



EPCAD

KOJONUP WINDFARM

Visual Impact Assessment - October 2025
For Kojonup Wind Farm Pty Ltd

Issue: **FINAL**



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EXECUTIVE SUMMARY

A new development has been proposed for a wind energy facility in the Shire of Kojonup, Western Australia.

The development site is located south of the Kojonup township in a remote area of gently undulating countryside, currently used for broadacre agriculture. The proposal includes the installation of up to 33 6.2MW wind turbines, along with associated windfarm infrastructure. Due to the proximity of Kojonup Airport, some turbines may require aviation lighting to ensure compliance with safety regulations. This will be assessed VIA a separate Aviation Impact Assessment for the project.

The turbines will be positioned across a broad area, generally at similar elevations. The site lies on a prominent local high point, contributing to broad visibility across the surrounding landscape. While the spacing of turbines allows for open integration with the existing land use, their scale and elevation will result in a noticeable change to the visual character of the area.

The surrounding landscape is typical of the Western Australian Wheatbelt; a gently undulating terrain with elevations generally ranging from 250 to 400 metres above sea level.

The topography features long, subdued slopes, shallow drainagelines, and occasional granite outcrops and lateritic breakaways.

The combination of elevation and open agricultural land also have the potential to present views of the site from the wider area, including from certain elevated areas within the town of Kojonup.

As with all wind energy developments, the proposal will result in a degree of visual change to the landscape's scenic values due to the height, movement, and siting of the turbines.

The Shire of Kojonup is serviced by a network of regional highways, sealed local roads, and unsealed rural tracks, forming a well-connected transport system primarily designed for agricultural and freight use. The key arterial route is Albany Highway (State Route 30), which runs north-south through the Shire, linking Kojonup with Perth and Albany.

Secondary connectors such as Kojonup; Katanning Road, Kojonup-Frankland Road and provide east-west access and connect to nearby towns and service centres. Local access roads near the site are generally low-traffic, comprising a mix of sealed and unsealed surfaces, and lack formal pedestrian infrastructure.

The site is positioned generally obliquely to Albany Highway, with the most direct viewing opportunities occurring from local roads closer to the development. These roads have speed limits ranging from 50 km/h to 110 km/h.

There are no designated walking paths or formal public viewpoints within the immediate vicinity of the site.

Sensitive visual receptors within the study area are limited. They include:

- Motorists traveling along Albany Highway, east-west travel routes and local access roads,
- Residents and visitors within Kojonup and scattered rural properties,

Residences and private buildings in the surrounding landscape are sparsely distributed and typically located several kilometres from the proposed turbines. While formal mitigation at residential properties is limited, targeted localised screening may be introduced if required to reduce visual impacts.

The overall potential visual impact to the public is assessed as low to moderate, due to the relatively low population density, the orientation of road networks, and the broad-scale agricultural context.

Nonetheless, the proposed wind farm may evolve into a distinctive local landmark. With appropriate integration and community engagement, the turbines could contribute positively to the region's identity, becoming a feature of interest along regional tourist routes and reinforcing Kojonup's image as a forward-looking rural community embracing sustainable energy.



GLOSSARY

EPCAD / The Landscape Architect: EPCAD Pty Ltd, Landscape Architects; Author of this report and conductor of this Visual Assessment.

The site / The proposal / The development site / The subject land / The subject site / The proposed development site: The site as identified on the Study Area (Figure 1).

WAPC: Western Australian Planning Commission.

VLPWA: Visual Landscape Planning in Western Australia.

Viewer / Observer / Member of public: Regular person with potential viewing experience of the proposal.

Viewing Locations / View Locations / Key Views: The locations where images were taken from.

LCU: Landscape Character Unit.



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1. INTRODUCTION

This Visual Impact Assessment has been prepared for Kojonup Wind Farm Pty Ltd. It supports the proposed development of a wind energy facility within the Shire of Kojonup, in Western Australia. It utilises recent site investigation and assessment carried out in May 2025.

2. VISUAL LANDSCAPE EVALUATION

2.1 Scope & Context

The study area, within which the project is located and the location of the proposed wind turbines are shown in **Figure 1**. The wind turbines are located approximately 10km south of Kojonup town centre and 2km west of the Albany Highway in the Great Southern region of Western Australia. The study area is comprised of cleared parcels of private farmland currently used for agricultural purposes. Remnant vegetation lines the roads and property boundaries. The study area extends over a 20km radius in all directions from the location of the outermost turbines in the the proposal.

2.2 Methodology Process

The accepted guide for assessing potential impacts to landscape and landforms, where visual amenity is a consideration, is the Western Australian Planning Commission's (WAPC) Visual Landscape Planning in Western Australia; a manual for evaluation,

assessment, siting and design (2007). This document provides a framework methodology and has been used in numerous other wind farm and renewable energy development proposals see **Table 1**.

The framework recommended for assessing scenic quality in situations like this is to use the visual classification system from 'Visual Landscape Planning in Western Australia'. The scale of the assessment will move from the regional through the local, then to the site within a study area.

1. Broadly consider the proposal in terms of siting, and broad visual landscape criteria,
2. Review regulatory and legislator requirements applicable to the proposal,
3. Describe the existing landscape and visual character using desktop sources, online material and site inspections,
4. To identifying key vantage points of the proposal,
5. Prepare visual rendering images from these vantage points, and
6. Assess the potential for impact on landscape and on visual amenity.

The assessment of the proposed developments impact on landscape and visual amenity is formed from the following framework.

1. Determine visual management objectives,
2. Describe proposed development,

3. Describe potential visual impacts,
4. Develop visual management measures,
5. Prepare final recommendations and monitoring options, and
6. Conclusion.

This report assesses the environment the impacts of the development and makes recommendations on the proposal.

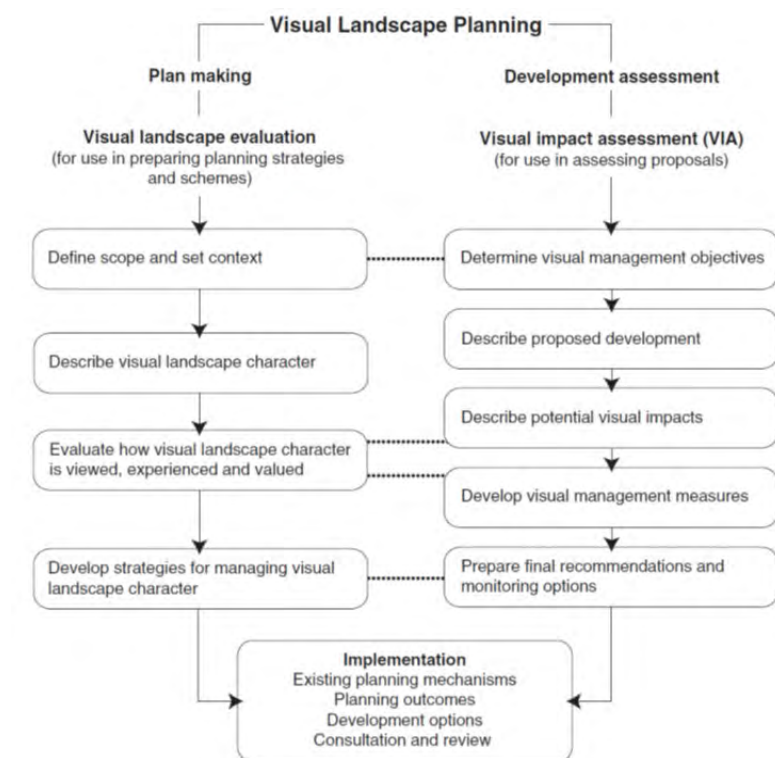


Table 1 Visual Landscape Planning Process. Source: Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design (Western Australian Planning Commission, 2007)

2.3 Landscape Planning Context

Western Australia's image has been shaped and defined by its rural and remote landscapes. However, these landscape areas

STUDY AREA

Figure 1

scale - 1 : 200,000

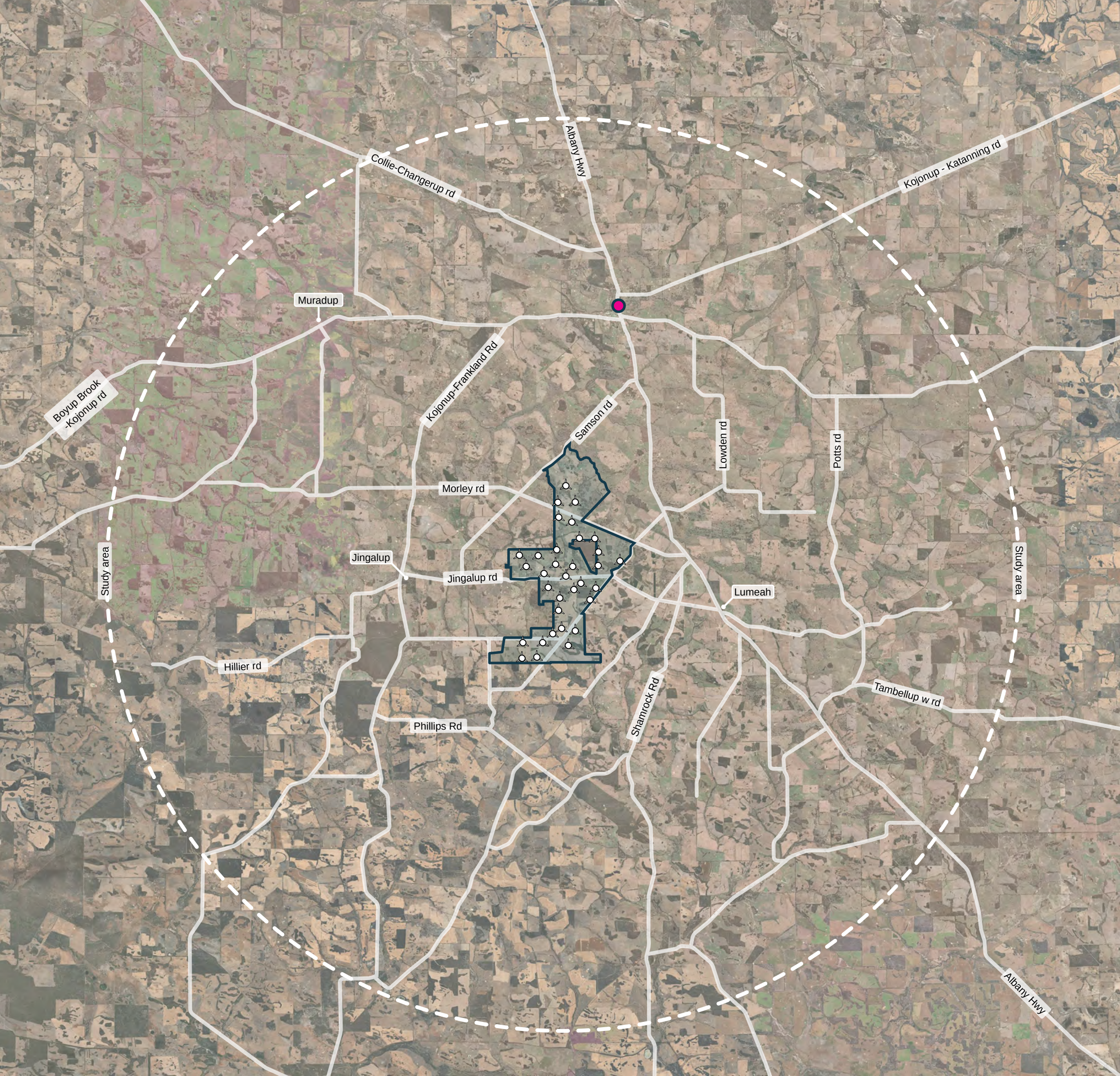


 Project Envelope

 Wind Turbines

 Kojonup

 Roads





have been somewhat undervalued as their inherent visual, aesthetic character, and landscape quality tends to be overlooked in statutory processes in rural areas. Instead the perception of the land has primarily been in terms of economic return. In recent years there has been some indication that community attitudes toward rural landscapes are changing; with a greater priority being placed on action to address landscape values and changes to rural character, as well as other environmental concerns such as land degradation, loss of biodiversity, and declining water quality. (WAPC 2007).

2.3.1 Local Government

The primary planning framework guiding developments such as the Kojonup Windfarm is the local authority Planning Scheme. In the case of the Kojonup Wind Farm, this covers local authority areas, there is one such Scheme:

- The Shire of Kojonup Town Planning Scheme No. 3

Kojonup recently introduced a Local Planning Policy (LPP10) to cover Wind Farm developments which contains a section relating to Wind Farms and LVIA.

2.3.2 Local Government Planning Framework

Under the Shire of Kojonup Town Planning Scheme No. 3, the land is zoned as "Rural".

The scheme does not contain specific policies or guidelines for the protection of landscape values. Additionally, the schemes do not discuss the permissibility of wind farms, they neither explicitly allow nor prohibit them within the Rural or Farming zones.

The planning scheme supports the maintenance of large-scale agricultural operations and generally discourage further subdivision of land within these zones.

2.3.3 State Government Policy

The Western Australian Government is committed to the development of renewable energy. In 2007, the Premier released the action statement "Making Decisions for the Future", which outlined the State's Renewable Energy Target (RET). The target aimed to increase renewable energy generation within the South West Interconnected System to 6% by 2010, 15% by 2020 and 20% by 2025.

The RET has recently been updated announcing Western Australia's State-owned coal power stations will be retired by 2030 - as the continued uptake of rooftop solar and renewables forces changes in the energy system to ensure a secure electricity supply and guard against higher power bills.

2.3.4 Federal Government Policy

At the national level, the Australian

Government introduced the Mandatory Renewable Energy Target (MRET) scheme in 2001, initially aiming for a 2% increase in renewable energy use within the national electricity supply.

This target was subsequently expanded, with the updated commitment requiring that 20% of Australia's electricity supply come from renewable sources by 2020.

The Wholesale Electricity Market (WEM) Electricity Statement of Opportunities (ESOO) is an annual publication that provides forecasts for the WEM over the 10-year outlook period.

The WEM ESOO helps inform the planning and decision-making of market participants, new investors and policy-makers by advising on the additional generation, storage and network investment required to maintain reliability and security in the WEM and the South-West Interconnected System (SWIS).

The statement supports the government's position for closures of coal power stations and investment in lower emissions energy systems such as wind farms.

2.3.5 Regional Context

The subject land is within the Great Southern region of Western Australia. In 'Reading the Remote' CALM (1994), the regional landscape is classified as the Dryandra Uplands with landscape subtype of the

GREATER REGION CONTEXT

Figure 2

scale - 1 : 200,000



● Kojonup





Wheatbelt Plateau.

As shown in **Figure 2**, this Sub Type stretches eastward from the green forests covering the Darling Plateau Character Type, reaching the division that marks the western edge of the broad, shallow valleys of the Merredin Plateau Sub Type. It is a predominantly agricultural region, characterized by wide, open paddocks of pale, sun-bleached grasses. The gently rolling terrain offers long views, occasionally interrupted by dams, windmills, and isolated stands of trees.

The valleys here are more distinctly carved into the landscape than those further east. Many west-flowing rivers, including the Williams-Murray system, have their headwaters in this area. The Avon and Blackwood River catchments shape much of the topography, and the eastern boundary of this Sub Type marks the limit of their continuous westward flow.

In the Dryandra Uplands, cereal crops and pasture dominate, pushing native vegetation to the margins. Remnant patches are typically found along fence lines, beside roads, and near winding watercourses. York Gums (*Eucalyptus loxophleba*) commonly line drainage areas and roadsides, often accompanied by the Bushy Jam Tree (*Acacia acuminata*) in low shrubby patches. Wandoo (*Eucalyptus wandoo*), with its pale silver-grey to creamy yellow bark, appears along roadsides and in scattered woodland clumps. Granite outcrops

support larger areas of native vegetation, appearing as boulder piles, flat rock sheets with resilient plants like Pincushions (*Borya sphaerocephala*), or as massive domes that dominate the landscape.

Low hills of pale terracotta lateritic gravel are scattered across the region, resembling islands in a sea of farmland. These eroded formations are bordered by breakaways—small escarpments with exposed pale clay slopes—often covered in patchy vegetation including Powderbark Wandoo (*Eucalyptus accedens*) and Brown Mallet (*E. astringens*).

The Dryandra State Forest (now National Park) is a standout feature of the area, preserving a fragment of the original landscape that existed before widespread agricultural clearing. Its woodlands of Wandoo and Powderbark Wandoo contrast starkly with the surrounding farmlands. The trees' mottled creamy bark stands out against the grey-green herbaceous undergrowth, Sheoak, and Dryandra thickets. Young Wandoo stands, with slender silver-grey trunks, grow in patches alongside the glossy-leaved Brown Mallet, which also appears in plantations among older trees.

Major river systems, like the U-shaped Hotham River valley, were among the first areas settled and cleared for farming. Today, pastoral lands divided by stock fences and dotted with sheep and cattle are integrated with extensive cereal fields.

Visual markers of this altered landscape include long, low storage silos and the occasional abandoned farmhouse built from local materials. These features are as much a part of the scenery as the natural elements. Farming towns contribute significantly to the region's cultural identity, with historic sites such as the Spanish-style Benedictine Monastery at New Norcia and the Aboriginal settlement at Moore River near Mogumber—both originally established to support Aboriginal people displaced by European settlement.

Towns surrounding Kojonup include Katanning, Tambellup, Broomehill, Cranbrook and Narrogin. These towns generally have small communities. The port city of Albany, the region's primary administrative, commercial, and export hub, lies 157km south of Kojonup. Albany and Katanning serve as important regional service centres for primary production and local communities. The region is known for its significant agricultural output, particularly wheat, barley, canola, livestock, and wool.

2.3.6 Local Area Context

The study area extends over a 20km radius in all directions from the location of the outermost turbines in the the proposal. The closest town is Kojonup with a population of approximately 1900. The study area is entirely within Shire of Kojonup.



The proposed wind farm site lies within a gently undulating agricultural landscape, where about 85% of the land has been cleared. Scattered patches of remnant native vegetation remain, including isolated Eucalypts and Sheoaks along roadsides and within paddocks. Slopes typically range from 0–5%, with occasional areas reaching 5–10%. Flat areas are virtually absent, even along hilltops and valley floors. Shallow creeks traverse broad valleys, with drainage generally flowing southward.

The wind farm is located on elevated terrain relative to the surrounding landscape. This upland area extends across towns like Katanning, Kojonup, and Broomehill, reaching toward Tambellup. Altitudes range between 300 and 400 metres, rising above adjacent terrain at 220 to 300 metres.

Remnant trees include Wandoo (*Eucalyptus wandoo*), Jarrah (*E. marginata*), and Marri (*Corymbia calophylla*), which can grow up to 30 metres tall. Brown Mallet (*E. astringens*) reaches around 20 metres, while the native Sheoak (*Allocasuarina huegeliana*) grows to 6–8 metres. Open patches of *Eucalyptus* woodland persist, and in wetter areas, Flooded Gum (*E. rudis*), Jam Tree (*Acacia acuminata*), and Paperbarks (*Melaleuca raphiophylla* and *M. cuticularis*) are present. In drier zones, Mallee-form York Gum (*E. loxophleba*) can also be found. Geologically, the region is defined by the Kojonup Fault, running from Dwellingup to the Stirling Ranges. This fault marks a

transition between two major drainage zones: flatter wheatbelt areas to the east and steeper, forested land to the west. The Kojonup Sandstones, which contain plant fossils, highlight the area's ancient geological history. To the north, the Beaufort Palaeochannel—a 100-million-year-old sediment-filled trench—contains ancient pollen, including *Nothofagus* (Arctic Beech), evidence of a rainforest that existed 40 million years ago.

Kojonup is an ecotone, a transition zone where two ecosystems meet, creating a biologically rich area. It is the only known location where Baudin's, Carnaby's, and Red-Tailed Black Cockatoos are found together. This biodiversity hotspot marks the shift from high to low rainfall areas represented in the landscape from forests to woodlands, leading to increased diversity in vegetation and species.

Prior to European settlement in the 1840s, the landscape had been carefully managed by Aboriginal people for tens of thousands of years, with minimal landscape change. This changed rapidly with European arrival. By 1837, a marked road passed through what is now Kojonup, and a military outpost was established at Kojonup Spring. Early European accounts described the region as a park-like landscape dotted with scattered Eucalypts. Following the abandonment of the outpost in 1838, land sales began in 1840. The area's red loam soils attracted settlers, many

drawn by speculative opportunities tied to high wool prices in the eastern states. However, a wool price collapse soon ended the initial land rush. The road between Albany and Perth was improved, and another military post was established by 1840. Stone buildings replaced the original timber barracks by 1843.

Sandalwood harvesting was one of the first land uses to significantly impact the landscape, soon followed by grazing and agriculture. Settlers typically acquired 160-acre plots near water sources, allowing access to Crown land for grazing within a ten-mile radius. By the 1860s, numerous small farms surrounded Kojonup, with wheat, sheep, cattle, and pigs. Early 1900s photographs show widespread land clearing, with ring-barked trees silhouetted against the sky.

Today, the landscape is predominantly open. Around 90% of the area has been cleared since European settlement, though some remnant Eucalypts remain in grazing paddocks. Most wheat fields have been almost entirely cleared of trees.

Modern landholdings typically span around 1,800 hectares. Homesteads—often accompanied by large sheds, yards, and gardens—are sometimes visible from minor gravel roads but less so from major highways. Driveways are frequently lined with native or exotic trees, and plantings of conifers, palms, and deciduous trees are



common near homes.

Views across the landscape open and close with changes in terrain and vegetation. Elevated points offer wide vistas where foreground vegetation is sparse, while roadside and paddock trees filter most views. Most of the terrain is gently undulating, with some flatter and more hilly areas. Drainage lines and hilltops retain more vegetation than the midslopes. From high ground, these drainage lines appear as vegetated ribbons through the farmland.

The landscape transforms with the seasons. In early summer, golden straw-coloured wheat dominates. Autumn and winter bring lush green pastures and crops, and new growth appears on remnant trees. In spring, bright yellow canola blooms dot the fields, and wheat begins to head. Flowering in the remnant bushland occurs throughout the year but is most noticeable in late winter and spring.

2.4 Site Description

2.4.1 Local Area Description and Land Use

The existing landscape is formed from the natural environment consisting of vegetation, rocks, soil, and climate. The visual environment is impacted by human interventions in the form of vegetation clearing, roads, and buildings. The composition of this presents a visual environment which is experienced by residents & visitors and can be documented

in many ways.

The broad visual landscape elements are described below and were compiled from a site inspection on 19th and 20th May 2025.

The subject land is situated within the Great Southern region of Western Australia. The landscape is typical of the Western Australian Wheatbelt; a gently undulating terrain with elevations generally ranging from 250 to 400 metres above sea level.

The topography features long, subdued slopes, shallow drainagelines, and occasional granite outcrops and lateritic breakaways.

As shown in **Figure 3** a large portion of the study area is cleared, farmland, with scattered remnant vegetation.

The built environment is primarily represented within the town of Kojonup and the nearby Albany Highway and interconnecting local roading infrastructure. Kojonup has typical features that provide for a small town, such as a school, service station, hospital, local stores/post office, church and accommodation. There is a sports oval and swimming pool within the town and a small airport north of the town consisting of a dirt airstrip and small airport building.

The existing Flat Rocks Wind Farm Stage 1 is located approximately 20 km south-east of Kojonup within the study area. It comprises of 18 wind turbine generators and related

civil and electrical infrastructure.

2.4.2 Study Area

A desktop study where guidance, site context and topography were assessed suggested a study area of 20km surrounding the site should be investigated to assess the landscape characteristics and consider the changes post development. This is informed by research that identifies visual dominance of windfarms and distance seen.

The selected study area does not define all locations of impacts but provides representative effects and where identified, specific changes.

On the basis that the theoretical ZVI extends over 20km, distant views will be possible.

Within the study area, the landscape character includes roads, remnant vegetation along lot boundaries and cleared farmland.

Roadsides contain limited remnant vegetation, open views over farmland are common. Occasional stands of roadside trees screen views.

Within the study area, most of the land that is used for agricultural purposes is almost entirely cleared to allow cropping. Stands of remnant vegetation, roads and Kojonup town take up the balance. These



LAND USE PLAN

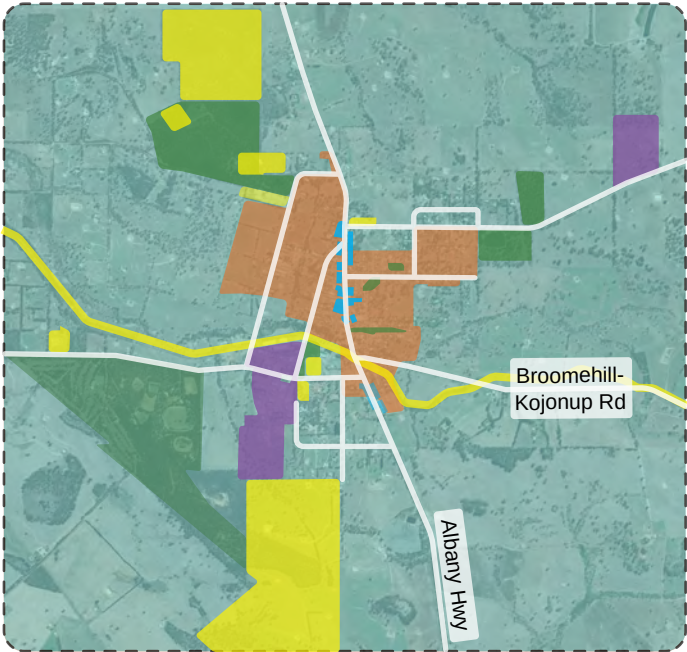
Figure 3



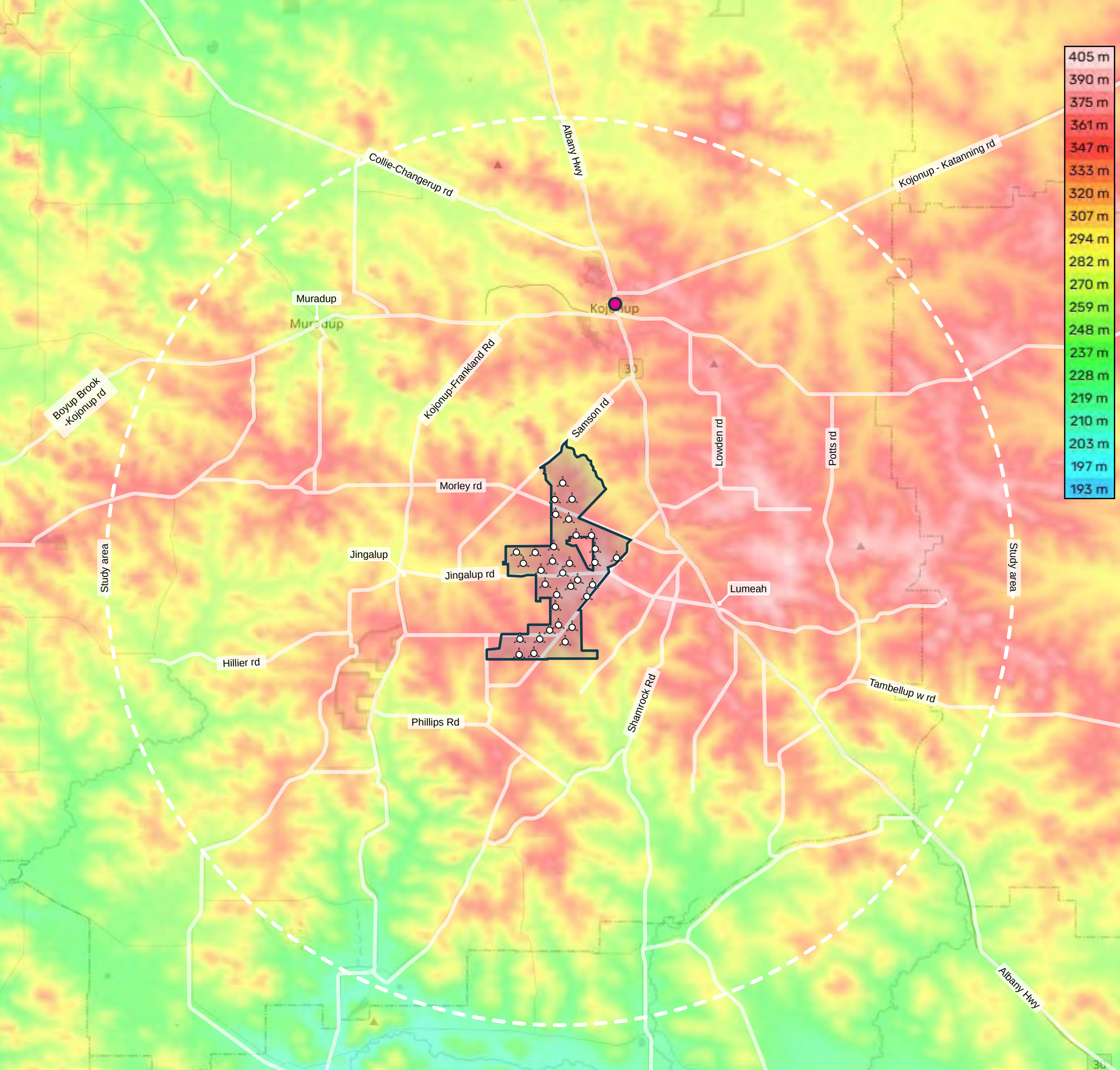
- Project Envelope
- Wind Turbines
- Kojonup
- Roads

Land use Zoning (Source Shire of Kojonup)

- Rural
- Public Purposes
- Recreation
- Residential
- Industry
- Flat Rocks Windfarm



Kojonup Plan @ 1 : 70,000



CONTOUR PLAN

Figure 4

scale - 1 : 200,000



-  Project Envelope
-  Wind Turbines
-  Kojonup
-  Roads

open spaces are interspersed by stands of remnant roadside vegetation at road verges.

2.4.3 Topography

As shown in **Plate 1 - 4** the study area and surrounds range from a flat open landscape with views to the horizon to gently undulating sections and some steeper, hilly terrain such as through the town of Kojunup.

As shown in **Figure 4**, the land in the study area has highpoints and hill tops that stand distinctly above the general undulations in the landscape, sometimes with extensive vegetation cover. Distinct drainage lines dissect the landscape and occasional groups of rock outcrops can be seen in the fields.



Plate 1 - Flat Open Topography



Plate 2 - Gently Undulating Topography



Plate 3 - Steeper Topography & Rock Outcrops



Plate 4 - Steeper Topography in Kojunup

2.4.4 Vegetation

The vegetation complexes within the study area are shown in **Plates 5 - 8**. The vegetation forms consist of:

- Type 1 - Relatively large areas of dense native vegetation.
- Type 2 - Sparsely vegetated open areas with intermittent groups of remnant vegetation.
- Type 3 - Bands of roadside vegetation with linear groups of semi-mature / mature trees (See **Figure 5**)
- Type 4 - Distinctive individual remnant trees.

The agricultural landscape is subject to significant seasonal change due to crop flowering such as Canola.



Plate 5 - Typical Type 1 Vegetation. Larger, more dense areas of native vegetation.



Plate 6 - Typical Type 2 Vegetation. Sparsely vegetated open areas with intermittent groups of remnant vegetation.



Plate 7 - Typical Type 3 Vegetation. Bands of roadside vegetation with linear groups of semi-mature / mature trees.



Plate 8 - Typical Type 4 Vegetation. Distinctive individual remnant trees.

All these vegetation forms may be considered to be of moderate to high value as the vegetation is commonly found in the locality with common forms, size, shaping and coloration to other stands in the locality and wider district.

Conclusion: Scenic vegetation values in the study area are Moderate to High.

2.4.5 Waterforms

There are no directly identifiable natural waterforms within the investigation area. Some private farms contain small man made dams.

Conclusion: Scenic waterform values in the study area are Non-existent to Low.

2.4.6 Built Form

As shown in **Plate 9 to 17** buildings and structures can be found throughout the study area. Residential properties make up the majority of built form in and around the town of Kojonup. These are typically one storey dwellings on medium to large lots within Kojonup and properties and farms situated on larger lots on the outskirts of Kojonup. Properties are positioned with higher density within the centre of the town becoming more spaced out on the outskirts. There is a mix of some retail businesses, shops, service station, hospital, town hall and school within the town. These buildings are of a scale and nature

ROADSIDE VEGETATION PLAN

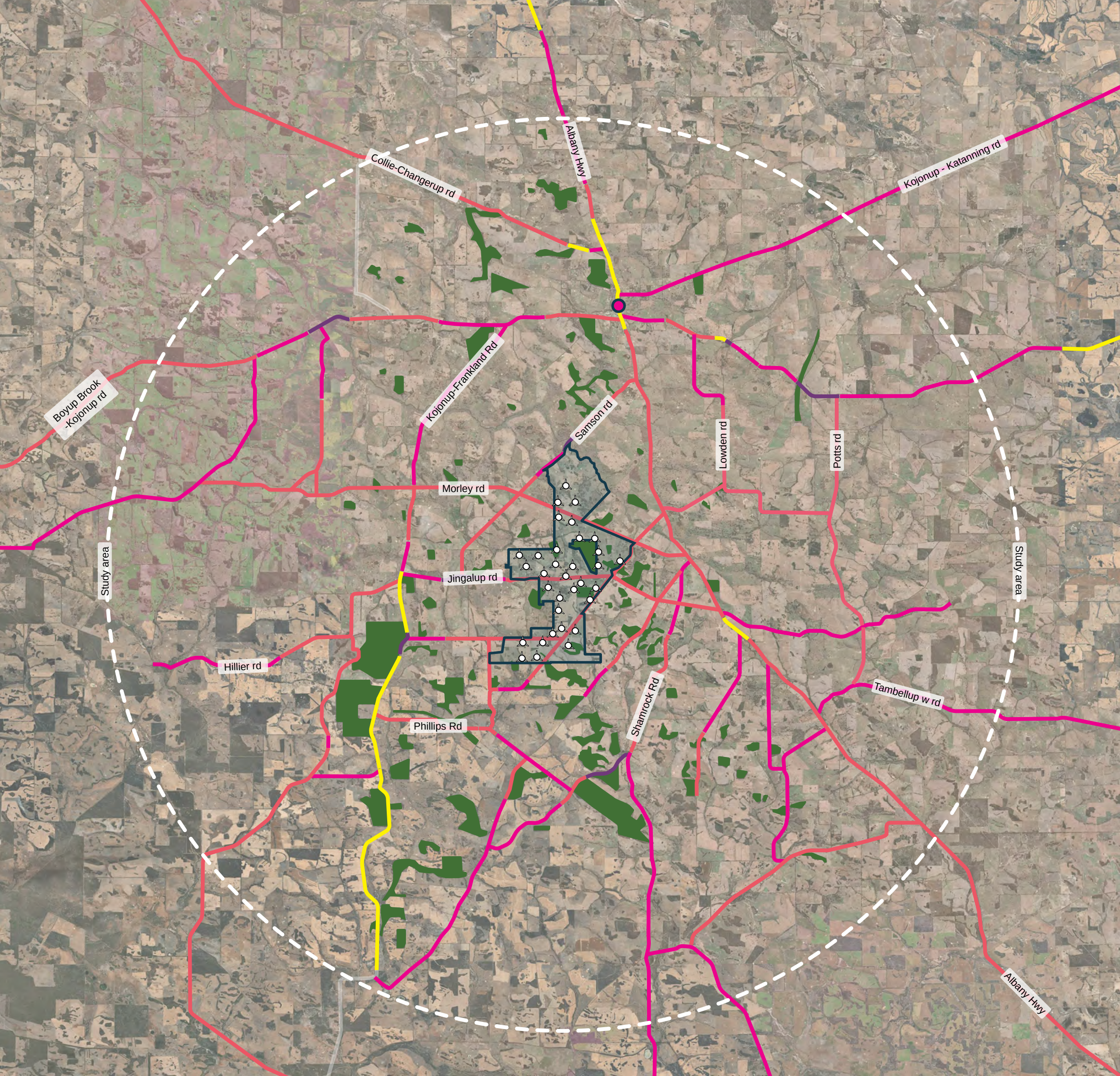
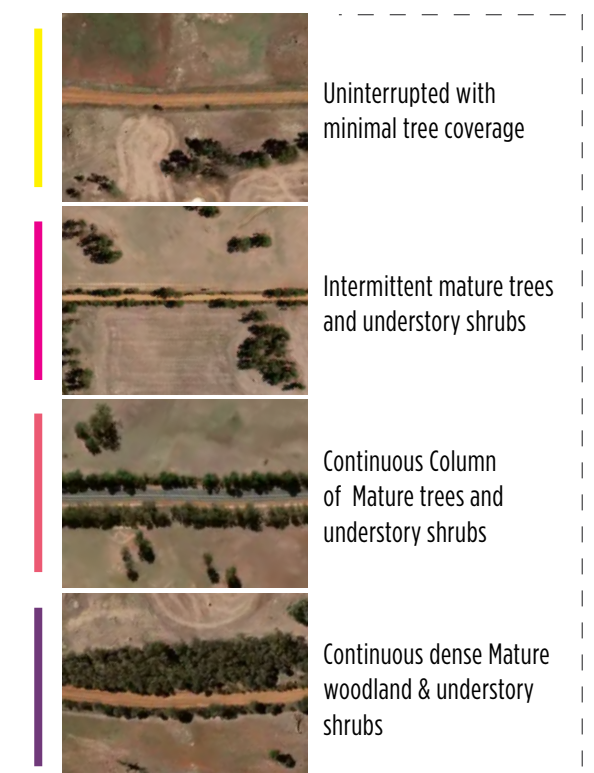
Figure 5

scale - 1 : 200,000



-  Project Envelope
-  Wind Turbines
-  Kojonup
-  Roads
-  Remnant Vegetation in view of vantages

Typical Roadside Vegetation observed toward site from vehicular vantages.



typical of a small country town. There are also larger warehouses, tin sheds and silos attributed to various commercial, industrial and agricultural businesses situated on the outer edges of the town.

Further away from the town centre properties are spaced significant distances apart and are more rural in character. They are typically set back some distance from the road with gravel driveways, post fencing and various sheds and outbuildings.

Various overhead power lines and telecommunication masts are found infrequently spread out in the study area. The existing Flat Rock wind farm consisting of 18 turbines each with overall height of 200m including blades is located east of Kojonup within the study area.



Plate 9 - Typical Residential Property in Kojonup



Plate 10 - Typical Residential Property on the Outskirts of Kojonup



Plate 11 - Typical Residential Property on the Outskirts of Kojonup



Plate 12 - Typical Farm Buildings and Sheds



Plate 13 - Heritage Building in Kojonup



Plate 14 - Typical Retail Buildings in Kojonup



Plate 15 - Typical Commercial/Industrial Buildings in Kojonup



Plate 16 - Typical Commercial/Industrial Buildings in Kojonup



Plate 17 - Flat Rocks Existing Wind Farm

2.5 Landscape Character

2.5.1 Regional Landscape Character

The land subject to this proposal is cleared farmland. There are limited portions of remnant vegetation on site. The land has been cleared, is farmed for broadacre cropping, and has some visible undulations and contours.

The regional landscape character has long

been documented and described as the Great Southern region of Western Australia. The fieldwork undertaken for this study maintains this broad regional description.

Regionally the landforms of the Great Southern Region of Western Australia are distinguished by wide open landscape. Occasionally trees, machinery and sheds dot the landscape. Adjacent and within the study area, there is remnant vegetation scattered alongside roadside corridors. Rolling hills and productive farmland characterize much of the region's interior, supporting a strong agricultural sector

2.5.2 Local Landscape Character

The broad landscape character type of the study area is "rural". Generally the study area is gently undulating cleared land, being used in a manner consistent with broadacre cropping agricultural use. It presents a commonly found wheatbelt rural character.

This character type is distinct from others such as "natural," "settlement," "industrial," "city centre," and "suburban." While each of these broad categories contains unique features that differentiate individual places, these variations do not alter the underlying character type. Likewise, certain elements may be added to or removed from a place without affecting its overall character. However, some elements—due to their scale, nature, or prominence—can fundamentally shift the character of a place,

potentially transforming it into a different type altogether.

2.5.3 Landscape Character Units

As shown in **Figure 6** the landscape character of the local area can be classified into landscape character units (LCU) as follows:

- LCU 1 – Broad Agrarian Plain
- LCU 2 – Rural Townsite
- LCU 3 – Partially Vegetated Plain
- LCU 4 – Industrial / Commercial

Broad Agrarian Plain (LCU 1)

As shown in **Plate 18** this character unit comprises broad open agricultural land. There is little mature vegetation of note in these character units.

LCU 1 character units generally have a low landscape character value due to limited mature natural elements within a largely man made environment.

Scenic Quality: Low to Moderate

LANDSCAPE CHARACTER UNITS PLAN

Figure 6

scale - 1 : 200,000



Project Envelope

Wind Turbines

Kojonup

Roads

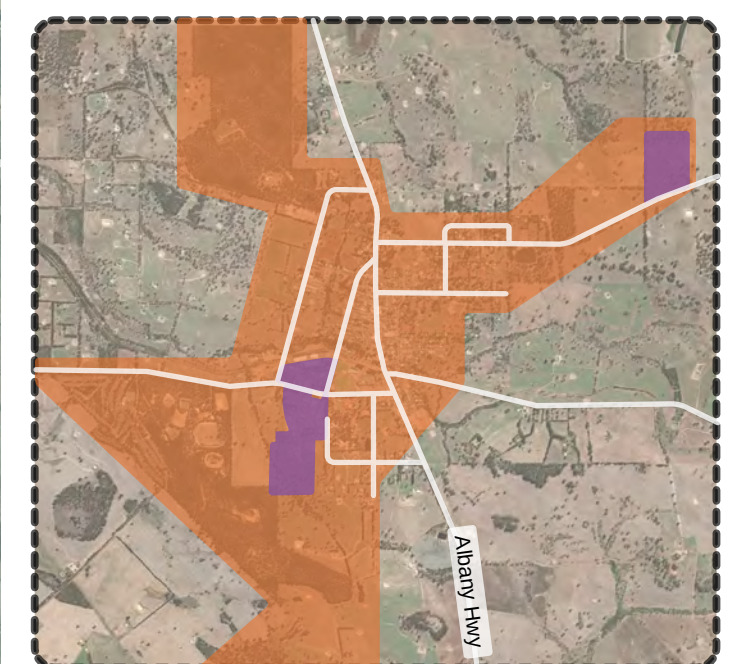
Local area character units

LCU 1 – Broad Agrarian Plain

LCU 2 – Rural Townsite

LCU 3 – Partially Vegetated Plain

LCU 4 – Industrial / Commercial



Kojonup Plan @ 1 : 70,000

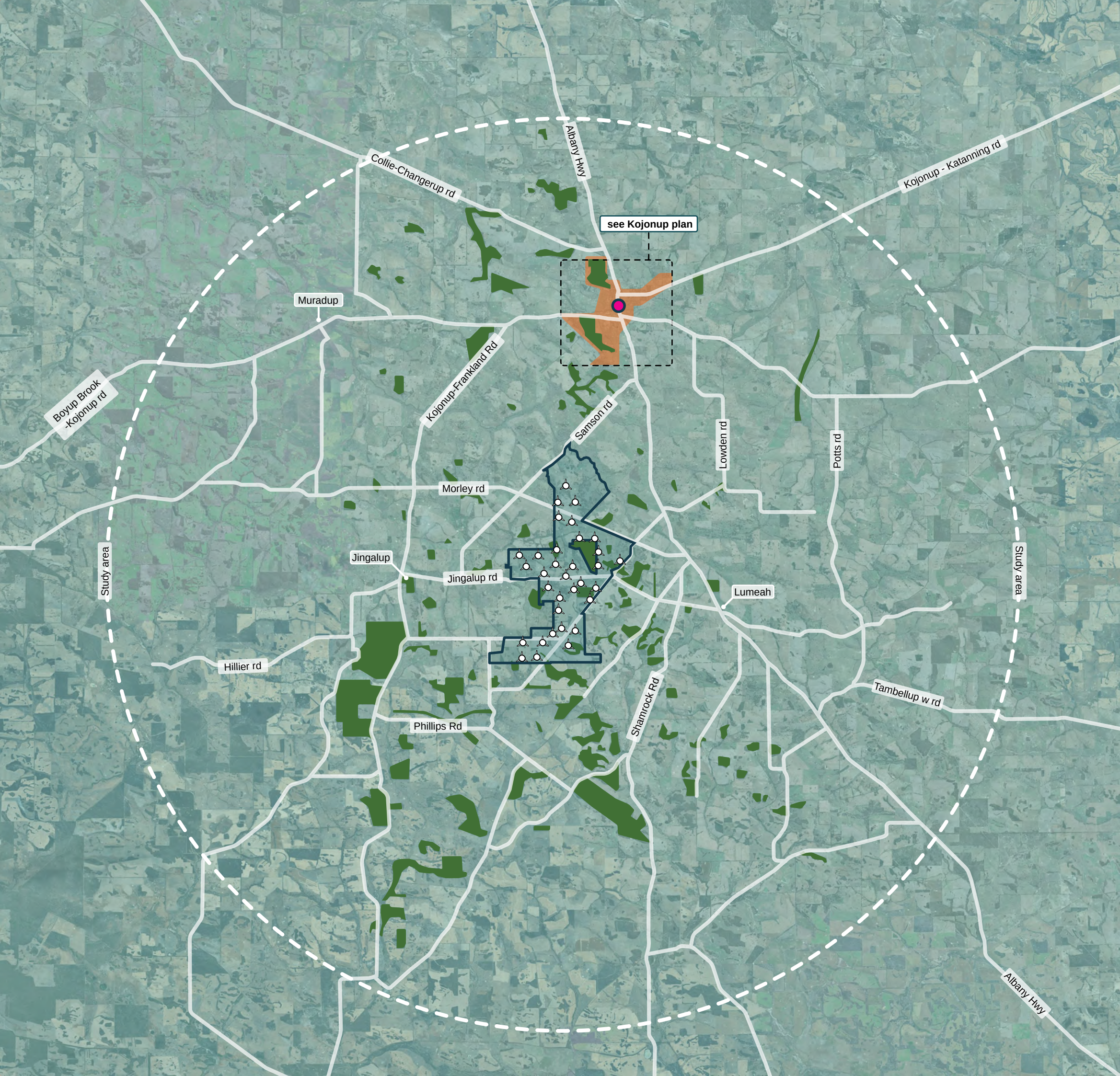




Plate 18 - Broad Agrarian Plain (LCU 1)

Rural Townsite (LCU 2)

As shown in **Plate 19 & 20** this character unit is the townsite of Kojonup within the study area. The town is typical for a Western Australian country town. It has a small town centre which is formed around road intersections containing several hotels, small shops, community services and leisure facilities.

Roads and footpaths in LCU 2 are formally surfaced in concrete or asphalt. Businesses and public facilities are moderately signposted, and a network of overhead powerlines run across the streets.

Residential properties are found in and around the town with properties on the outskirts becoming less frequent and spaced out on larger blocks of land.

Scenic Quality: Low



Plate 19 - Rural Townsite (LCU 2)



Plate 20 - Rural Townsite (LCU 2)

Vegetated Plain (LCU 3)

As shown in **Plate 21** this character unit is the areas of remaining, naturally occurring vegetation within the study area. Vegetation in LCU 3 can be lines of trees along road sides, fields and property boundaries or groups of trees and scrub not cleared through farming practices.

Scenic Quality: Low to Moderate



Plate 21 - Partially Vegetated Plain (LCU 3)

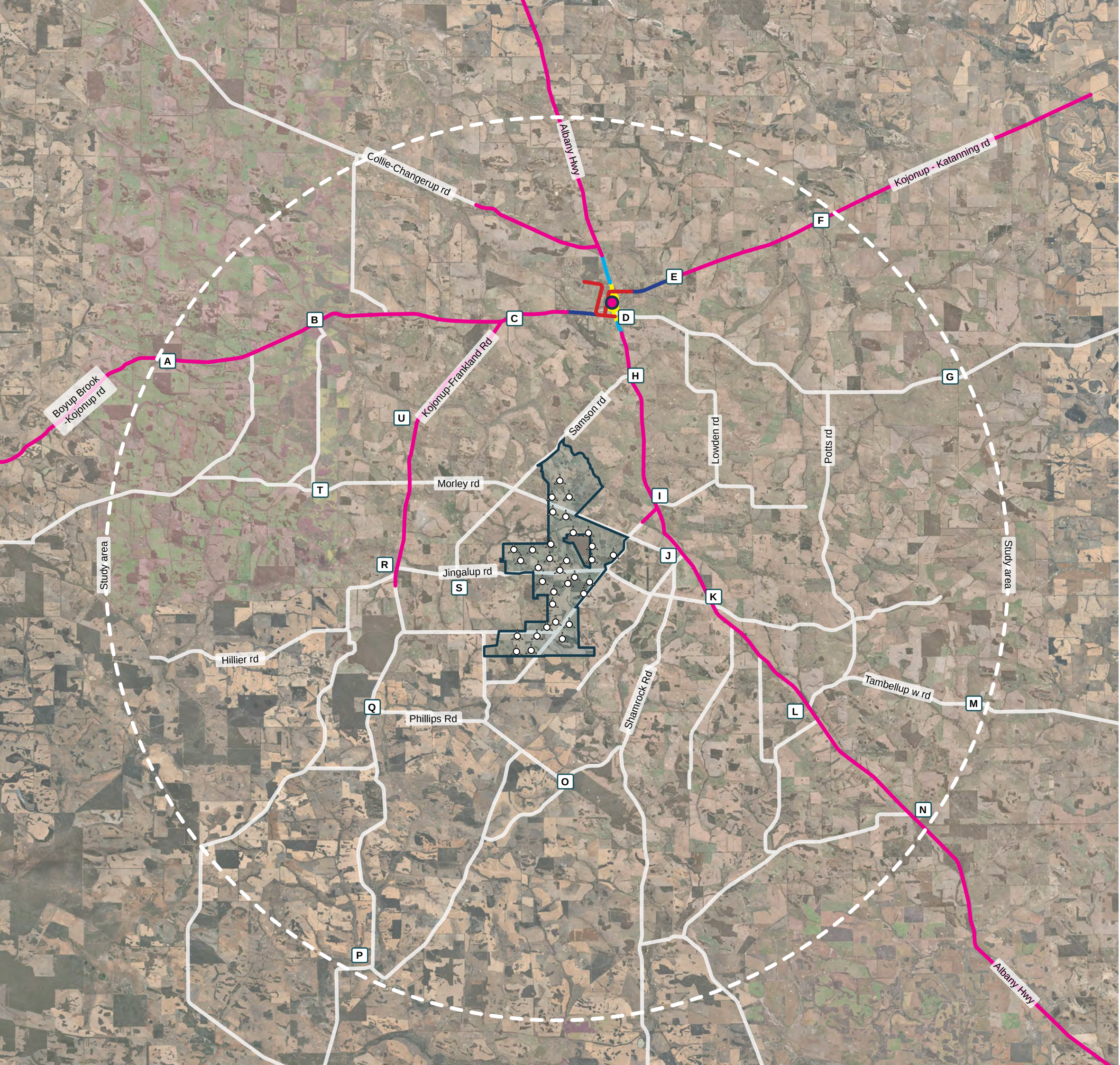
Industrial (LCU 4)

As shown in **Plate 22** this character unit contains areas where past and present industry is apparent. The study area contains industrial operations particularly associated with agricultural practices in and around Kojonup and the wider study area and associated infrastructure such as large sheds, outbuildings, silos, machinery and roads. This character unit presents an obviously man made landscape.

Scenic Quality: Low



Plate 22 - Industrial (LCU 4)



SPEED AND TIMING PLAN

Figure 7

scale - 1 : 200,000



Project Envelope

Wind Turbines

Kojonup

Roads

Speed Limits (Source - Main Roads)

50km/h

60km/h

80km/h

90km/h

110km/h

Undefined - Assumed 70km/h on gravel roads

TIMING CALCULATIONS

Journey	Distance	Timing
A - B	9.13km	5 mins 14 seconds
B - C	10.12km	5 mins 31 seconds
E - F	11.87km	6 mins 28 seconds
D - G	19.81km	10 mins 48 seconds
D - H	3.47km	1 mins 54 seconds
H - I	7.57km	4 mins 8 seconds
I - K	6.24km	3 mins 24 seconds
K - L	7.95km	4 mins 20 seconds
L - M	8.28km	7 mins 6 seconds
L - N	10.91km	5 mins 57 seconds
J - O	15.56km	13 mins 20 seconds
O - Q	12.21km	10 mins 28 seconds
Q - P	15.36km	13 mins 10 seconds
Q - R	8.23km	7 mins 3 seconds
R - S	3.38km	2 mins 54 seconds
S - K	14.45km	12 mins 23 seconds
S - H	14.81km	12 mins 42 seconds
T - J	21.18km	18 mins 9 seconds
R - U	8.30km	4 mins 32 seconds
U - C	6.87km	3 mins 45 seconds



3. VISUAL EXPERIENCE

3.1 Representative Views

3.1.1 Typical Views

The main viewing experiences within the study area are from roads whilst in a vehicle. Outside of Kojonup there are few opportunities for stationary views.

As shown in **Figure 7** public views are generally from public roads with speed limits of 50km/h to 110km/h and from the Kojonup town centre and surrounding residencies.

From roads, the site is located generally obliquely to the direction of travel.

Views are a key way people engage with the landscape, often extending their visual experience well beyond the immediate surroundings. Although wind farms are visually permeable when considered as a whole, individual turbines—or groups of turbines—can still influence existing views. The extent of this impact depends on the viewer's position relative to the turbines and the visual focus of the scene. Typically, the closer a turbine is to the viewer, the more noticeable its presence will be.

In most cases, turbines do not block views entirely but instead appear as added elements within a broader landscape. How these elements are perceived varies from

person to person. Wind farms often elicit strong reactions: some people find them striking or even beautiful, while others view them as intrusive. Many hold neutral views, though it is typically the strongest opinions—both positive and negative—that dominate public discourse.

When evaluating the visual impacts of a wind farm, it is generally not productive to factor individual preferences into assessments of public viewpoints. However, personal responses are more relevant when considering private views, where emotional attachment and daily experience of the landscape can significantly influence perception.

3.1.2 Key Views

Key views are considered those that are obtained from locations of high sensitivity, where the visual experience is of a broad landscape or panorama.

Key sensitive view are those from Albany Highway and the town of Kojonup. The alignment of the Albany Highway and location of the proposal mean that direct maintained views towards the proposal are not achieved from either direction of travel.

Sensitive view opportunities with direct open views to the site are possible from the town of Kojonup as is the view from the Kojonup Golf Course. The proposed

turbines will be visible at distance from these locations.

The majority of roads which surround, align, pass through the proposal and present a view in direct line of sight, are unsurfaced and low speed with no footpaths. The frequency of traffic on these roads will be low and of primarily local traffic.

As shown in **Figure 8** images from location 1 - 43 have been selected from the initial desktop assessment.

3.2 Viewing the Subject Land

Access to a landscape—particularly for recreation—is one of the primary ways people experience and appreciate it. As such, public access is a key factor in determining the perceived value of a given area. The Kojonup Wind Farm will be constructed on private land that is not currently accessible to the public. This land will remain in private ownership and continue to be used for agricultural purposes, meaning public access and use will not be permitted, either during or after the development of the wind farm.

This land gently undulates along roads which are tree lined along many stretches. Roads which are not tree lined present views, sometimes distant across farmland and rolling hills. Much of the land is farmed, grazed, or cropped. There are isolated bands of trees and remnant vegetation. Trees have



Table 2 - Great Southern Region of Western Australia Aesthetic Character Summary (Source: Reading the Remote (CALM, 1994))

AESTHETIC CHARACTER SUMMARY	
Landform	
Form	level to gently inclined landform; conspicuous low hills and ranges; low wind-formed dunes; block and conical mullock hills.
Line	level horizon
Colour	blue grey horizon; rust; and blue grey streaked granite; soils from soft peach to warm rosy pink reds to vivid coppers; burnt red ironstone.
Texture	ls. craggy summits; stony hills with rock peppered surfaces; rugged peaks; rocky edges
Scale	ls. Long, mostly uninterrupted views under big skies over the almost level terrain.
Vegetation	
Form	ls. slender; whippy trunks; flat topped trees; rounded broombushes; sheaths of discarded bark; low bushy heath
Line	ls. strong diagonal line of mallees and salmon gum trunks and branches; strong horizontal layer from three definite vegetation layers; fluid lines of trunks.
Colour	ls. shimmering; glossy leaves; silver grey, cream to pale salmon pink and warm peach of salmon gum trunks; olive bronze to copper trunks; light silvery brown; dark leaved mallees; dull greens; grey discarded twigs and branches; soft silver and gold grasses; dull red; profusion of vividly coloured wildflowers; bright yellow wattle blossoms; pale grey Smokebush; bright tangerine Grevilleas
Texture	ls. scrubby undergrowth; smooth glossy trunks; flaking bark; dusty and furry leaves; soft grasses and Smokebush; spiky Honeymyrtle.
Scale	ls. mallee and salmon gum woodland encloses and channels long views, and depth of view into woodland extensive; heath vegetation channels views and visual penetration into heath is minimal.
Waterform	
Form	ls. shallow depressions and floodways; rock pools; salt flats
Line	ls. tortuous linear chains of salt lakes
Colour	ls. silver; blue; milky; transparent
Texture	ls. smooth mirrored surface
Land Use	
Form	pyramid mullock heaps; corrugated iron; form of historic buildings
Line	horizontal flat-topped man-made hills; angular poppetheads and headframes; tall slender funnels of nickel smelter; waterpipe; geometric line of roofing and building materials.
Colour	red dust; silver grey waterpipe; rusting metal; shades of roofing and building materials; greying fence posts; iron railings.
Texture	rough, scaly, rusting metal; mullock heaps and rubble strewn ground; roofing and building materials; flaking paint.



been planted in linear bands and remain in small groups throughout the farmland and road corridors. Trees have been planted to provide wind breaks and define property boundaries presenting an altered landscape derived from the agricultural industry.

From many points within the study area, views of the environment are open, spacious and very gently undulating. Where the land lies flat views are consistently broad, encompassing much of the horizon in all directions.

The Great Southern Region of Western Australia aesthetic character, developed in Reading the Remote, is shown in **Table 2**.

3.3 Assessing Scenic Quality

The recommended framework for assessing scenic quality is to adopt the visual classification system from Reading the Remote and placing it within the assessment system from Visual Landscape Planning in Western Australia. (WAPC 2007)

The Visual Quality Classification frame of reference, giving High, Moderate and Low scenic qualities for the Great Southern Region of Western Australia landform is given in Reading the Remote.

3.4 Scenic Landform Values

The land within the study area does not contain any sites which fit the criteria for

High value landform sites. The landscape is slightly undulating and is consistent with the landforms surrounding it, with few landmarks around which can be used to orientate.

No wilderness qualities were identified within the study area. Wilderness quality refers to how people perceive the naturalness and remoteness of a landscape, rather than adhering strictly to a technical definition of “wilderness.” Areas with high wilderness quality typically reflect a largely untouched natural environment and can serve as a visual or experiential contrast to more developed or frequently visited areas.

In the case of the study area, extensive land clearing and ongoing rural land uses have significantly altered the natural landscape. As a result, the area proposed for the wind farm is considered to have low wilderness quality.

Conclusion: Scenic landform values in the study area are Low to Moderate.

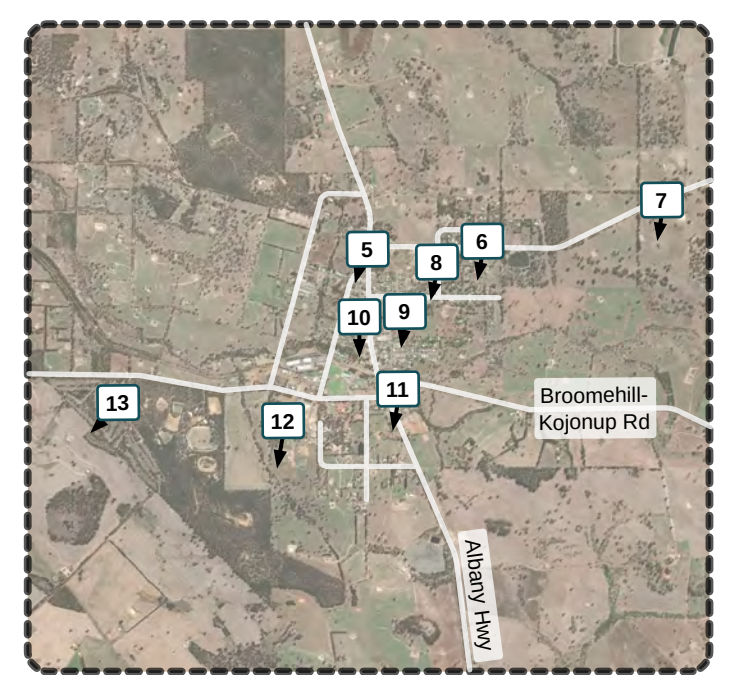
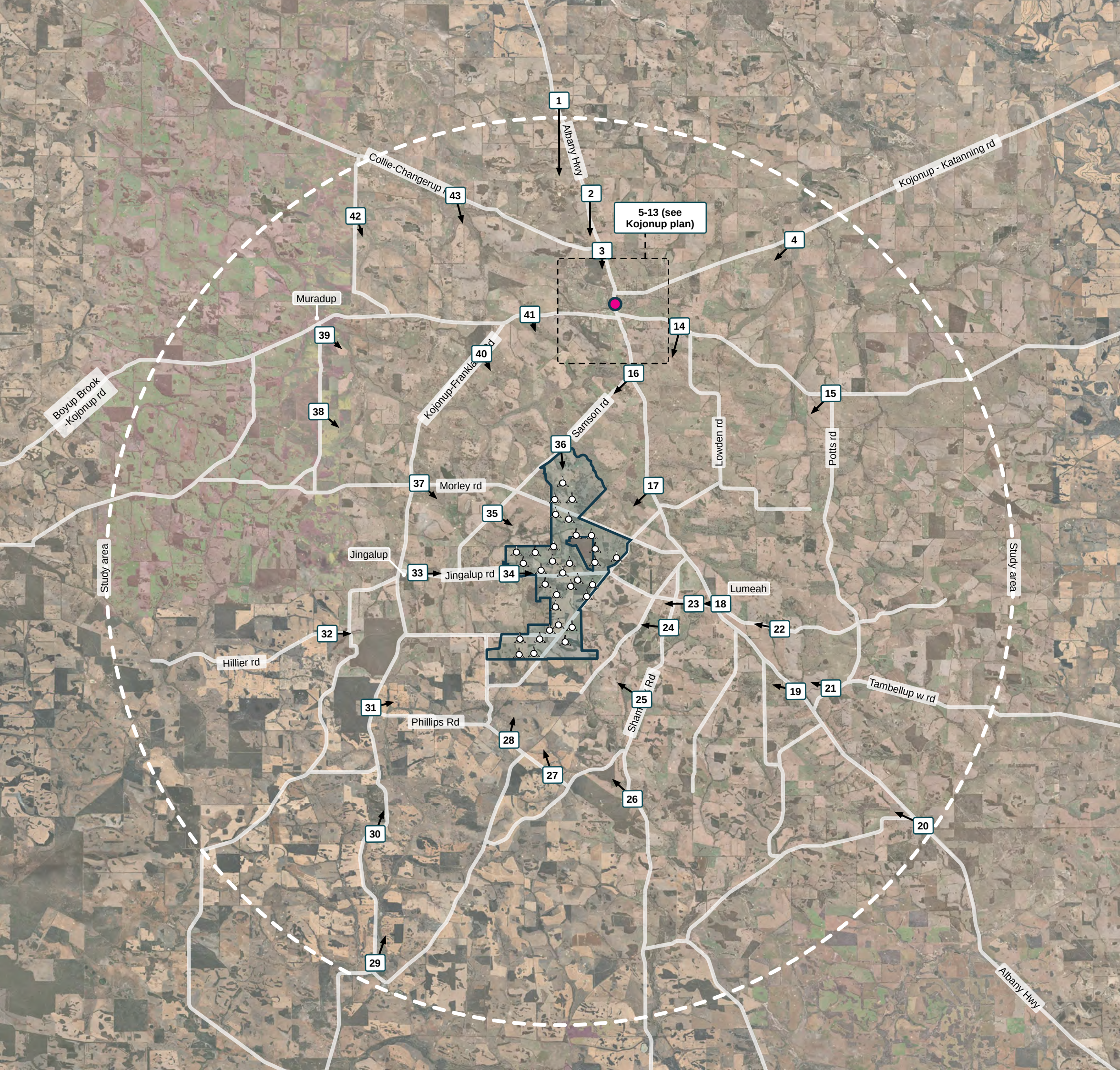
PHOTO LOCATION PLAN

Figure 8

scale - 1 : 200,000



- Project Envelope
- Wind Turbines
- Kojonup
- Roads

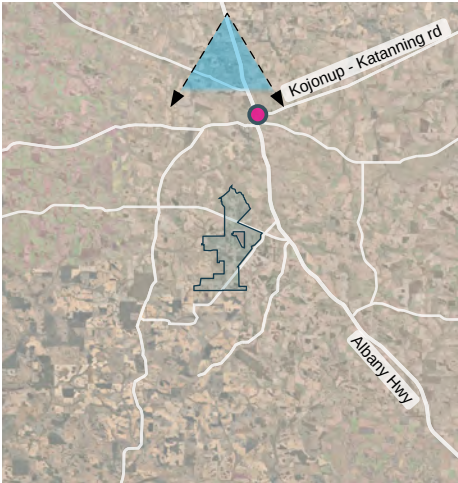


Kojonup Plan Photo Locations



LOCATION - Albany Highway

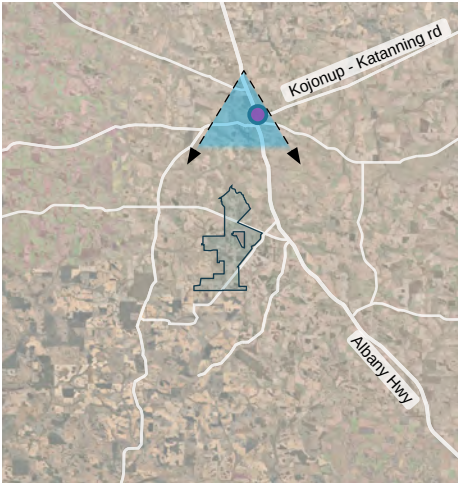
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	110km/h	Transient	Low	288	4.7km





LOCATION - Albany Highway (Adjacent Kojonup Airport)

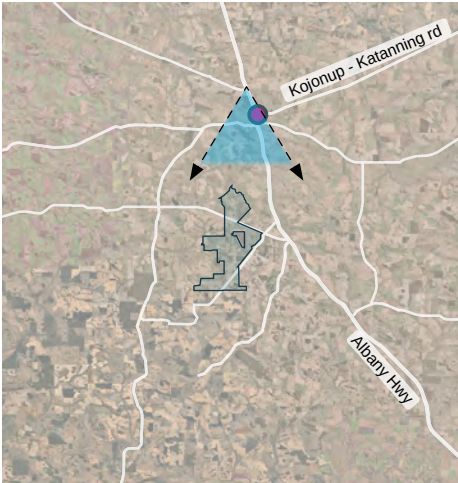
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	110km/h	Transient	Low	261	5.5km





LOCATION - Albany Highway

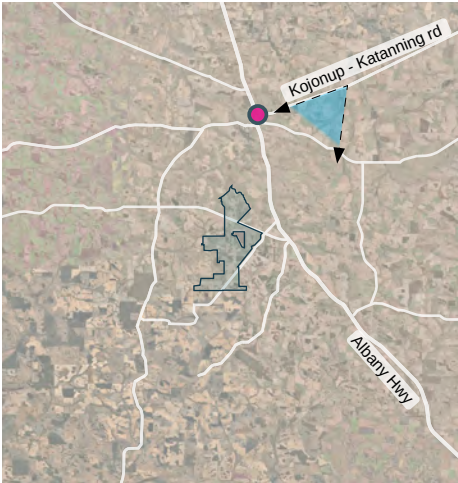
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	110km/h	Transient	Low	278	km





LOCATION - Kojonup - Katanning rd

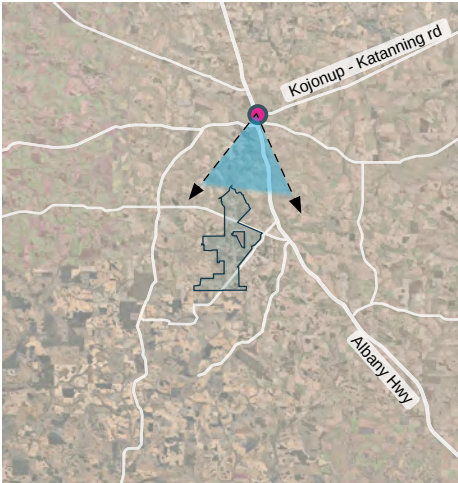
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient	Low	289	km





LOCATION - Albany Highway

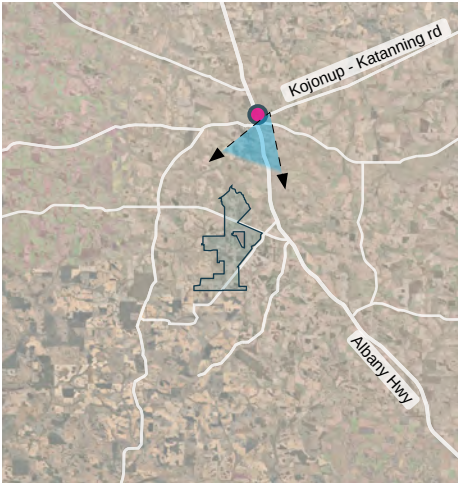
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Transient/Static	Low	323	km





LOCATION - Kojonup - Katanning rd

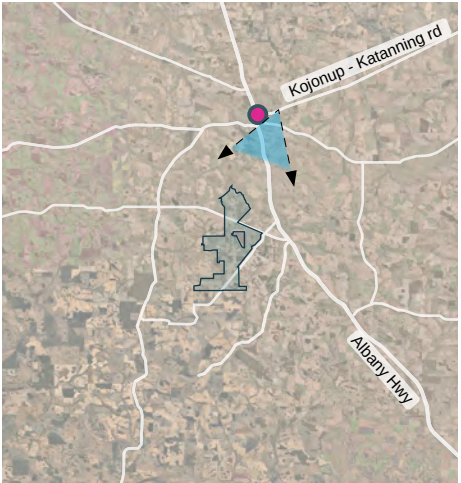
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Transient	Low	332	km





LOCATION - Kojonup - Katanning rd

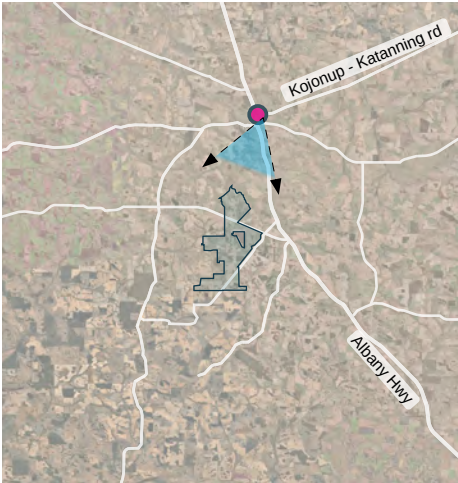
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient	Low	351	km





LOCATION - Forsythe Road

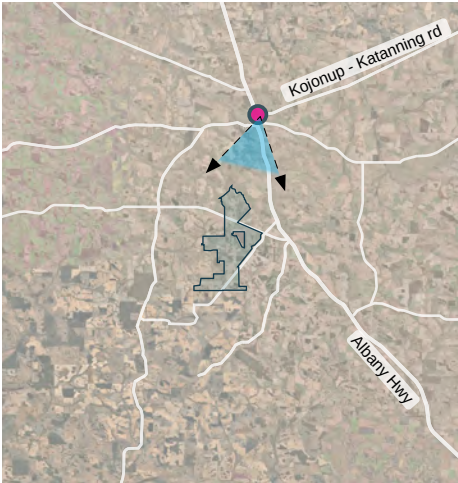
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Transient	Low	319	km





LOCATION - Newstead Park/Honner street

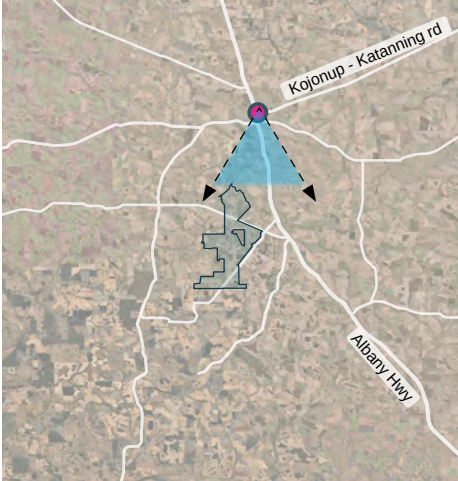
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Static/Transient	Low	305	8.7km





LOCATION - Albany Highway intersection with Harrison Place

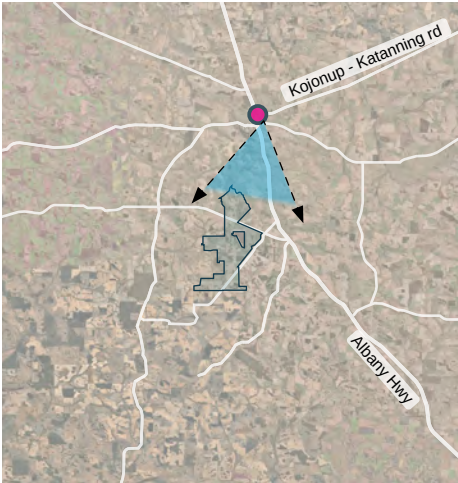
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Static/transient	Low	301	8.4km





LOCATION - Apex Park Carpark

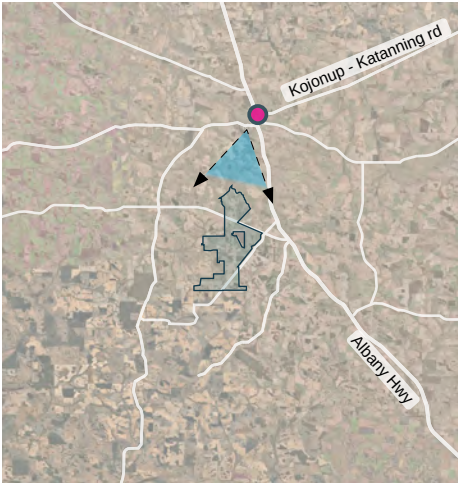
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Transient/Static	Low	283	km





LOCATION - Thornbury Close

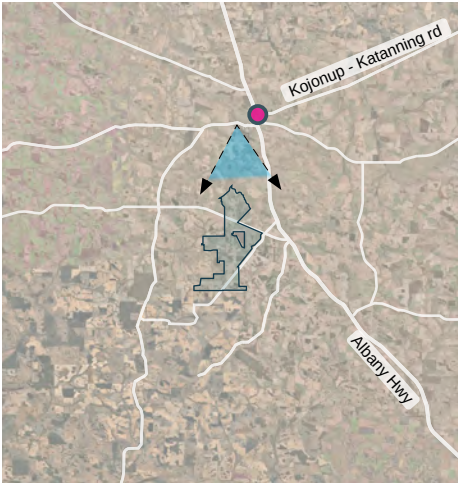
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Transient/Static	Low	295	km





LOCATION - Kojonup Gold Club/Tennis Club

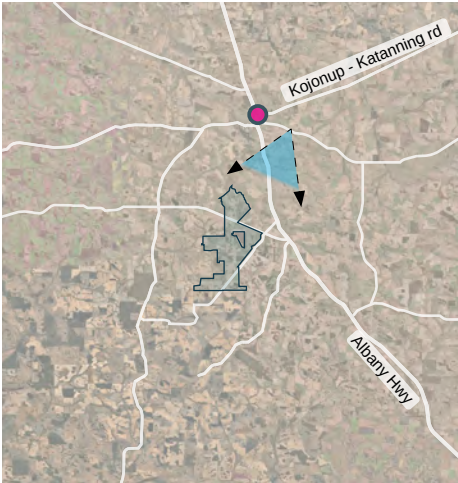
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	na	Static	Low	288	km





LOCATION - Broomehill-Kojonup Road Truckstop

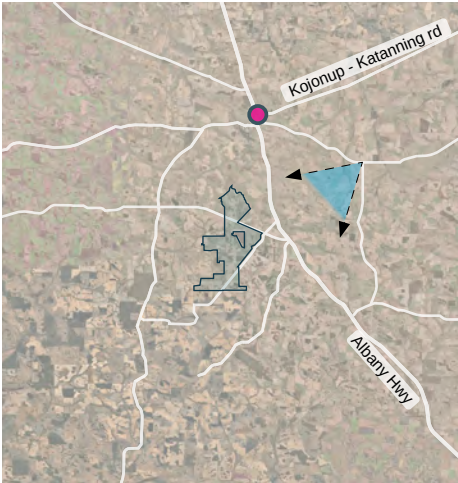
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient/Static	Low	341	km





LOCATION - Broomehill-Kojonup Road Truckstop

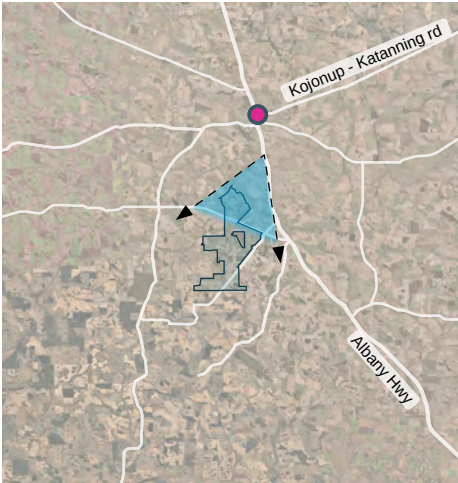
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	50-110km/h	Transient	Low	322	km





LOCATION - Albany Highway

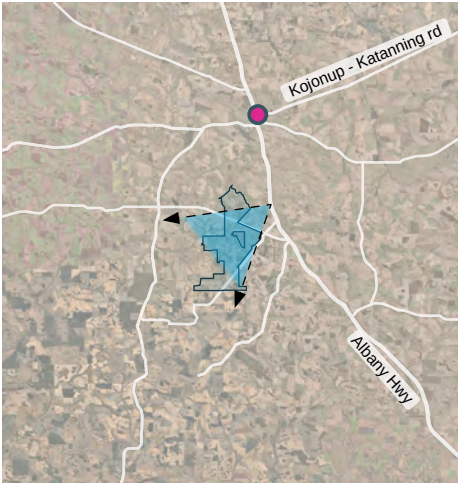
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient	Low	288	4.7km





LOCATION - Albany Highway

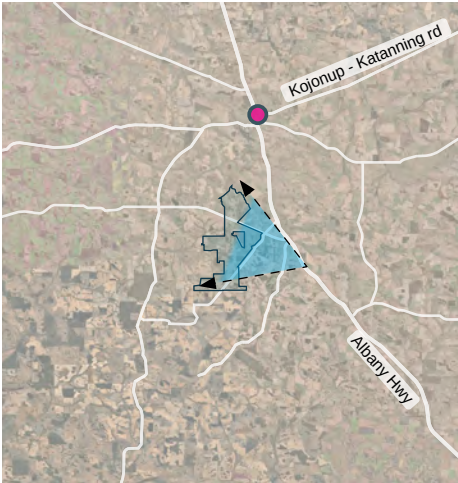
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient	high	304	2.9km





LOCATION - Yarranup Road Intersection with Albany Highway

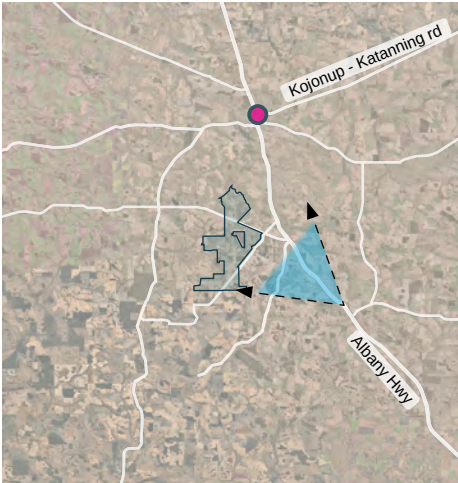
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
West	50-110km/h	Transient	high	334	5.9km





LOCATION - Albany Highway

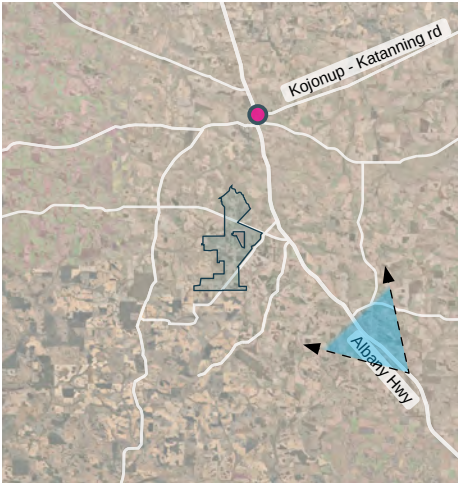
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	110km/h	Transient	Low	232	km





LOCATION - Albany Highway

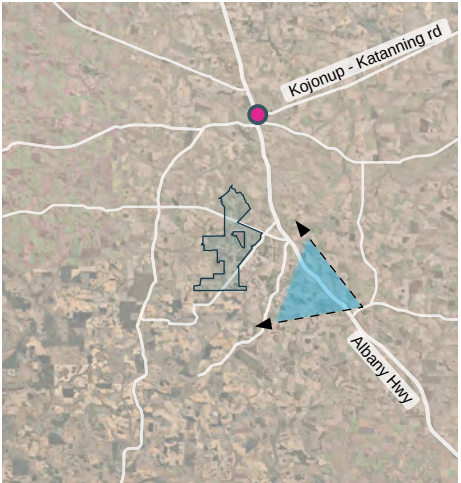
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	110km/h	Transient	Low	305	20km





LOCATION - Albany Highway

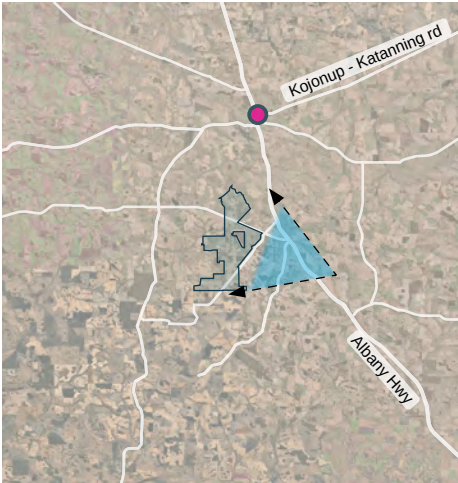
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	50-110km/h	Transient	Low	308	km





LOCATION - Yarranup Road

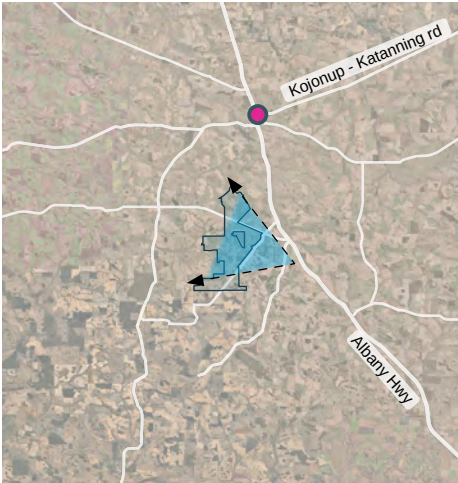
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	50-110km/h	Transient	Low	332	km





LOCATION - Jingalup Road

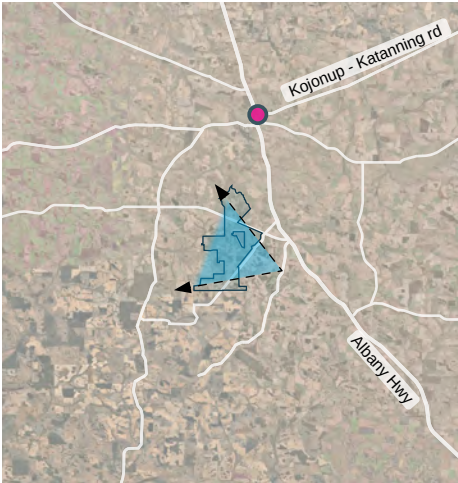
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	50-110km/h	Transient	Low	343	km





LOCATION - Shamrock Road

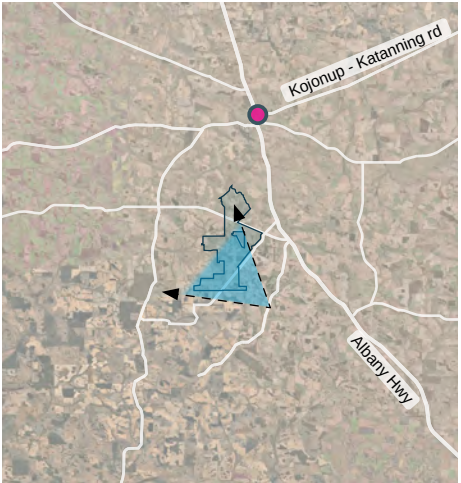
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	50-110km/h	Transient	Medium	334	km





LOCATION - Shamrock Road

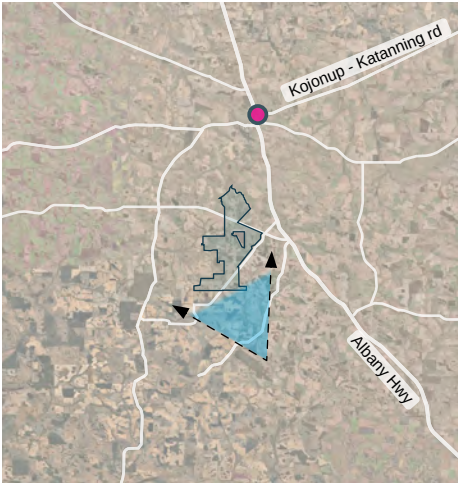
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	50-110km/h	Transient	Low	282	km





LOCATION - Shamrock Road

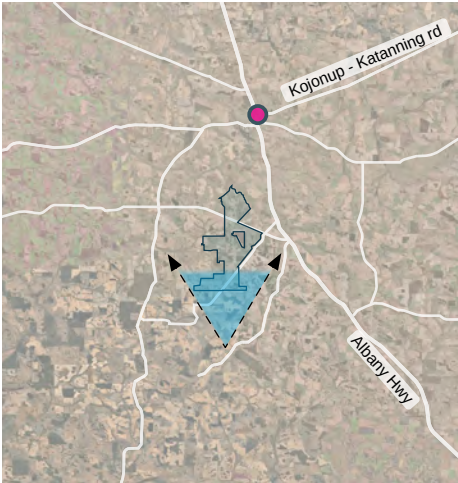
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
North	50-110km/h	Transient	Low	228	km





LOCATION - Phillips Rd

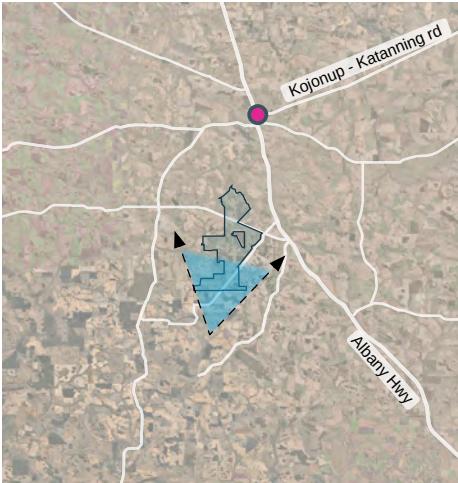
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
North	50-110km/h	Transient	High	266	4km





LOCATION - Phillips Rd

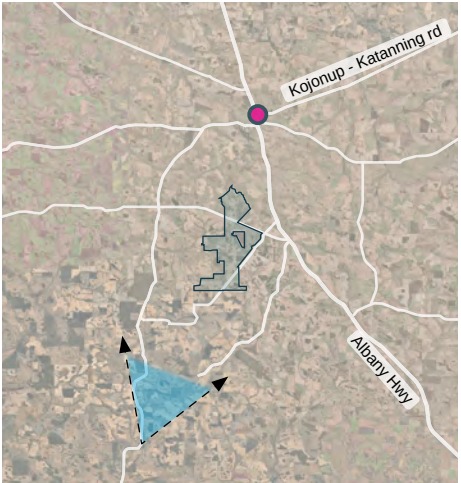
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
North	50-110km/h	Transient	Low	309	km





LOCATION - Kojonup-Franklin Road

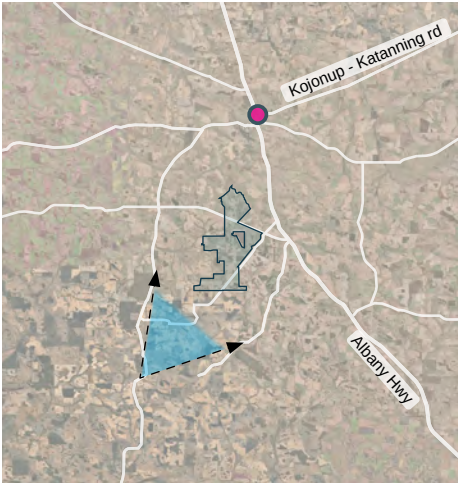
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
North	50-110km/h	Transient	Low	199	km





LOCATION - Kojonup-Franklin Road

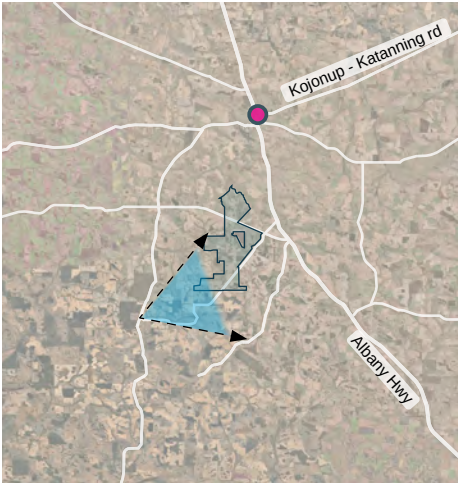
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northeast	50-110km/h	Transient	Low	247	km





LOCATION - Kojonup-Franklin Road

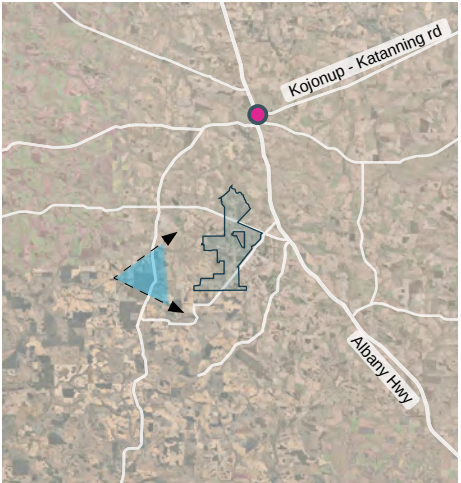
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
North	50-110km/h	Transient	Low	252	km





LOCATION - Hillier Road

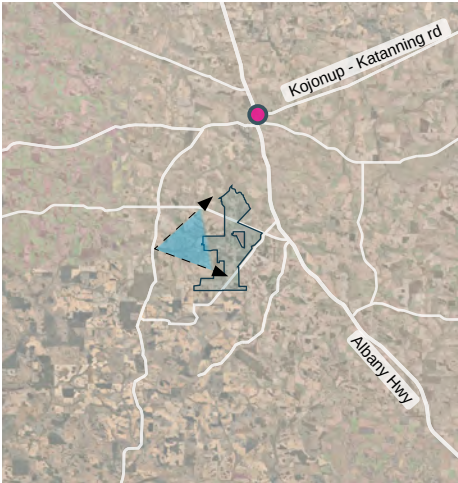
EAST	SPEED LIMIT 50-110km/h	VIEW TYPE Transient	ESTIMATED VISIBILITY Low	ELEVATION 290	DISTANCE TO PROJECT ENVELOPE km
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LOCATION - 1741 Jingalup Road/Jingalup Tennis Courts

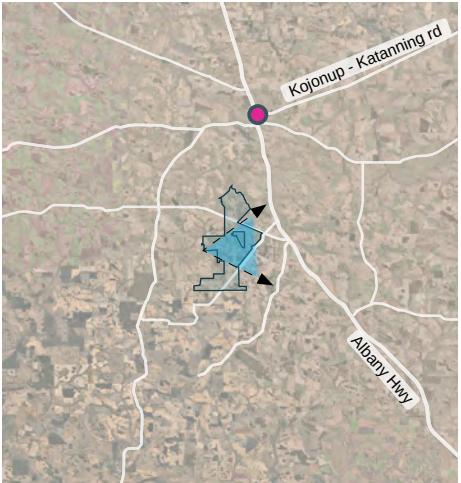
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
East	110km/h	Transient	High	271	5.6km





LOCATION - Jingalup Road

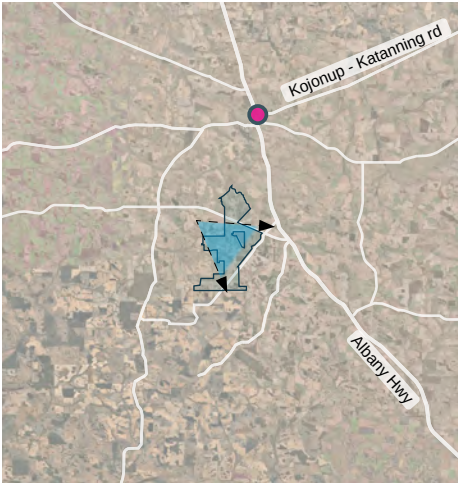
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
East	50-110km/h	Transient	Low	284	km





LOCATION - Samson Road

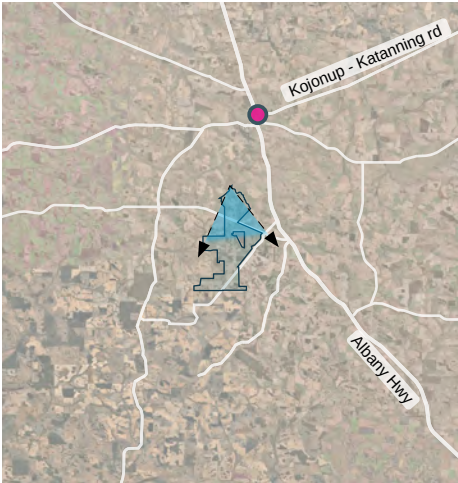
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
East	50-110km/h	Transient	Low	317	km





LOCATION - Samson Road

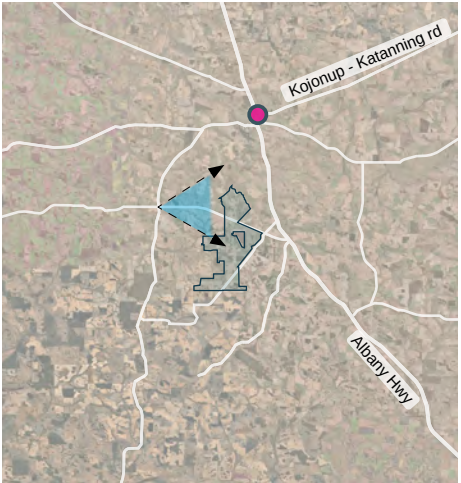
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50-110km/h	Transient	Low	290	km





LOCATION - Kojonup-Franklin Road

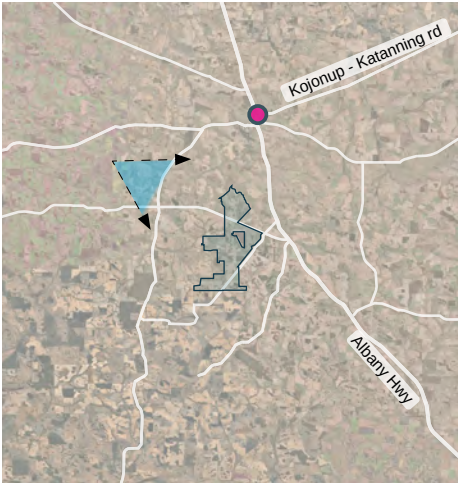
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southeast	110km/h	Transient	Low	309	km





LOCATION - Murin Brook Road

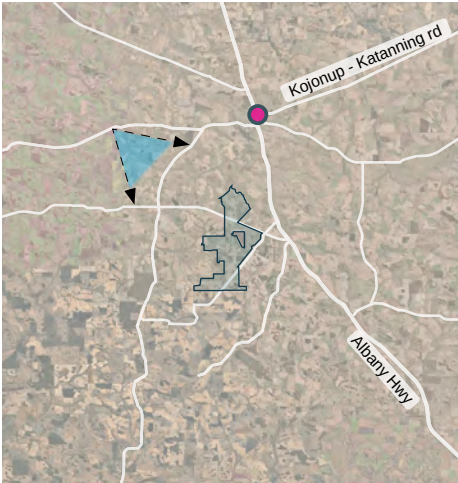
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southeast	110km/h	Transient	Low	298	km





LOCATION - Piesse Street

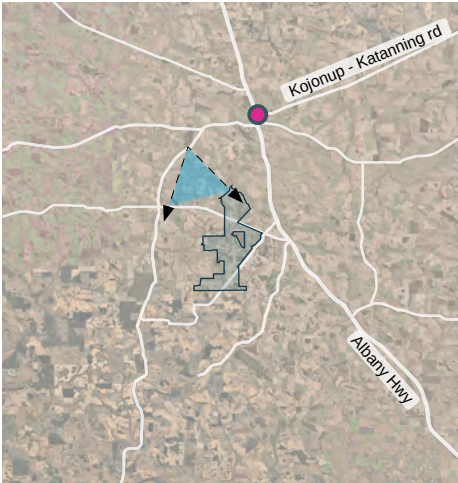
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southeast	50-110km/h	Transient/Static	Low	239	km





LOCATION - Kojonup-Frankland Road

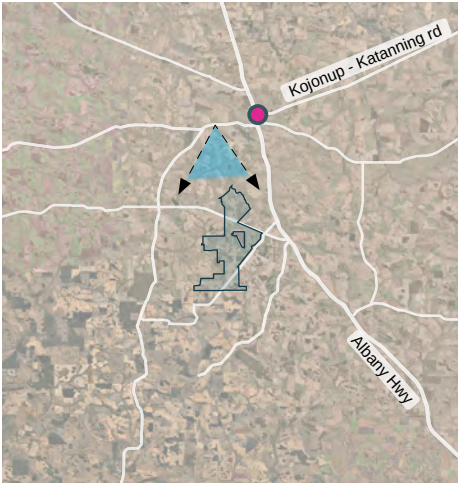
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	110km/h	Transient	Medium	316	6.8km





LOCATION - Boyup Brook Kojonup Road

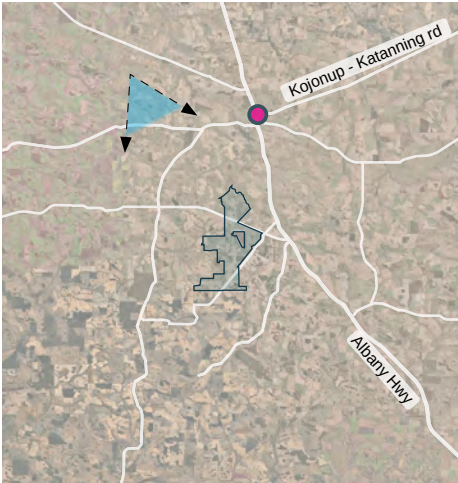
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	110km/h	Transient	Low	277	km





LOCATION - Anderson Road

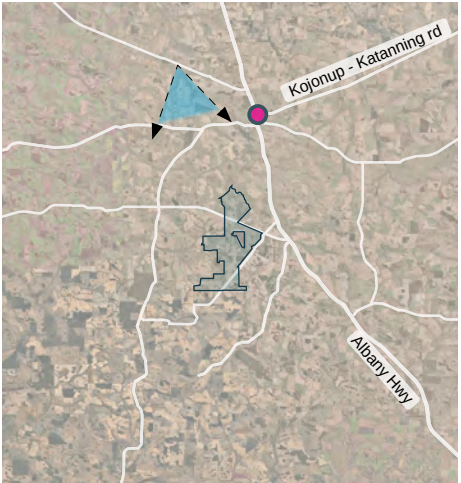
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southeast	50-110km/h	Transient	Low	246	km





LOCATION - Darkan-Kojonup Road

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50-110km/h	Transient	Low	267	km



4. THE PROPOSAL

4.1 Description of the Proposed Development

The proposed development is located approximately 10km south of Kojonup town centre and 2km west of the Albany Highway, approximately 250 kilometres south-east of the City of Perth, refer to **Figure 1 & 2**. The area within which the development is proposed is approximately 3,794 ha.

The land proposed for development is currently used for agricultural purposes. The development proposed comprises a wind generation facility consisting of 33 wind turbines and associated infrastructure - access tracks, under ground electrical cables, hardstand areas, electrical substation, operations and maintenance shed.

As shown in **Figure 9** the proposed wind turbines are to be Vestas V162 - 6.2MW WTG with a 125m hub height. The turbines have been modelled in 3D according to these dimensions as shown in **Figure 10**.

As is common for these types of projects, the final make, model of turbine may change.

Refer turbine layout and allocated turbine numbers in **Figure 1**.

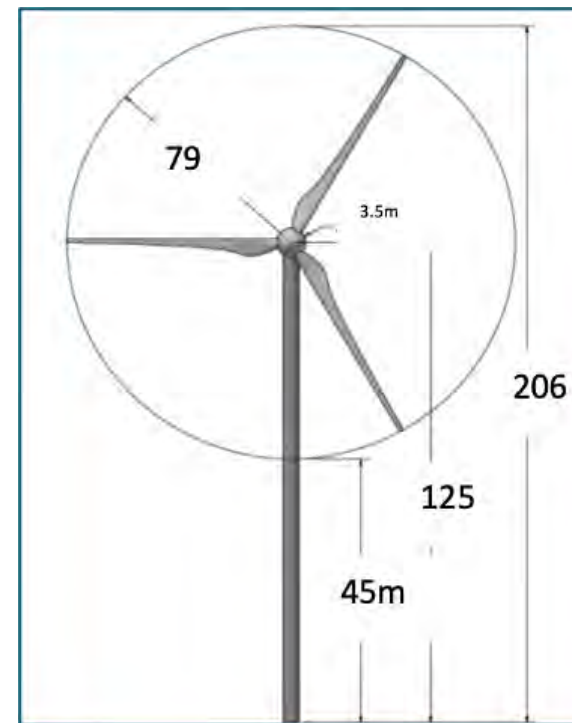


Figure 9 WIND TURBINE DESIGN ASSUMPTIONS

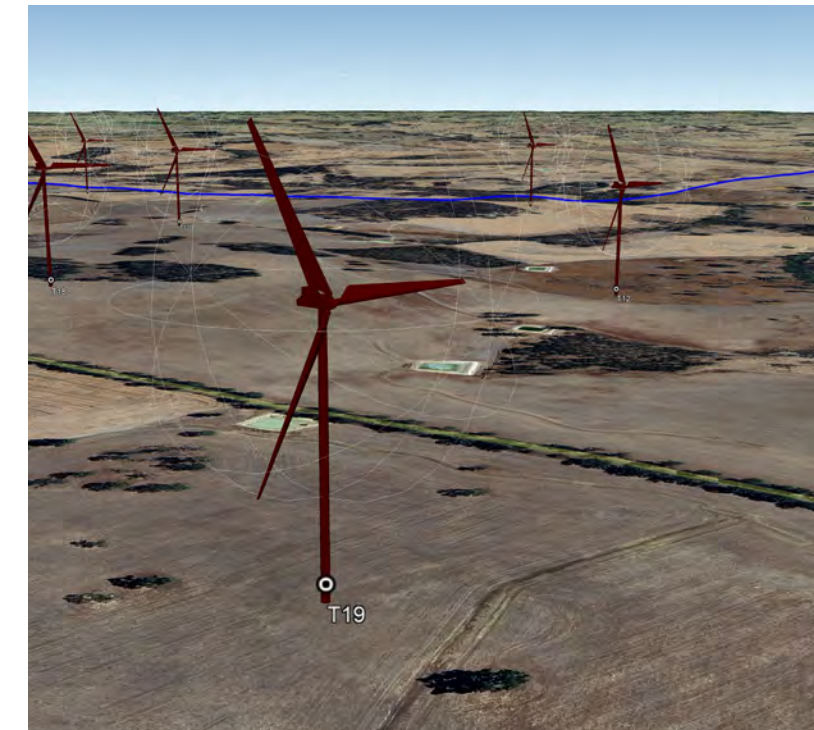


Figure 10 WIND TURBINE 3D MODEL



5. VISUAL IMPACT ASSESSMENT (VIA)

5.1 Assessment of Visual Impacts

From the initial 43 photo locations, 12 viewpoint locations were selected which are representative of a viewers experience based on the desktop study, visual assessment guidelines and understanding of the Development (see **Figure 11**).

The following is a description of the photography equipment and settings used to capture the images. These are all high definition digital images.

Camera:

Canon 5D Mark 3 with Canon 50mm zoom lens as recommended in the Landscape Institute advice note 01/11 'Photography and Photomontage in Landscape and Visual Impact Assessment'. The camera was Tripod mounted to achieve 1.7m viewing height.

5.2 Visual Impacts on Landscape Character

This section of the report assesses potential impacts on each of the representative public vantage points. This is in accordance with the methodology discussed above.

As previously discussed in this report the landscape within the study area has been categorised into landscape character types (Landscape Character Units).

These character units and associated features form the overall existing character of the study area. Potential effects from the proposed development on the existing character is measured through the character unit's capacity to accommodate change, the magnitude of the change, the unit's overall sensitivity to change and is the subject of this Visual Impact Assessment (See **Table 3**).

5.3 Zone of Visual Influence (ZVI)

The desktop study suggested a study area of 20km surrounding the site should be checked.

The visibility of the turbines becomes of less dominance at 17km to 18km.

The selected study area provides a representative area where views are capable. It is not definitive and constrained by accessibility however sufficient data has been collected to inform conclusions.

Table 3 - Landscape Character Unit Evaluation Table

LANDSCAPE CHARACTER UNIT EVALUATION					
LCU	LANDSCAPE VALUE	CAPACITY TO ACCOMMODATE CHANGE	SENSITIVITY TO CHANGE	MAGNITUDE OF CHANGE	SIGNIFICANCE OF IMPACT
LCU 1 - Broad Agrarian Plain	Low/Moderate	Low - Open panoramic views allow clear contrast.	Moderate - High	Moderate - High	Moderate
LCU 2 - Rural Townsite	Low	Moderate - Limited viewing potential from sensitive receptors	High	Moderate	Low
LCU 3 - Vegetated Plain	Moderate	Low to Moderate - Possible views through gaps in vegetation.	Moderate	Moderate	Moderate
LCU 4 - Industrial	Low	High	Low	Low	Low

VISUALISATION LOCATIONS

Figure 11

scale - 1 : 200,000

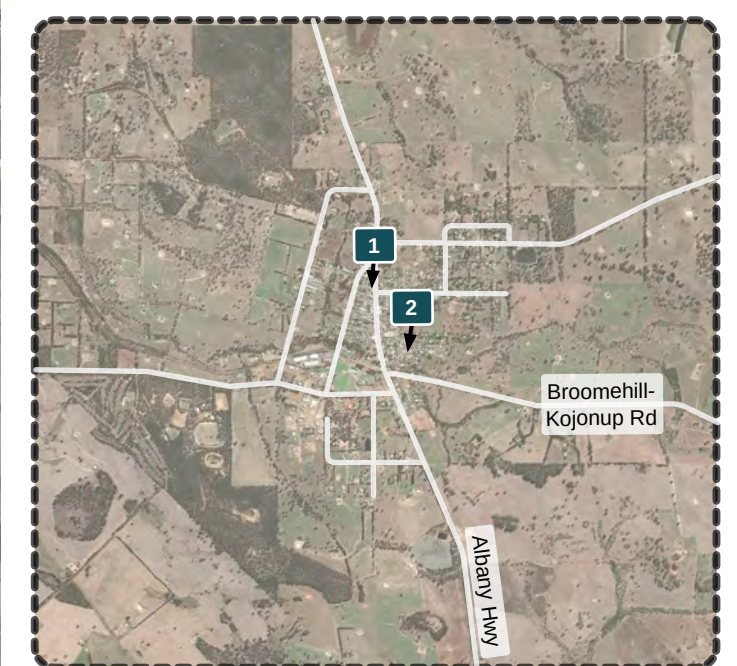


Project Envelope

Wind Turbines

Kojonup

Roads

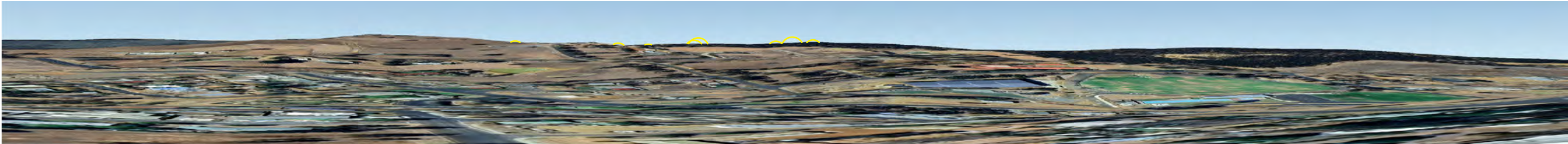


Kojonup Plan Photo Locations

South
↓



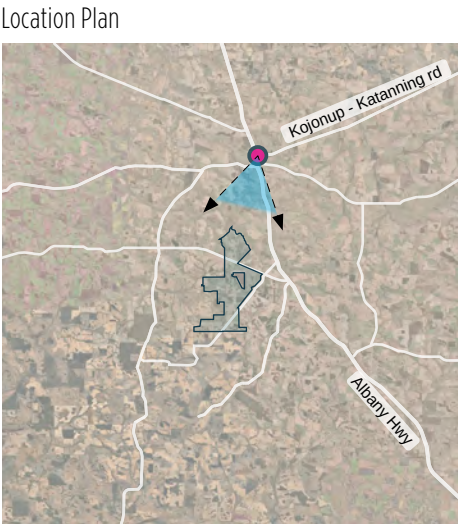
Visualisation



3d model camera view

LOCATION - Newstead Park/Honner street

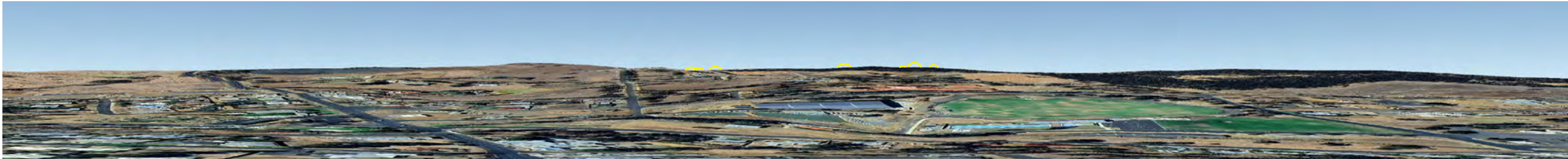
VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Static/Transient	Low	305	8.7km



South
↓



Visualisation

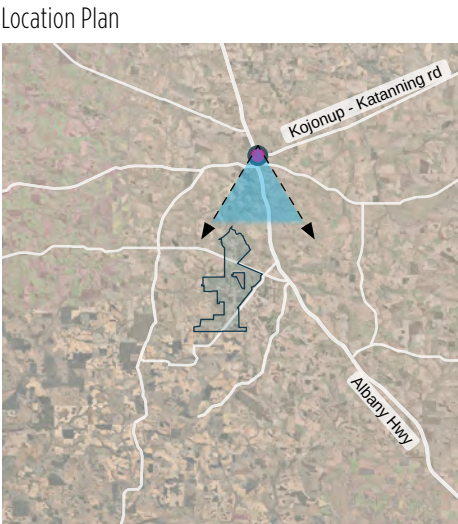


3d model camera view

LOCATION - Albany Highway intersection with Harrison Place

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	50km/h	Static/transient	Low	301	8.4km

- Project Envelope
- Kojonup
- Roads
- View location and direction
- Circumference of turbine blade rotation



Southwest
▼



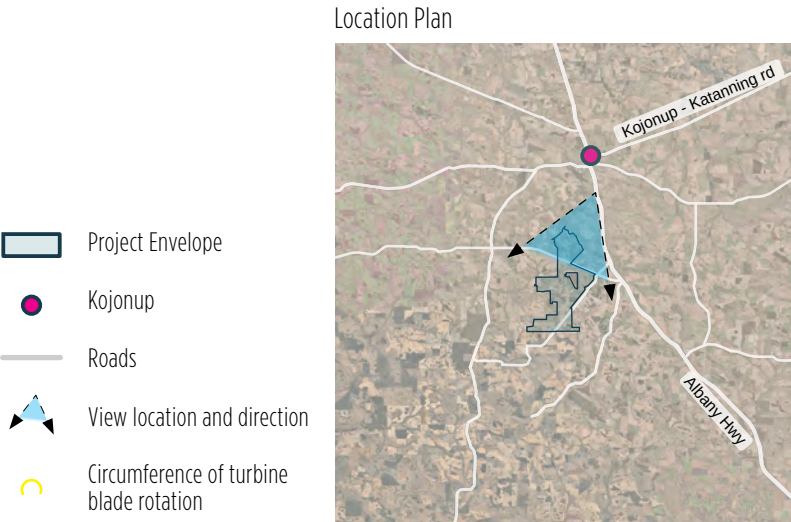
Visualisation



3d model camera view

LOCATION - Albany Highway

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient	Low	288	4.7km



Southwest
↓



Visualisation



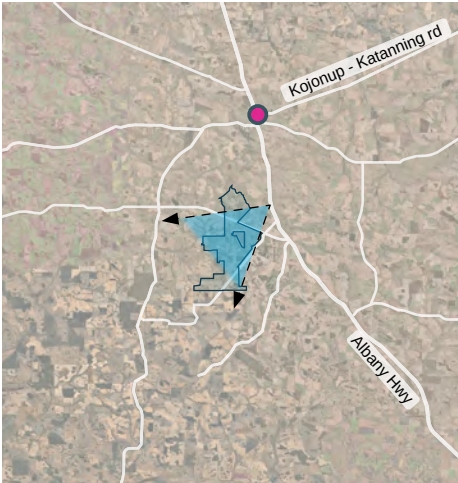
3d model camera view

LOCATION - Albany Highway

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Southwest	110km/h	Transient	high	304	2.9km

-  Project Envelope
-  Kojonup
-  Roads
-  View location and direction
-  Circumference of turbine blade rotation

Location Plan



west
↓



Visualisation

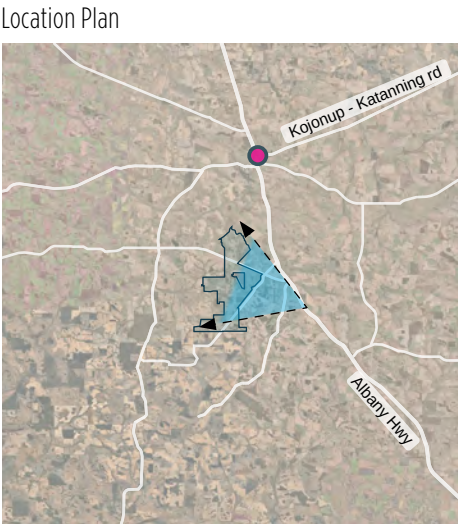


3d model camera view

LOCATION - Yarranup Road Intersection with Albany Highway

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
West	50-110km/h	Transient	high	334	5.9km

-  Project Envelope
-  Kojonup
-  Roads
-  View location and direction
-  Circumference of turbine blade rotation



Northwest
▼



Visualisation



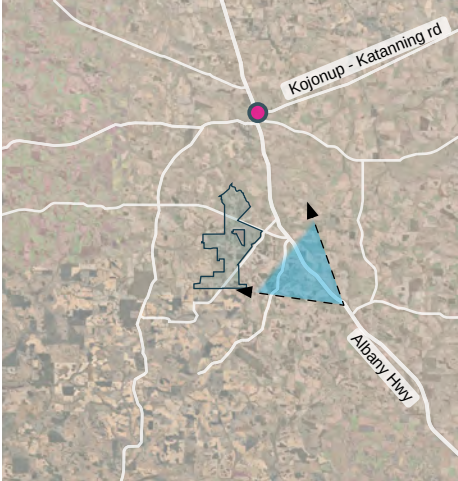
3d model camera view

LOCATION - Albany Highway

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	110km/h	Transient	Low	305	10km

-  Project Envelope
-  Kojonup
-  Roads
-  View location and direction
-  Circumference of turbine blade rotation

Location Plan





Visualisation

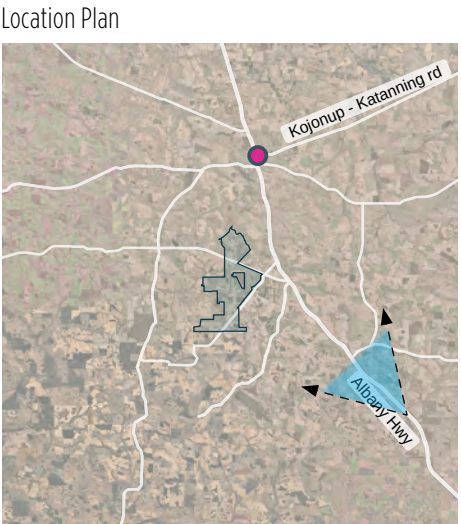


3d model camera view

LOCATION - Albany Highway

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
Northwest	110km/h	Transient	Low	305	20km

- Project Envelope
- Kojonup
- Roads
- View location and direction
- Circumference of turbine blade rotation



North
▽



Visualisation



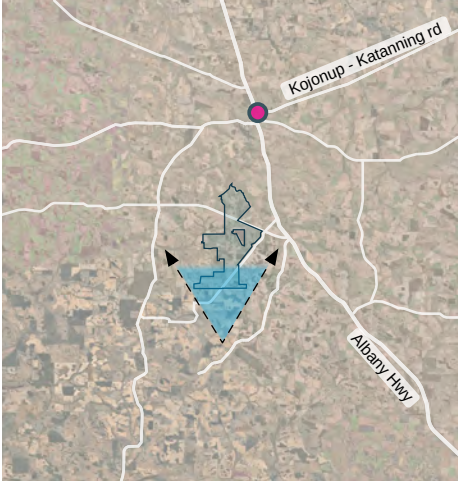
3d model camera view

LOCATION - Phillips Rd

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
North	50-110km/h	Transient	High	266	4km

Location Plan

-  Project Envelope
-  Kojonup
-  Roads
-  View location and direction
-  Circumference of turbine blade rotation



East
▽



Visualisation



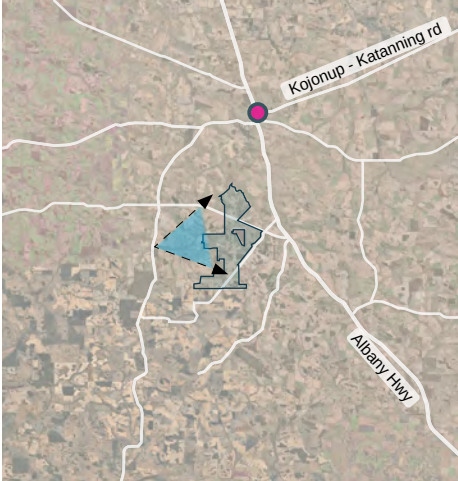
3d model camera view

LOCATION - 1741 Jingalup Road/Jingalup Tennis Courts

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
East	110km/h	Transient	High	271	5.6km

-  Project Envelope
-  Kojonup
-  Roads
-  View location and direction
-  Circumference of turbine blade rotation

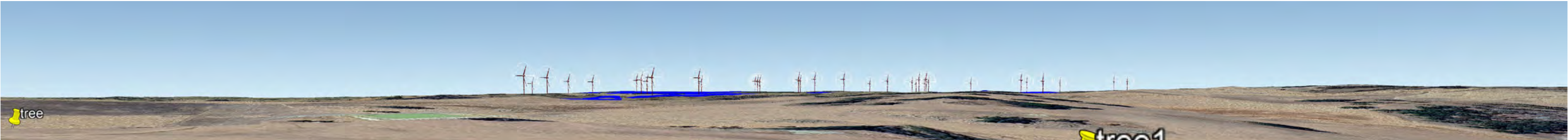
Location Plan



South
↓



Visualisation

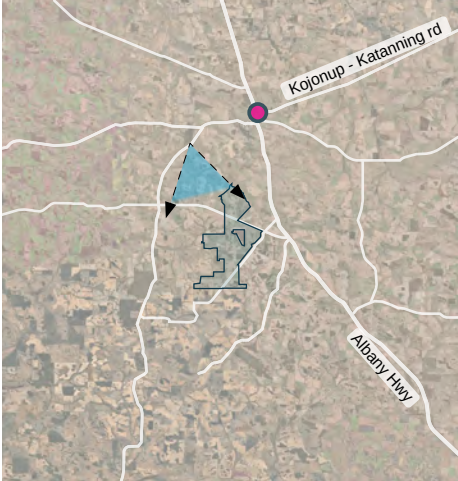


3d model camera view

LOCATION - Kojonup-Frankland Road

VIEW DIRECTION	SPEED LIMIT	VIEW TYPE	ESTIMATED VISIBILITY	ELEVATION	DISTANCE TO PROJECT ENVELOPE
South	110km/h	Transient	Medium	316	6.8km

Location Plan



- Project Envelope
- Kojonup
- Roads
- View location and direction
- Circumference of turbine blade rotation



Because a significant amount of the land ranges from flat, gently undulating to hilly much of the study area shows moderate visibility to the proposed development.

As shown in **Figure 12**, the Zone of Visual Influence (ZVI) illustrates the theoretical visibility of the proposal within the landscape and the extent to which it may be seen. Five locations were selected to generate ZVI envelopes, each broadly representing the grouped turbine locations across the site. Each envelope considers a 10 km radius from its respective location.

The ZVI analysis, supported by field study, indicates that the proposal will be partially screened at the outer edges of the project area, with hills and scattered vegetation reducing visibility in these peripheral locations.

5.4 Visualisations

The choice of locations used for visual impact assessment with rendering of turbines were based on the visibility to the turbines within the study area and the significance of the site for vistas within the public realm. The selected views are representative of typical views towards the proposal and those that were deemed important in the area.

From these vantage points, photographic images of the project site were taken during a site inspection. Utilising Geo-located imagery via 'Google Earth' and

computer software 'Sketchup', 'Lumion' and 'Photoshop', images were processed to render visualisation images of the turbines in place. In some of these views, the turbines are clear. In others, views were blocked by screening both vegetation and structures. Some visualisations show turbines at a great distance, further reducing turbine visibility in some cases to being almost unable to be seen.

Frequently, on-site screening or local site conditions reduced visual impacts. In some locations, such as tree lined roads and locations within Kojonup the proposed development was too far away, or was with too much intervening vegetation or elevated landform to allow views. For others, intervening hills and native vegetation blocked views such that, at best, only blade glimpses were visible. Where a significant site was assessed, and there was no turbine structure visibility available (or only glimpses of blade tips) there was no assessment, as there would be nothing to render.

5.5 Visual Analysis

As shown in **Figure 11** the following points were selected for closer analysis, where visibility of the turbines is likely and the public accessibility of these sites by car is frequent (along Albany Highway) or the town of Kojonup.

- Visualisation 1 – Newstead Park/Honner

street

- Visualisation 2 - Albany Highway intersection with Harrison Place
- Visualisation 3 - Albany Highway
- Visualisation 4 - Albany Highway
- Visualisation 5 - Yarranup Road Intersection with Albany Highway
- Visualisation 6 - Albany Highway
- Visualisation 7 - Albany Highway
- Visualisation 8 - LOCATION - Phillips Rd
- Visualisation 9 - 1741 Jingalup Road/Jingalup Tennis Courts
- Visualisation 10 - Kojonup-Frankland Road

Photographs were taken from an elevation 1.7m above ground level where relatively clear views of the study area, such as on the sides of roads, could be achieved.

5.6 Assessing Impacts on Viewers

As shown in **Table 4**, the viewer groups (sensitive receptors) potentially affected by the proposed development comprise mainly residents of the region, traffic on the Albany Highway and connecting road network and visitors to the local facilities. Their level of significance is determined as set out in **Table 5** taken from the Visual Landscape Planning in Western Australia guidance.

ZONE OF VISUAL INFLUENCE

Figure 12

scale - 1 : 200,000



Project Envelope

Wind Turbines

Kojonup

Roads

Zone of Visual Influence

ZVI Locations @206m Height for ZVI Envelope

ZVI Envelopes

The five ZVI envelopes were reduced in opacity and overlaid onto a composite plan. Areas depicted in solid yellow indicate locations with simultaneous visibility of all five ZVI locations at a height of 206m.

This visual influence study considers only the land form and does not account for potential view obstructions from trees, buildings, or other structures.

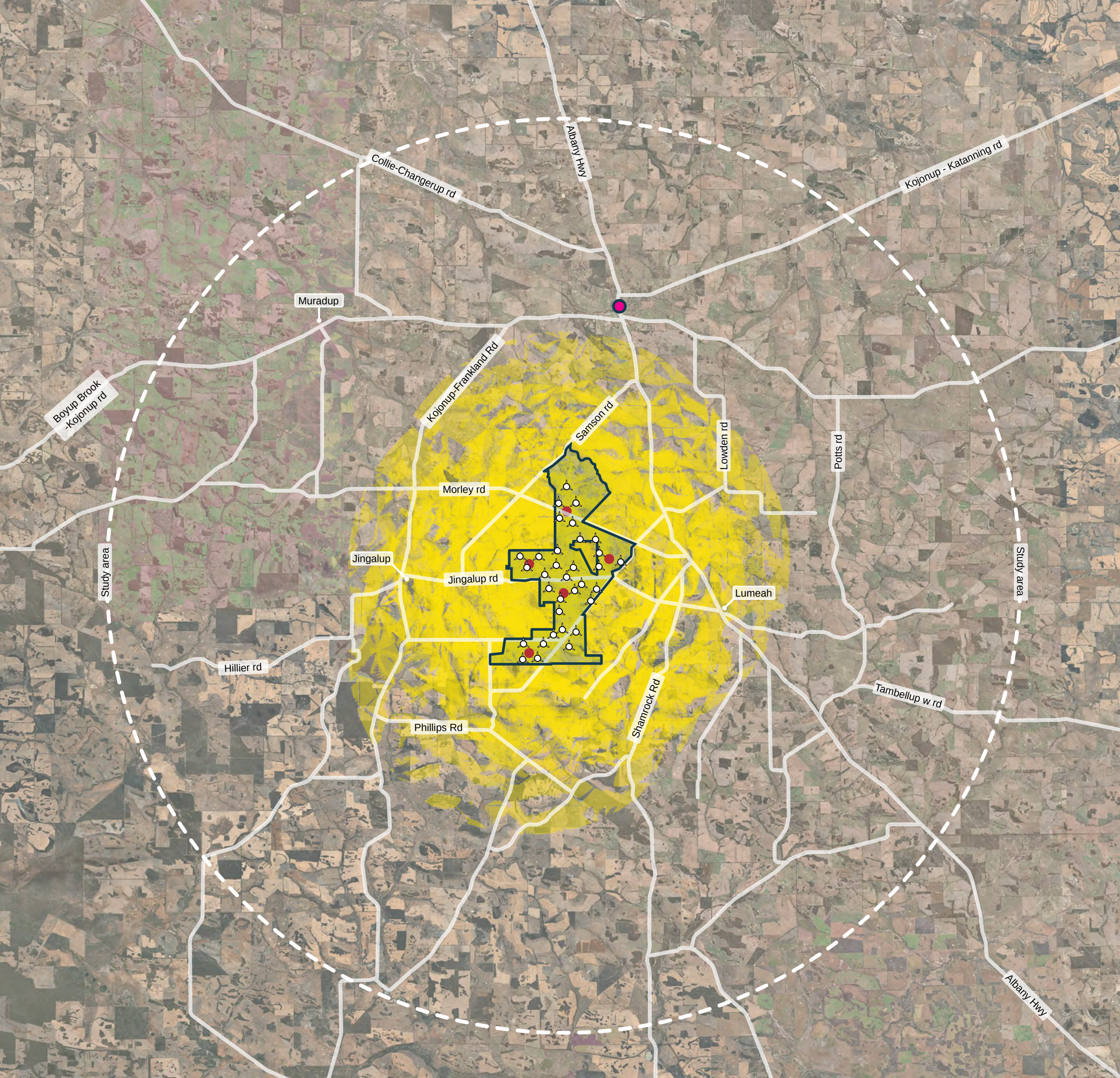




Table 4 - Sensitive Receptors Table

SENSITIVE RECEPTORS		
SENSITIVE RECEPTORS	LEVEL OF SIGNIFICANCE	COMMENTS
USERS OF:		
ALBANY HIGHWAY	1	National/State Significance
GOLF / TENNIS CLUB	2	Local Significance
AIRPORT	2	Regional Significance
RESIDENTS OF:		
HOUSES + PRIVATE BUILDINGS	3	Local Significance
LOCAL ROAD USERS	3	Local Significance

Community appreciation of scenery is based largely on the extent, diversity, integrity and naturalness of landscape features and characteristics visible from public viewpoints (such as lookouts and reserves), tourist or recreation sites, or while travelling. Tourists are guided along the Albany Highway to the east of Kojonup and not through the study area.

Landscape impacts of the proposal on housing is also important. The visibility of the proposed turbines when seen from nearby private settlements in Kojonup have been assessed in a separate report.

Level 1: national/state significance • State highways and other main roads (sealed or unsealed) with high levels of vehicle usage; • designated tourist routes, scenic drives; • recreation, conservation, cultural or scenic sites, areas, viewpoints and lookouts of state or national significance, including their access routes; • walking, cycle or bridle tracks of national or state significance; • towns, settlements or residential areas; • passenger rail lines; • navigable waterways of national or state recreation importance; • ocean sites of national or state recreation importance eg surf breaks; and • views of national or state importance.
Level 2: regional significance • main roads with moderate levels of vehicle usage (sealed or unsealed); • recreation, conservation, cultural or scenic sites, areas, viewpoint, and lookouts of regional or high local significance (including their access routes); • navigable waterways of regional recreation significance; • walk, cycle or bridle paths of regional significance; and • views of regional importance.
Level 3: local significance • all remaining roads with low levels of vehicle usage; • locally significant roads or tracks; • recreation and other use areas of local significance; • navigable waterways of local recreational significance; • walk, cycle or bridle paths of local significance; and • views of local importance.
Explanatory note - Significance increases with the: • importance of views, including type, features, rarity; • volume of use of roads, trails and navigable waterways; • degree of sensitivity of viewers; those who are more likely to be more sensitive include wilderness users, other recreational users, tourists, people who choose to live in an area because of its landscape character and views (eg assessed by noting how vocal observers are about specific travel routes or use areas, indicated in letters, protests etc); • degree to which experiencing the landscape is integral to enjoyment of a travel route or site. Is it the focus of the use, as in recreational use, or just incidental, as is more likely with people using a route to work? and • length of duration of a view: range could include glimpses from a high speed road, longer duration views obtained from roads used for sightseeing or from recreation sites and lookouts and very long and frequent views from the main living areas of homes.

Table 5 - Levels of Significance for Viewing Locations and Viewer Experience. Source: Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design (Western Australian Planning Commission, 2007)

The visibility of the proposed project has been assessed by analysing the viewsheds of selected viewpoints, such as from important view corridors, scenic route sections or sensitive locations.

Recommendations to mitigate or ameliorate impacts are outlined in the conclusion to this report.

5.7 Discussion of Landscape and Visual Impacts

The Great Southern Region has numerous high aesthetic value landscape features to be found around the study area. These are major elevated landforms, natural landscape filled with native vegetation or waterforms of wide lakes and salt plains. Of the Great Southern Region landscape features found within the study area, those identified have moderate significance. The uniformity of the landscape locally within the study area possess moderate to low levels of significance. Further, the existing Flat Rocks Wind Farm has presented an impact to the natural environment and demonstrates a visible level of human intervention. The proposed development would introduce similar additional built features into the landscape.

Highest impact factors relate to the proximity to the development and the alteration of rural character within the viewshed of the Albany Highway. Traffic along this highway will see part of or the whole of the development. Reducing both visibility and impact factors are the scattered roadside vegetation and undulating topography providing screening of the site, and the high transit speeds which serve to reducing the duration in which the proposal is in view.

These views are considered to be of moderate importance and the impact of the turbines on the predominantly rural landscape is



considered to be low to moderate.

Within Kojonup itself, the town buildings themselves and the surrounding elevated topography prevent unobstructed viewing the turbines from street level. Views of the turbines from the town centre would be occasional, with distant glimpses between buildings.

The identified visual character values of the study area is not high, given the weighting description in 'Reading the Remote'. There are no highly significant rural character aspects within the viewshed looking eastward, whereas to the west, outside of the study area, there are more significant views of landform and vegetation demonstrating significant aesthetic features of the Great Southern Region of Western Australia.

5.8 Mitigation Measures

The colour of the turbines will be light grey which is standard for the turbine make and is the same colour as the existing Flat Rocks wind farm turbines. The paint will be a non-reflective matt finish to eliminate blade glint.

Localised planting of trees in road verges and properties to mitigate views will not have a substantial impact on the visibility of the proposal.

5.9 Conclusions

The Great Southern Region of Western Australia where the the proposal is situated, is a mix of open views with undulating topography and remnant vegetation which can disrupt and limit wide horizontal views of the landscape. These elements are common features through the region.

The potential visual impact of the proposal to Kojonup and the number of residents/visitors who will be able to see the proposal, is low to moderate.

The somewhat lower value of landscape character values for the development site, given the study area's regional and local context, reduces the impact of the proposal to low.

Considering the scale of the new turbine structures, and the context of a landscape already altered by the nearby Flat Rocks Wind Farm which is similar in scope, the impact on this district is considered moderate to low.

Sensitive static receptors are limited to a small number of specific houses and private buildings. The views experienced from vehicles on the public roads are in the majority of cases at a distant and oblique to the direction of travel.

It is inevitable that wind farm turbines will be seen. Wind turbines, when introduced

into a natural or pastoral or agrarian setting, alter the character of a landscape. Where observed in closer proximity, the character of the scene will change. The pastoral agrarian landscape is culturally valued however is a highly modified landscape character in itself. It is a character that has been created by land clearing and framing practices.

Mitigation measures are limited as contemporary kinetic structures in a broad open landscape will be a feature that attracts viewing. The location and layout of the turbines are placed in a manner that has a moderate impact on the broader landscape character when observed.

The proposed installation could be considered as a feature of interest within the landscape when seen and as such become an element of interest to visitors and tourists as has proven to be the case in other areas of southwest of the state.