carrying out of any buildings and works in waterway environs are of a scale, character and form which is compatible with the high environmental quality of the waterway system and surrounds.*
- *To protect and enhance the biodiversity, ecological values and cultural values and the visual landscape quality of the waterway environs.*

6.3.2.2 Gannawarra - Schedule 3 – Lake Environs to Clause 42.01 Environmental Significance Overlay

Schedule 3 – Waterway Environs to the Environmental Significance Overlay recognises *The Kerang Wetlands are a system of public lands reserved as Nature Reserves, Wildlife Refuges and State Forest. The wetlands systems are integral to the maintenance of natural, cultural and catchment values associated with major rivers in the municipality including the Loddon and Avoca Rivers and the riparian environs of the Murray River. Incorporated into these wetlands is a comprehensive irrigation system for agricultural and horticultural use.*

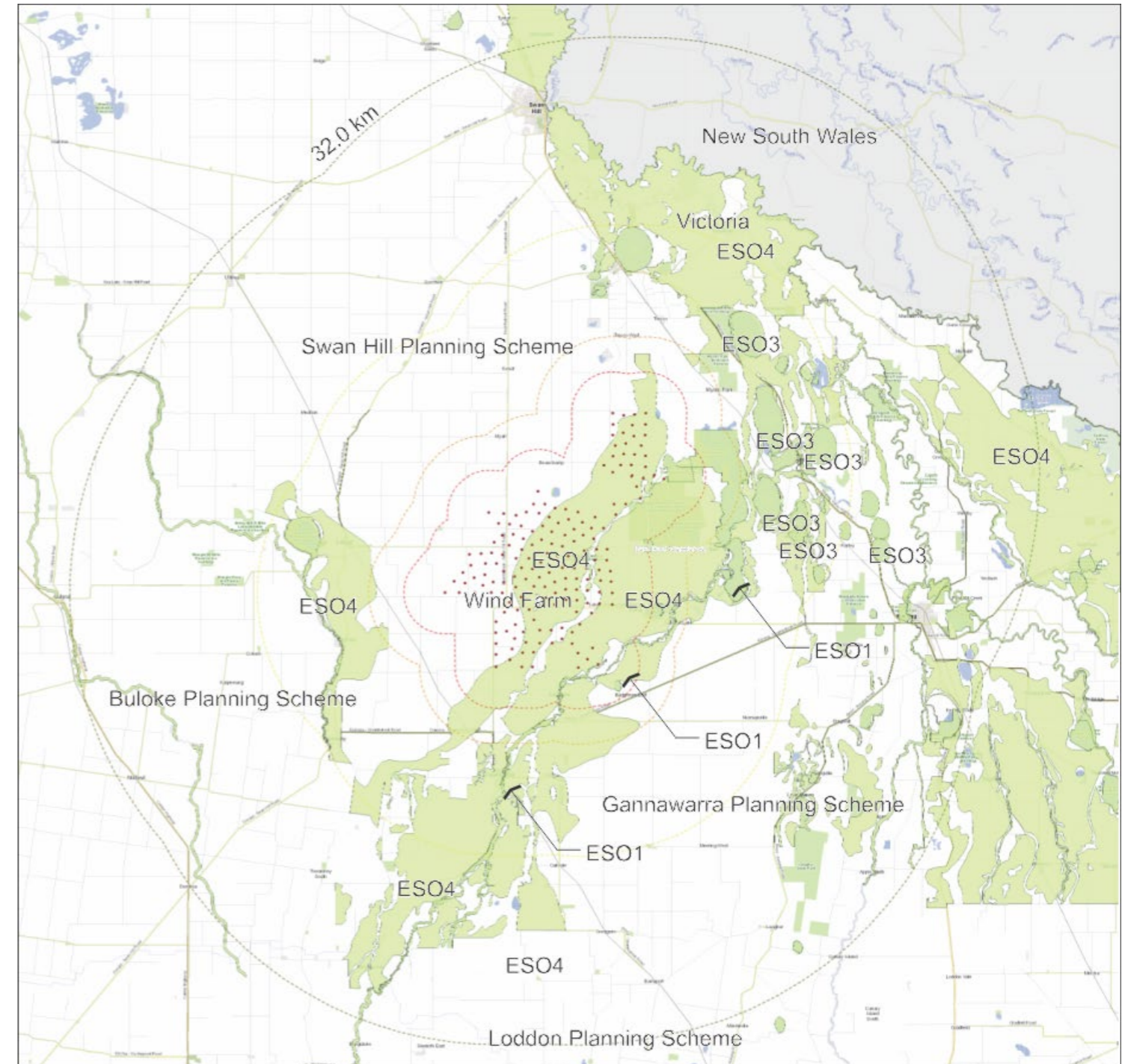
The wetlands contain outstanding ecological values, including internationally significant wildlife habitats and catchment values concerning water supply, water quality, drainage, salinity control and recreational values.

Environmental objectives to be achieved include:

- *To recognise the important function and significance of existing lakes in the land pattern.*
- *To protect and enhance the biodiversity, ecological values, and cultural values of the lake environs.*
- *To protect the visual and environmental quality and character of the lakes and their environs.*
- *To provide for appropriate development on land adjacent to Lake Charm, Kangaroo Lake, and Racecourse Lake, consistent with the use of the area for tourist, holiday and recreational purposes, while protecting the natural beauty and amenity of the land and lakes themselves.*
- *To maintain the function of the lakes as a flood control basin.*
- *To protect the natural beauty of the area.*

Sites within this area are identified as Ramsar Wetlands. The management outcomes of ESO 3 include amenity considerations from specific areas such as lakes, waterways and recreation areas.

Figure 6-2 Overlays



6.3.2.3 Ganawarra – Schedule 4 Areas of poor drainage or potentially subject to inundation

The area affected by Environmental Significance Overlay - Schedule 4 – Areas of Poor Drainage or Potentially subject to inundation is shown in Figure 6-2. ESO4 applies to the Project area and neighbouring properties.

The statement of significance for Schedule 4 to the ESO (ESO4) seeks to *ensure that any development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and with local drainage conditions and will not cause any significant rise in flood levels or flow velocity.*

6.3.2.4 Loddon – Schedule 1 – Lake Environs and wetlands to Clause 42.01 Environmental Significance Overlay

Schedule 1 – Lake Environs and wetlands to the Environmental Significance Overlay *The Loddon Shire, especially the northern area centred on Boort, contains a significant and unique network of lakes and wetlands associated with the Loddon and Avoca River flood plains.*

The lakes and wetlands are recognised for:

- *The provision of habitat and the contribution to biodiversity.*
- *For water storage.*

Larger lakes and wetlands include Boort Lakes, Lake Marmal, Tang Tang Swamp, and Lake Yando. Lake Boort and Lake Marmal are under consideration for inclusion of the Register of the National Estate.

The stated objectives to be achieved seek to:

- *To recognise the important function and significance of existing lakes in the land pattern.*
- *To protect the visual and environmental quality and character of the lakes and their environs.*
- *To provide for appropriate development on land adjacent to Lake Boort and Laanecoorie Reservoir, consistent with the inherent use of the area for tourist, holiday, and recreational purposes, while protecting the natural beauty and amenity of the land and quality of the lakes themselves.*
- *To maintain the function of the lakes as a flood control basin.*
- *To protect the natural beauty of the area. To protect the habitat provided by specific wetlands.*
- *To protect wetlands from drainage, and from the impacts of land forming.*
- *To protect water quality.*

6.3.2.4.1 Vegetation Protection Overlay

The Vegetation Protection Overlay (VPO1) refers to roadside and corridor protection. The Vegetation Protection objectives to be achieved in the areas designated as VPO1 are:

- *To protect and preserve indigenous vegetation and rare and endangered flora and fauna species on linear reserves.*
- *To achieve high landscape quality on roadsides.*
- *To maintain and enhance habitat and corridor requirements for indigenous fauna.*
- *To encourage the establishment and enhancement of habitat corridors to link pockets of remnant vegetation.*

7. Landscape Character Units and Sensitivity

The referral form requires a description of the landscape and character surrounding the Project. People's perceptions of landscape character and values vary significantly for local community members and individuals. Sensitivity ratings are based upon protections in the planning scheme, land use and the commensurate expectations on amenity and projects in similar landscapes. Impacts on local values have been considered and assessed by viewing locations selected within the study area from sensitive locations, key features or landmarks identified through community consultation and stakeholder engagement, or views representative of the landscape character areas defined in this report chapter.

Landscape Character Units can be defined partly through areas with similar visual characteristics, land use and planning provisions. Features such as topography, creeks and drainage lines, vegetation types, and land use will influence views but also define character.

Features that have informed the identification of landscape character units and their sensitivity include topography, vegetation, waterways and drainage patterns, and land use.

Four landscape character types have been defined within the study area. These have been defined through the previous examination of policy, landscape features, and land uses within the study area. The following section describes the key characteristics and sensitivity of the nine landscape character types within the study area.

- **LCU 1 - Cleared Flat Farmland** – includes the majority of the land in the study areas. These areas are usually in the Farming Zone and Rural Conservation Zone.
- **LCU2 - Reserves, Recreation and Conservations**– include areas of Pubic land along the narrow rivers and creek lines which are typically vegetated, and the lakes and open waterbodies
- **LCU3- Townships and Rural Communities** – include areas of residentially zoned land where there is a greater concentration of dwellings, community features and people.

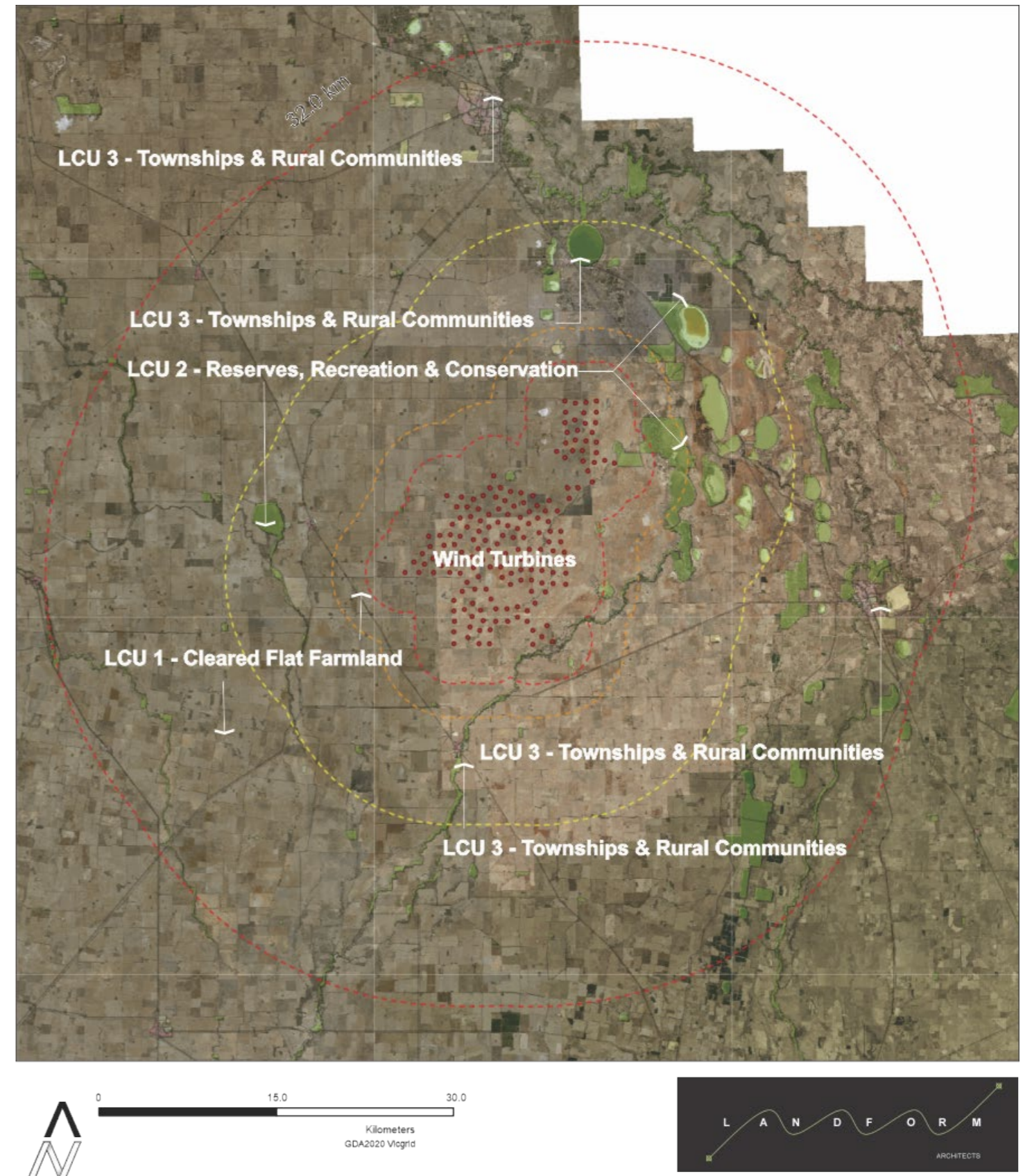
The sensitivity of the defined landscape units is partly based on feedback gathered through stakeholder engagement activities, statutory provisions, and protections of these areas. Sensitivity to change also considers the rarity of a particular landscape or modifications from a natural setting, such as those exhibited by a national park or state forest.

Landscape sensitivity is, in part a measure of the ability of a landscape to absorb visual change based on the attributes of a particular landscape. The sensitivity of the previously described landscape units will depend upon several attributes, such as:

- **Location.** The sensitivity of a potential viewer varies according to location. For example, visitors to a national park where the landscape appears untouched or pristine will be more sensitive to the imposition of new or artificial elements within that landscape. The same viewer travelling along a rural highway, which contains existing examples of modifications and artificial elements, will be less sensitive to the presence of new elements. Changes or artificial elements are not confined to vertical structures or built form. They also include the removal of native vegetation and visibility of roads, tracks, fences, and other rural infrastructure, all of which decrease the sensitivity of a landscape to change further.
- **Rarity.** Landscapes that are considered rare or threatened are valued more highly by viewers.
- **Scenic Qualities.** Landscapes that are considered scenic are also those that are considered sensitive. They often contain dramatic topographical changes, the presence of water, coastlines, and other comparable features. The presence of modifications or artificial elements (including built form, roads, tracks, fences, and silos) and farming practices such as land clearing, cropping, and burning can decrease the sensitivity of a landscape's scenic qualities.

Landscape units have been defined through similar visual assessments across Victoria, the Victorian Guidelines and definitions in the UK Guidelines. A description of the key features and attributes relevant to this assessment. Is provided below

Figure 7-1 Landscape Character Areas (Placeholder)



7.1 Landscape Unit 1 - Cleared Flat Farmland

Landscape Character Unit 1 – Cleared Flat Farmland describes the large, cleared, generally open areas within the Farming Zone. The primary purpose and use of these areas are cropping and grazing. The vegetation comprises broad areas of low-level crops, with taller vegetation located along property boundaries, fence lines, road reserves and water courses. Views across these landscapes are often expansive and take in a considerable distance.

Constructed elements include machinery, hay sheds, irrigation plant and equipment, and attached dwellings. In addition, domestic-scale power lines are located along roadsides, driveways and across paddocks with instances of high-voltage transmission lines. An example of this landscape unit is shown in Figure 7-2.

Landscape and Viewer Sensitivity Considerations for Cleared Flat Farmland

It is recognised that many people find these areas appealing for their apparent natural values. However, an objective assessment of the land within these areas must consider that the majority of the landscape in agricultural regions are modified landscapes that are continually changing. Protections are not for amenity or aesthetic purposes, and this land use is not rare.

7.2 Landscape Unit 2 – Reserves, Recreation & Conservation

Landscape Character Unit 2 – Reserves, recreation and conservation are publicly accessible and include managed reservoirs, waterways, and natural wetlands. Examples in the study area include Leaghur State Park, Kangaroo Lake and waterways such as the Avoca River. An example of this landscape unit is shown in Figure 7-3

Landscape and Viewer sensitivity considerations for Streamside Reserves and waterways

The landscape and viewer sensitivity of water bodies and waterways is high. Associated publicly accessible areas are valued for their natural features, amenity, and recreational and tourism uses.

7.3 Landscape Unit 3 - Townships and Rural Communities

Landscape Character Unit 3 – Townships and Rural Communities include the built-up areas such as Stawell and rural communities such as Kerang, Meeniyah, Swan Hill, Mystic Park, Lalbert and Quambatook. Views of the surrounding landscape from areas within townships tend to be partially screened by neighbouring dwellings and fences or filtered by vegetation. Many townships along train lines are adjacent to rail lines and include silo, grain-handling equipment and elevators. An example of this landscape unit is shown in Figure 7-4

Landscape and Viewer Sensitivity Considerations of Townships and Rural Communities

Areas in the Townships Landscape Unit have a moderate sensitivity to visual change. This is partly due to the higher number of people and the constructed elements and features in views of surrounding areas. From many areas, views toward the surrounding landscape are usually screened or filtered by buildings and vegetation.

Figure 7-2 Landscape Unit 1 - Cleared Flat Farmland



Figure 7-3 Landscape Unit 2 –Reserves, Recreation and Conservation



Figure 7-4 Landscape Unit 3 - Townships and Rural Communities(Lalbert)



8. Cumulative considerations

The Potential cumulative impacts of the Project will be considered in combination with other nearby wind and transmission-related developments of the region.

The UK Guidelines define cumulative visual impacts as the combined effect of changes brought about by a proposed development in conjunction with other similar developments in an area, which may result in changes to the perceptions of the local community or a visitor to the region. The potential for cumulative visual impacts to occur is where there may be:

- Sequential views to multiple similar projects along roads within the study area and
- Simultaneous views from publicly accessible viewpoints or private viewing locations may occur.

The greatest potential for cumulative visual impacts to occur is in areas where the study area (distance at which a project is a discernible visual feature) of one or multiple constructed or approved projects overlap.

Sequential cumulative impacts may occur over greater distances, such as driving along roads and viewing multiple wind farms or transmission infrastructure throughout a journey. For this reason, projects in the broader region outside of the Project study area will also be considered.

Constructed, approved and proposed wind farms, transmission lines, and terminal stations near the study area are listed below.

8.1 Nearby existing and approved wind farms

The closest operating wind farms are the Yawong Wind Farm, approximately 56km west and the Coonooer Bridge Wind Farm, approximately 58km west. The Berrimal Wind Farm, approximately 71km south, is the closest approved but not yet constructed wind farm.

8.2 Nearby existing and approved Solar Farms

The Wandella Solar Farm is approximately 14 km to the east. The Wandella Solar Farm is the only one operating within the study area. The approved Kerang Solar Farm is approximately 16 km to the east, and east of the Loddon Valley Highway.

8.3 Summary of cumulative considerations

Figure 8-1 shows the location of constructed or approved wind and solar projects in proximity to the 32 km study area. The blue outline shows the locations and extent of the operating wind and solar facilities. The green outline shows the locations and extent of approved but not yet constructed developments.

Existing Developments:

- 220kV Kerang Terminal to Bendigo Transmission line
- Wandella Solar Farm

Approved but not yet construction developments:

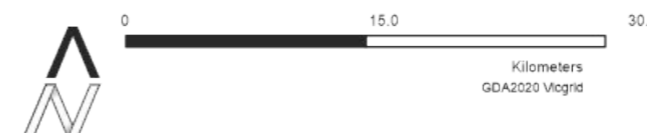
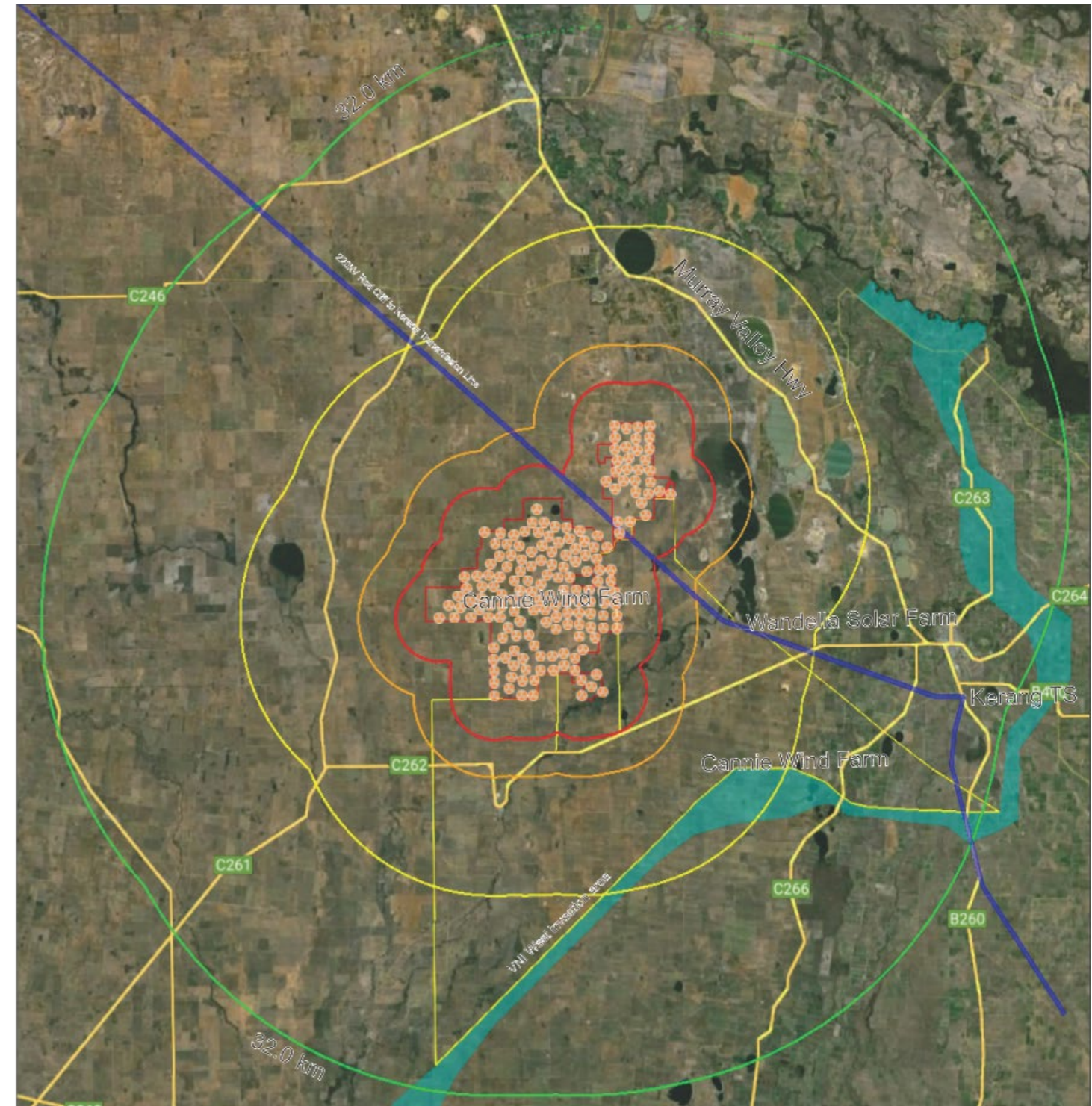
- Kerang Solar Farms

Developments that are proposed and currently being assessed:

- VNI West Transmission line investigation area
- Normanville Wind Farm (Pending Approval)

There are no nearby constructed or approved wind or solar farm projects that might reasonably trigger sequential or simultaneous cumulative impacts as a result of the Project. There is the potential for cumulative visual impacts should the proposed Normanville Wind Farm and VNI West transmission be approved and constructed. Such impacts will be examined in the detailed assessments.

Figure 8-1 Constructed, approved and proposed development



9. Preliminary Assessment – Public viewpoints

This chapter will assess the visual impacts of the Project, which is summarised in Chapter 3 of this report. The assessment will be undertaken by analysing selected viewing locations from the public realm.

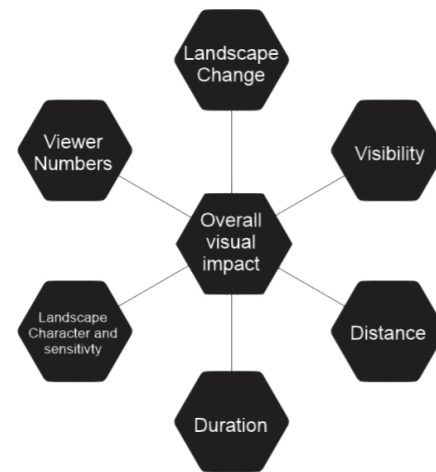
Only those landholders who provided consent to visit their properties to assess the visual impact from their dwelling for inclusion in the assessment have been visited and included.

Viewing locations included in this assessment have been selected to represent views that are representative of the most affected sensitive locations within the curtilage of the dwelling. For this reason, some photographs may be taken from the edge of garden areas, over horse arenas or boundary fences at the edge of yards.

The overall visual impact from each viewpoint has been assessed based on the five criteria described in section 4.4.1, which include visibility, distance, duration, viewer numbers and the qualitative aspects of the view. A summary table (distance, viewer numbers, and landscape sensitivity) is provided at the conclusion of each viewpoint. As stated in the introduction to Chapter 3, the summary table is to be read in conjunction with the qualitative analysis to consider factors such as modifications to a view, the nature of the viewing location, and mutable factors such as screening provided by local topography, vegetation, and buildings. These aspects cannot be captured or summarised in a table format or assessed through metrics.

The levels of assessed impact from each viewpoint will be rated in accordance with the scale of visual effects defined in section 4.5 and repeated in Figure 9-1.

Figure 9-1 Visual impact – public realm

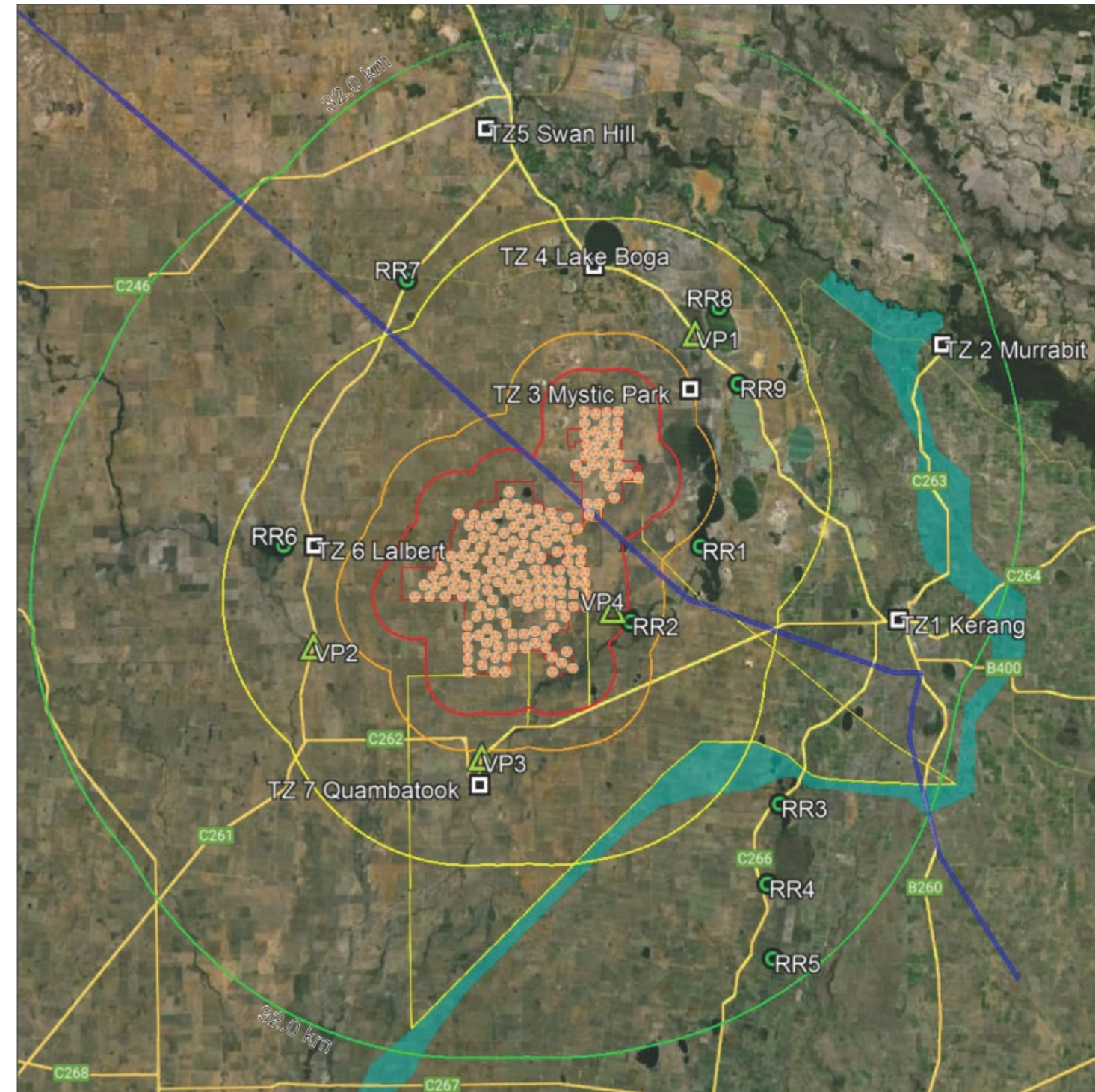


Twenty viewpoints have been selected to represent publicly accessible locations within and around the CWF.

- Viewpoints RR1 – RR9 show views from significant landscapes and recreation areas.
- Viewpoints TZ1 – TZ7 show views from Townships and Rural Communities
- Viewpoints VP1 – VP4 demonstrate the range of views and visual impact on regional landscapes and character. Viewpoints have been selected from the Western Highway to the south and the Wimmera Highway to the north of the Project. Viewpoints that are representative of the regional landscape and character of the area have been taken from local roads.

Figure 9-2 shows the viewpoints included in this assessment. Viewpoints have been from publicly accessible locations that represent key views or locations that demonstrate the landscape's character in the study area. Where possible, views have been selected from readily identifiable locations, such as intersections, and where it was apparent that the Project has the potential to be visible.

Figure 9-2 Viewpoint location map – All



9.1 Reserves, Recreation and Conservation

The Victorian Wind Farm Guidelines set out in 52.32 Wind Energy Facility requires the LVIA to consider the potential for impacts on views and amenity from significant conservation and recreation areas, water features, tourist routes, and walking tracks. This section will review views and visual impacts from key locations or areas that are representative of these locations within the study area of this PLVIA.

Eight viewing locations were selected to represent the visual impact on the study area's significant landscapes and recreation reserves. The selected viewpoints are recognised landscapes, features, or vantage points identified as having potential visibility for the Project.

For each viewpoint, viewer numbers have been considered as moderate. The landscape sensitivity would vary depending on the location of the use or activities at the viewpoint. Visibility will diminish with increasing distance, but the sensitivity of the use will not.

Figure 9-3 shows the proximity of the selected viewpoints to consider the potential for landscape and visual impacts from landscapes that are representative of significant conservation and recreation areas, water features, tourist routes and walking tracks. These areas fall within Landscape Character Unit 2 – Reserves, Recreation and Conservation as described in Section 7.2 of this report. The location of each viewpoint, corresponding GPS coordinates and proximity to the proposed turbines in the CWF are listed in Table 9.1 below. Several smaller ephemeral wetlands and water bodies are located along the eastern and northern edges of the Project. Some were not accessible at the time of the site visits due to track conditions, or access was limited. Examples of such waterbodies include Lake Lookout, Lake Gilmour and Great Spectacle Lake.

Figure 9-3 Viewpoints from Reserves, Recreation and Conservation Areas

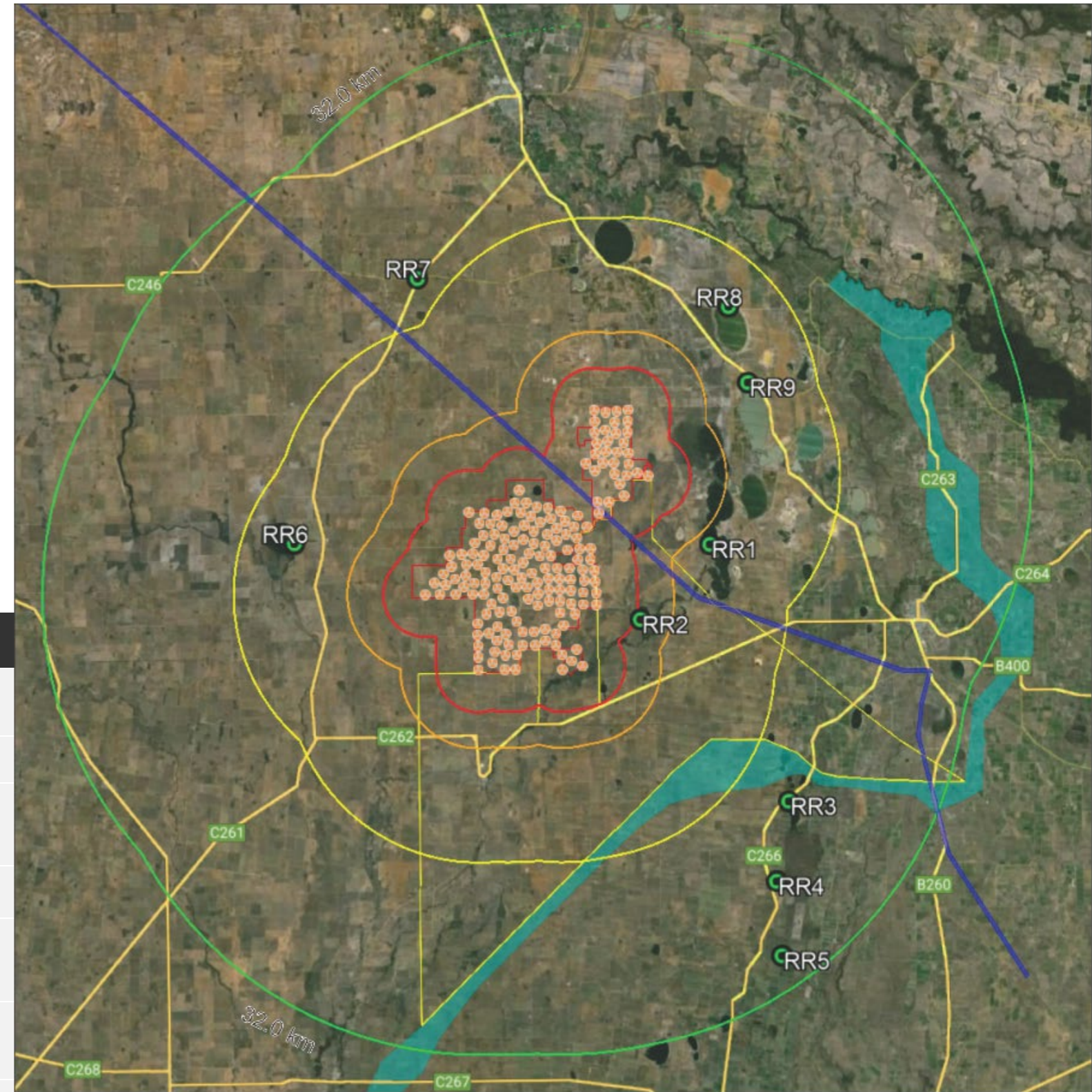
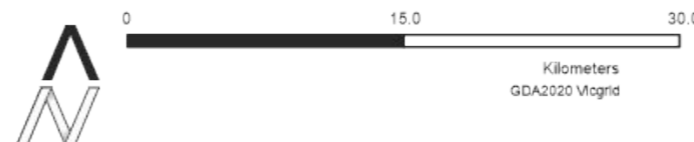


Table 9.1: Significant Landscapes and Recreation Reserves

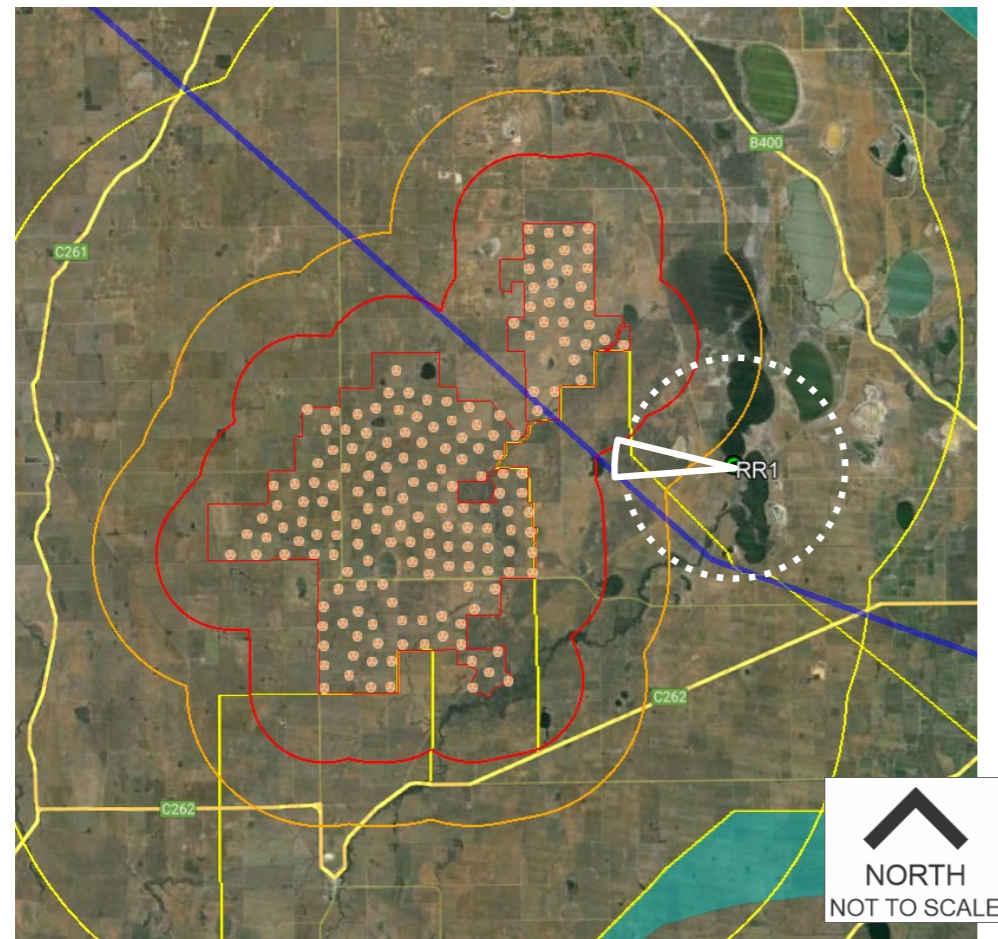
VP	Location	GPS Coordinates	Distance to WTG
RR1	Little Marsh – Lake Bael Bael	54H 747794E 6049067N	~7.7 km NW
RR2	Sand Hill Lake	54H 741454E 6042673N	~4.1 km NW
RR3	Lake Merrin	54H 753095E 6027001N	~20 km NW
RR4	Leaghur State Park	54H 751927E 6020560N	~24 km NW
RR5	Lake Leaghur Wildlife Reserve	54H 752053E 6014198N	~29 km NW
RR6	Lake Lalbert Wildlife Reserve	54H 712714E 6049944N	~12.6 km E
RR7	Goschen Reserve	54H 723717E 6071628N	~18.4 km SE
RR8	Lake Tutchewop	54H 749627E 6068328N	~12.2 km SW
RR9	Kangaroo Lake	54H 750990E 6061969N	~10.3 km W



9.1.1 Viewpoint RR1 – Little Marsh – Lake Bael Bael



Figure 9-4 Viewpoint RR1 – Little Marsh – Lake Bael Bael

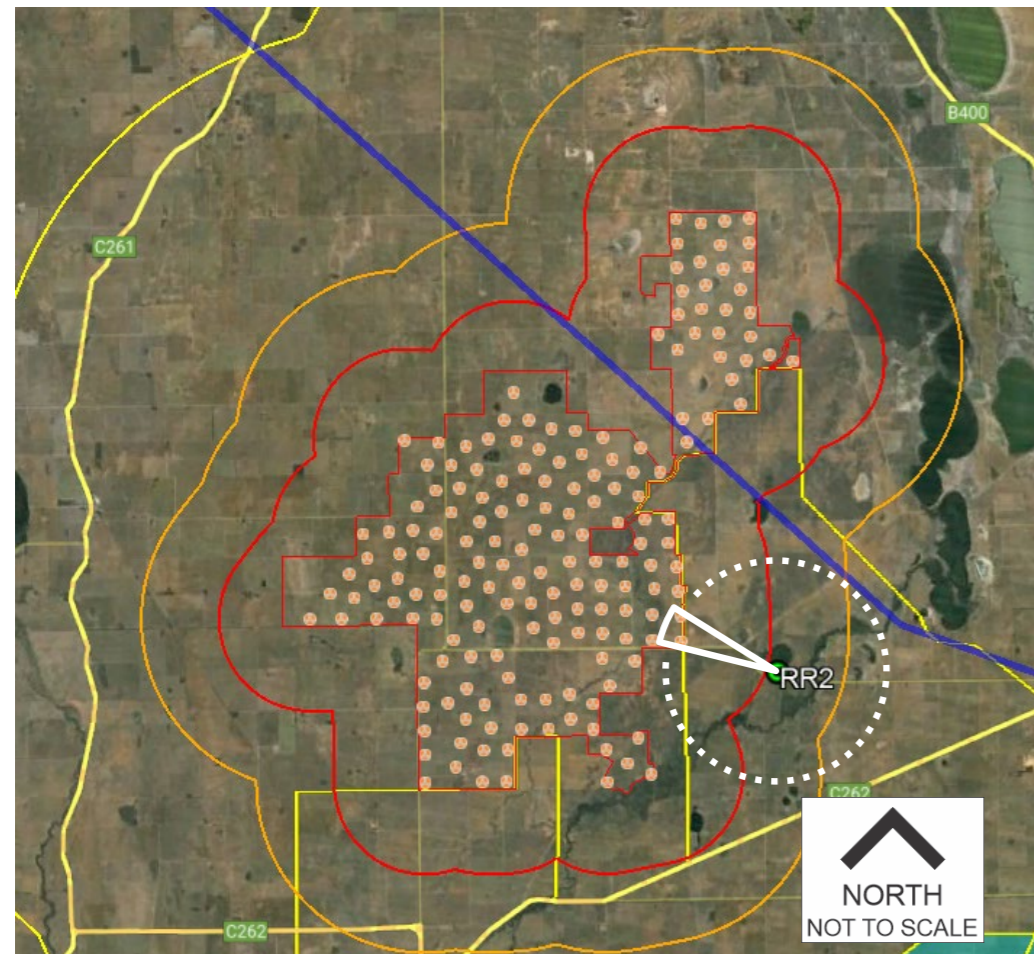


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 747794E 6049067N	Little Marsh and Lake Bael Bael are part of an ephemeral lake system approximately 7 km east of the closest Project. Camping, fishing and passive on-water activities are permitted at the reserve.	Little Marsh and Lake Bael Bael are part of a natural lake system.
Distance to the nearest Turbine	~7.7 km NW	Access to both lakes is from Lake Charm-Quambatook Road, which bi-sects both lake systems. Publicly accessible locations appear to be predominantly along the eastern shorelines, where views would be oriented towards the Project.	The closest turbine would be approximately 7 km to the west and clearly visible from publicly accessible locations along the eastern shorelines.
Duration	Moderate		Once off the roadway, the landscape appears natural (un-modified) with limited to no constructed elements or features.
Viewer numbers	Moderate	Figure 9-4 shows the view from a visitor parking area and interpretation panel adjacent to the main visitor entrance.	The visual impact from shorelines would be moderate. Views from these locations are low in level, and the turbines would be at a distance where they are partially screened or filtered by vegetation along the opposing (western) shorelines or would be screened in views.
Landscape Character / Viewer sensitivity	High	Vegetation along the lake's margins partially screens or filters views towards the water body and to the landscape areas beyond from areas where visitors may park or camp. Beyond the tree line are clear and open views to the west and in the direction of the proposed turbines.	The proposed turbines would be at a distance where they would be a background element to views across the lake system.
Overall Visual Impact	Low	Views from the access track to the east are across cleared farming, including features such as shedding, power lines, silos and other modifications.	The visual impact from the entrance road and access tracks would be low. Views from these locations and turbines would be visible. However, the turbines would be a background element and added to views that have been modified.

9.1.2 Viewpoint RR2 – Sand Hill Lake



Figure 9-5 Viewpoint RR2 – Sand Hill Lake



ASSESSMENT

Summary of "Scale of Effects" Criteria

Coordinates	54 H 741454E 6042673N
Distance to the nearest Turbine	~4.1 km NW
Duration	Moderate
Viewer numbers	Moderate
Landscape Character / Viewer sensitivity	High (ESO1)
Overall Visual Impact	Negligible where screened – High where visible in full

Existing Setting

Sand Hill Lake is an ephemeral lake system approximately 4 km southeast of the closest Project turbine. Camping, fishing and passive on-water activities are permitted at the reserve.

Access to the lake is from Lalbert-Kerang Road to the south. Publicly accessible locations appear to be limited to the southern shoreline.

Figure 9-5 shows the view looking southwest to northwest from a cleared visitor area.

Vegetation along the lake's margins partially screens or filters views towards the water body and to the landscape areas beyond from areas where visitors may park or camp.

Beyond the tree line are clear and open views to the west and in the direction of the proposed turbines.

Assessment

Sand Hill Lake is an ephemeral water body and part of a natural lake system.

Once off the roadway, the landscape appears to be natural (un-modified) with limited to no constructed elements or features.

The closest turbine would be approximately 4.1 km to the west and clearly visible from the shoreline.

Turbines would also be visible to the southwest through vegetation cleared along Lalbert Kerang Road.

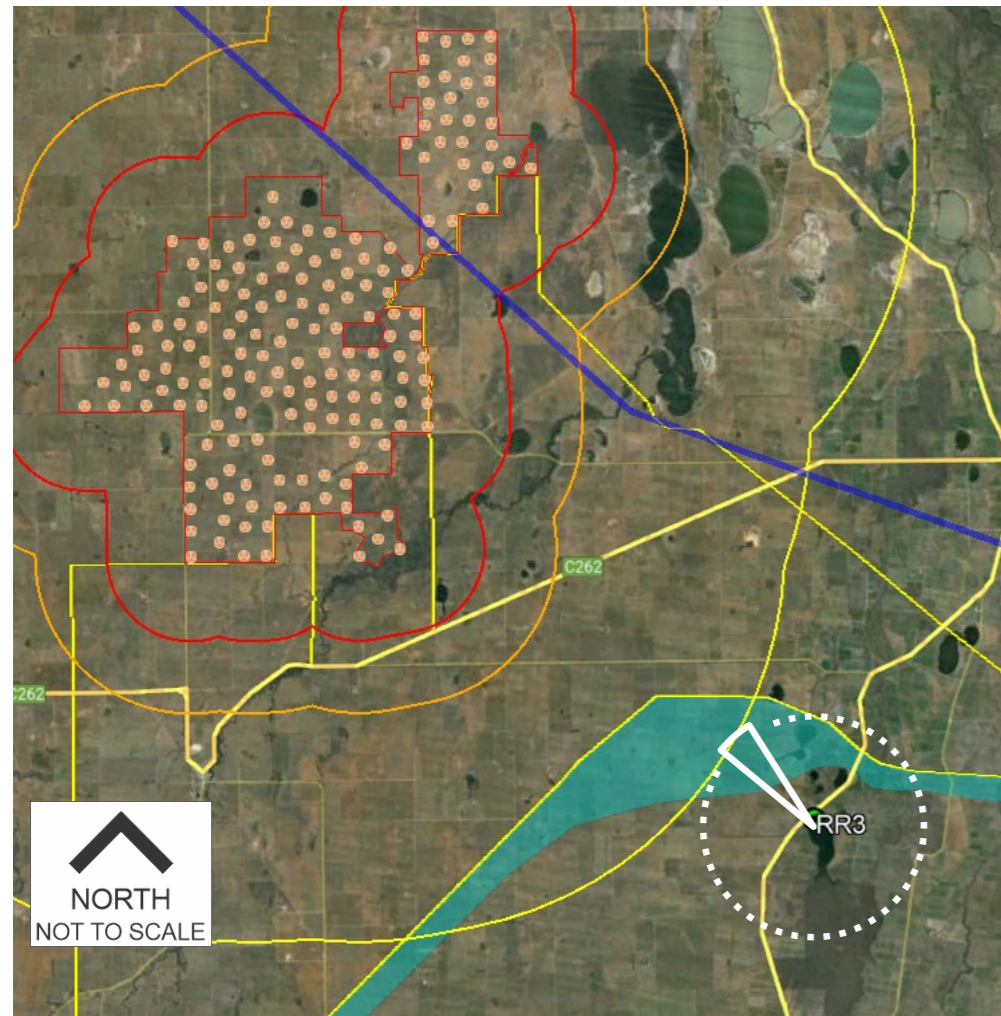
Visible turbines to the west and southwest would be approximately 6.0 km. At this distance, they would be noticeable and potentially dominant visual elements.

From these areas, the visual impact will be high.

9.1.3 Viewpoint RR3 – Lake Merrin



Figure 9-6 Viewpoint RR3 - Lake Merrin

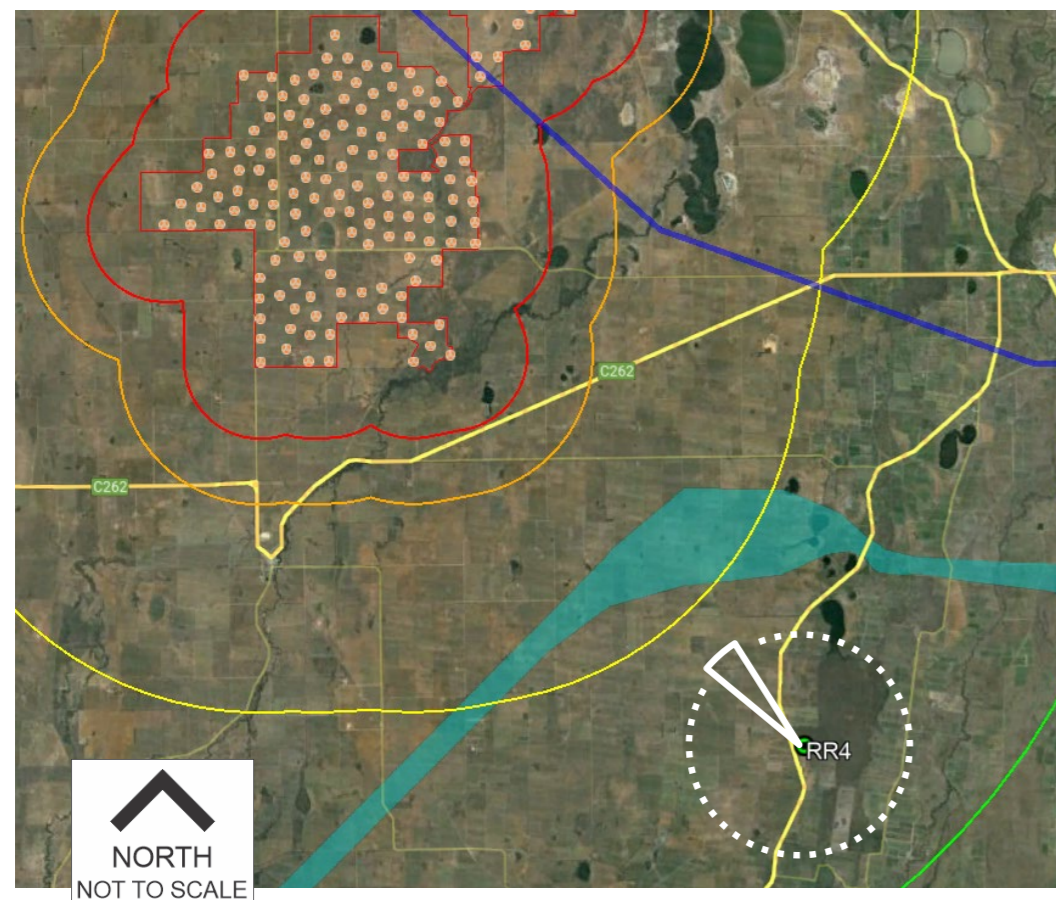


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 753095E 6027001N	Lake Merrin is a natural lake system approximately 20 km southeast of the closest Project turbine. Camping, fishing and passive on-water activities are permitted at the reserve.	The proposed turbines would be at a distance where existing vegetation will screen the Project turbines. The visual impact from Lake Merrin would be Nil.
Distance to the nearest Turbine	~20 km NW	The lake is on boundaries shared with the Gannawarra and Loddon Shires.	
Duration	Moderate	Access to the lake is from Boort-Kerang Road to the north. Publicly accessible locations are along the western and northern shorelines and, therefore, oriented away from the Project.	
Viewer numbers	Moderate		
Landscape Character / Viewer sensitivity	High	Figure 9-6 shows the view looking northwest towards the entrance of the reserve and adjacent to a public shelter and BBQ area from a key visitor area.	
Overall Visual Impact	Low	Vegetation along the margins of the reserve and roadway to the west screen views to the northwest.	

9.1.4 Viewpoint RR4 – Leaghur State Park



Figure 9-7 Viewpoint RR4 – Leaghur State Park

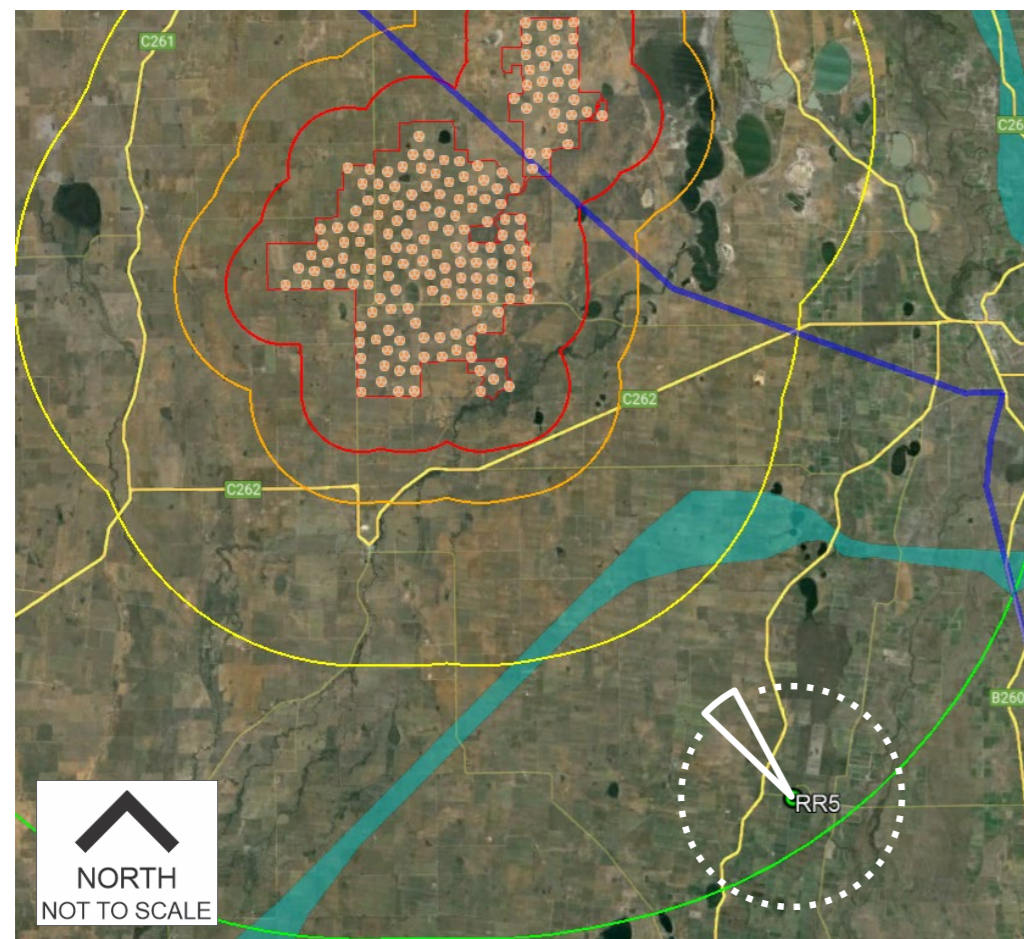


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 751927E 6020560N	Leaghur State Park is a natural bushland reserve approximately 24 km southeast of the closest Project turbine and shares a boundary with Lake Merrin to the north. The area allows for passive recreation activities, including hiking, mountain biking and camping. Access is from Boort-Kerang Road to the west. Figure 9-7 shows the northwest view from a cleared visitor area approximately 500m from the park entrance. Once inside the margins of the Park, vegetation screens all views of the surrounding landscape.	The turbines may be visible from the entrance or locations along the margins of the park. From these locations, the turbines would be at such a distance that they would be a background element added to views with a low sensitivity to visual change. From these locations, the visual impact would be negligible. The visual impact would be Nil from all other areas, as the turbines would be screened and not visible.
Distance to the nearest Turbine	~24 km NW		
Duration	Moderate		
Viewer numbers	Moderate		
Landscape Character / Viewer sensitivity	High		
Overall Visual Impact	Low		

9.1.5 Viewpoint RR5 – Lake Leaghur



Figure 9-8 Viewpoint RR5 – Lake Leaghur

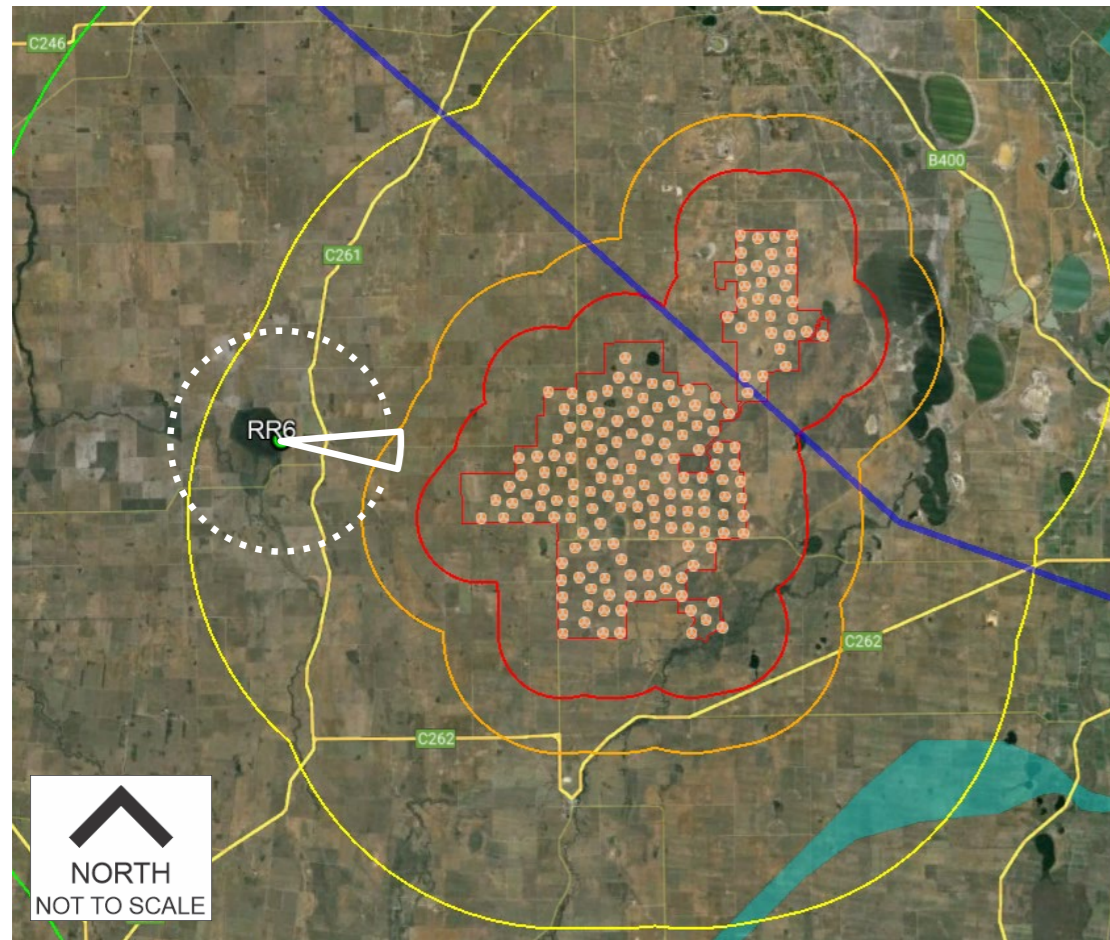


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 752053E 6014198N	Lake Leaghur is an ephemeral water body that is part of a natural lake system connected with Lake Merrin further to the north.	The visual impact from Lake Leaghur would be Nil. This is due to the overall distance to the proposed turbines and screening, which the intervening landscape and nearby vegetation would provide.
Distance to the nearest Turbine	~29 km NW	The lake and public areas are approximately 29 km southeast of the closest Project turbine and on the margins of the study area for a 280.5m high turbine.	
Duration	Moderate	Higher visitor numbers are expected when the lake is inundated.	
Viewer numbers	Moderate	Access is from Canary Island- Leaghur Road to the north. Publicly accessible locations are generally along the southern shorelines and oriented towards Project.	
Landscape Character / Viewer sensitivity	High	Figure 9-6 shows the northwest view from the Canary Island – Leaghur Road adjacent to the visitor entrance.	
Overall Visual Impact	Low	Vegetation along the margins of the reserve can be seen on the right of the image.	

9.1.6 Viewpoint RR6 – Lake Lalbert Wildlife Reserve



Figure 9-9 Viewpoint RR6 – Lake Lalbert Wildlife Reserve

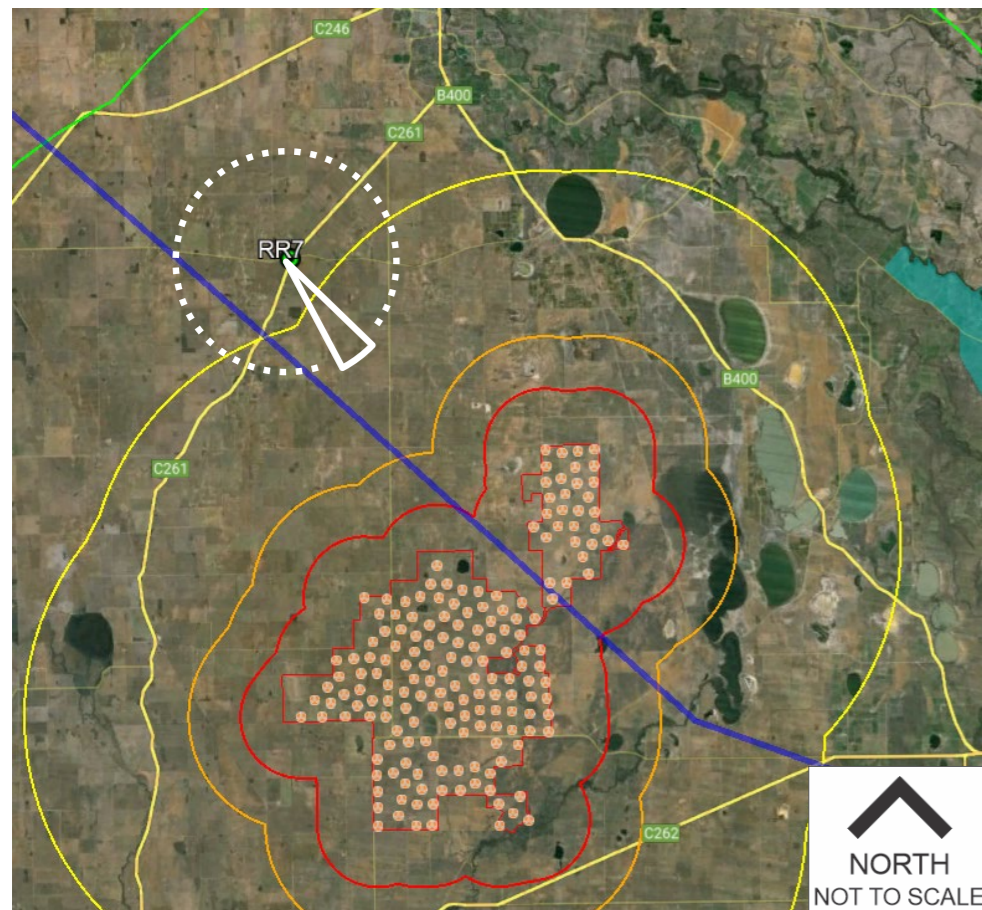


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 712714E 6049944N	Lake Lalbert Wildlife Reserve is an ephemeral water body connected to the Lalbert Creek. The margins of the lake system are also vegetated, similar to the preceding examples.	There would be no visual impact brought about by the proposed turbines from public locations within the wildlife reserve.
Distance to the nearest Turbine	~12.6 km E	The lake and public areas are approximately 12 km west of the closest Project turbine. Access is from Lalbert Lake Road to the north and View Street to the east.	Existing vegetation along the reserve's margins and the higher topography to the east would screen views of the proposed turbines.
Duration	Moderate		
Viewernumbers	Moderate	Figure 9-9 shows the view looking east from the public car park and clubhouse at the Lalbert Golf Course and the western end of View Street.	
Landscape Character / Viewer sensitivity	High	This location was selected because it is higher in elevation than areas within the wildlife reserve and has fewer trees that would screen views to the east.	
Overall Visual Impact	Negligible		

9.1.7 Viewpoint RR7 – Goschen Reserve



Figure 9-10 Viewpoint RR7 – Goschen Reserve

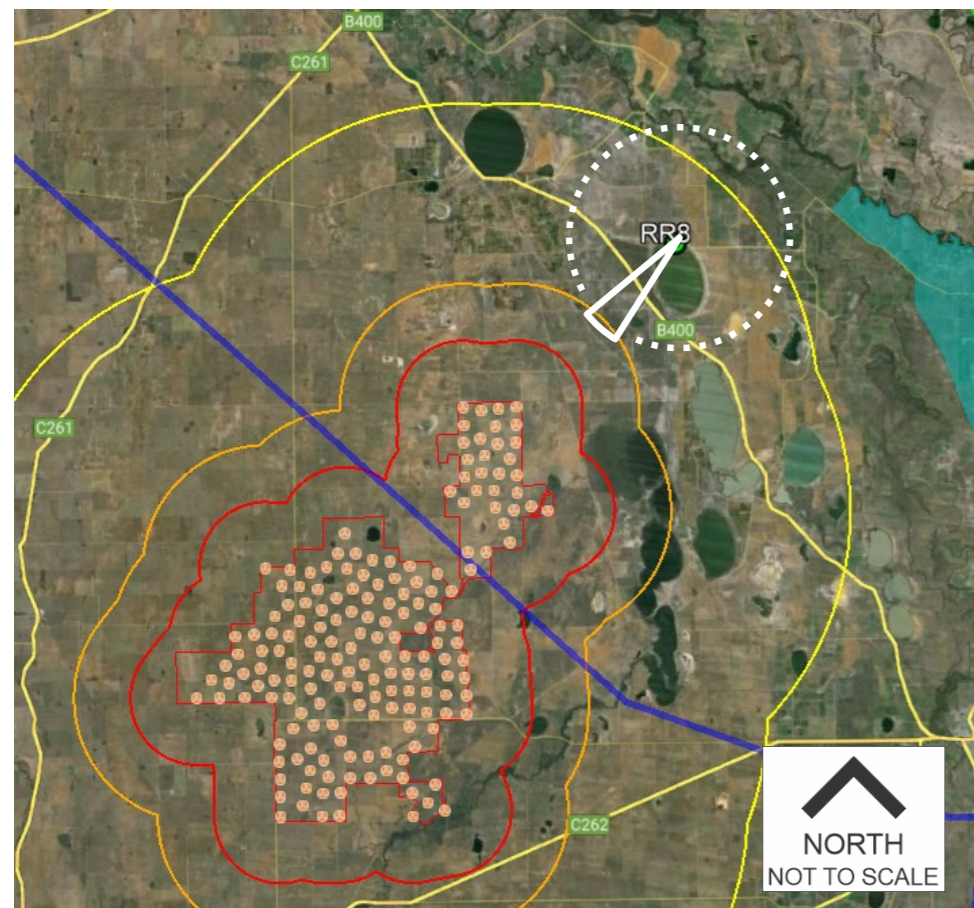


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 723717E 6071628N	Goschen Reserve is a natural bushland reserve approximately 18.4 km northwest of the closest Project turbine.	The turbines may be visible from the entrance or locations along the margins of the park.
Distance to the nearest Turbine	~18.4 km SE	The reserve, which is in proximity to a communications tower, allows for passive recreation activities, predominantly bird watching and bushwalking.	From these locations, the turbines would be at such a distance that they would be a background element added to views with a low sensitivity to visual change.
Duration	Moderate	Access is from the intersection of Donald-Swan Hill Road, which runs along the reserve's eastern boundary, and Lake Boga-Ultima Road to the south.	From these locations, the visual impact would be negligible.
Viewer numbers	Moderate	Figure 9-10 shows the southeast view from the reserve entrance. Views are partially screened by roadside vegetation and trees in nearby farming areas.	The visual impact would be Nil from all other areas, as the turbines would be screened and would not be visible.
Landscape Character / Viewer sensitivity	High	Once inside the margins of the Reserve, vegetation screens views of the surrounding landscape.	
Overall Visual Impact	Negligible		

9.1.8 Viewpoint RR8 – Lake Tutchewop



Figure 9-11 Viewpoint RR8 – Lake Tutchewop



ASSESSMENT

Summary of “Scale of Effects” Criteria

Coordinates	54 H 749627E 6068328N
Distance to the nearest Turbine	~12.2 km SW
Duration	Moderate
Viewer numbers	Moderate
Landscape Character / Viewer sensitivity	High
Overall Visual Impact	Low

Existing Setting

Lake Tutchewop is a natural lake formation that forms part of a connected lake system to the east and north of the Project.

Access to the lake is from Benjeroop-Tesco Road to the north and the Murray Valley Highway to the south. Accessible public reserves and foreshore areas appear to be along the western and northern shorelines.

Views from the western shores are to the east and away from the Project. Sections of the northern shoreline are elevated, enabling long views across the waterbody and farming land in the background.

Figure 9-11 shows one such view looking south to southwest from the northern banks.

When on-site, visible features include lattice communication towers to the south of Murray Valley Highway, transmission towers along the 220 kV Red Cliffs to Kerang transmission line and built form along the bank of Lake Boga to the west.

Assessment

At approximately 12.2 km, the proposed wind turbines would be noticeable on the horizon and in the background of views.

At this distance, the turbines would be background visual elements, added to views that include other vertical features and constructed elements within the nearby residential areas of Lake Boga to the southwest.

The visual impact would be assessed as Low for the above reasons.

9.1.9 Viewpoint RR9 – Kangaroo Lake

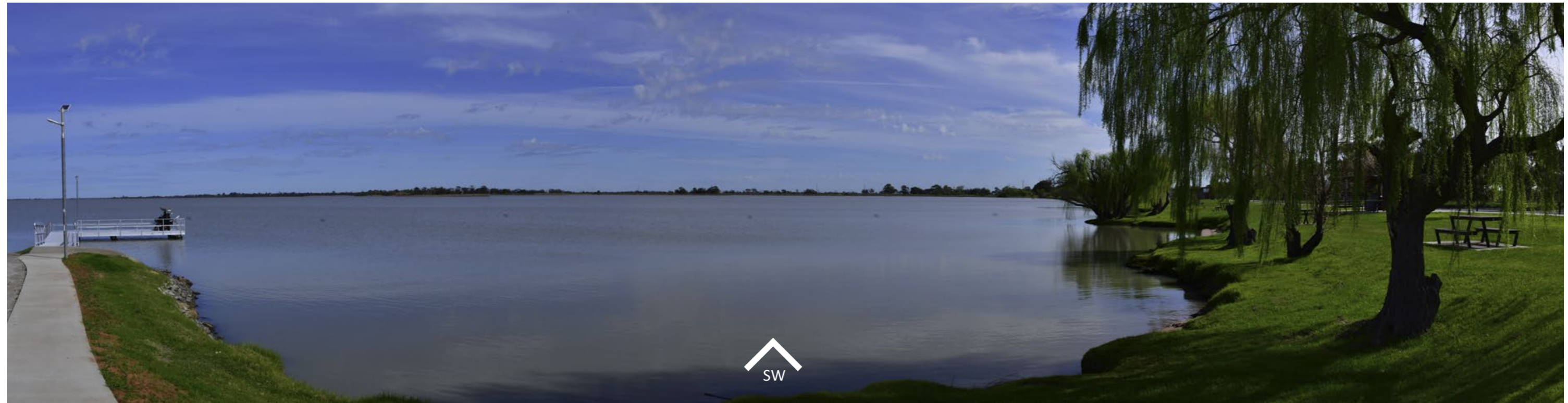
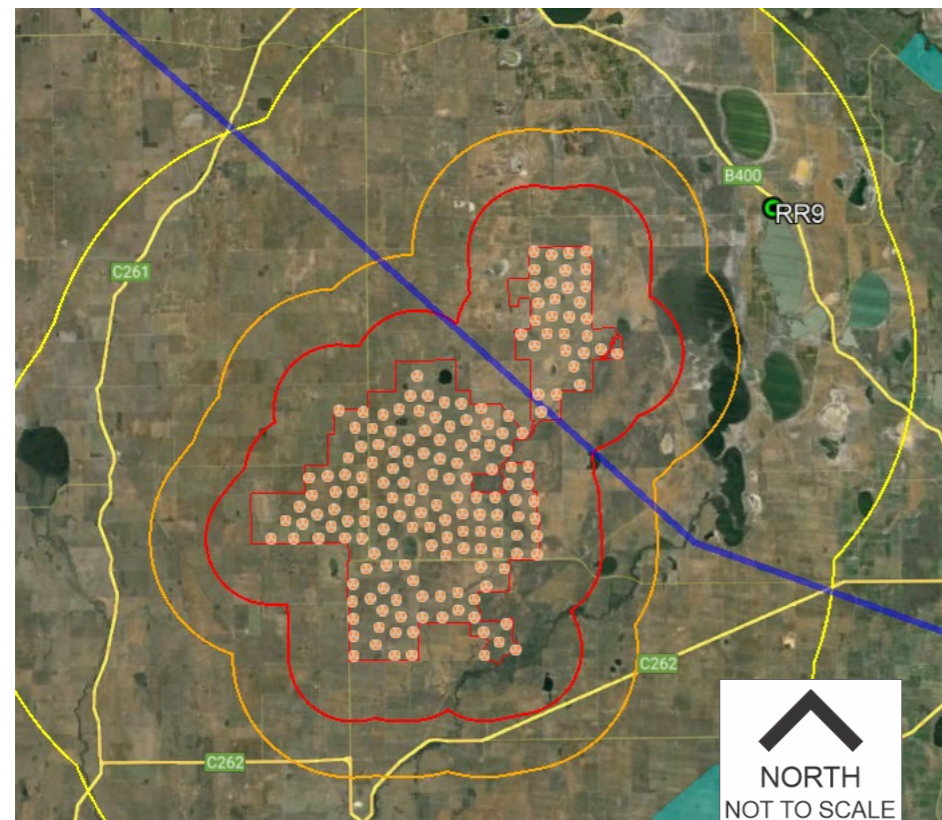


Figure 9-12 Viewpoint RR9 – Kangaroo Lake



ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54H 750990E 6061969N	Kangaroo Lake is a permanent water body south of Lake Tutchewop and the Murray Valley Highway.	At approximately 10.2 km, the proposed wind turbines would be noticeable on the horizon and in the background of views.
Distance to the nearest Turbine	~10.3 km W	The nearest turbine would be approximately 10.2 km to the southwest.	The proposed turbines would be added to views, including the nearby jetty and boat ramp, picnic tables and benches, light poles and the residential areas west of Lake Charm.
Duration	Moderate	Views from the residential and public areas along the western shores are to the east and away from the Project. Sections of the northern shoreline are elevated, enabling long views across the waterbody and farming land in the background.	Therefore, even though this location is highly sensitive, the visual impact would be assessed as Low.
Viewer numbers	Moderate		
Landscape Character / Viewer sensitivity	High	Figure 9-12 shows the view looking southwest from the boat ramp, parking and key meeting area along the northern foreshore.	
Overall Visual Impact	Low	When on-site, visible features include lattice communication towers to the south of Murray Valley Highway and transmission towers along the 220 kV Red Cliffs to Kerang transmission line.	



9.1.10 Visual Impact on Reserves, Recreation and Conservation Areas

The impact from reserves, recreation and conservation areas will vary considerably as will the levels of visual impact.

Factors contributing to the visual impact include the distance of the reserve to the project, the location of public access and the orientation of views from accessible sites and intervening vegetation.

9.2 Townships and Rural Communities

Views from townships and rural communities are considered through viewing locations selected from townships and rural communities identified within the study area.

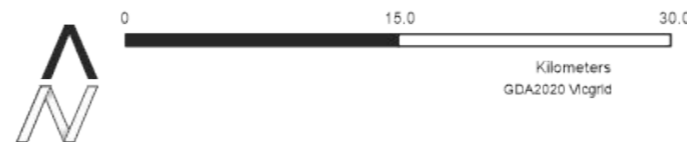
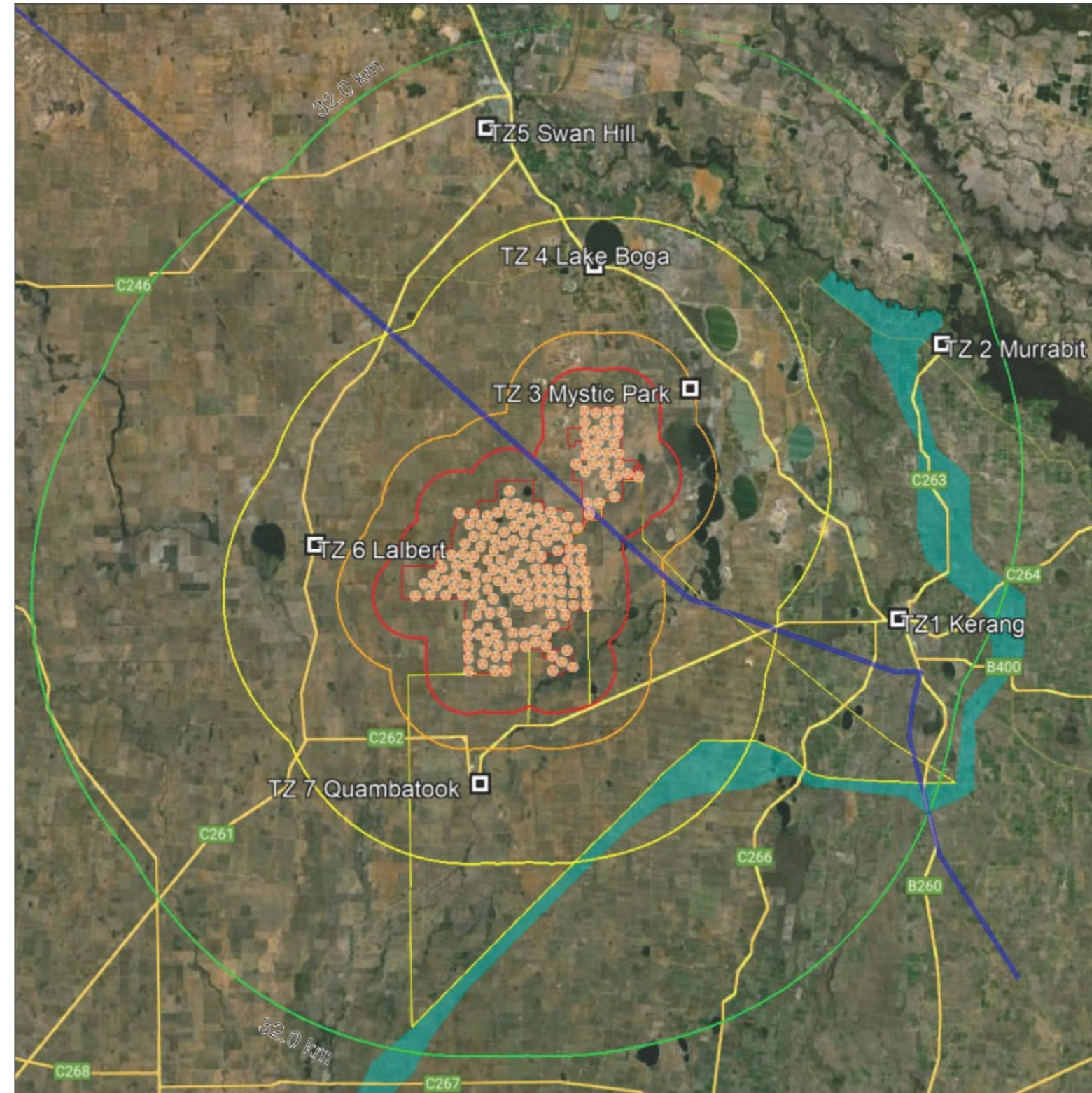
Landscape sensitivity is assessed as moderate/high due to the residential component of townships, while the viewer numbers range from low to high depending on the township.

Figure 9-13 shows the proximity of the six viewpoints selected to assess the PLIVA from Townships and Rural Communities. The location of each viewpoint, corresponding GPS coordinates and proximity to the proposed turbines in the CWF are listed in Table 9.2 below.

Table 9.2: Townships and Rural Communities

VP	Location	GPS Coordinates	Distance to Nearest site features
TZ1	Kerang	54H 763586E 6041933N	~26 km W
TZ 2	Murrabit	54H 767896E 6064170N	~27 km SW
TZ 3	Mystic Park	54H 743055E 6061757N	~6.5 km SW
TZ 4	Lake Boga	54H 739588E 6072075N	~12 km S
TZ 5	Swan Hill	54H 730809E 6083927N	~25 km SE
TZ 6	Lalbert	54H 715241 6049886N	~9.2 km E
TZ 7	Quambatook	54H 728208 6029555N	~9 km N

Figure 9-13 Viewpoints from Townships and Rural Communities



9.2.1 Viewpoint TZ1 – Kerang

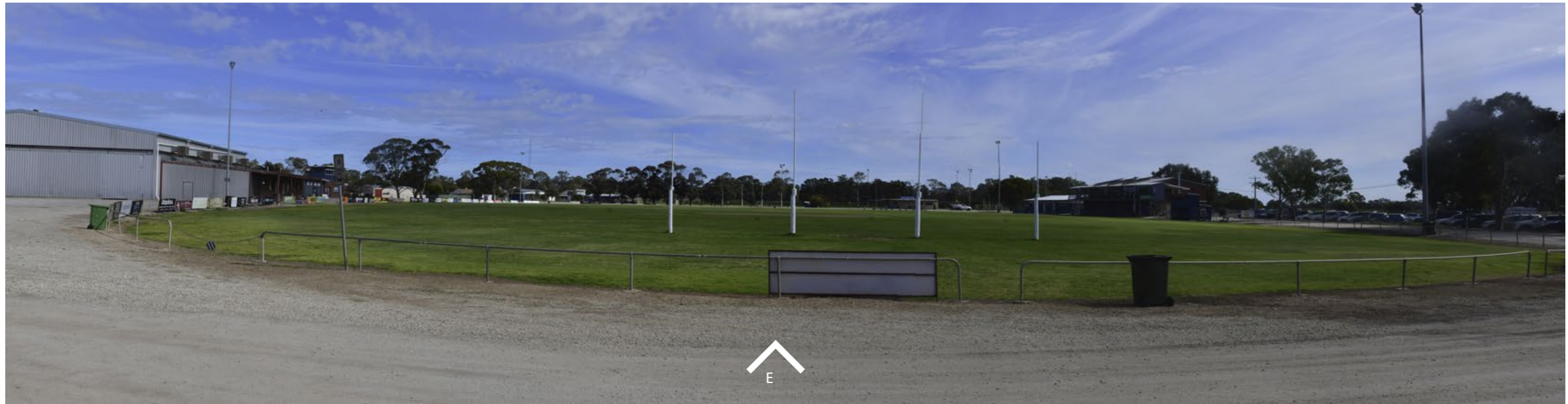
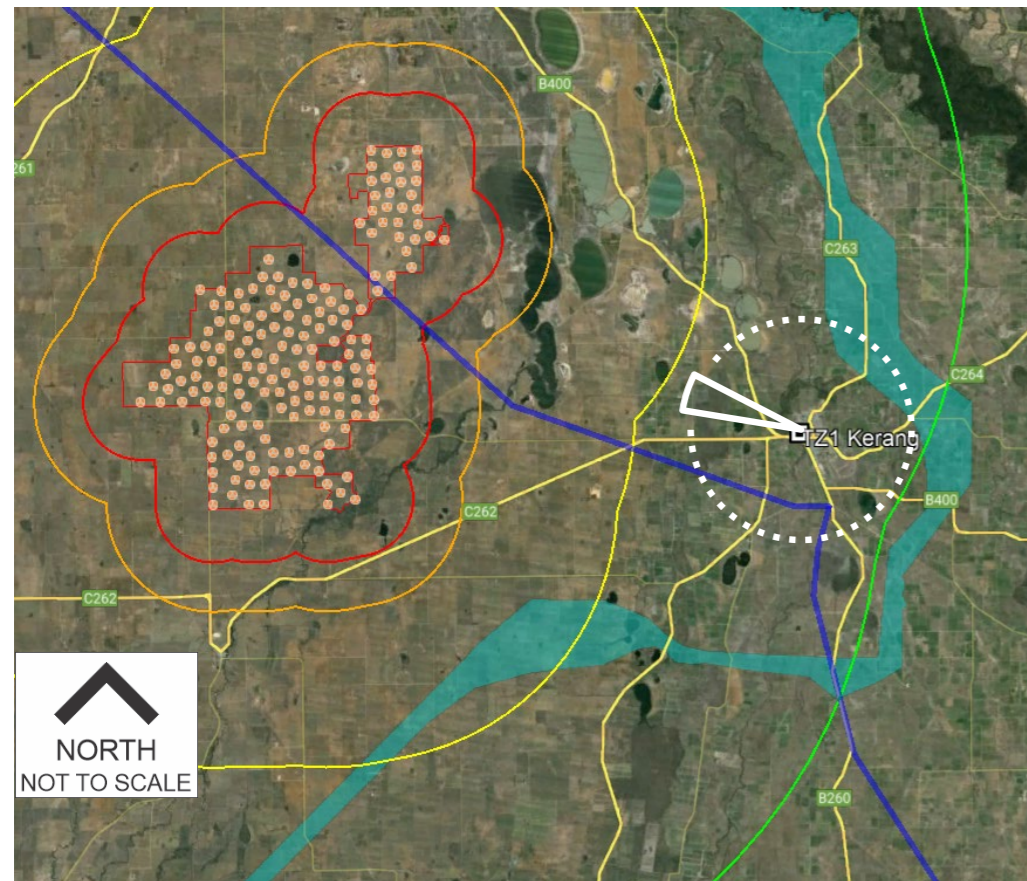


Figure 9-14 Viewpoint TZ1 – Kerang football and netball surrounds



ASSESSMENT		Existing Setting	Assessment
Summary of "Scale of Effects" Criteria			
Coordinates	54H 763586E 6041933N	Figure 9-14 shows the view looking west from the Kerang football and netball grounds. Examples of existing buildings and infrastructure within and around Kerang can be seen towards the left and right of the view, as well as other urban elements such as power poles and telecommunications structures. Vegetation seen in the view's background is located partly around the football and netball grounds and partly along the banks of the Loddon River, which runs west of the town.	The overall visual impact from the township of Kerang is assessed as Negligible to Nil . Although township areas are sensitive, and views from many locations would be extended in duration, the turbines will be at a distance, whereby existing vegetation and buildings within the township would screen the township.
Distance to the nearest Turbine	~26		
Duration	Moderate -High		
Viewer numbers	Moderate – High		
Landscape Character / Viewer sensitivity	Moderate		
Overall Visual Impact	Negligible – Nil		

9.2.2 Viewpoint TZ2 – Murrabit

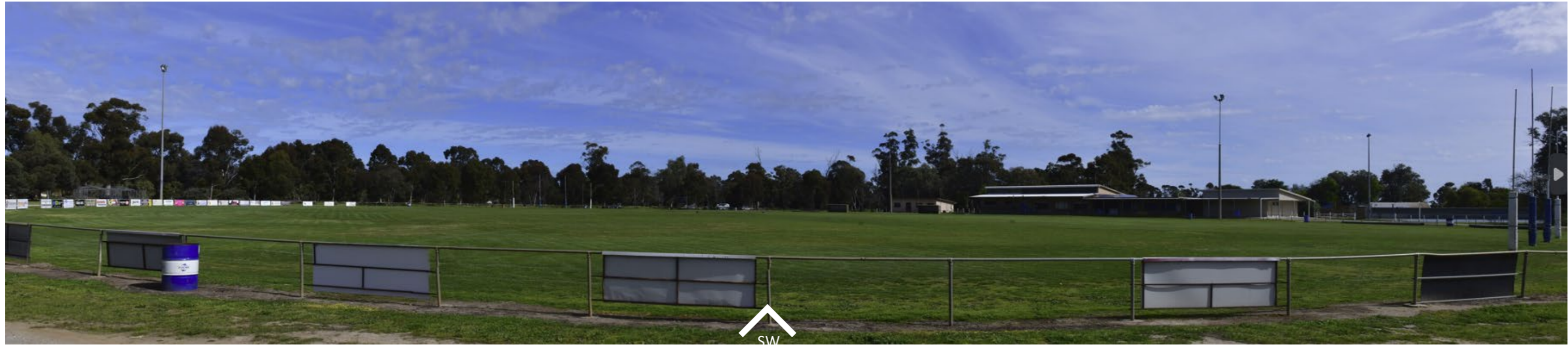
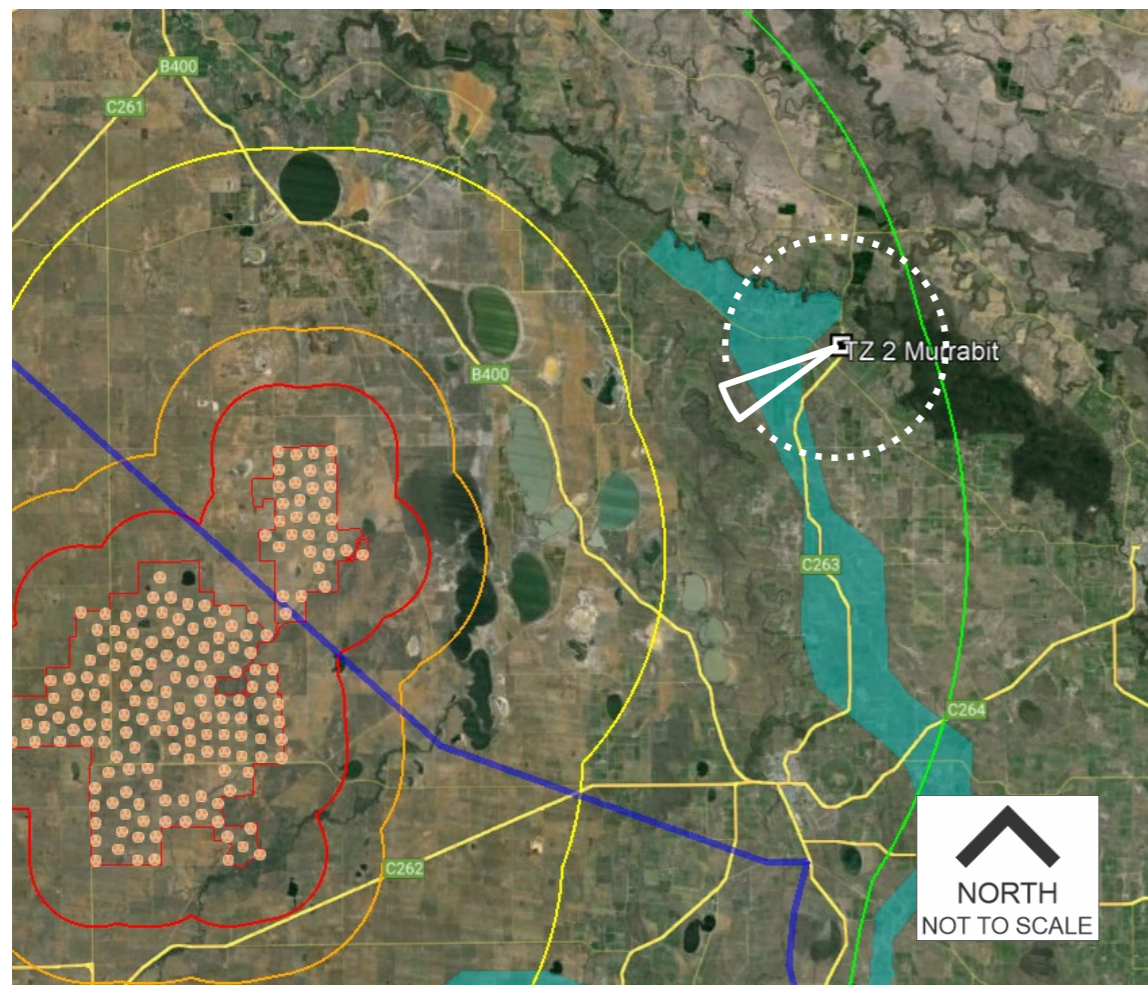


Figure 9-15 Viewpoint TZ2 – Murrabit football and netball grounds



ASSESSMENT

Summary of "Scale of Effects" Criteria

Coordinates	54H 767896E 6064170N
Distance to the nearest Turbine	~27km
Duration	Moderate
Viewer numbers	Moderate
Landscape Character / Viewer sensitivity	High
Overall Visual Impact	Nil

Existing Setting

Figure 9-15 shows the view looking southwest from the Murrabit football and netball grounds.

Vegetation seen in the view's background is located partly around the football and netball grounds and the Murrabit Golf Course beyond the sports grounds.

Assessment

The overall visual impact from the township would be **Nil**.

Murrabit is toward the outer edge of the study area. The turbines will be at a distance, whereby existing vegetation and buildings within the township will screen the township.

9.2.3 Viewpoint TZ3 – Mystic Park

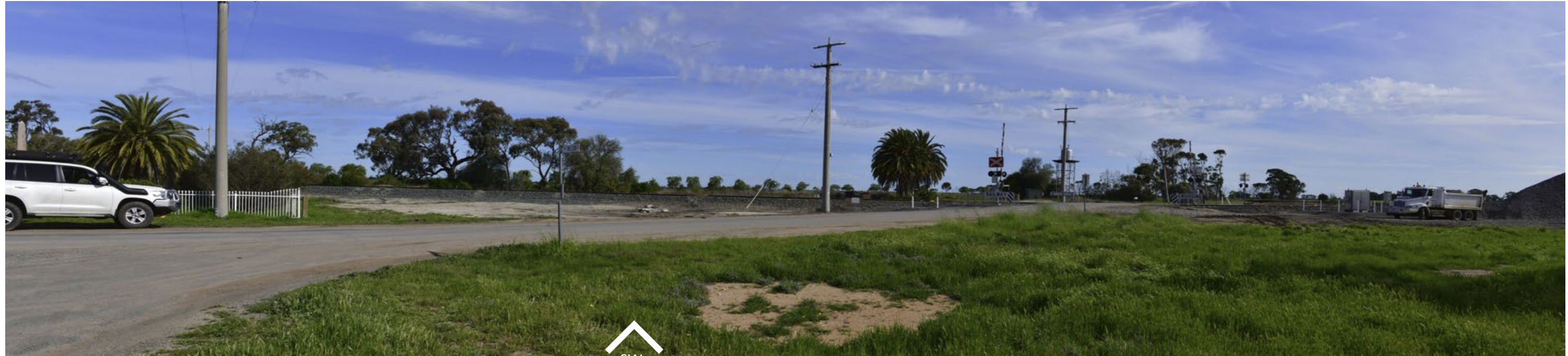
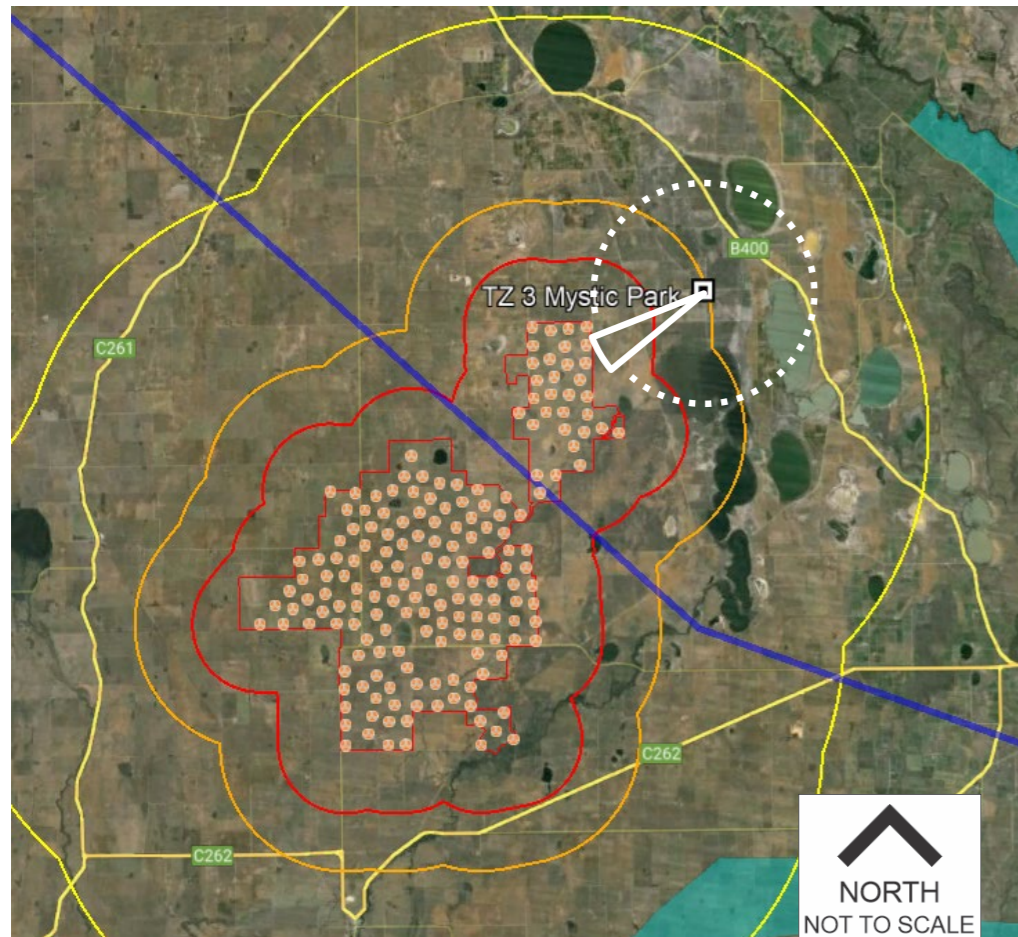


Figure 9-16 Viewpoint TZ3 – Mystic Park

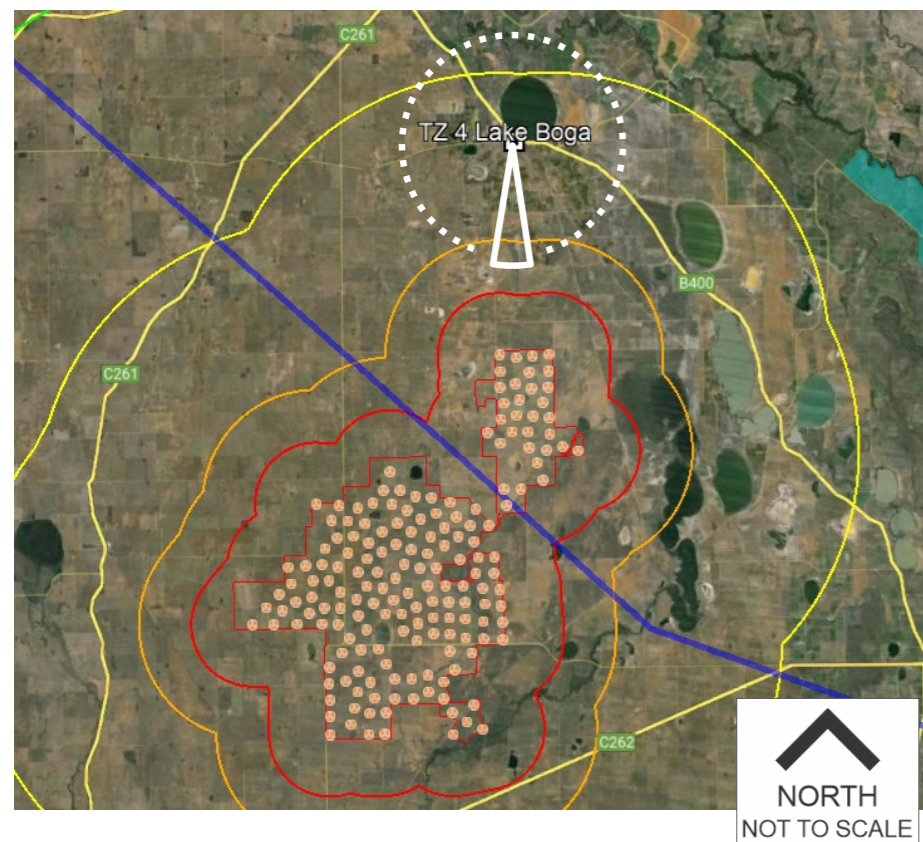


ASSESSMENT		
Summary of "Scale of Effects" Criteria	Existing Setting	Assessment
Coordinates	54H 743055E 6061757N	Existing vegetation surrounding the War Memorial to the left of the image and south of the tracks will partly screen or filter views of the proposed turbines.
Distance to the nearest Turbine	~6.5 km	From areas within the township, existing dwellings, buildings and vegetation would screen or filter views to the wind farm except for properties at the northern edge of the town.
Duration	Moderate	At a distance of over 6.0 km, the turbines, if visible, would be a background element and added to views, including rail features, light poles, power lines, and grain handling equipment. For these reasons, the visual impact would be—negligible.
Viewer numbers	Moderate	
Landscape Character / Viewer sensitivity	High	
Overall Visual Impact	Negligible	

9.2.4 Viewpoint TZ4 – Lake Boga



Figure 9-17 Viewpoint TZ4 – Lake Boga Caravan Park and southern foreshore



ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54H 739588E 6072075N	Lake Boga is a small township settled on the margins of the permanent water body of Lake Boga. The nearest turbine would be approximately 12.0km to the south.	Although viewer numbers from the roadway will be high, and the turbines will be noticeable, the overall visual impact will be Low .
Distance to the nearest Turbine	~12.0 km S	The town centre and older residential areas are south of the Murray Valley Highway and are separated from the lake. Newer areas are closely aligned to the margins of the lake.	The turbines would be added to the background of views, including poles and wires along the local power lines and other structures in nearby farming land. Due Poles along the distribution network would be more apparent than the turbines, which are further to the south and less visually apparent.
Duration	Moderate	Figure 9-17 shows the view looking south across the Murray Valley Highway and visitor areas towards the proposed turbines.	
Viewer numbers	Moderate		
Landscape Character / Viewer sensitivity	High	From this location, views are partly across cleared farmland, dwellings to the east of the town and powerlines along the local distribution network.	Further, key views are of Lake Boga to the north and in the opposite direction to the proposed turbines.
Overall Visual Impact	Low		

9.2.5 Viewpoint TZ5 – Swan Hill

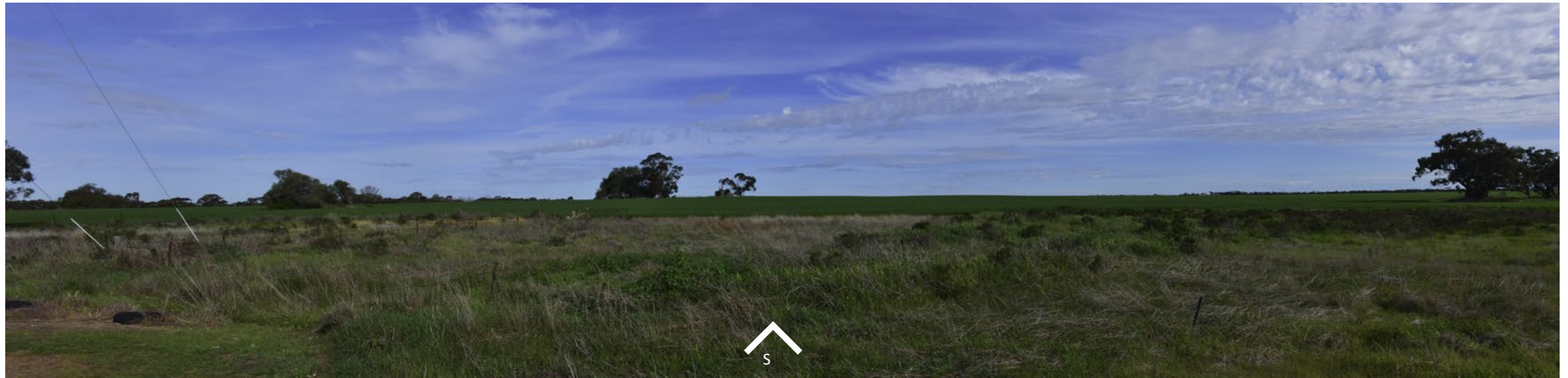
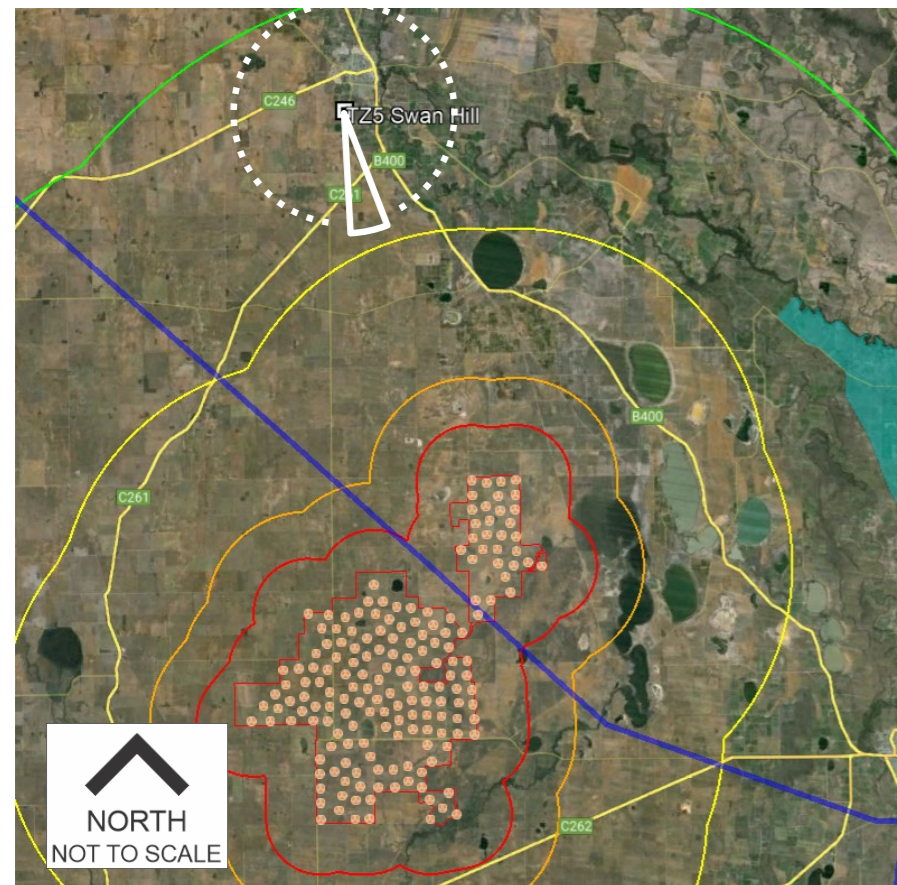


Figure 9-18 Viewpoint TZ5 – Swan Hill Corner Dead Horse Lane and Yana Street

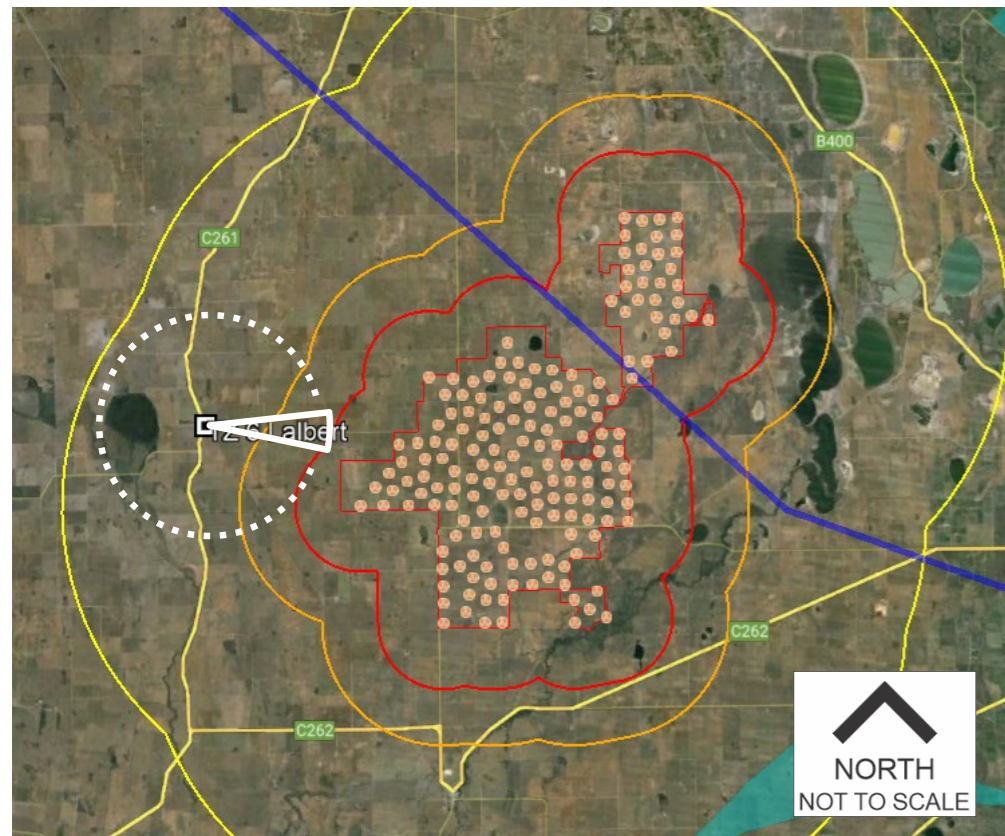


ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54H 730809E 6083927N	The regional township of Swan Township is approximately 25 km to the northwest of the nearest turbine.	The overall visual Impact from Swan Hill would be Nil.
Distance to the nearest Turbine	~25km	The town centre and residential areas are further to the northwest and closely aligned to the Murray River.	Swan Hill is toward the outer edge of the study area and at a distance where the turbines will be screened by a combination of topography, existing vegetation in the intervening landscape and buildings within the township.
Duration	Moderate	Predominant land uses along the southern edge of the town include low-density residential areas, the Swan Hill Airport, and industrial development.	
Viewer numbers	Moderate	Figure 9-18 shows the view looking southeast from the intersection of Deadhorse Lane and Yana Street, south of Swan Hill. Views are across cleared farmland, a landscape that undergoes regular seasonal change and is not protected for landscape or visual reasons.	
Landscape Character / Viewer sensitivity	Low		
Overall Visual Impact	Nil		

9.2.6 Viewpoint TZ6 – Lalbert



Figure 9-19 Viewpoint TZ6 – Lalbert football and netball club

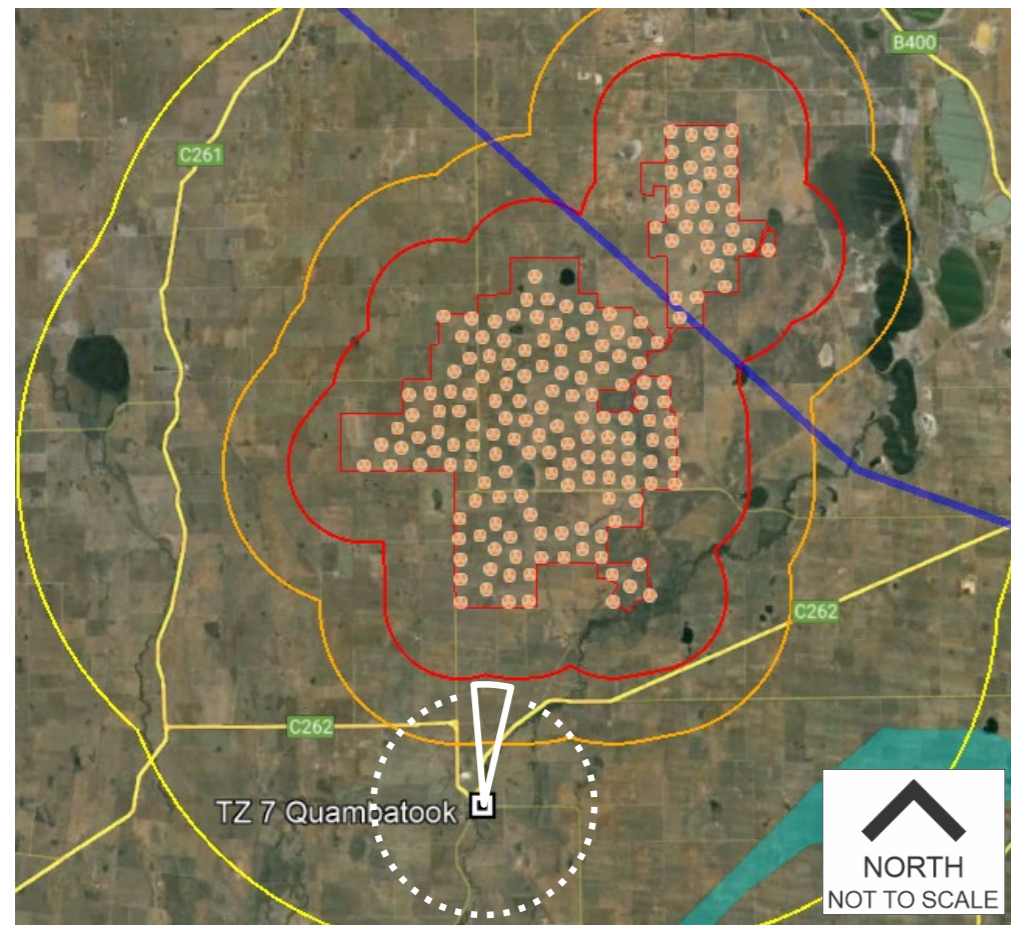


ASSESSMENT		
Summary of "Scale of Effect" Criteria	Existing Setting	Assessment
Coordinates	54H 715241 6049886N	Lalbert is a small rural community approximately 9.2 km to the west of the nearest proposed turbine.
Distance to the nearest Turbine	~9.2 km	Existing vegetation and built form to the east of the town will screen or filter views to the east from most areas within Lalbert. From these areas, there would be no visual impact.
Duration	Moderate	From this location, the upper porting of the turbine blades would be visible above existing vegetation along the reserve's eastern boundary.
Viewer numbers	Moderate	Although visible, they would be added to views, including rail features, light poles, power lines, and grain handling equipment. For these reasons, the visual impact would be– negligible.
Landscape Character / Viewer sensitivity	High	
Overall Visual Impact	Negligible	

9.2.7 Viewpoint TZ7 – Quambatook



Figure 9-20 Viewpoint TZ7 – Quambatook football and netball club



ASSESSMENT			
Summary of "Scale of Effect" Criteria		Existing Setting	Assessment
Coordinates	54H 728208 6029555N	Quambatook is a small rural community approximately 9.0 km south of the nearest turbine. Quambatook is at the nexus of several local roads, reaching Kerang to the northeast, Swan Hill to the north, and Boort to the east.	Existing vegetation and built form to the east of the town will partly screen or filter views of the proposed turbines from most areas within the township. From these areas, there would be no visual impact.
Distance to the nearest Turbine	~9km		
Duration	Moderate	Figure 9-20 shows the view looking north from the Quambatook football and netball grounds and golf club to the east of the town.	If the turbines are visible, they would be added to the background of views that include light poles, power lines, and goal posts, which are closer and more prominent than the turbines. For these reasons, the visual impact would be– negligible.
Viewer numbers	Moderate	Development areas associated with the township are further to the west and are separated by train lines, a grain handling facility and silos and other vegetation along roadsides in private gardens. Examples of these can be seen in the view included in Figure 7-4 earlier in this report.	
Landscape Character / Viewer sensitivity	High		
Overall Visual Impact	Negligible		

9.2.8 Visual Impact from Townships and Rural Communities

Views of the proposed wind turbines from most townships and Rural communities would be limited by vegetation and built form, or the turbines would be a background element that is added to views that include many vertical elements, buildings and large structures associated with rail, grain handling and storage.

As a result of the distance to most of the urban areas surrounding the CWF and intervening vegetation and built form, the proposed wind turbines will not be dominant visual elements.

From most townships and rural communities, the visual impact would be assessed as Negligible to Nil.

Figure 9-21 Mystic Park Hotel



9.3 Regional Character and Public Roads

The preceding sections have examined views from publicly accessible locations that are significant or sensitive for their biological or environmental values and values by local communities.

Through these views, the analysis of the planning scheme undertaken in Chapter 6, and the review of physical features that contribute to landscape character, which was undertaken in Chapter 7, it is evident that the majority of the land within the study area comprises broad-acre rural landscape that has been cleared to create vast areas for farming. The flat topography and extensive clearing have created a landscape that enables long open, sometimes open views that are only interrupted by remnant vegetation within bushland reserves., along roadsides and waterways.

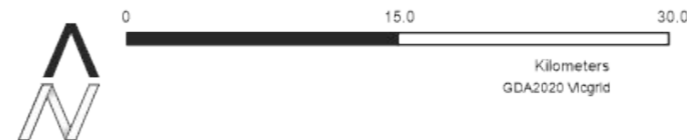
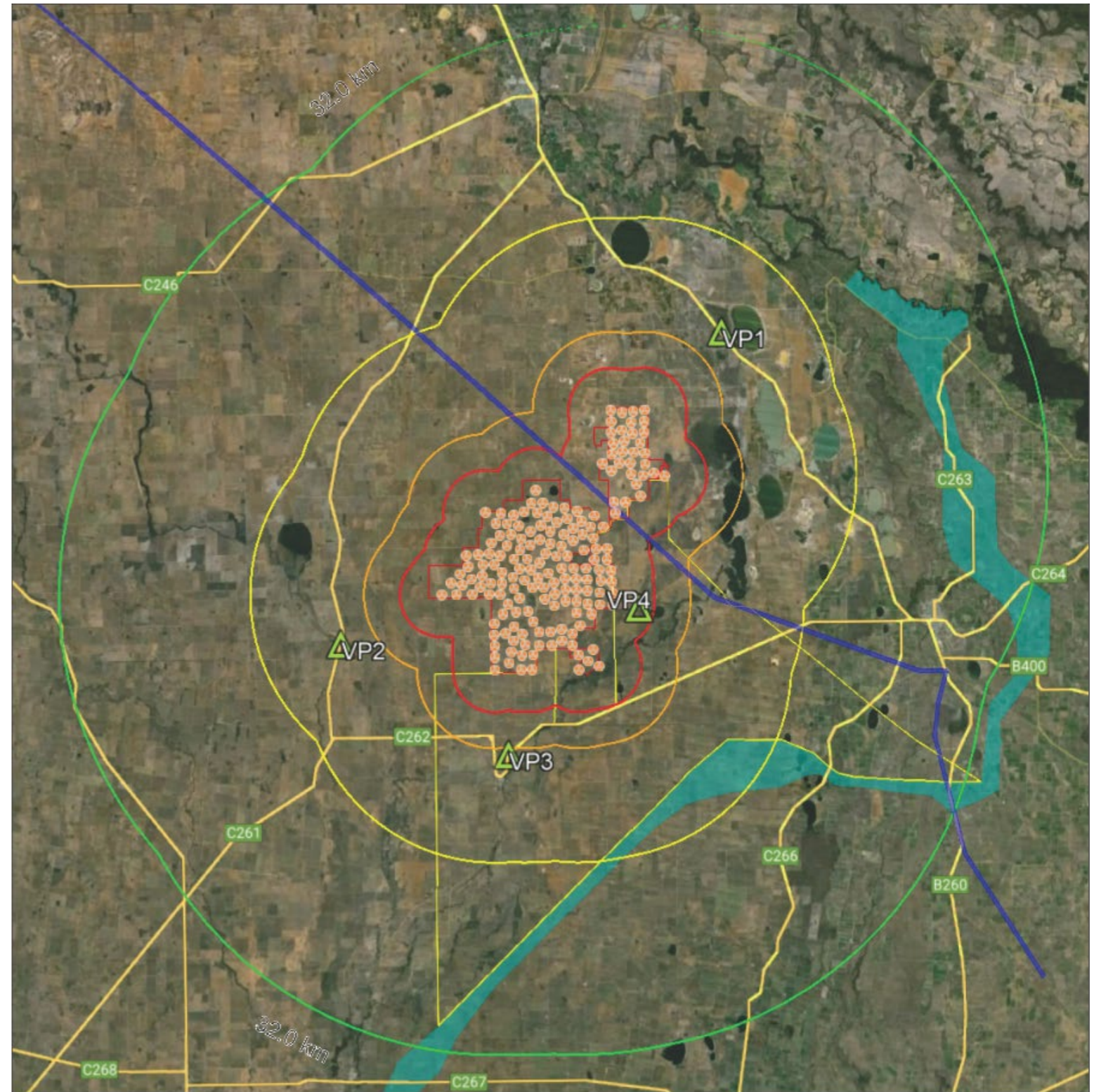
Due to the relative consistency of the landscape, uses of the land, and underlying provisions in the local planning schemes, there are fewer viewpoints required to review the project. Further, when combined with those in the preceding analysis, these viewpoints provide for the range, nature and distance of views sufficient to consider the visual and landscape setting in which the proposed turbines would reside in the local area.

Figure 9-22 shows each viewpoint in proximity to the project’s key features described in Chapter 3. The location of each viewpoint, corresponding GPS coordinates and proximity to the proposed turbines are listed in Table 9.3 below.

Table 9.3: Regional Character and Public Roads

VP	Location	GPS Coordinates	Distance to WTG
VP1	Murray Valley Highway	54H 747390E 6066353N	~9,6 km SW
VP2	Donald Swan Hill Road	54H 714745E 6041442N	~11.0 km E
VP3	Kerang-Quambatook Road	54H 728352E 6031683N	~7.1 km N
VP4	Lalbert – Lake Charm Road and Lake Charm – Quambatook Road	54H 739762E 6043492N	~2.3 km W

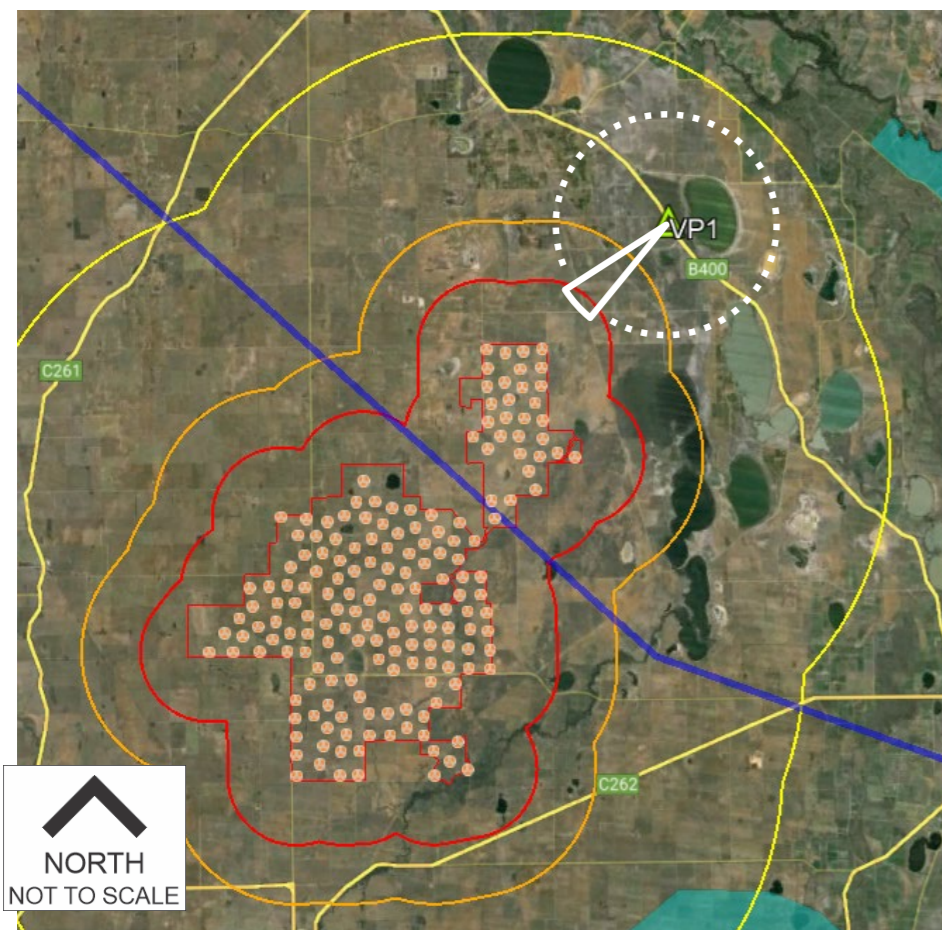
Figure 9-22 Viewpoints showing Regional Character and Public Roads



9.3.1 Viewpoint VP1 – Murray Valley Highway Highway



Figure 9-23 Viewpoint VP1 – Murray Valley Highway



ASSESSMENT		
Summary of "Scale of Effects" Criteria	Existing Setting	Assessment
Coordinates	54 H 747390E 6066353N	Figure 9-22 shows a view from a location on the Murray Valley Highway, approximately 9.6 km northeast of the nearest turbine.
Distance to the nearest Turbine	~9,6 km	Although viewer numbers would be high, and the turbines would be at a distance where they would be noticeable, the overall visual impact would be low .
Duration	Moderate	Turbines would be added to the background of a view across a highly modified landscape with a low sensitivity to visual change.
Viewer numbers	Moderate	To assist with scale and prominence, the uprights along the wire rope barrier would be more apparent than the turbines. This is due to the distance to the turbines and the close proximity of the barrier.
Landscape Character / Viewer sensitivity	Low	
Overall Visual Impact	Low	

9.3.2 Viewpoint VP2 – Donald – Swan Hill Road

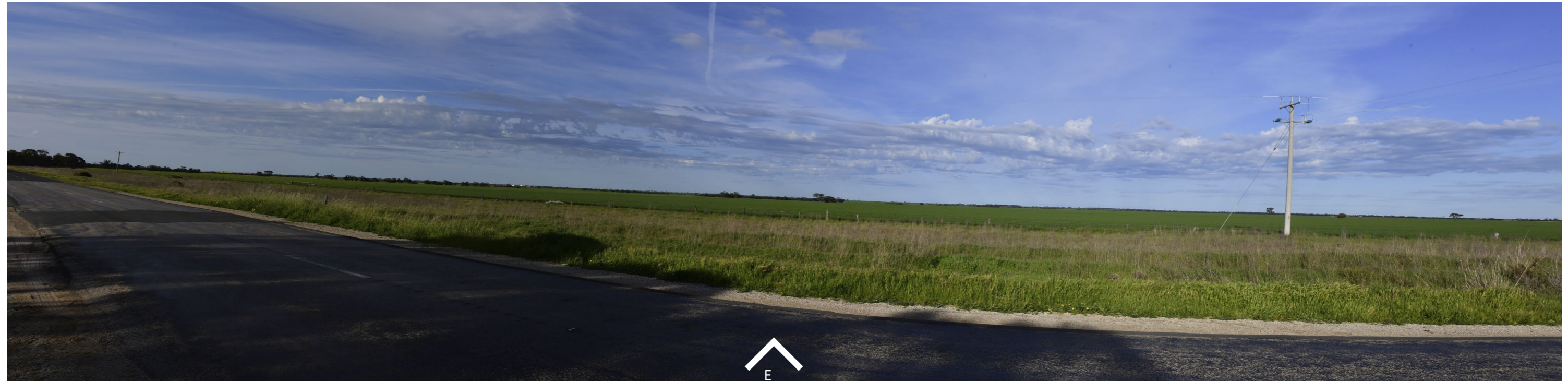
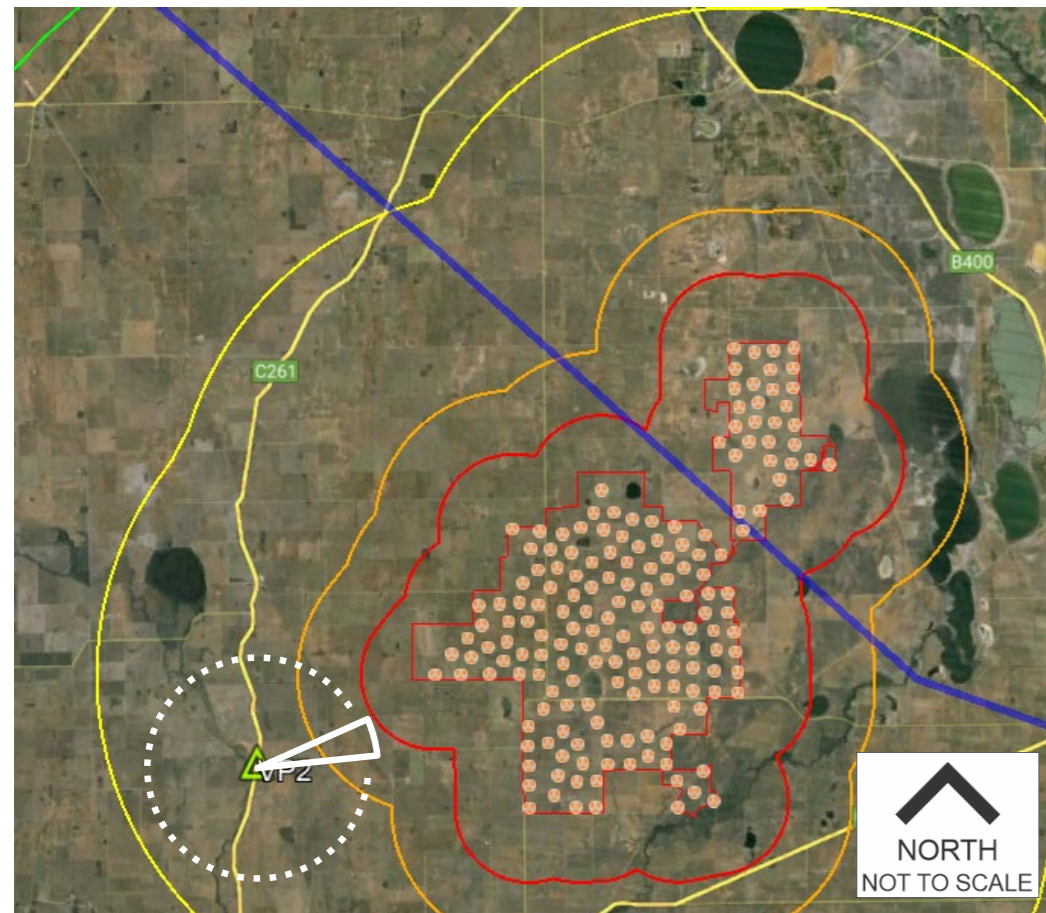


Figure 9-24 Viewpoint VP2 – Donald Swan Hill Road



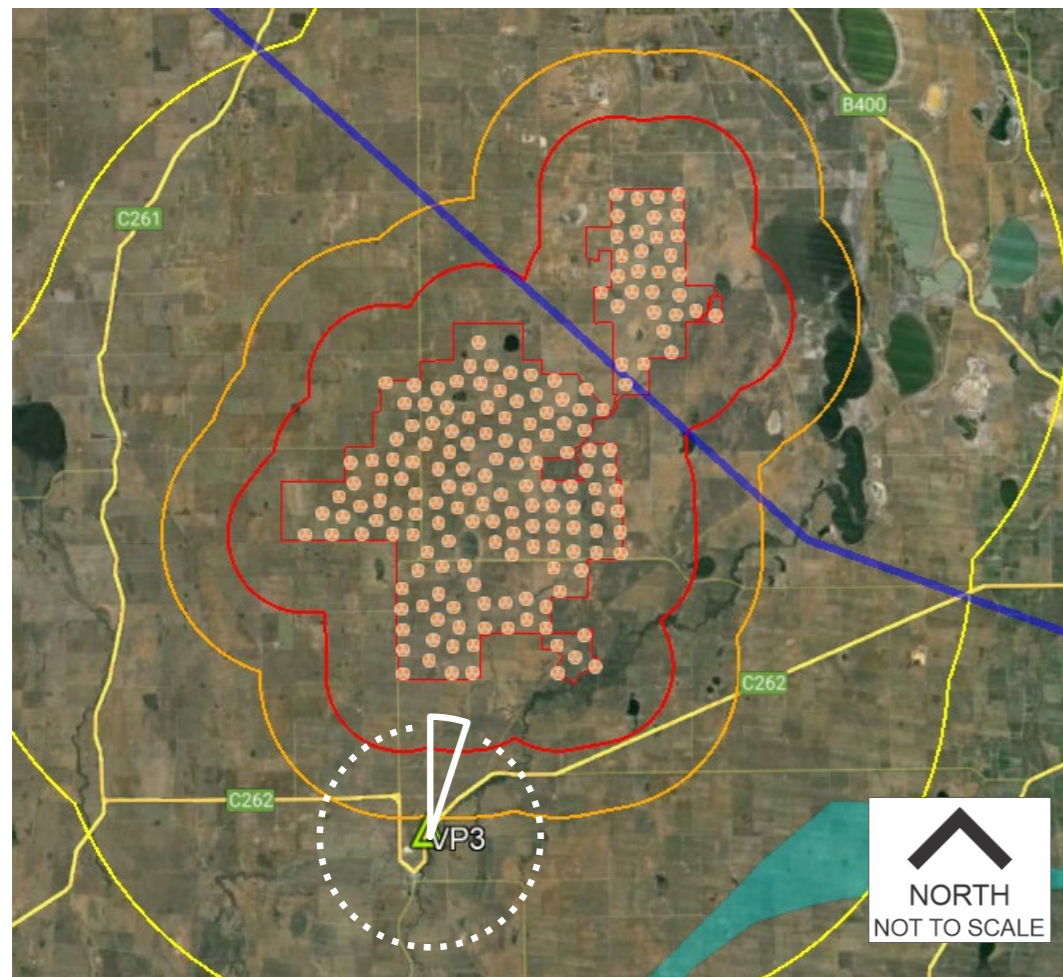
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ASSESSMENT		
Summary of "Scale of Effects" Criteria	Existing Setting	Assessment
Coordinates	54H 714745E 6041442N	The visual impact would be assessed as Low . This is due partly to distance, low viewer numbers and the sensitivity in views towards the proposed turbines.
Distance to the nearest Turbine	~9.3 km E	
Duration	Moderate	Donald-Swan Hill Road has low-moderate road users and people who will see the turbines.
Viewer numbers	Low – Moderate	Views are across cleared flat farmland which has a low sensitivity to visual change, one that undergoes regular seasonal change.
Landscape Character / Viewer sensitivity	Low	At a distance of approximately 11.0 km, the turbines would be a noticeable element, albeit added to views across a landscape that is not sensitive and one that includes power lines and other structures in nearby farmland.
Overall Visual Impact	Low	

9.3.3 Viewpoint VP3 – Kerang Quambatook Road



Figure 9-25 Viewpoint VP3 – Kerang – Quambatook Road

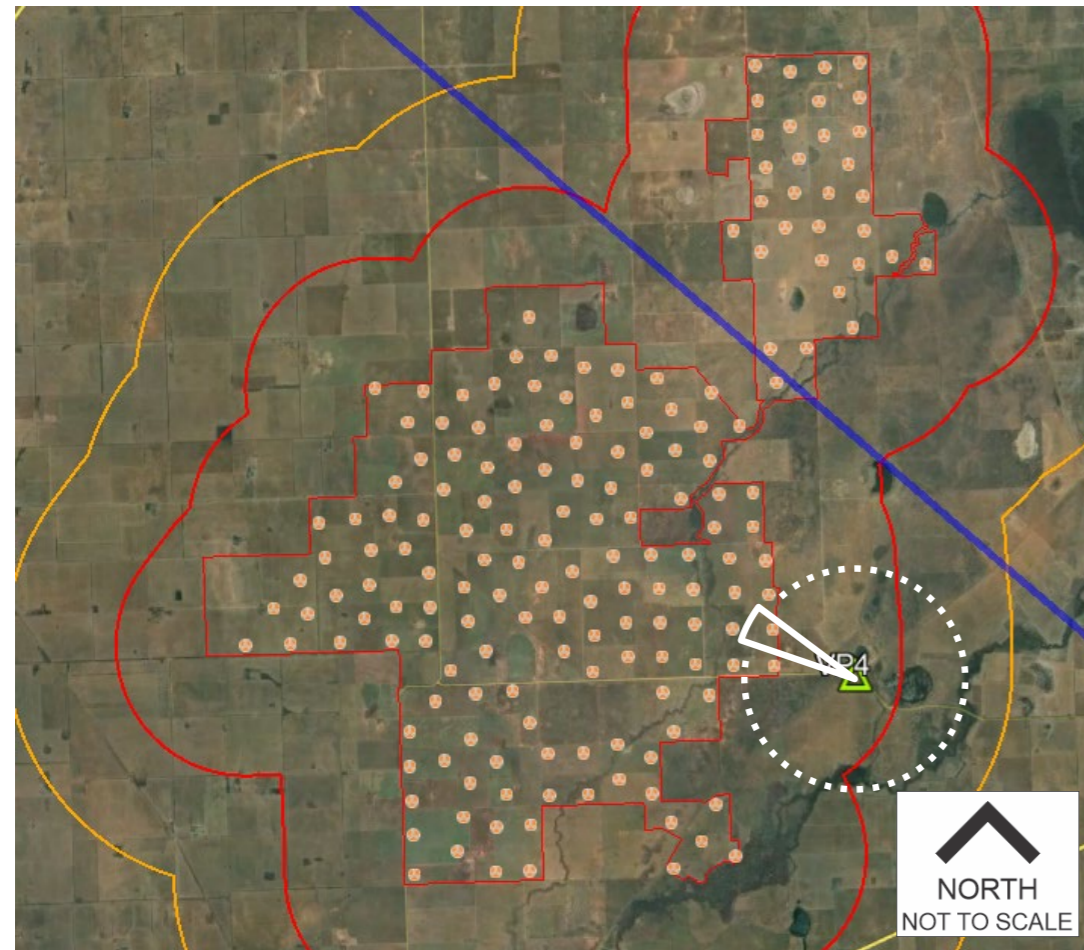


ASSESSMENT		
Summary of "Scale of Effects" Criteria	Existing Setting	Assessment
Coordinates	54H 728352E 6031683N	<p>Kerang-Quambatook Road is a local road with few road users.</p> <p>From this location, the turbines would be a noticeable visual element, added to the background of a highly modified view with a low sensitivity to visual change.</p> <p>Although the turbines would be a noticeable element, the visual impact would be Low due to the few people who would see the turbines and the setting in which the turbines would be visible.</p>
Distance to the nearest Turbine	~7.1 km N	
Duration	Moderate	
Viewer numbers	LOW – Moderate	
Landscape Character / Viewer sensitivity	Low	
Overall Visual Impact	Low	

9.3.4 Viewpoint VP4 – Lalbert – Lake Charm Road and Lake Charm – Quambatook Road



Figure 9-26 Viewpoint VP4 – Lalbert – Lake Charm Road and Lake Charm – Quambatook Road



ASSESSMENT			
Summary of "Scale of Effects" Criteria		Existing Setting	Assessment
Coordinates	54 H 739762E 6043492N	This viewpoint is from the intersection of Lalbert – Lake Charm Road and Lake Charm – Quambatook Road.	Both roads are local, with low traffic numbers and few, albeit regular, viewers.
Distance to the nearest Turbine	~2.3 km W	The closest turbine would be approximately 2.0 Km directly west and would be visible through approximately 180° extending from the southwest to the northeast.	Although most turbines would be visible and from close proximity, the overall visual impact would be Low .
Duration	Low		This is due partly to low viewer numbers and partly to the sensitivity in views towards the proposed turbines.
Viewer numbers	Low	Figure 9-26 shows the existing view looking southwest through northeast. Figure 9-28 below shows the same view with the proposed turbines superimposed into the view.	
Landscape Character / Viewer sensitivity	Low	From this location, most turbines would be visible either wholly or in part.	
Overall Visual Impact	Low		



Figure 9-27 Viewpoint VP4 – Lalbert – Lake Charm Road and Lake Charm – Quambatook Road (Existing View)



Figure 9-28 Viewpoint VP4 – Lalbert – Lake Charm Road and Lake Charm – Quambatook Road (Photomontage)

9.3.5 Visual Impact on Regional Character and Public Roads

In this rural landscape, roads reflect connections established across the landscape by the region's first settlers and the regiment patterns followed through the soldier settlement schemes. Many roads include linear bands of vegetation, either remnant or planted along paddock boundaries and road easements, which provide view screening where vegetation is dense and view filtering where trees are spaced more broadly.

The combined result is road spacing and vegetation, which are roads spaced at considerable distances, thereby limiting viewing opportunities towards the Project.

The closest point of the Murray Valley Highway is approximately 10.0 km to the northeast. The view assessed in Section 9.3.1 from this location determined that the overall visual impact would be low.

Local roads have low traffic numbers, and therefore, few people will see the Project from these roads. There were no nearby roadside stope, visitor information centres or interpretive locations identified along highways or local roads. Where viewpoints are closer to the project, the turbines are mostly partially screened or filtered by existing vegetation.

For these reasons, the project's visual impact from the public domain would be Negligible, and for those locations where wind turbines were closer to the viewer and unscreened by vegetation and from a sensitive location, the assessment of visual impact was **Low**.

10. Dwellings

Clause 52.32 requires wind farm proponents to consider views from neighbouring dwellings in the area surrounding the Project. This PLVIA has not assessed the visual impact from neighbouring dwellings, this will be undertaken in the detailed LVIA. Rather, this chapter recommends the distance from the turbines in, which the detailed assessment should consider. The following chapter sets out mitigation measures that may assist in managing the visual impacts of dwellings in this zone.

10.1 Dwelling Assessments

The greatest visual impact will be from neighbouring dwellings in the area surrounding the proposed turbines in the CWF.

Planning approvals have recently required proponents to assess the visual impact for residential properties within the zone where wind turbines will be “Highly visible and usually dominate the landscape” and “Will be visually dominant in the landscape from most viewing locations”. Approvals typically require the proponent to offer voluntary landscape screening to neighbouring dwellings within these zones or commensurate distances.

Table 5-1 in Chapter 5 defines the zone where a 280.5m high turbine has the potential to be *Highly visible and will usually dominate the landscape* where the whole of a turbine would be visible as 6.5 km from the base of a turbine. This distance will, therefore, be the focus of dwelling assessments for neighbouring properties in the detailed assessment.

10.2 Assessment Criteria

The assessment of the visual impact from residential dwellings is based upon the visibility of turbines, the scale of wind turbines through distance and the view from which the turbines may be visible before considering the feasibility of landscape mitigation to filter or screen views towards the Project. The assessment is not altered or influenced by the perceptions of the individual viewer; sensitivity is always considered to be high.

The analysis of visual impact from residential properties is based on the following assumptions:

- An occupant of a residential dwelling will have a high degree of sensitivity to the change in their immediate landscape.
- Visitor numbers do not apply to residences.
- Farmers may be able to see the wind turbines as they move around their property. These areas may be used as much in daylight hours as the living areas of their residences.
- Landscaping can be designed to mitigate the visual impact when located near a fixed viewpoint, such as a residence, with far greater ease than that can be achieved along the road network.

The criteria considered in the assessment of views from residential dwellings is based on the visibility of the project features, distance to the Project, the location from which the view is afforded, and the context or sensitivity of the landscape in the view toward the Project.

This differs slightly to views from publicly accessible locations, where viewer numbers are irrelevant, and viewer sensitivity is always considered high.

10.3 Dwelling Considerations and Summary

Dwellings included in the detailed assessment will be determined through desktop reviews, planned community consultation activities and ongoing stakeholder engagement through the Proponent. Dwellings included in the detailed assessment will be where landowners have provided their consent to undertake the evaluation of the impacts from their dwelling for inclusion in the final report.

Figure 10-1 Murra Warra Wind Farm



11. Mitigation

Wind turbines are unavoidably large and visible structures that contrast with the environments in which they are situated. The assessment process is required to consider the acceptability of impacts on landscape values, the amenity of communities and residential dwellings and the ability to mitigate these impacts.

Mitigation options available to manage the visual impact from locations that are significantly visually affected by a wind farm include:

- Re-siting of turbines to locations where they will have less visual impact (or removal if necessary).
- Vegetation screening to filter or screen the proposed wind turbines from dwellings or areas of private open space.

11.1 Turbine Placement

It is often challenging to mitigate visual impacts that are considered to be high from public locations such as lookouts, interpretative areas and heritage markers. Mitigating such views by establishing landscape screening to screen the turbines usually alters the significance of the view or setting. For these areas, it may be that turbine removal or re-siting is considered. From dwellings, turbine removal or micrositing might be recommended where a turbine is proposed in a primary view from a dwelling that is oriented toward a particular landscape feature. In flatter landscapes such as those within the study area of the CWF, these views are more likely to be toward a watercourse rather than a hill or mountain range.

There have been no such locations identified during this assessment. Identifying such locations would be a focus of the ongoing community consultation and stakeholder engagement and the detailed LVIA.

11.2 Placement and screening

Approvals for recent Victorian wind farm projects have included a model condition requiring permit holders to develop an Off-Site Landscaping Program, which provides for off-site landscaping or other treatments to reduce the visual impact of the turbines where a turbine is visible from the dwelling.

The model conditions require offsite screening to be offered to all neighbouring residential dwellings within the zone where a visible turbine has the potential to be *highly visible and will usually dominate the landscape*. Section 4.1 of this assessment has established this zone to extend to 6.5 km from the base of a turbine.

Photomontages included in the assessment of views from publicly accessible locations and observations made during an inspection of similar-sized turbines in the Murra Warra Wind Farm demonstrate that vegetation and landscape mitigation can effectively screen or filter views towards the proposed wind turbines. The relevant considerations for screening a 280.5m high turbine for dwellings in farming areas is set out in this chapter.

Figure 11-1 shows an example of existing vegetation and the placement of new landscaping to assist with screening views to turbines. This example is based on the owner's desire that wind turbine views be screened or filtered.

Alternatives may include careful placement of single trees or clusters to screen views to the nearest and most visually noticeable turbine.

11.3 Vegetation heights

Vertical view angles consider the overall height of the turbines and the distance of the dwelling to the turbine, and this is relevant to determining the heights that vegetation would be required to achieve screened views. Similar to the discussions on determining the Zones of Visual Influence discussed throughout this report, turbines' view angle or visual scale will change over distance. The greater the distance between a viewing location and a turbine, the smaller the turbine will appear. Similarly, the closer the viewing location, the larger the turbine will appear.

By analysing view angles for a 280.5 m high turbine, it is possible to determine the approximate height that landscape mitigation would be required to achieve to ameliorate visual impacts from residential dwellings.

To be conservative, the following will describe the view angle at a distance of 1.0 km from a turbine and how this translates to landscape mitigation.

For dwellings located within a Bushfire Management Overlay (BMO), it will be important to consider design requirements such as canopy separation, defensible space, and distance from the dwelling. For these reasons, vegetation has been shown at varying distances from the dwelling, assuming flat terrain. The height considerations for vegetation are shown in Table 10.1.

Table 11.1: Landscape mitigation indicative heights

Nearest Turbine Distance	Vegetation height at 20m from dwelling	Vegetation height at 30m from dwelling	Vegetation height at 50m from dwelling
1.5km	6.6m	9.2m	14m
2.0km	5.0m	6.6m	10m
2.5km	4.1m	5.3m	7.8m
3.0km	3.6m	4.6m	6.6m
3.5km	3.4m	4.1m	5.9m
4.0km	3.1m	3.8m	5.2m
4.5km	2.8m	3.5m	4.7m
5.0km	2.8m	3.3m	4.4m
5.5km	2.6m	3.1m	4.1m
6.0km	2.5m	3.0m	3.9m
6.5km	2.5m	2.9m	3.7m

11.4 Bushfire considerations

A suitably qualified expert should review any proposed Landscape screening for properties in a BMO and prepare conditions to be included in any permit

that guide desired outcomes and objectives for landscaping specific to the region.

11.5 Summary of Mitigation Measures

The preceding chapters and supporting photographs demonstrate that vegetation in the region can exceed the heights required to screen or filter the proposed 280 m high turbines.

Many established dwellings near the Project are within established landscaped gardens comprising mature trees, orchard plantings and shrubs. This vegetation, while established for other purposes, will assist in screening or filtering views to the Project.

There are many planted windbreaks and hedgerows, vegetation within road reserves and property boundaries, which filter and screen views.

However, as also shown in the preceding residential assessment, views and visual impact are unique and diverse from property to property and vary across the site. There may also be constraints or locations where landscape screening may not be suitable or successful. It is recognised that not all landowners may wish to screen views of turbines either through a preference to see the turbines or the impact of removing views that are enjoyed from the dwelling. Accordingly, mitigation measures should be determined on a case-by-case basis and in consultation with landholders - to minimise adverse impacts.

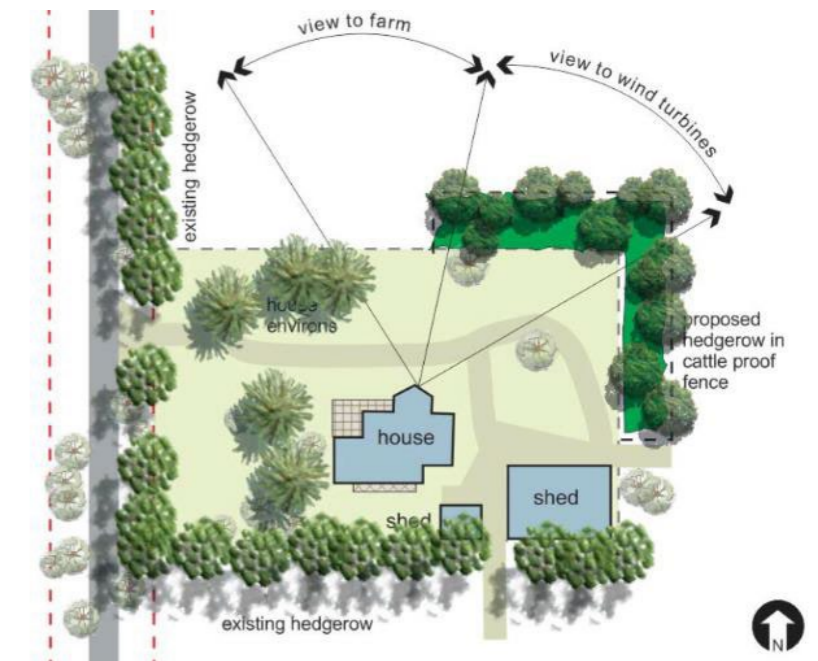


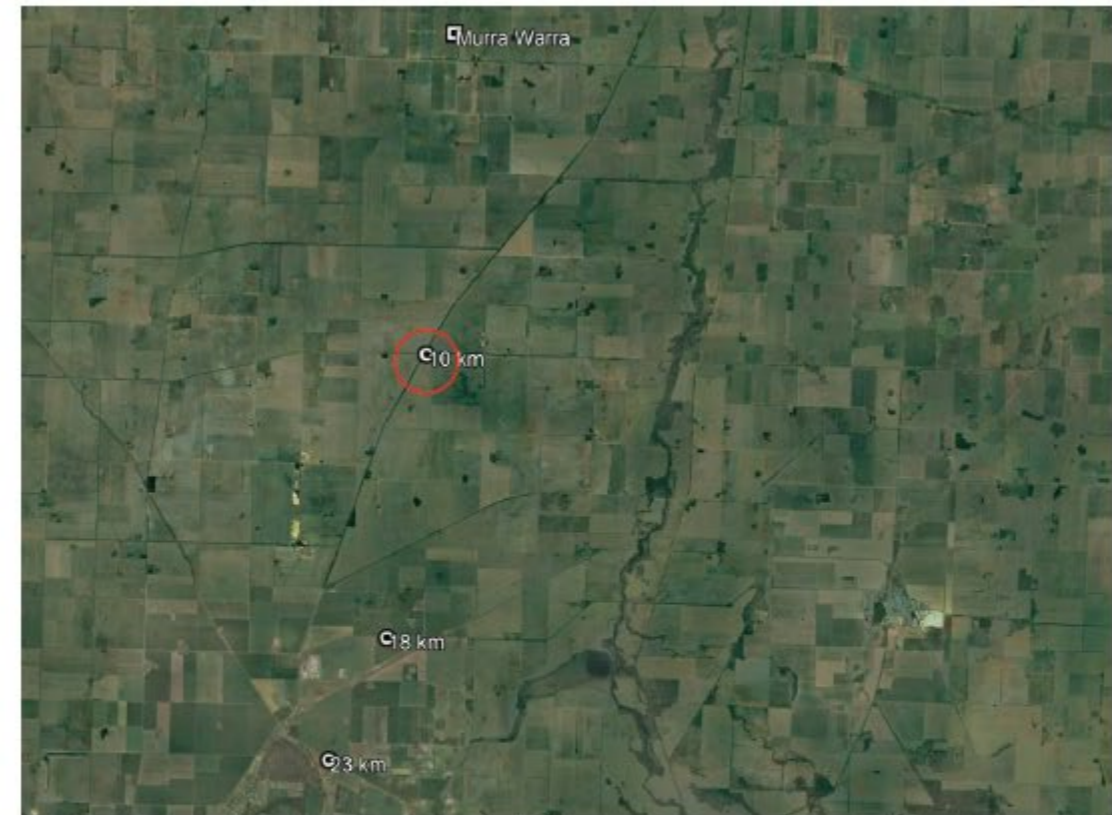
Figure 11-1: Potential Landscape Mitigation Measure

12. Conclusion

When considered against the requirements of the Victorian Wind Farm Guidelines, no visual reasons were identified that would preclude further investigations of either a wind farm comprising 280.5 m high turbines at this location. This review has determined that:

- The Project is proposed in a broad-acre rural landscape. These landscapes are highly modified through farming, have few amenity protections and have low sensitivity to change.
- In this rural landscape, primary roads reflect connections between townships and settlements that were made by the region's first settlers. The layout of local roads, laneways, and tracks established through the soldier settlement schemes are finer-grained, establishing a gridded landscape of approximately one square mile. Many roads include linear bands of remnant or planted trees, which provide partial screening or filtering of views across the landscape.
- The flat topography and extensive clearing establish a visually large landscape that can accommodate the proposed 280.5 m high wind turbines.
- The combined result of road spacing and vegetation limits viewing opportunities towards the Project.
- Sensitive landscapes such as wetland conservation areas and nature reserves are within the study area. These areas are set back from the Project and contain vegetation and local topography, which partially screen or filter views of the Project.
- Most areas of greater sensitivity, particularly nearby townships, are setbacks from project boundaries. Foreground vegetation and buildings will partially screen or filter views from most townships in the direction of the Project.
- Lalbert, to the west of the Project, is the closest township. Views from the recreation reserve to the east of the town are exposed and have the potential to include Project features. Vegetation in the areas surrounding the town can screen project features if required.
- The closest point of the Murray Valley Highway is approximately 10.0 km to the northeast. The view assessed in Section 9.3.1 from this location determined that the overall visual impact would be low.
- Local roads have low usage or viewer numbers, and there were no tourist locations or stopping points on either the highways or along the local roads. Where viewpoints are closer to the turbines, vegetation often partially screens or filters them.
- The greatest impact would be from dwellings in neighbouring farming areas. The landscape is predominantly cleared flat farmland comprising large landholdings, with few dwellings compared to closely settled landscapes. The overall impacts of the final layout would form part of any detailed assessment.

Appendix 1 Murra Warra Testing



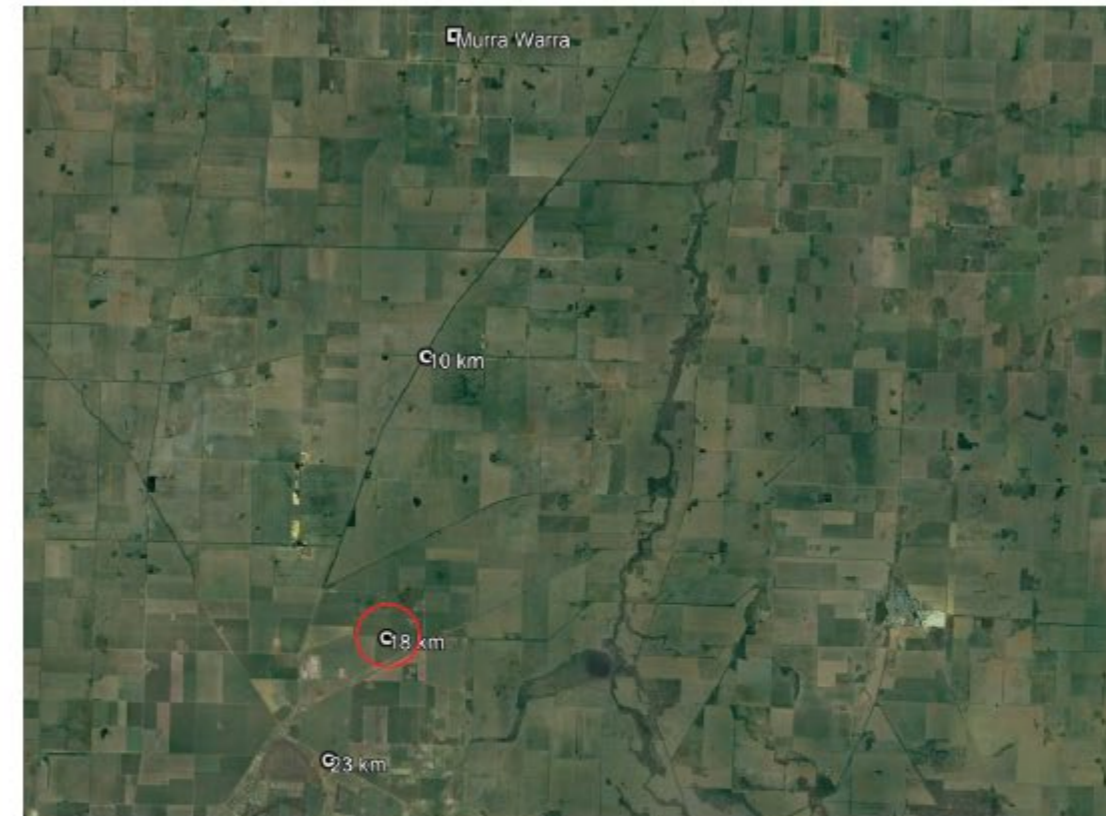
Murra Warra @ ~10 km

Issue	Date	Details

Camera: Nikon D850
Lens: Nikkor 70mm

Murra Warra Trials

Project No:	Drawing No:	Lst
Date:	Drawing size:	
Drawn by: HB	Reviewed by:	HB
Issue: A	Scale:	NA



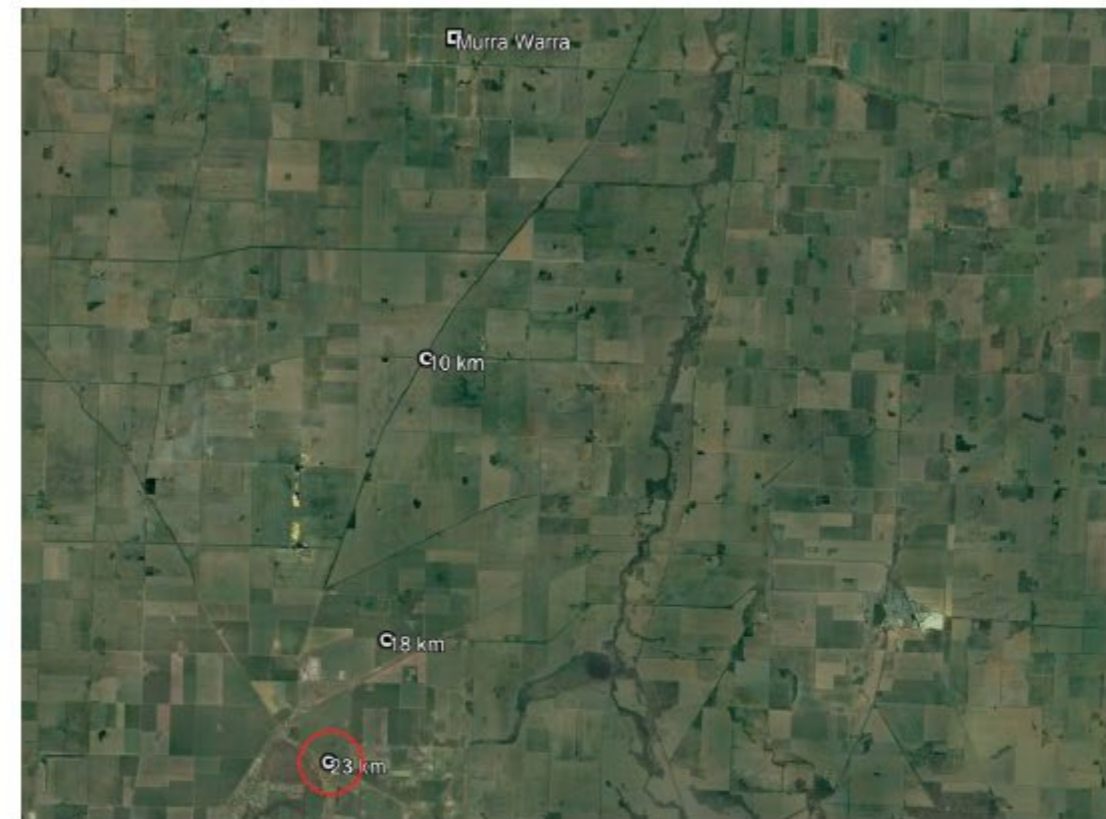
Murra Warra @ ~18 km

Issue	Date	Details

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Lens: Nikkor 70mm

Murra Warra Trials

Project No:	Drawing No:		
Date:	Drawing size:		
Drawn by: HB	Reviewed by: HB		
Issue: A	Scale: N/A		



Murra Warra @ ~23 km

Issue	Date	Details

Camera: Nikon D850
Lens: Nikkor 70mm

Murra Warra Trials		
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Drawn by: HB	Reviewed by: HB	
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Appendix 2 Photomontage VP4



EXISTING VIEW



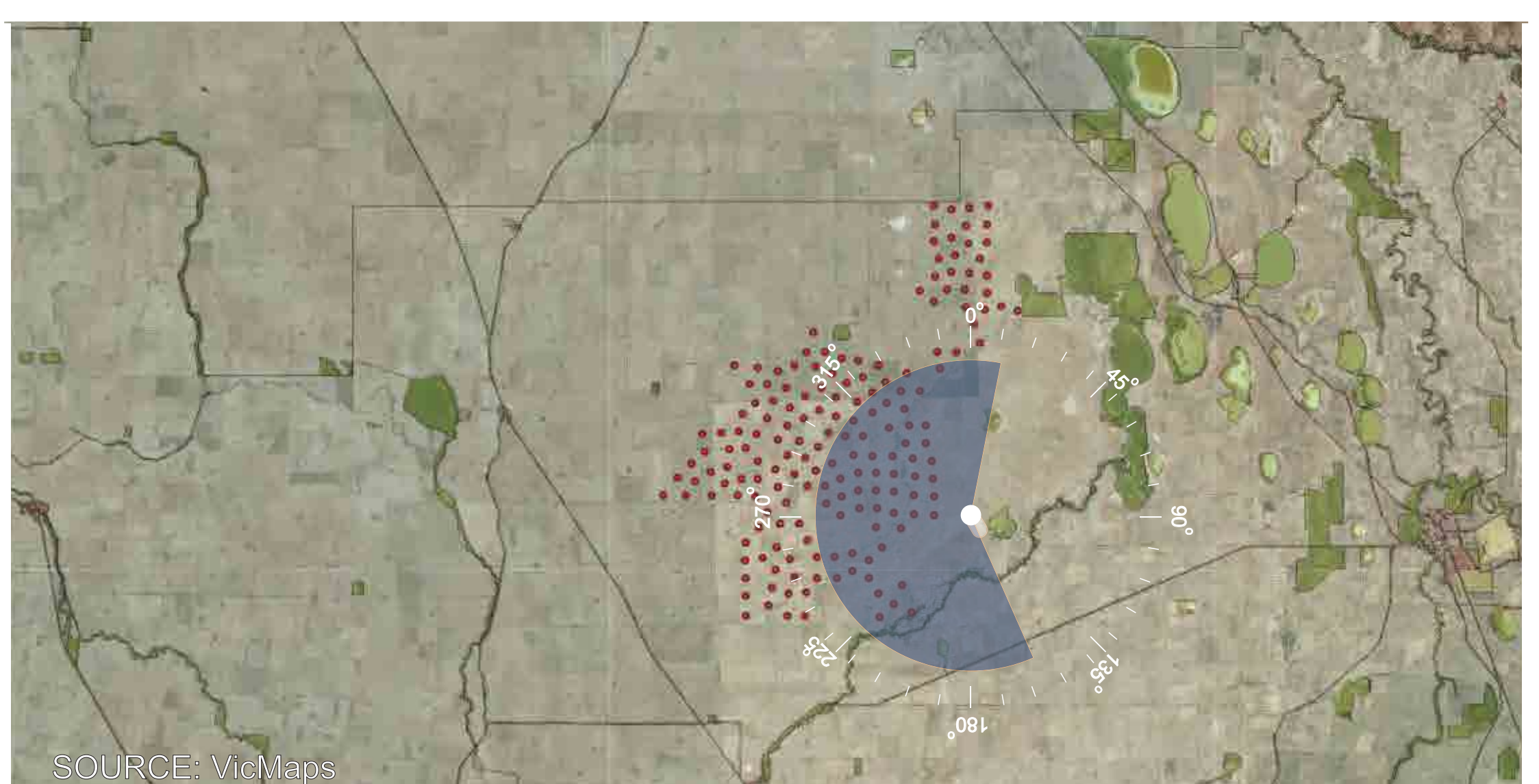
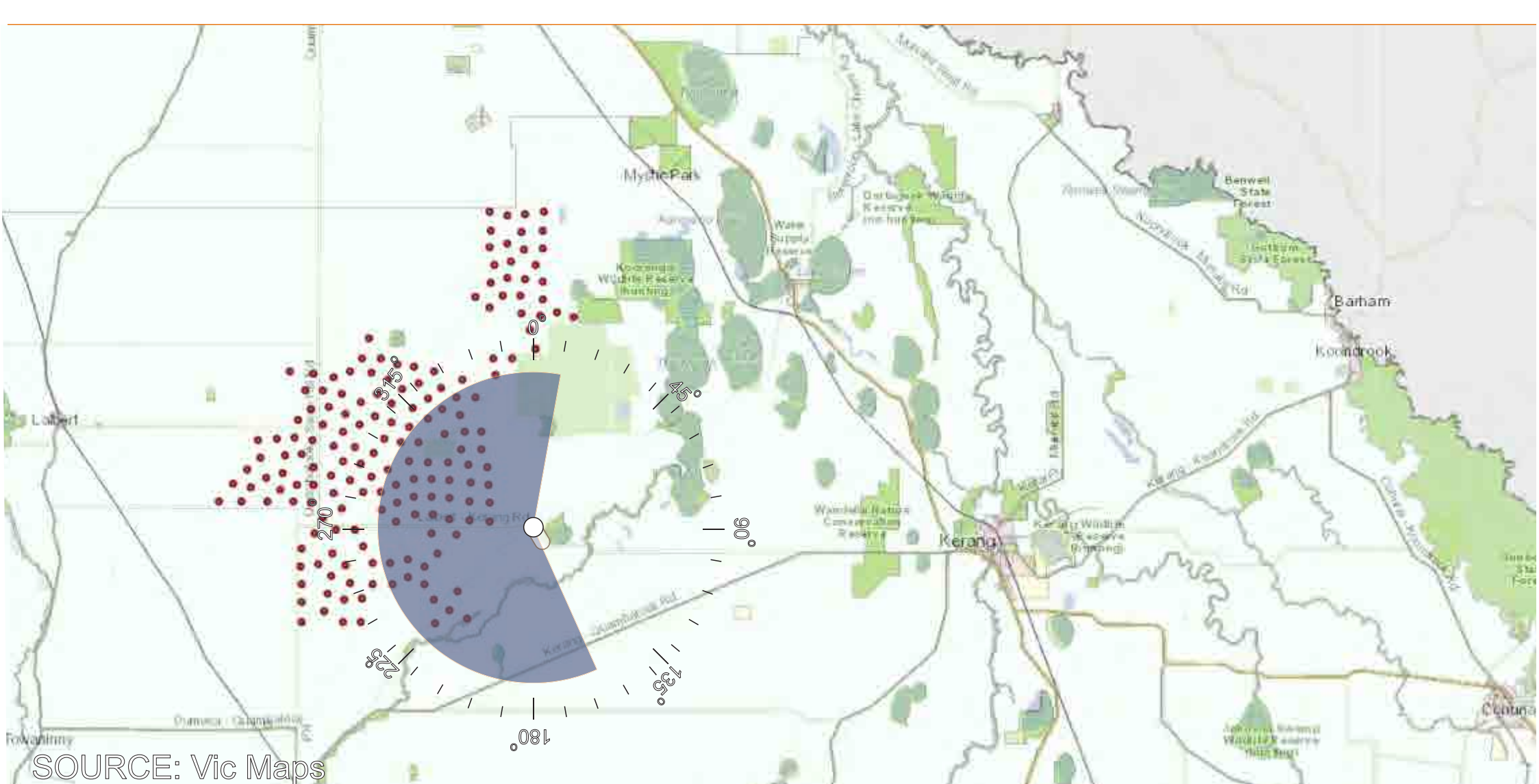
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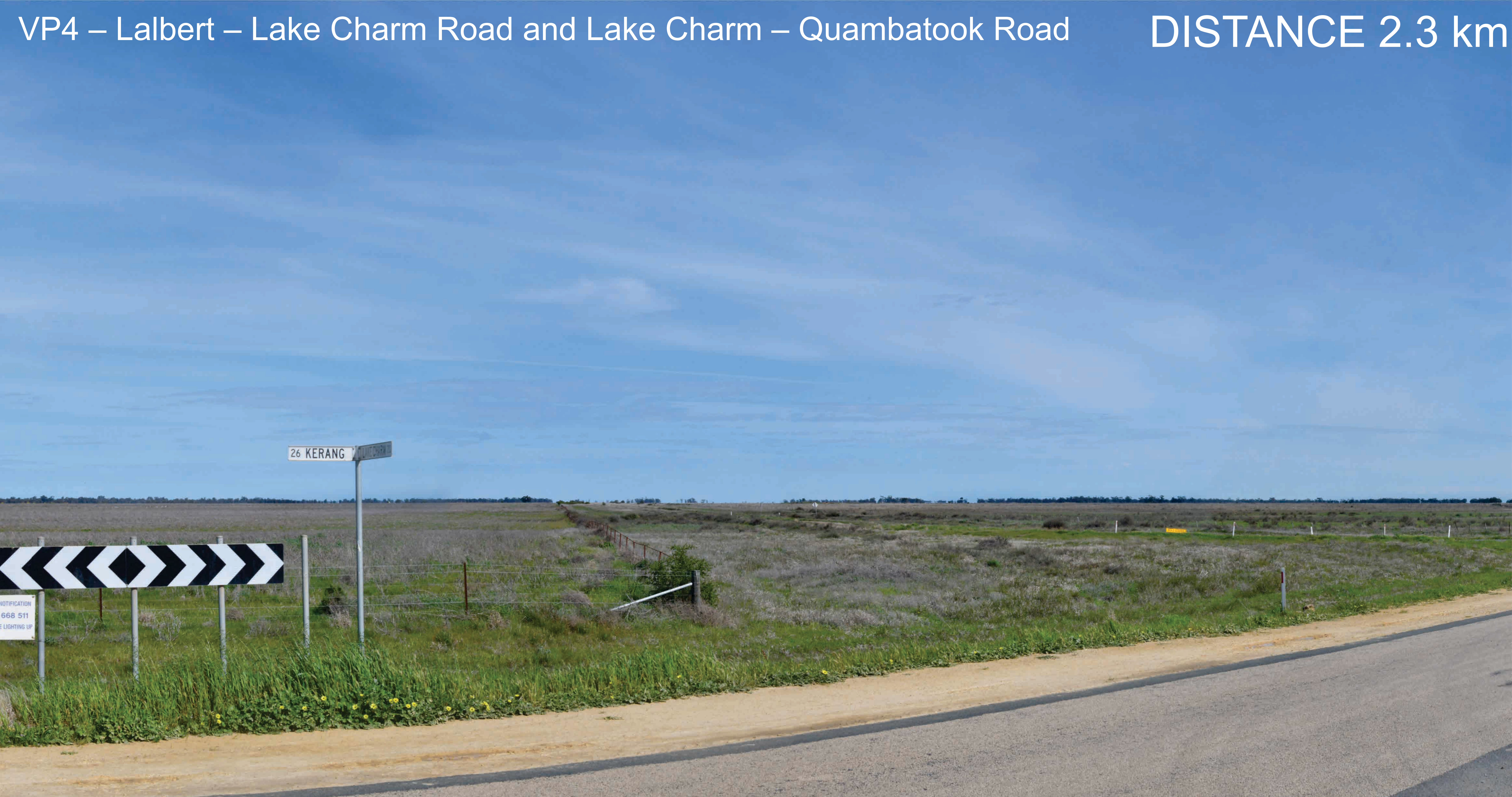
WIREFRAME

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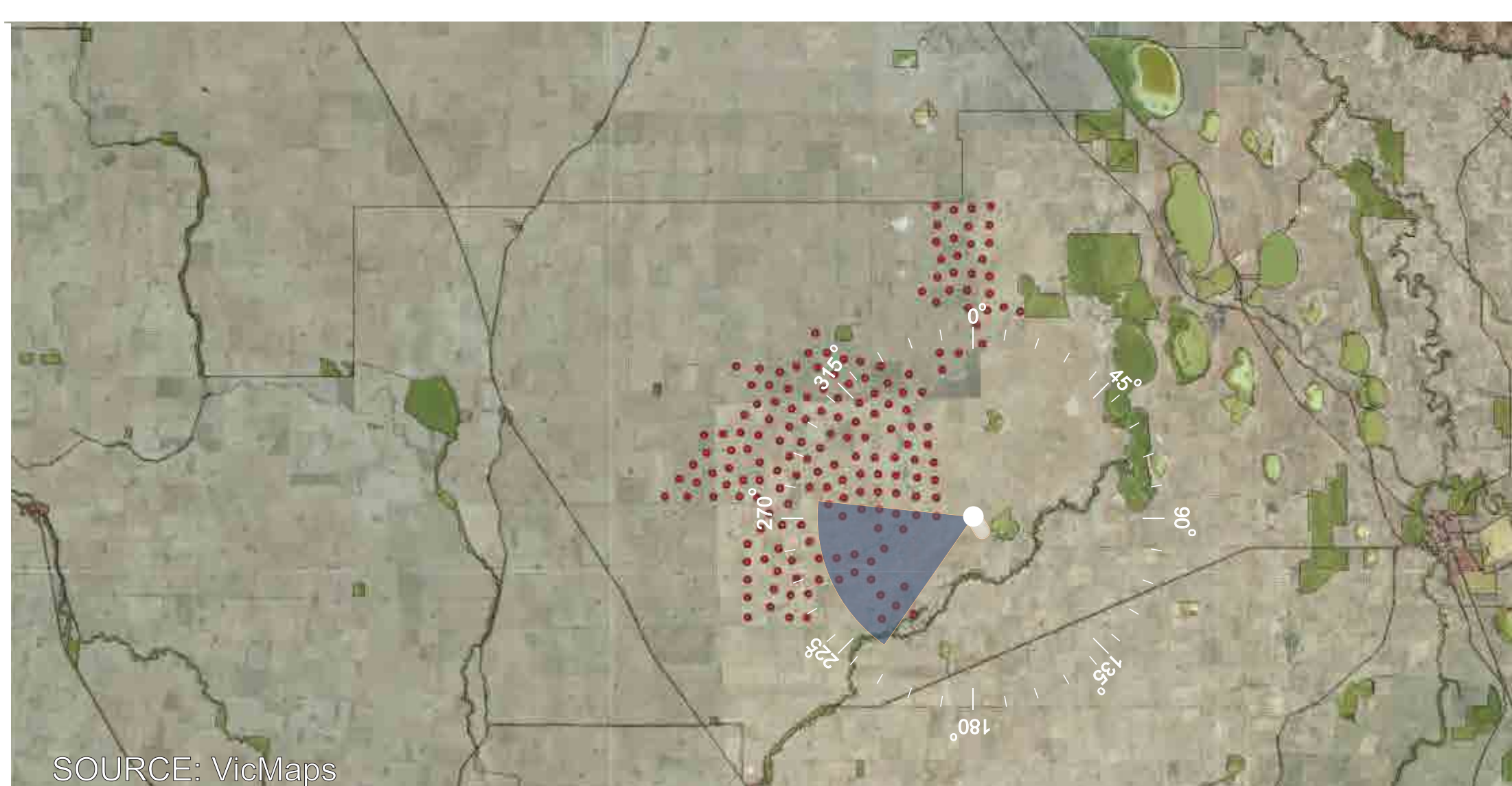
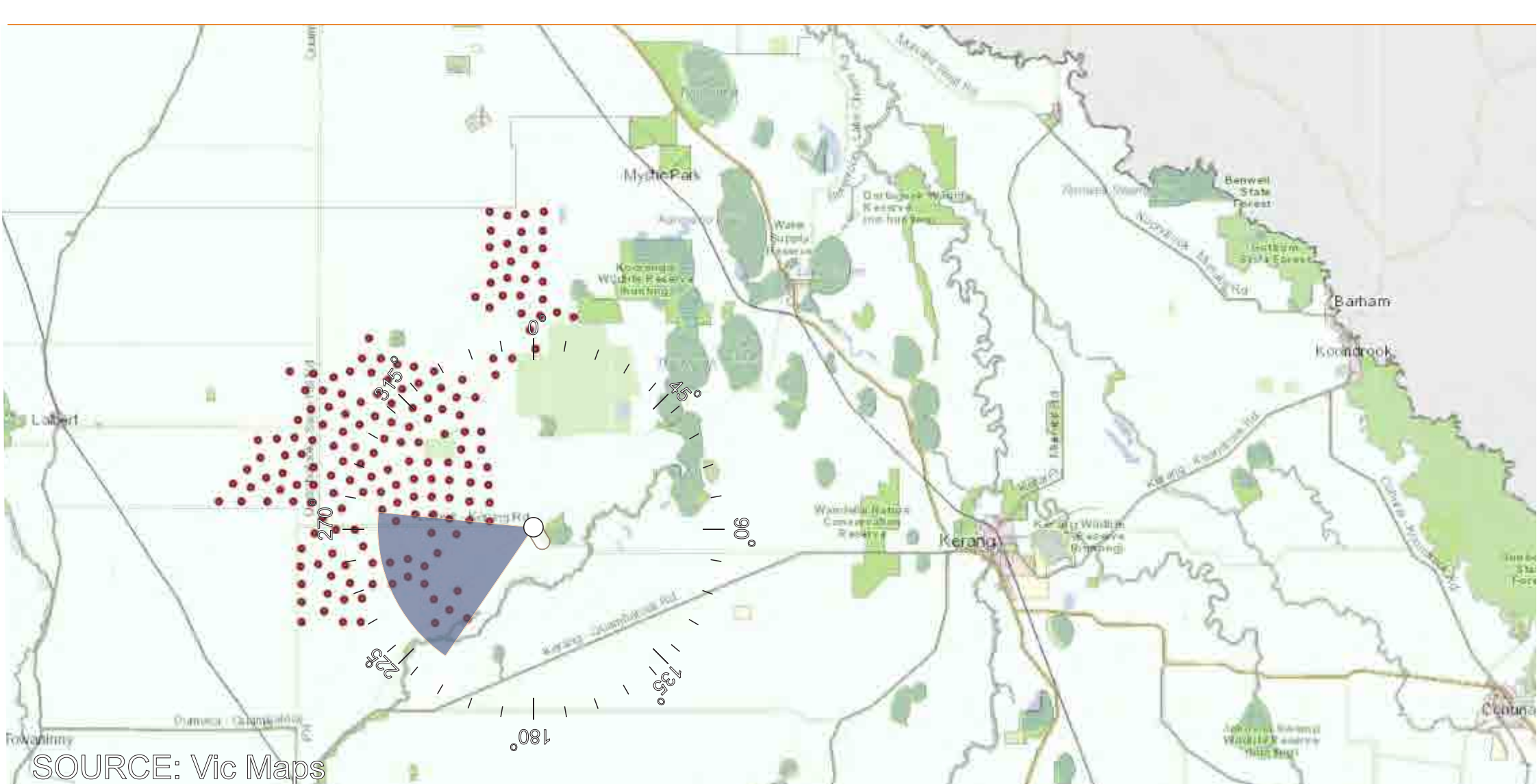
E: hayden@landformarchitects.com.au
P: 0438 677 175



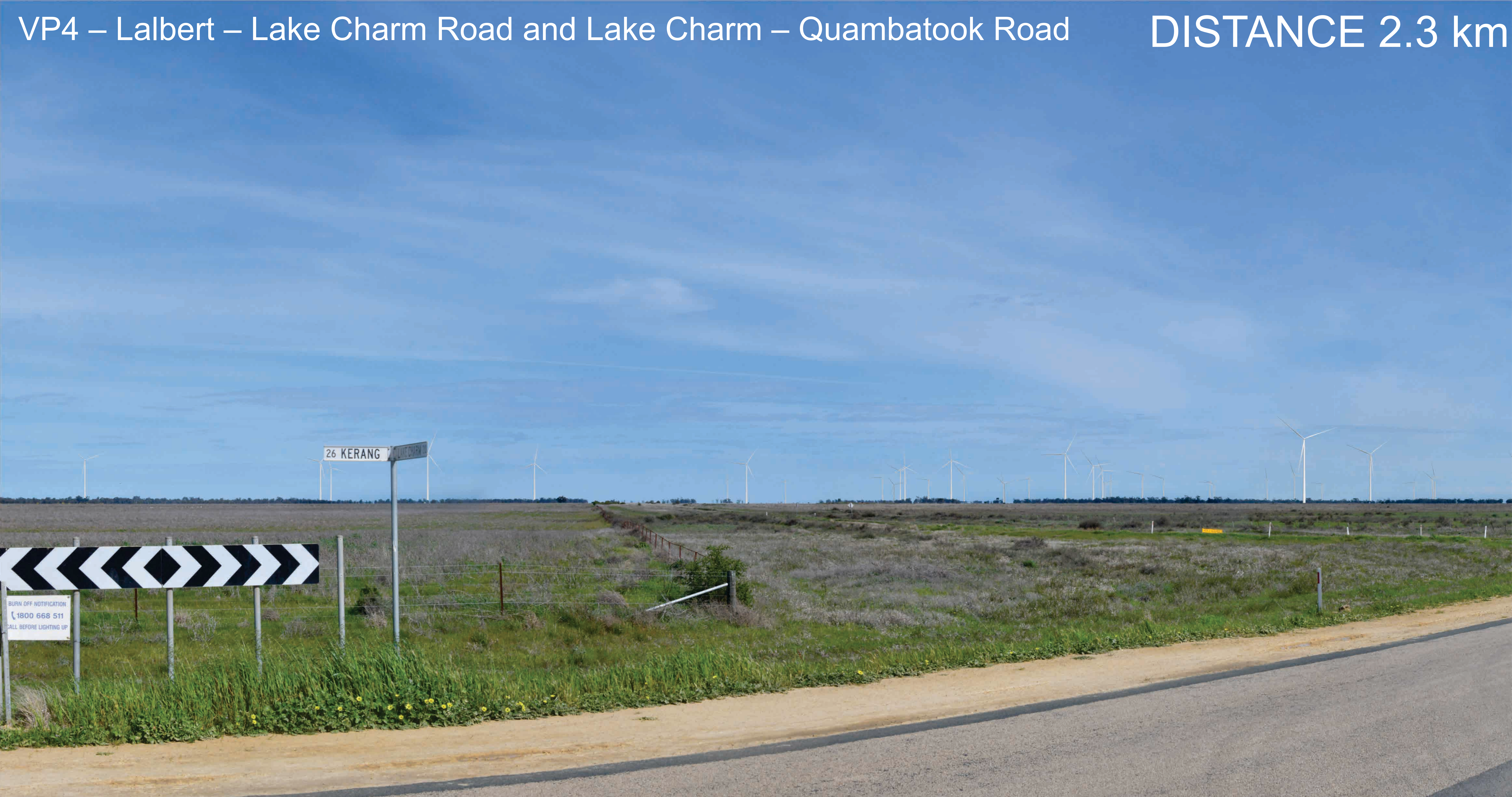
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DATE	29/01/2023



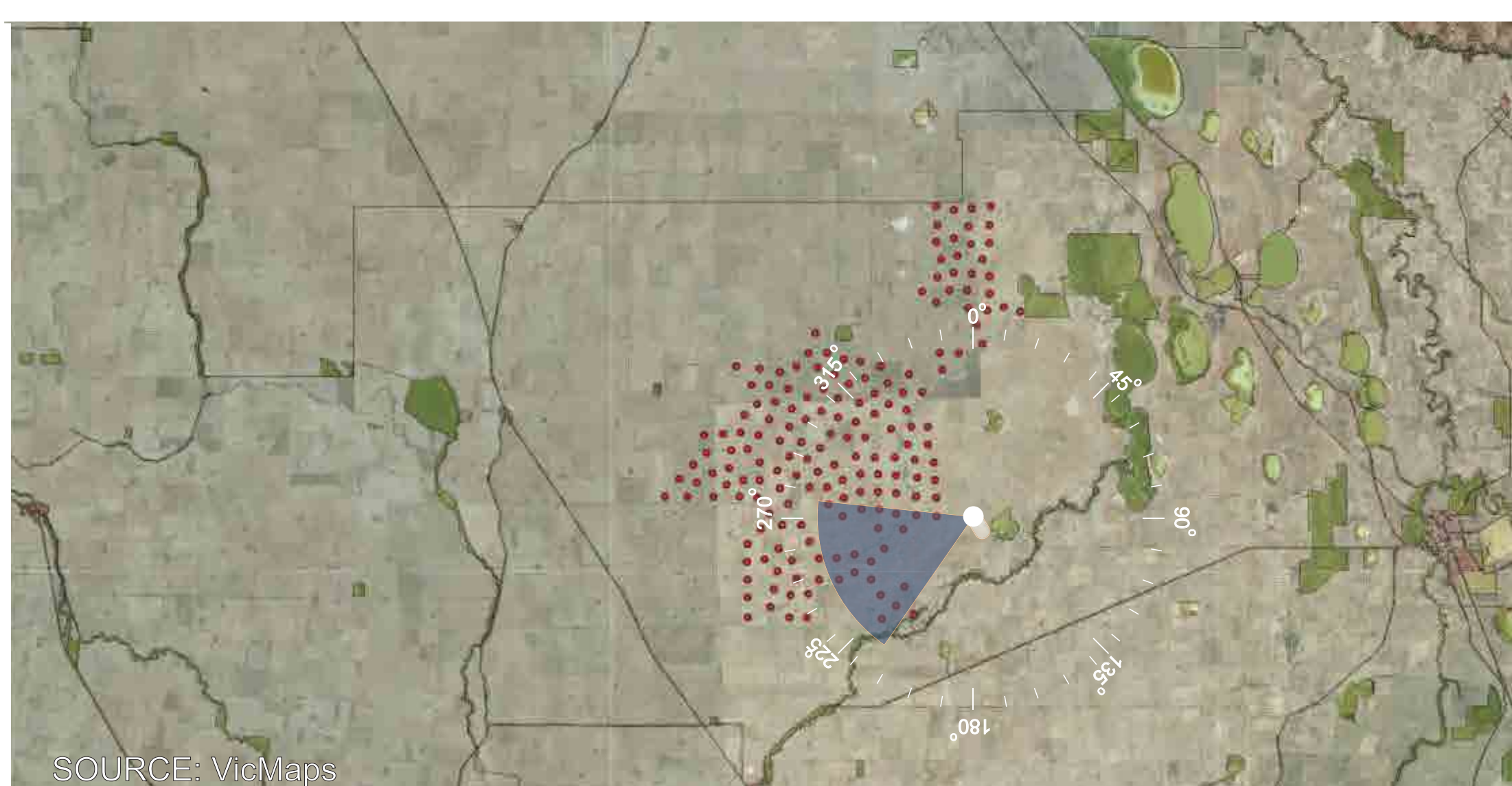
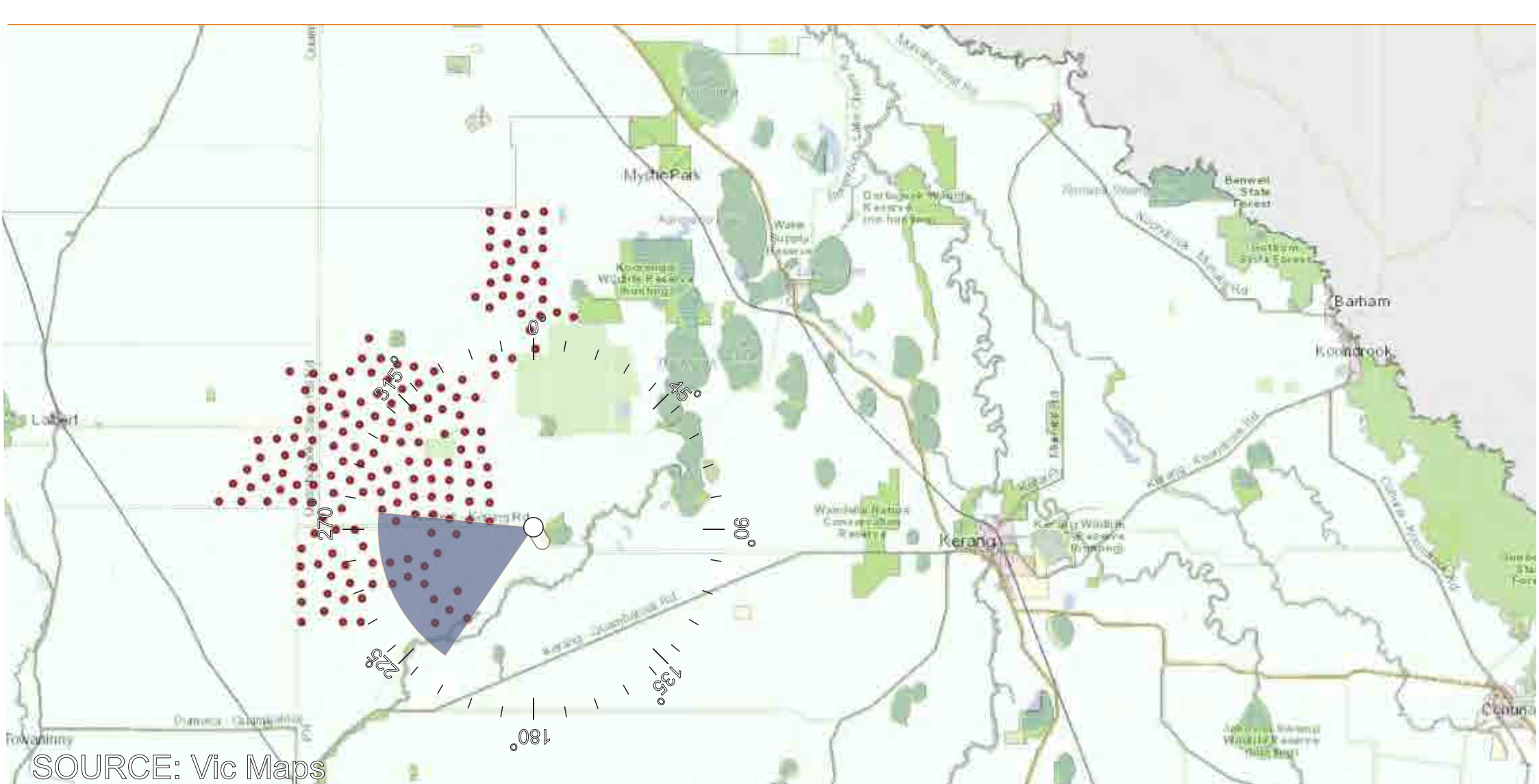
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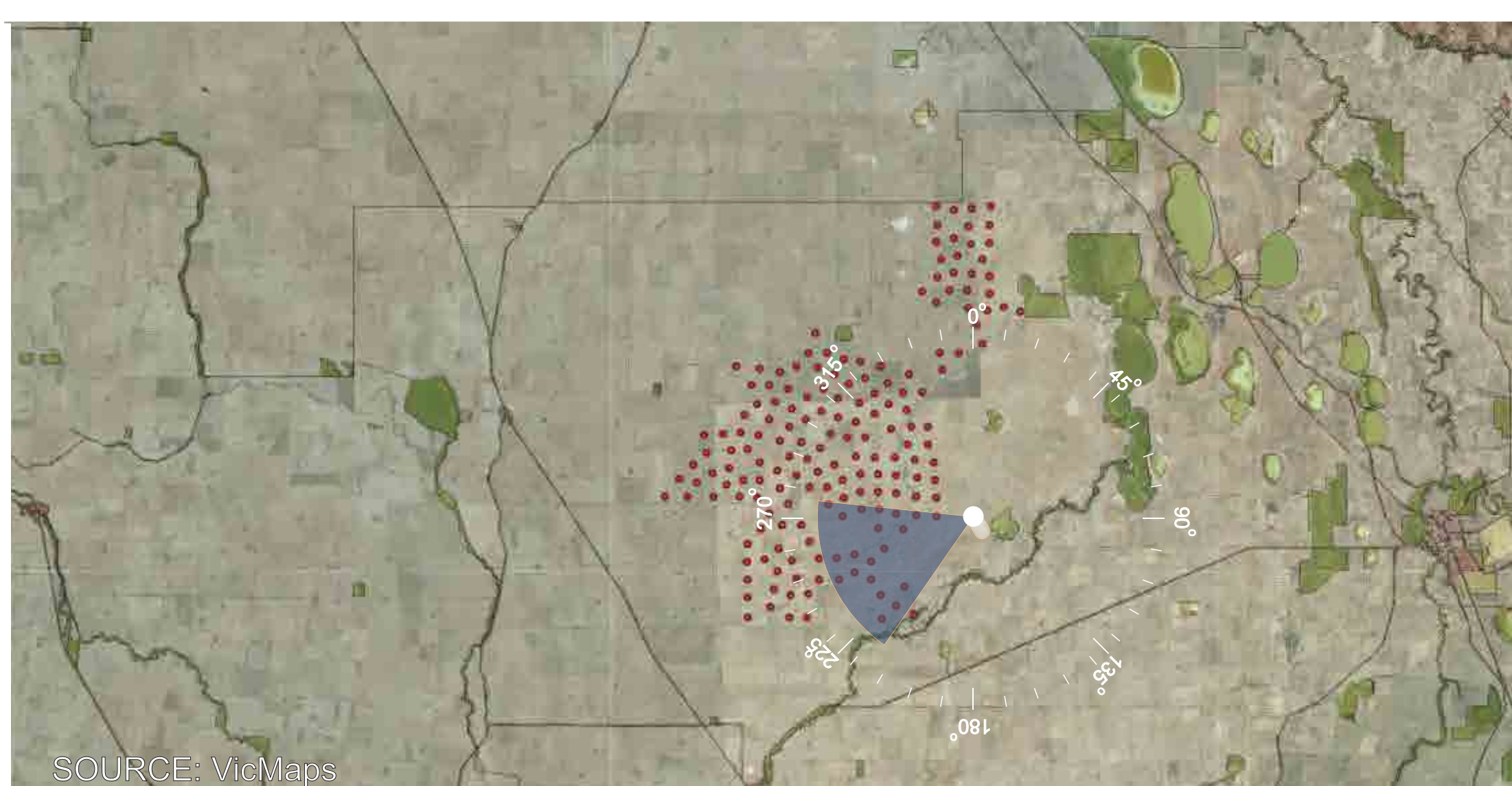
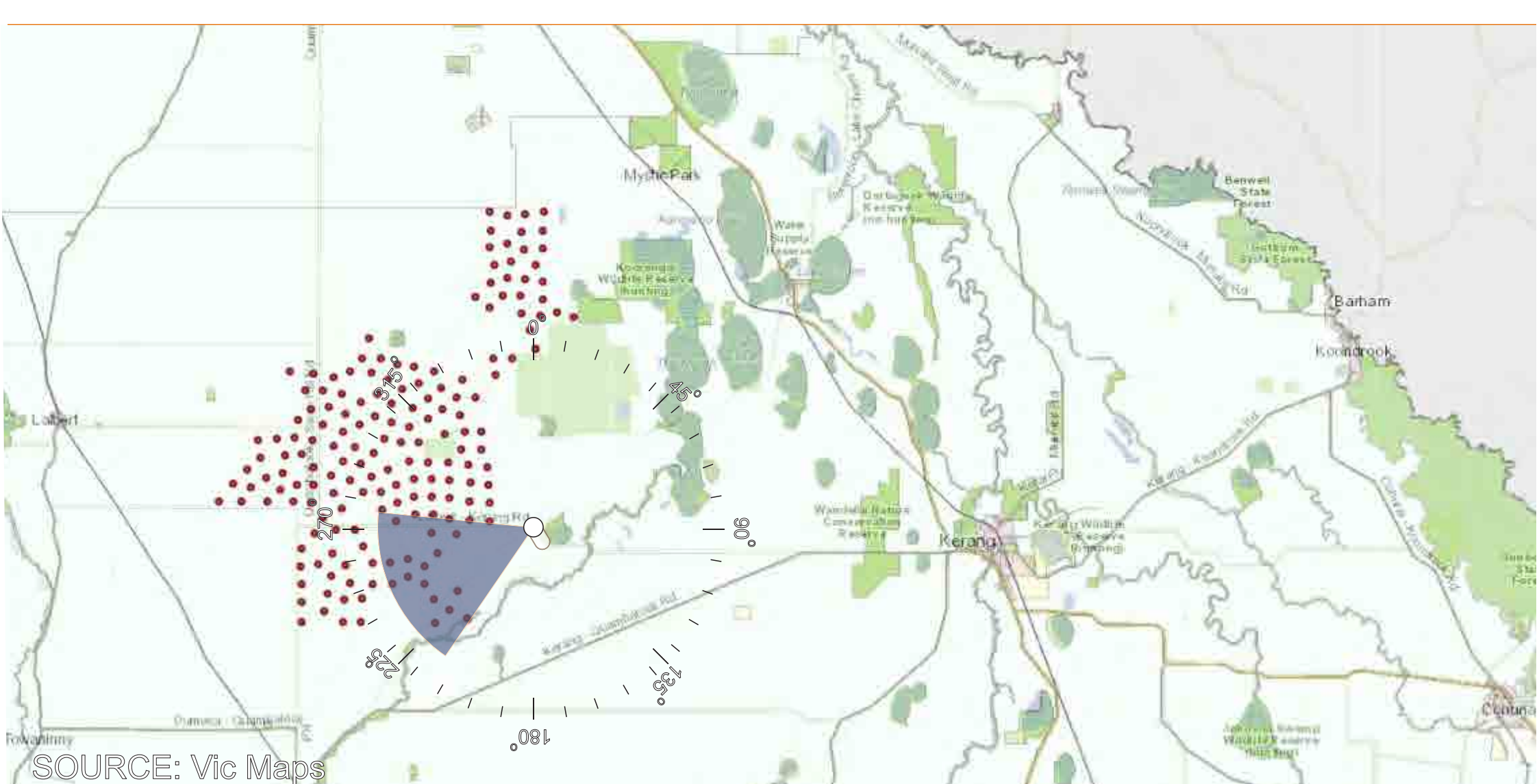
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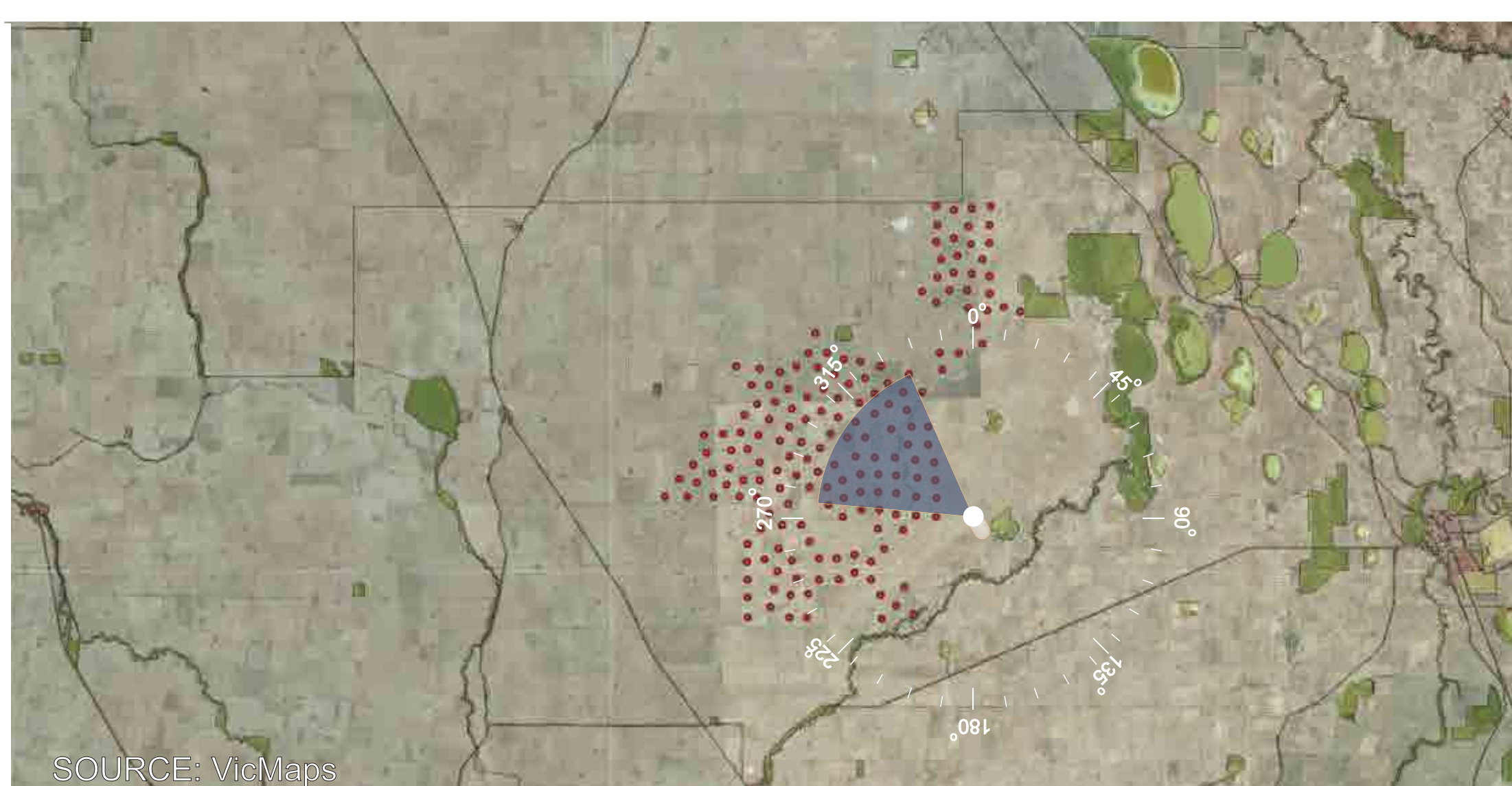
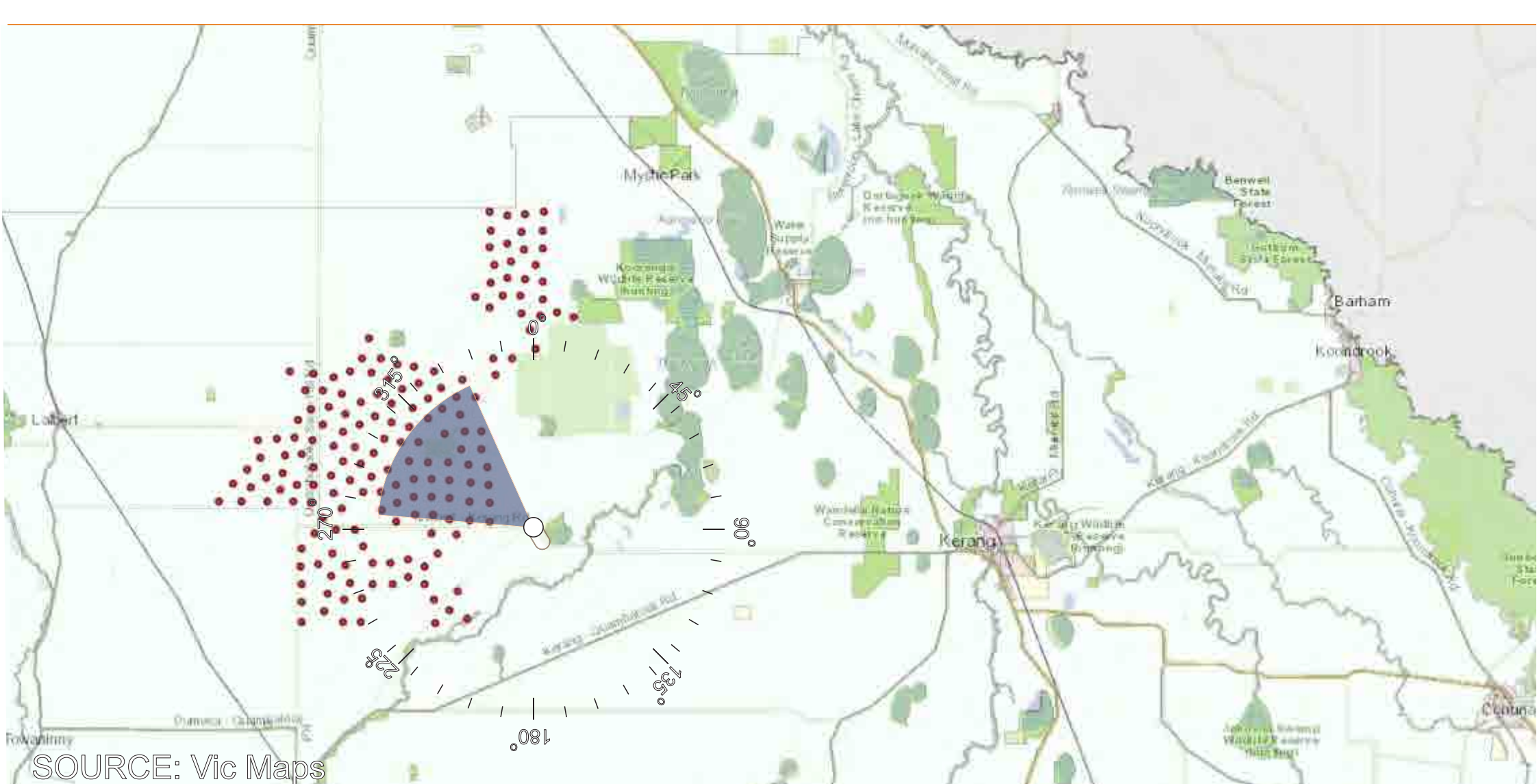
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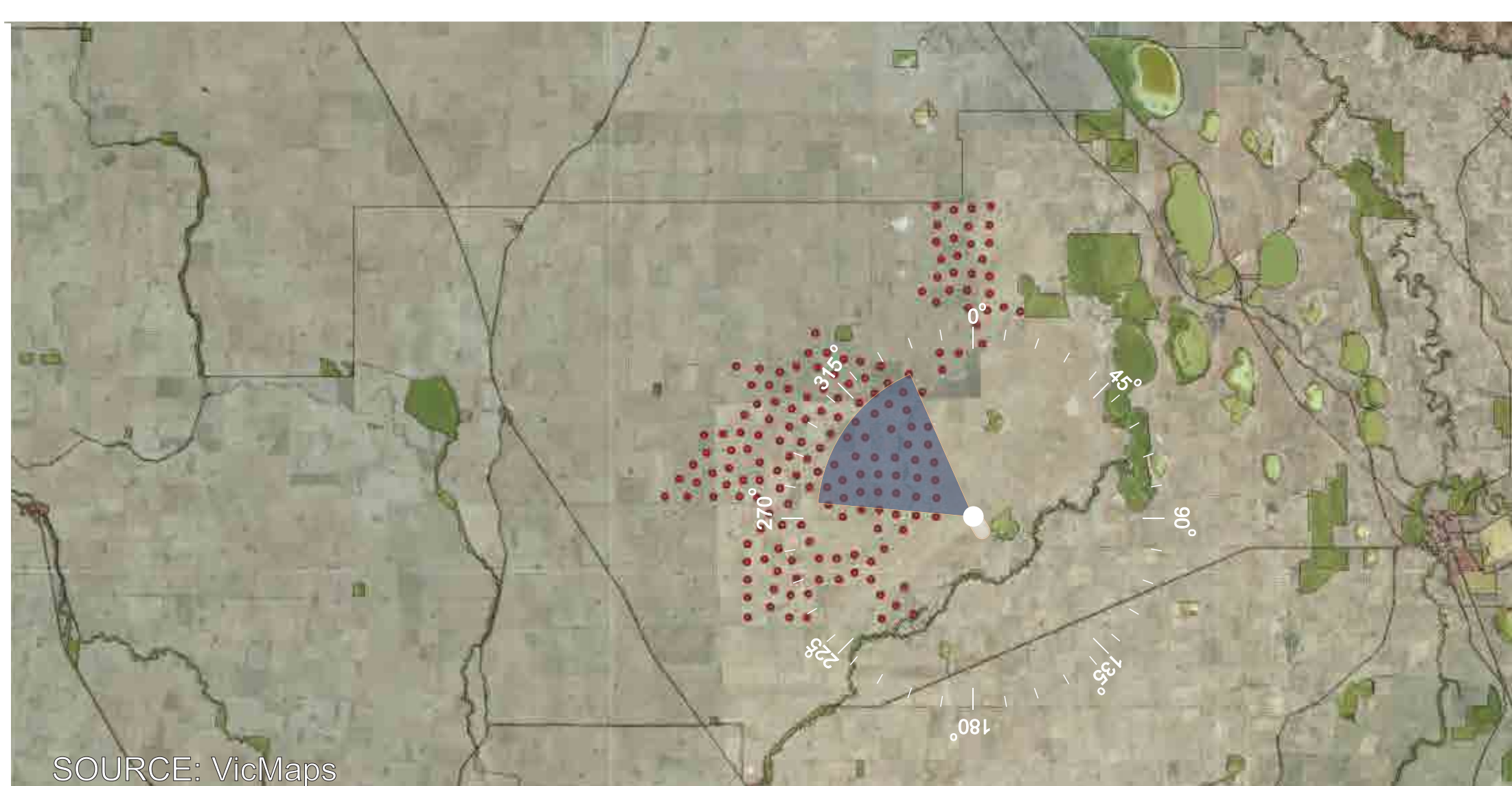
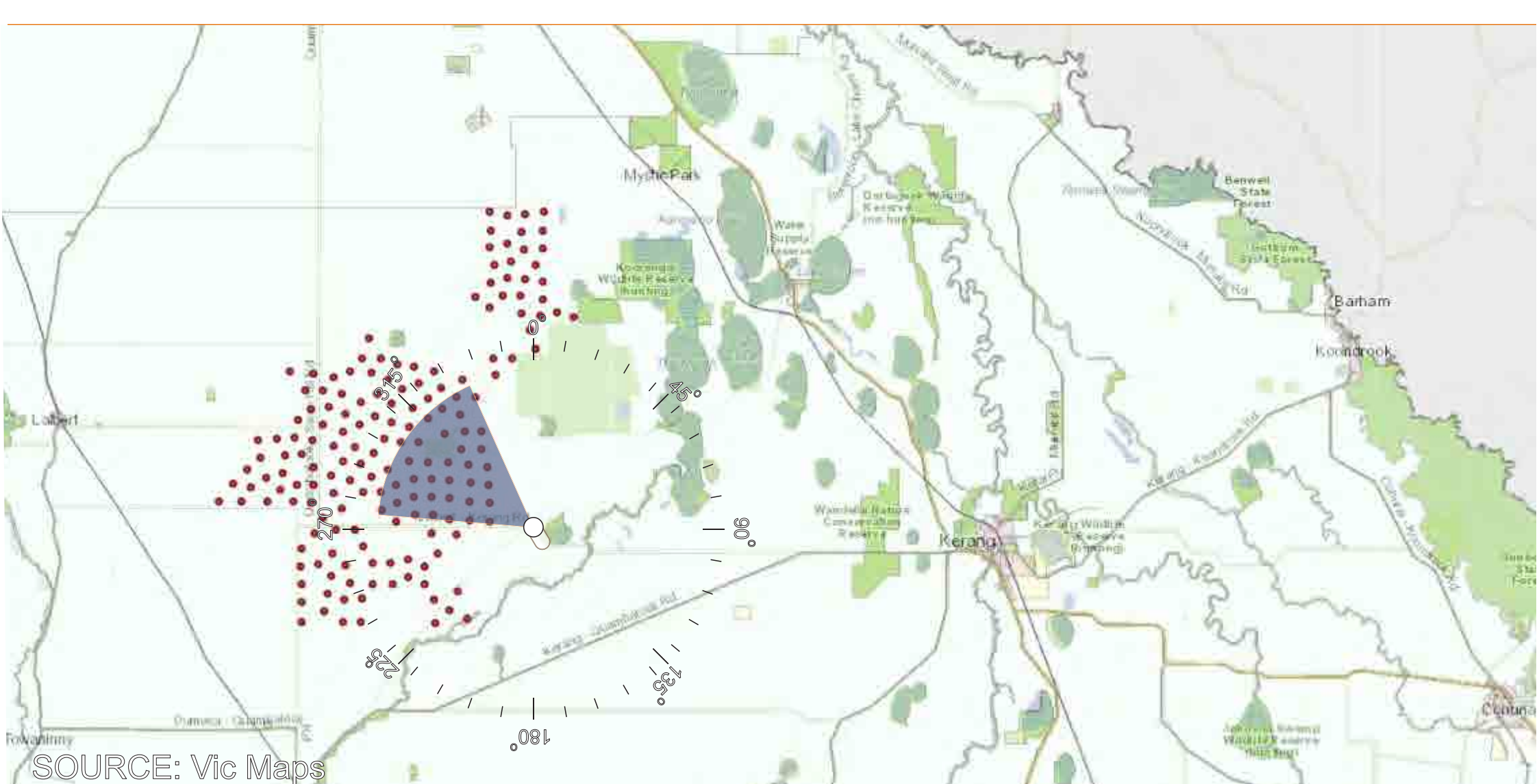
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