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Wallaby Creek Wind Farm

Preliminary Visual Impact Assessment

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Preliminary Visual Impact Assessment

Prepared for
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1.0 Introduction

1.1 Introduction

Moir Landscape Architecture Pty Ltd (Moir LA) has been commissioned by ERM to prepare a Preliminary Visual Impact Assessment (PVIA) for the proposed Wallaby Creek Wind Farm (the Project). This PVIA will be assessed under the current NSW guidelines for Stage 1: Scoping Paper for wind farms *Wind Energy: Visual Assessment DPE 2016* (the Visual Bulletin). The PVIA will form part of the Scoping Report which will be provided to Department of Planning and Environment (DPE) to request project specific Secretary's Environmental Assessment Requirements (SEARs). The PVIA which shall support the Environmental Impact Statement (EIS) will include an assessment of all aspects of the Project including related activities and associated infrastructure.

1.2 Relevant Experience

The Visual Bulletin states: *"The proponent is expected to engage professionals from relevant natural resource management and design professions (for example environmental planners, geographers, landscape architects, or other visual resource specialists), with demonstrated experience and capabilities in visual assessment to carry out a wind energy project visual assessment."*

Moir LA is a professional design practice and consultancy specialising in the areas of Landscape Architecture, Urban Design and Landscape and Visual Impact. Our team has extensive experience in undertaking Landscape and Visual Impact Assessments for wind energy projects. In the context of our experience and with guidance from the Visual Bulletin we have developed methodologies to ensure a comprehensive and qualitative assessment of the Project.

Relevant experience includes the preparation of Landscape and Visual Impact Assessments for the following Wind Energy Projects:

- *Liverpool Range Wind Farm Modification (Coolah, New South Wales)*
- *Crudine Ridge Wind Farm (New South Wales)*
- *Bodangora Wind Farm (Bodangora, New South Wales)*
- *Capital II Wind Farm (Bungendore, New South Wales)*
- *Uungula Wind Farm (Wellington, New South Wales)*
- *Lakeland Wind Farm (Lakeland, Queensland)*
- *Hills of Gold Wind Farm (Nundle, New South Wales)*
- *Jeremiah Wind Farm (Adjungbilly, New South Wales)*
- *Valley of the Winds Wind Farm (Coolah, New South Wales)*

1.3 Overview of Preliminary Visual Impact Assessment

The purpose of this PVIA is to provide a preliminary assessment of the potential visual impacts of the Project and has been prepared in accordance with the Visual Bulletin.

The visual assessment process is broken into two main stages (see ***Figure 1***):

Phase 1: Preliminary Environmental Assessment and
Phase 2: Environmental Impact Statement

This PVIA forms a part of *Phase 1: Preliminary Environmental Assessment* to be submitted to DPE together with the Scoping Report for the request for SEARs.

The requirements of Stage 1: Preliminary Environmental Assessment are as follows:

At the Preliminary Environmental Assessment stage, a process consisting of community consultation regarding key landscape values and application of preliminary assessment tools has been developed. The tools include consideration of the potential impact of the proposals on dwellings and key public viewpoints.

The preliminary assessment tools have been designed to assist proponents to drive better outcomes. They will assist in identifying early in the process the locations where wind turbines may have impacts that warrant further consideration. This in turn provides an opportunity to refine the proposed wind turbine layout to avoid or minimise impacts or justify the proposed design prior to lodgement of the application.

Proponents will be required to submit, with the request for SEARs, a Preliminary Environmental Assessment that includes a map with key information, results of community consultation and the application of the preliminary assessment tools. This will form the basis for the issue of the SEARs that will identify the matters that must be addressed in the EIS.

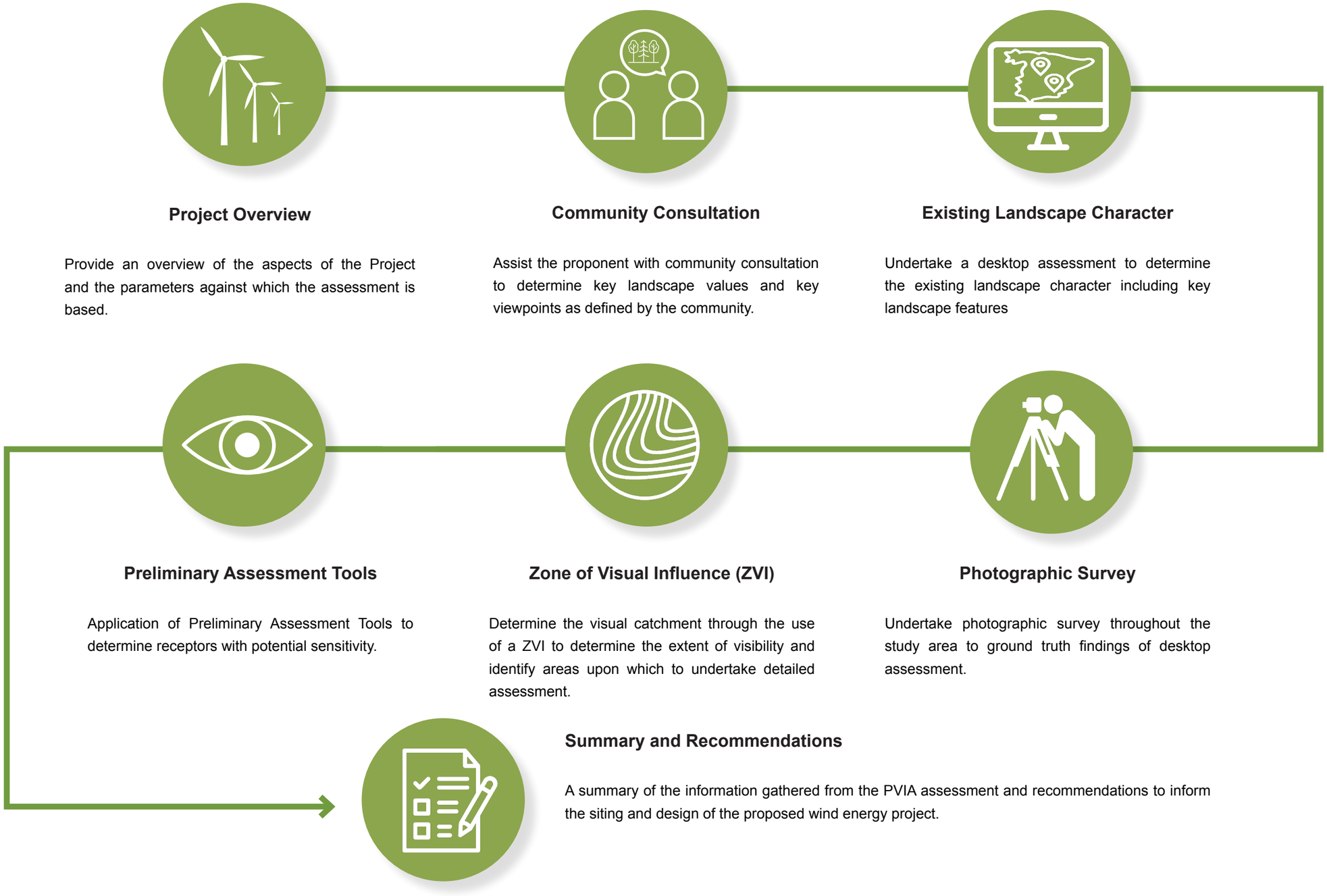


Figure 1** **Steps in Visual Impact Assessment
(Source: Wind Energy: Visual Assessment Bulletin , 2016)

2.0 Study Method

2.1 Study Method

The following has been undertaken to develop the PVIA:



The following has been undertaken to develop the PVIA:

Desktop Assessment:

- Application of Preliminary Assessment Tools to determine receptors with potential sensitivity.
- Preparation of a preliminary Zone of Visual Influence (ZVI) to establish a theoretical zone of visibility of the Project.
- Identification of key viewpoints and landscape features using available mapping and background documents.

Site Inspection:

Photographic survey work for the assessment was undertaken in November 2021 to carry out a preliminary assessment of the existing landscape character from publicly accessible land within the Study Area (as defined in **Section 3.3**). The findings of the site inspection have been included in the PVIA and will form the basis for discussion with the community in the EIS Phase of the Project.

Community Consultation:

Community consultation has been undertaken through the scoping phase of the Project. Results of the community consultation have also been utilised to gain perspective on the landscape values held by the community to inform the PVIA.

Community consultation will be continued through the EIS phase of the Project.

2.2 Report Structure

The following table provides an overview of the requirements of the Visual Bulletin and where these have been addressed in the PVIA:

Preliminary Visual Impact Assessment Report Structure:	
PVIA Report:	**Visual Bulletin Requirements:**
Refer to Section 3.0: Project Overview	
Refer to Section 4.0: Community Consultation	*Undertake community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area.*
Section 5.0: Existing Landscape Character	*Production of a map detailing key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints, and an overlay of the wind resource.*
Section 6.0: Preliminary Assessment Tools	*Results of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.*
Section 7.0: Preliminary Dwelling and Viewpoint Assessment	*All key public viewpoints and individual dwellings within the visual catchment should be identified and assessed.*
Section 8.0: Cumulative Visual Impacts	
Section 9.0: Preliminary Zone of Visual Influence	*The use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of a project during the pre-lodgement stage. Most GIS systems can establish the theoretical 'zone of visual influence' of the proposal (the area from which the proposal is theoretically visible or the 'visual catchment').*
Section 10.0: Summary and Recommendations	

Table 1 Overview of Report Structure

3.0 Project Overview

3.1 Regional Context

The Project is located within Narromine Shire LGA in the Central West region of New South Wales. It is situated approximately 35 kilometres (km) southwest of Dubbo, approximately 10 km south of Narromine, and 10 km north of Tomingley. Surrounding rural localities include Wyanga and Minore. The Project can be accessed via Tantitha Road, Tomingley Road and Newell Highway (refer to ***Figure 2***).

The Project is located partly within the Central West Orana Renewable Energy Zone (REZ) identified in the NSW Government's Electricity Strategy. The REZ is expected to play a vital role in delivery of affordable energy to the community across NSW (Energy NSW, 2021). The Project is therefore strategically located in a broad area identified as suitable for renewable energy projects.

The Central West Region has been identified as having high wind renewable energy resource potential. Preliminary wind studies undertaken by the Proponent have guided the development of the preliminary turbine layout for the Project. The Project is proposed to connect to the electricity grid via the existing 132 kV Narromine South Switching Station, located approximately 10 km north of the Project site.

The Project currently consists of up to 44 wind turbines, with a total maximum generating capacity of up to 250 MW. The Project is understood to be in the preliminary stages of design and Moir LA will provide input and recommendations in regards to visual impacts to assist as the Project progresses.

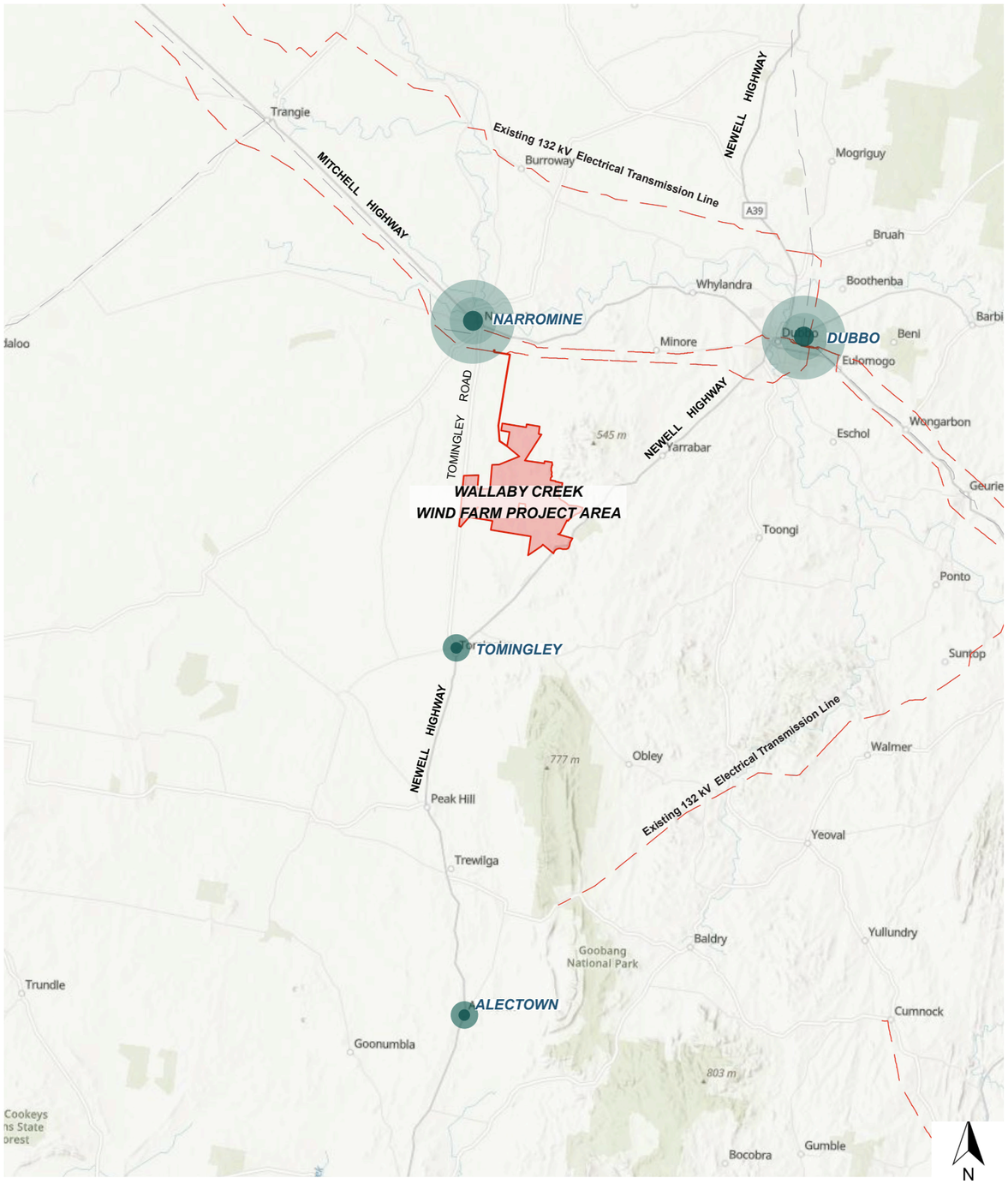


***Figure 2** The Project Area - Regional Context (Map Source: ESRI Maps)*

3.2 The Study Area

Referred to in this report, the Study Area is generally defined as the extents of the Project and surrounding land which requires assessment. The Study Area is generally defined as the land up to 8,000 m from the nearest turbine. Towns and rural localities located in closest proximity are Tomingley, Wyanga, and Narromine as shown in ***Figure 4***.

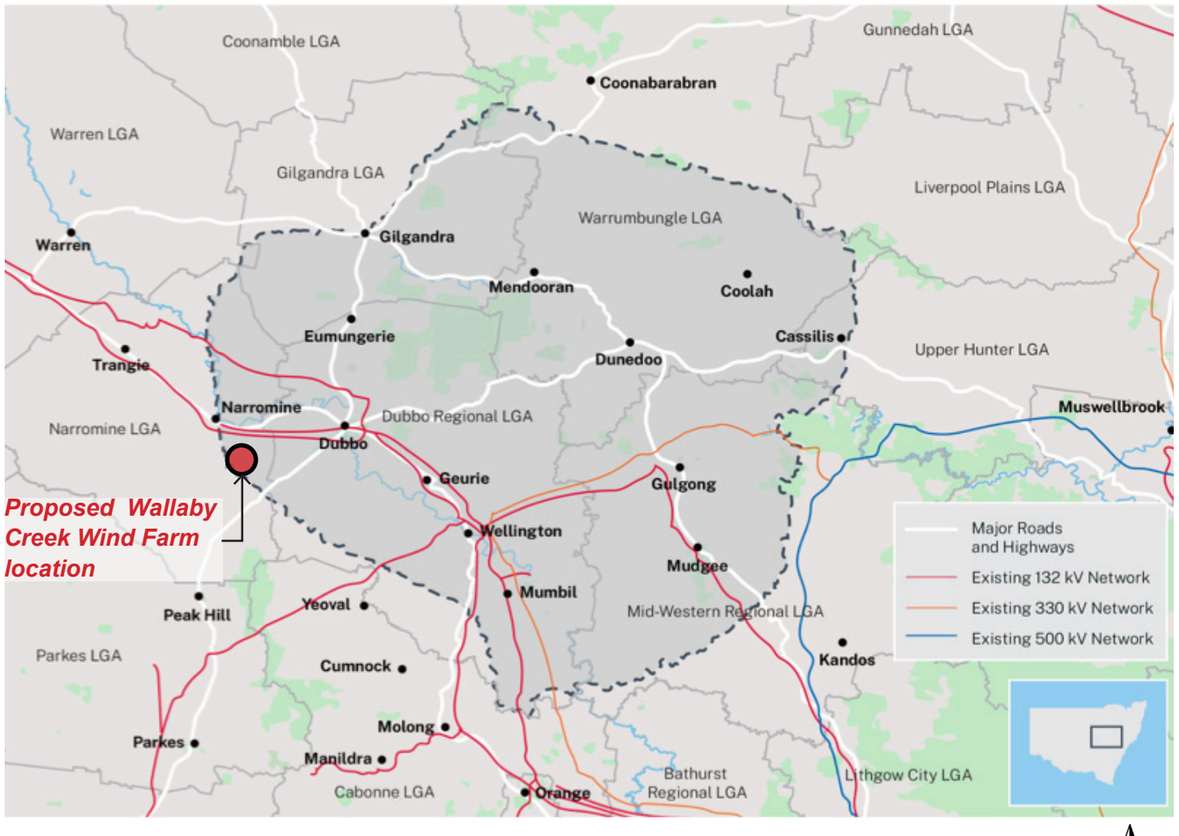


Figure 3 ***The Study Area near the Central West Orana REZ (Source: Energy NSW, 2021)***

3.3 The Project

The Project includes the in-perpetuity approval for construction, operation, maintenance and decommissioning of an up to 250 MW wind farm, BESS, associated infrastructure, ancillary activities and site access. It includes (at least) the following elements:

- **Wind farm:** up to 44 Wind Turbine Generators (WTG) with each having a hub height of up 180 m and tip height of up to 271.5 m;

- **BESS:** with an approximate 100 MW / 200 MWh to support stabilising the supply of electricity to the National Electricity Market (NEM) with dimensions of approximately 170 m^2 and ancillary infrastructure;

- **Electrical reticulation network:**

  - Substation: one on-site substation (with two potential location options being considered) and associated transformers, switchroom, and reactive plant (i.e. SynCon, STATCOM, and filter bank);
  - Transmission line: 132kV overhead transmission line or 132kV underground cable, connecting the Project to the existing Essential Energy Narromine South Switching Station (NSSS);
  - Internal electrical reticulation: internal underground and overhead electrical reticulation; and
  - Switchyard: new feeder at NSSS and other electricity equipment to connect to the existing 132 kV distribution network. Subject to agreement with Essential Energy, this is proposed to be to one of three empty bays. Alternatively, extension of the NSSS may be required;

- **Other infrastructure:** internal access tracks and turning bays connecting Project infrastructure, hardstands, car parking, wind monitoring masts, concrete batching plants, crushing facilities, gravel/ borrow pits, construction laydown areas, construction and operational compounds (including site office and maintenance and storage facilities) and security fencing;

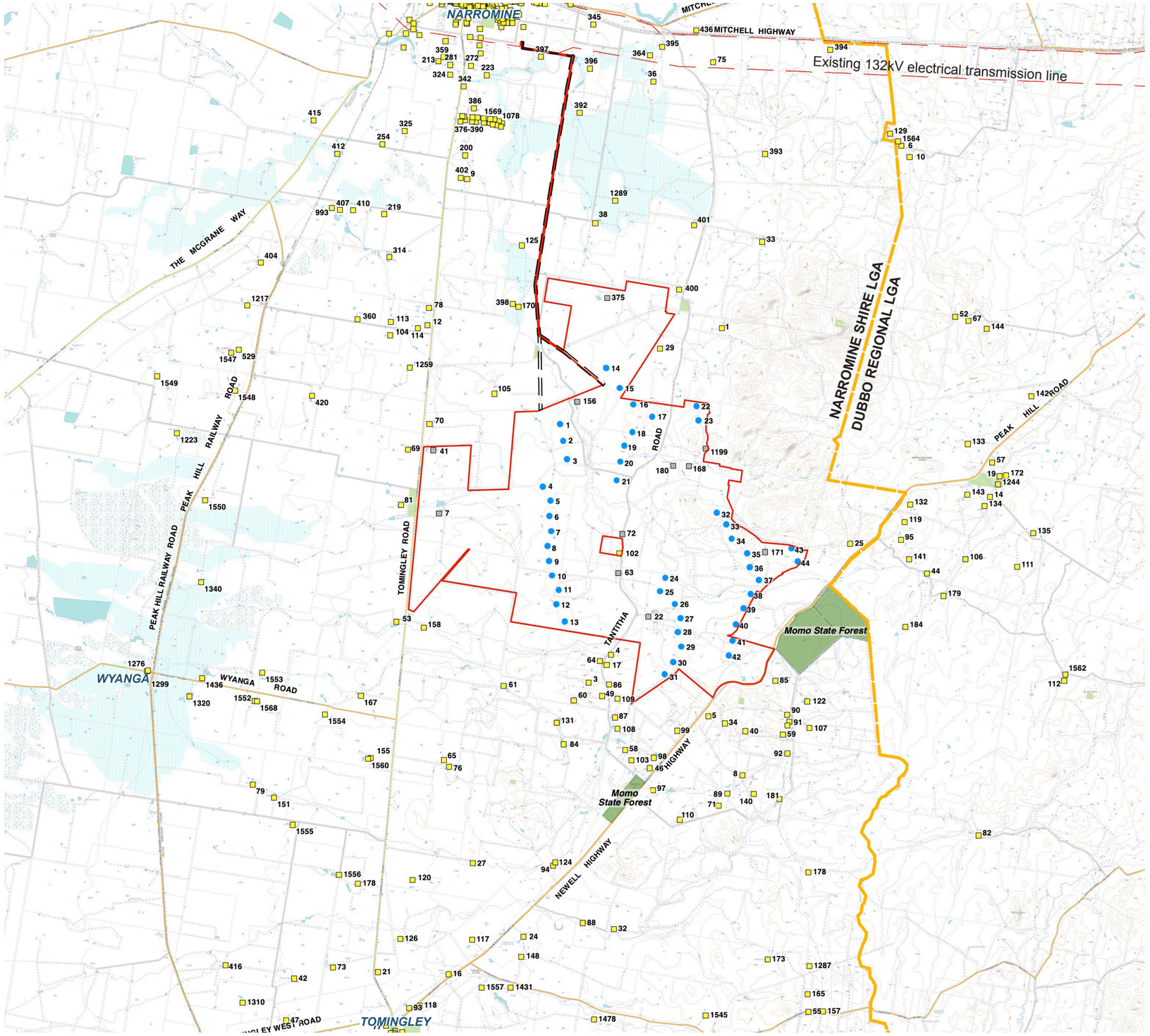
- **Ancillary activities:** sourcing of materials for construction; sourcing of water for construction; subdivision and boundary adjustments relating to lease arrangements, visual screening and associated ancillary works; and

- **Access road use and upgrades:** site access likely via Benson/ Tantitha Road and/or the Newell Highway; and wind farm components from either the Port of Newcastle or Port Kembla.

The preliminary Project layout is shown in ***Figure 4***.

Preliminary Project Layout

Proposed Wallaby Creek Wind Farm



LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-associated dwellings
- Main Road
- Minor Road
- National Park / SCA
- State Forest
- LGA Boundary
- Existing 132kV Electrical transmission line
- Transmission corridor

***Figure 4** Preliminary Project Layout (Map Source: SIX Maps)*

4.0 Community Consultation

4.1 Overview of Community Consultation Process

In accordance with the Visual Bulletin: *community consultation at this early stage may be broad, but should include discussions about the proposed project area, likely corridors of development, or preliminary turbine layouts and must involve people from the visual catchment.*

The purpose of community consultation undertaken in the preparation of the LVIA is to:

- Establish key landscape features
- Defined areas of scenic quality; and
- Identify key public viewpoints valued by that community.

Community engagement will continue through the EIS Phase and provide the community with further opportunities to provide input into the Visual Baseline Study of the LVIA.

4.2 Results of Community Consultation

Understanding of the community perception towards the proposed development is an intrinsic component of the Landscape and Visual Impact Assessment process. A CSIRO study published in 2012: *Exploring community acceptance of rural wind farms in Australia* provides a snapshot of community acceptance levels regarding Australian wind farms from a variety of stakeholder perspectives. It found levels of acceptance among the public are highly subjective and can differ depending on location, local context and place attachment.

Ongoing community consultation has been undertaken by Acciona through face-to-face meetings and a community survey to both Associated and Non-Associated landholders and interest groups between November 2021 and October 2022. The survey was also placed on the Project website.

As of 19th October 2022, a total of 10 completed surveys had been returned.

During consultation with Narromine Shire Council it was noted that the Project would be visible for some residents within the LGA. However, Narromine Shire Council did not express particular concerns in relation to visual amenity.

4.2.1 Landscape Features and Values

In addition to a review of existing landscape maps and detailed field work undertaken by Moir LA (see Section 5.0) the community consultation questionnaire asked respondents to identify key landscape features of importance to them. There were ten (10) responses to the question: "*What are the key landscape features of importance to you in the area?*"

Key landscape features identified by the community include:

- Picturesque hills
- Gold mining and exploration
- Big rocks
- Natural landscape
- Herveys Range

During consultation, community members identified 'lifestyle' is valued aspect of the landscape.

4.2.2 Key Public Viewpoints

Key viewpoints identified by the community for further assessment include:

- Farming land
- Gold Mining near Tomingley

Where possible, these features and viewpoints have been mapped in Section 5.0 of this PVIA. Additional consultation and further detailed assessment of these features and viewpoints will be undertaken during the EIS phase.

5.0 Existing Landscape Character

5.1 Overview of Bioregion

The Project Area sits within the NSW South Western Slopes Bioregion and is also located close proximity to the Darling Riverine Plains Bioregion (see ***Figure 5***). It is located in close proximity of the Herveys and Curumbenya Ranges, it also consists of isolated ranges and inland slopes.

Topography is generally undulating with isolated peaks in wide valleys. Soils are generally red-brown earths on slopes and grey clays on alluvium (NPWS, 2003). Hilly terrains towards the north and the east are dominated by open woodlands of Grey Box (*Eucalyptus microcarpa*) and White Cypress Pine (*Callitris glaucophylla*). Vegetation communities around valley flats and stream / river banks includes rough-barked apple (*Angophora floribunda*) and river oaks (*Casuarina cunninghammia*). ***Images 1 - 3*** illustrate the typical character of the landscape within the Project.



Image 1 *Typical character of Project Area*



Image 2 *Typical vegetation of the northern and eastern woodlands*



Image 3 *Views of flat valley*

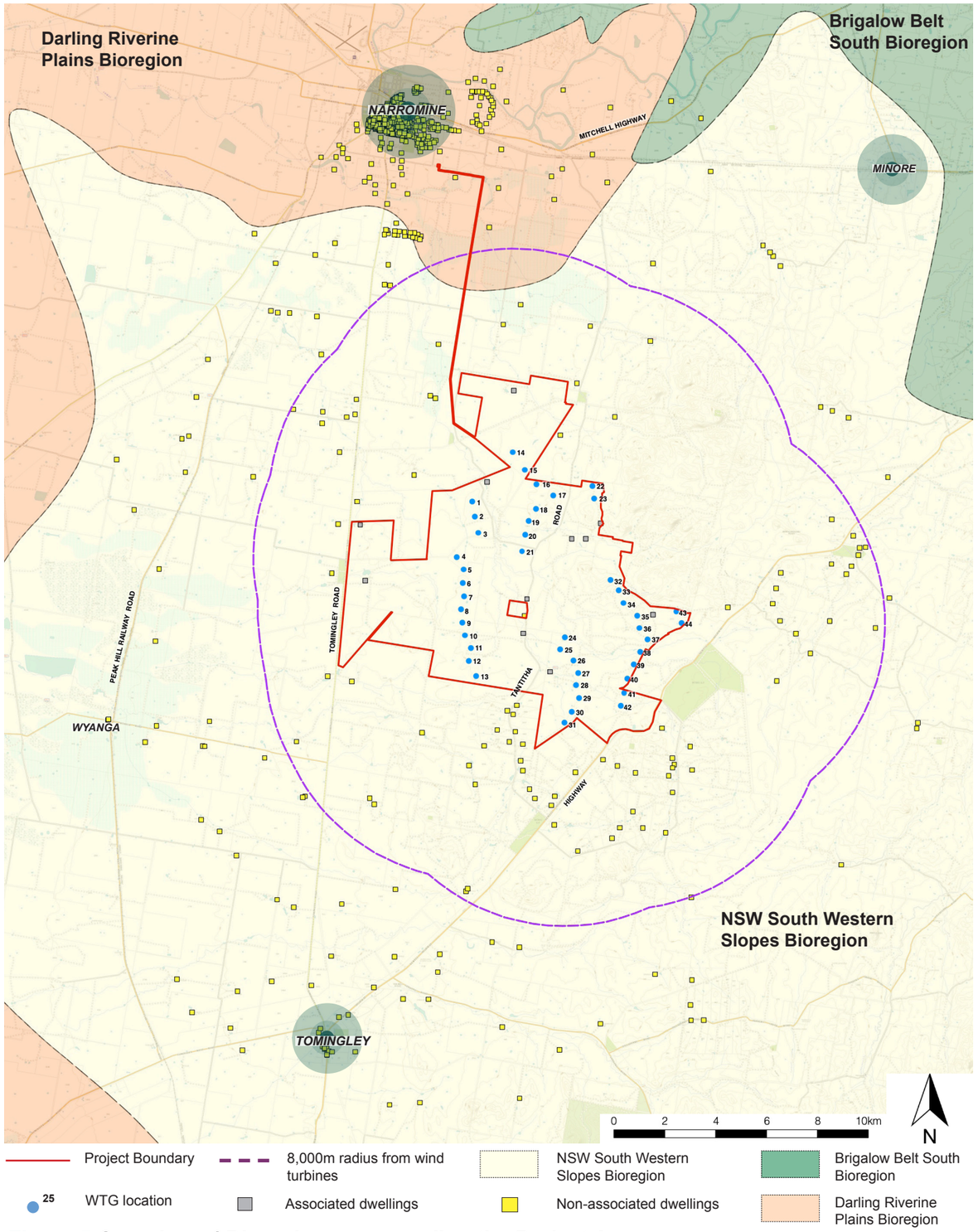


Figure 5 ***Overview of Bioregions surrounding the Project Area (Sources: NPWS, Environment NSW 2016; Map Source: SIX Maps)***

5.2 Land Use Zoning

The Project is located within the extents of Narromine Shire Council. Dubbo Regional Council's boundary can be found within and just outside the 8 km radius from the wind turbines, to the north of the Project. The following gives an overview of the main land use zoning within the Study Area (see ***Figure 6***):

RU1 - Primary Production

The Project Area and surrounding land is predominantly zoned *RU1 - Primary Production*. The Narromine Shire LEP states the following objectives of the RU1 zoning relevant to the visual impact assessment:

- *To minimise conflict between land uses that are compatible with the character of the zone.*
- *To encourage diversity in primary industry enterprises and systems appropriate for the area and minimise fragmentation and alienation of land uses.*

C1 - National Parks and Nature Reserves

Momo State Forest is categorised as *C1- National Parks and Nature Reserves* and is located southeast of the Project Area. It is spread over fragmented land parcels along Newell Highway.

According to the Forestry Corporation of NSW, the area is classified as zone 6 - softwood plantations. Activities permitted within the region are road construction, gravel/rock quarrying, prescribed burning, recreation, domestic livestock grazing, site preparation and infrastructure development (State Forests of NSW, 2013).

C3 - Environmental Management

Vegetated land parcels to the east and south east of the Project are categorised as *C3 - Environmental Management*. Narromine LEP states that the objective of this land use designation is to *protect, manage and restore areas of special ecological, scientific and aesthetic values*, and *provide for a limited range of development that does not have adverse effects on these values* (NSW Government, 2011).

RU5 - Village

RU5 - Village zoning designation is applicable within the extents of Tomingley which is located 15km south of the Project. The zoning designation provides for a range of land uses, services and facilities associated with a rural village.

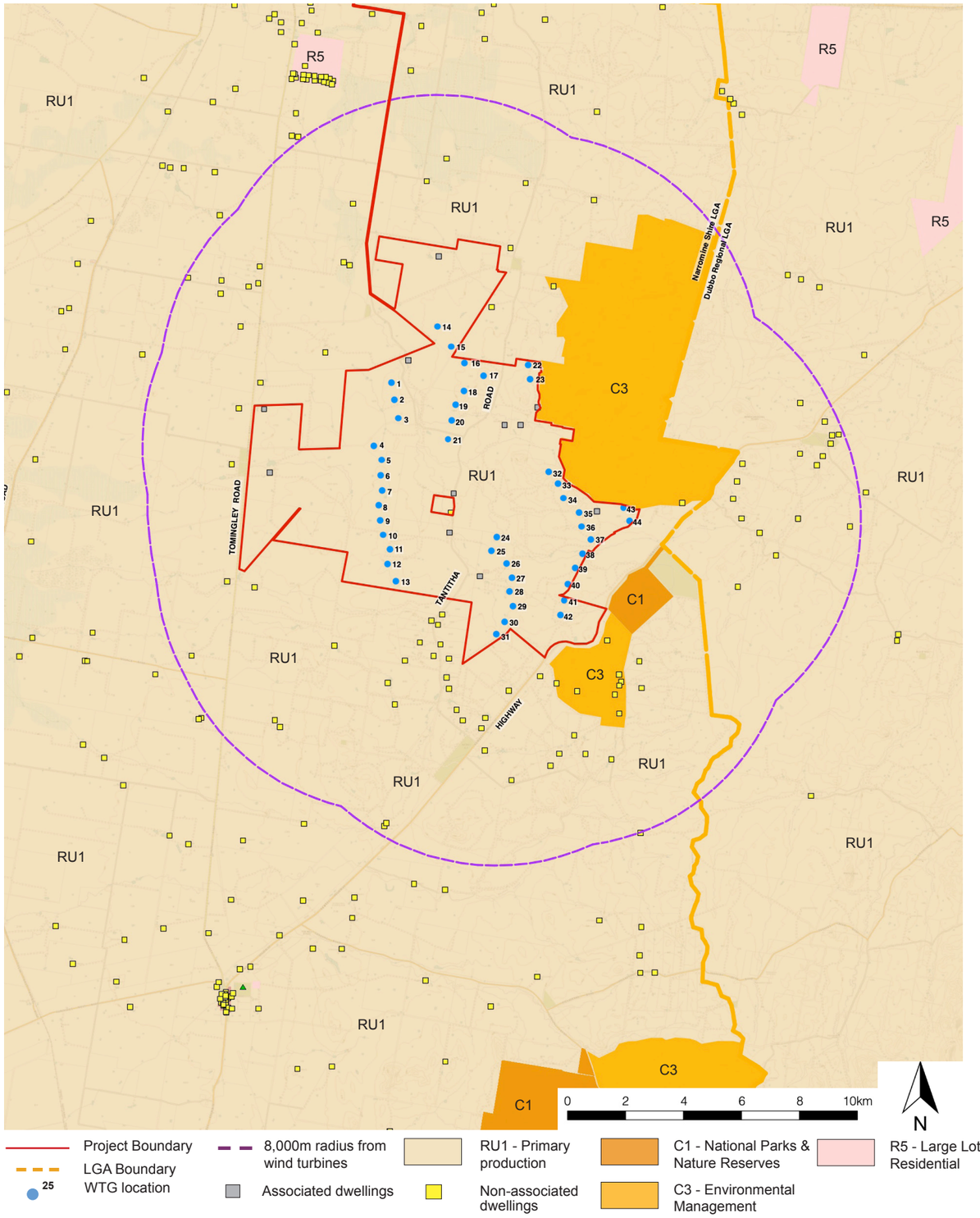


***Figure 6** Land Use Zoning (Sources: Narromine Shire LEP; Map Source: SIX Maps)*

R5 - Large Lot Residential

Lots zoned as *R5 - Large lot residential* can be found outside the 8 km radius from the wind turbines, to the north of the Project near the Narromine township. R5 zoned land is also located to north east of the Project associated with Minore and Yarrabah. Although these lots are located outside of the 8 km radius, the Visual Bulletin states that it is critical to assess visual impact on dwellings or lots zoned under residential categories. Further assessment of these areas will be undertaken in the EIS Phase (NSW Planning and Environment, 2016).

5.3 Land Use

Land Use within and around the Project is characterised by agricultural production activities. Northern parts of the Project are used for dryland cropping with intermittent pastures for livestock (see ***Figure 7***). Most of these are native pastures. Southern/south eastern parts of the Project are categorised as modified grazing pastures due to the scattered settlement clusters in this area. Areas zoned as C3 - Environmental Management are utilised as native grazing pastures with minimal disturbance, as laid out in the Narromine LEP's zone objectives.

Momo State Forest is categorised under production forestry and plantation forestry land uses. Land parcels categorised as minimal use areas are located to the south and these correspond with Goobang National Park. Certain land parcels located west of the Project are utilised for irrigated cropping. RU1 - Primary production areas are, therefore, used for dryland cropping, irrigated cropping and grazing (native and modified) pastures.

Significant towns and settlements in the immediate surrounds include Narromine and Tomingley. Minore, which is located northeast of the Project, is a mining and industrial area located halfway between Narromine and Dubbo. Major highways and roads that connect these towns include Newell Highway, Mitchell Highway, Tomingley Road and Peak Hill Railway Road. A railway line runs along Peak Hill Railway Road and it serves as an important communication corridor for goods and services.

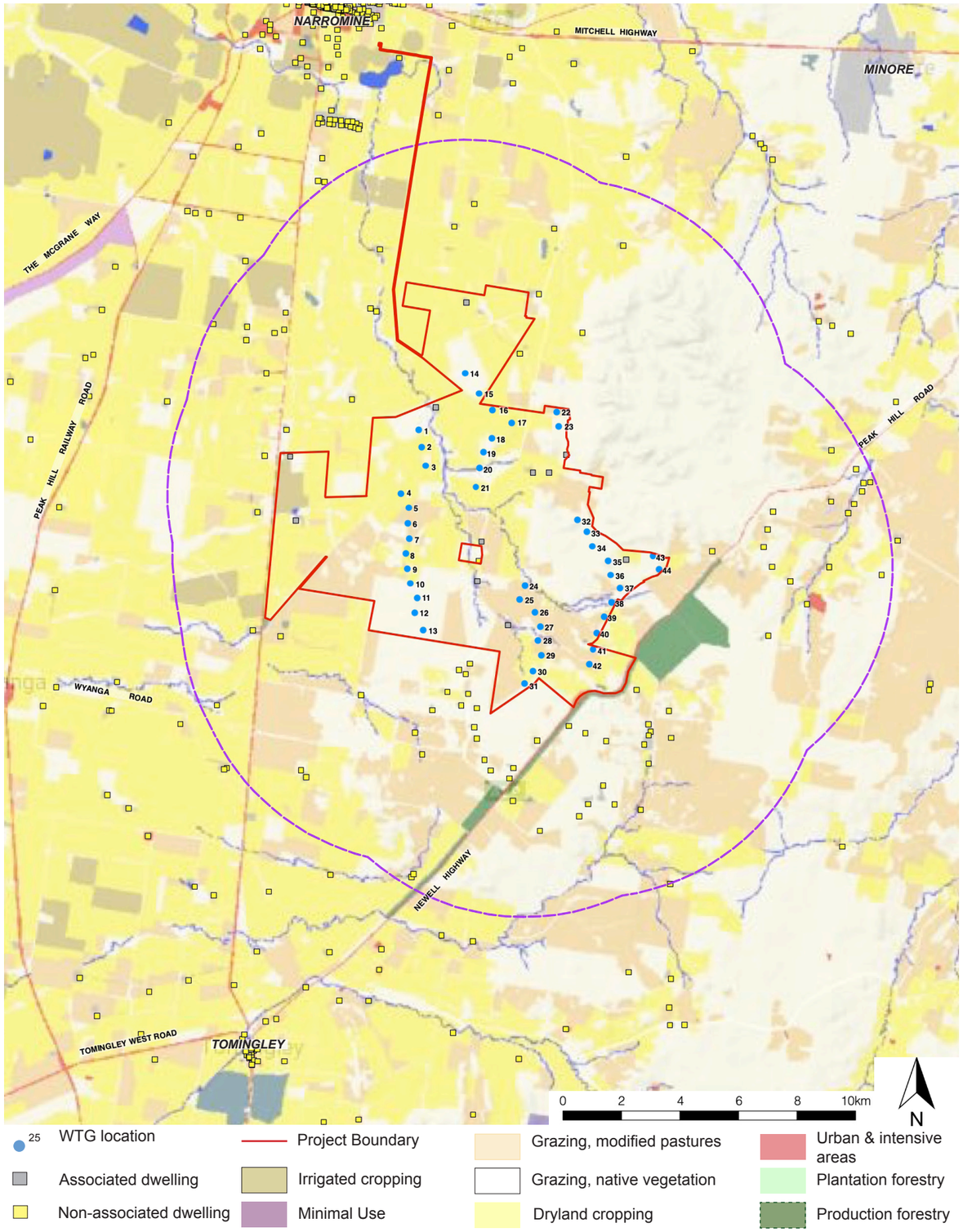


***Figure 7** Land uses within and around the Project Area (Source: Environment NSW, 2021)*

5.4 Key Landscape Features & Viewpoints

The Visual Bulletin states: *proponents must identify key landscape features, dwelling locations and key public viewpoints*. The following section provides an overview of the key features identified within and around the Study Area. Refer to ***Figure 8***.

Rivers and Creeks

The Macquarie River runs generally north-west of the Project Area. It is part of the Macquarie-Barwon catchment and rises in the Great Dividing Range and flows through foothills and slopes past Wellington, Dubbo and across alluvial plains past Narromine. The Macquarie River is an important source of water for nearby cities and towns and has been prone to flooding in the past. A number of small creeks and rivers close to the Project Area, flow into Macquarie River including Wambangalang Creek, Whylandra Creek, and Brummagen Creek.

Bogan River is another important river located to the south of the Project Area and runs in a generally north-north-westerly direction past Peak Hill. Bogan River is a perennial river that is part of the Macquarie-Barwon catchment.

Landscapes in proximity of all these rivers are extensively used to rear livestock and other agricultural activities. A number of dams also provide irrigation for crops and livestock. The catchments also support tourism, mining and viticulture in the region. A large part of the Project Area landscape surrounds contain alluvial plains and areas are often water-logged for long periods during wet cycles.

Nature Reserves

Sappa Bulga Nature Reserve is a small reserve located northeast of the Project. Sappa Bulga Nature Reserve is one of the few examples of undisturbed patch of cypress pine woodlands that has not succumbed to clearing in a largely cleared agricultural landscape. The surrounding land is part of the heavily cleared wheat-sheep belt region of NSW (OEH, 2014). The nature reserve is characterised by the remnant native vegetation which is a mix of forest species including Grey Box and Black Cypress Pine woodland vegetation communities. The Reserve aids in providing a link between vegetation remnants to provide habitat for a variety of threatened species such as the barking owl, brown treecreeper and squirrel glider. Surrounding agricultural activity continues to pressurize the Nature Reserve's survival.

Goobang National Park is a significant reserve located to the south of the Project and protects one of the largest areas of remnant natural vegetation in the central west slopes of NSW. The park contains a diverse range of plant and animal life. The National Park protects habitat for a variety of threatened species including carpet python, brush-tailed rock wallaby, grey-headed flying-fox along with the threatened plant species, Tylophora linearis and Eriostemon ericifolius.

State Forests

A number of small state forests are located in the surrounds of the Project Area including Momo State Forest, Strahorn State Forest and Cowal State Forest. The areas are classified as 'Production Forestry' in the 2017 Land Use Map.

Ridge lines, high points and landform

The landscape is characterised by the generally flat prime production land contrasted by the undulating slopes the east of the Project Area. Undulating and heavily vegetated hillsides with some steep slopes and escarpments also feature to the south associated with Goobang National Park. The landscape is studded with a number of hills including Turtle Hill and Mundeandejong Peaks that do not necessarily have recreational associations. Community consultation identified Herveys Range (located east of Tomingley) as a key landscape feature (refer ***Figure 8***). The community also identifies the generally pictureque hills and natural landscape of the area as key landscape features.

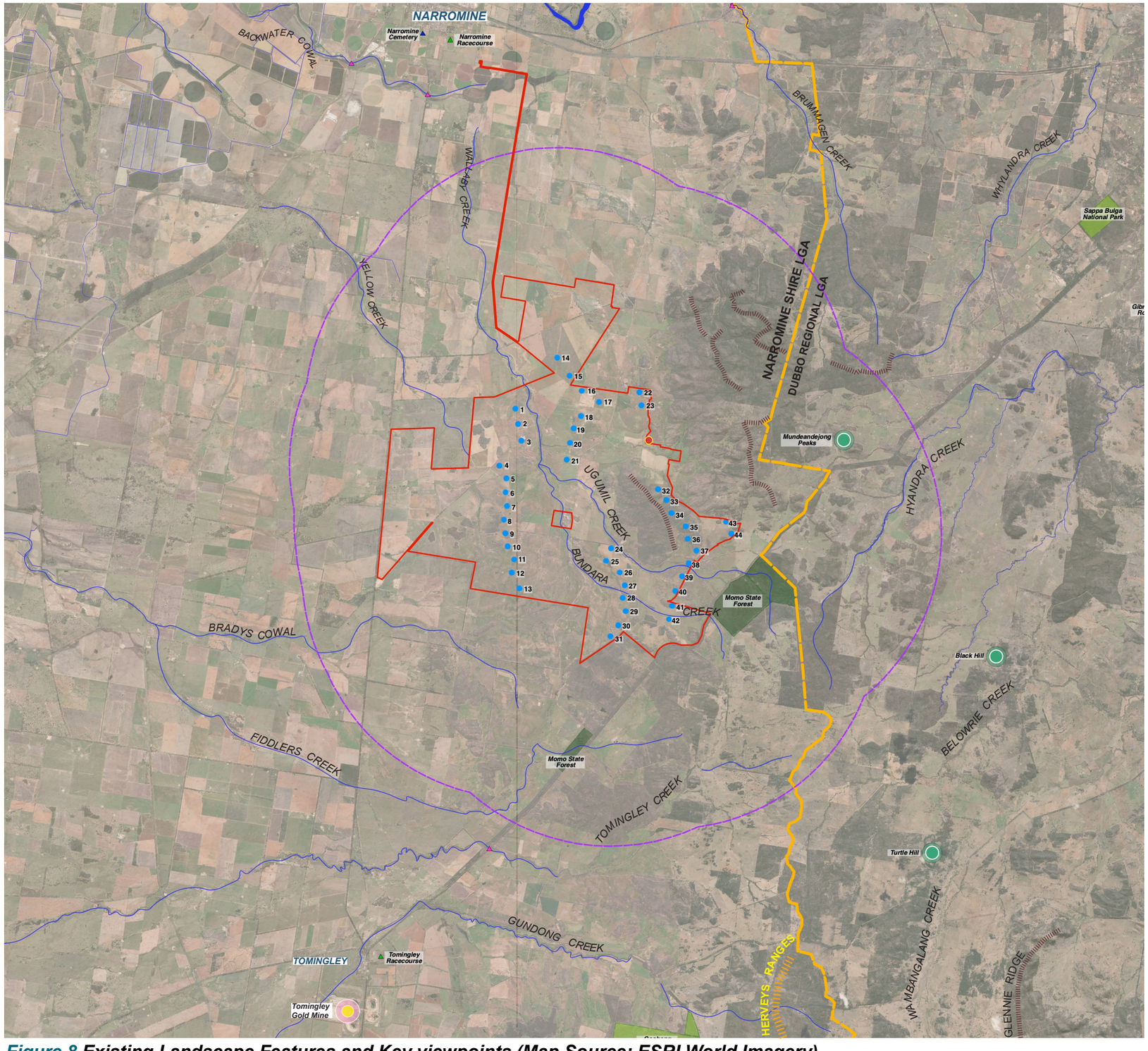
Scenic Lookouts, Walking Tracks and Points of Interest

Recreational associations occur mostly in the towns that are located along the rivers. Narromine and Dubbo offer rest spots along the Macquarie River which are very scenic. No campgrounds were identified within the 8 km radius from the Project Area, however, Whylandra Crossing Campground and Wanda Wandong Campground are located approximately 25 km away from the Project.

Narromine also presents other opportunities for recreation with its oval, racecourse, golf course and other small scale open spaces. Tomingley contains recreational opportunities on a smaller scale, with its racecourse and two small scale parks/rest stops. No significant walking tracks, trails or campgrounds were identified in the area. Community consultation identified Tomingley Gold Mine as a point of interest.

Local Heritage

Based on the search of online heritage databases that was undertaken in June 2022, Tantitha Homestead (Narromine LEP) is identified as a local heritage item and is owned by an Associated Project landowner. The homestead is located on the north eastern side of the Project (see ***Figure 8***) and can be accessed via Tantitha Road. Any relevant requirements for visual impact assessment will be addressed during the EIS phase.



Landscape Features & Key Viewpoints

Proposed Wallaby Creek Wind Farm

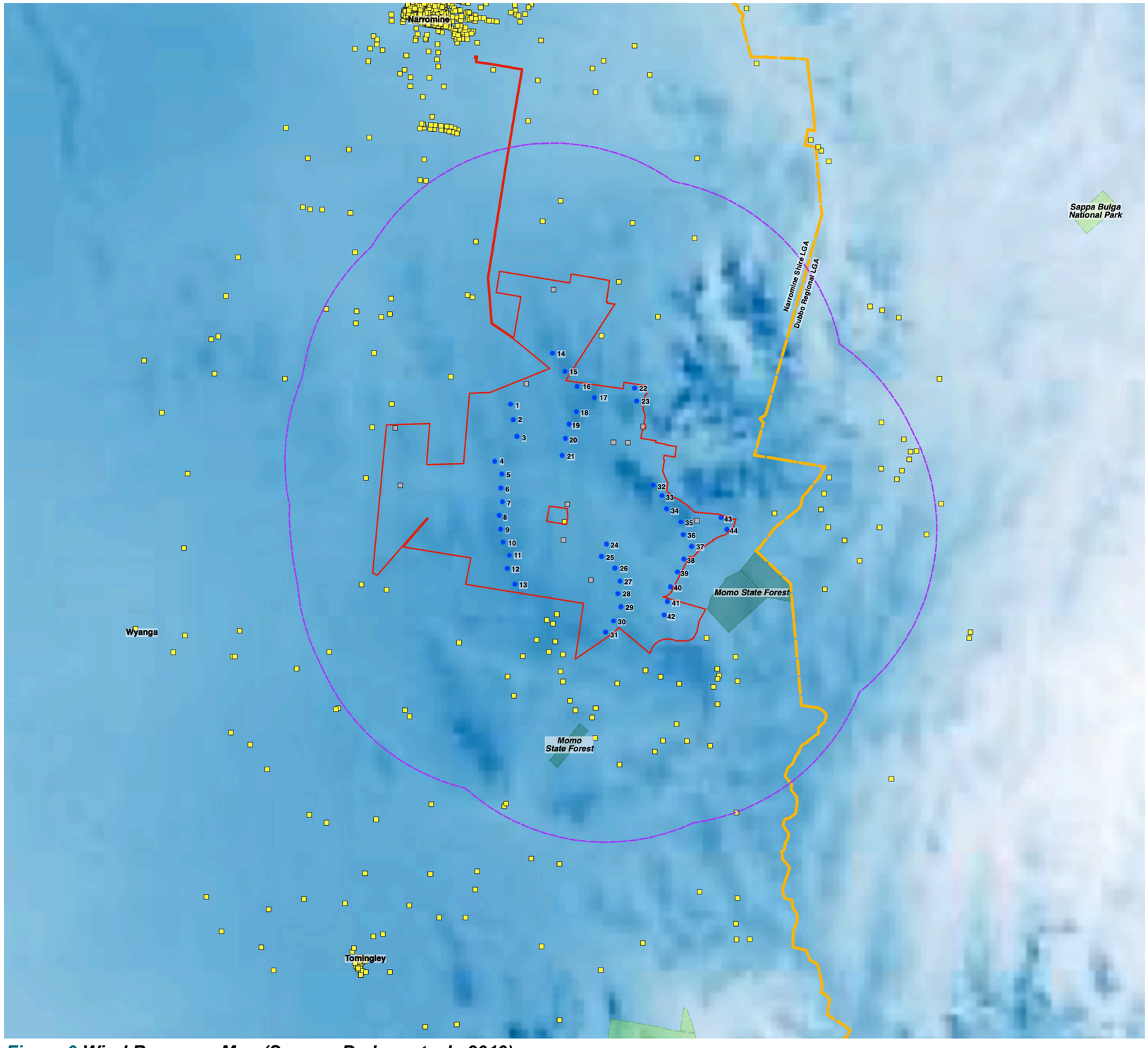
LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-associated dwellings
- LGA boundary
- 8,000 m from turbines
- National Park / SCA
- State Forest
- Indicative ridgelines
- Highpoints / peaks
- Swamps / lagoons
- Rivers & creeks
- Parks / lookouts / areas of natural significance
- Cemetery
- Bridge
- Tantitha Homestead location (Associated landowner)
- Key landscape features identified by the community
- Key public viewpoints identified by the community

N

0 2 4 6 8 10km

Figure 8 ***Existing Landscape Features and Key viewpoints (Map Source: ESRI World Imagery)***



Wind Resource Map

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Non-associated Dwellings
- LGA boundary
- 8,000 m from turbines
- National Park / SCA
- State Forest

Relative Ranges of Average Wind strength in metres per second at the height of 150 m

- 5.0676
- 5.4618
- 5.8561
- 6.2503
- 6.6446
- 7.0388
- 7.4331
- 7.7970
- 8.1003

N

0 2 4 6 8 10km

Figure 9 ***Wind Resource Map (Source: Badger et. al., 2019)***

5.5 Preliminary Landscape Character Units and Scenic Quality Rating

The Visual Bulletin states: *the baseline study inputs, including key landscape features and sensitive land use designations, should lead to the identification of Scenic Quality Classes. Scenic quality refers to the relative scenic or aesthetic value of the landscape based on the relative presence or absence of key landscape features known to be associated with community perceptions of high, moderate or low scenic quality. It is both a subjective and complex process undertaken by experts in visual impact assessment, taking into account community values identified in early community consultation*.

In accordance with the Visual Bulletin, a Scenic Quality 'frame of reference' has been formulated by Moir LA (***Table 2***) utilising *An approach to landscape sensitivity assessment* by Natural England. The preliminary frame of reference developed for Wallaby Creek Wind Farm is in keeping with the example frame of reference provided in the Visual Bulletin.

Each category of the 'frame of reference' has been quantified for each Landscape Character Unit to determine a Scenic Quality Rating of **low**, **moderate** or **high.** The resulting *Scenic Quality Rating* is derived from the Scenic frame of reference and results from on-going Community Consultation. The derived rating will be developed further during the EIS phase to assist in defining the Visual Influence Zones in accordance with the Visual Bulletin.

	SCENIC QUALITY RATING	
Description	*LOW*	*MODERATE* *HIGH*
Landform	- Flat Topography - Absence of Landscape Features - Open, broad extents of spaces	- Diversity in Topographical Range - Unique Landscape Features - Intimate spaces
Waterforms	- Absence of Water	- Presence of Water - Visually prominent lakes, reservoirs, rivers streams and swamps.
Vegetation	- Absence of vegetation - Lack of diversity - Land cleared of endemic vegetation - Low level of connection between vegetation and landscape / topography	- Abundant vegetation - High diversity - High retention of endemic vegetation. - High level of connectivity between natural landscape and landforms.
Human Influence	- High population. - High density in settlement - High presence of Infrastructure - High levels of landscape modification	- Low / dispersed population - No settlement - Absence of infrastructure - Landscape in natural state
Activity	- High levels of traffic movement - Presence of freight and passenger transport networks - Presence of production or industry.	- Low traffic movement - Absence of freight and passenger transport - Absence of production or industry
Rarity	- Typical landscape within a local and regional context	- Unique combination of landscape features in a local and regional context
Relationship with Adjoining Landscapes	- Low visible connection with adjoining landscapes - Low variability between adjoining landscapes. - Landscape features do not contribute to amenity from adjoining landscapes	- High visibility with adjoining landscapes. - High variability and contrast with adjoining landscapes - Landscape features contribute significantly to amenity of adjoining landscapes

Table 2 Scenic Quality Class Rating Frame of Reference

5.5.1 Preliminary Landscape Character Units

A number of Landscape Character typologies exist within the Study Area (refer to ***Figure 10***). As part of the Preliminary Landscape Character Assessment, a total of six (6) key landscape typologies referred to hereafter as Landscape Character Units have been identified.

Table 3 provides an overview of the LCUs and preliminary Scenic Quality Ratings applied. The LCUs and Scenic Quality Ratings will be refined in the EIS Phase of the Project to reflect input provided by the community during ongoing consultation.

Table 4 provides a brief overview of the potential visibility of the Project from each of the LCUs .

Landscape Character Units

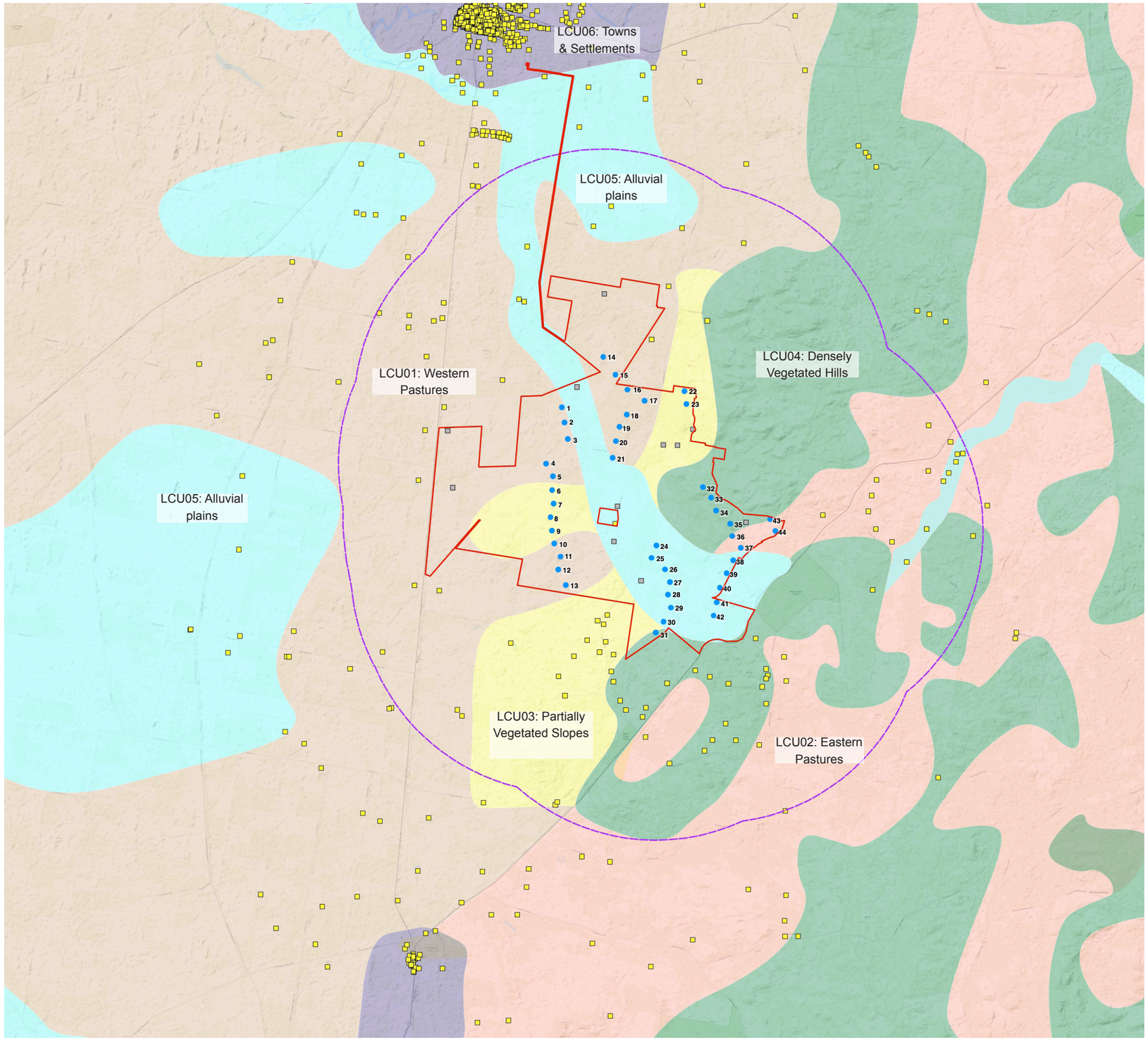
LCU:	Name:	General Character:	Preliminary Scenic Quality Rating:
LCU01	**Western pastures**	*Includes cleared flat to gently sloping lands and dispersed rural dwellings to the North-west of Tomingley.*	**Low**
LCU02	**Eastern pastures**	*Predominantly gently undulating lands with scattered vegetation located to the east of the Newell Highway.*	**Low**
LCU03	**Partially Vegetated Slopes**	*Gently sloped land with partial vegetation located to the west of the Newell Highway.*	**Moderate**
LCU04	**Densely Vegetated Hills**	*Undulating hills with dense vegetation and very minor agricultural activity.*	**Moderate to High**
LCU05	**Alluvial Plains**	*Riparian corridors along rivers, creeks and associated swamps which contribute towards the fertile soils in the region.*	**Low - Moderate**
LCU06	**Towns and Settlements**	*Low density rural towns that are driven by agricultural activity and gold mine activity. Includes Tomingley and Narromine.*	**Low**

Table 3 Overview of Preliminary Landscape Character Units

Landscape Character Units

LCU:	Name:	Preliminary Visual Impact Assessment
LCU01	**Western Pastures**	The Project is located within the Western Pastures LCU and views are mostly open. Views towards the Project are likely to be dominated by the turbines, however existing roadside vegetation and planting surrounding houses is likely to reduce visibility in those areas.
LCU02	**Eastern Pastures**	Views to the Project from the Eastern Pastures LCU will be limited due to existing roadside vegetation and dense pockets of vegetation scattered through the area, surrounding dwellings and along the highway roadside. Views in areas where there is undulating topography are also likely to be contained.
LCU03	**Partially Vegetated Hills**	The Project is located within the Partially Vegetated Hills LCU. Existing roadside vegetation and pockets of remnant vegetation are like to reduce visibility. Views in areas where there are topographical changes are also likely to be contained.
LCU04	**Densely Vegetated Hills**	The Project is partially located within the Densely Vegetated Hills LCU and will be visible from the land within the LCU. Due to the topography and dense vegetation typical of the LCU, views to the Project are likely to be limited.
LCU05	**Alluvial Plains**	Views of the Project are likely to be available along certain stretches of Rivers and Creeks LCU that run closest to the Project Area. Land in this area has residential dwellings that may be impacted. Patches of riparian vegetation typical of the LCU may help screens some views.
LCU06	**Towns and Settlements**	Views of the Project are likely to be available to Tomingley and Narromine due to their relatively flat terrain and cleared lands surrounding the townships. Views from Narromine are likely to be contained by built form and roadside vegetation. Views from Tomingley are likely to be screened by scattered vegetation surrounding the town.

Table 4 Overview of Preliminary Visual Impact Assessment of LCUs



Preliminary Landscape Character Units

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-Associated dwellings
- Main Road
- Minor Road
- 8,000 m from turbines
- LCU01: Western pastures
- LCU02: Eastern pastures
- LCU03: Partially vegetated slopes
- LCU04: Densely vegetated hills
- LCU05: Alluvial plains
- LCU06: Towns and settlements

N

***Figure 10** Landscape Character Units (Map Source: Six Maps)*

LCU01: Western Pastures

The Western pastures LCU has been defined by generally flat to gently sloping lands located to the north-west of Tomingley. The land has been extensively cleared and is largely used for dryland cropping. Typical character includes modified pastures with very little vegetation.

Scenic quality rating: Low

See Images 4 and 5.



Image 4

Pastures along Peak Hill Railway Road characterised low density rural settlements and limited vegetation.



Image 5

Typically cleared grazing lands with open and expansive views.

LCU02: Eastern Pastures

The Eastern pastures LCU is defined by gently undulating grazing lands and low density rural residences located to the east of Narromine and Tomingley. It is characterised by cleared, modified lands used for grazing. Occasional dense patches of woodlands are visible and this LCU intercepts with vegetated hills and ridges LCU. Dense bands of roadside vegetation can also be observed along the highway.

Scenic quality rating: Low

See Images 6 and 7.



Image 6

Sloping grazing land along Newell Highway with occasional patches of remnant trees.



Image 7

Open pastures adjacent to dense vegetation.

LCU03: Partially Vegetated Slopes

The Partially vegetated slopes LCU has been defined by gently undulating lands that are located to the west of the Newell Highway. The land is generally utilised for grazing and cropping on improved and unimproved pastures. Scattered vegetation is visible on the slopes and land has been cleared in certain areas to accommodate agricultural activity.

Scenic quality rating: Moderate

See Images 8 and 9.



Image 8

Partially cleared vegetation to support agricultural activity typical of the LCU.



Image 9

Remnant vegetation alongside cleared lands typical of the LCU.

LCU04: Densely Vegetated Hills

This LCU is defined by dense native woodlands and undulating hillsides which exhibit species including black cypress pine and red gum. The hills have also been cleared in certain areas to accommodate agricultural activity that is predominant in the region. Slopes with dense vegetation are subjected to very minor agricultural activity.

Scenic quality rating: Moderate to High

See Images 10 and 11.



Image 10

Vegetated undulating hills typical of the LCU.



Image 11

Densely vegetated hills of Momo State Forest.

LCU05: Alluvial Plains

The Alluvial plains LCU is defined by the riparian corridors and fertile soils that run along a number of creeks in the area including Wallaby Creek, Tomingley Creek and Backwater Cowal. Land is generally cleared, flat and used for grazing or cropping with the exception of riparian vegetation associations along the rivers. The rivers hold high relevance and signify healthy, fertile soils which suit agricultural activity.

Scenic quality rating: Low - Moderate

See Images 12 and 13.



Image 12

Creek and associated riparian vegetation.



Image 13

Typical creek and adjacent swamp vegetation.

LCU06: Towns and Settlements

The LCU comprises of small rural towns including Tomingley and Narromine. The settlements are characterised by a small number of rural dwellings. They were established due to gold mining prospects.

The towns thrive on agricultural activity and the character of the landscape is highly modified in these small scale rural settlements.

Scenic quality rating: Low

See Images 14 and 15.



Image 14

Scattered & low density settlements on the outskirts of Narromine.



Image 15

Typical character of low density settlement of Tomingley located along the Newell Highway.

6.0 Preliminary Assessment Tools

6.1 Overview of Preliminary Assessment Tools

To assist in defining the visual catchment, preliminary assessment tools have been developed in the Visual Bulletin. In accordance with the Visual Bulletin, the purpose of the preliminary assessment tools are: *to provide an early indication of where turbines require careful consideration because of potential visual impacts. The tools apply to both dwellings and key public viewpoints in the study area. The tools provide an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused – including discussions for landholder agreements.*

The preliminary assessment tools involve analysis of two key visual parameters:

1. Visual Magnitude (***Refer to Section 6.2***)
2. Multiple Wind Turbine Tool (***Refer to Section 6.4***)

Once defined, the Visual Bulletin states: *Further assessment and justification for placement of turbines located in these sensitive areas in the EIS will be required, along with a description of mitigation and management measures being employed to reduce impacts. This assessment may identify that factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project.*

Dwellings identified through the application of the Preliminary Assessment tools have been assessed in detail in ***Appendix A*** of this PVIA.

6.2 Preliminary Assessment Tool 1: Visual Magnitude

The Visual Magnitude Threshold is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints as shown in ***Figure 11.***

In accordance with the Visual Bulletin: *proposed turbines below the black line must be identified along with the dwellings or key public viewpoints as part of the request for SEARs.* The proposed wind turbines are based on a worst case scenario with a tip height of *271.5 metres*. The 'black line' intersects at a distance of *3,600 metres* and the 'blue line' intersects at *5,300 metres*.

For the purpose of the Preliminary Assessment, the Visual Magnitude thresholds are based on a 2D assessment of the Project alone. Further assessment indicates factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project from residences.

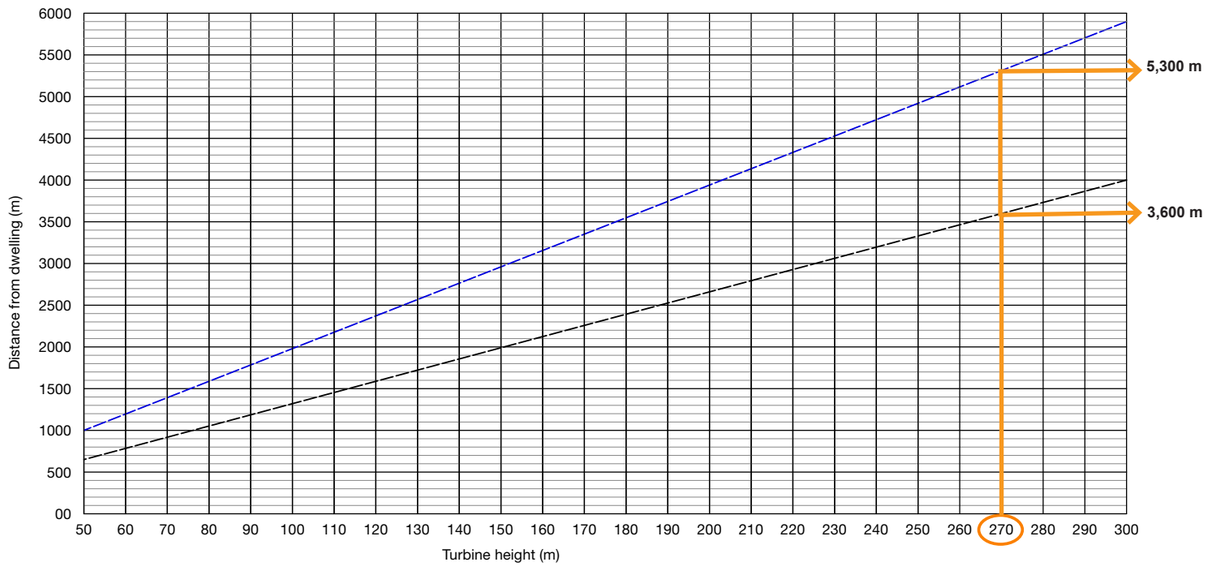
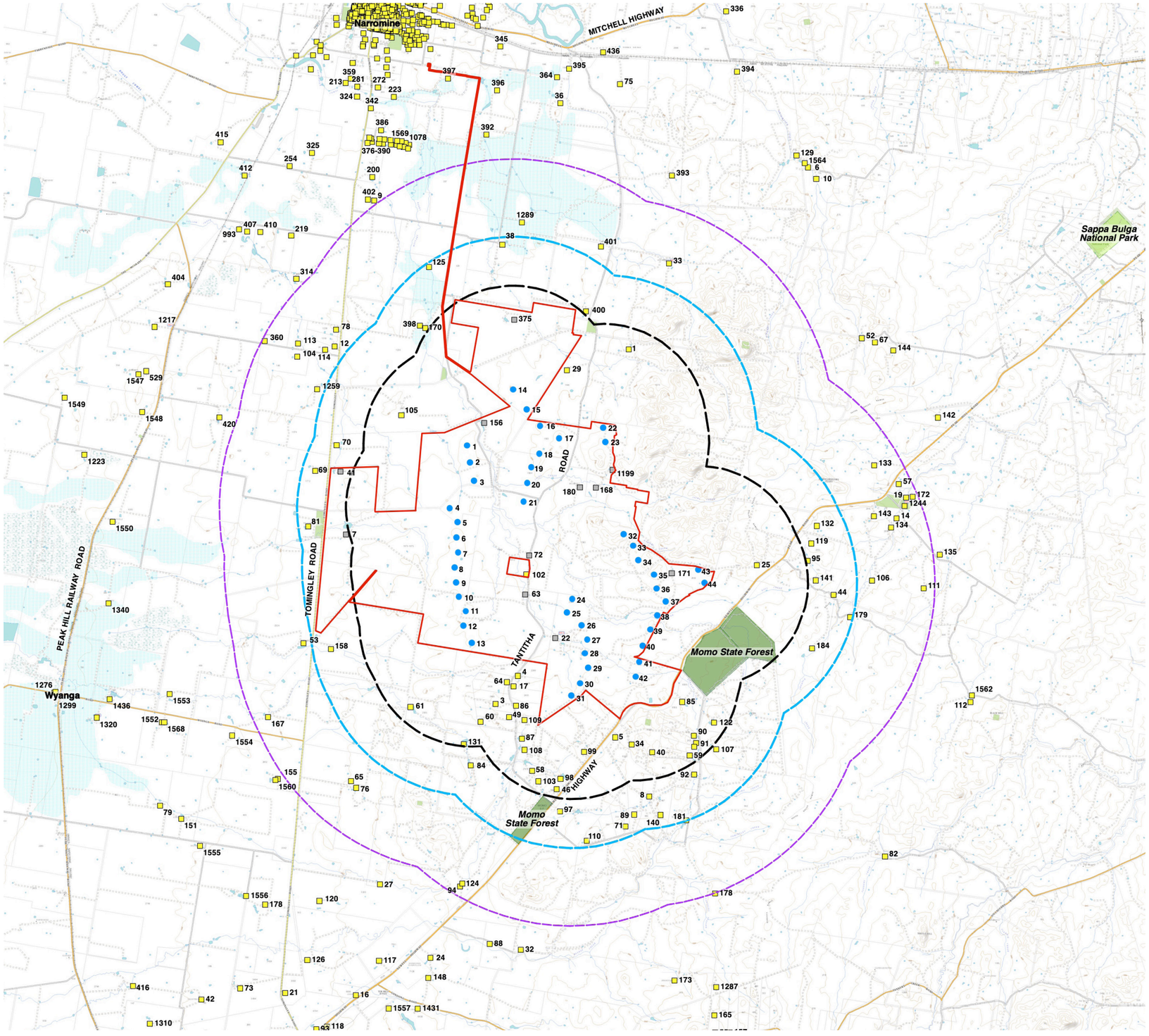


Figure 11 *Visual Magnitude thresholds for Wallaby Creek Project Layout*

(Source: Adapted from Visual Assessment Bulletin, 2016)



Visual Magnitude

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-Associated dwellings
- Main Road
- Minor Road
- 3,600 m from turbines
- 5,300 m from turbines
- 8,000 m from turbines
- National Parks / Nature Reserves
- State Forests

Note:

Preliminary Assessment Tool 1: Visual Magnitude is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

N

0 2 4 6 8 10km

***Figure 12** Preliminary Assessment Tool 1: Visual Magnitude - Wallaby Creek Wind Farm (Map Source: Six Maps)*

6.3 Results of Preliminary Assessment Tool 1: Visual Magnitude

Application of the Preliminary Assessment Tools to the Wallaby Creek Wind Farm Project identified dwellings which require further assessment in accordance with the Visual Bulletin. Non-Associated dwellings identified within 3,600 metres (black line of visual magnitude) and between 3,600- 5,300 metres (blue line of visual magnitude) of the nearest proposed turbine are shown on ***Figure 12*****.**

- **30 Non-Associated dwellings** have been identified within 3,600 metres of a proposed wind turbine location (within the black line of visual magnitude).
- **25 Non-Associated dwellings** are located within 3,600 - 5,300 metres of a proposed wind turbine (within the blue line of visual magnitude).
- **26 Non-Associated dwellings** are located within 5,300 - 8,000 metres of a proposed wind turbine (beyond blue line of visual magnitude and within 8,000 m buffer).
- Preliminary assessment of 27 representative non-associated dwellings have been included in ***Appendix A***. These assessments illustrate existing intervening vegetation typical of the Study Area is likely to reduce views to turbines from a large number of dwellings. Further detailed assessment and site inspections of sensitive receptors to ground truth this analysis will be undertaken during the EIS phase.

6.4 Preliminary Assessment Tool 2: Multiple Wind Turbine Tool

The Multiple Wind Turbine Tool provides a preliminary indication of potential cumulative impacts arising from the project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint. There were no public viewpoints identified within 8,000 m of the nearest turbine. ***Figure 13*** below provides examples of where a dwelling or key public viewpoint may have views to turbines in multiple 60° sectors.

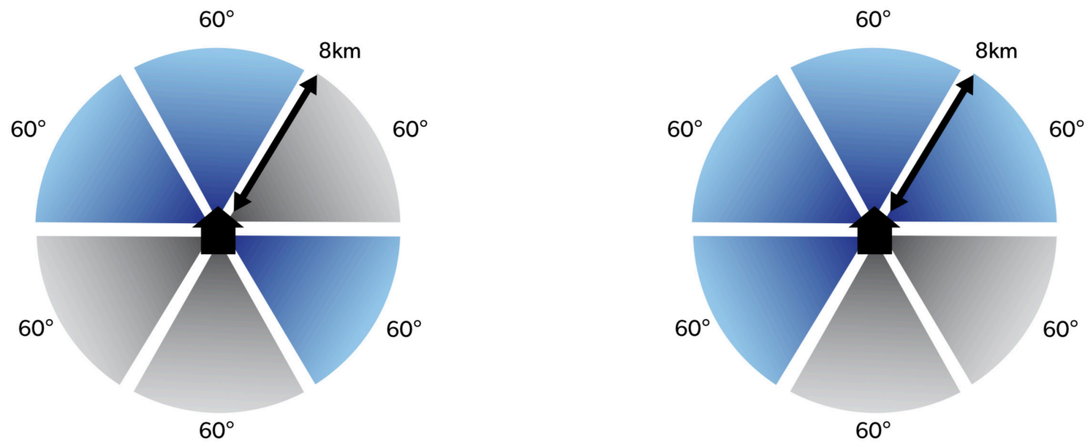
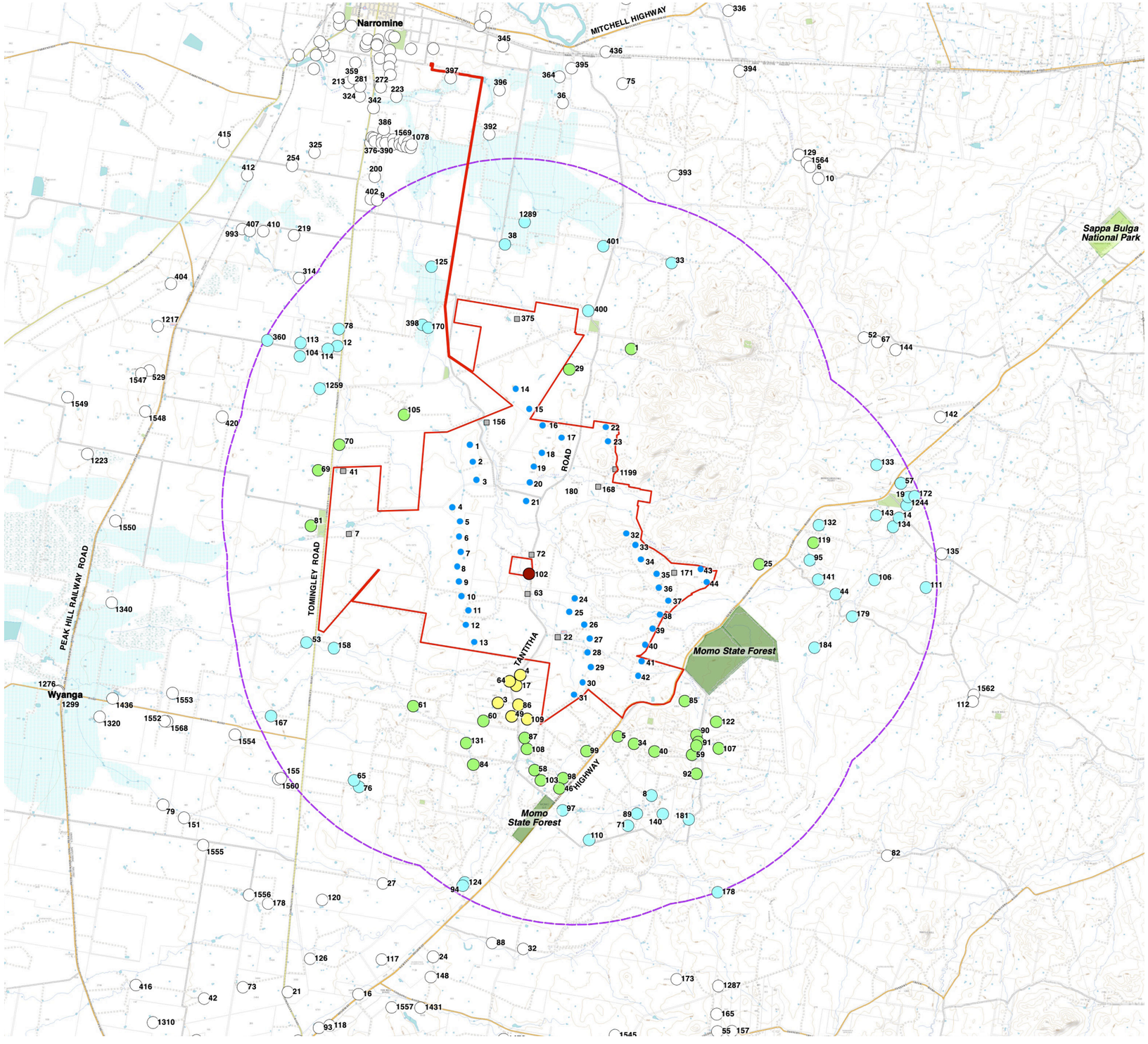


Figure 13 *Preliminary Assessment Tool: Multiple Wind Turbines*

(Source: Visual Assessment Bulletin, 2016)

In accordance with the Visual Bulletin: *Where wind turbines are visible within the horizontal views of the dwelling or key public viewpoints in three or more 60° sectors, the proponents must identify the turbines, relative dwelling and key public viewpoint, along with the relative distance and submit these to the Department as part of the request for SEARs.* These turbines will become a focus for assessment in the EIS.

Figure 14 provides an overview of the number of 60º sectors visible from each of the dwellings identified within 8 kilometres.



Cumulative Impact Multiple Wind Turbine Tool

Proposed Wallaby Creek Wind Farm

LEGEND:

- Project Boundary
- 271.5 m Turbine Location
- Associated Dwelling
- Minor Road
- 8,000 m from proposed wind turbines

MWTT Results for Non-Associated Dwelling / Key Public Viewpoint:

- One 60º Sector (60º)
- Up to 2 60º Sectors (120º)
- Up to 3 60º Sectors (180º)
- Up to 4 60º Sectors (240º)
- Up to 5 60º Sectors (300º)
- Up to 6 60º Sectors (360º)

Note:

Preliminary Assessment Tool 2: Multiple Wind Turbine Tool is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing multiple turbines.

N

0 2 4 6 8 10km

Figure 14 ***Preliminary Assessment Tool 2: Multiple Wind Turbine Tool (Map Source: Six Maps)***

6.5 Results of Preliminary Assessment Tool 2: Multiple Wind Turbine Tool

When applied to the Project, the 2D Multiple Wind Turbine Tool (see ***Figure 14***) identified eight (8) non-associated dwellings with more than two (2) sectors of turbines (see ***Table 5***). There were no significant public viewpoints identified within 8,000 m of the nearest turbine. Of the eight (8) non-associated dwellings identified:

- One (1) non-associated dwelling has turbines in up to six (6) 60º sectors (up to 360º)
- Seven (7) non-associated dwellings have turbines in up to three (3) 60º sectors (up to 180º)

Dwelling ID	Number of 60º Sectors (Based on a 2D Assessment):	Number of 60º Sectors (Based on a 3D Assessment):	Existing Screening Factors:
Non-Associated dwellings with turbines in up to six (6) 60º Sectors (up to 360º):			
102	Six (6)	Six (6)	*No existing screening elements*
Non-Associated dwellings with turbines in up to three (3) 60º Sectors (up to 180º):			
3	Three (3)	Three (3)	*No existing screening elements*
4	Three (3)	Three (3)	*Existing intervening vegetation*
17	Three (3)	Three (3)	*No existing screening elements*
64	Three (3)	Three (3)	*No existing screening elements*
86	Three (3)	Three (3)	*Existing intervening vegetation*
49	Three (3)	Three (3)	*Existing intervening vegetation*
109	Three (3)	Three (3)	*Existing intervening vegetation*

Table 5 Non-Associated Dwellings identified using Multiple Wind Turbine Tool

7.0 Preliminary Zone of Visual Influence

7.1 Overview of Preliminary Zone of Visual Influence

The Visual Bulletin states: *the use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of the evaluation phase of a project during the pre-lodgement stage. This can also assist in refining the number of turbines and viewpoints that will ultimately need more detailed assessment.*

Two Zone of Visual Influence (ZVI) diagrams have been prepared for the Project to illustrate the theoretical visibility of the proposed turbines one from hub height, and one from blade tip.

- ***Figure 15*** depicts the areas of land from which the proposed development may be visible and provides an indicative number of wind turbines based on the blade tip height of 271.5 metres.
- ***Figure 16*** illustrates the areas of land from which the proposed development would be visible at hub height of 180 metres.

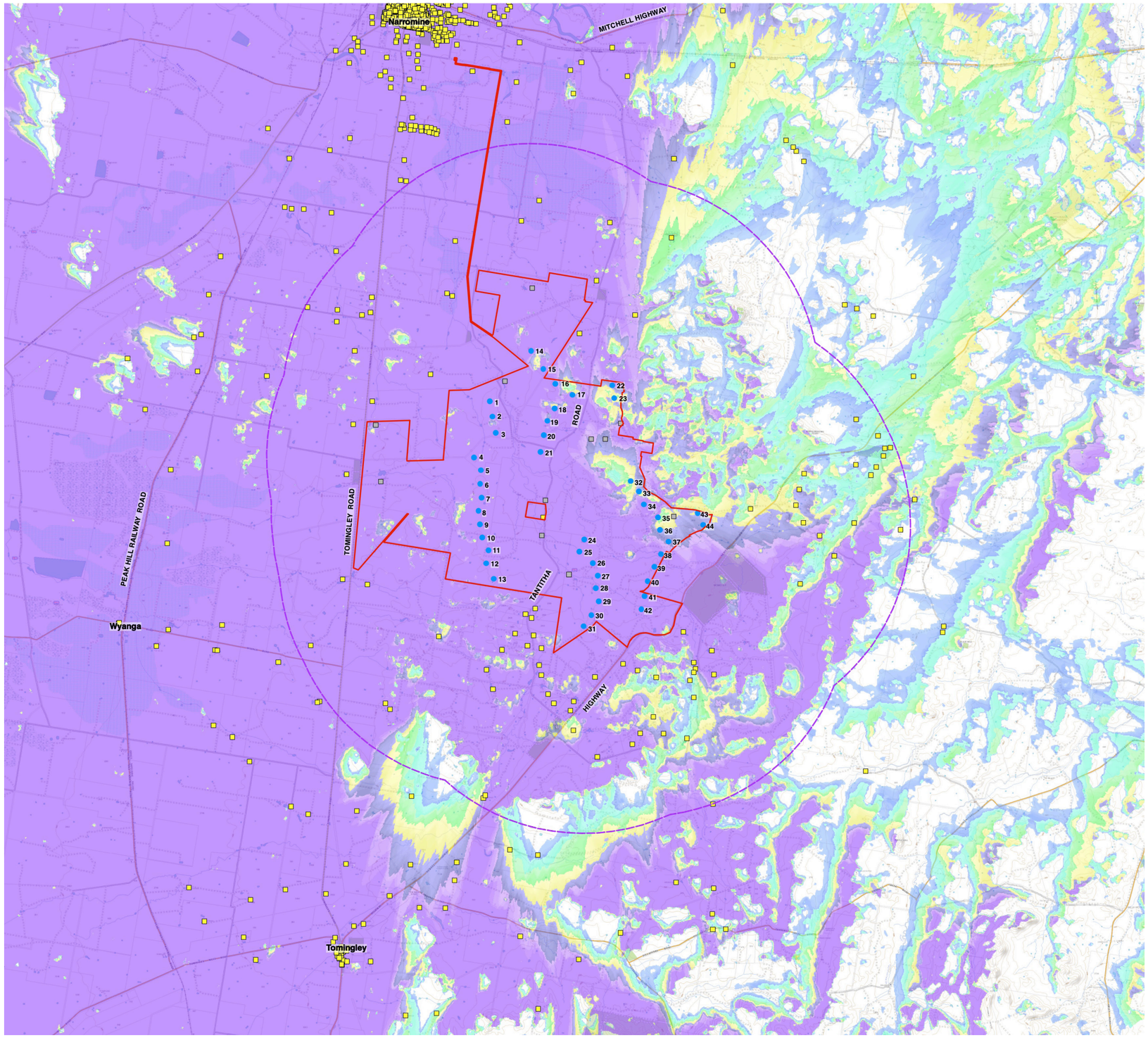
The ZVI (also known as a Zone of Theoretical Influence Model) represents the area over which a development can theoretically be seen and is based on a Digital Terrain Model (DTM). The ZVI usually presents a bare ground scenario - ie. A landscape without screening, structures or vegetation, and is usually presented on a base map (Scottish Natural Heritage, 2017).

The ZVI has been determined through the use of digital topographic information and 3D modelling software *WindPro*. The ZVI has been assessed to approximately 10 km from the Project Area. Although it is possible for the development to be visible from further than 10km away, it is generally accepted that beyond 10km visibility is diminished.

7.2 Summary of Preliminary Zone of Visual Influence

The preliminary ZVI figures prepared for the Project indicate views to the Project are largely limited from the east due to the topography associated with the vegetated hills to the east of the Project. Land to the west of the Project is largely flat agricultural land and the ZVI indicates views will be available from the west to the majority of the Project.

It is important to reiterate the ZVI is based on an assessment of topography alone and detailed assessment from areas (both public and private) with visibility of the Project will be undertaken during the EIS Phase of the Project.



Zone of Visual Influence Blade Tip Height (271.5 m)

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-associated dwellings
- 3,600 m from turbines
- 5,300 m from turbines
- 8,000 m from turbines

Number of visible turbines (at tip height)
(Based on topography alone):

- 0
- 1-7
- 8-15
- 16-23
- 24-31
- 32-39
- 40-44

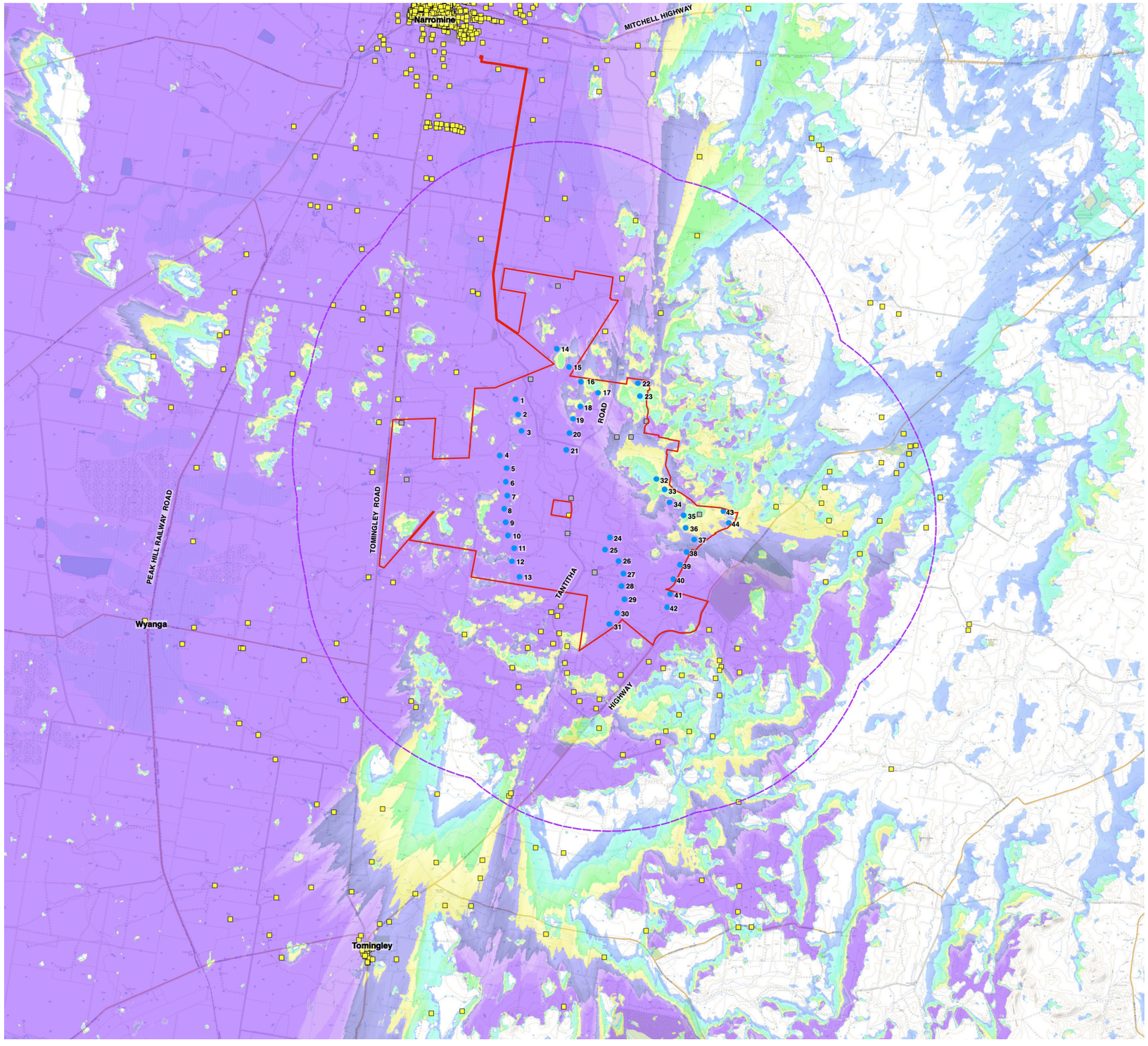
Note:

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

N

0 2 4 6 8 10km

Figure 15 ***Zone of Visual Influence - Blade Tip Height (271.5 metres)***



Zone of Visual Influence Hub Height (180 m)

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-associated dwellings
- 3,600m from turbines
- 5,300m from turbines
- 8,000 m from turbines

Number of visible turbines (at hub height)
(Based on topography alone):

- 0
- 1-7
- 8-15
- 16-23
- 24-31
- 32-39
- 40-44

Note:

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

N

0 2 4 6 8 10km

Figure 16 ***Zone of Visual Influence - Hub Height (180 metres)***

8.0 Preliminary Dwelling and Viewpoint Assessments

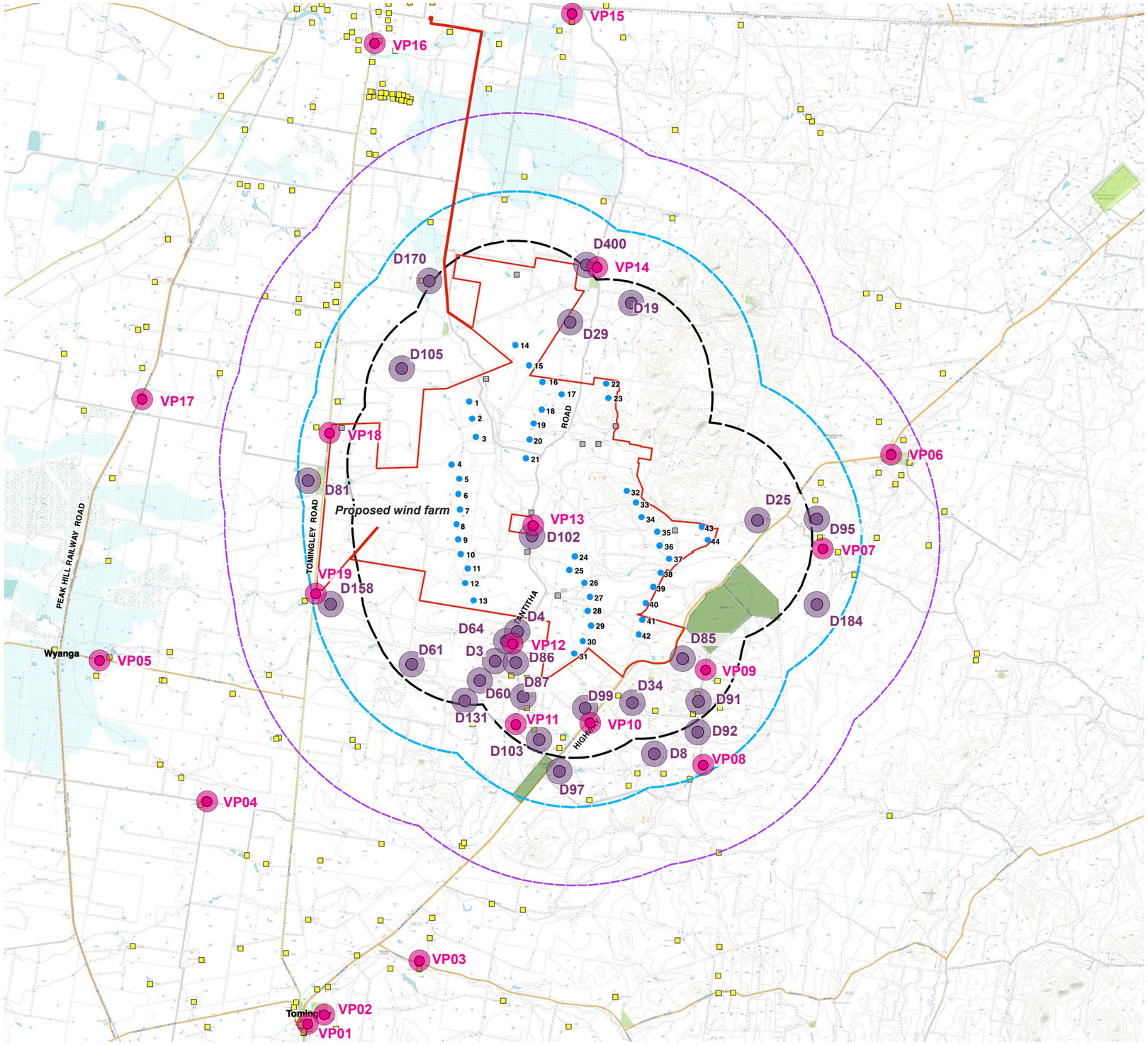
8.1 Preliminary Assessment of Dwellings

Examples of the preliminary assessment tools applied to 27 representative non-associated dwellings (as shown on ***Figure 17***) within 3,600 m of the nearest turbine have been included in ***Appendix A***.

The preliminary assessment identifies existing vegetation surrounding many of the dwellings which would reduce the potential visual impacts identified by the preliminary assessment tools and Zone of Visual Influence.

8.2 Preliminary Assessment of Public Viewpoints

Appendix B provides preliminary assessments from Public Viewpoints. A total of 21 preliminary viewpoints have been selected to illustrate the varying landscape character typologies throughout the Study Area and provide a preliminary assessment of the potential visibility of the Project (as shown on ***Figure 17***). The selected viewpoints also represent views from locations that were identified as key public viewpoint locations during community consultation, such as the Tomingley Gold Mine, the town of Tomingley and Narromine. In addition to these, viewpoints have been selected along local and major roads such as Newell Highway, Tomingley Road and Tantitha Road. These viewpoints will be assessed in further detail in the EIS phase.



Preliminary Dwelling & Viewpoint Assessment Locations

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5 m Turbine Location
- Associated dwellings
- Non-associated dwellings
- Main Road
- Minor Road
- 3,600 m from turbines
- 5,300 m from turbines
- 8,000 m from turbines
- LGA Boundary
- National Parks / Nature Reserves
- State Forests
- Preliminary Dwelling Assessment locations ***Refer to Appendix A.***
- Preliminary Viewpoint Assessment locations ***Refer to Appendix B.***

N

0 2 4 6 8 10km

Figure 17 ***Preliminary Dwelling and Viewpoint Assessment Locations***

9.0 Summary and Recommendations

9.1 Summary of Preliminary Visual Impact Assessment

This Preliminary Visual Impact Assessment (PVIA) report has been undertaken in accordance with the Visual Bulletin, and will be submitted with the Scoping Report in the request for Secretary's Environmental Assessment Requirements (SEARs). The following provides a brief summary of the PVIA and outlines the steps that will be undertaken in the Landscape and Visual Impact Assessment (LVIA) which will be undertaken during the EIS Phase of the Project.

Community Consultation

The report outlined the findings of community consultation to date which assisted in establishing the following:

- Key Landscape Features
- Defined areas of scenic quality and
- Identify key public viewpoints valued by that community.

Next Steps:

Community consultation will be ongoing through the development of the Project. Ongoing input from the community will assist the preparation of the LVIA.

Existing Landscape Character

This PVIA provided a detailed assessment of the existing landscape character of the Study Area through the following:

- Identified land uses, key landscape features and key viewpoints,
- Categorisation of six (6) preliminary Landscape Character Units (LCUs),
- Application of preliminary scenic quality ratings to each of the LCUs ranging from Low - Moderate,
- A brief preliminary overview of the potential visual impacts has been provided for each LCU.

Next Steps:

- Utilise the landscape character assessment to prepare a detailed Visual Baseline Study.
- Identify any additional key features, key viewpoints valued by the community through consultation.
- Refine the Landscape Character Units and allow the community to provide feedback on the relative scenic quality ratings of LCUs.
- Determine the Visual Influence Zone of key viewpoints and assess against the objectives outlined in the Visual Bulletin.

Application of the Preliminary Assessment Tools

The purpose of the Preliminary Assessment Tools in the PVIA is to identify 'sensitive receptors' for further assessment in the EIS Phase of the Project.

- The Visual Magnitude Tool identified a total of **30 non-associated dwellings** within the black line of visual magnitude (3,600 m) and **25 non-associated dwellings** within the blue line of visual magnitude (3,600 - 5,300 m).
- The Multiple Wind Turbine Tool (MWTT) was applied to all dwellings within 8,000 m of the nearest proposed turbine.
- The MWTT identified eight (8) non-associated dwellings with turbines in more than two (2) 60 degree sectors. There were no public viewpoints identified within 8,000 m of the nearest turbine.

Next Steps:

- Groundtruthing of all identified non-associated dwellings.
- Undertake site inspection and detailed dwelling assessment at sensitive non-associated dwellings.
- The LVIA will assess each 'sensitive receptor' in detail to take into account topography, vegetation and other screening factors.
- Determine the potential visual impact of each sensitive receptor and provide mitigation methods to reduce potential visual impacts.

9.0 Summary and Recommendations

Dwelling 102

In the application of the Preliminary Assessment Tools, it was established that this dwelling is within 1.82 km of the nearest turbine, will have 17 turbines within the black line, and will have turbines present in all six 60 degree sectors surrounding the residence.

Next Steps:

This assessment has identified Dwelling 102 as requiring further and more detailed assessment during the EIS phase so that informed decisions can be made surrounding opportunities for impact mitigation. The detailed assessment during the EIS phase will include:

- 3D Modelling of the proposal and preparation of wire frame views from Dwelling 102;
- Consultation with the landowner pertaining to visual concerns and access to the property for the purpose of view point photography with viewpoint locations to be determined in consultation with the landowner; and
- Preparation of photomontages of the proposal from viewpoints at Dwelling 102 and further consultation with the landowner to discuss outcomes and key concerns.

These proposed next steps will determine the extent of actual impacts which will allow for informed impact mitigation options to be explored. These mitigation options may include removal or relocation of turbines or the introduction of screen planting surrounding the dwelling.

Zone of Visual Influence

A Zone of Visual Influence (ZVI) has been prepared to illustrate the theoretical visibility of the Project and to assist in defining the visual catchment. Two Preliminary ZVI have been prepared: one from a blade tip height of 271.5 m and one from a hub height of 180 m to illustrate areas which have potential visibility of the Project.

Next Steps:

- The LVIA will require further detailed assessment from areas identified as having potential visibility in the Preliminary ZVIs.
- Graphic representations of the Project using GIS technology including wire frame diagrams and photomontages will be provided in the EIS phase.

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Maps:

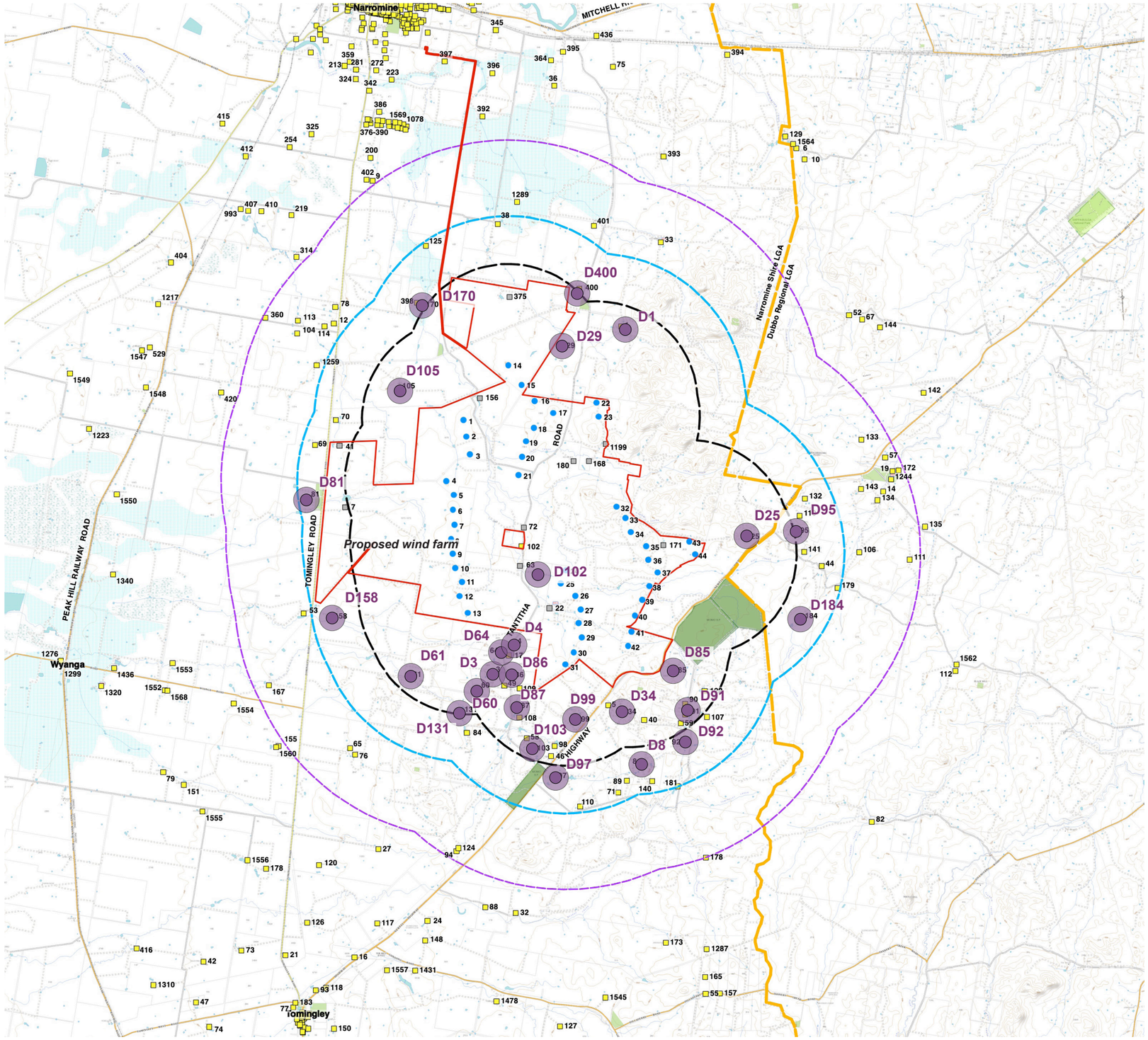
NSW Government Land and Property Information, Spatial Information Exchange SIX Maps, Accessed at: <http://maps.six.nsw.gov.au/> [Accessed between July 2021 – September 2021]

Google Earth Pro 2021 [Viewed April 2022 - August 2022] www.google.com/earth/index.html

A

Preliminary Dwelling Assessments

Preliminary Dwelling Assessment Locations



Preliminary Dwelling Assessment Locations

Proposed Wallaby Creek Wind Farm

LEGEND

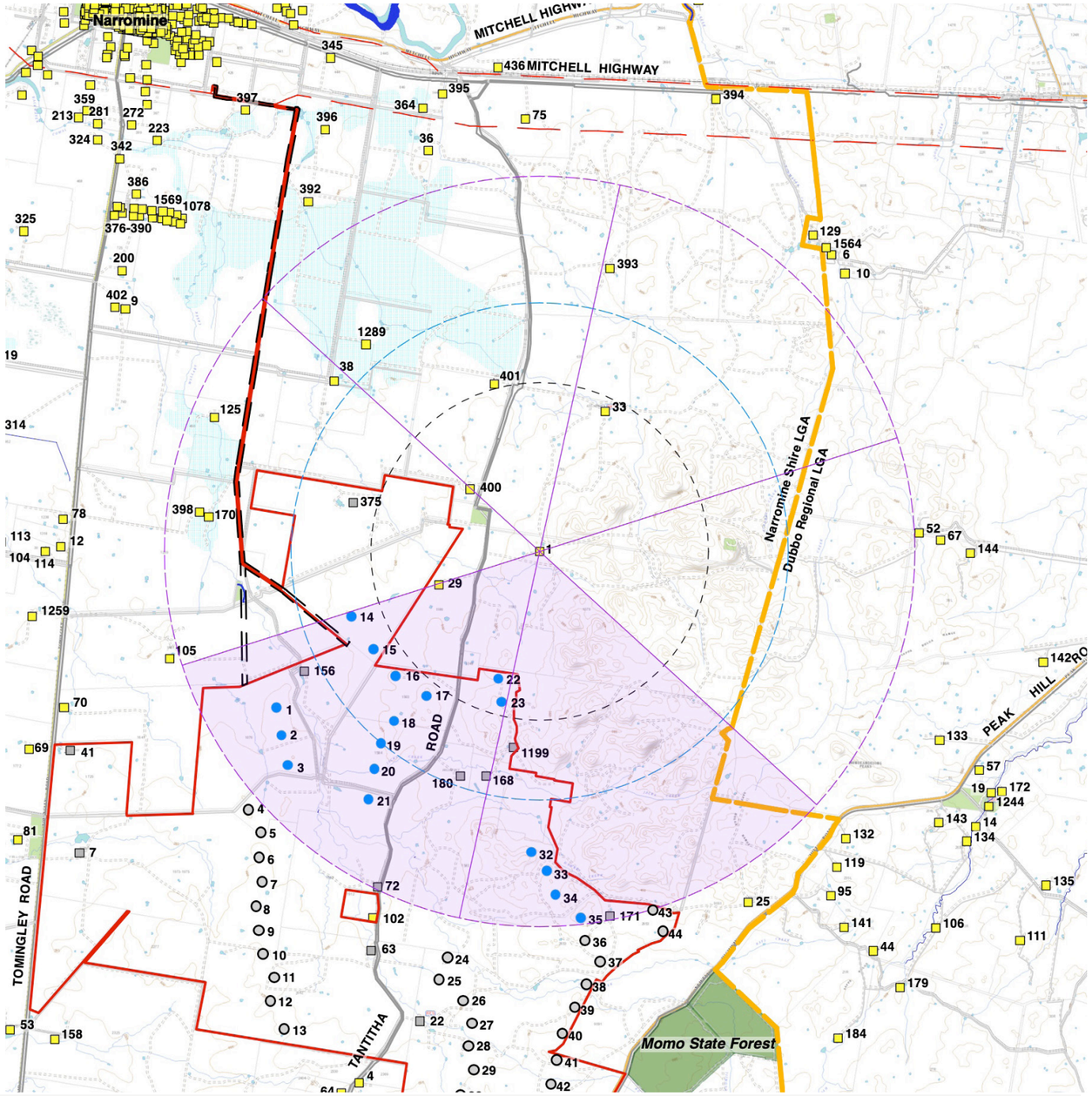
- Project Area
- 271.5 m Wallaby Creek Wind Turbine Location
- Main Road
- Minor Road
- 3,600 m from turbines
- 5,300 m from turbines,
- 8,000 m from turbines
- SCA / Nature Reserves
- Preliminary Dwelling Assessment locations

N

0 2 4 6 8 10km

***Figure A** Preliminary Dwelling Assessment Locations (Map Source: Six Maps)*

A.1. Dwelling 1



LEGEND

- Project Area
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Non-associated Dwelling
- Associated Dwelling
- LGA Boundary
- 3,600 m from nearest turbine (Black Line)
- 5,300 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60º sector
- 60º sector with turbines

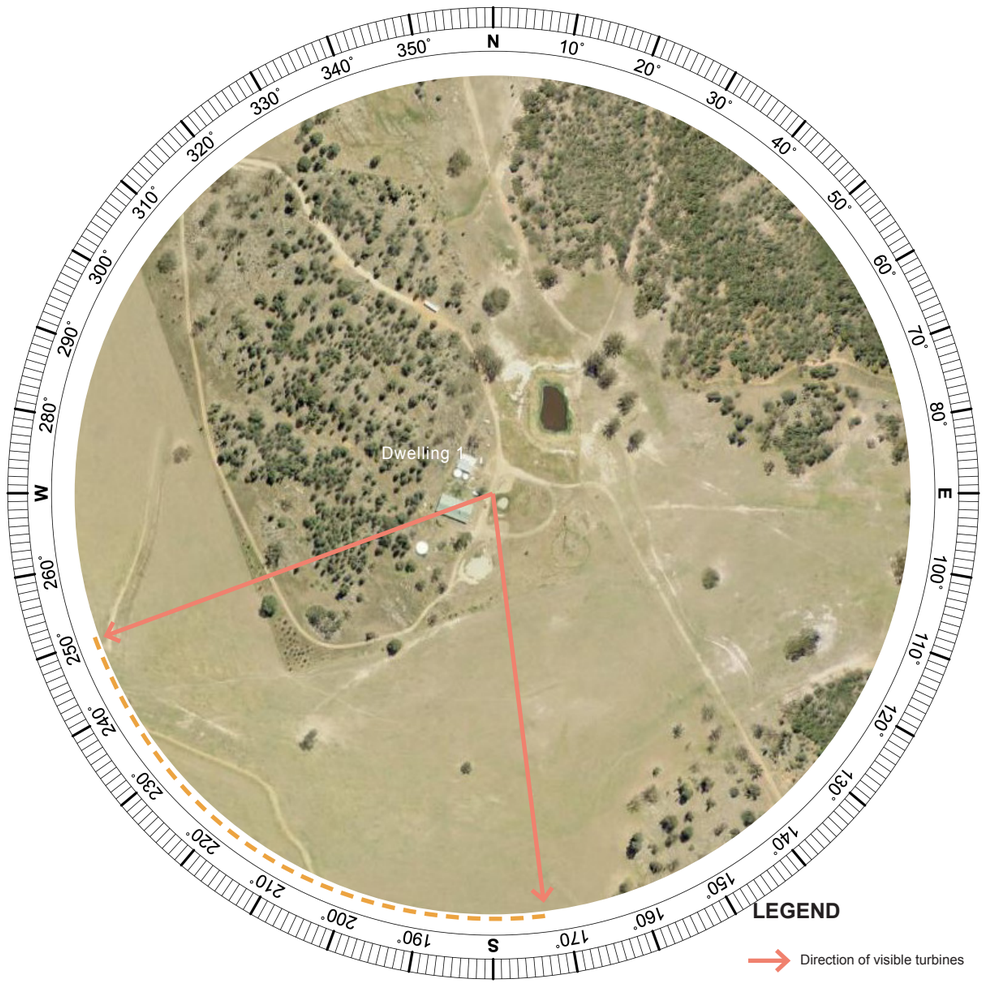
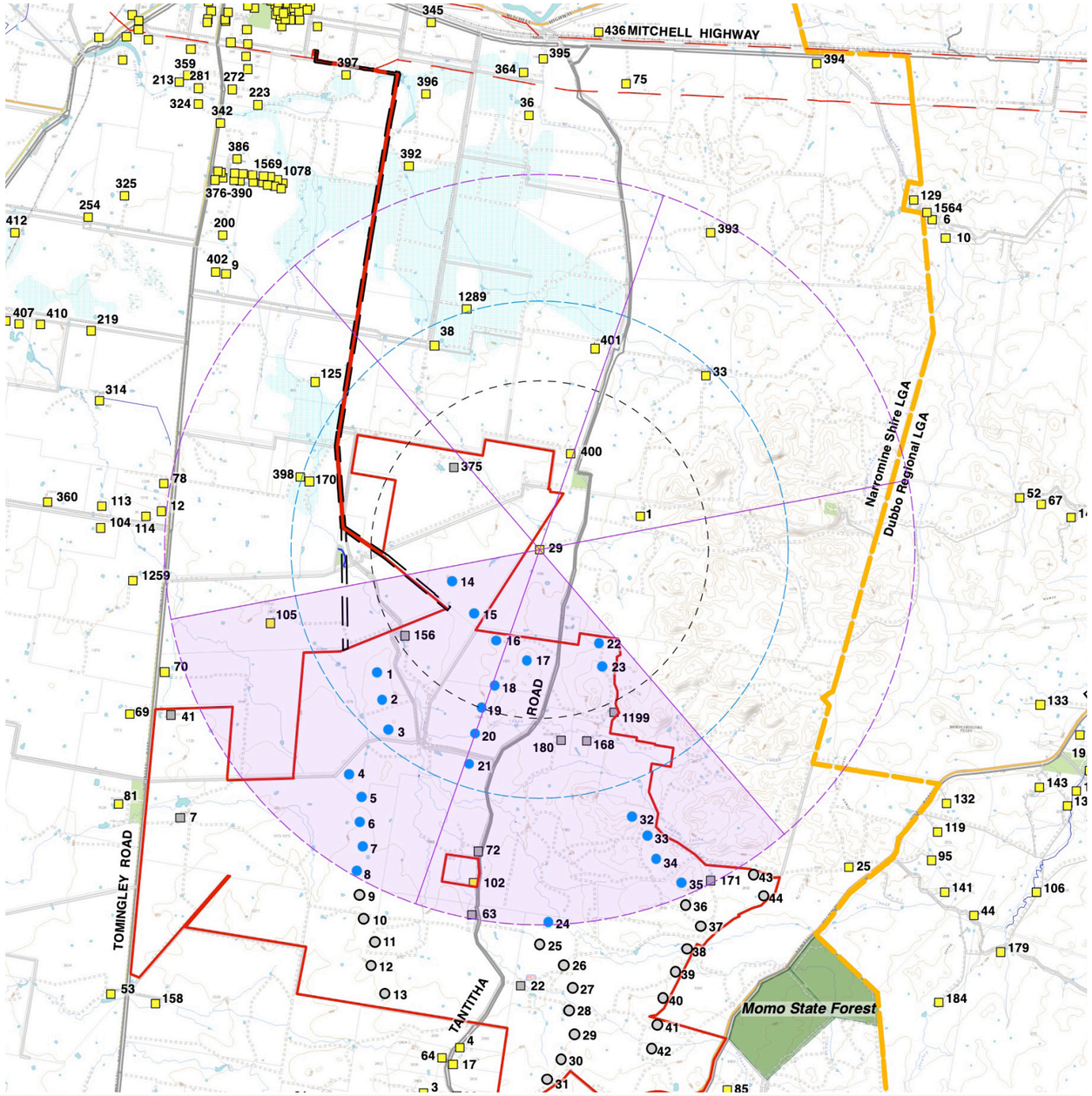


Figure A.1 Aerial Image Dwelling 1 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.88 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**2**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**17 Turbines (All at hub height)**

A.2. Dwelling 29



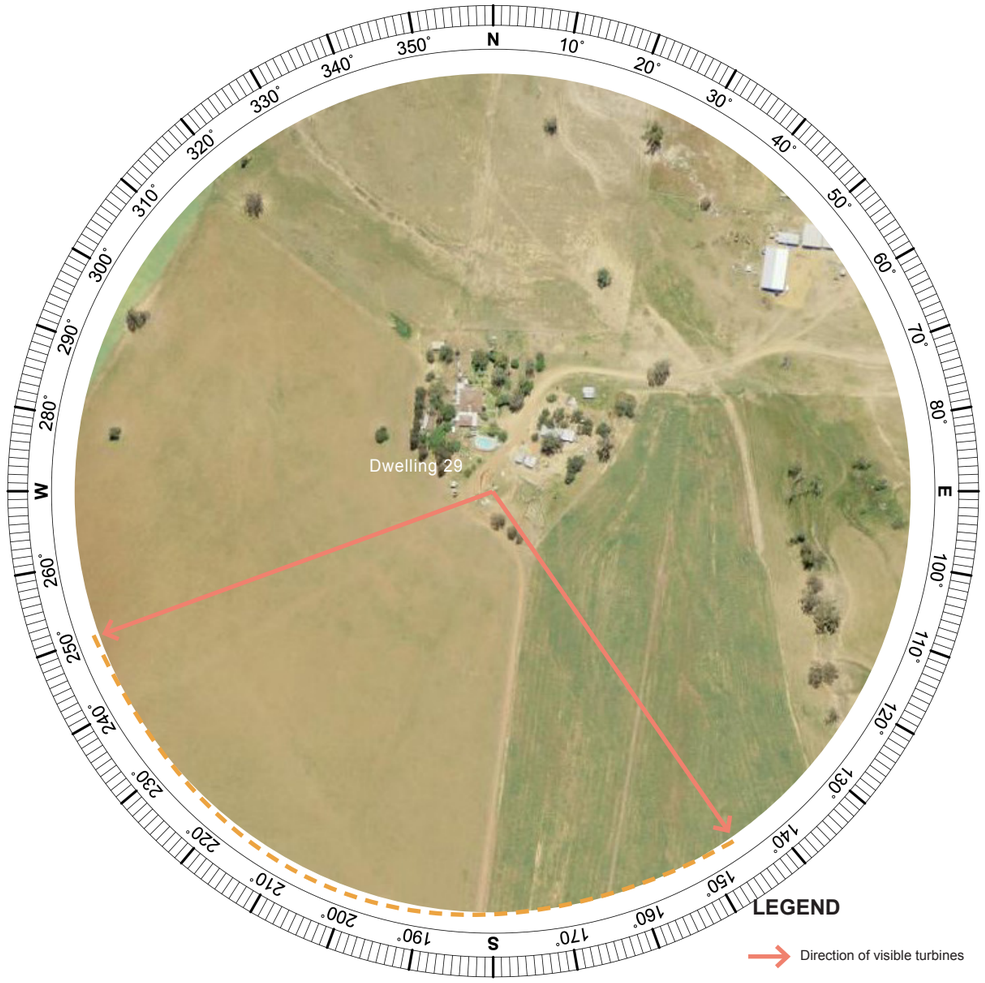
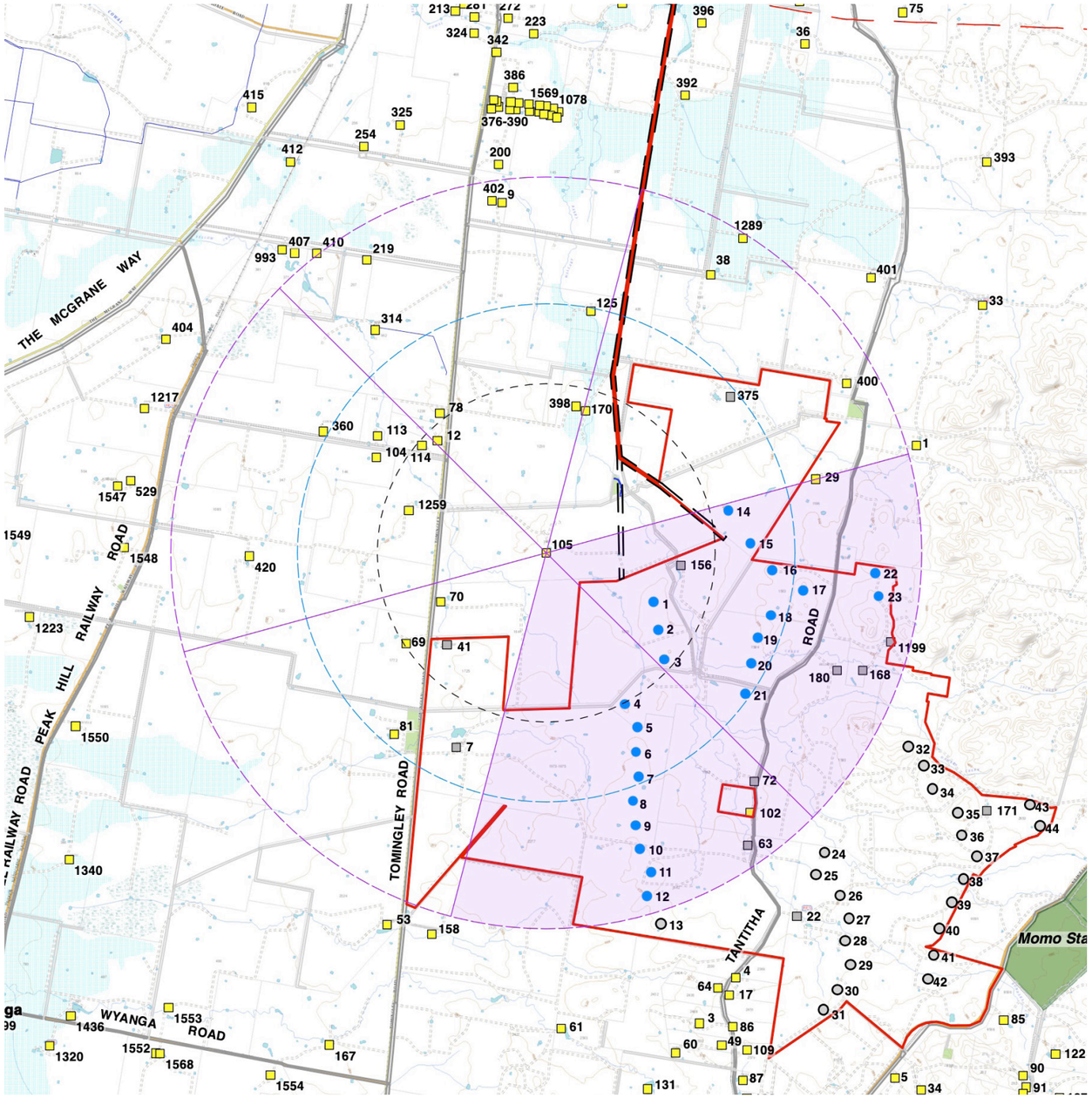


Figure A.2 Aerial Image Dwelling 29 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**1.95 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**8**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**23 Turbines (all at hub height)**

A.3. Dwelling 105



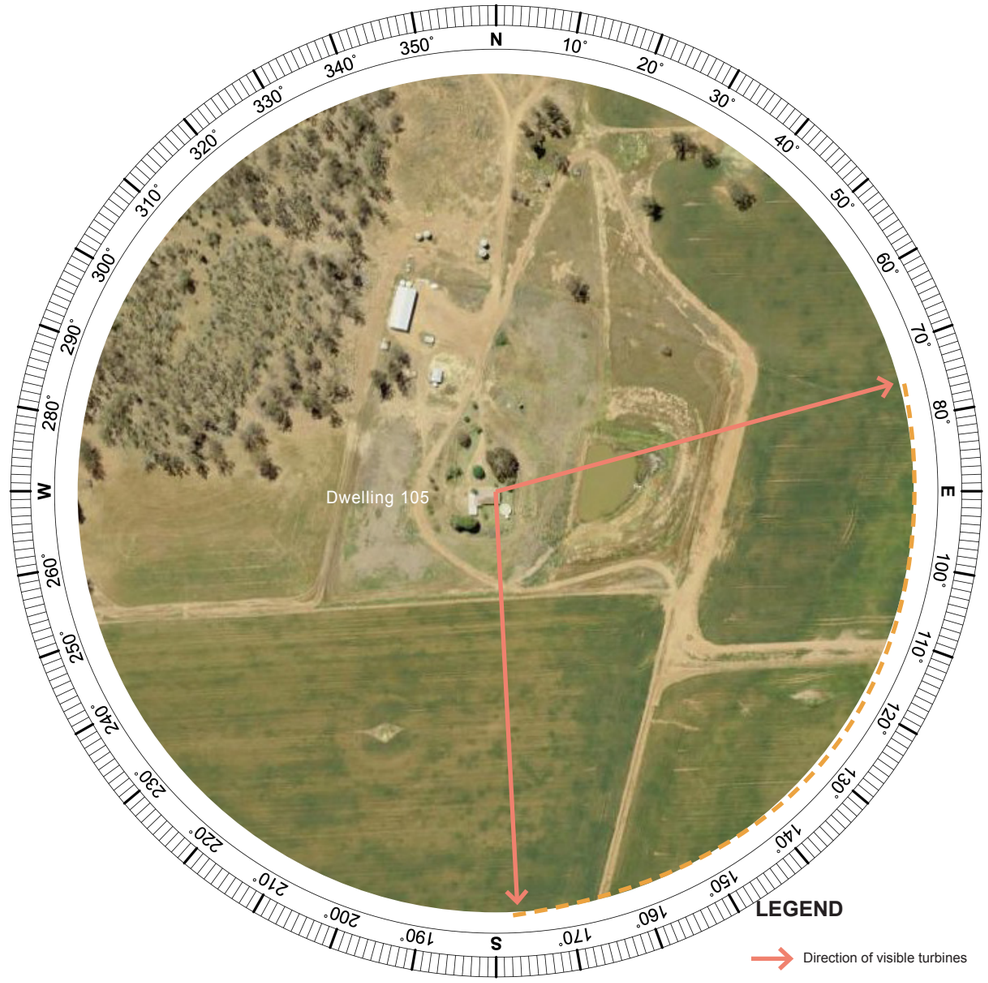
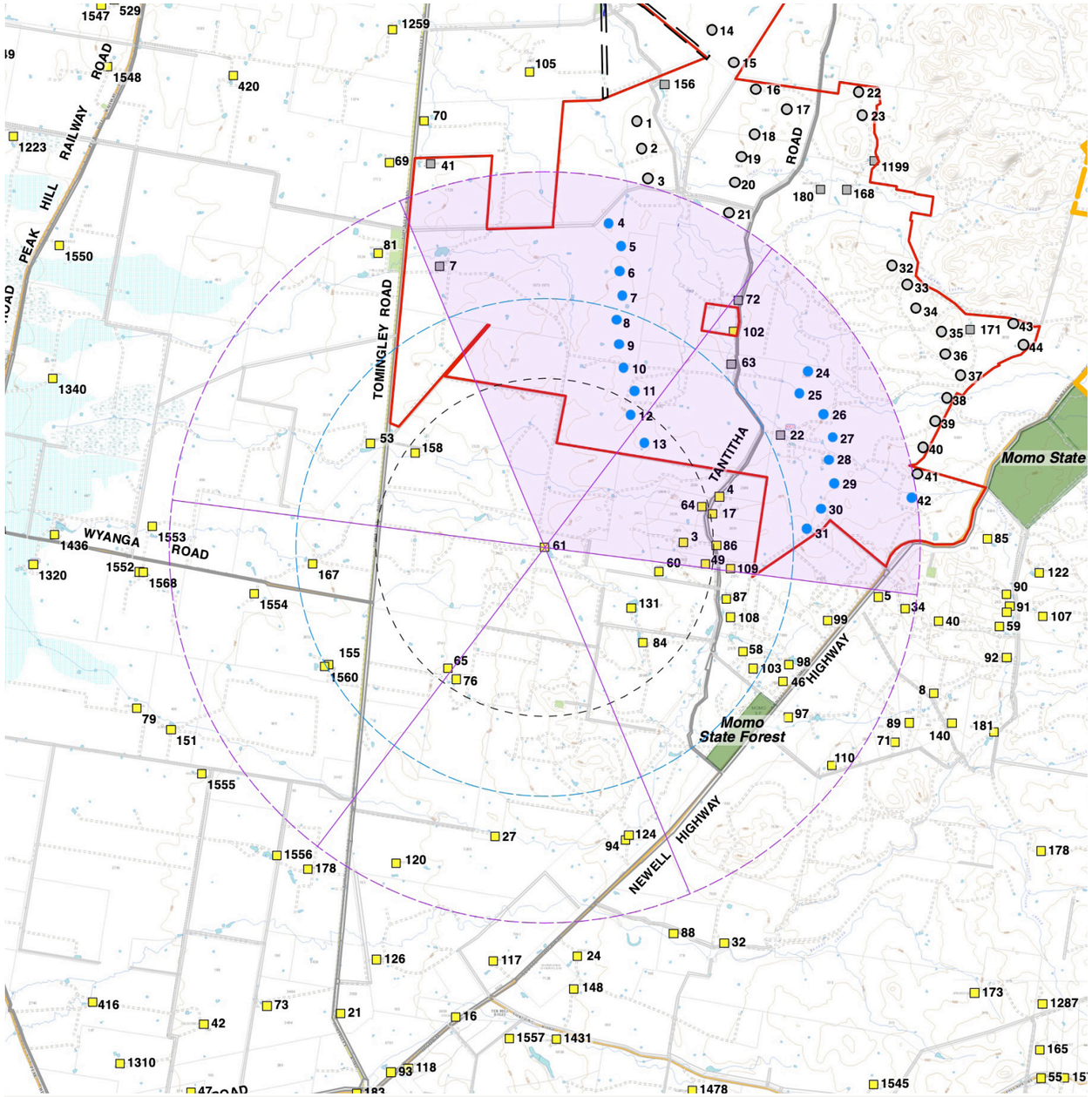


Figure A.3 Aerial Image Dwelling 105 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.51 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**3**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**22 Turbines (All at hub height)**

A.4. Dwelling 61



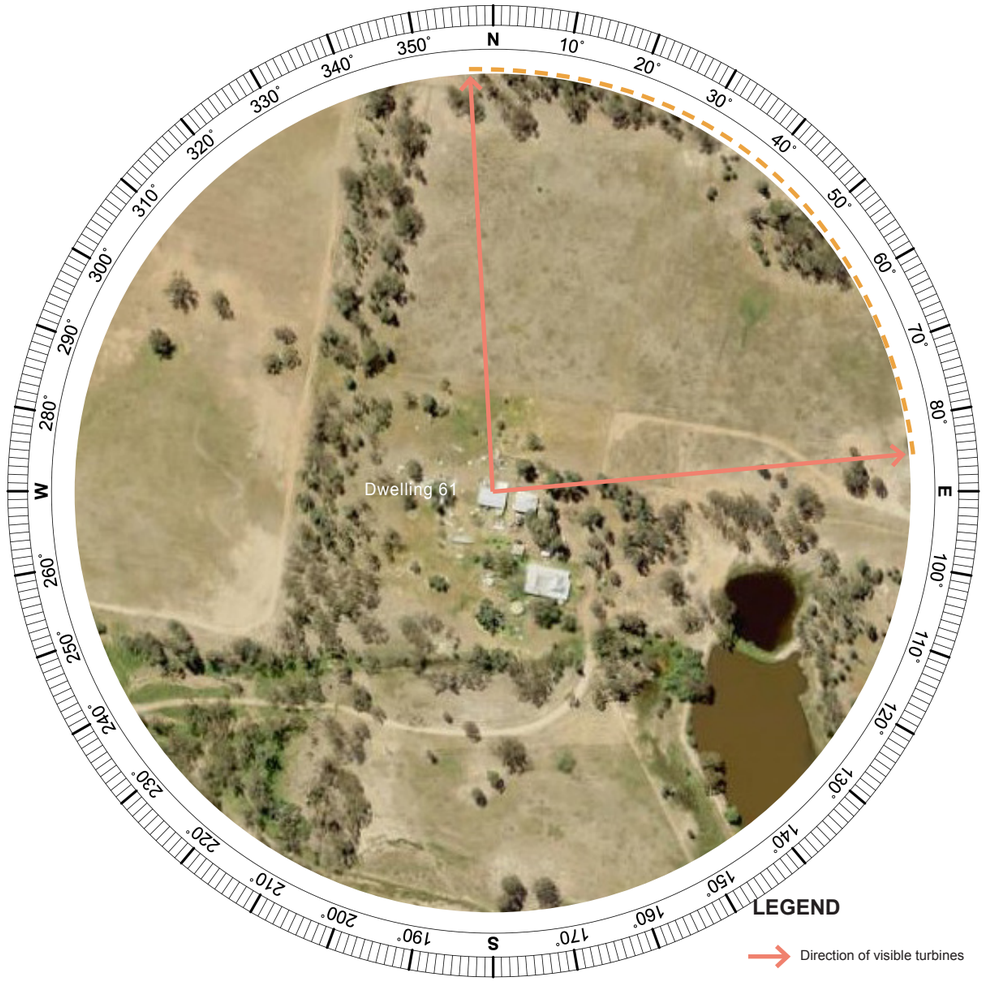
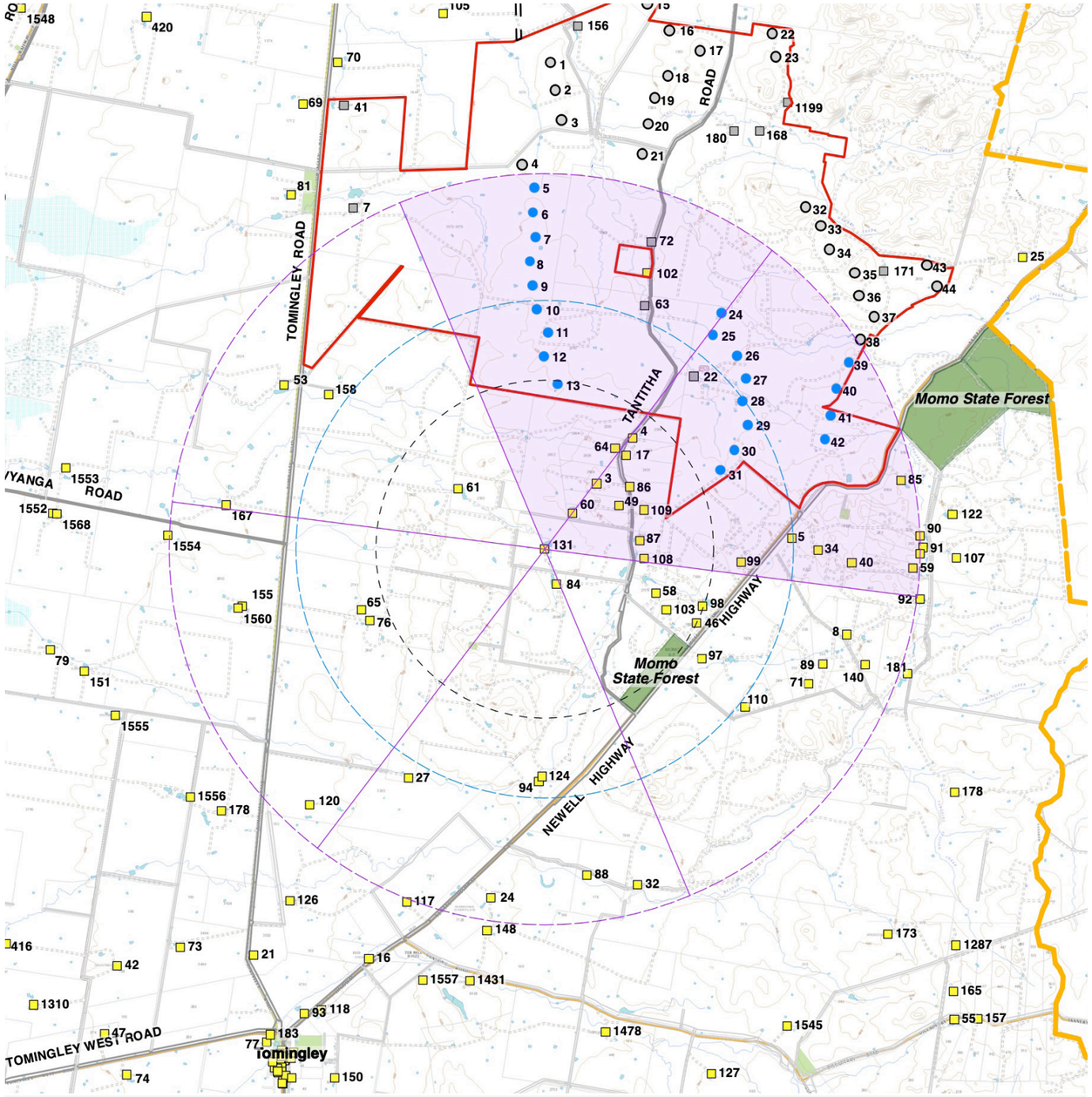


Figure A.4 Aerial Image Dwelling 61 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.08 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**2**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**19 Turbines (All at hub height)**

A.5. Dwelling 131



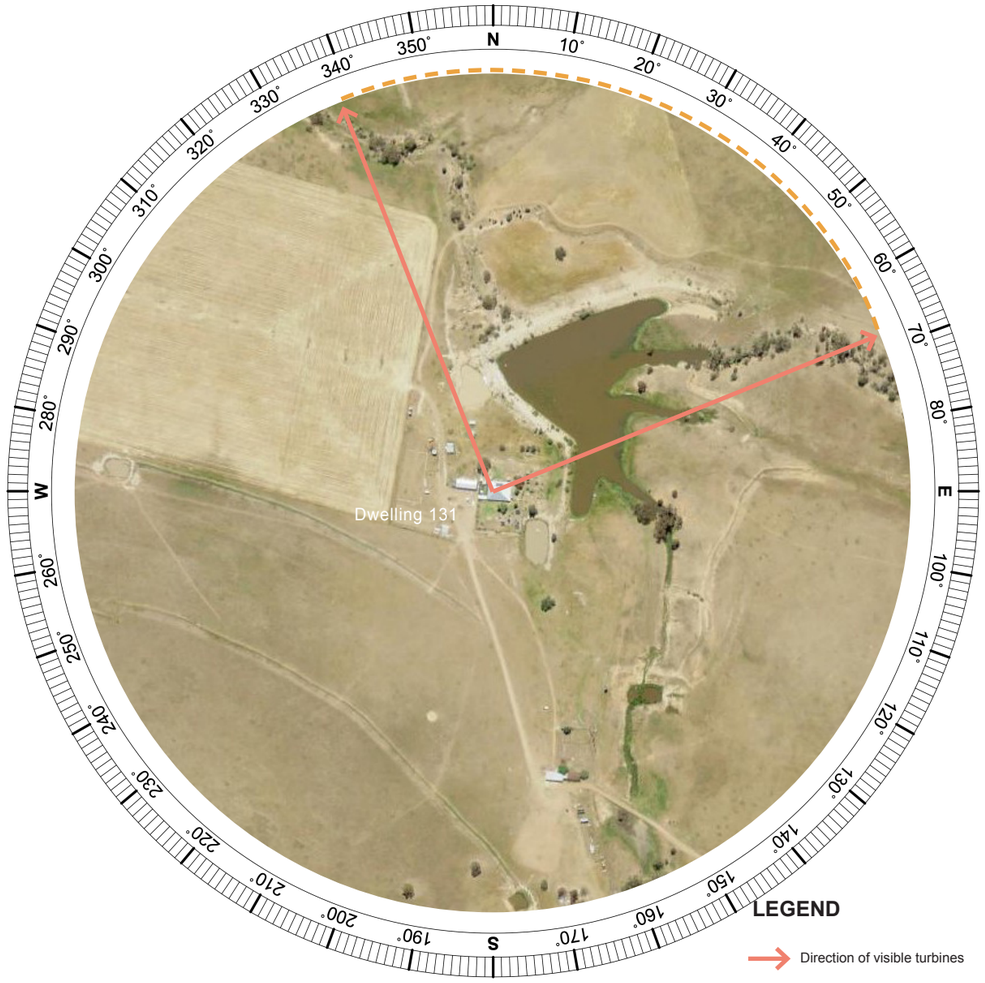
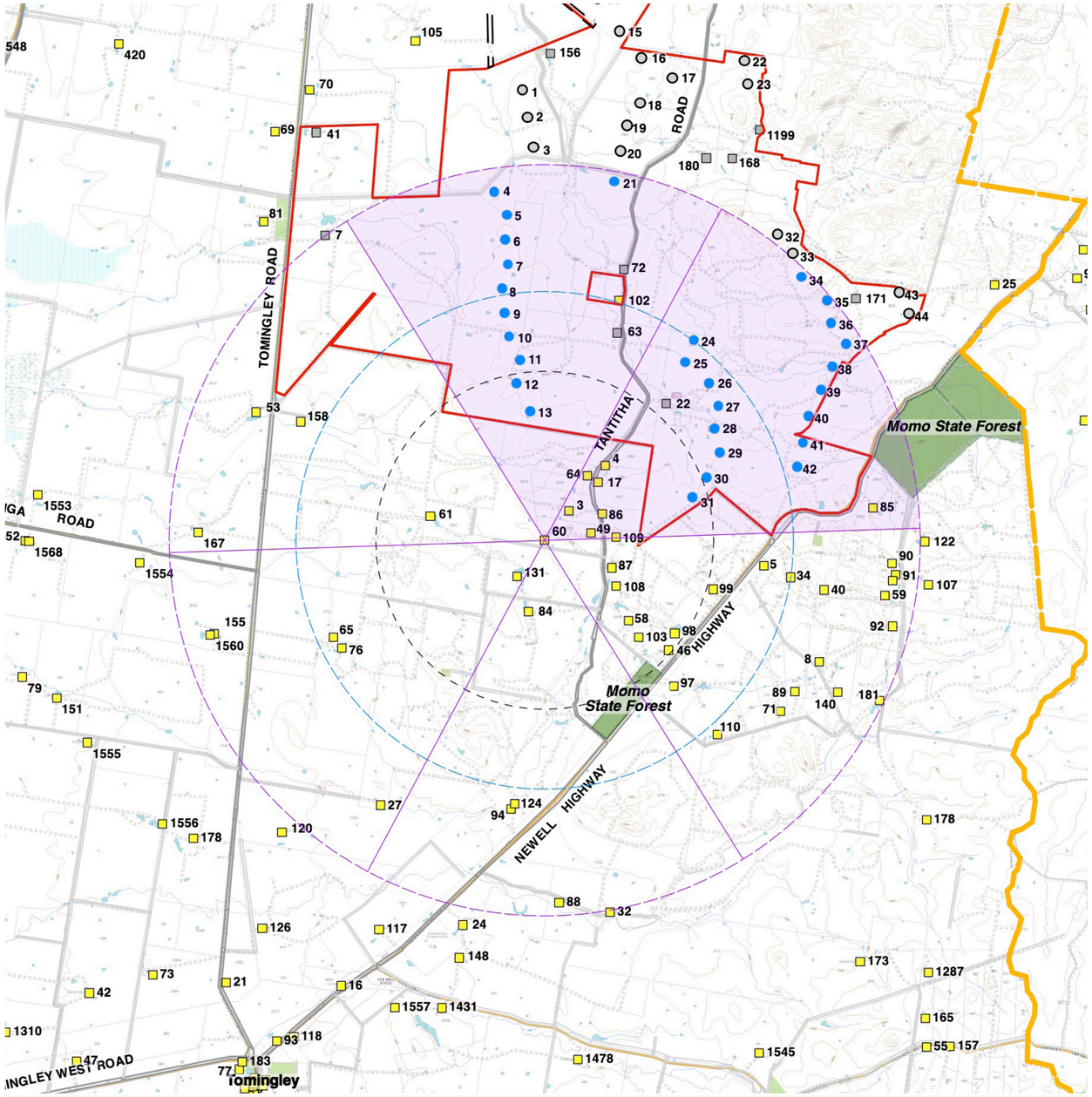


Figure A.5 Aerial Image Dwelling 131*(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.54 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**1**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**21 Turbines (All at hub height)**

A.6. Dwelling 60



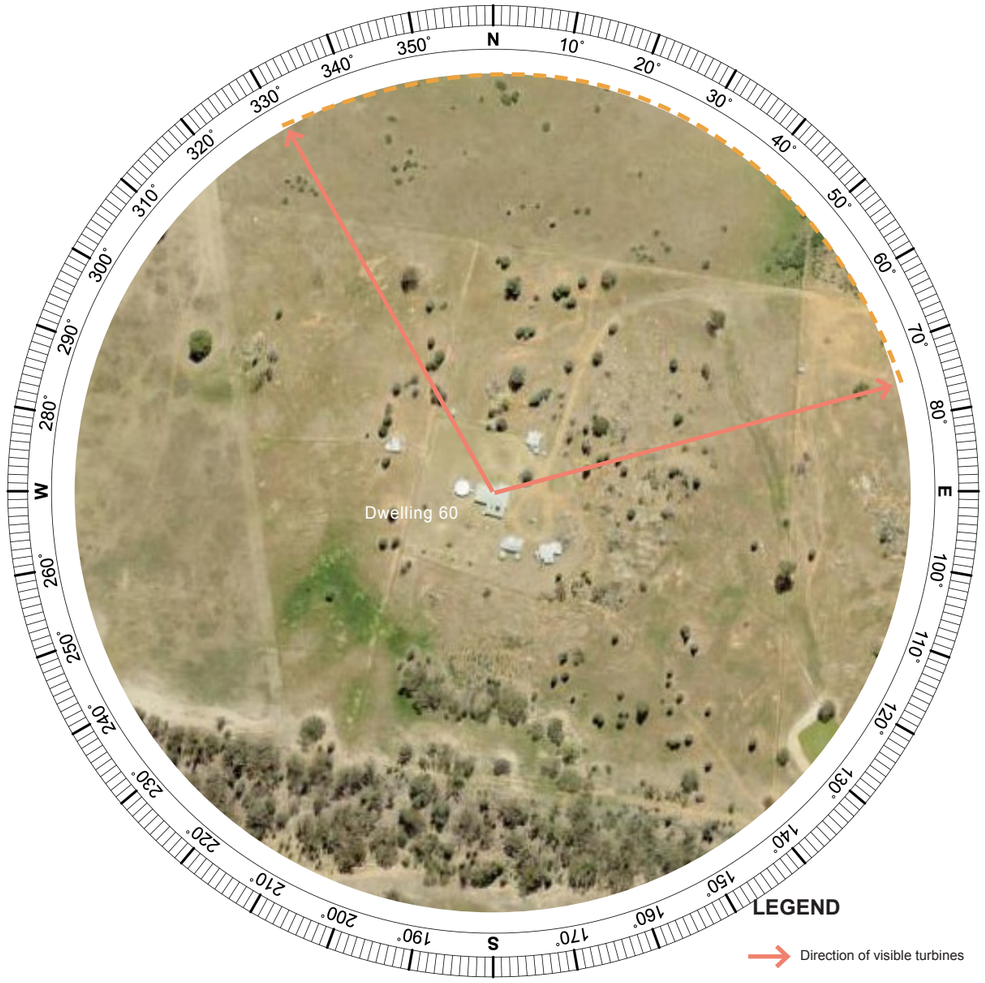
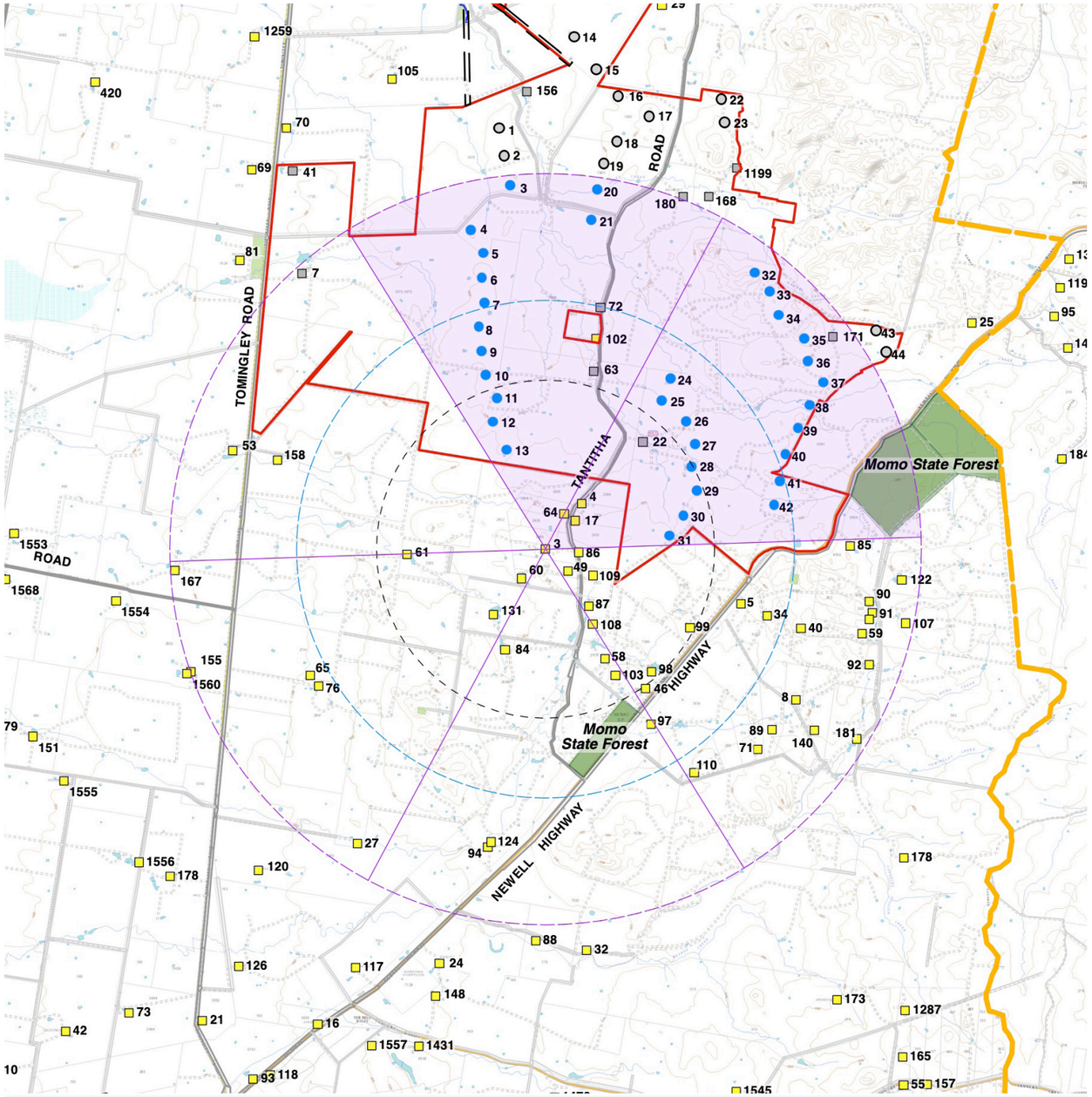


Figure A.6 Aerial Image Dwelling 60 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.77 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**3**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**28 Turbines (All at hub height)**

A.7. Dwelling 3



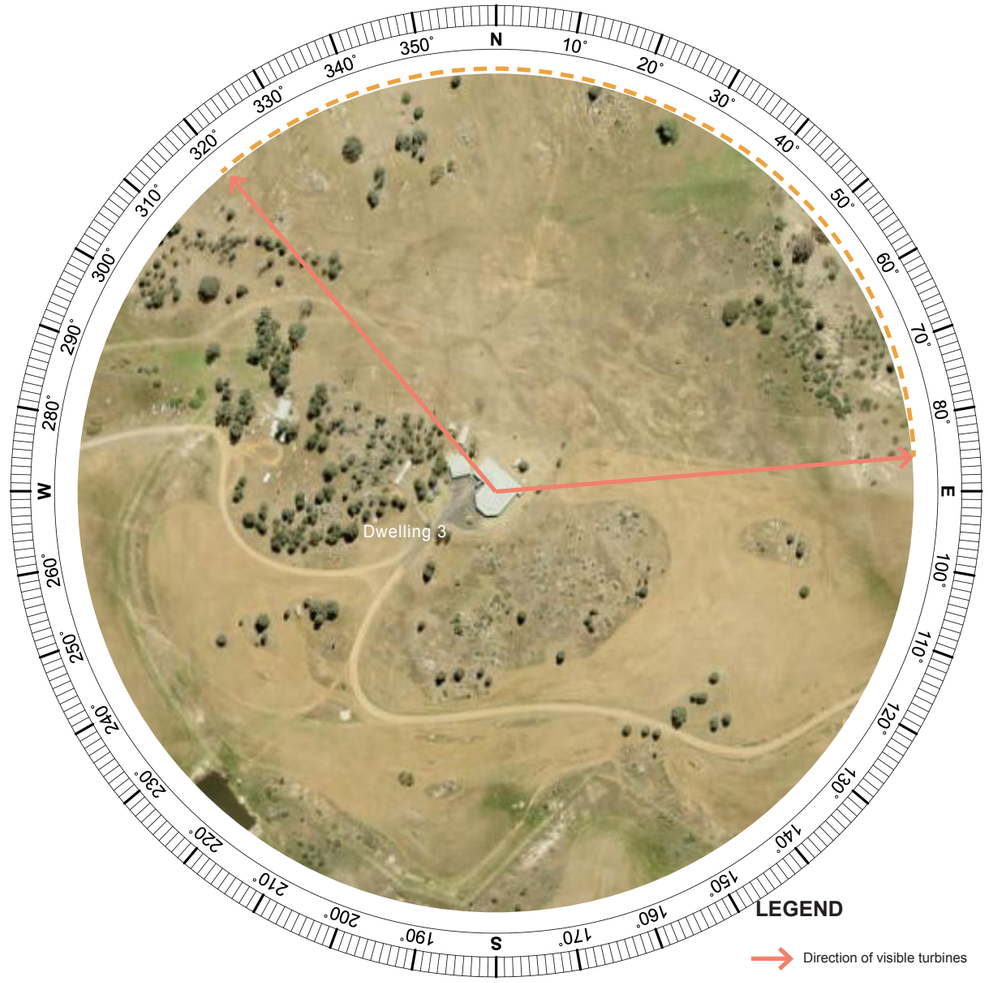
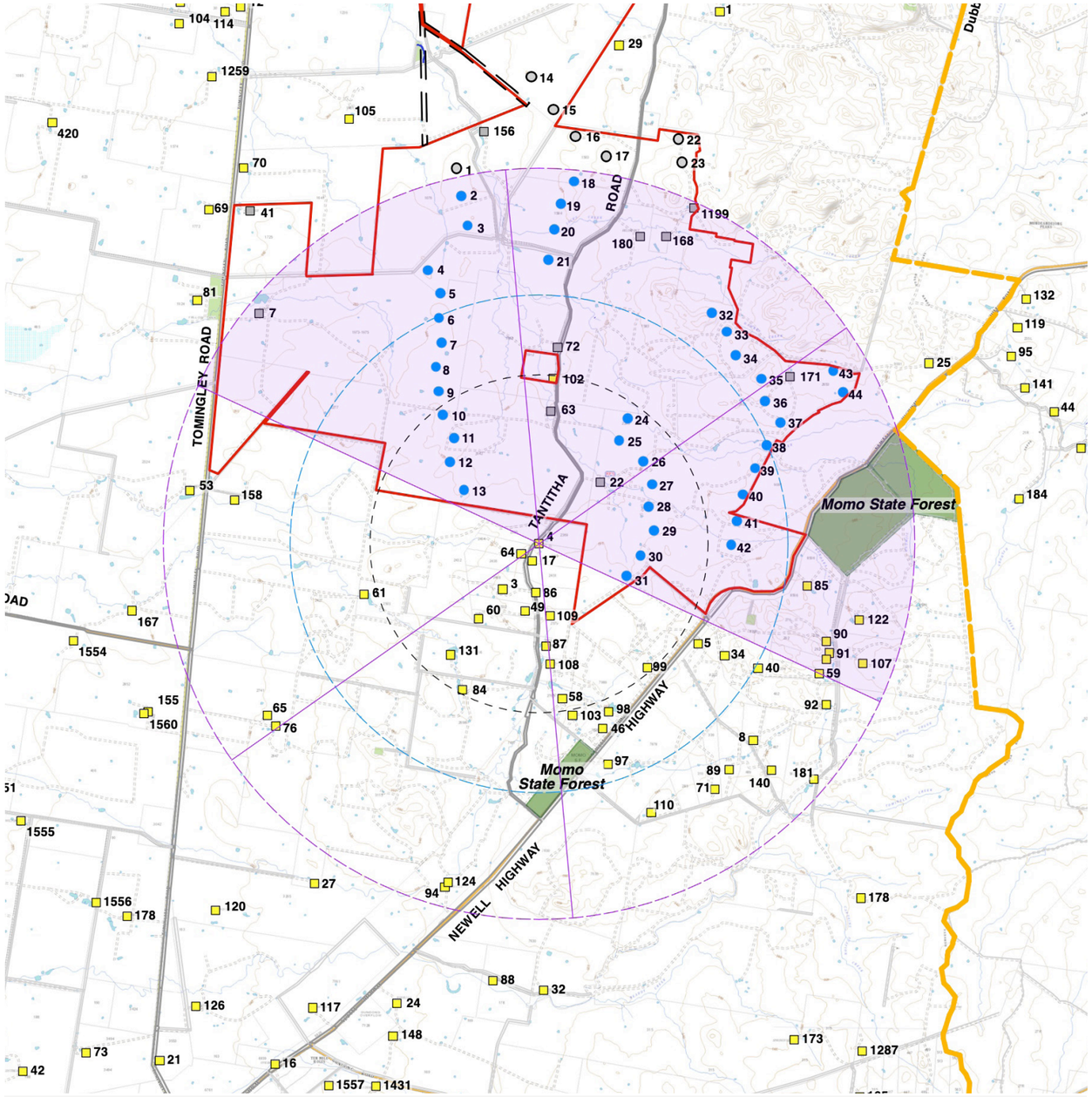


Figure A.7 Aerial Image Dwelling 3 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.28 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**7**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**32 Turbines (All at hub height)**

A.8. Dwelling 4



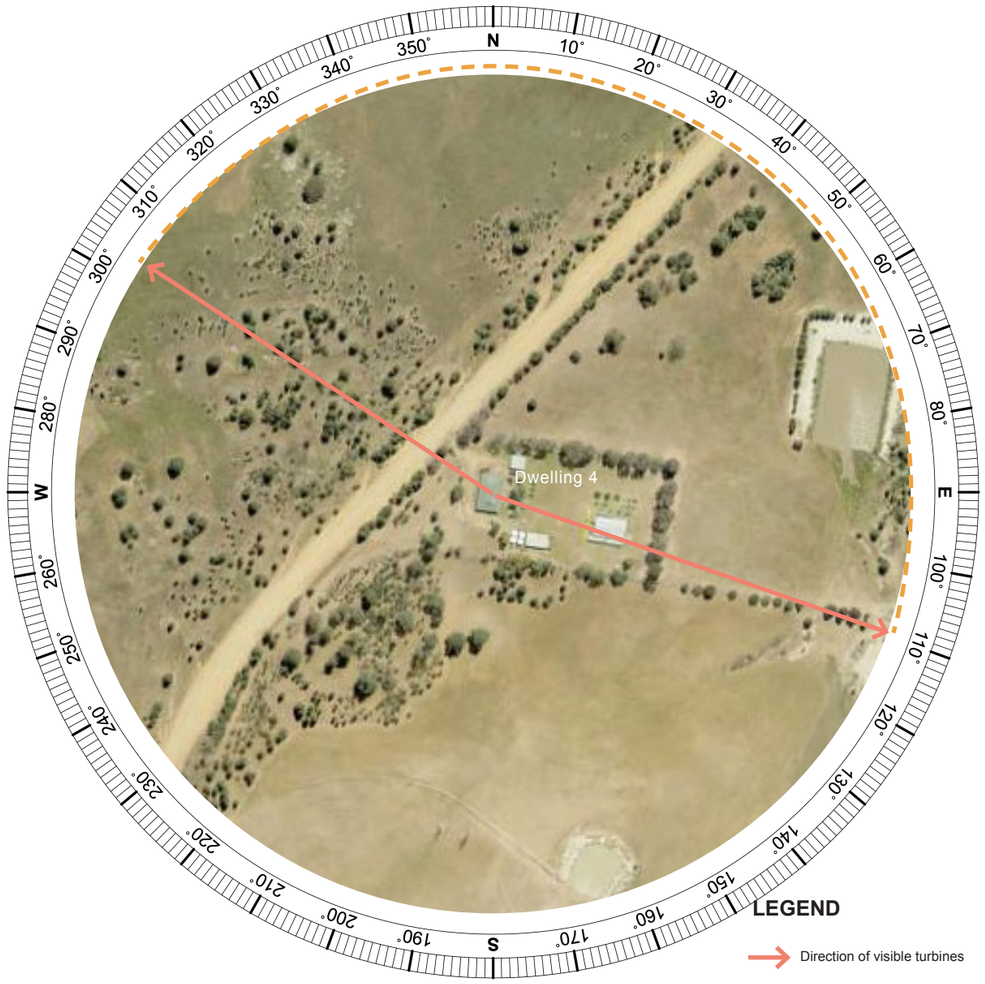
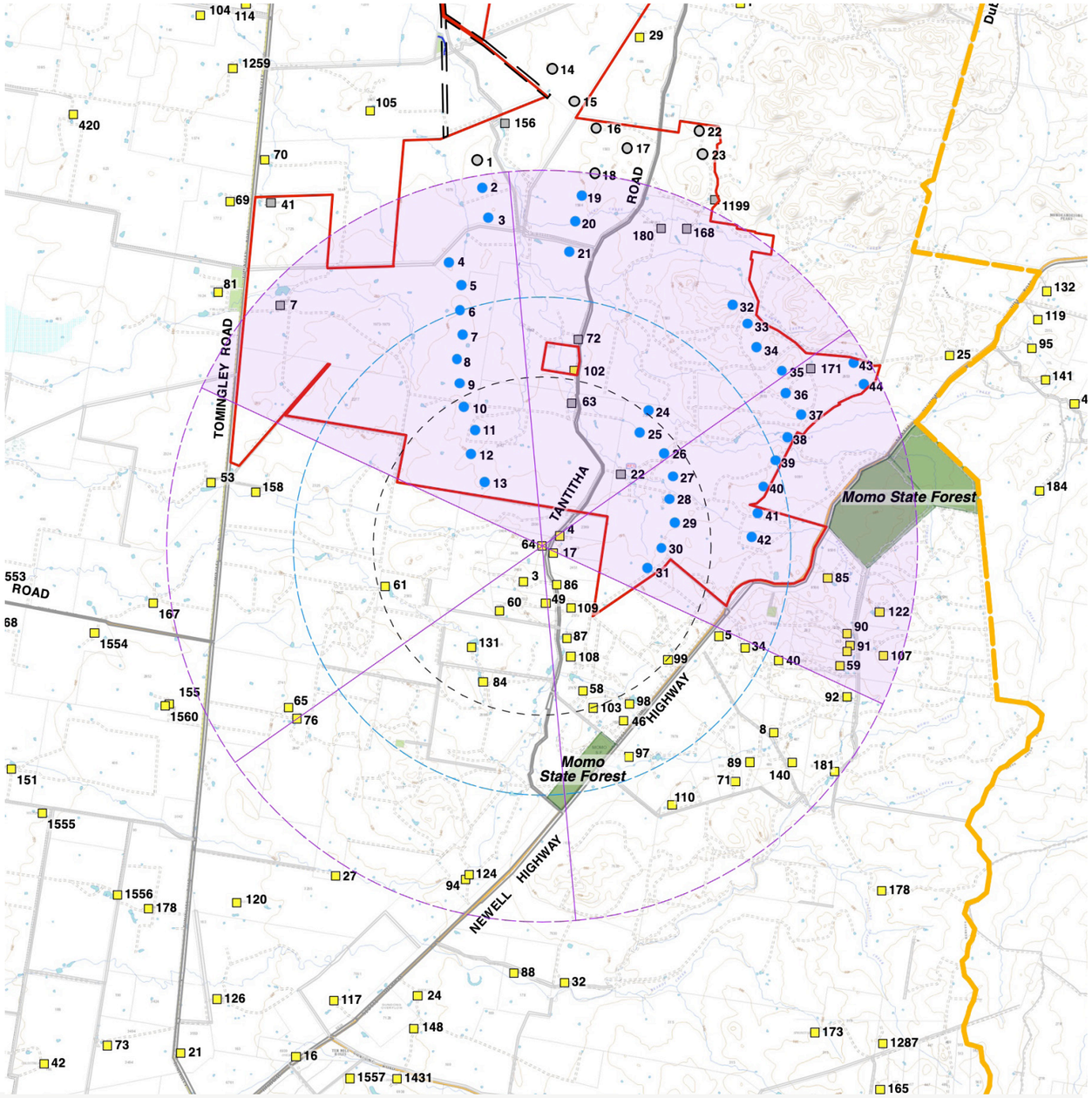


Figure A.8 Aerial Image Dwelling 4 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**1.97 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**12**
Number of theoretical 60º sectors (Based on 2D assessment):	**3**
Number of potentially visible turbines within 8,000m (based on topography alone):	**37 Turbines (All at hub height)**

A.9. Dwelling 64



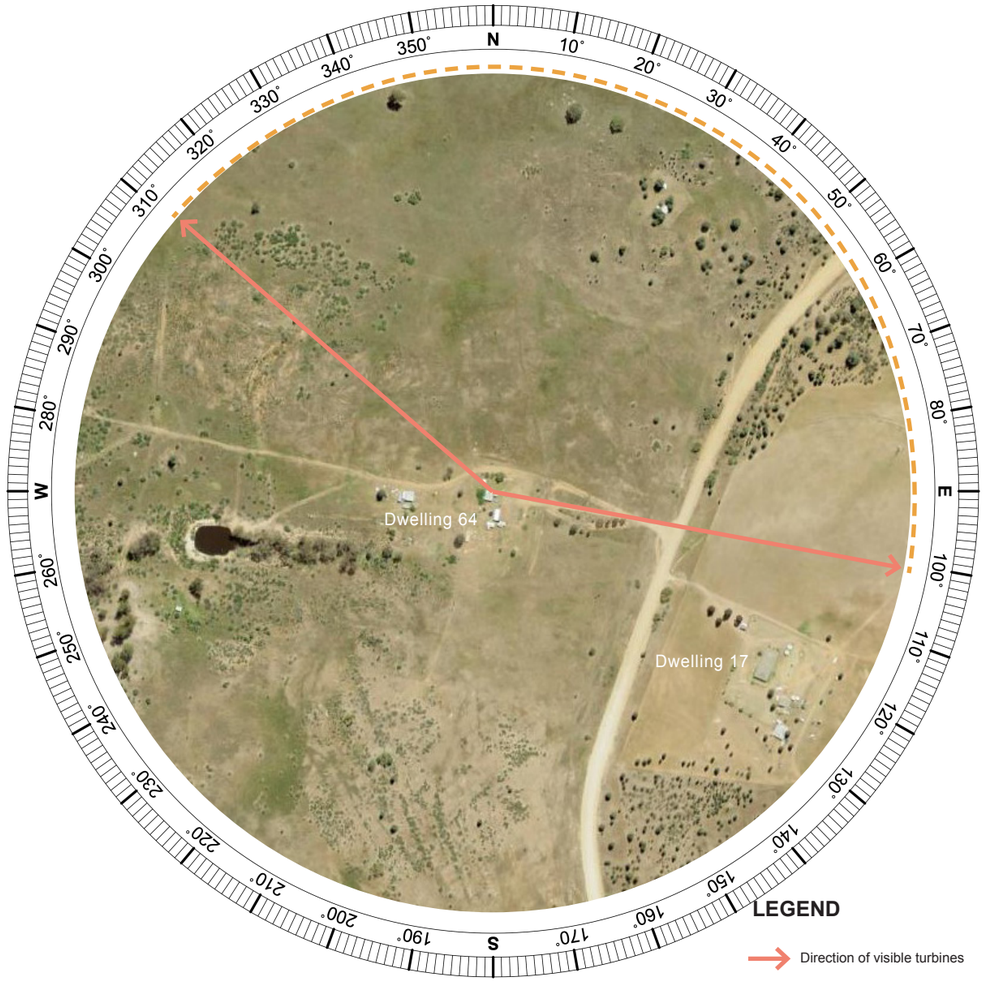
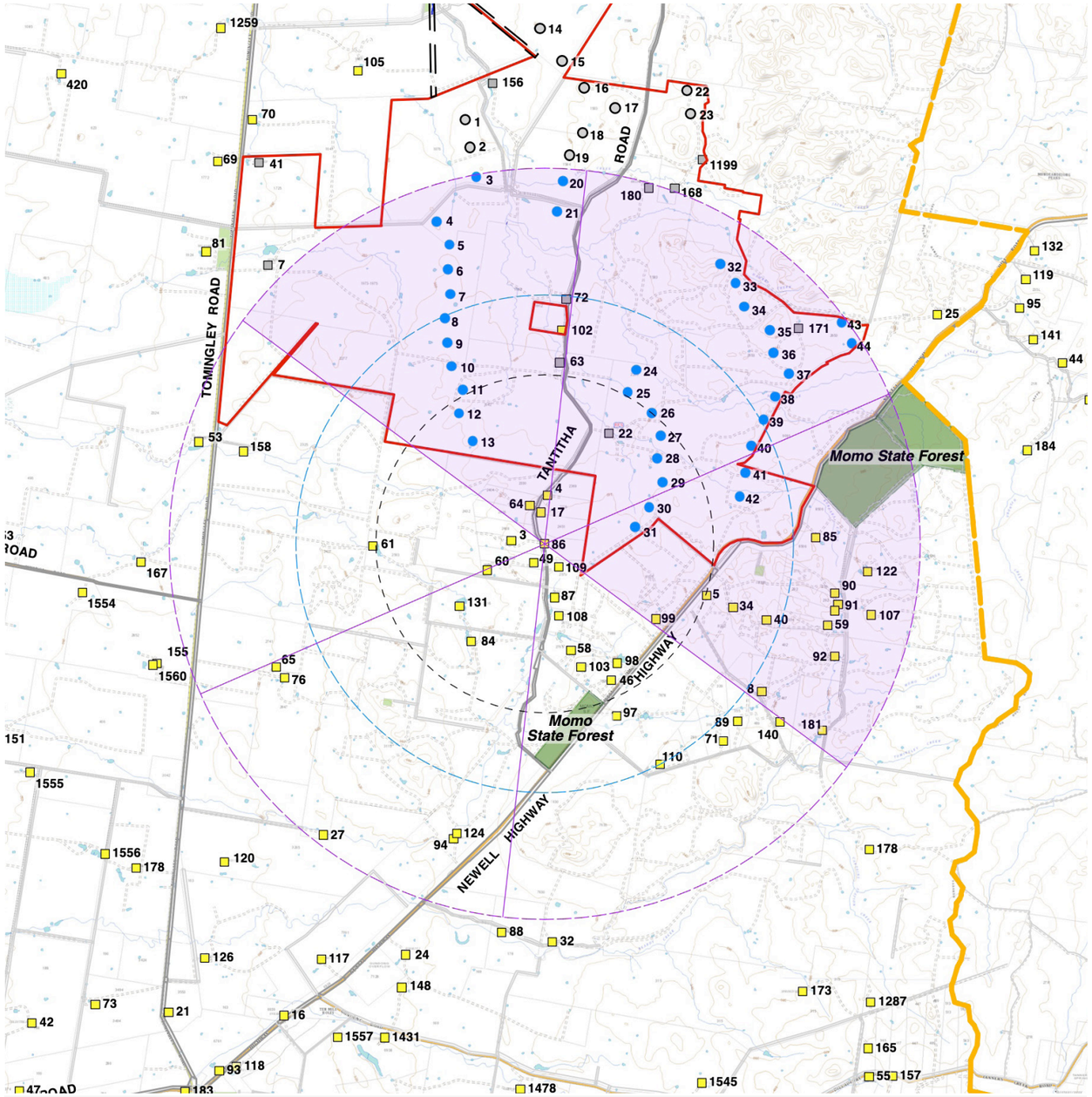


Figure A.9 Aerial Image Dwelling 64 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.02 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**11**
Number of theoretical 60º sectors (Based on 2D assessment):	**3**
Number of potentially visible turbines within 8,000m (based on topography alone):	**36 Turbines (All at hub height)**

A.10. Dwelling 86



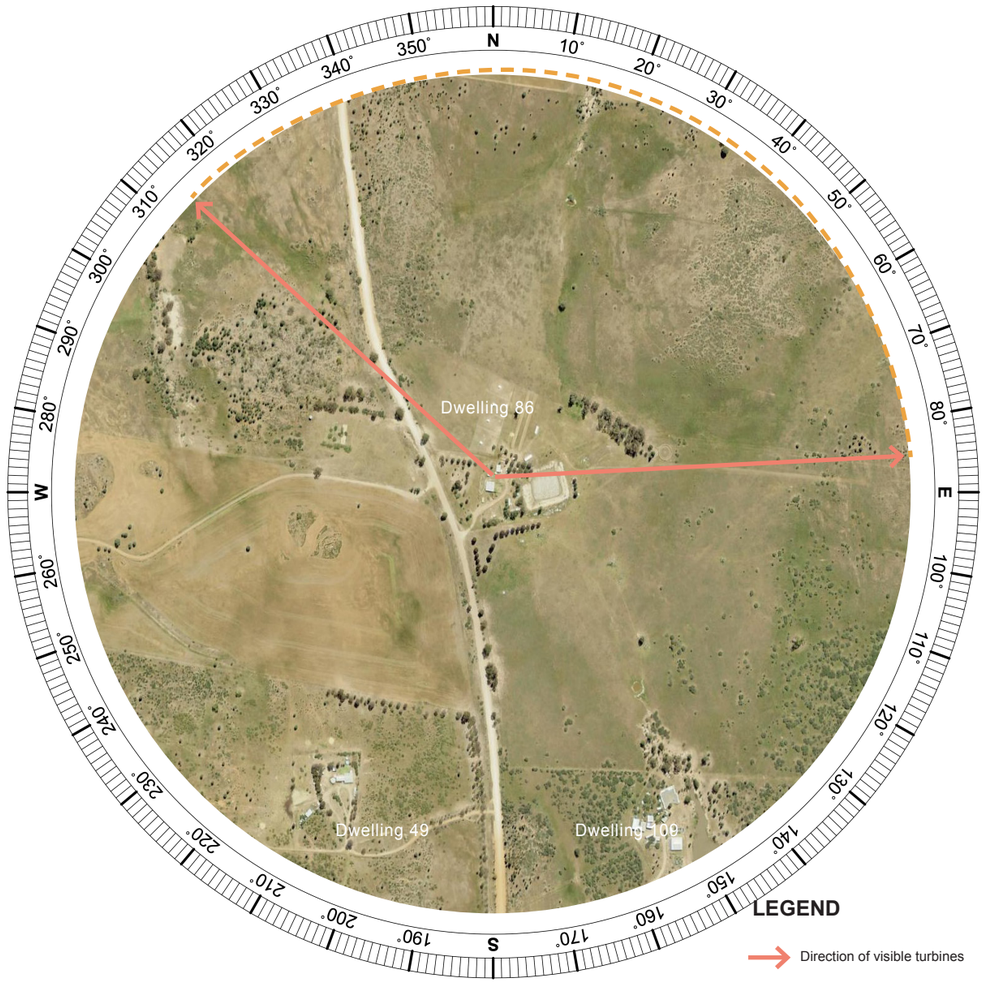
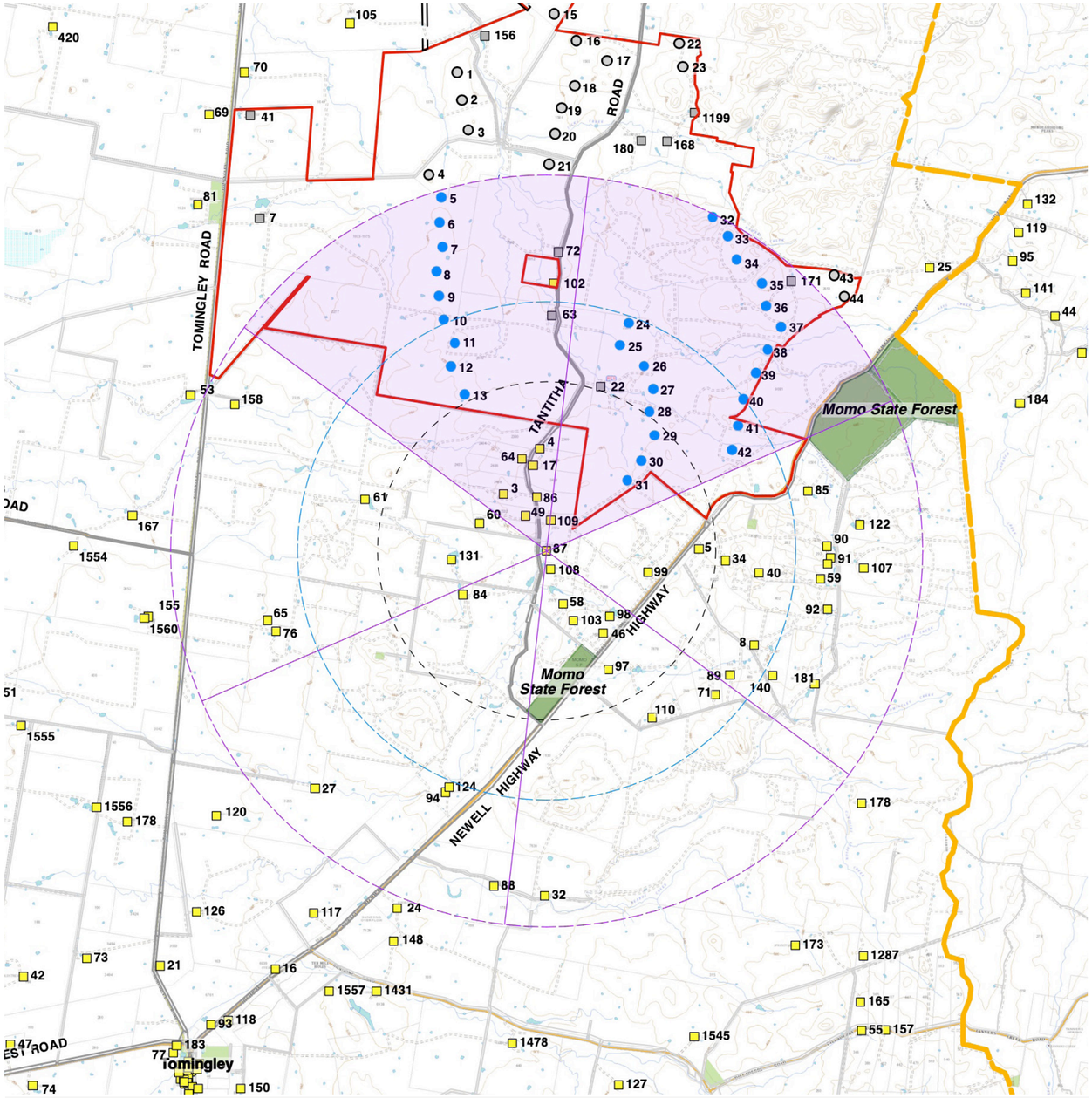


Figure A.10 Aerial Image Dwelling 86 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**1.95 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**7**
Number of theoretical 60º sectors (Based on 2D assessment):	**3**
Number of potentially visible turbines within 8,000m (based on topography alone):	**34 Turbines (All at hub height)**

A.11. Dwelling 87



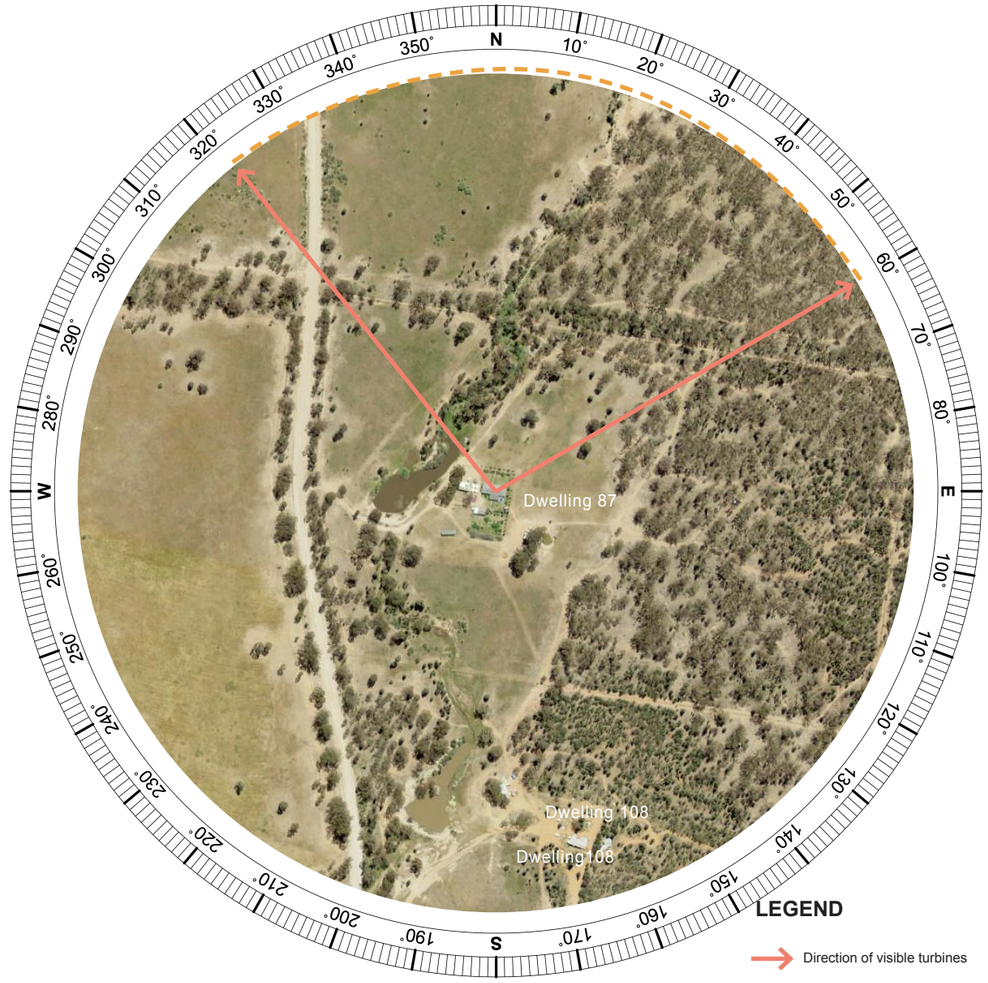
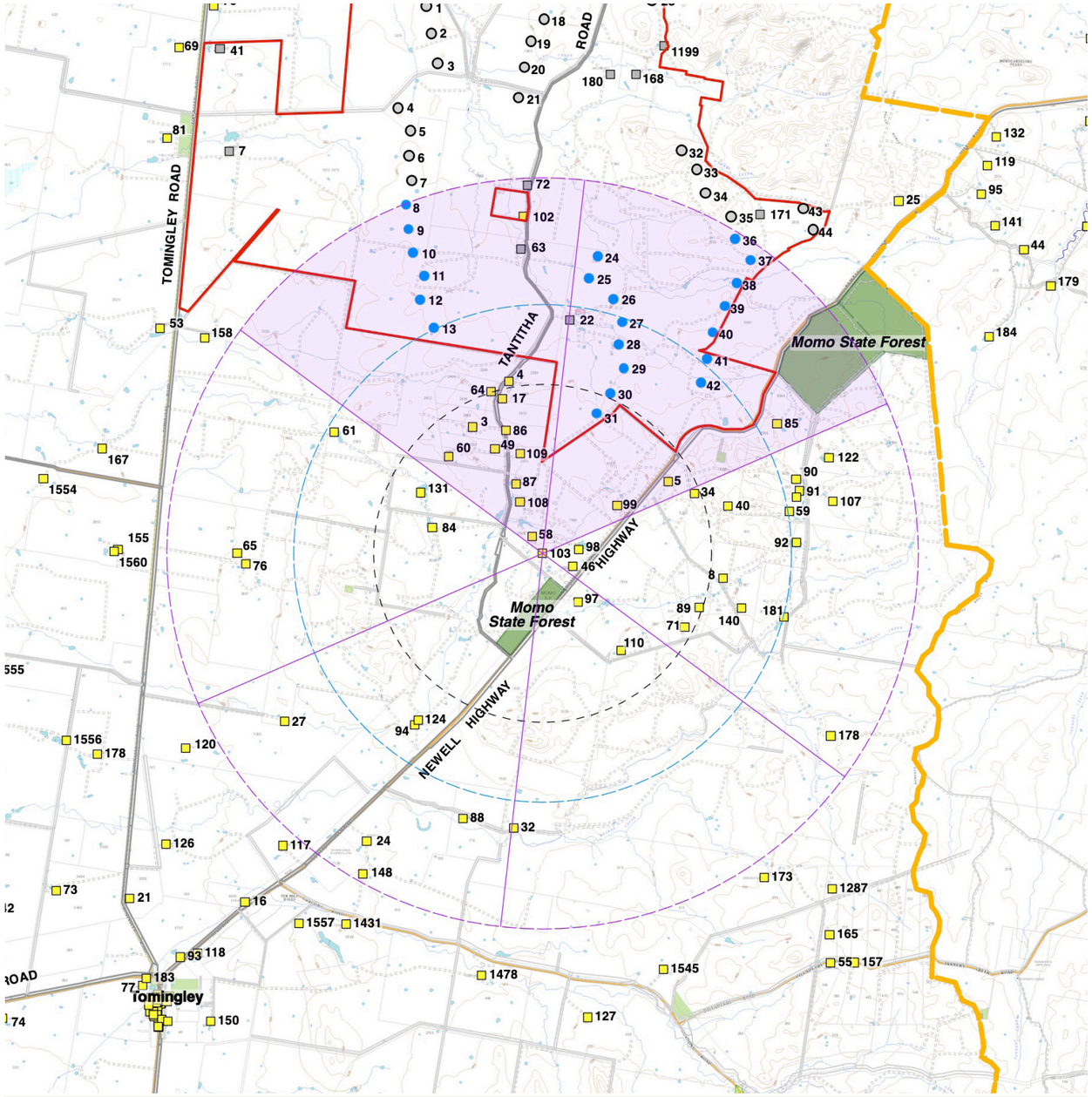


Figure A.11 Aerial Image Dwelling 87 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.28 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**3**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**28 Turbines (All at hub height)**

A.12. Dwelling 103



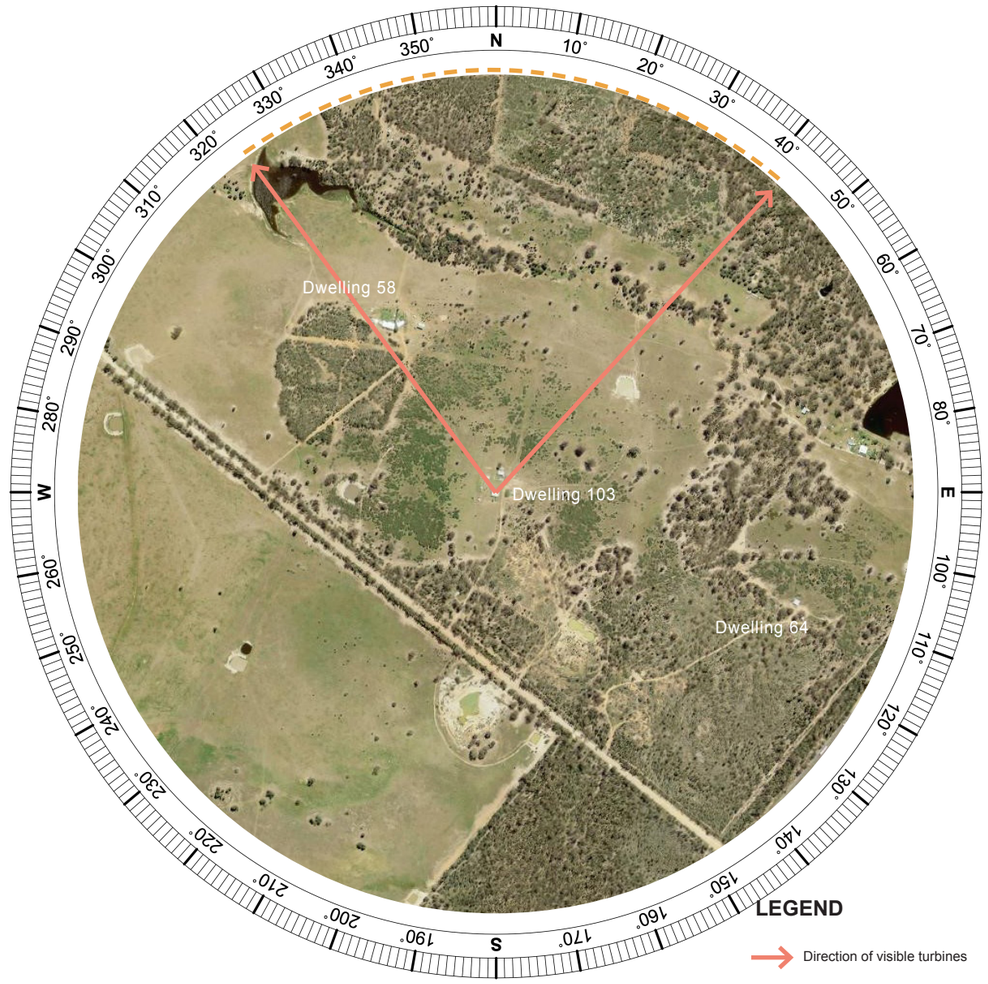
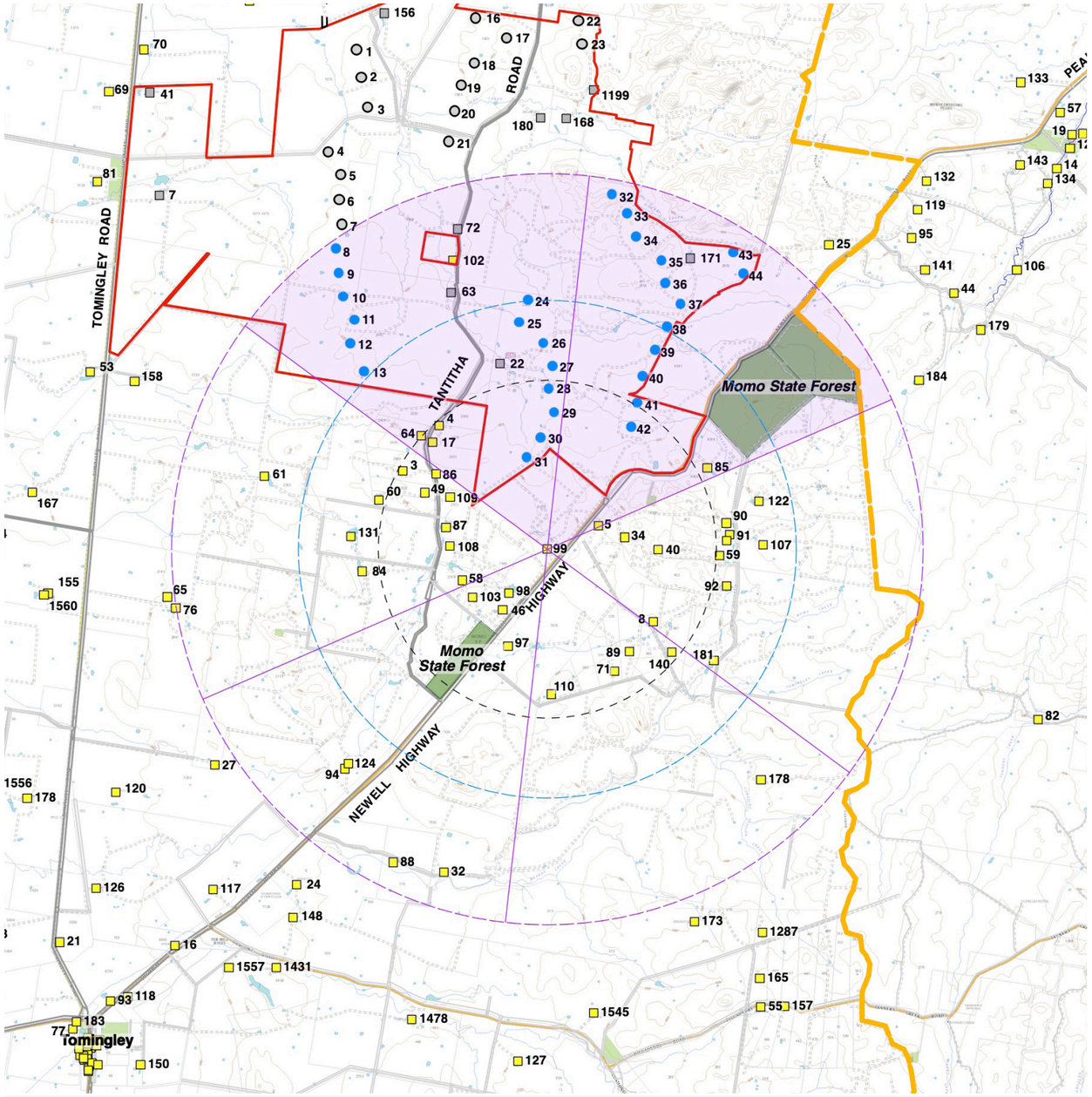


Figure A.12 Aerial Image Dwelling 103 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.20 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**1**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**20 Turbines (All at hub height)**

A.13. Dwelling 99



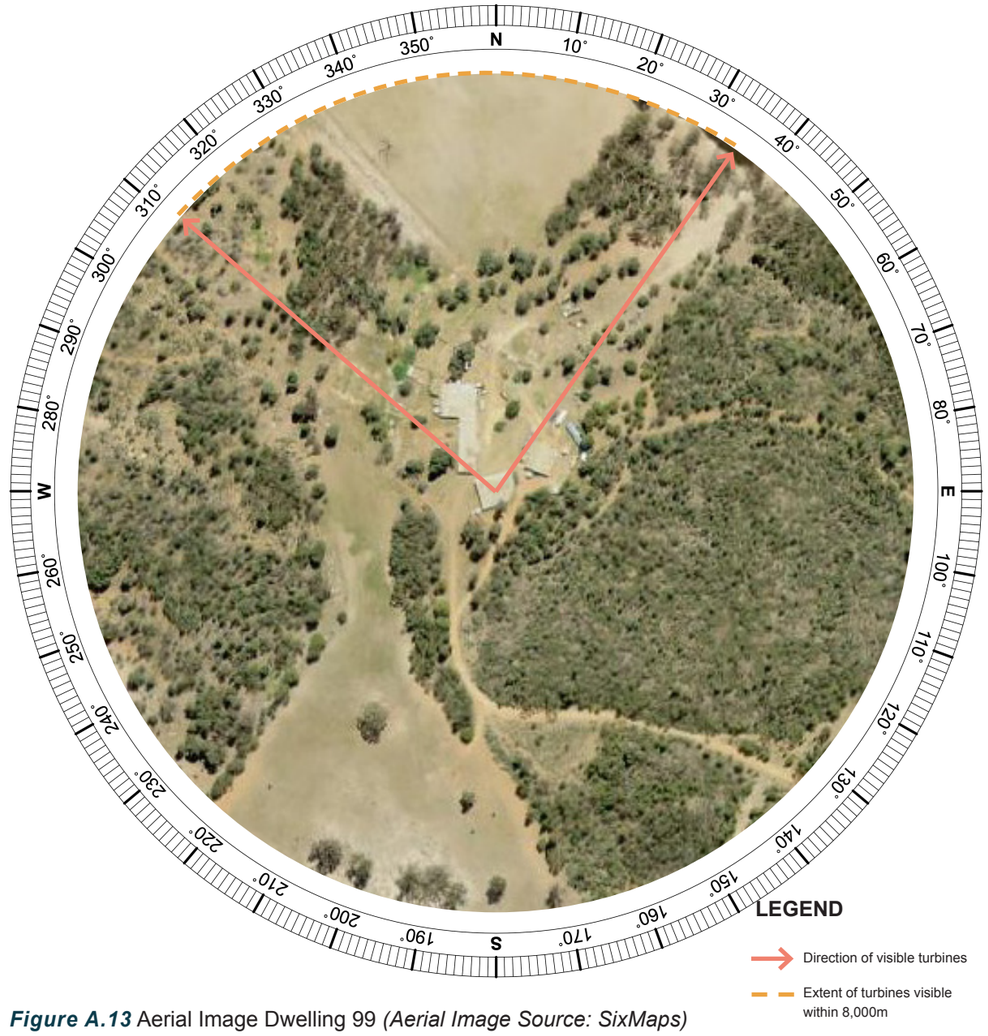
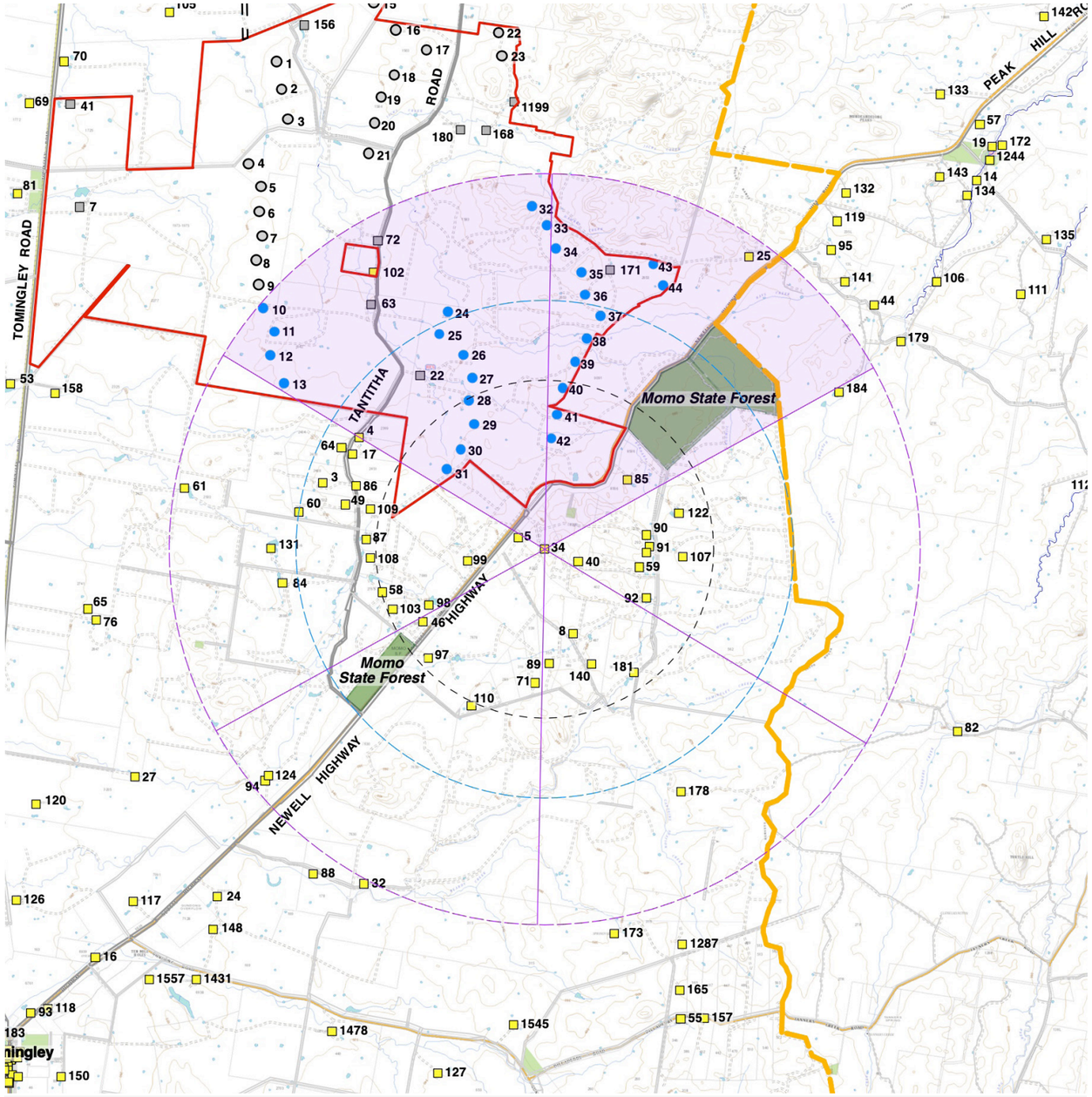


Figure A.13 Aerial Image Dwelling 99 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.01 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**5**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**27 Turbines (All at hub height)**

A.14. Dwelling 34



LEGEND

- Project Area
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Non-associated Dwelling
- Associated Dwelling
- LGA Boundary
- 3,600 m from nearest turbine (Black Line)
- 5,300 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60º sector
- 60º sector with turbines

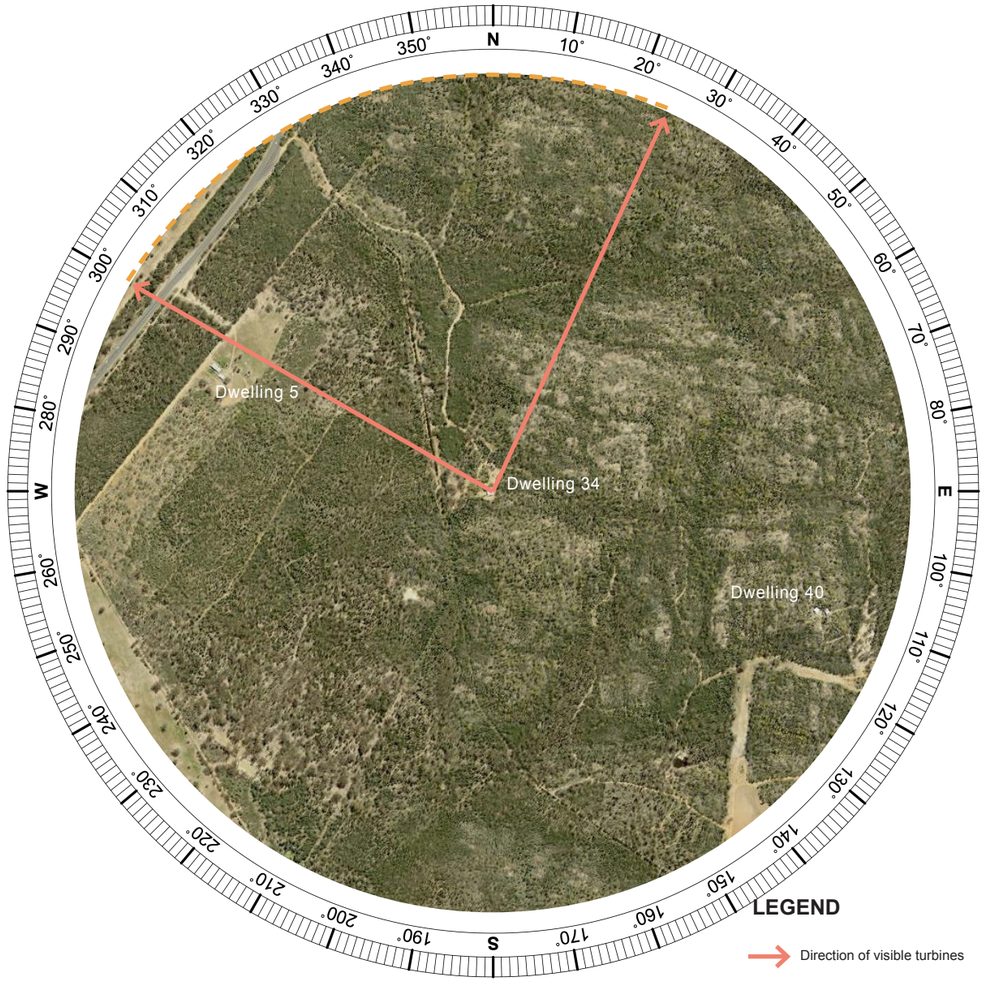
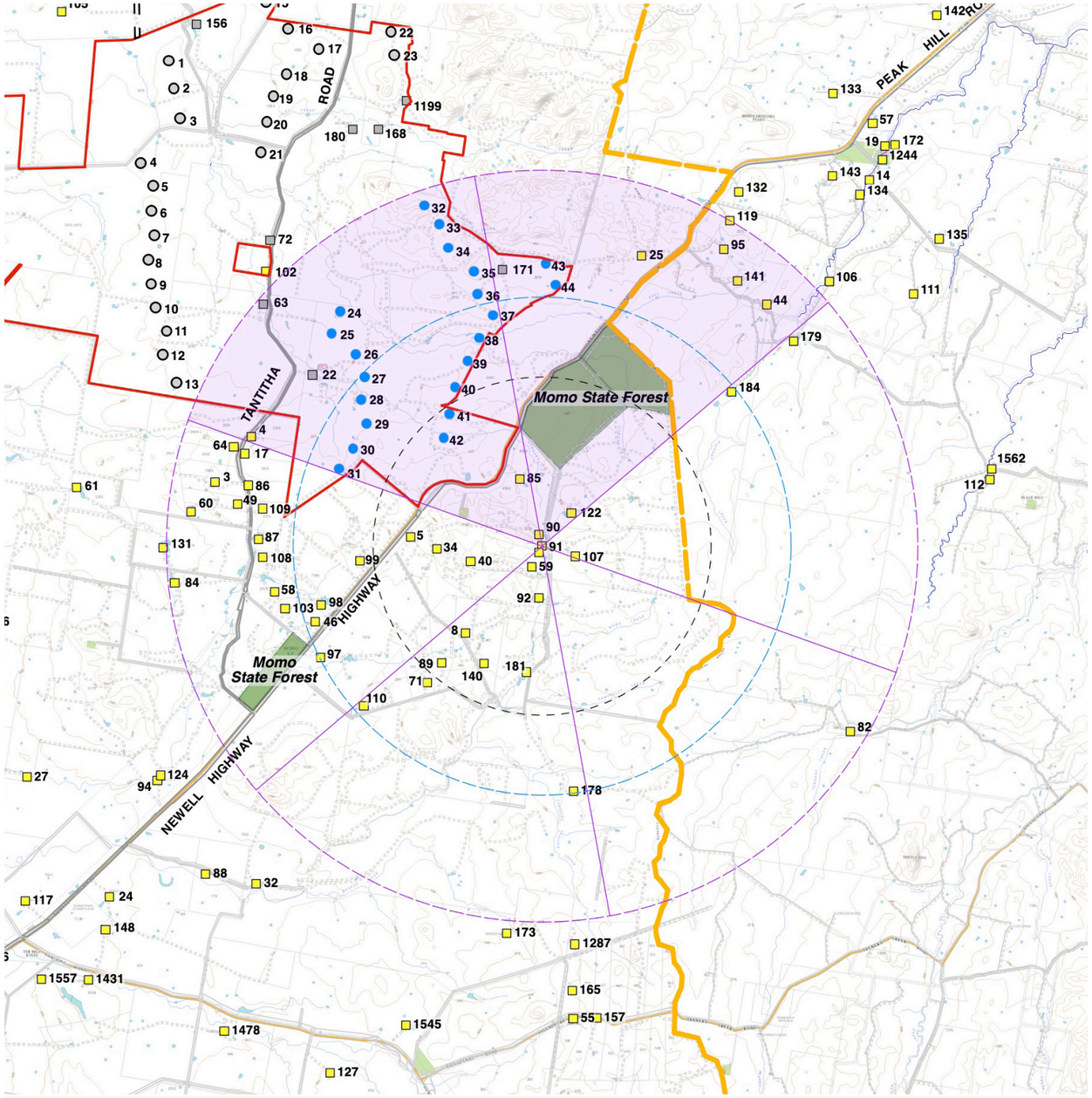


Figure A.14 Aerial Image Dwelling 34 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**2.36 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**7**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**25 Turbines (All at hub height)**

A.15. Dwelling 91



LEGEND

- Project Area
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Non-associated Dwelling
- Associated Dwelling
- LGA Boundary
- 3,600 m from nearest turbine (Black Line)
- 5,300 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60º sector
- 60º sector with turbines

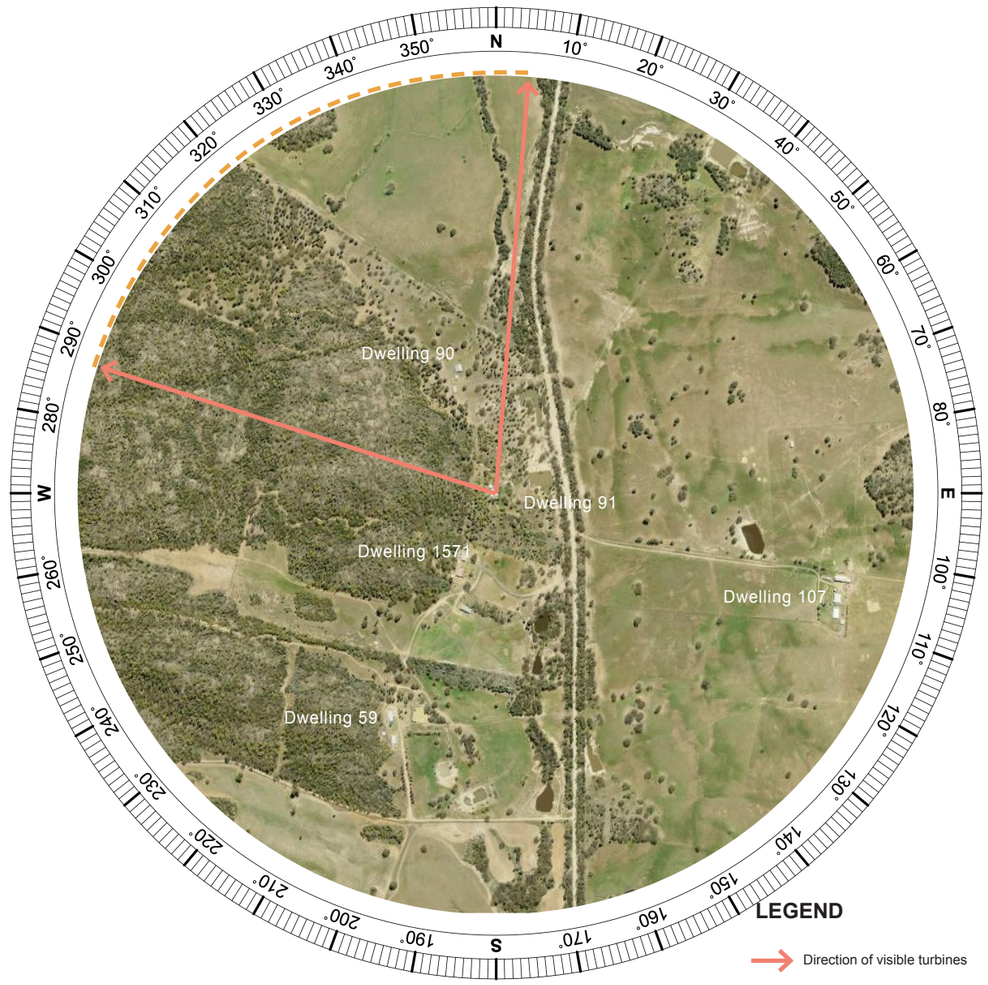
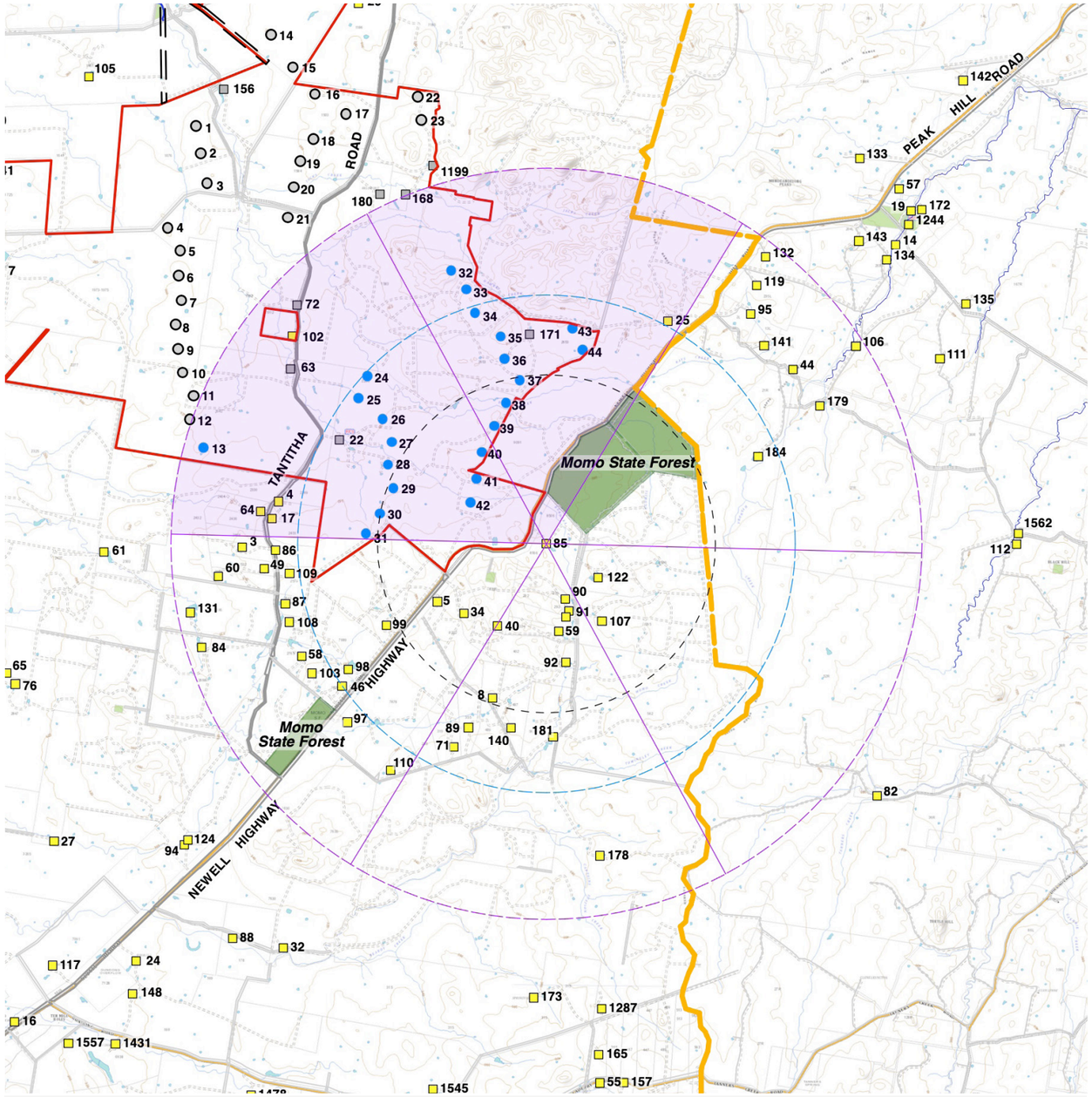


Figure A.15 Aerial Image Dwelling 91 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.11 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**2**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**16 Turbines (13 at hub height and 3 at blade tip height)**

A.16. Dwelling 85



LEGEND

- Project Area
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Non-associated Dwelling
- Associated Dwelling
- LGA Boundary
- 3,600 m from nearest turbine (Black Line)
- 5,300 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60º sector
- 60º sector with turbines

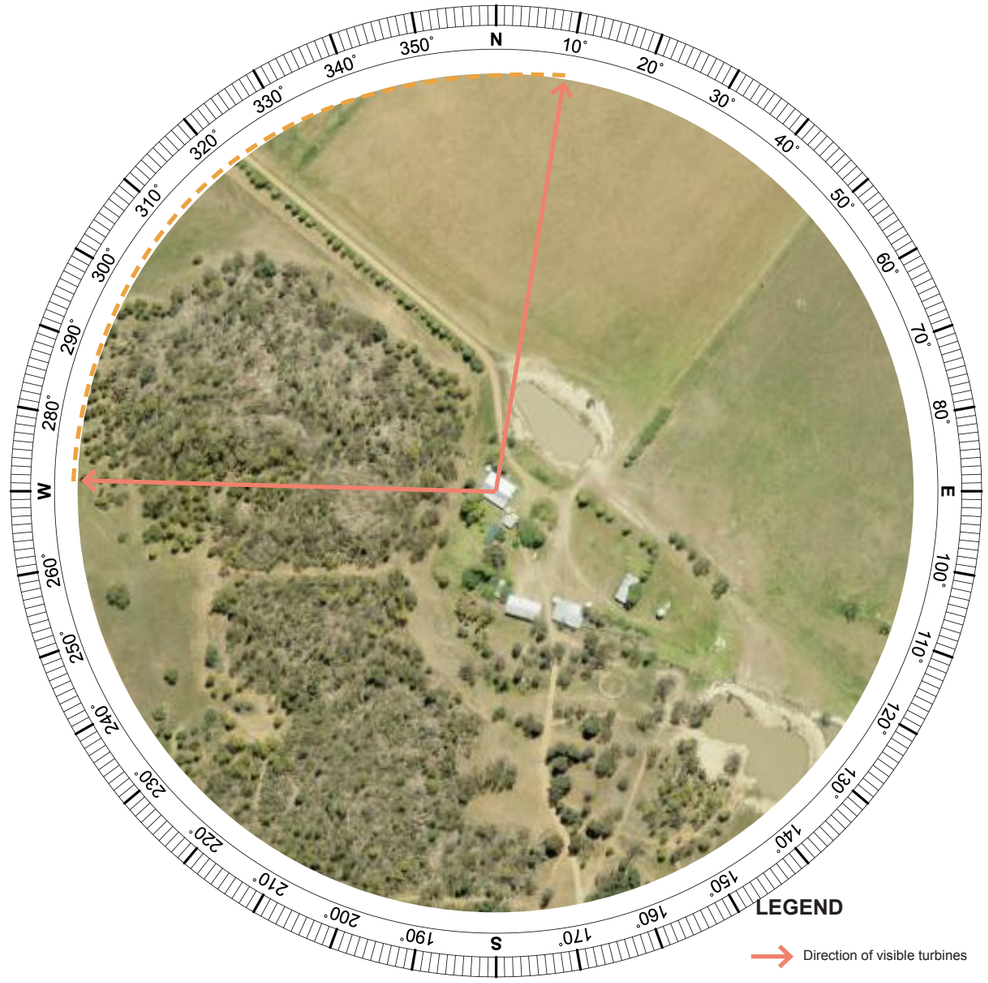
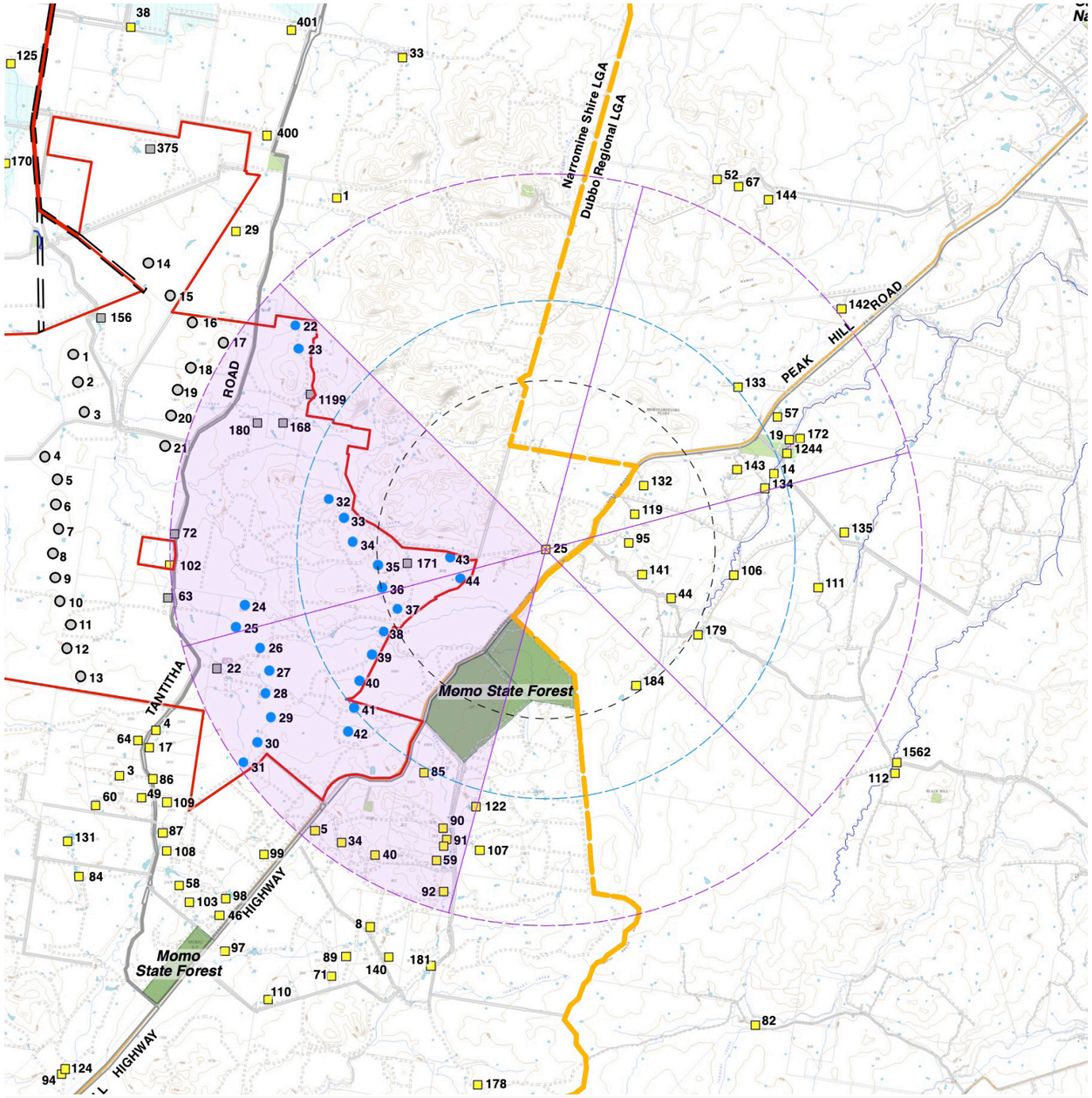


Figure A.16 Aerial Image Dwelling 85 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**1.84 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**7**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**22 Turbines (All at hub height)**

A.17. Dwelling 25



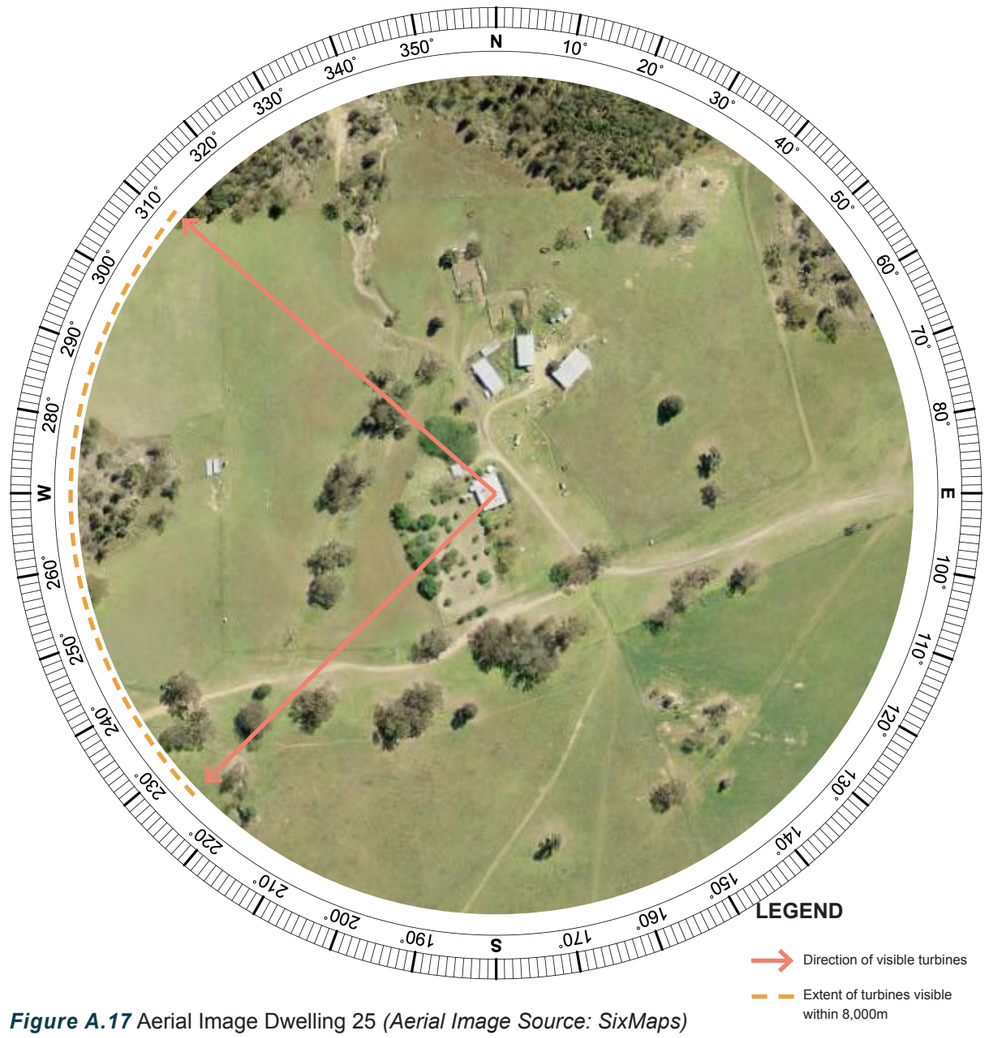
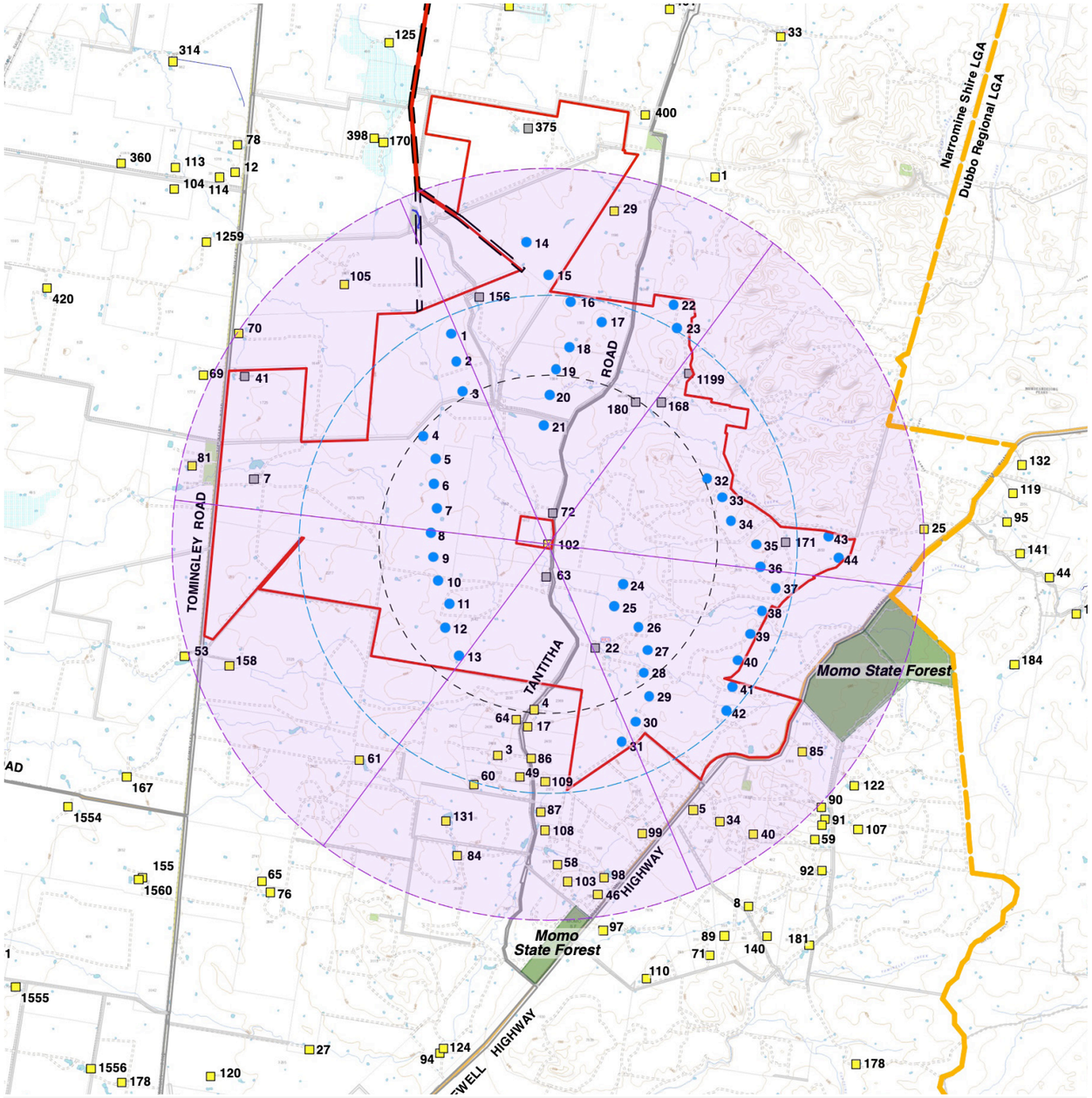


Figure A.17 Aerial Image Dwelling 25 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**1.92 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**5**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**21 Turbines (16 at hub height and 4 at blade tip height)**

A.18. Dwelling 102



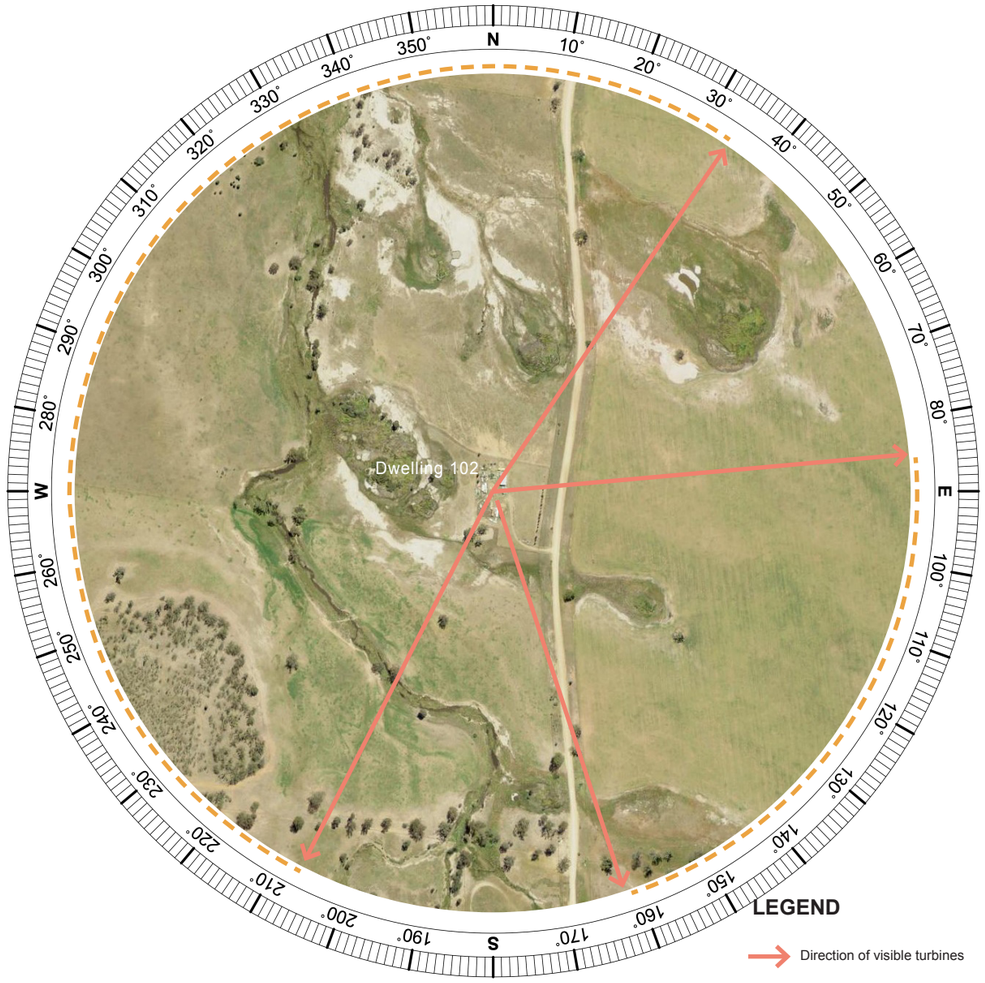
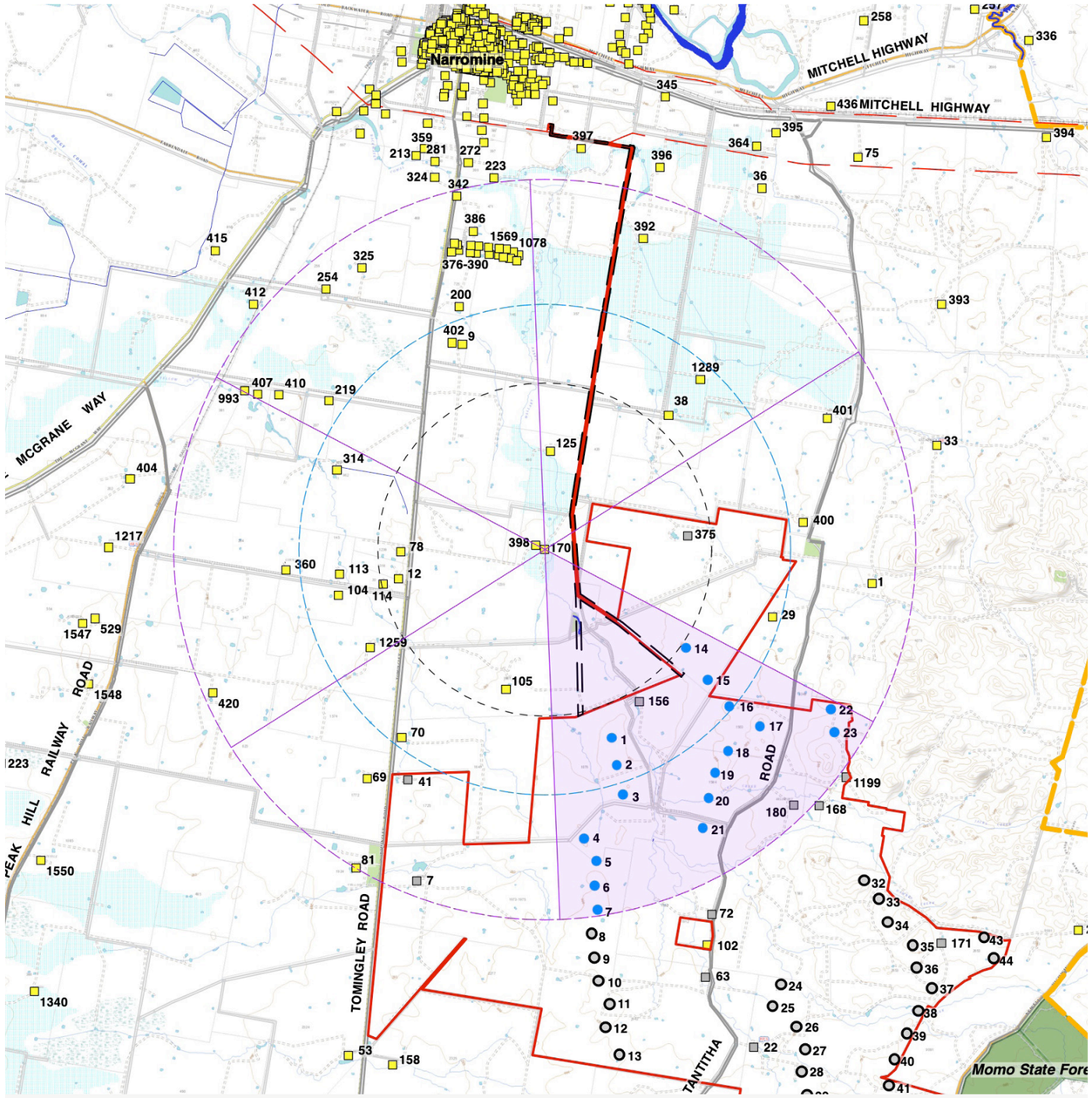


Figure A.18 Aerial Image Dwelling 102 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**1.84 km**
Number of proposed turbines within the Black line (3,600 m) of visual magnitude:	**17**
Number of theoretical 60º sectors (Based on 2D assessment):	**6**
Number of potentially visible turbines within 8,000m (based on topography alone):	**44 Turbines (All at hub height)**

A.19. Dwelling 170



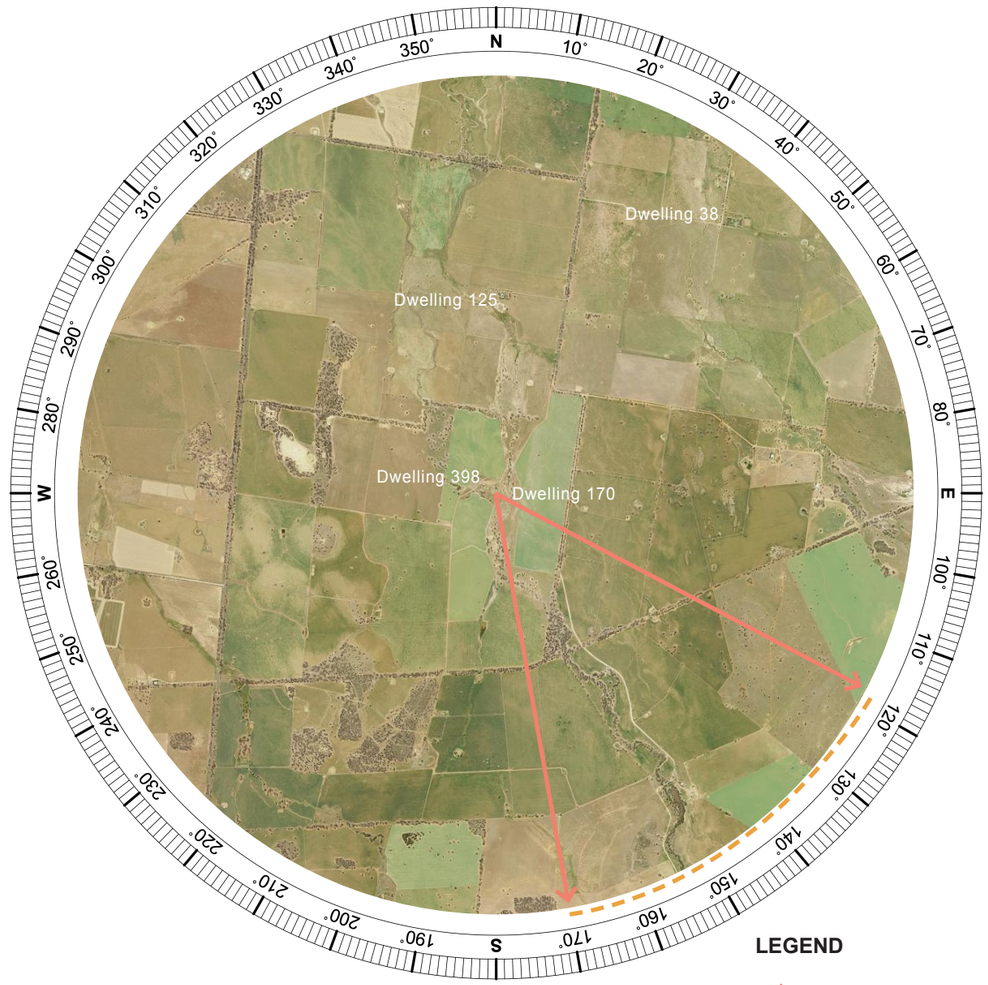
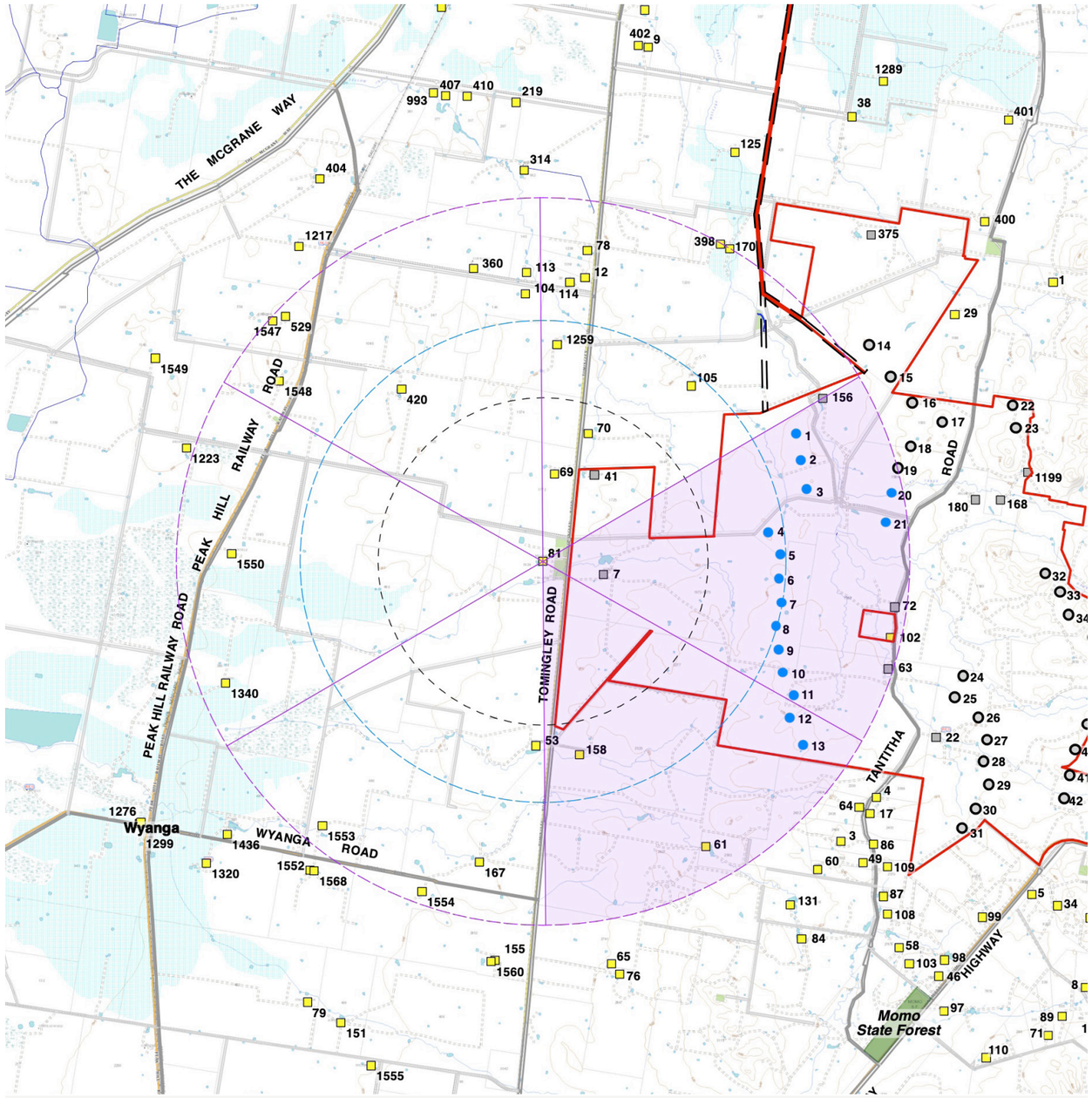


Figure A.19 Aerial Image Dwelling 170 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.70 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**5**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**17 Turbines (All at hub height)**

A.20. Dwelling 81



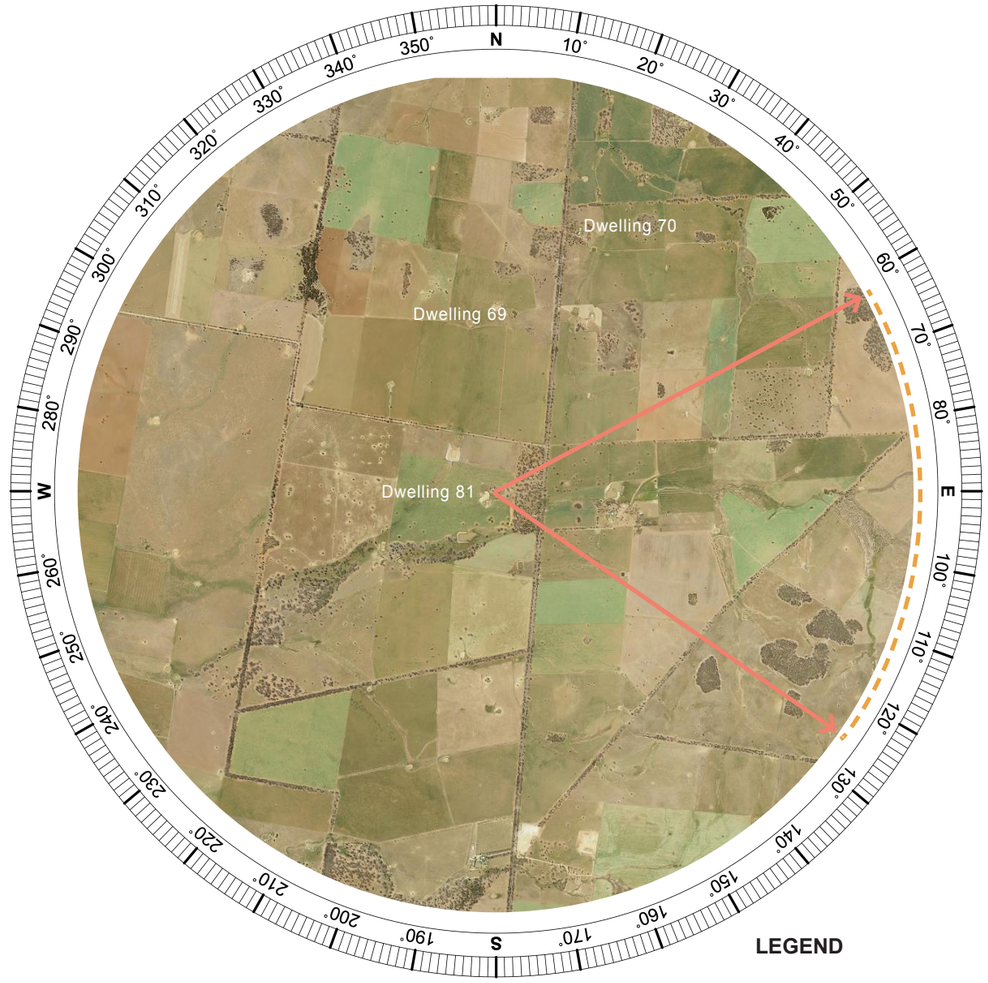
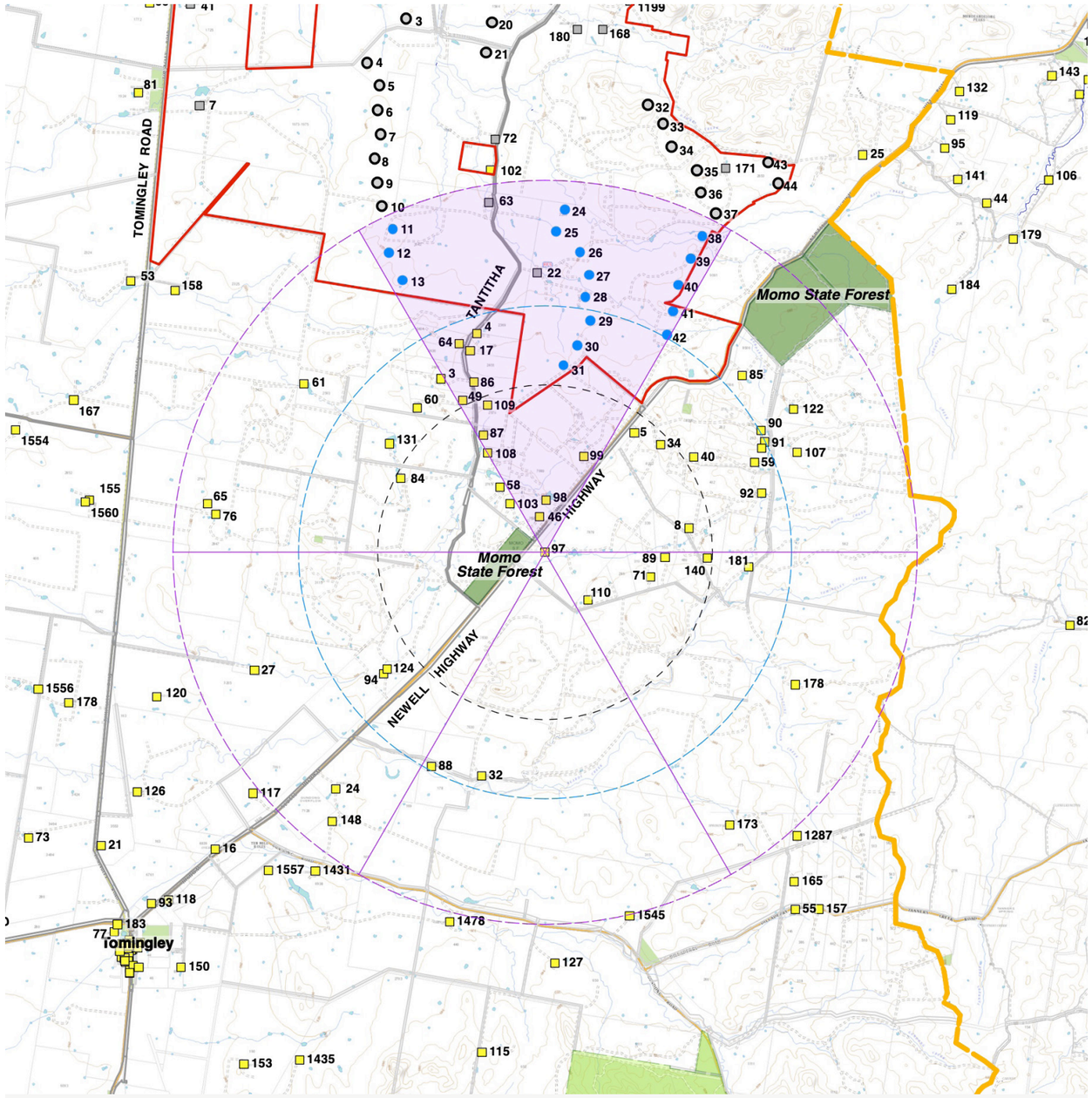


Figure A.20 Aerial Image Dwelling 81 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.95 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**5**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**15 Turbines (All at hub height)**

A.21. Dwelling 97



LEGEND

- Project Area
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Non-associated Dwelling
- Associated Dwelling
- LGA Boundary
- 3,600 m from nearest turbine (Black Line)
- 5,300 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60º sector
- 60º sector with turbines

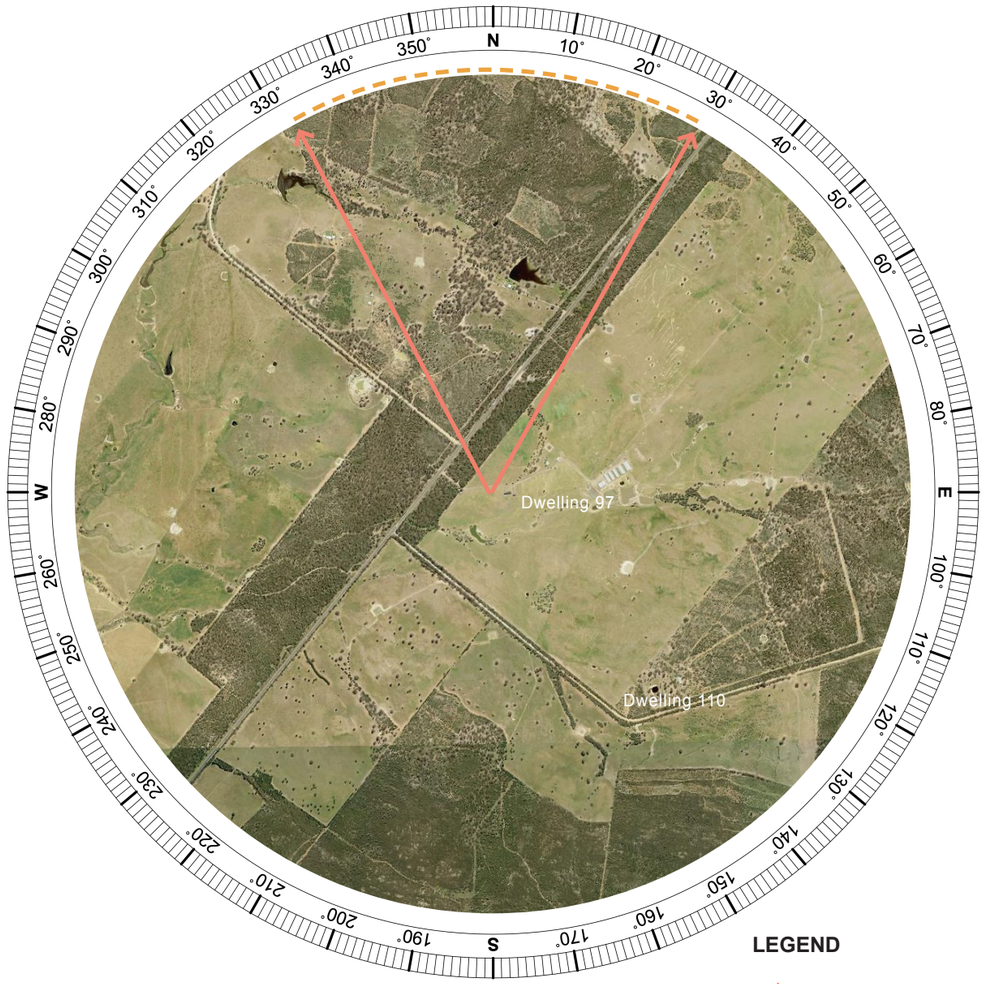
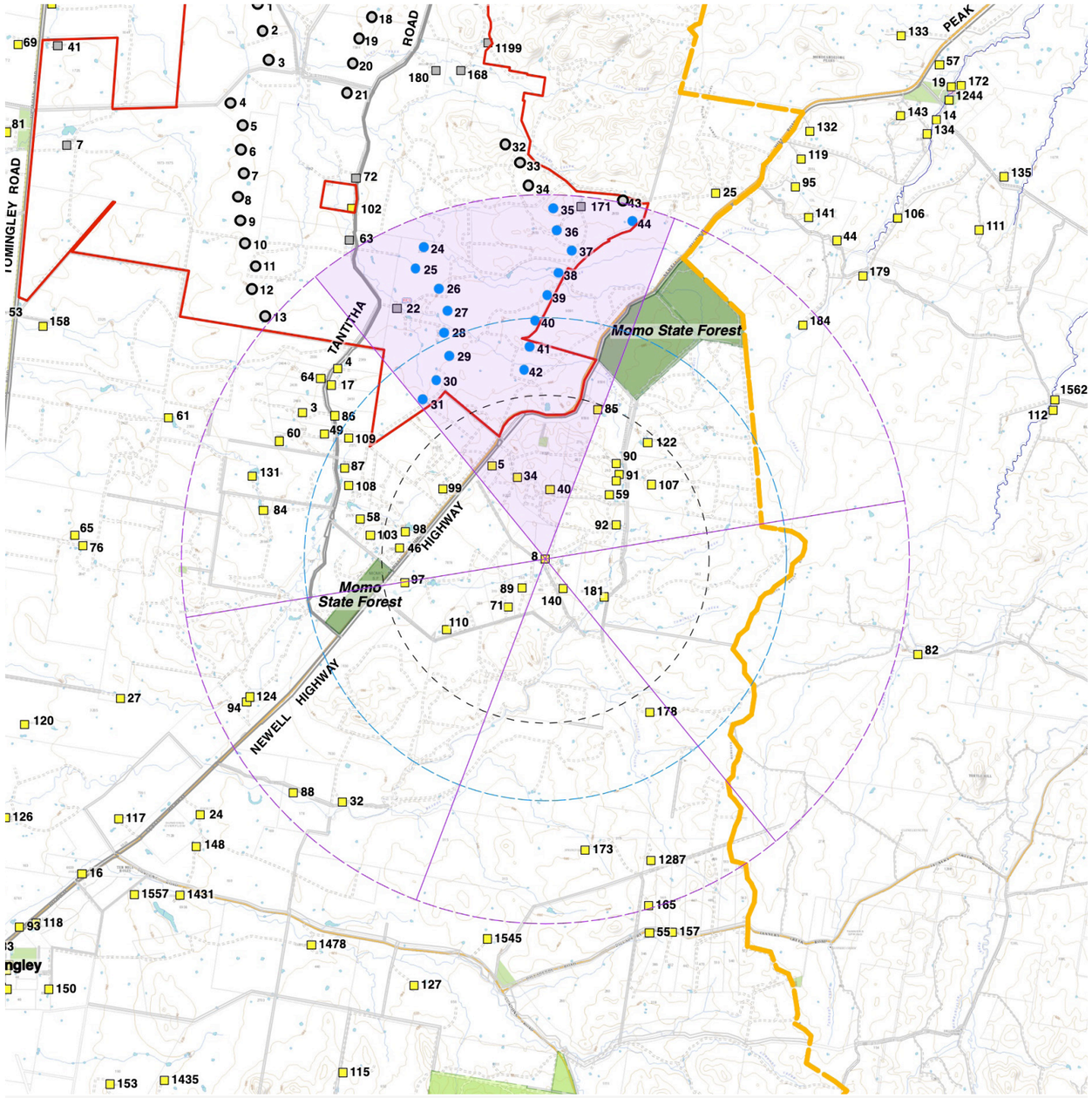


Figure A.21 Aerial Image Dwelling 97 *(Aerial Image Source: Google Earth)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.06 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**3**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**16 Turbines (10 at hub height and 6 at blade tip height)**

A.22. Dwelling 8



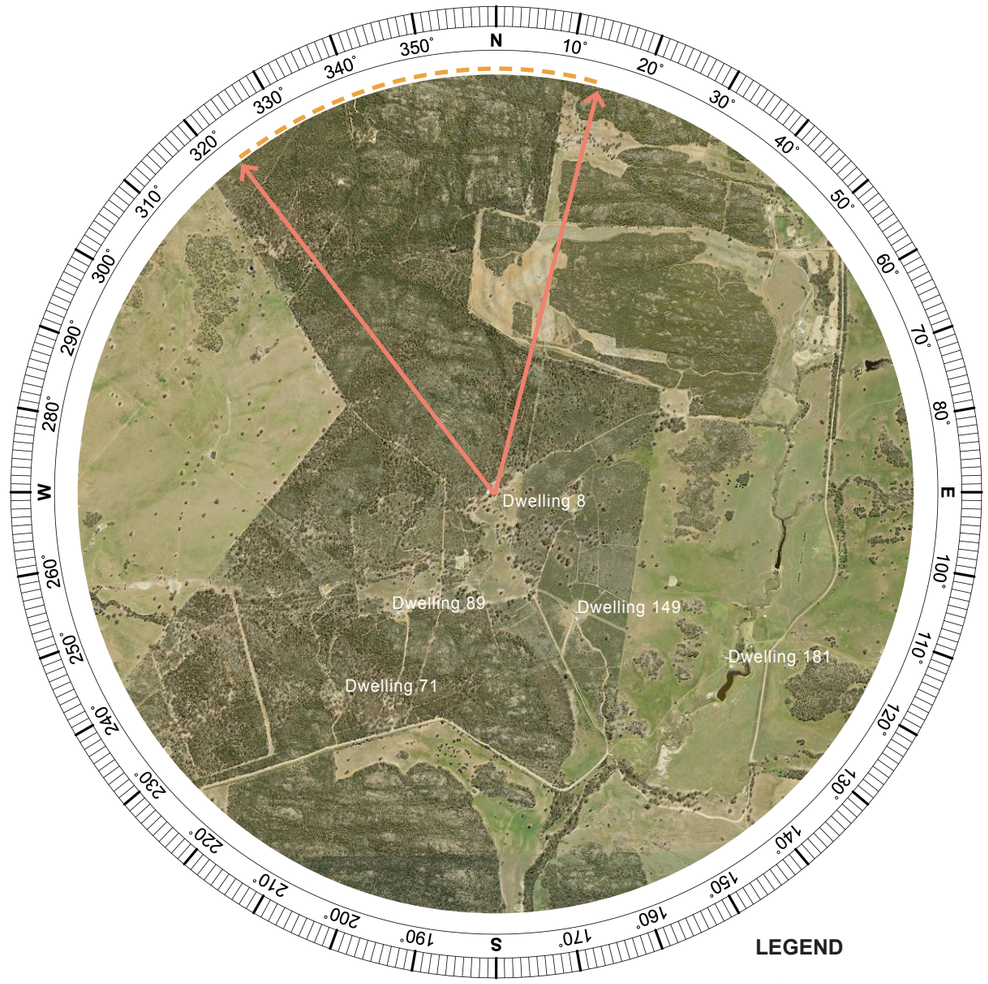
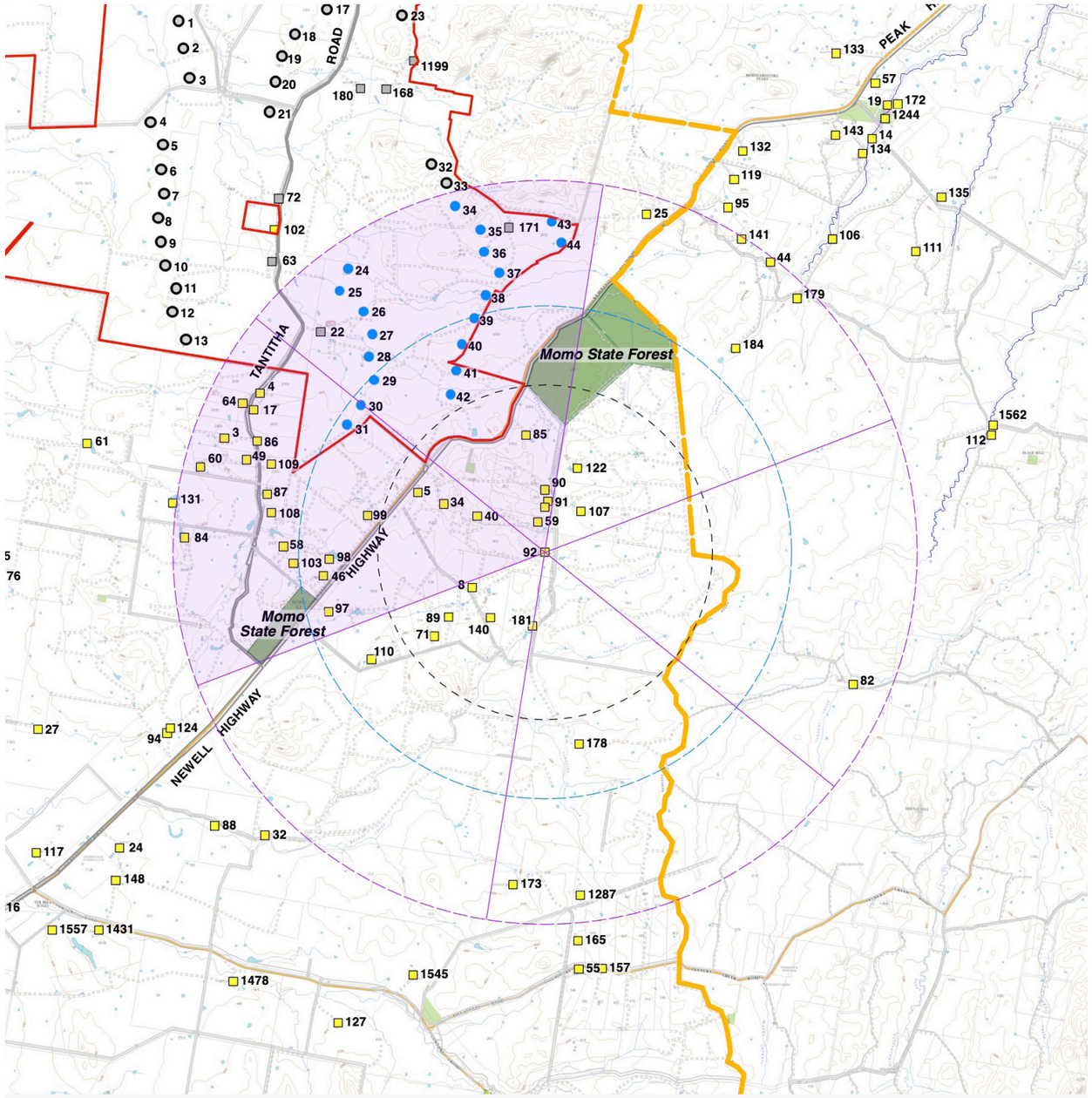


Figure A.22 Aerial Image Dwelling 8 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.20 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**6**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**17 Turbines (7 at hub height and 10 at blade tip height)**

A.23. Dwelling 92



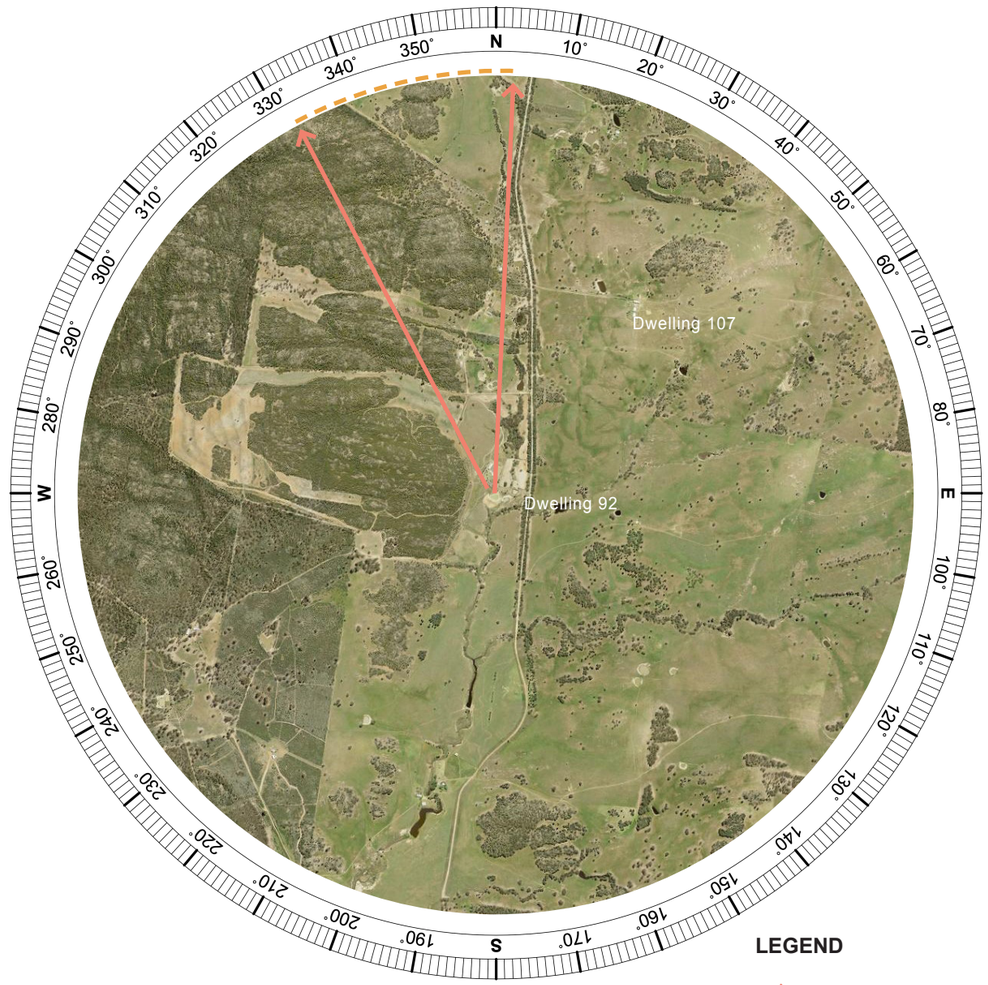
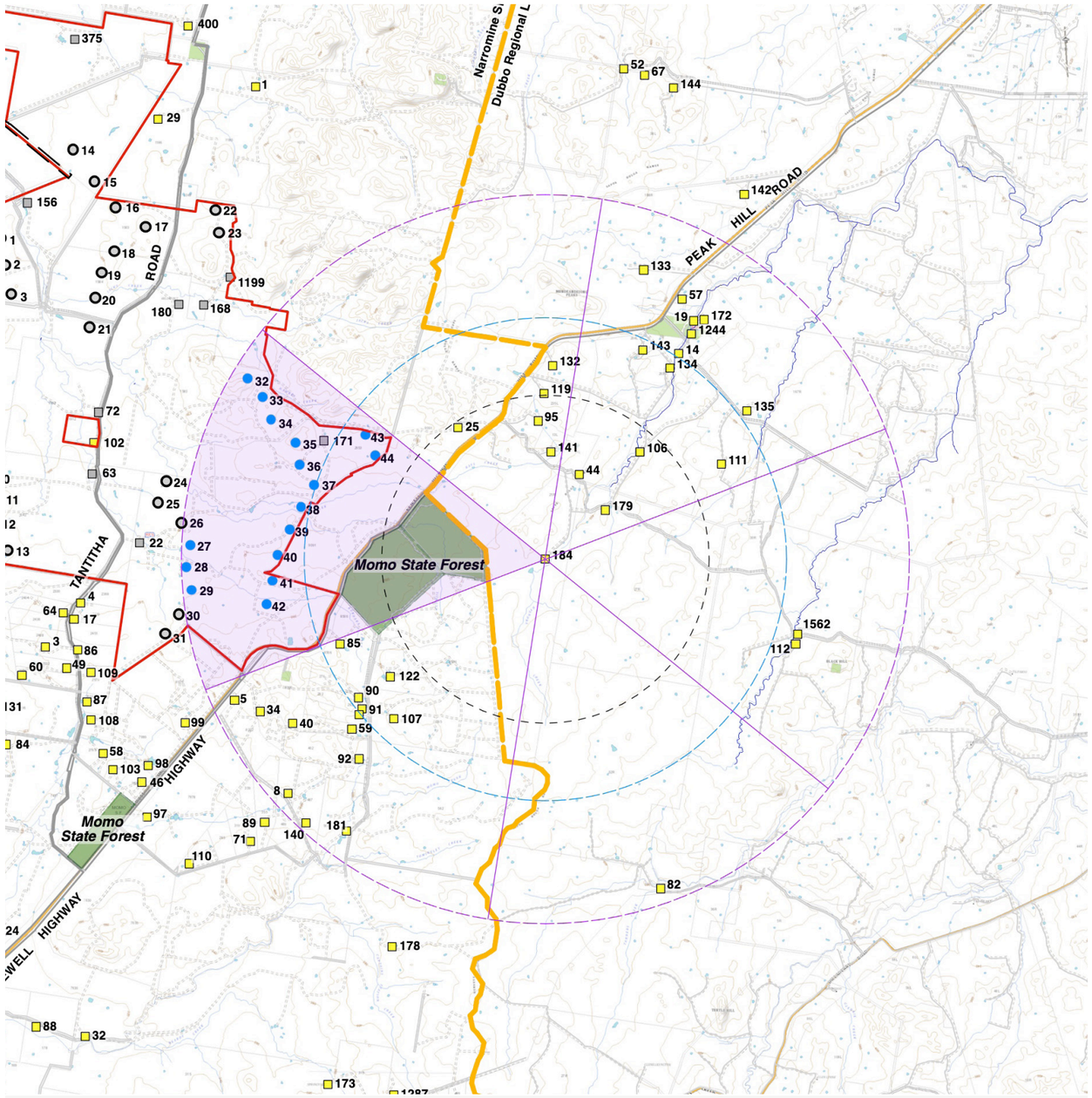


Figure A.23 Aerial Image Dwelling 92 *(Aerial Image Source: Google Earth)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.97 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**7**
Number of theoretical 60º sectors (Based on 2D assessment):	**2**
Number of potentially visible turbines within 8,000m (based on topography alone):	**6 Turbines (2 at hub height and 4 at blade tip height)**

A.24. Dwelling 184



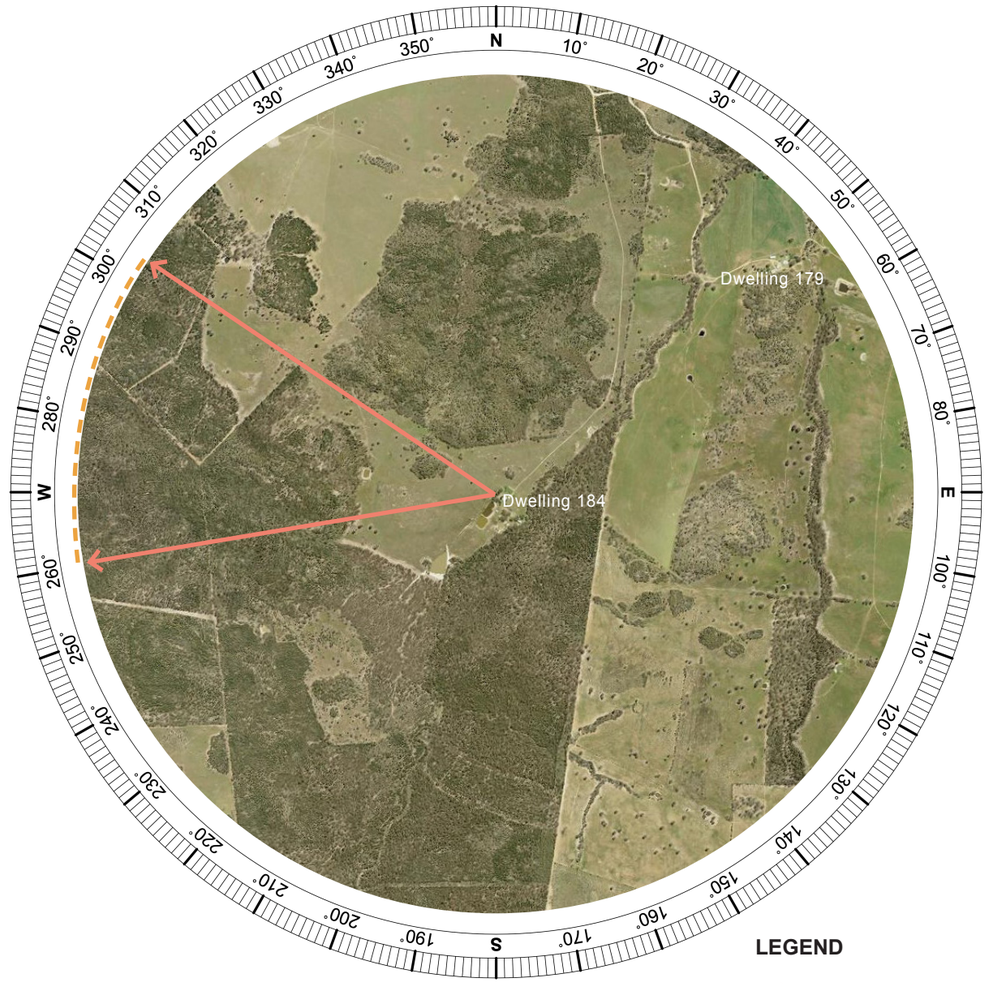
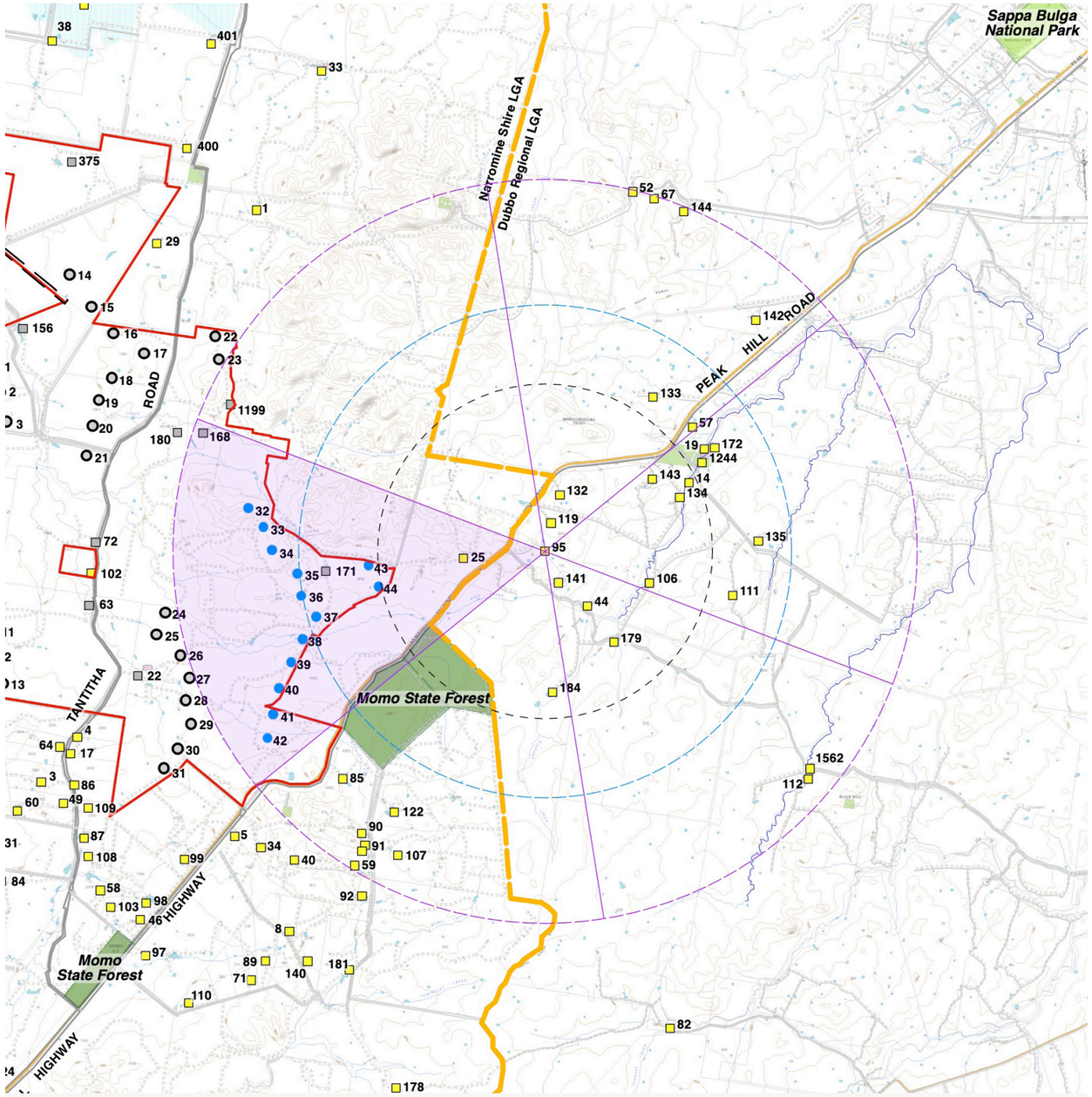


Figure A.24 Aerial Image Dwelling 184 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.38 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**2**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**12 Turbines (3 at hub height and 9 at blade tip height)**

A.25. Dwelling 95



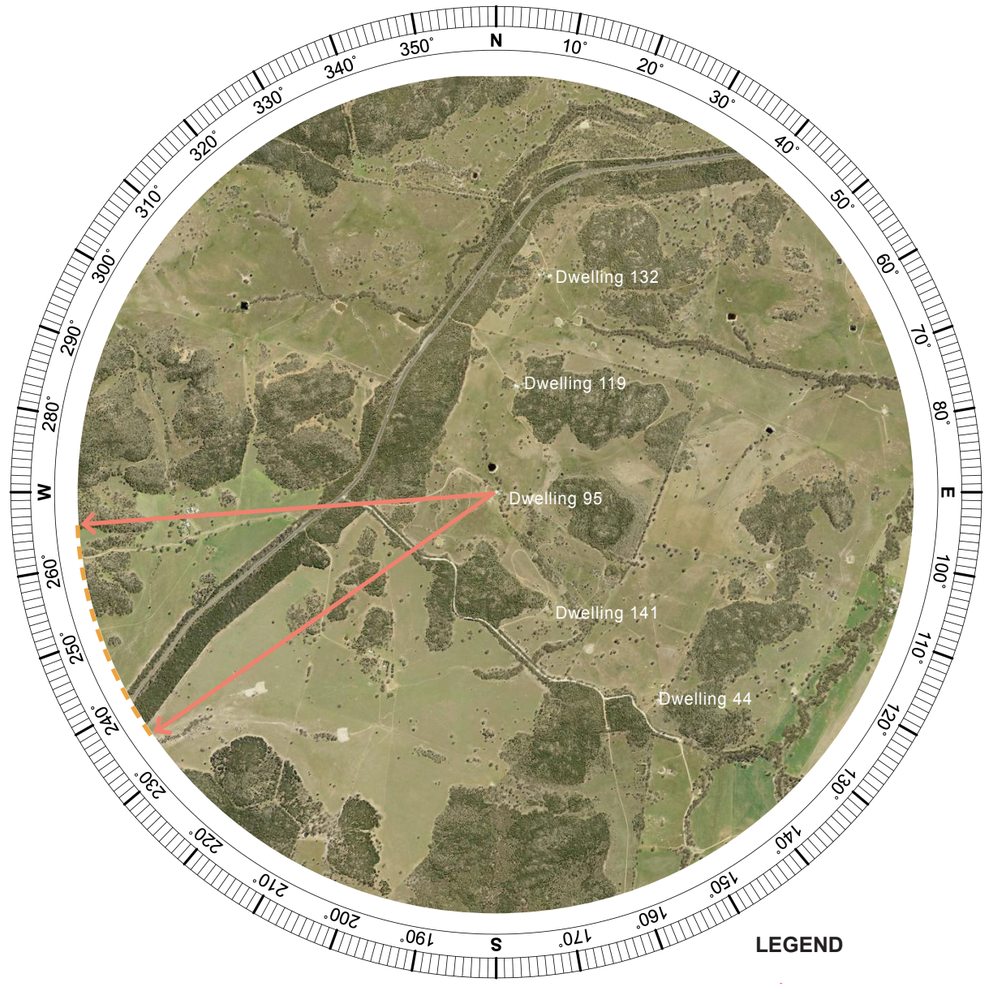
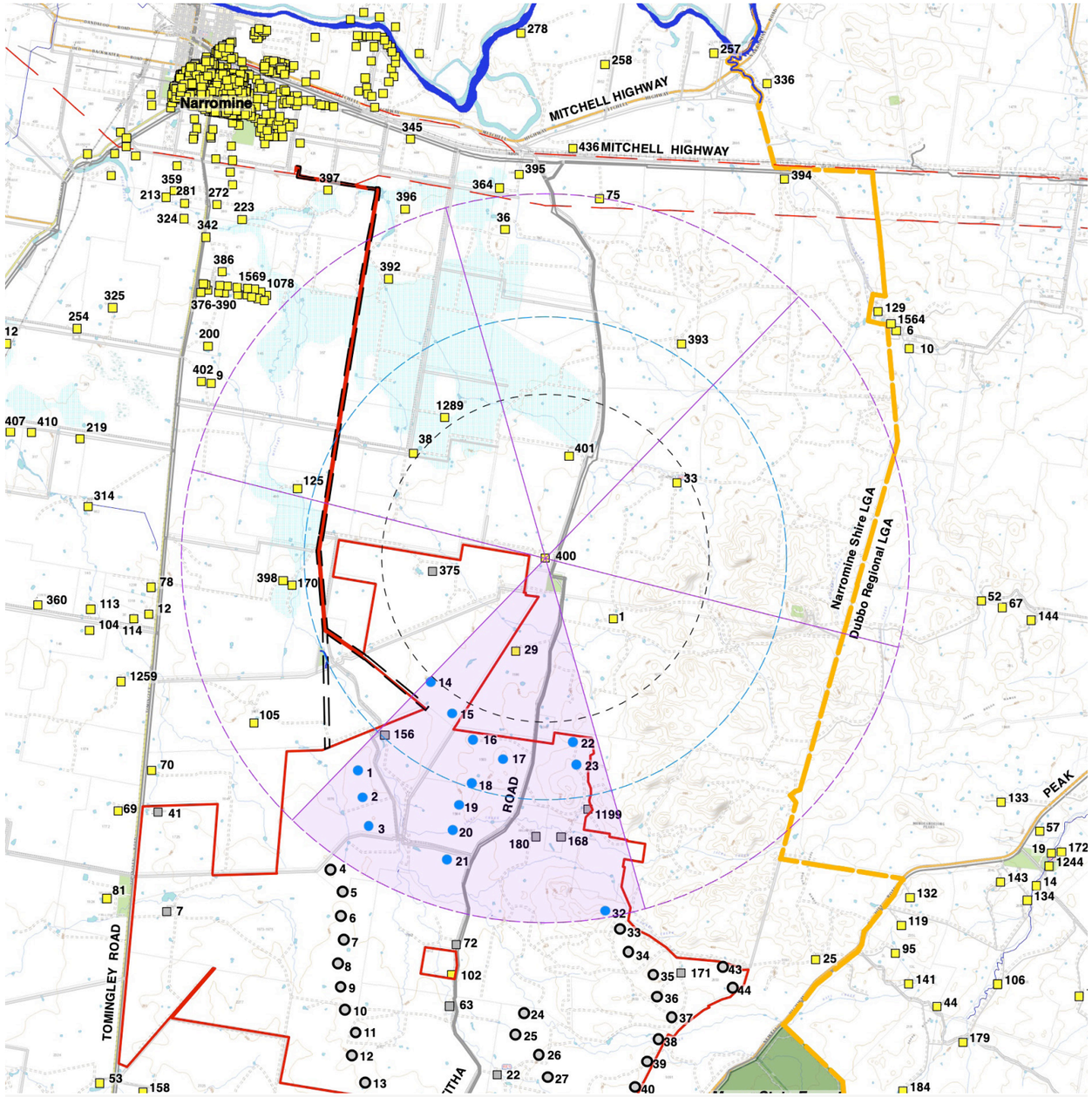


Figure A.25 Aerial Image Dwelling 95 *(Aerial Image Source: Google Earth)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.65 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**3**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**13 Turbines (All at hub height)**

A.26. Dwelling 400



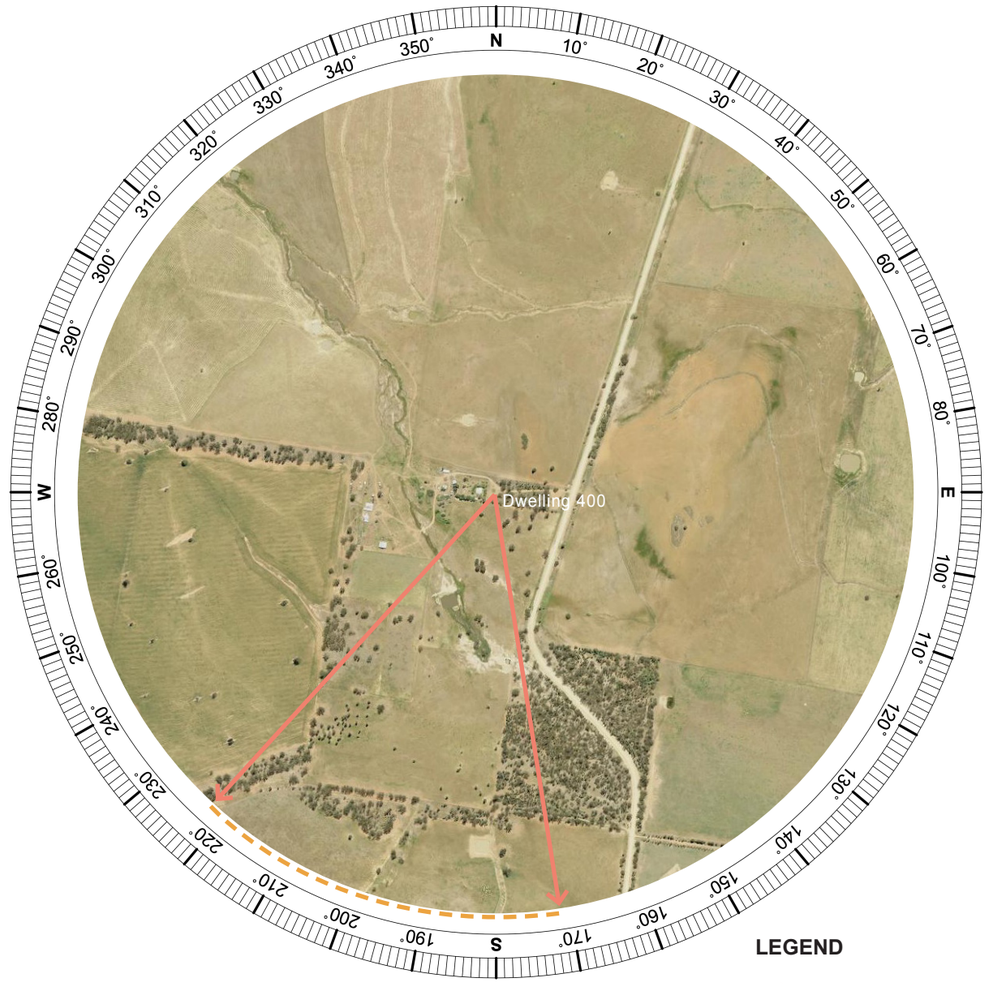
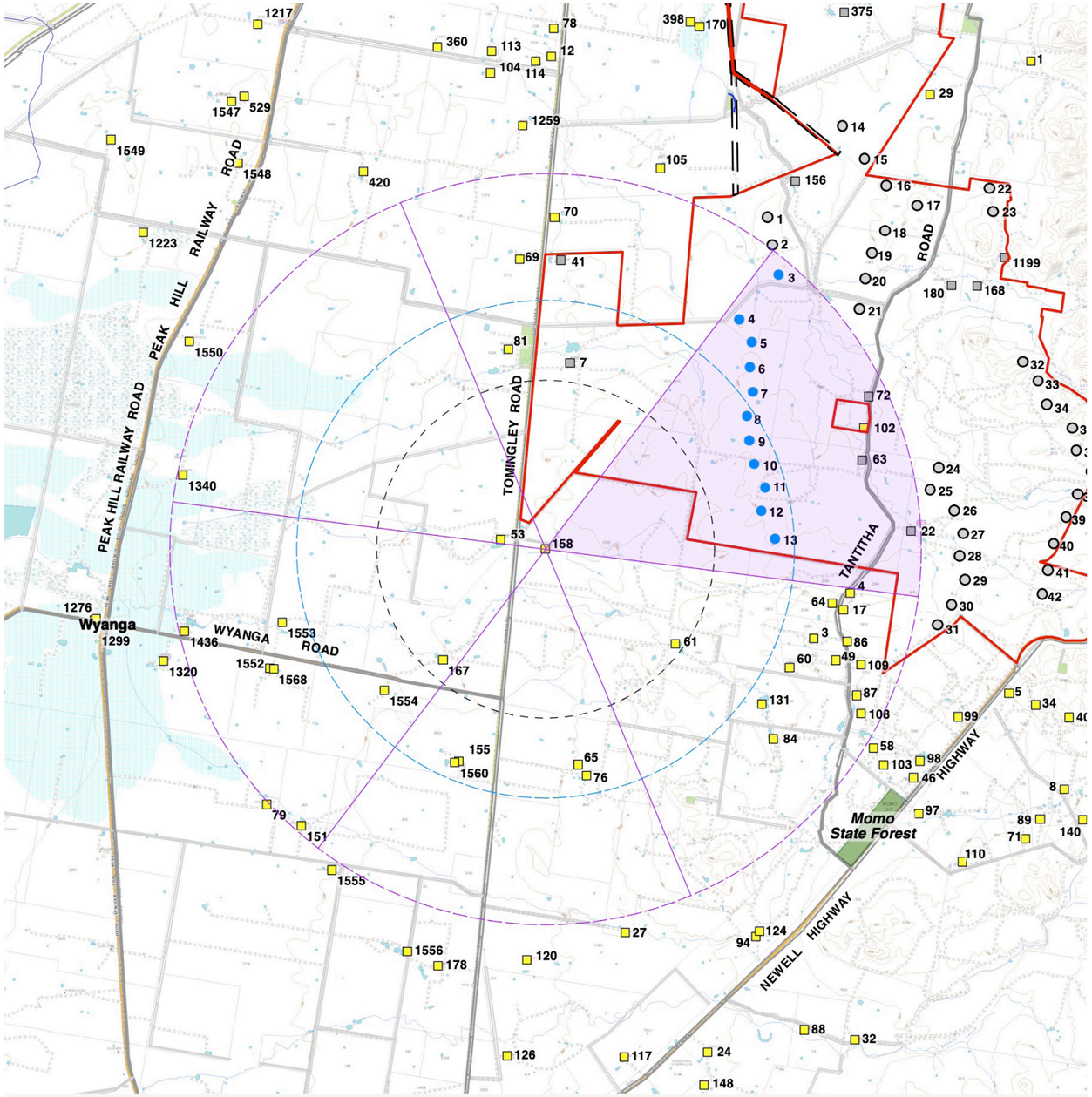


Figure A.26 Aerial Image Dwelling 400 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**3.71 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**7**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**14 Turbine at hub height**

A.27. Dwelling 158



LEGEND

- Project Area
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Non-associated Dwelling
- Associated Dwelling
- LGA Boundary
- 3,600 m from nearest turbine (Black Line)
- 5,300 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60º sector
- 60º sector with turbines

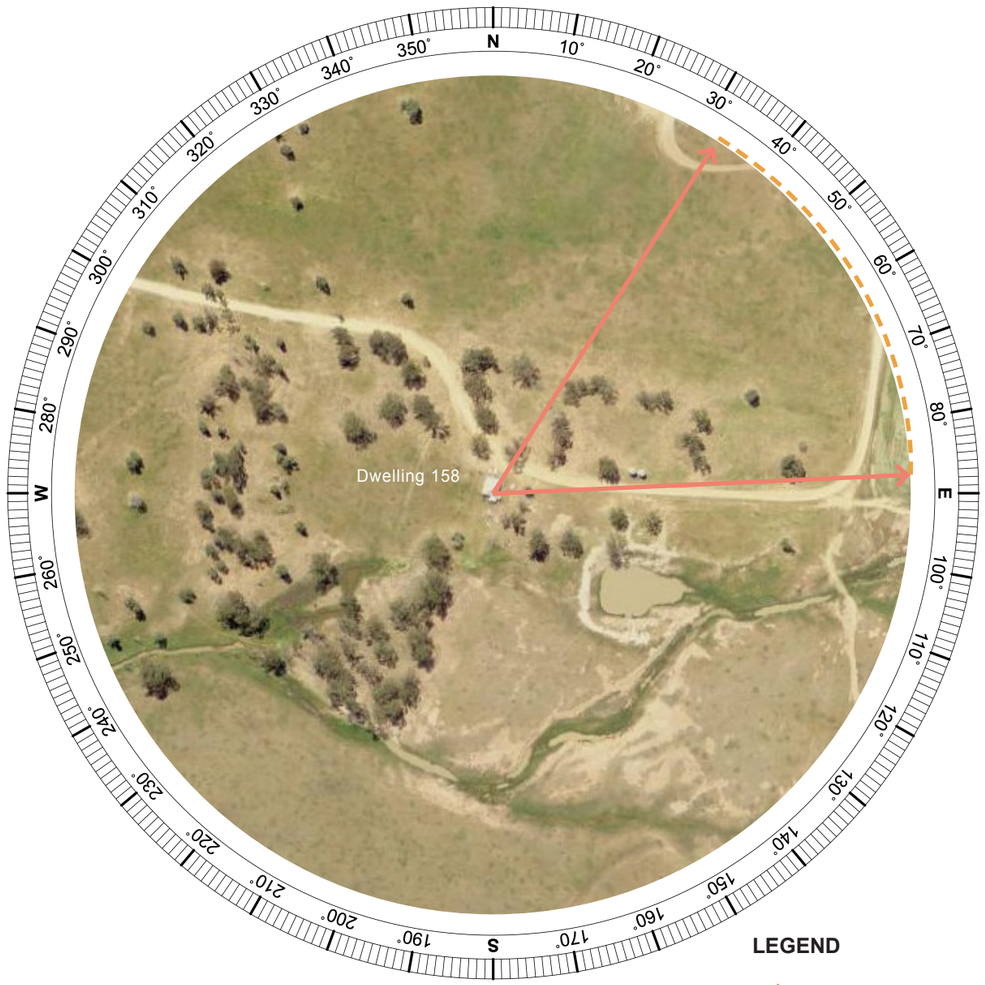


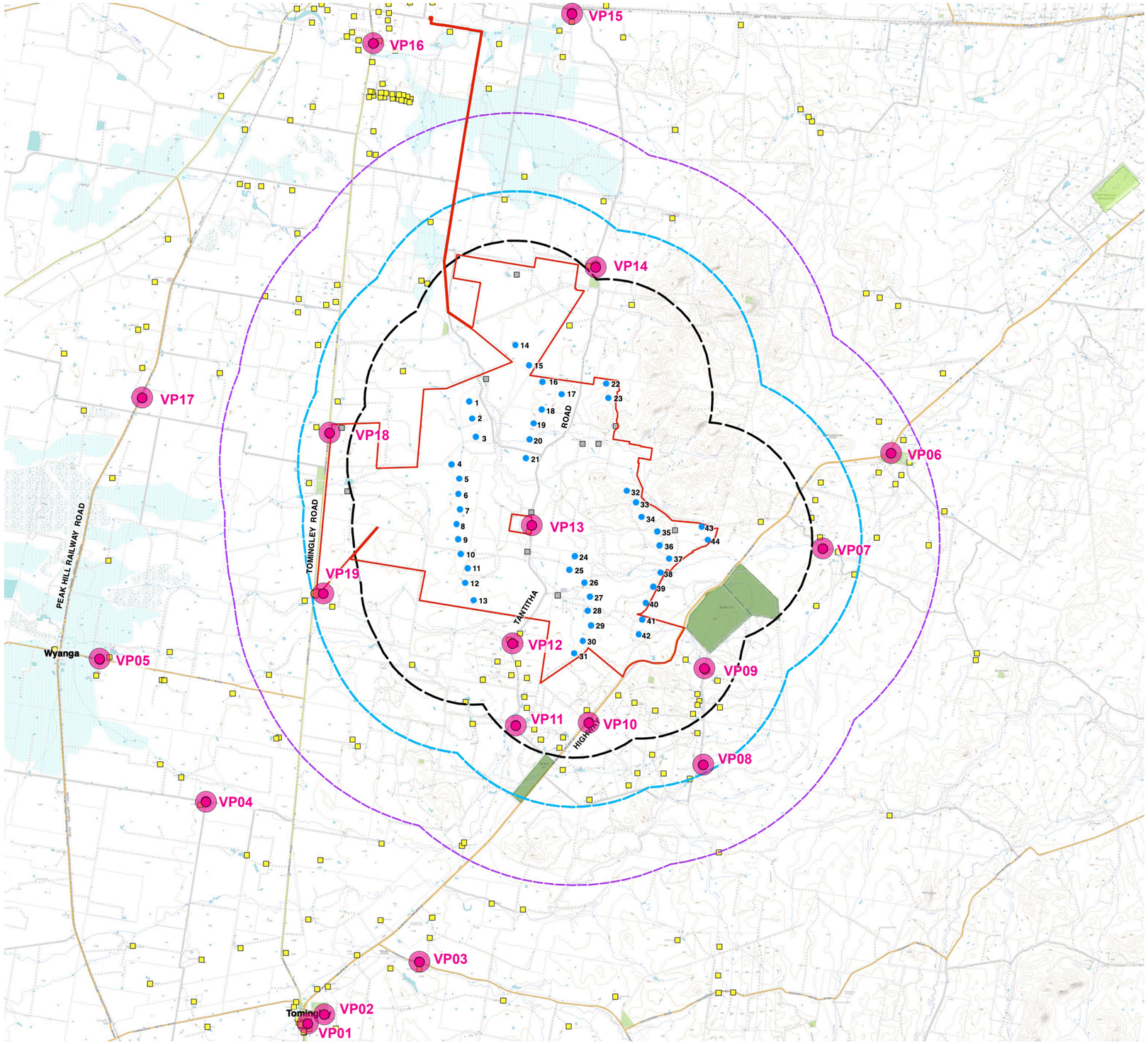
Figure A.27 Aerial Image Dwelling 158 *(Aerial Image Source: SixMaps)*

Summary of Preliminary Assessment Tools:	
Distance to Nearest Turbine:	**4.66 km**
Number of proposed turbines within the Black & Blue line (5,300 m) of visual magnitude:	**6**
Number of theoretical 60º sectors (Based on 2D assessment):	**1**
Number of potentially visible turbines within 8,000m (based on topography alone):	**11 Turbines (All at hub height)**

B

Preliminary Viewpoint Assessments

Preliminary Viewpoint Assessment Locations



Preliminary Viewpoint Assessment Locations

Proposed Wallaby Creek Wind Farm

LEGEND

- Project Boundary
- 271.5m Turbine Location
- Associated dwellings
- Non-associated dwellings
- Main Road
- Minor Road
- 3,600 m from turbines
- 5,300 m from turbines
- 8,000 m from turbines
- LGA Boundary
- National Parks / Nature Reserves
- State Forests
- Preliminary Viewpoint Assessment locations

N

0 2 4 6 8 10km

Figure B ***Preliminary Viewpoint Assessment Locations (Map Source: Six Maps)***

VP01 Tomingley Rest Area, Myall St, Tomingley

Approximate extent of potentially visible turbines



W 280° 290° 300° 310° 320° 330° 340° 350° N 10° 20° 30° 40° 50° 60° 70° 80° E

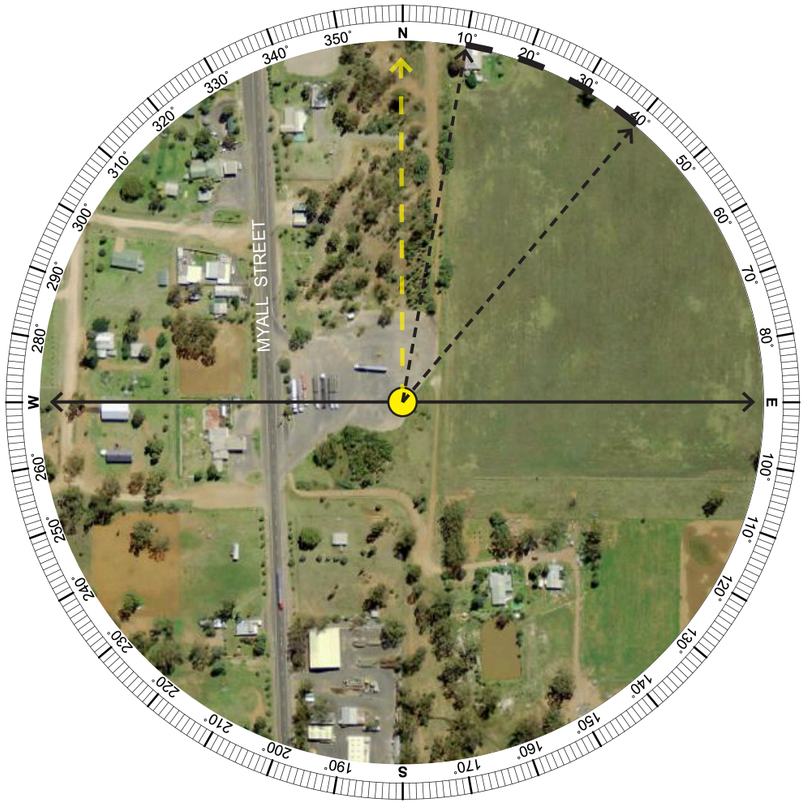
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP01 (Aerial Image Source: Six Maps)

VIEWPOINT VP01

Viewpoint Summary:	
Location:	Elevation:
Tomingley Rest Area, Myall St,Tomingley	280 m
Coordinates:	Viewing Direction:
32°34'16.84"S 148°13'23.77"E	North
Distance to nearest WTG:	Visibility Distance Zone:
15.70 km	Mid Background (MB)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU06: Town and Settlement	Low
Multiple Wind Turbine Tool:	
No turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Tomingley Rest Area which is a frequently used rest stop for commuters travelling between the towns of Peak Hill and Dubbo on the Newell Highway in tomingley. The rest area serves as a temporary stop with parking facilities and amenities that do not have any significant scenic value. Surrounding land is predominantly used for livestock grazing and some areas are dedicated to Tomingley Town and its dwellings. Newell Highway runs south - northeast and provides access to scattered rural dwellings in the area. The terrain is flat with intermittent stands of tree cover. Views are generally open, expansive and unhindered.

Potential Visual Impact:

The viewpoint is located in excess of 15 km from the Project. The views towards the Project will be distant and will be fragmented by existing vegetation in middleground.

VP02 Tomingley Cemetery Rd, Tomingley

Approximate extent of potentially visible turbines



W 280° 290° 300° 310° 320° 330° 340° 350° N 10° 20° 30° 40° 50° 60° 70° 80° E

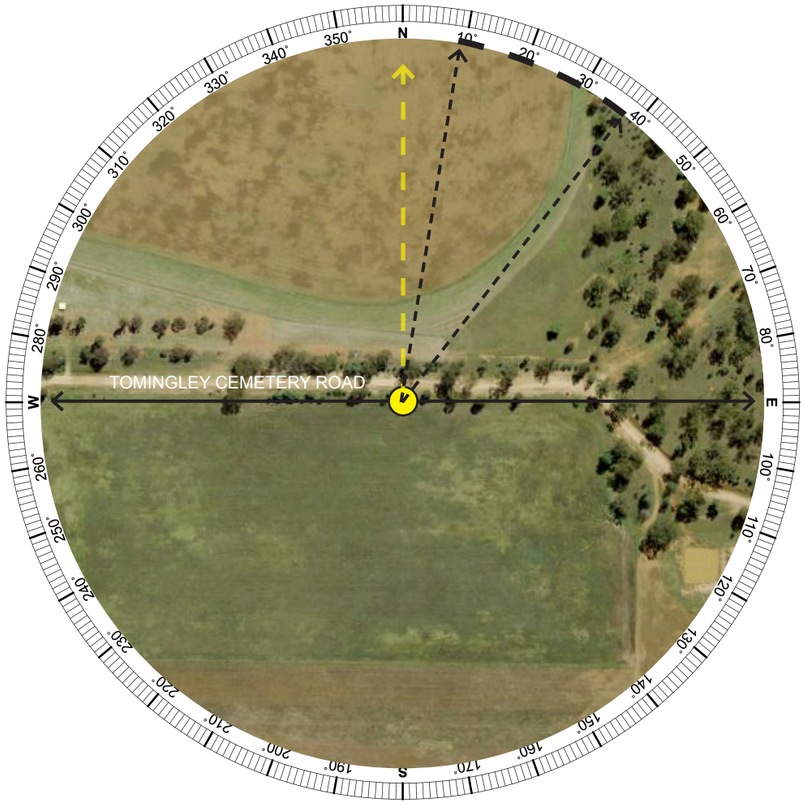
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP02 (Aerial Image Source: Six Maps)

VIEWPOINT VP02

Viewpoint Summary:	
Location:	Elevation:
Tomingley Cemetery Rd, Tomingley	282 m
Coordinates:	Viewing Direction:
32°34'6.01"S 148°13'45.65"E	North
Distance to nearest WTG:	Visibility Distance Zone:
15.15 km	Mid Background (MB)
Land Use:	Viewer Sensitivity Level:
Loe use Road	Low
LCU:	Scenic Quality Rating:
LCU06: Town and Settlement	Low
Multiple Wind Turbine Tool:	
No turbines within 8000 m.	

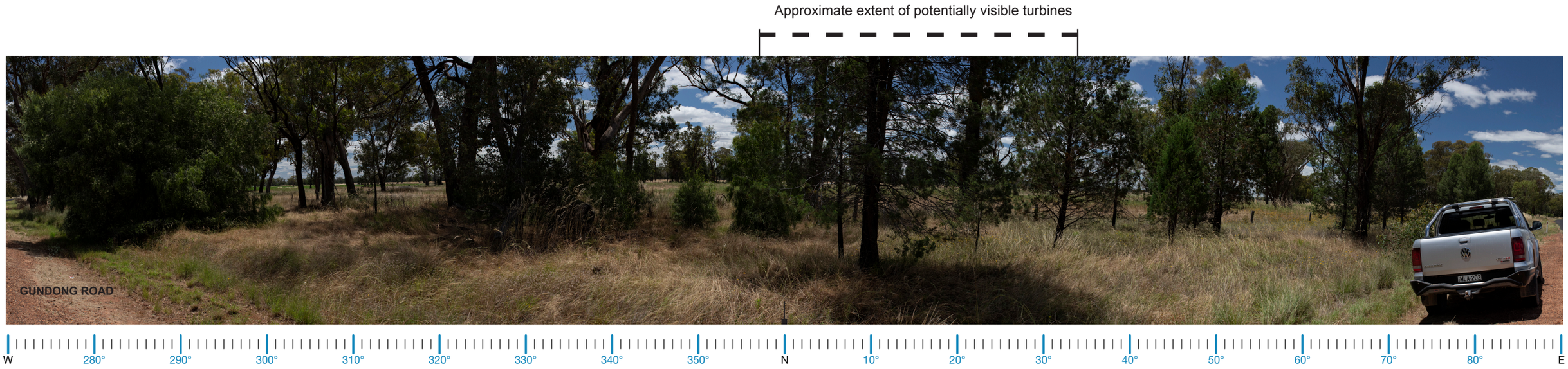
Existing Landscape Character Description:

This photograph was taken on Tomingley Cemetery Road and looks north towards the project. Apart from the rural residences located along this road, the relatively flat and cleared land is predominantly used for grazing and dryland cropping. Land is characterised by flat to gently undulating paddocks dotted with trees in its immediate vicinity, patches of roadside corridor vegetation and dense vegetation towards the north-northeast. Views are generally contained or filtered by the dense vegetation to the northeast.

Potential Visual Impact:

From this location, it is likely that vegetation to the north-east will screen the views of the Project.

VP03 Gundong Rd, Tomingley



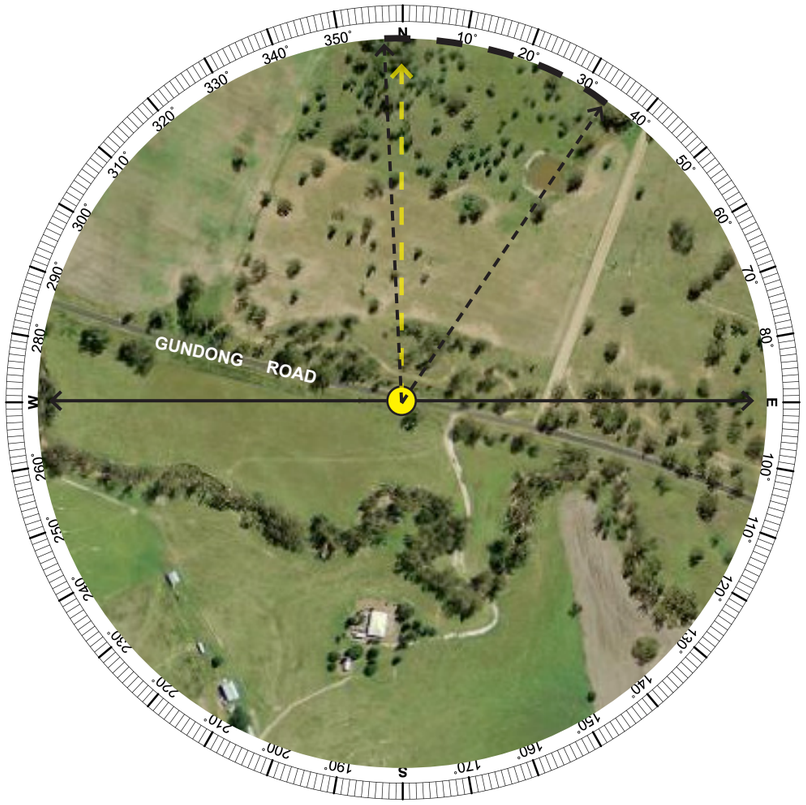
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP03 (Aerial Image Source: Six Maps)

VIEWPOINT VP03

Viewpoint Summary:	
Location:	Elevation:
Gundong Rd, Tomingley	306 m
Coordinates:	Viewing Direction:
32°33'5.38"S 148°15'50.11"E	North
Distance to nearest WTG:	Visibility Distance Zone:
11.91 km	Near Background (NB)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU02: Eastern Pasture	Low
Multiple Wind Turbine Tool:	
No turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Gundong Road, facing to the north. The viewpoint location is also adjacent to the driveway to dwellings of 1431 and 148. The topography around this viewpoint is generally flat and includes patches of dense roadside vegetation. Riparian vegetation associated with Tomingley Creek is visible in the middleground and densely vegetated ridgelines in the distance. The predominant land use of this area is agricultural. Views are mostly open, towards the densely vegetated ridge associated with Momo state Forest in background. Views are also filtered in some sections by roadside vegetation.

Potential Visual Impact:

Turbines will be screened from this location to the north, due to the far proximity of the project and roadside vegetation along the Gundong road.

VP04 Tinks Ln, Tomingley

Approximate extent of potentially visible turbines



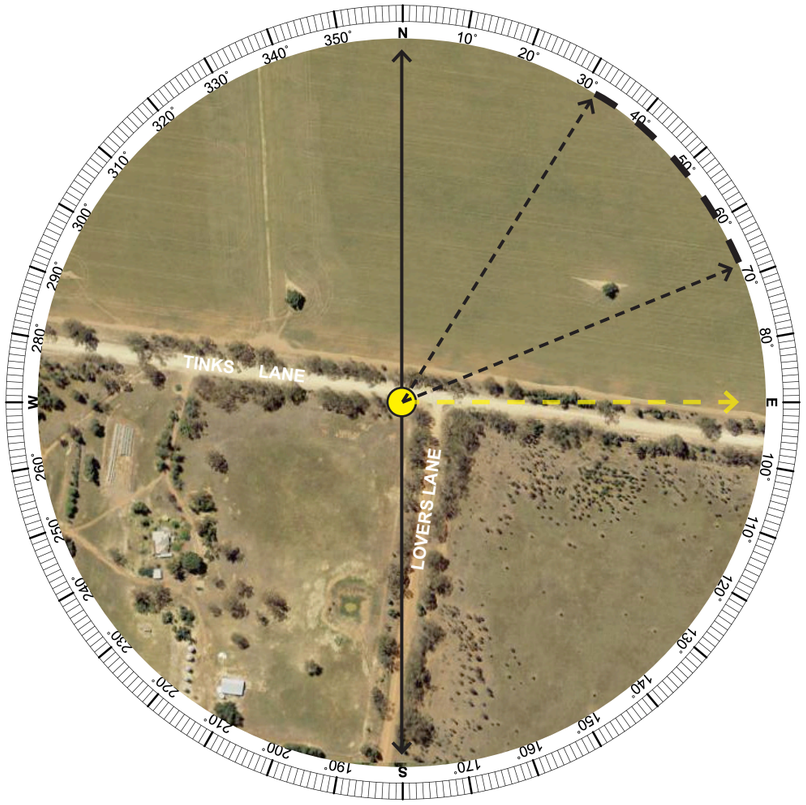
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP04 (Aerial Image Source: Six Maps)

VIEWPOINT VP04

Viewpoint Summary:	
Location:	Elevation:
Tinks Ln, Tomingley	266 m
Coordinates:	Viewing Direction:
32°30'8.28"S 148°11'6.05"E	East
Distance to nearest WTG:	Visibility Distance Zone:
11.80 km	Near Background (NB)
Land Use:	Viewer Sensitivity Level:
Low Use Road	Low
LCU:	Scenic Quality Rating:
LCU01: Western Pasture	Low
Multiple Wind Turbine Tool:	
No turbines within 8000 m.	

Existing Landscape Character Description:
This viewpoint is from the intersection of Tinks Ln and Lovers Ln,close to dwelling 1555. Land is mostly flat with patches of vegetation mostly bordering dwellings. The surrounding cleared landscape contains pockets of remnant vegetation. Surrounding land use includes agriculture and major road. Views are generally contained or filtered by rows of trees that line the roads and vegetation around dwellings.
Potential Visual Impact:
From this viewpoint, turbines may partially be visible. However, due to a combination of topography, distance and vegetation, the majority of the views toward the Project will be screened from this location.

VP05 Wyanga Rd, Narromine

Approximate extent of potentially visible turbines



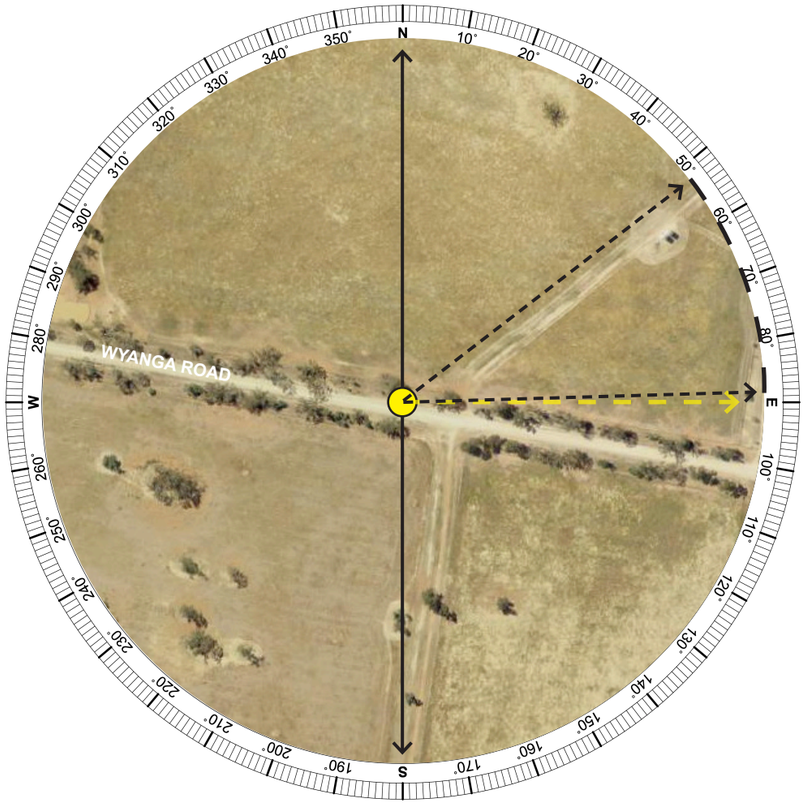
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP05 (Aerial Image Source: Six Maps)

VIEWPOINT VP05

Viewpoint Summary:	
Location:	Elevation:
Wyanga Rd, Narromine	246 m
Coordinates:	Viewing Direction:
32°27'31.64"S 148° 8'43.73"E	East
Distance to nearest WTG:	Visibility Distance Zone:
12.88 km	Near Background (NM)
Land Use:	Viewer Sensitivity Level:
Low Use Road	Low
LCU:	Scenic Quality Rating:
LCU05: Alluvial Plains	Moderate
Multiple Wind Turbine Tool:	
No turbines within 8000 m	

Existing Landscape Character Description:

This viewpoint was taken from the Wyanga Road and close to the dwellings 1436 and 1320 driveways looking east toward the Project. The viewpoint's surroundings are characterised by a generally flat terrain with very minor undulations generally using for grazing and cropping. Views are limited by the dense rows of vegetation that are visible in the photograph's middleground and by the patches of tree cover in the foreground along the road.

Potential Visual Impact:

Existing vegetation limits majority of the views. Even though the terrain is flat, intervening vegetation and distance of the photo location from the Project will limit any potential visual impact.

VP06 Newell Hwy, Dubbo

Approximate extent of potentially visible turbines





LEGEND

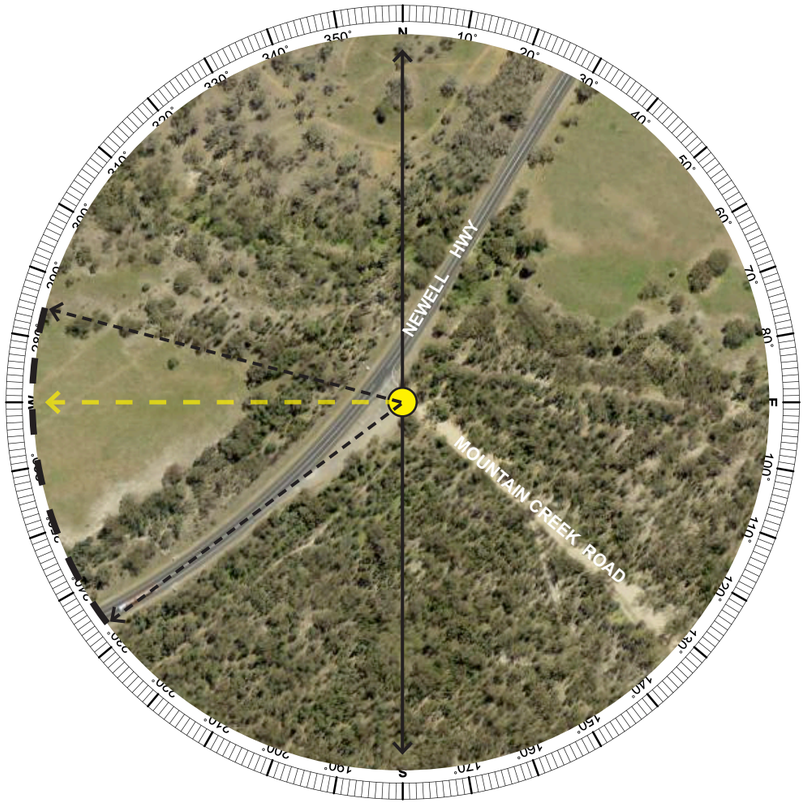
Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines

N



Aerial Image VP06 (Aerial Image Source: Six Maps)

VIEWPOINT VP06

Viewpoint Summary:	
Location:	Elevation:
Newell Hwy, Dubbo	377 m
Coordinates:	Viewing Direction:
32°23'30.01"S 148°26'5.46"E	West
Distance to nearest WTG:	Visibility Distance Zone:
6.99 km	Far Middleground (FM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU02: Eastern pasture	Moderate
Multiple Wind Turbine Tool:	
One (1) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:
This viewpoint was taken from the rest area at the intersection of Newwell Highway and Mountain Creek Road, looking toward the west. The area is densely vegetated and the topography is gently undulating, becoming steeper in certain sections. Views are generally contained by the dense vegetation along the Newell highway.
Potential Visual Impact:
The Project will be mostly screened by dense vegetation on the southwestern side. Vegetation may create some fragmented views, however, a combination of vegetation and topography are likely to screen most views of the Project.

VP07 Days Rd, Dubbo

Approximate extent of potentially visible turbines



S 190° 200° 210° 220° 230° 240° 250° 260° W 280° 290° 300° 310° 320° 330° 340° 350° N

LEGEND

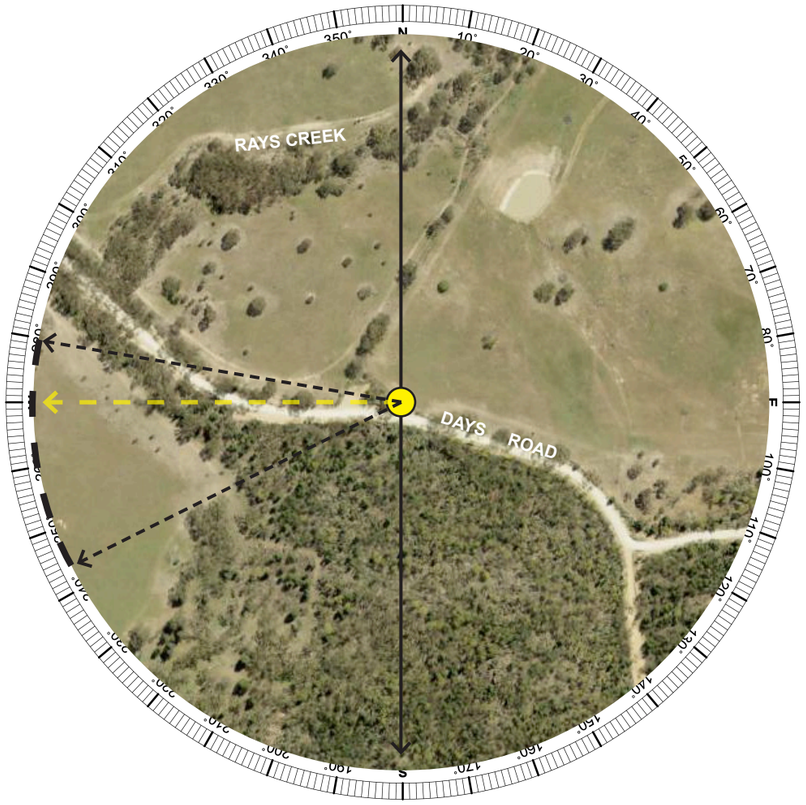
Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines

N



Aerial Image VP07 (Aerial Image Source: Six Maps)

VIEWPOINT VP07

Viewpoint Summary:	
Location:	Elevation:
Days Rd, Dubbo	404 m
Coordinates:	Viewing Direction:
32°25'17.45"S 148°24'37.49"E	West
Distance to nearest WTG:	Visibility Distance Zone:
3.98 km	Far Middleground (FM)
Land Use:	Viewer Sensitivity Level:
Low Use Road	Low
LCU:	Scenic Quality Rating:
LCU04: Densely Vegetated Hills	Moderate
Multiple Wind Turbine Tool:	
One (1) 60º Sectors with turbines within 8000 m.	

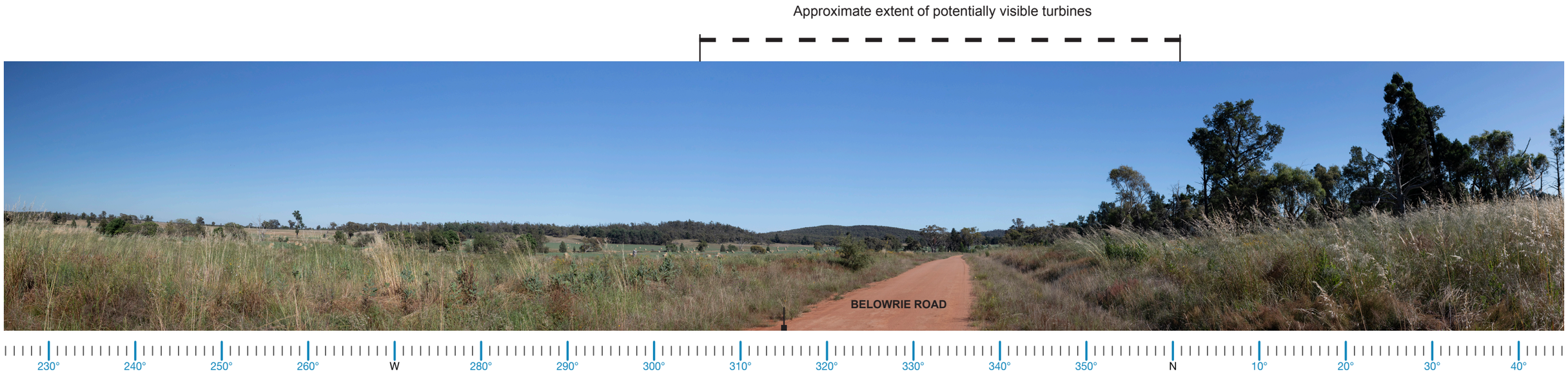
Existing Landscape Character Description:

This viewpoint is located on Days Road facing to west. The surrounding landscape is characterised by gently undulating topography with dense vegetation in the immediate vicinity to the south-southwest of the viewpoint. General uses include native and modified grazing pastures. At this location, views are generally screen to the west by vegetation associated with Rays Creek and partially contained by dense vegetation along Newell Highway.

Potential Visual Impact:

From this location number of the turbines blade tip may be visible to the west. However, due to the surrounding dense vegetation, views towards the Project will be mostly screened.

VP08 Belowrie Rd, Tomingley



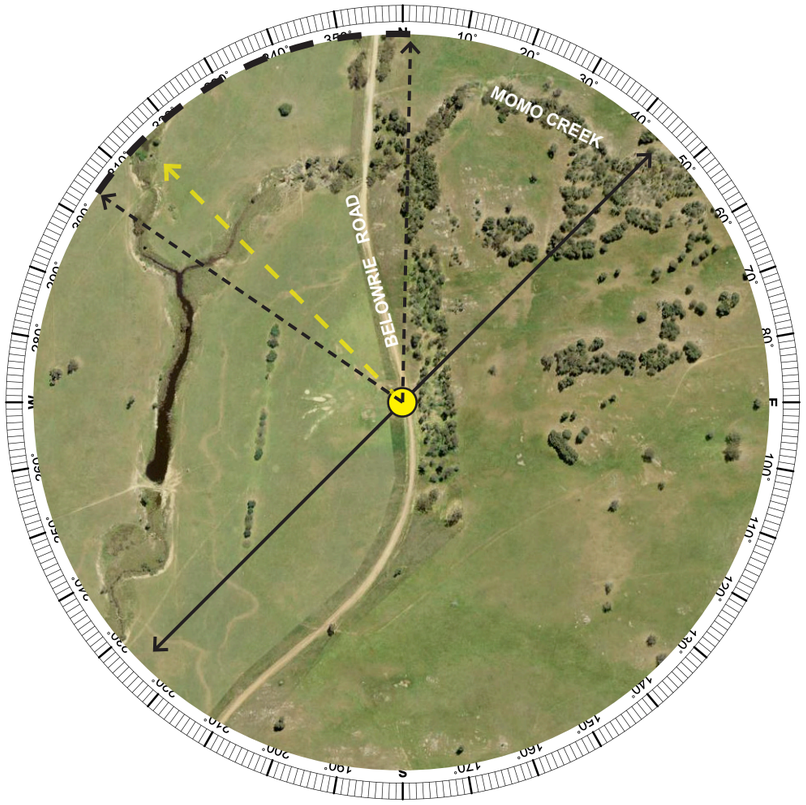
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP08 (Aerial Image Source: Six Maps)

VIEWPOINT VP08

Viewpoint Summary:	
Location:	Elevation:
Belowrie Rd, Tomingley	387 m
Coordinates:	Viewing Direction:
32°29'21.04"S 148°22'2.05"E	Northwest
Distance to nearest WTG:	Visibility Distance Zone:
5.02 km	Far Middleground (FM)
Land Use:	Viewer Sensitivity Level:
Low Use Road	Low
LCU:	Scenic Quality Rating:
LCU02: Eastern Pasture	Low
Multiple Wind Turbine Tool:	
One (1) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Belowrie Road near Momo Creek. Belowrie road is a low-use road that runs generally north-southeast and provides access to low density rural residential lots. The surrounding landscape is characterised by gentle undulations that have been cleared to support agricultural activity. A few scattered trees are visible in the foreground. Vegetated hills are visible in the background to the north-west. Views from this locations are contained towards the northwest by the gentle rise in topography and also fragmented by the vegetation scattered on the horizon line.

Potential Visual Impact:

Due to gentle rises and vegetation towards the northwest, views towards the Project will be screened.

VP09 Belowrie Rd, Tomingley

Approximate extent of potentially visible turbines



230° 240° 250° 260° W 280° 290° 300° 310° 320° 330° 340° 350° N 10° 20° 30° 40°

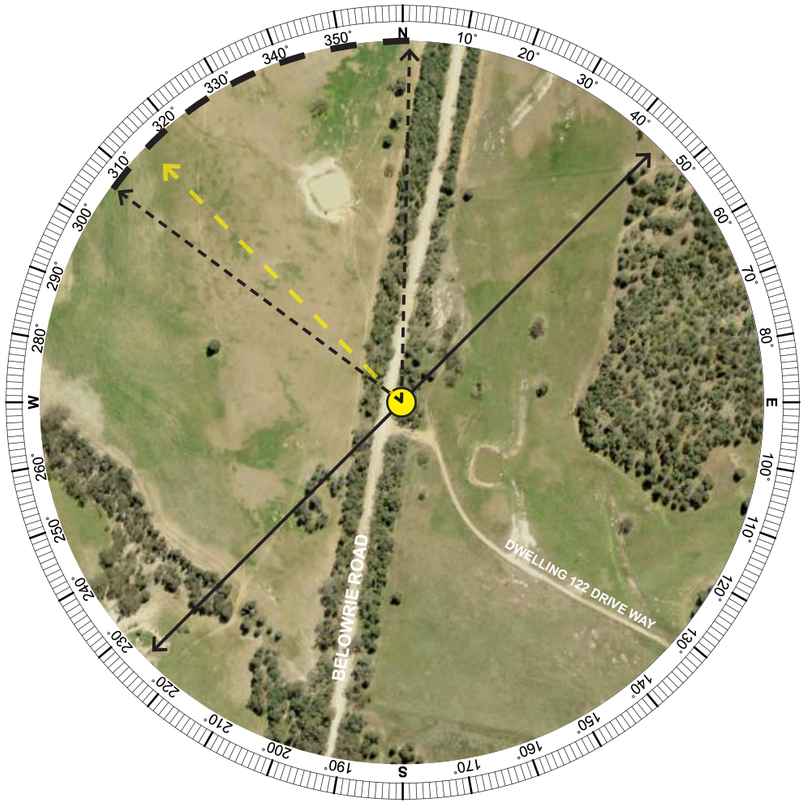
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP09 (Aerial Image Source: Six Maps)

VIEWPOINT VP09

Viewpoint Summary:	
Location:	Elevation:
Belowrie Rd, Tomingley	399 m
Coordinates:	Viewing Direction:
32°27'34.80"S 148°22'3.82"E	Northwest
Distance to nearest WTG:	Visibility Distance Zone:
2.58 km	Near Middleground (NM)
Land Use:	Viewer Sensitivity Level:
Low Use Road	Low
LCU:	Scenic Quality Rating:
LCU02: Eastern Pasture	Moderate
Multiple Wind Turbine Tool:	
One (1) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint is from the Belowrie Road, adjacent to the Dwelling 122 drive way. Belowrie road is a low-use road that runs generally north-southeast and provides access of rural residential lots to the Newell Highway. Land is mostly flat with a gentle undulation. The views from this point contained or filtered with a row of trees along the road in foreground and vegetated hills which are visible in background to the west.

Potential Visual Impact:

From this viewpoint, number of the turbines may be visible from the gaps between trees However, due to a combination of topography, and vegetation, it is likely views toward the Project will be screened from this location.

VP10 Newell Hwy, Tomingley

Approximate extent of potentially visible turbines



230° 240° 250° 260° W 280° 290° 300° 310° 320° 330° N 10° 20° 30° 40°

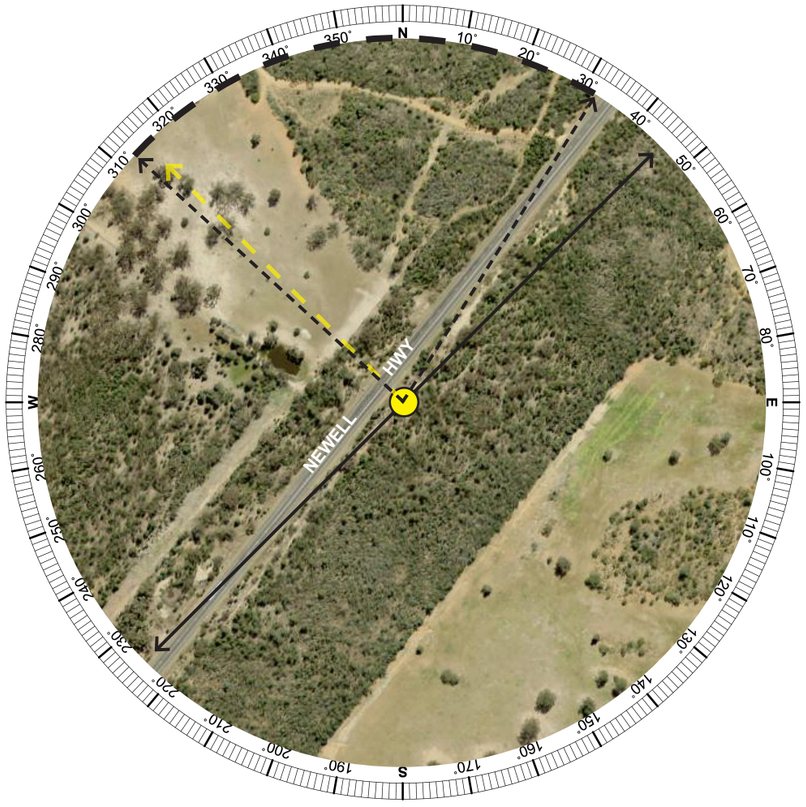
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP10 (Aerial Image Source: Six Maps)

VIEWPOINT VP10

Viewpoint Summary:	
Location:	Elevation:
Newell Hwy, Tomingley	372 m
Coordinates:	Viewing Direction:
32°28'35.05"S 148°19'31.51"E	Northwest
Distance to nearest WTG:	Visibility Distance Zone:
2.46 km	Near Middleground (NM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU04: Densely Vegetated Hills	Moderate
Multiple Wind Turbine Tool:	
Two (2) 60º Sectors with turbines within 8000 m.	

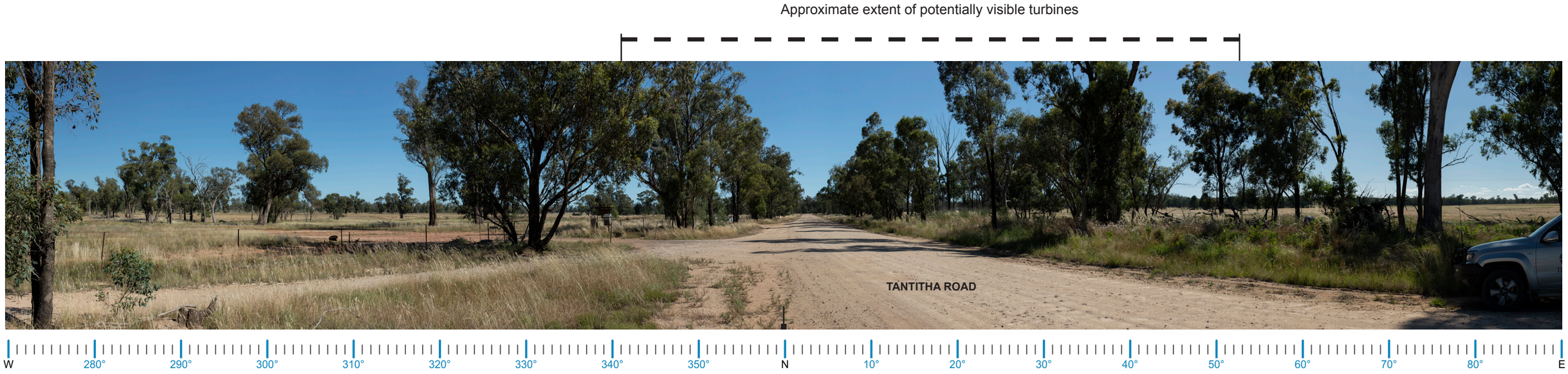
Existing Landscape Character Description:

This viewpoint was taken from Newell Highway looking northwest toward the Project. Newell Highway runs north-south and serves as an important conveyor for traffic between towns such as Peak Hill, Tomingley and Dubbo, etc. The area surrounding is densely vegetated hills and dry sclerophyll forests which are characteristic of the Central West region. The topography is gently undulating in the foreground with sloping hills rising to steeper hills in the middleground. There are open views to the vegetated ridge to the north-northwest.

Potential Visual Impact:

Turbines will be clearly visible from this location to the north-west of the view. It is likely the existing vegetation along highway to the north will conceal some views towards the Project, therefore reducing the number of turbines visible from this location.

VP11 Tantitha Rd, Tomingley



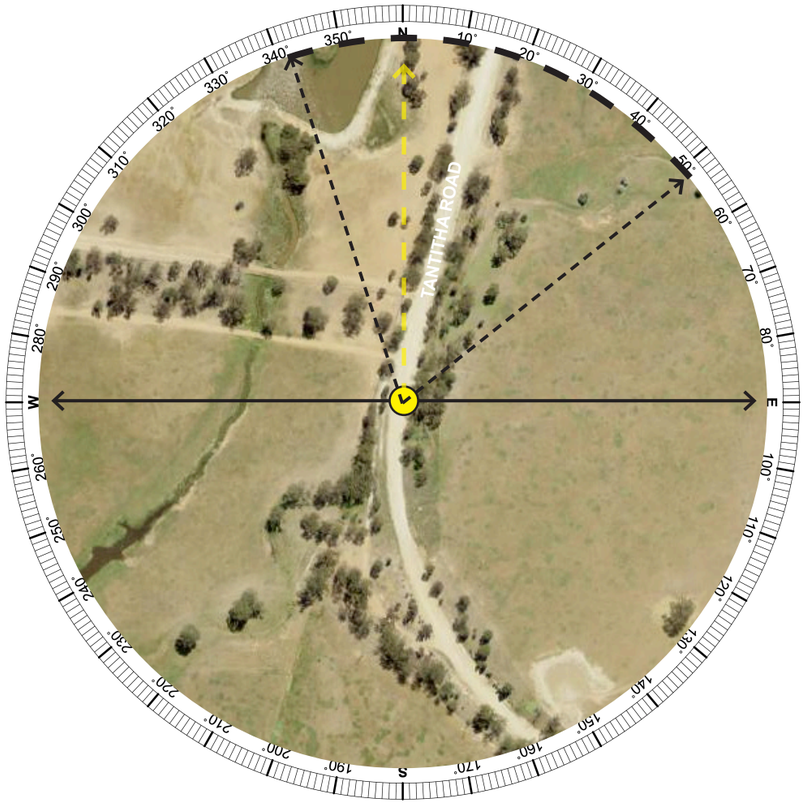
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP11 (Aerial Image Source: Six Maps)

VIEWPOINT VP11

Viewpoint Summary:	
Location:	Elevation:
Tantitha Rd, Tomingley	334 m
Coordinates:	Viewing Direction:
32°28'39.35"S 148°17'54.23"E	North
Distance to nearest WTG:	Visibility Distance Zone:
3.16 km	Near Midground (NM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU03: Patially Vegetated Slope	Moderated
Multiple Wind Turbine Tool:	
Two (2) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Tanthita Road facing toward the north. Tantitha road is an important road which passing from the middle of the project and is used to access rural residences and generally runs north/south connecting to Newell Highway in the south and other minor or low use roads that lead to rural residences and agricultural lots. The area surrounding is the scattered vegetated slopes with dry sclerophyll forests which are characteristic of the Central West region. Some cleared parcels of land are visible to the north and rows of vegetation associated the low used road can be seen in middleground. The topography is generally flat in the foreground with gently sloping hills in the background.

Potential Visual Impact:

Turbines will be clearly visible from this location to the north of the view. It is likely the gentle rise to the north and existing vegetation in foreground will screen some views towards the Project, therefore reducing the number of turbines visible from this location.

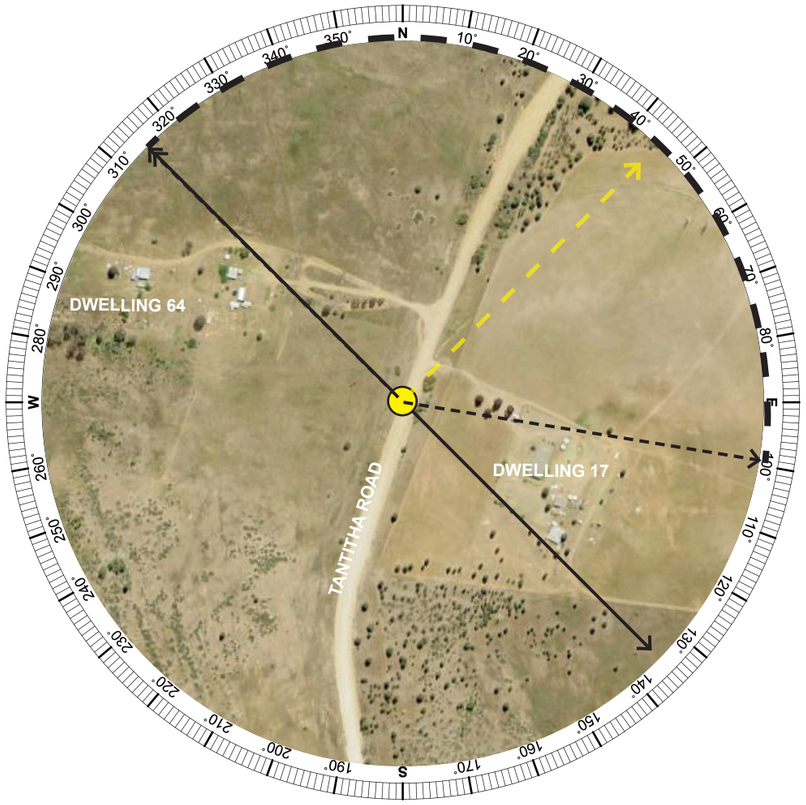
VP12 Tantitha Rd, Tomingley

Approximate extent of potentially visible turbines



LEGEND

- Viewing direction and centre of panorama
- Direction of potentially visible turbines
- Extent of panorama
- Extent of potentially visible turbines



Aerial Image VP12 (Aerial Image Source: Six Maps)

VIEWPOINT VP12

Viewpoint Summary:	
Location:	Elevation:
Tantitha Rd, Tomingley	350 m
Coordinates:	Viewing Direction:
32°27'7.96"S 148°17'49.01"E	Northeast
Distance to nearest WTG:	Visibility Distance Zone:
2.14 km	Near Middleground (NM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU03: Partially Vegetated Slope	Moderate
Multiple Wind Turbine Tool:	
Three (3) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Tantitha Road near the drive way of dwelling 17 and 64. The landscape character is predominantly defined by grazing pastures with native grasses and saltbush. Clumps of trees are scattered across the flat parcels of land and these are mostly associated with dwellings or remnant creek corridors or wetlands. Views are generally open but limited by the row of vegetation visible in the middleground.

Potential Visual Impact:

Views of the Project are likely to be available in the north-northeast. Existing vegetation, however, may help fragment some views of the Project.

VP13 Tantitha Rd, Narromine

Approximate extent of potentially visible turbines



N 10° 20° 30° 40° 50° 60° 70° 80° E 100° 110° 120° 130° 140° 150° 160° 170° S

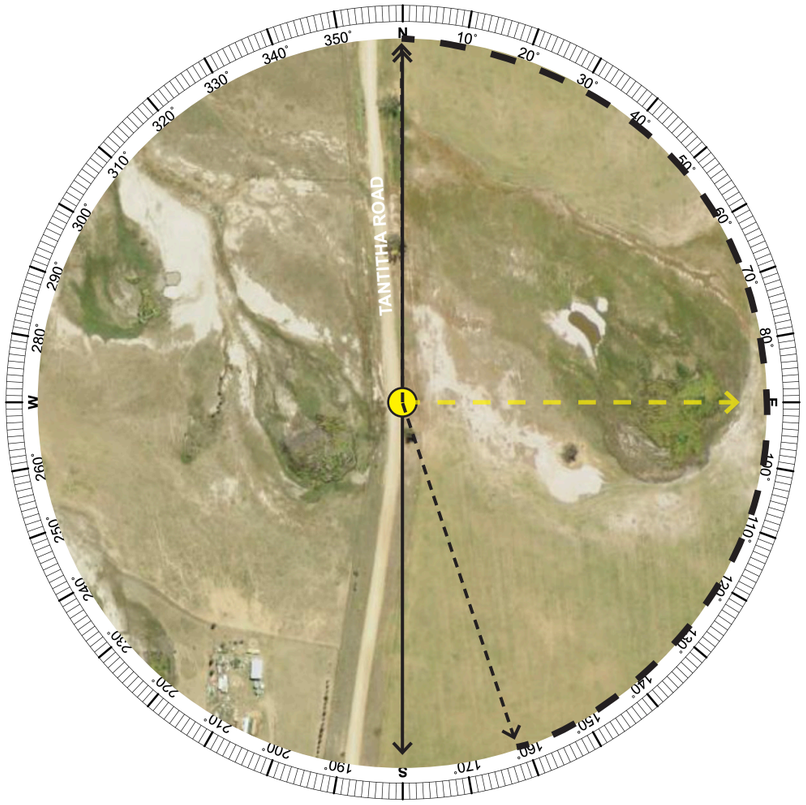
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP13 (Aerial Image Source: Six Maps)

VIEWPOINT VP13

Viewpoint Summary:	
Location:	Elevation:
Tantitha Rd, Narromine	302 m
Coordinates:	Viewing Direction:
32°24’55.51”S 148°18’12.40”E	East
Distance to nearest WTG:	Visibility Distance Zone:
1.87 km	Far Foreground (FF)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU05: Alluvial Plains	Moderate
Multiple Wind Turbine Tool:	
Two (2) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Tantitha Road and is located at the middle of the project facing to east. Surrounding lands are utilised for grazing and are characterised by flat, planar topography. Vegetation character comprises of tracts of saltbush, grasses, forbs and intermittent patches of trees. No tall canopy cover has been identified in the vicinity of the viewpoint. Views are, therefore, open and expansive. Detrimental features include power lines in middleground.

Potential Visual Impact:

Open and flat lands used for grazing define the character extensively. The Project will dominate the visual catchment at this location because of the close proximity of the turbines. However, it is noted that this viewpoint represents a public road within the Project Area. There is two non-associated dwelling in the vicinity of VP13 and there are no significant points of interest such as lookouts at this location.

VP13 Tantitha Rd, Narromine

Approximate extent of potentially visible turbines



S 190° 200° 210° 220° 230° 240° 250° 260° W 280° 290° 300° 310° 320° 330° 340° 350° N

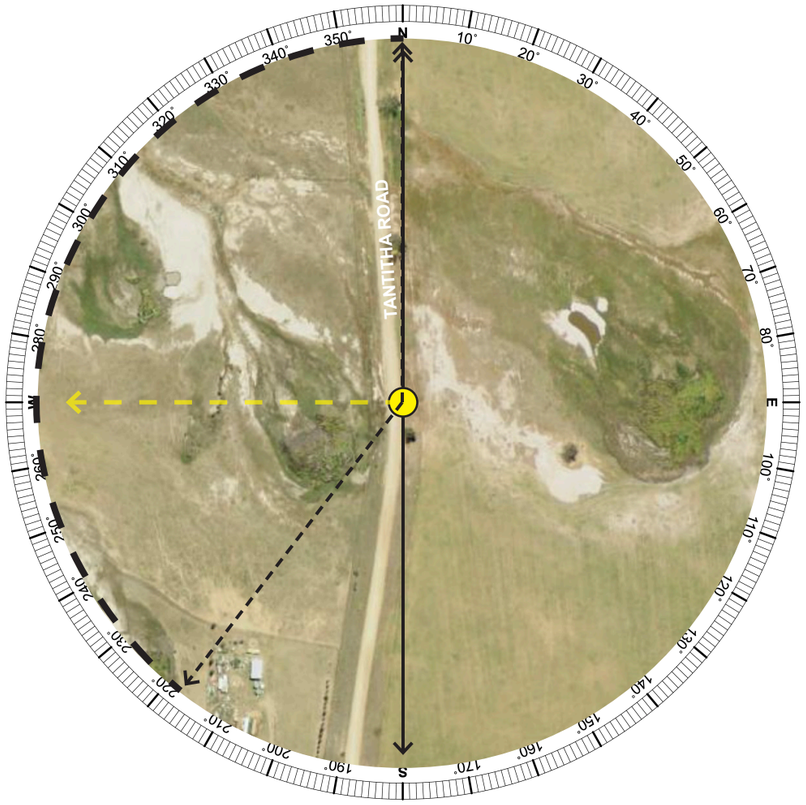
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP13 (Aerial Image Source: Six Maps)

VIEWPOINT VP13

Viewpoint Summary:	
Location:	Elevation:
Tantitha Rd, Narromine	302 m
Coordinates:	Viewing Direction:
32°24'55.51"S 148°18'12.40"E	West
Distance to nearest WTG:	Visibility Distance Zone:
1.87 km	**Far Foreground (FF)**
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU05: Alluvial Plains	Moderate
Multiple Wind Turbine Tool:	
Two (2) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:
This viewpoint was taken from Tantitha Road and is located at the middle of the Project facing to west. Surrounding lands are utilised for grazing and are characterised by flat, planar topography. Patches of scattered vegetation character comprises of tracts of saltbush, grasses, and forbs. The views are open and expansive and no tall canopy cover has been identified in the vicinity of the viewpoint.
Potential Visual Impact:
Open and flat lands used for grazing define the character extensively. The Project will dominate the visual catchment at this location because of the close proximity of the turbines.

VP14 Tantitha Rd, Narromine

Approximate extent of potentially visible turbines



E 100° 110° 120° 130° 140° 150° 160° 170° S 190° 200° 210° 220° 230° 240° 250° 260° W

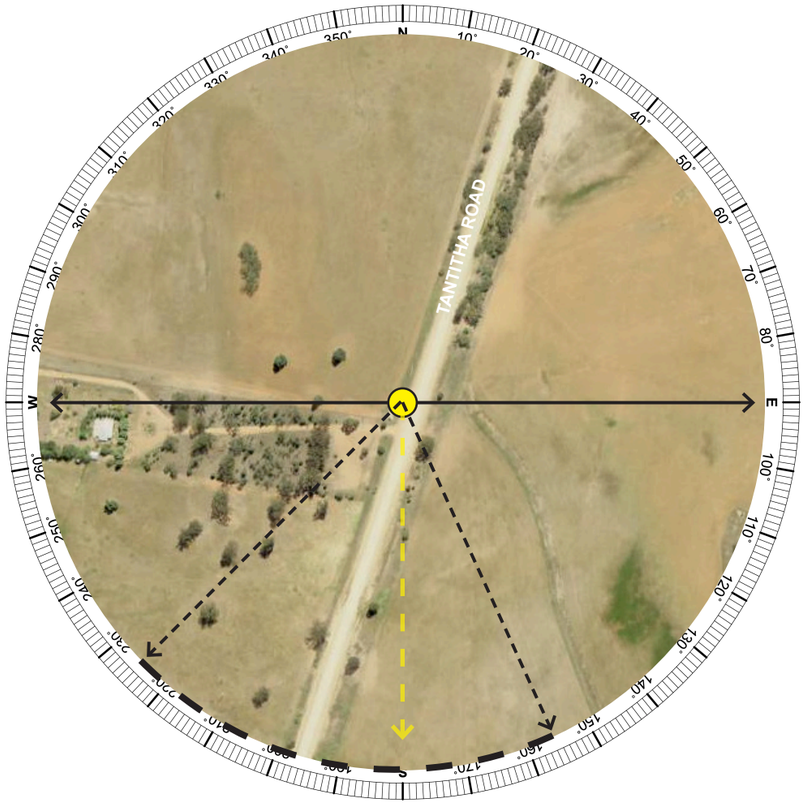
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP14 (Aerial Image Source: Six Maps)

VIEWPOINT VP14

Viewpoint Summary:	
Location:	Elevation:
Tantitha Rd, Narromine	294 m
Coordinates:	Viewing Direction:
32°20’4.10”S 148°19’32.48”E	South
Distance to nearest WTG:	Visibility Distance Zone:
3.85 km	Near Middleground (NM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU03: Partially Vegetated Slope	Moderate
Multiple Wind Turbine Tool:	
One (1) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from the drive way of Dwelling 400 located in Tantitha Road. Tantitha road is a major road which passing from the middle of the project and is used to access rural residences and generally runs north/south connecting to Webbs Siding Road and Mitchell Highway on North and other minor or low use roads that lead to rural residences and agricultural lots. The surrounding landscape is generally flat characterised by gentle undulations in background that have been cleared to support agricultural activity. A few scattered trees are visible in the foreground. Vegetated hills are visible in the background to the south-west.

Potential Visual Impact:

The majority of the views of the Project are likely to be available in the south.

VP15 Webbs Siding Rd, Narromine

Approximate extent of potentially visible turbines



E 100° 110° 120° 130° 140° 150° 160° 170° S 190° 200° 210° 220° 230° 240° 250° 260° W

LEGEND

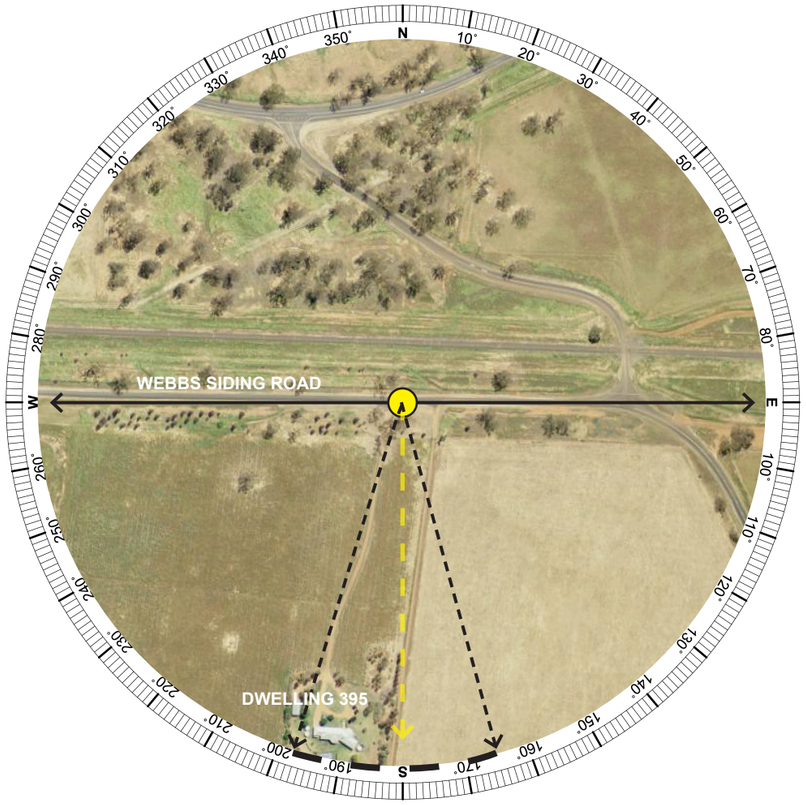
Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines

N



Aerial Image VP15 (Aerial Image Source: Six Maps)

VIEWPOINT VP15

Viewpoint Summary:	
Location:	Elevation:
Webbs Siding Rd, Narromine	245 m
Coordinates:	Viewing Direction:
32°15’21.55”S 148°18’57.01”E	South
Distance to nearest WTG:	Visibility Distance Zone:
11.65 km	Near Background (NB)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU06: Town and Settlement	Low
Multiple Wind Turbine Tool:	
Zero (0) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint was taken from Webbs Siding Road near dwelling 359 driveway. Webbs Siding road is a major road that runs generally west-east to make connection between Narromine and Dubbo towns. The surrounding landscape is characterised by gentle undulations that have been cleared to support agricultural activity. A patch of scattered trees are visible in the foreground. Vegetated hills are visible in the background to the southeast. Views from this locations are contained towards the south by the gentle rise in topography and also fragmented by the vegetation scattered on the horizon line.

Potential Visual Impact:

Due to far proximity and screening vegetation in foreground and middleground views towards the Project will be fragmented.

VP16 Tomingley Rd, Narromine

Approximate extent of potentially visible turbines



N 10° 20° 30° 40° 50° 60° 70° 80° E 100° 110° 120° 130° 140° 150° 160° 170° S

LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP16 (Aerial Image Source: Six Maps)

VIEWPOINT VP16

Viewpoint Summary:	
Location:	Elevation:
Tomingley Rd, Narromine	245 m
Coordinates:	Viewing Direction:
32°15’58.24”S 148°14’36.65”E	East
Distance to nearest WTG:	Visibility Distance Zone:
11.48 km	Near Background (NB)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU06: Town and Settlement	Low
Multiple Wind Turbine Tool:	
Zero (0) 60º Sectors with turbines within 8000 m.	

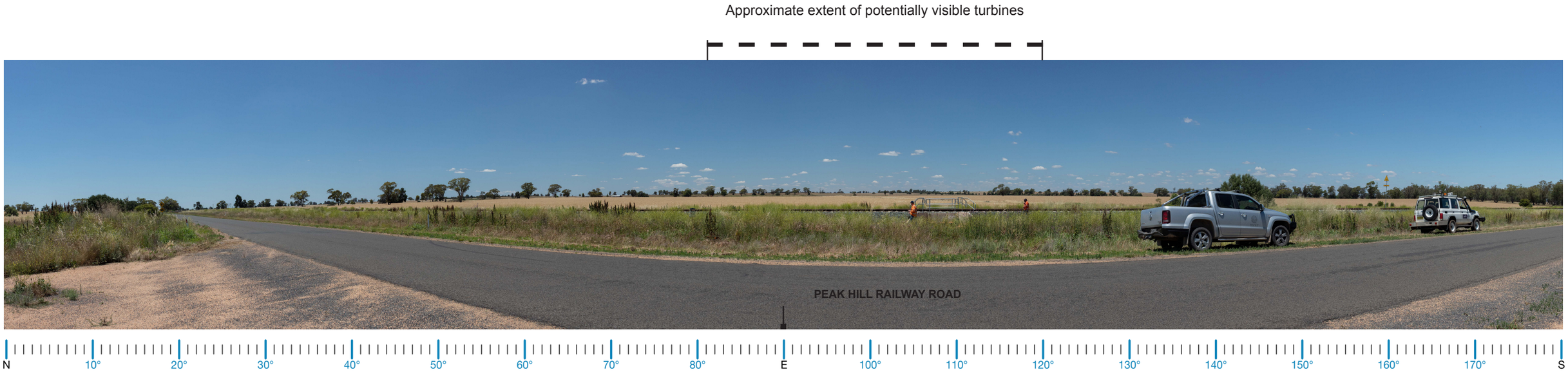
Existing Landscape Character Description:

This viewpoint was taken at Tomingley Road, near the driveway of dwelling 272 and 223 looking toward the east. Tomingley Road is a major road which connect Tomingley to the Narromine Town and settlements. The viewpoint is located within the extents of the Town and Settlement LCU, the character of which is defined by generally flat to gently undulating lands that have been extensively cleared for agricultural activity such as grazing and cropping. Scattered vegetation along the roadside and Backwater Cowal is visible in the foreground and rows of vegetation associated with low used road visible in the middleground to the southeast. Views from this location are generally open and partly filtered by roadside vegetation to the east.

Potential Visual Impact:

The Project will be fragmented from the viewpoint to the southeast through roadside vegetation and far proximity to the Project.

VP17 Peak Hill Railway Rd, Narromine



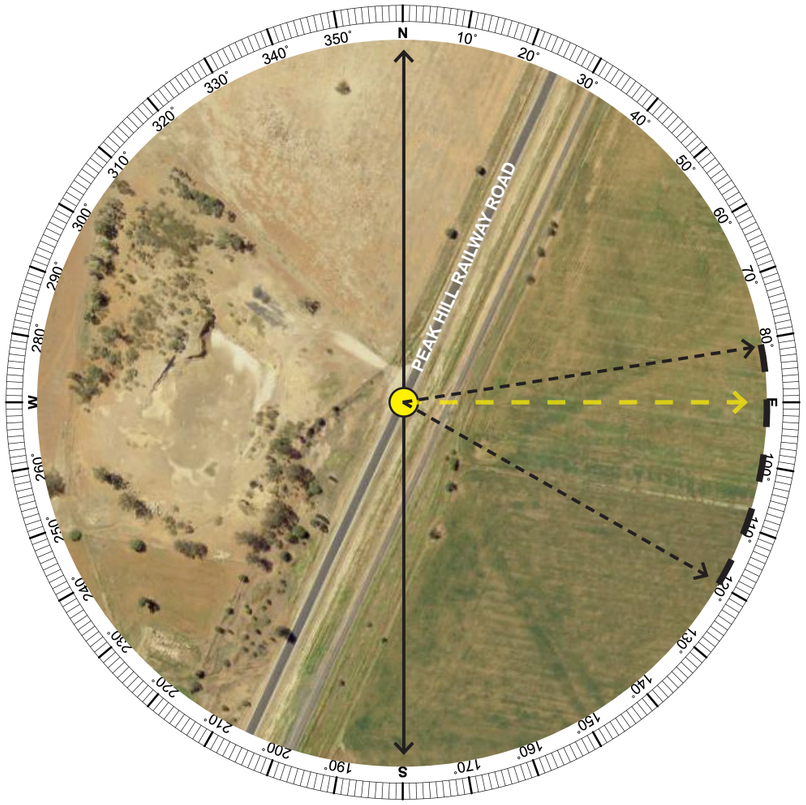
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP17 (Aerial Image Source: Six Maps)

VIEWPOINT VP17

Viewpoint Summary:	
Location:	Elevation:
Peak Hill Railway Rd, Narromine	252 m
Coordinates:	Viewing Direction:
32°22’38.42”S 148° 9’35.71”E	East
Distance to nearest WTG:	Visibility Distance Zone:
10.92 km	Far Middleground (FM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU01:Western Pasture	Low
Multiple Wind Turbine Tool:	
Zero (0) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This photograph was taken Peak Hill Railway Road in adjacent to rail way connecting Peak hill to Narromine town. Land is characterised as cleared land that are used for grazing and cropping. The terrain is predominantly flat with very minor undulations that hold seasonal water. The railway passing from south-north in foreground from this view. The background show rows of scattered vegetation which is associated with dwellings and patches of remnant trees. These, however, don’t screen views towards the west. Views are generally open and unhindered.

Potential Visual Impact:

Views of the Project are likely to available in the eastern directions. It is likely that views may be partially screened by existing vegetation in background.

VP18 Tomingley Rd, Narromine

Approximate extent of potentially visible turbines



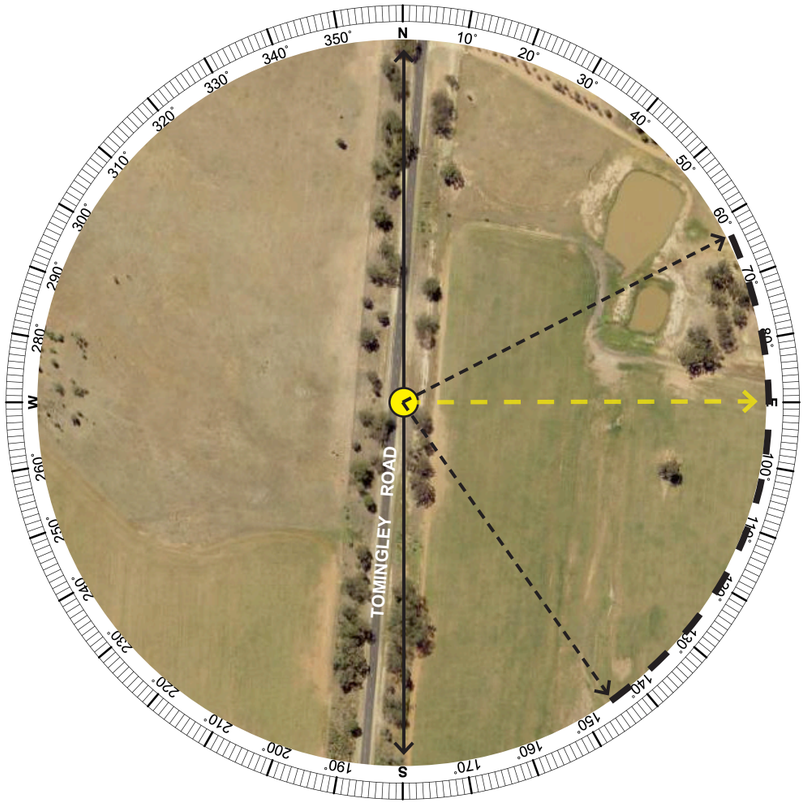
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP18 (Aerial Image Source: Six Maps)

VIEWPOINT VP18

Viewpoint Summary:	
Location:	Elevation:
Tomingley Rd, Narromine	280 m
Coordinates:	Viewing Direction:
32°23'15.34"S 148°13'43.86"E	East
Distance to nearest WTG:	Visibility Distance Zone:
4.34 km	Near Middleground (NM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU06: Town and Settlement	Low
Multiple Wind Turbine Tool:	
Two (2) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This viewpoint is from Tomingley Road close to dwelling 41 and 69 facing to the east toward the Project. Tomingley Road is a major road that provides access to low density rural residential lots. it also provide connection between Tomingley and Narromine towns. The landscape is characterised by gentle undulations and surrounding land has been extensively cleared to support grazing and cropping. A row of windbreak plantations is visible to the northeast bordered dwelling 41 and an existing patch of dense vegetation in middleground. Scattered roadside vegetation can be served from this location. Views from this location are contained by the gently rising topography towards the east.

Potential Visual Impact:

From this location, it is likely that a number of turbines will be visible to the southeast of the view. Scattered vegetation is likely to fragment views to a small number of turbines to the east and is likely to reduce views to the Project.

VP19 Tomingley Rd, Narromine

Approximate extent of potentially visible turbines





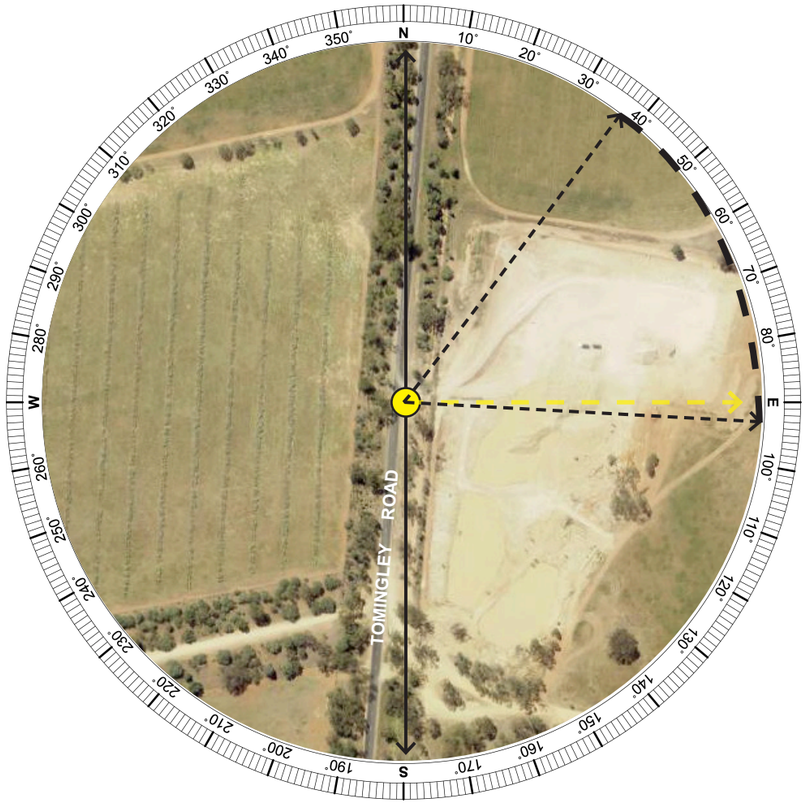
LEGEND

Viewing direction and centre of panorama

Direction of potentially visible turbines

Extent of panorama

Extent of potentially visible turbines



Aerial Image VP19 (Aerial Image Source: Six Maps)

VIEWPOINT VP19

Viewpoint Summary:	
Location:	Elevation:
Tomingley Rd, Narromine	278 m
Coordinates:	Viewing Direction:
32°26'14.72"S 148°13'27.62"E	East
Distance to nearest WTG:	Visibility Distance Zone:
5.18 km	Near Middleground (NM)
Land Use:	Viewer Sensitivity Level:
Major Road	Low
LCU:	Scenic Quality Rating:
LCU06: Town and Settlement	Low
Multiple Wind Turbine Tool:	
One (1) 60º Sectors with turbines within 8000 m.	

Existing Landscape Character Description:

This photograph was taken from the Tomingley Road adjacent to the Marryland Sand Quarries. It also represents views from dwelling 53. Land is characterised by sand Quarry in foreground and the grassy and saltbush plains that are used for grazing in middleground. The terrain is predominantly flat with very minor undulations that hold seasonal water. The background shows a row of dense vegetation which is associated with Project. These, however, don't screen views towards the east. Views are generally open and unhindered.

Potential Visual Impact:

Views of the Project are likely to available in the eastern direction. It is likely that views may be partially screened by existing vegetation on northeast direction as visible in the photograph.