

# WINTERBOURNE WIND FARM

## Stage 1 Scoping Report

### PRELIMINARY LANDSCAPE AND VISUAL ASSESSMENT

*Prepared for:*

**Environmental Resources Management  
Australia Pty Ltd on behalf of  
WinterbourneWind Pty Ltd**

*Prepared by:*

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## Report structure

## Section 1

### 1.1 Report structure

This Preliminary Landscape Visual Assessment (Preliminary LVA) report has been structured as follows:

**Table 1 – Report structure**

Report section	Description
1 – Report structure	This section outlines the content and structure of the Preliminary LVA report.
2 – Introduction	This section provides an introductory section that describes the intent and purpose of the Preliminary LVA.
3 – Methodology	This section sets out the structure and methodology employed in the LVA preparation.
4 – Wind Energy Visual Assessment Bulletin	This section sets out the objectives, stages and key steps described in the Visual Bulletin as applicable to the Preliminary LVA.
5 – Community Consultation	This section describes the community consultation activities undertaken by the Proponent and feedback received from the community relevant to this Preliminary LVA.
6 – Preliminary Assessment Tool - Visual Magnitude	This section provides an analysis of the preliminary assessment tool for visual magnitude as set out in the Visual Bulletin.
7 – Preliminary Assessment Tool - Multiple Wind Turbine Tool	This section provides an analysis of the preliminary assessment tool for the multiple wind turbine tool as set out in the Visual Bulletin.
8 – Summary	This section provides a summary of the Preliminary LVA.

## Introduction

## Section 2

### 2.1 Introduction

Green Bean Design Pty Ltd (GBD) has been commissioned by Environmental Resources Management Australia Pty Ltd (ERM) on behalf of WinterbourneWind Pty Ltd (WWPL, or the Proponent) to undertake a Preliminary LVA report for the Winterbourne Wind Farm (the project).

This Preliminary LVA has been prepared as required by the New South Wales Government, Department of Planning, Industry and Environment (DPIE) in order to meet the objectives of the NSW Government - *Wind Energy: Visual Assessment Bulletin* – for State Significant Wind Energy Development (DP&E, 2016), dated December 2016 (the Visual Bulletin). This Preliminary LVA supports the Scoping Report (a preliminary environmental assessment) and has been prepared to specifically address the Visual Bulletin requirements applicable to a new wind farm development application for a State Significant Development (SSD) through the Secretary's Environmental Assessment Requirements (SEARs).

This Preliminary LVA has been prepared to consider a layout consisting of 126 wind turbine generator (turbine/s) locations, with a maximum tip height of 250 metres. The wind turbine layout has been subject to several iterations and should be considered as a draft layout for the purposes of this Preliminary LVA. This Preliminary LVA has not considered the location or extent of some ancillary infrastructure commonly associated with wind farm developments, including electrical infrastructure and access tracks. Ancillary infrastructure items will be detailed and included in the Stage 2 Environmental Impact Statement (EIS) Assessment and Determination process.

The Visual Bulletin requires consideration of dwellings and key public viewpoints within a defined study area. The study area for the Preliminary LVA has been defined within a 3.4 km offset from the wind turbines for the Magnitude Tool assessment (refer Section 6 of this Preliminary LVA). The 3.4 km offset is in accordance with the 'black line threshold' illustrated in the Visual Bulletin Figure 2 Preliminary Assessment Tool 1 indicating visual impacts for further consideration. The study area extends to 8km for the application of the Multiple Wind Turbine Tool (refer Section 7 of this Preliminary LVA). A small number of view locations beyond 8km have been added at the request of DPIE. These include dwellings, road corridors and urban development, as well as lookouts and campsites in National Parks.

The Magnitude Tool study area within 3.4 km (below the black line) of the wind turbines did not identify any key public viewpoints (e.g. dedicated lookouts, public spaces, recreational areas etc.), and accordingly the preliminary analysis has focused on residential dwellings below the black line. A further and detailed analysis of key public viewpoints surrounding the wind farm will be undertaken in the Stage 2 EIS report.

The Visual Bulletin requires provision of an overlay of the wind resources (Issue of SEAR's, page 11). An overlay of wind resources is included in **Figure 1.2**.

Information and stated requirements from the Visual Bulletin included in this Preliminary LVA are presented in *italics*.

## 2.2 Professional assessment skills

The Visual Bulletin states that *‘Professional assessment skills are critical to the effective application of visual assessment’*, and that *‘The proponent is expected to engage professionals from relevant natural resource management and design professions (for example environmental planners, geographers, landscape architects, architects, or other visual resource specialists), with demonstrated experience and capabilities in visual assessment to carry out a wind energy project visual assessment’*.

GBD confirms that this Preliminary LVA has been prepared by GBD Principal Landscape Architect Andrew Homewood. Andrew is a registered Landscape Architect and member of the Australian Institute of Landscape Architects and the Environmental Institute of Australia and New Zealand. Andrew holds tertiary qualifications in Landscape Management, Landscape Design, Archaeology and Horticulture and has over 30 years’ experience in landscape consulting. Andrew has prepared wind farm LVA in New South Wales, Victoria, Queensland, South Australia and Tasmania, at preliminary and detailed stages. Andrew has also acted as an independent expert providing peer reviews for wind farm LVA on behalf of DPIE.

## 2.3 Project overview

The project is situated approximately 425 kilometres (by road) from Sydney and 180 kilometres north-west of Port Macquarie. It is located ~75 kilometres north-east of Tamworth and ~35 kilometres south-south-west of Armidale within both Walcha and Uralla Local Government Areas (LGA). The project boundary extends around an area of approximately 24,400 hectares and is at an elevation of approximately 1,100 to 1,300 metres (above sea level) comprised of hills and ridgelines rising out of the Walcha Plateau. The project locality is identified in **Figure 1.1** below.

The project is proposed to consist of up to 126 wind turbine generator (turbine/s) locations with a combined maximum installed capacity of 700 megawatts (MW). A maximum tip height of 250 metres is proposed.

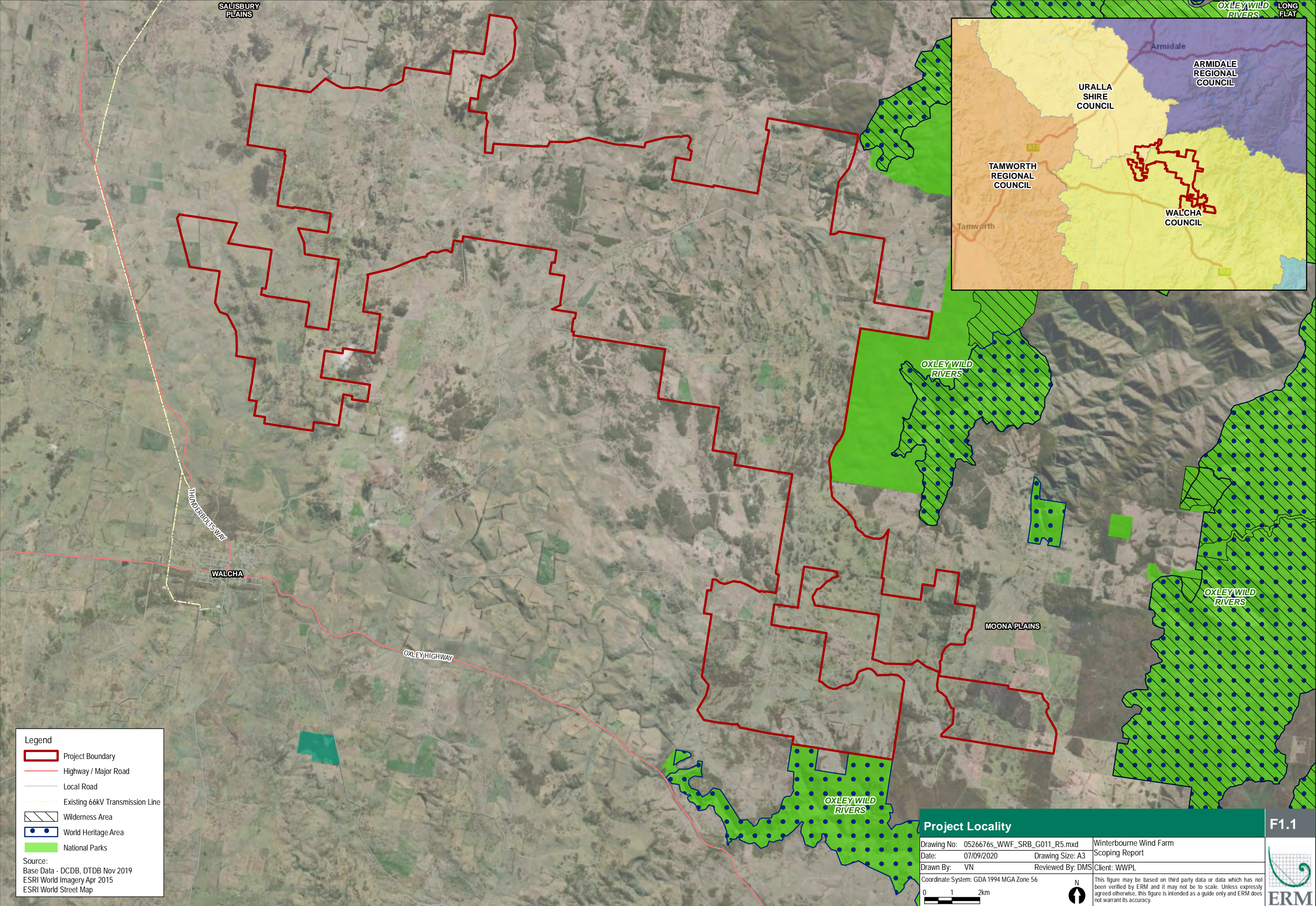
The project would also include:

- an internal electrical reticulation network (both overhead and underground).
- three on-site collector substations.
- new and upgraded access roads.
- temporary construction facilities (including concrete batching plants) and
- operation and maintenance buildings.

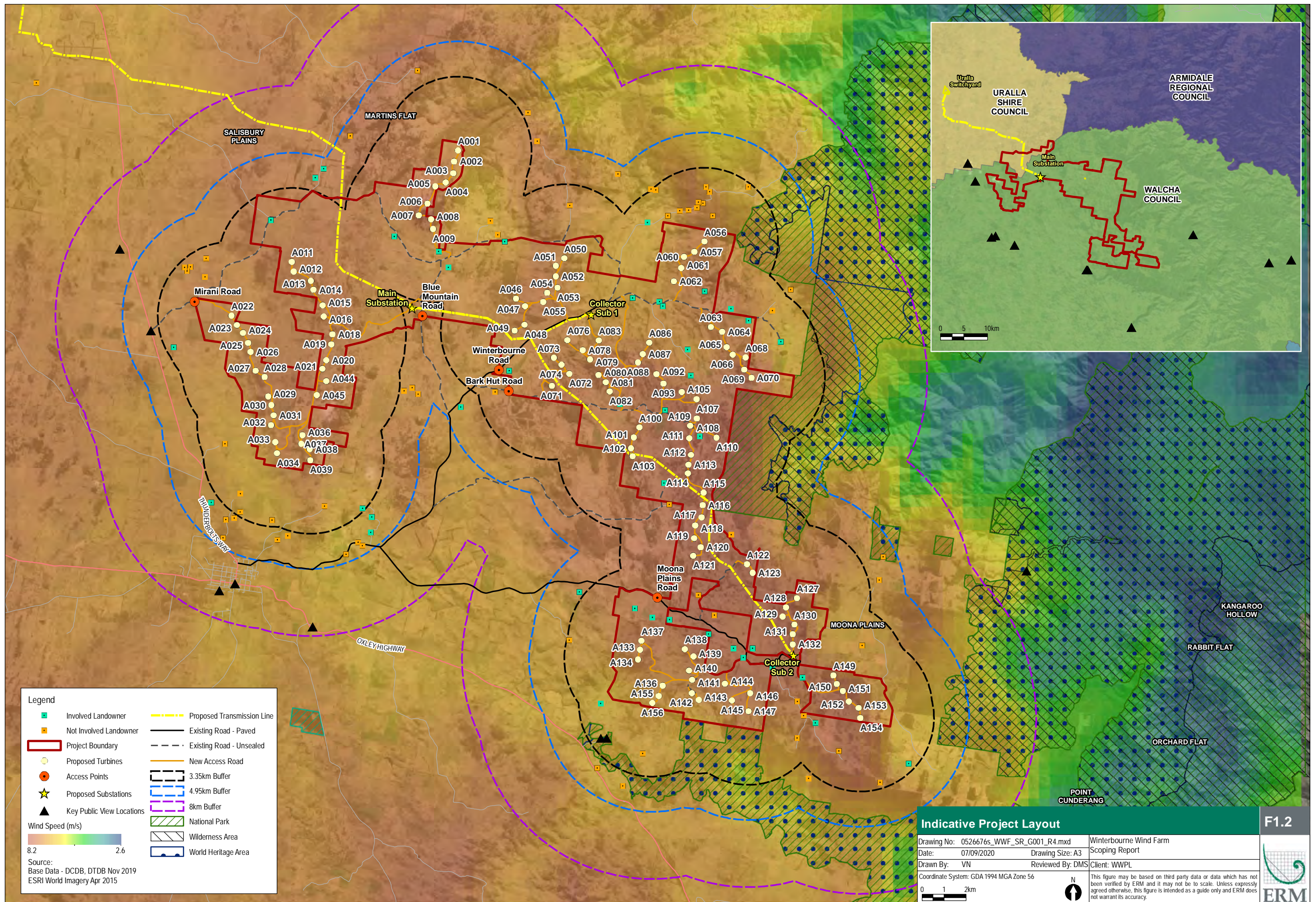
Large-scale battery storage is also proposed for the project to support stabilising the supply of electricity to the National Electricity Market (NEM).

The project is also proposed to include approximately 30 km of 330kV overhead transmission line running north-west from the project site. This new transmission line would connect to the existing grid network operated by TransGrid at a new switchyard which would be constructed approximately 7 km south of Uralla, NSW. This switchyard location has also been proposed by Walcha Energy as part of its Salisbury Solar Farm project and has been referred to as the 'Uralla Switchyard'.











## Methodology

## Section 3

### 3.1 Introduction

This Preliminary LVA has been prepared to address the Visual Bulletin through a range of tasks outlined in the Visual Bulletin and/or commonly associated activities applicable to landscape and visual assessment. This Preliminary LVA included the following key tasks:

- Desktop studies
- Site inspections
- Mapping and analysis

### 3.2 Desktop studies

A desktop study reviewed the preliminary wind turbine layout provided by the Proponent in Google Earth and Google Maps applications. The Proponent provided updated wind turbine layouts during the desktop review process to indicate adjustments to wind turbine locations following on-going landowner consultation by the Proponent.

The desktop study also reviewed dwelling locations against built form considered to be potential agricultural structures such as shearing sheds. The desktop study identified the location, extent and general boundaries between broad landscape character areas to be reviewed during the site inspection work. Desktop studies also identified key sensitive landscape elements and areas including Blue Mountain and adjoining National Parks.

### 3.3 Site inspection

A site inspection was undertaken to record landscape characteristics within the project site, as well as gain an understanding of wind turbine locations relative to surrounding dwellings. The site inspection also presented an opportunity to visit key public view locations including lookouts within the Oxley Wild Rivers National Park. The landscape characteristics and elements within and surrounding the project site were captured in a series of ground and aerial images utilising a 35mm SLR full sensor digital camera (Nikon D850) and aerial drone (DJI Mavic Pro 2). The CASA registered drone was flown in strict accordance with CASA rules and regulations applicable to a sub 2kg drone operated for commercial purposes. Outputs from the site inspections included preparation of illustrated material to inform community consultation undertaken by the Proponent.

### 3.4 Mapping and analysis

A series of figures have been prepared by ERM to address the Visual Bulletin requirement to demonstrate the potential influence of visual magnitude and multiple wind turbines on dwellings. This was undertaken with ArcGIS software using the line of sight analysis. Inputs included wind turbine coordinates, tip of blade height, the regional digital elevation model and dwelling locations provided by the Proponent. The Visual Bulletin requirements to adopt distances of 3.4 km for visual magnitude and 8 km for multiple wind turbines are set out in Sections 4, 6 and 7 of this Preliminary LVA.



## Wind Energy Visual Assessment Bulletin

## Section 4

### 4.1 Introduction

The Visual Bulletins stated objectives are to:

- *provide the community, industry and decision-makers with a framework for visual impact analysis and assessment that is focused on minimising and managing the most significant impacts*
- *facilitate improved wind turbine and ancillary infrastructure siting and design during the pre-lodgement phase of a project, and encourage early consideration of visual impacts to minimise conflicts and delays where possible, and provide for a better planning outcome*
- *provide the community and other stakeholders with greater clarity on the process along with an opportunity to integrate community landscape values into the assessment process and*
- *provide greater consistency in assessment by outlining appropriate assessment terminology and methodologies.*

GBD confirm that this Preliminary LVA has been prepared in order to satisfy the key objectives of the Visual Bulletin.

The Visual Bulletin breaks the visual assessment process in to 2 main stages. These include:

- Stage 1 Preliminary Environmental Assessment and
- Stage 2 Assessment and Determination.

This Preliminary LVA has been prepared to address the requirements of the Stage 1 PEA, which is to be submitted in a Scoping Report to DPIE as part of a request for SEAR's. Stage 1 is broken down into 3 steps which include:

- *Undertake community consultation on likely areas of development and establish key landscape features, areas of scenic quality and key viewpoints valued by the community*
- *Apply the Preliminary Assessment Tools to the preliminary turbine layout and*
- *Prepare a Preliminary Environmental Assessment.*



Figure 2 Visual Assessment Main Stages 1 and 2

Source: *The Visual Bulletin (Figure 1 Steps in Visual Assessment)*

The Visual Bulletin also states that Stage 1 must *‘undertake a preliminary environmental assessment that considers the landscape in which a proposed wind energy project will be located. The analysis must include’*:

- *undertaking 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*
- *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; and*
- *results of the application of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.*

GBD confirms that this Preliminary LVA has been prepared in accordance with the Visual Bulletin for Stage 1 PEA (pre-lodgement).

## Community Consultation

## Section 5

### 5.1 Introduction

The Visual Bulletin notes that ‘*Consultation with the community at this early stage may be broad, but should include discussions about the proposed project area, likely corridors for development, or preliminary turbine layouts and must involve people from the visual catchment*’.

The Visual Bulletin describes the purpose of early communications is to:

- *Establish the key landscape features, areas of scenic quality and key public viewpoints valued by that community.*
- *Allow the community to have input into the ranking of those features and scenic quality into high, moderate or low visual significance.*
- *Inform landholders about the proposed project area, likely corridors for development, preliminary turbine layouts and access routes.*
- *Inform the community about the proposed project, listen to the community’s concerns and suggestions for alternative siting and location designs, and discuss potential visual impacts.*

*Key landscape features can include natural features of the landscape (for example, a distinctive mountain peak) as well as important cultural features (for example, an iconic church). Consideration of areas of scenic quality involves the identification of areas of the landscape that are of high scenic quality and those that are moderate or low. It is also important to establish which viewpoints are important to the community. An important source of information at this stage is likely to be the local council. A community survey or focus group could also be utilised to gather this information. Any surveys undertaken should reflect the population profile in the project area as indicated by the most up-to-date Census data available.*

A detailed summary of consultation conducted for the project is provided in Section 5 and Appendix A of the overarching Scoping Report. Issues relevant to this assessment are described below.

In order to support the community consultation process, GBD prepared a number of figures to illustrate the results of preliminary site work. The figures outline landscape characteristics associated with Scenic Quality Areas (SQA’s), which are generally defined by land use, land cover and topography. A preliminary landscape analysis identified nine landscape areas within and surrounding the project boundary, including:

- cleared pasture
- creek lines
- gorges and waterfalls
- hills, rock outcrops and dense timber

- the Oxley River
- pasture with open and isolated trees
- road corridors
- timbered hills and
- the Walcha township.

Each landscape area was photographed and described for the purposes of the broader project community consultation and stakeholder engagement.

The Proponent and experienced ERM consultation experts facilitated a two-day community information session (18 hours of consultation effort) at the Walcha Show. This included interactions with over 200 non-involved landowners, and amongst other things, a stakeholder survey (including targeted visual questions) that yielded approximately 40 responses.

Figures were prepared by GBD and presented by the Proponent and ERM at the community information session as A1 display boards. They were displayed prominently at the session and were used to inform the community about the approach to landscape analysis and processes involved in the determination of scenic quality. These figures are reproduced as **Appendix A, Figures 4 to 6** of this Preliminary LVA report.

Notable observations or comments made during information sessions and as provided in the feedback forms which are relevant to this assessment are summarised below.

The communities surrounding the project boundary were all interested to understand the proposed locations for wind turbines. During the consultation process, maps were prepared showing the area of investigation, including elevated ridges that had the potential to host wind turbines. This was done to allow feedback to be incorporated into the design of the layout at the earliest stage. Specific landscape features and lookout points identified by residents include:

- Aspley Falls
- Steep Drop Falls
- Blue Mountain and
- the Budds Mare and Riverside campgrounds.

These areas and landscape elements will be considered in an assessment of visual impact during the EIS Assessment and Determination.

The Visual Bulletin notes that *‘Where a regional survey or study of landscape values has been undertaken, it must be considered. Proponents should confirm with the Department if there is any such recognised study in place’*.

GBD is not aware of any regional surveys or study of landscape values that have been undertaken within or surrounding the project boundary. This will be confirmed with DPIE prior to the commencement of the detailed assessment prepared for the EIS.

Consultation will be ongoing during the EIS Assessment and Determination process.

## Preliminary Assessment Tool – Visual Magnitude

### Section 6

#### 6.1 Introduction

The Visual Bulletin states that *‘By mapping the dwellings, key public viewpoints and proposed turbines at scale, the potential visual magnitude of a turbine relative to that dwelling or public viewpoint can be established. This is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints shown in the graph at Figure 2’* (The Visual Bulletin, page 9). *‘The line depicted in the graph at Figure 2 provides an indication of where proponents should give detailed consideration to the visual impacts on dwellings or key public viewpoints from turbines located below the black line’.*

For the purpose of the Preliminary LVA the proposed wind turbines are nominated at a 250 m tip height (from base of tower to tip of blade at vertical position). In accordance with the Visual Bulletin, the black line intersects at a distance of 3.4km from a tip height of 250m.

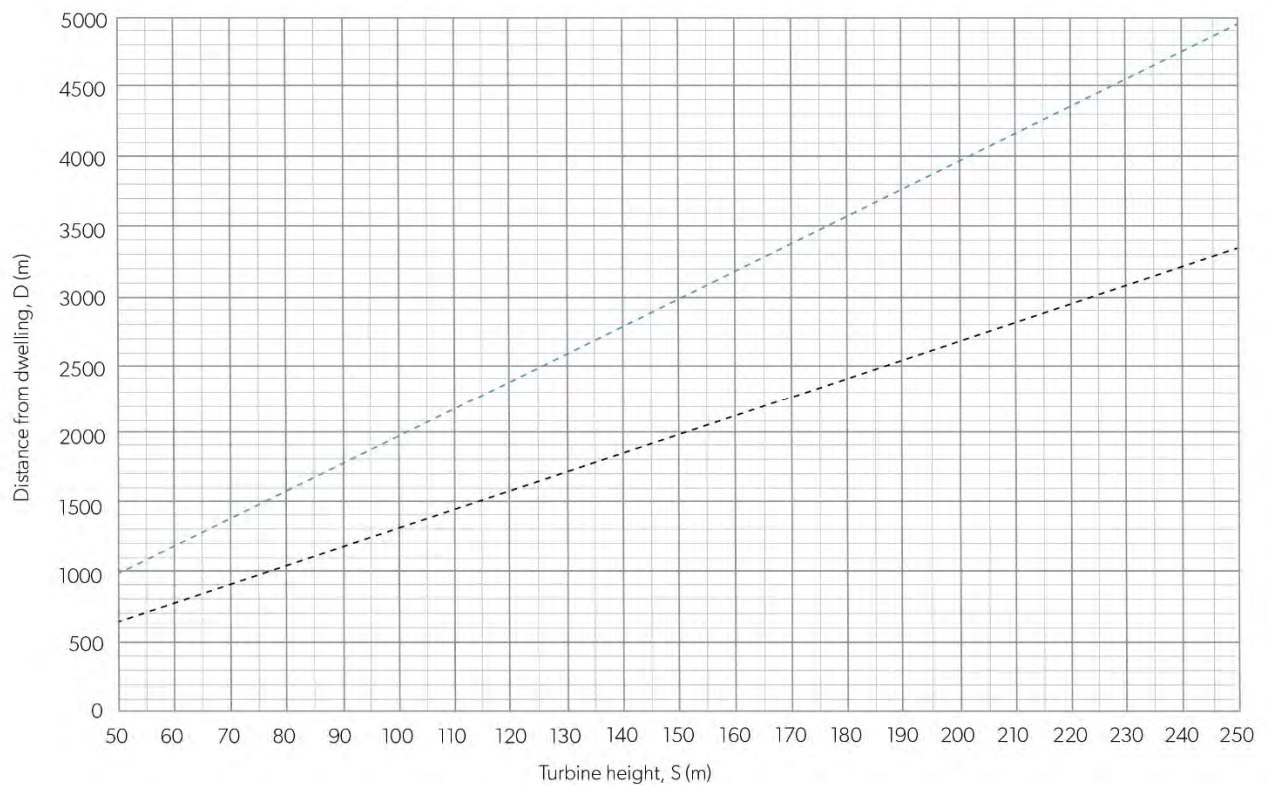


Figure 3 Visual Bulletin black and blue line thresholds

Source: *The Visual Bulletin (Figure 5 Visual magnitude thresholds for visual assessment)*

The Visual Bulletin states the *‘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 Visual Bulletin notes that *‘Further assessment and justification for placement of turbines located in these sensitive areas in the EIS will be required, along with a description of the 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’.*

The Visual Bulletin also notes that *‘there may be circumstances where dwellings or key public viewpoints located above the line may require further consideration due to topography or other landscape features. The further detailed assessment and ground-truthing at the visual assessment stage must also consider impacts on these dwellings or key viewpoints.’*

This Preliminary LVA also illustrates dwellings located to a distance of 4.95km from the wind turbines which coincides with the blue line threshold (refer Figure 3 above) as indicated in the Visual Bulletin. Dwellings located between 3.4km and 4.95km have been identified and illustrated to provide a greater degree of context regarding the location and number of dwellings surrounding the proposed wind farm.

The EIS Assessment and Determination will undertake an assessment and justification for the placement of wind turbines in sensitive areas, including those located within and between the 3.4km and 4.95km distance offsets from the wind turbine locations.

Non-associated and associated residential dwellings located below the black line, as well as residential dwellings between the black and blue lines, are illustrated in **Appendix A Figures 7 and 8**.



## Preliminary Assessment Tool – Multiple Wind Turbines

## Section 7

### 7.1 Introduction

The Visual Bulletin states that *‘This tool will provide a preliminary indication of potential cumulative impacts arising from the proposed wind energy 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.*

This Preliminary LVA has identified 38 individual representative view locations which contain single or multiple viewpoints to 8km from the wind turbines. This Preliminary LVA has incorporated multiple residential dwellings into a single view location where dwellings occur within a 500m radius of each other. GBD consider that views from these locations would be similar or identical in most cases.

The Visual Bulletin (at Stage 2 EIS Assessment and Determination, page 12) permits representative view locations, and states *‘where relatively close clustering of houses belonging to different landowners or occupants occur, representative viewpoints may be selected and assessed in lieu of every single dwelling in the following types of areas:*

- *rural residential clusters*
- *rural villages and*
- *urban residential and commercial areas.*

The 38 representative view locations and the multiple wind turbine analysis are presented in **Figures F7, and Figures F9.1 to F9.38 of Appendix A**, respectively.

**Figure F8** also illustrates a Zone of Visual Influence (ZVI) analysis, which indicates areas of the landscape from which wind turbines will not be visible, or visible toward blades only. The extent of screening illustrated in **Figure F8** relates to screening by landform only and does not account for vegetation (tree cover) within the landscape or surrounding residential dwellings.

*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.*

**Table 2** summarises the results of the multiple wind turbine tool analysis undertaken as part of the Preliminary LVA. The results include the identification of non-involved residential dwellings and key public view locations within 8km of the wind turbines, the distance to the closest wind turbine (and wind turbine ID), the number of

60° sectors the wind turbines occur within out to a distance of 8 km from the view location, and the number of wind turbines visible within three or more 60° sectors out to a distance of 8 km from the view location.

Representative view location ID	Distance (km) from dwelling to closest wind turbine (and turbine ID)	Number of 60° sectors with wind turbines up to 8 km from dwelling	Number of visible wind turbines within 3 or more 60° sectors up to 8 km from dwelling
SR004	1.78 (A056)	2	
SR005	1.95 (A150)	4	30
SR006	2.54 (A071)	2	
SR007	2.00 (A060)	3	23
SR009	2.40 (A050)	4	35
SR040	2.05 (A138)	2	
SR058	2.58 (A071)	4	36
SR078	2.03 (A138)	5	39
SR129	1.89 (A149)	2	
SR136	2.95 (A009)	3	28
SR142	2.89 (A022)	2	
SR143	2.85 (A022)	2	
SR159	2.12 (A022)	2	
SR167	1.80 (A121)	4	43
SR212	2.64 (A009)	3	27
SR216	2.44 (A068)	2	

Representative view location ID	Distance (km) from dwelling to closest wind turbine (and turbine ID)	Number of 60°sectors with wind turbines up to 8 km from dwelling	Number of visible wind turbines within 3 or more 60°sectors up to 8 km from dwelling
SR228	1.50 (A120)	4	33
SR240	1.50 (A116)	5	40
SR262	2.25 (A032)	2	
SR264	2.54 (A147)	2	
SR268	1.79 (A154)	2	
SR272	2.07 (A150)	4	28
SR289	3.38 (A056)	2	
SR290	3.21 (A056)	2	
SR087	4.22 (A044)	4	40
SR141	2.82 (A022)	2	
SR260	4.49 (A005)	2	
Dwellings north west of wind farm	5.90 (A022)	1	
Apsley Falls Bridge	2.82 (A156)	2	
Apsley Falls parking lot	2.62 (A156)	1	
Birds Nest Trig Station	25.52 (A154)	0	
Budds Mare Campground	9.85 (A153)	0	

Representative view location ID	Distance (km) from dwelling to closest wind turbine (and turbine ID)	Number of 60°sectors with wind turbines up to 8 km from dwelling	Number of visible wind turbines within 3 or more 60°sectors up to 8 km from dwelling
Green Gully Track Rocks Lookout	21.48 (A154)	0	
Oxley Highway rest area	7.57 (A039)	1	
Thunderbolts Way Miriani Road intersection	3.71 (A022)	2	
Tia Falls Campsite	13.40 (A147)	0	
Walcha Centre	6.22 (A034)	1	
Walcha South	6.75 (A034)	1	

Of the 38 representative dwelling view locations:

- 26 are predicted to have views toward wind turbines in either 1 or 2 of the 60° sectors and
- 12 are predicted to have views towards wind turbines within 3 or more of the 60° sectors.

Further assessment and justification for placement of turbines in multiple sectors will be detailed in the EIS, along with a description of the mitigation and management measures being employed to reduce impacts. Such further assessment may identify that factors such as topography, relative distance and existing vegetation may minimise the impacts of the project on nearby involved and non-involved residences. The Visual Bulletin notes that *‘the relative position of the viewpoints in relation to a dwelling is also an important consideration that will be outlined in the EIS. For example, views to the turbines from the primary living areas of the dwelling would be considered more important than views from non-habitable areas’*.

The Stage 2 EIS Assessment and Determination will provide further assessment and justification for the placement of wind turbines within three or more 60° sectors where necessary, and/or provide reasonable and feasible mitigation measures to reduce visual impacts.

This Preliminary LVA notes the proposed Tara Springs Wind Farm development would be located to the west of the proposed Winterbourne Wind Farm project site. Whilst the proposed Tara Springs wind turbine locations

were not publicly available during the preparation of this Preliminary LVA, there is a possibility that a small number of dwellings may be located within 8km of wind turbines between each project and more specifically dwellings located either side of the Thunderbolts Way road corridor. A comprehensive assessment of potential cumulative visual impacts will be carried out and included in the Stage 2 EIS Assessment and Determination report.

## Summary

## Section 8

### 8.1 Summary

This Preliminary LVA has been prepared in accordance with the Visual Bulletin and specifically addresses the key steps set out in Stage 1 PEA / Scoping Report (pre-lodgement). The Preliminary LVA has:

- Outlined the community consultation activities undertaken by the Proponent and identified the key landscape features and characteristics that are found within and surrounding the project boundary.
- Noted the landscape features and locations of concern to the community and will further consider these within the Stage 2 EIS Assessment and Determination process.
- Applied the preliminary assessment tools (magnitude and multiple wind turbine) to the preliminary wind turbine layout.
- Documented the process and analysis of the Stage 1 Preliminary Environmental Assessment.

The Preliminary LVA will be carried forward to the Stage 2 EIS, which will consider the proposed wind farm development against the Visual Bulletin performance objectives and requirements.

### 8.2 Next steps

This Preliminary LVA, incorporating the preliminary assessment tools, will be submitted to DPIE together with the Scoping Report as a pre-requisite as a request for the Secretary's Environmental Assessment Requirements (SEARs). The Visual Bulletin notes that *'In relation to visual assessment, SEARs for wind energy applications will require the Proponent to provide a comprehensive assessment of the project in accordance with (the) Bulletin that analyses the proposed wind energy project in relation to the visual performance objectives'*.

The Steps in Visual Assessment (refer Section 4) identifies the key steps in the Stage 2 EIS visual assessment. These include:

- Prepare a Visual Baseline Study as part of the EIS
- Undertake community consultation aspects of the visual baseline study and describe mitigation and management options in the EIS
- Establish Visual Influence Zones from viewpoints using inputs from the visual baseline study
- Undertake an evaluation of project against the Visual Performance Objectives.

The Proponent will commission a detailed Landscape and Visual Impact Assessment (LVIA) report. The LVIA report will be prepared in accordance with the Visual Bulletin requirements and incorporate:

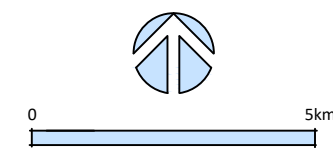
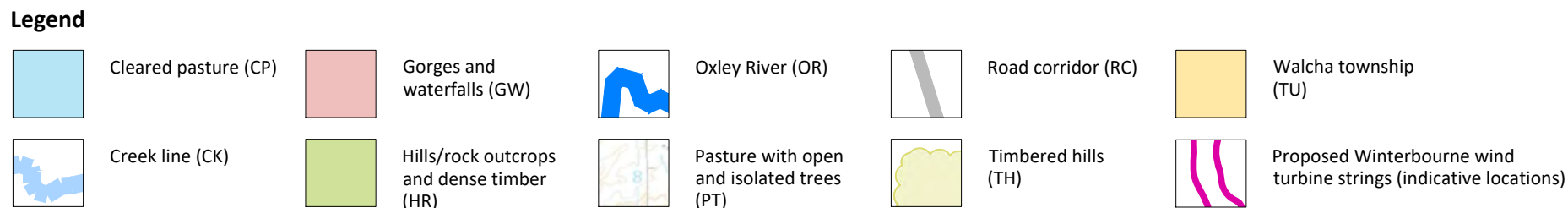
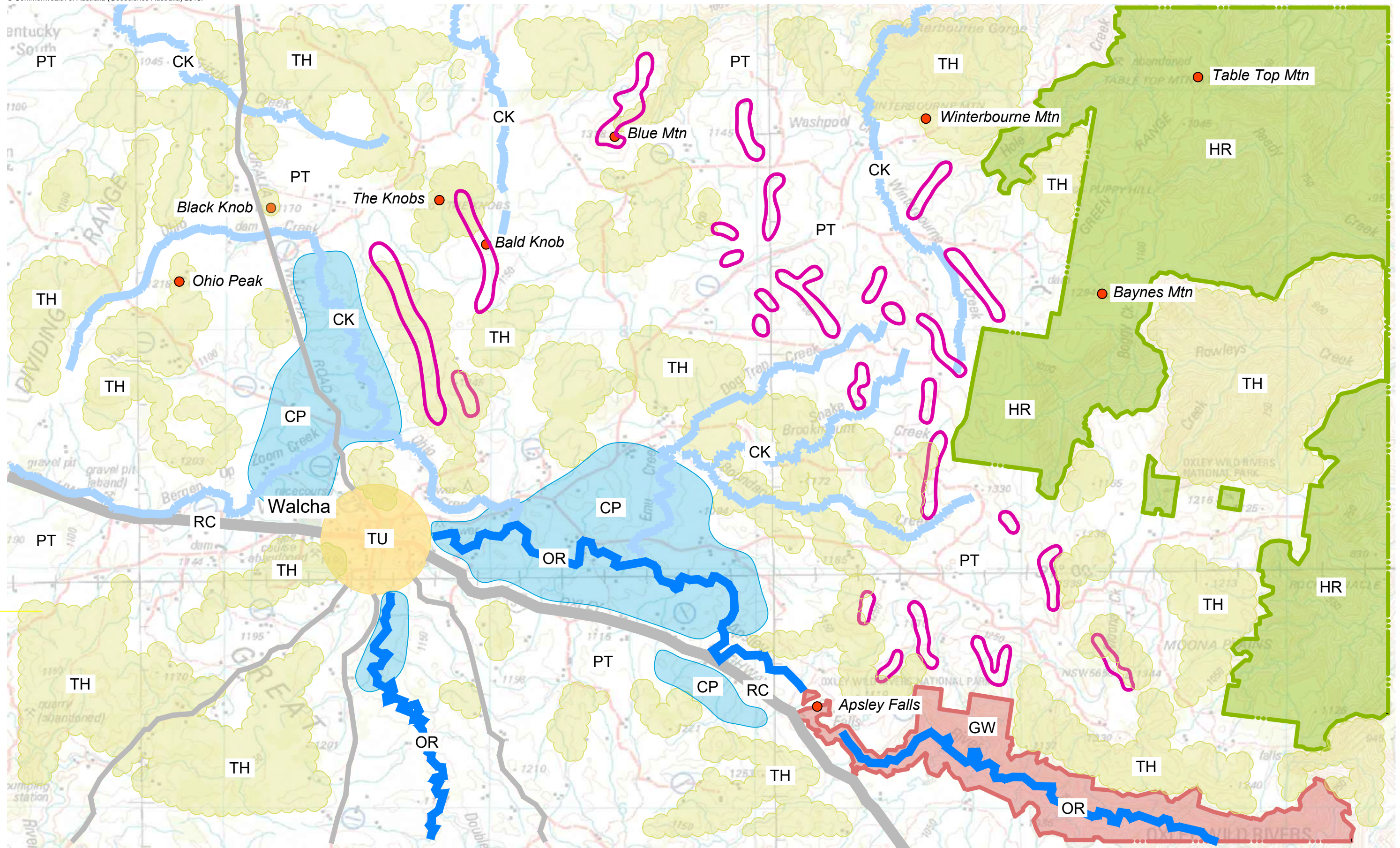
- Baseline Study Factors
- Visual Performance Evaluation and

- Visual Performance Objectives

The Stage 2 EIS will incorporate a detailed Landscape and Visual Impact Assessment to address the Visual Bulletin Stage 2 requirements.

## **Appendix A – Figures 4 to 6, F7, F8 and F9.1 to F9.24**





**Figure 4**  
**Scenic Quality Assessment -**  
**Landscape Character Areas**

# Winterbourne Wind Farm Stage 1 Preliminary LVA





### Cleared pasture (CP)

Cleared pasture largely within the southern portion of the Project site forms a moderate scale landform that is partially contained by undulating landform beside the Oxley River corridor. Cleared pasture introduces a degree of moderate topographical variety and is visually uniform in colour and texture. Cleared pasture is partially delineated and dissected by cultural tree planting, including pine and poplar, to field boundaries which can constrain distant views.

### Creek lines (CK)

Multiple tributaries and creek lines occur within open pasture, valleys and gullies across the Project site. Creek lines may be enclosed by timbered slopes rising to rounded hills or extend across open pasture. Creek lines are generally contained within the Project site forming small scale landscape features. Creek lines introduce a visual variety and contrast in colour and texture to dominant patterns of pasture and tree cover. Creek lines can be viewed within both close and distant views but do not form backdrop or skyline views.



### Hills/rock outcrops and dense timber (HR)

Hills with rock outcrop and/or dense timber are visually prominent within the landscape and form moderate to large scale landscape features. They introduce a degree of topographical variety and are visually uniform in pattern, colour and texture. Timbered hills with rock outcrops can be viewed within both close and distant views and tend to form backdrop or skyline views from areas within the Project site.

### Oxley River/gorges and waterfalls

The Oxley River and associated gorges/ waterfalls form visually prominent elements within the landscape. They are moderate to large scale landscape features with strong topographical variety. The river and gorges are visually uniform in pattern, colour and texture. The river, gorges and waterfalls can be viewed within both close and distant views but do not tend to form backdrop or skyline views from areas within the Project site.



Figure 5 - Scenic Quality Assessment Photo Sheet 1





### Pasture with open and isolated trees (PT)

Pasture with open and isolated trees form moderate scale and dominant landforms that are partially contained between low rounded hills and crests with stands of dense timber. Areas of pasture introduce a limited degree of topographical variety and are largely uniform in colour and texture. Areas of pasture do not tend to form distinct backdrops and skyline views.

### Road corridors (RC)

Sealed and unsealed road corridors within and surrounding the Project site are not visually prominent features within the landscape and generally form small scale linear corridor features. Views from principal road corridors, including the Oxley Highway, offer a variety of open and closed vistas across adjoining and distant landscape areas. Road corridors do not tend to form distinct backdrops or skyline views.



### Timbered hills (TH)

Timbered hills are visually prominent within the landscape and form moderate scale landscape features. They introduce a degree of topographical variety and are uniform in colour and texture. Timbered hills can be viewed within both close and distant views and often form backdrop and skyline views.

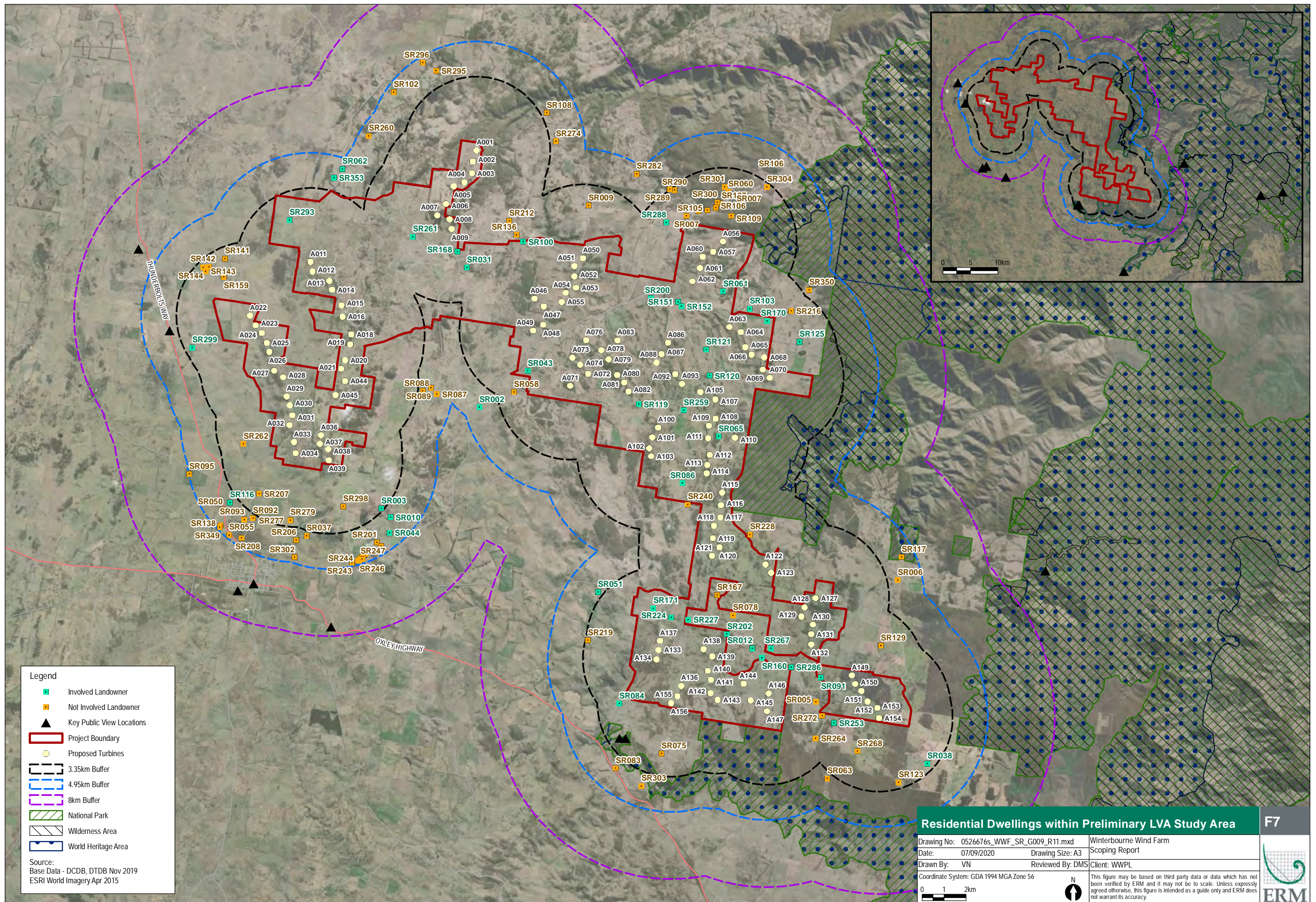
### Walcha township (TU)

The Walcha township is located on sloping to level land in proximity to the Oxley River. The majority of structures within township are small to moderate scale. There are a variety of human scale features and built structures located within commercial, residential and industrial areas, creating complex and visually diverse backdrops. Colour is varied but generally muted in constructed elements. Views are largely constrained and directed along road corridors within urban areas or screened and filtered by tree planting. Elevated residential areas offer broader views across the landscape.

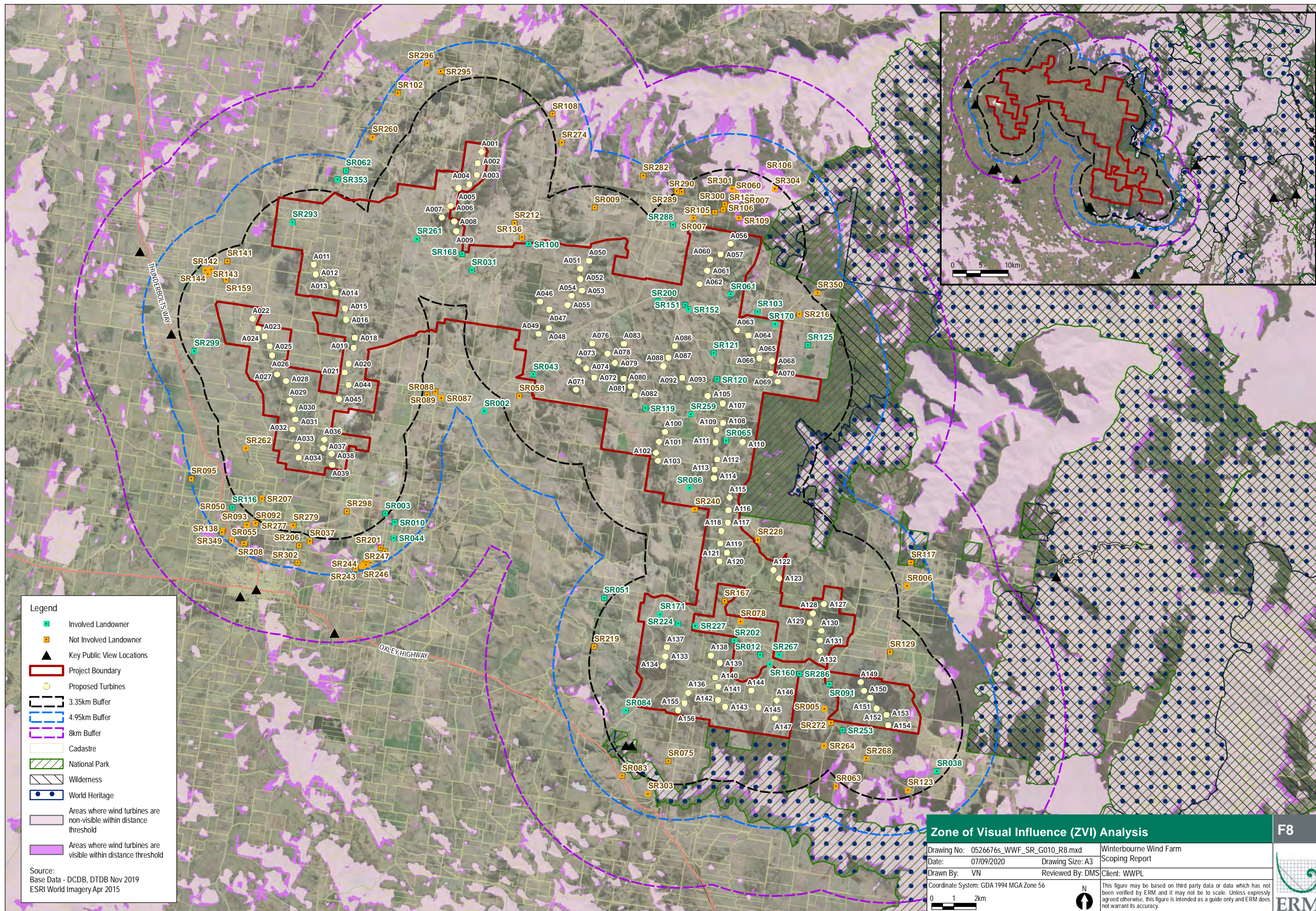


Figure 6 - Scenic Quality Assessment Photo Sheet 2

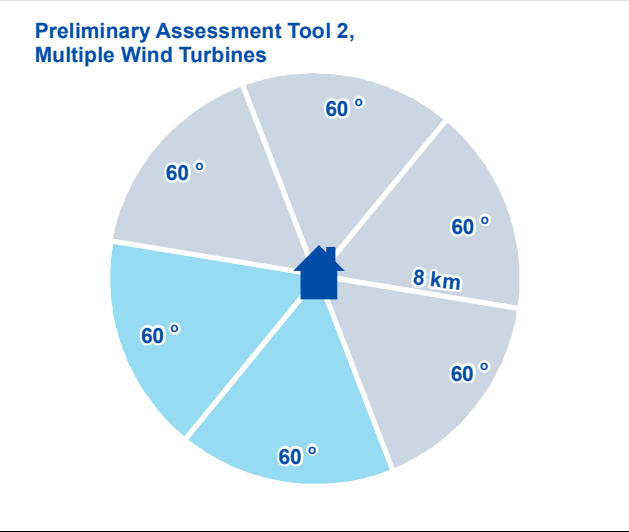
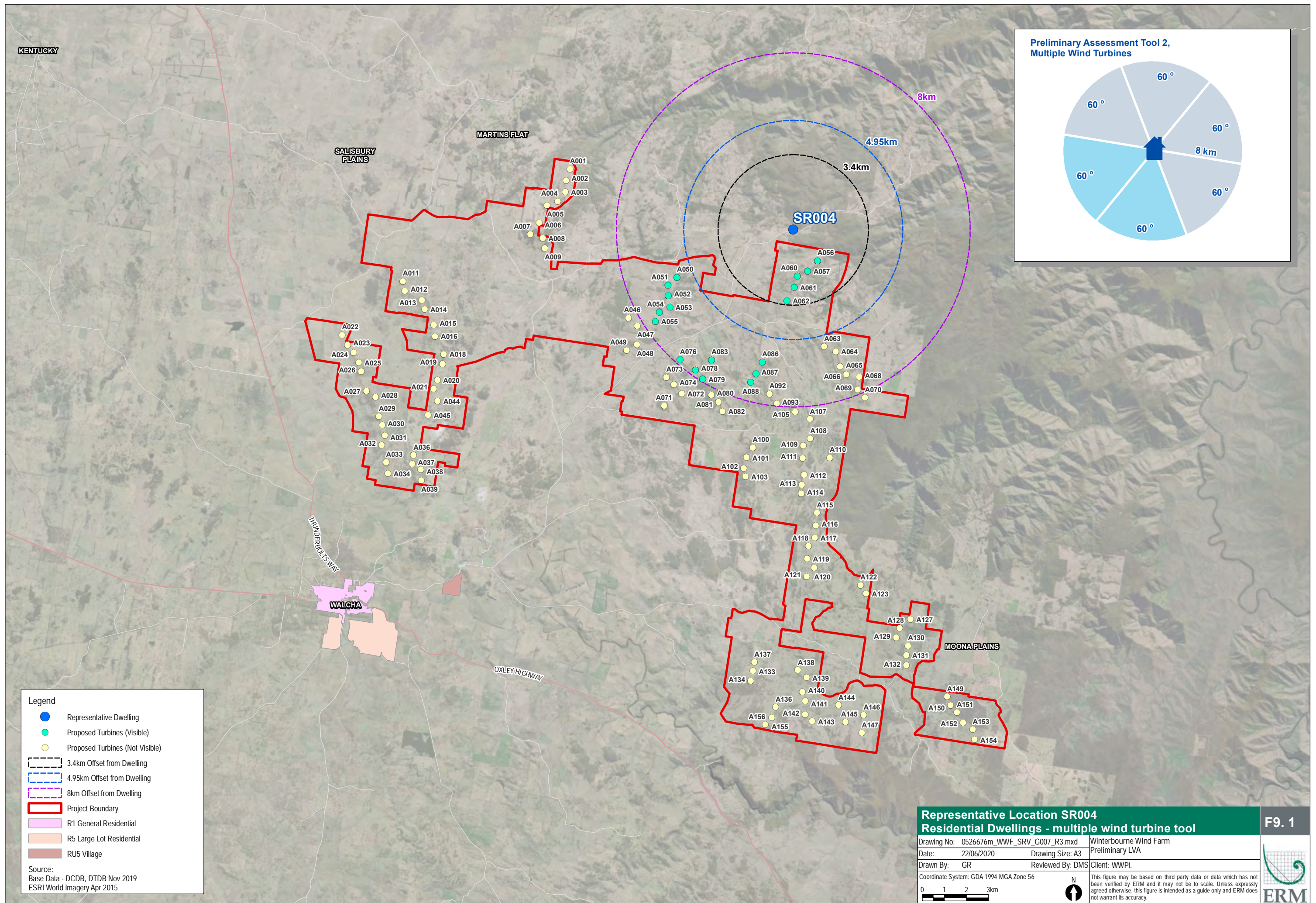












Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Representative Location SR004  
Residential Dwellings - multiple wind turbine tool

F9. 1

Drawing No: 0526676m_WWF_SRV_G007_R3.mxd	Winterbourne Wind Farm
Date: 22/06/2020	Preliminary LVA
Drawn By: GR	Reviewed By: DMS
Client: WWPL	
Coordinate System: GDA 1994 MGA Zone 56	

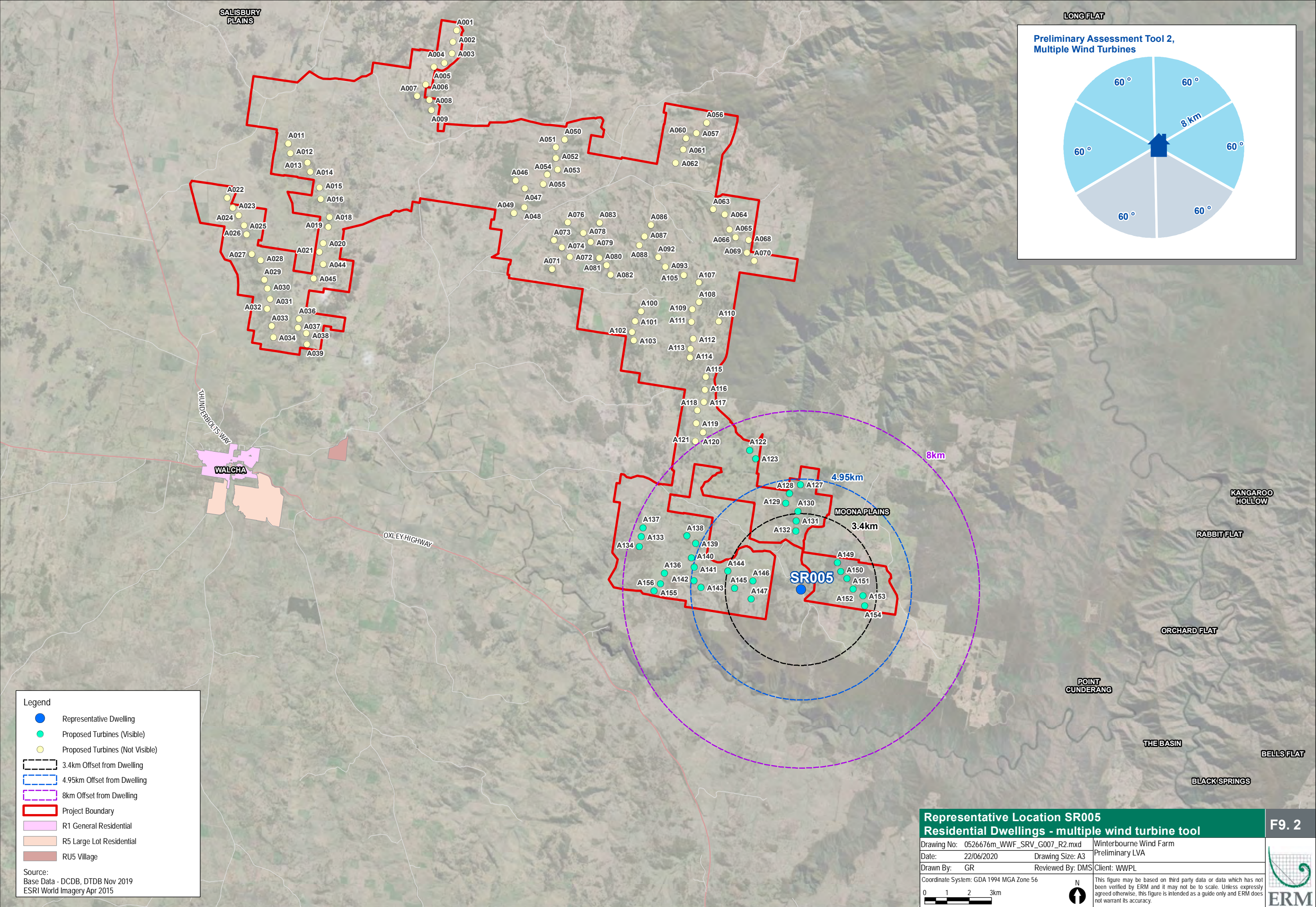
0 1 2 3km

N

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ERM







KENTUCKY

SALISBURY PLAINS

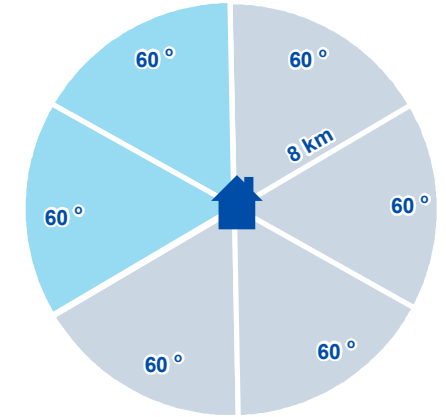
MARTINS FLAT

THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- ▬ Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Representative Location SR006  
Residential Dwellings - multiple wind turbine tool

Drawing No: 0526676m\_WWF\_SRV\_G007\_R2.mxd  
Date: 22/06/2020  
Drawn By: GR

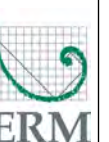
Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km



Winterbourne Wind Farm  
Preliminary LVA  
Reviewed By: DMS  
Client: WWPL  
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F9. 3





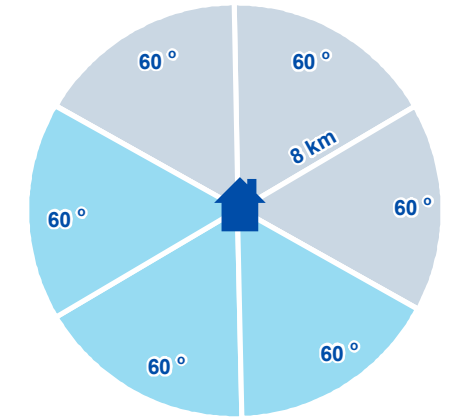
KENTUCKY

SALISBURY PLAINS

MARTINS FLAT

SR007

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Representative Location SR007  
Residential Dwellings - multiple wind turbine tool

F9. 4

Drawing No: 0526676m\_WWF\_SRV\_G007\_R2.mxd  
Date: 22/06/2020  
Drawing Size: A3  
Drawn By: GR  
Reviewed By: DMS

Winterbourne Wind Farm  
Preliminary LVA

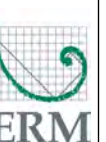
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km



This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.





KENTUCKY

SALISBURY PLAINS

MARTINS FLAT

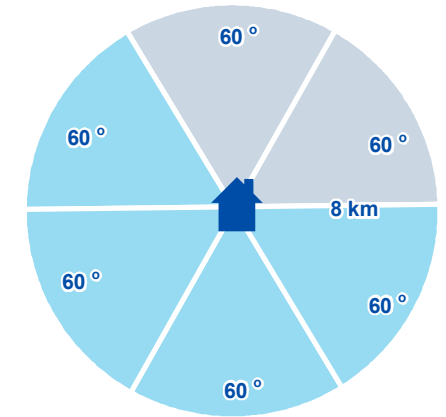
SR009

8km

4.95km

3.4km

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



THUNDERBOLT WAY

WALCHA

OXLEY HIGHWAY

MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Representative Location SR009  
Residential Dwellings - multiple wind turbine tool

F9. 5

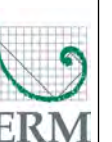
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Reviewed By: DMS  
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56

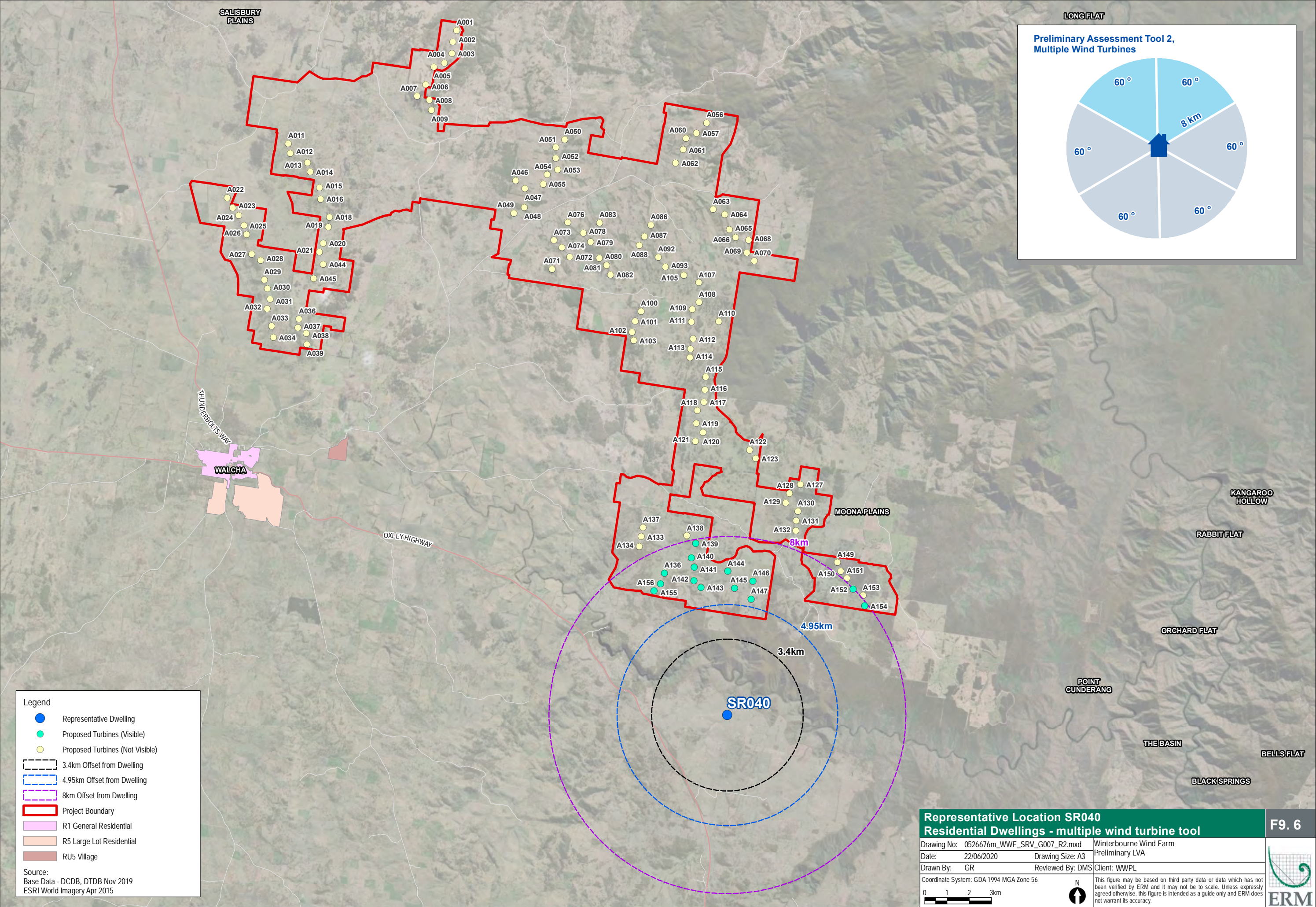
0 1 2 3km



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SALISBURY PLAINS

MARTINS FLAT

THUNDERBOLT'S WAY

WALCHA

OXLEY HIGHWAY

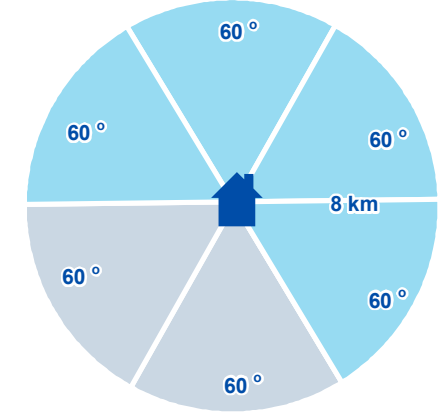
MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



SR058

Representative Location SR058  
Residential Dwellings - multiple wind turbine tool

F9. 7

Drawing No: 0526676m\_WWF\_SRV\_G007\_R1.mxd  
Date: 22/06/2020  
Drawing Size: A3  
Drawn By: GR  
Reviewed By: DMS  
Client: WWPL

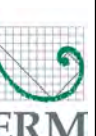
Winterbourne Wind Farm  
Preliminary LVA

Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km



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SALISBURY PLAINS

MARTINS FLAT

THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

SR078

8km

4.95km

3.4km

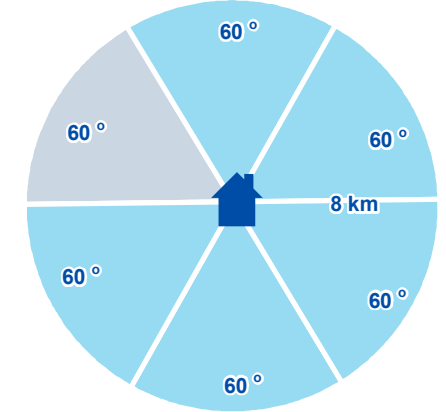
MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Representative Location SR078  
Residential Dwellings - multiple wind turbine tool

F9. 8

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Reviewed By: DMS

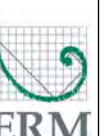
Winterbourne Wind Farm  
Preliminary LVA  
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56

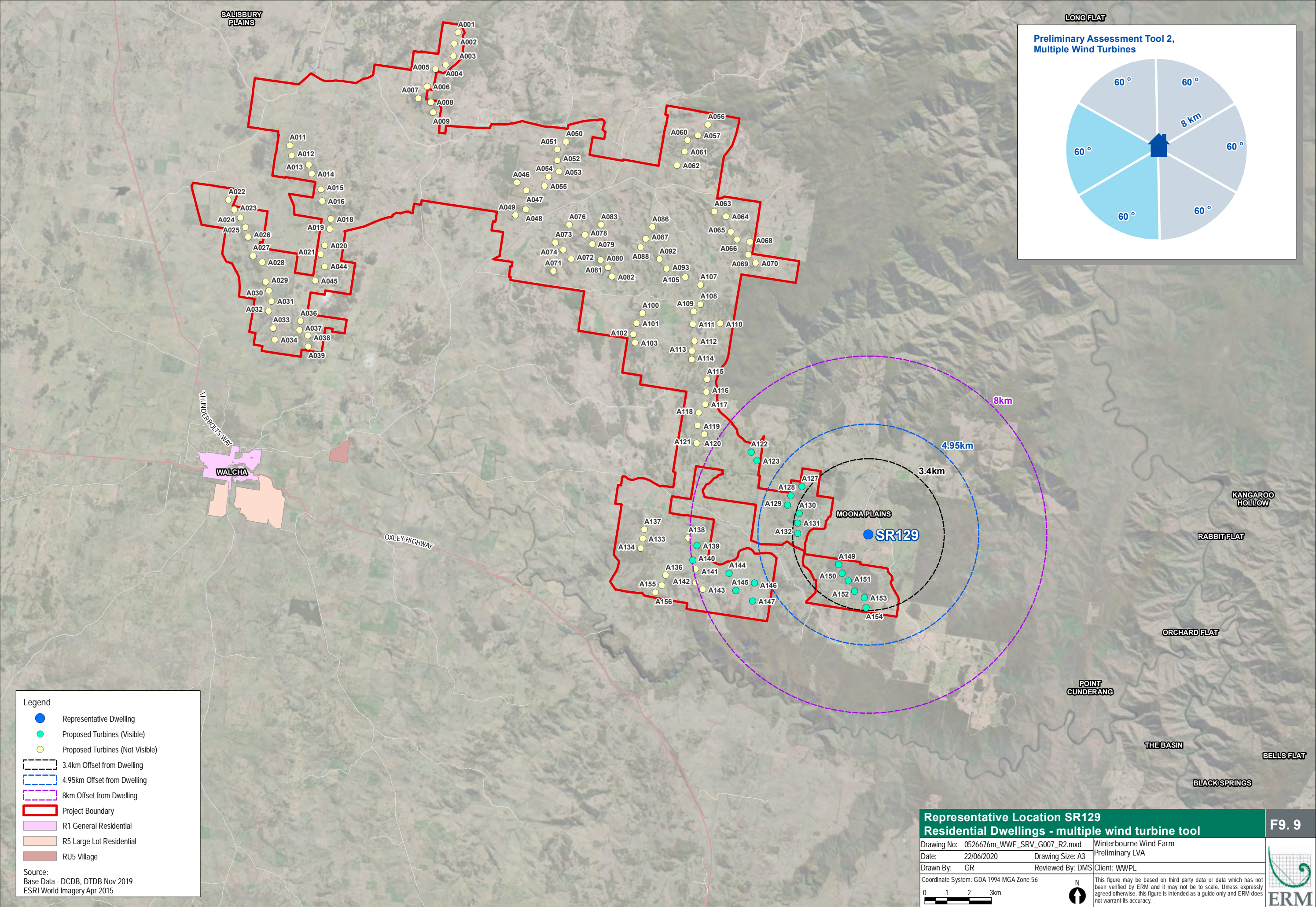
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SALISBURY PLAINS

MARTINS FLAT

SR136

8km

4.95km

3.4km

THUNDERBOLT WAY

WALCHA

OXLEY HIGHWAY

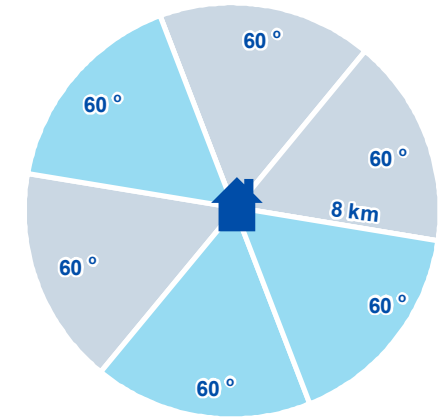
MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Representative Location SR136  
Residential Dwellings - multiple wind turbine tool

F9.10

Drawing No: 0526676m\_WWF\_SRV\_G007\_R3.mxd  
Date: 22/06/2020  
Drawing Size: A3  
Drawn By: GR  
Reviewed By: DMS  
Client: WWPL

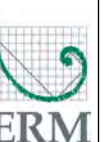
Winterbourne Wind Farm  
Preliminary LVA

Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km

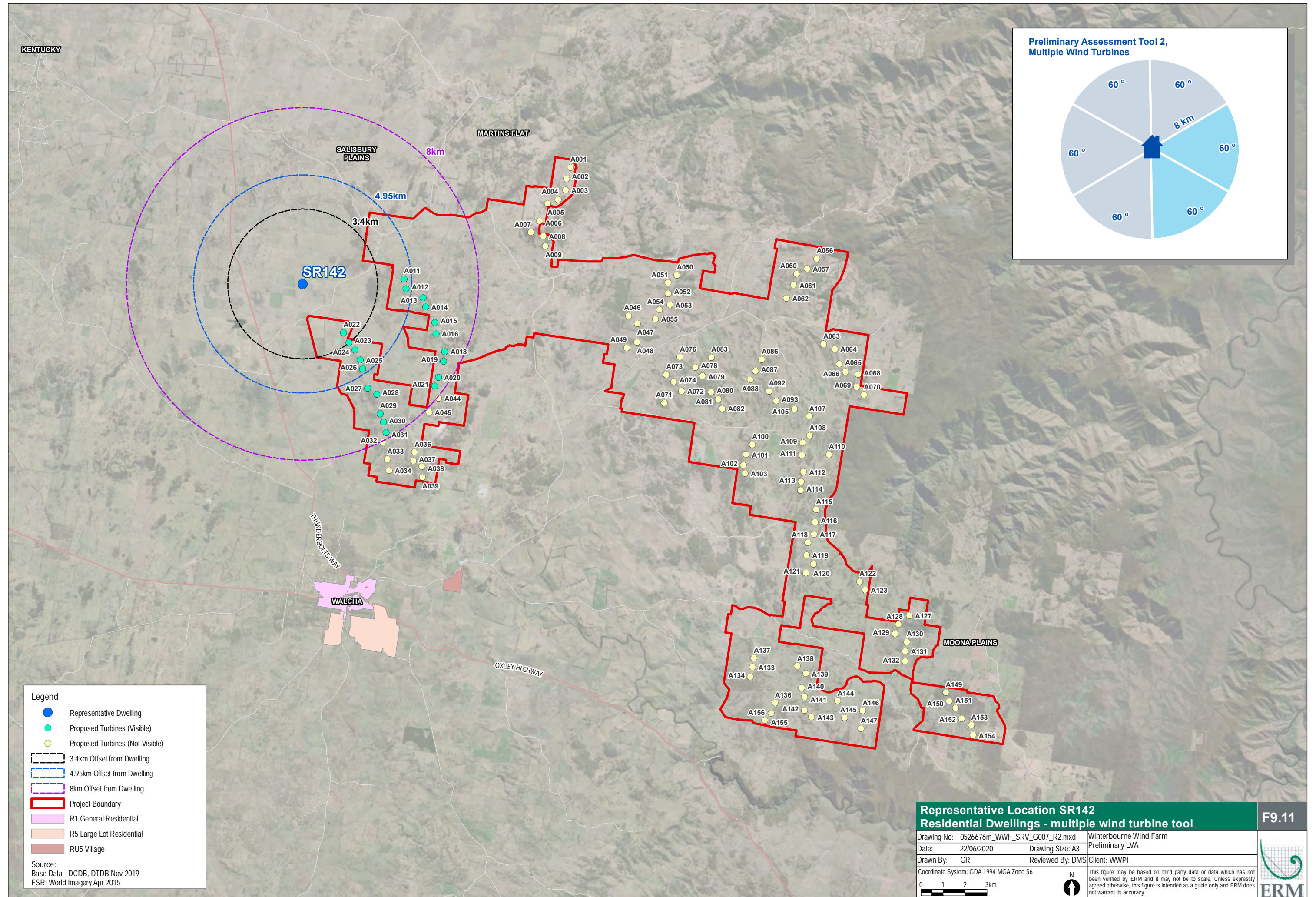


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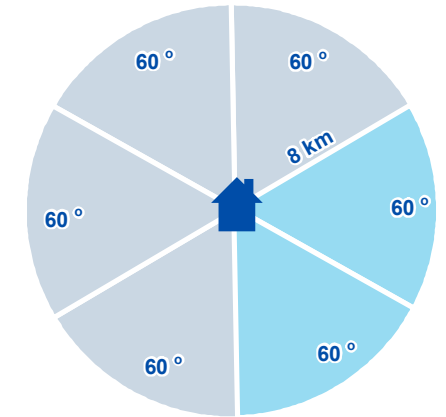




KENTUCKY



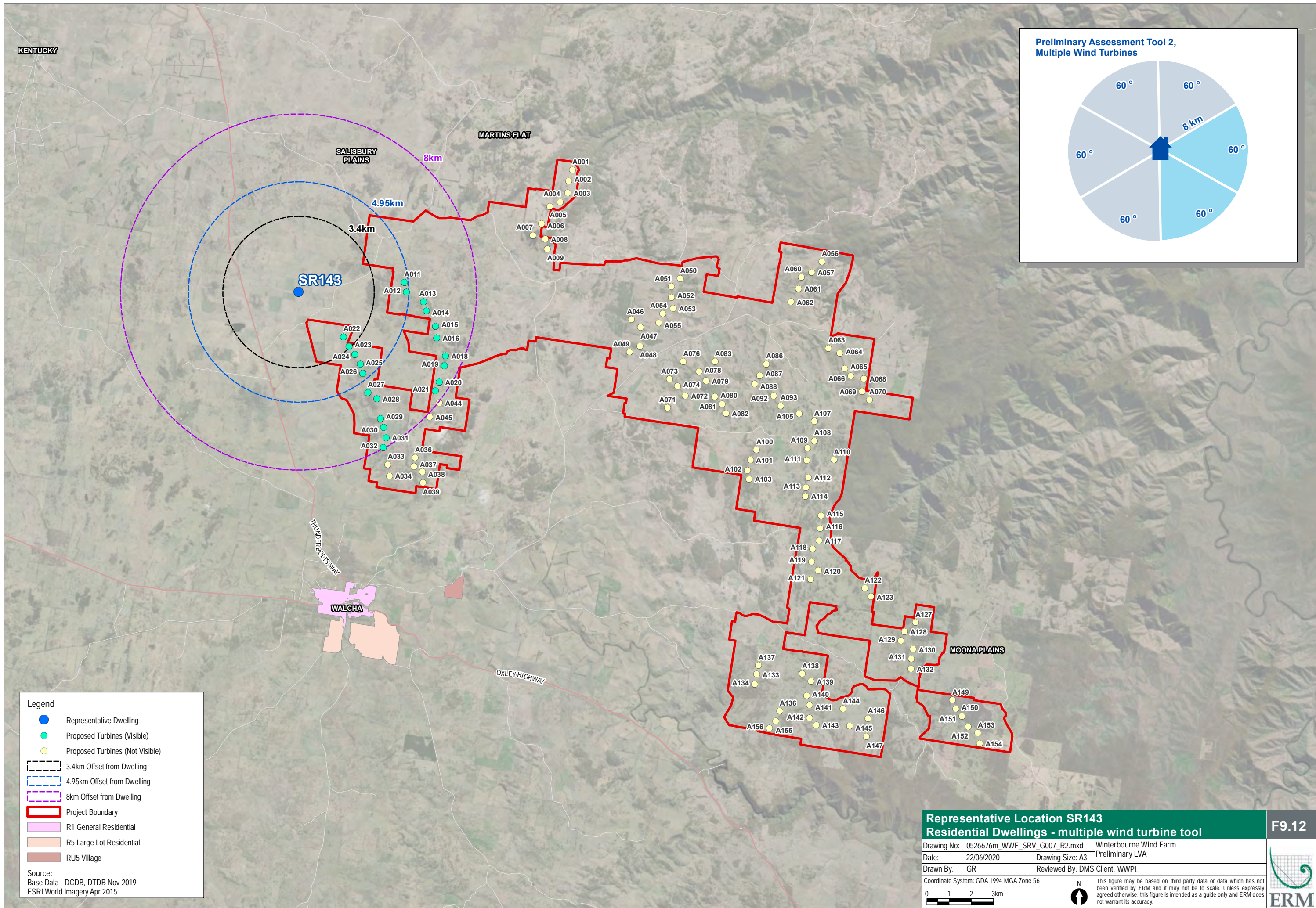
Preliminary Assessment Tool 2,  
Multiple Wind Turbines



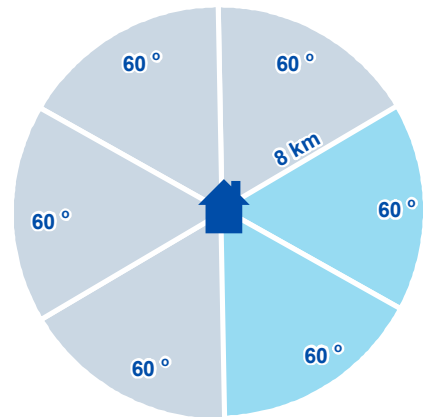
F9.11



KENTUCKY



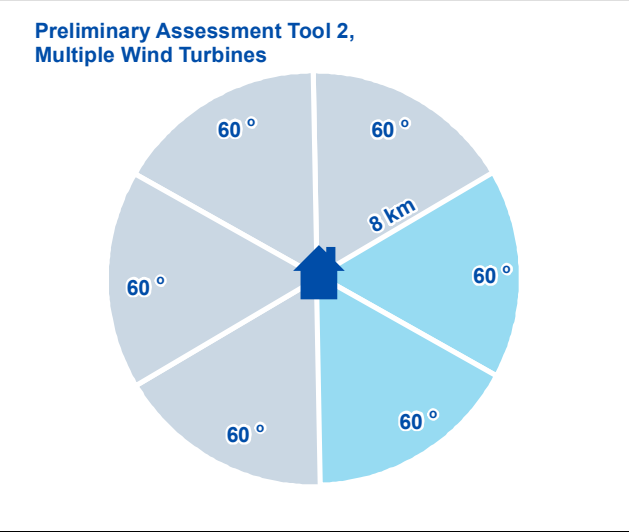
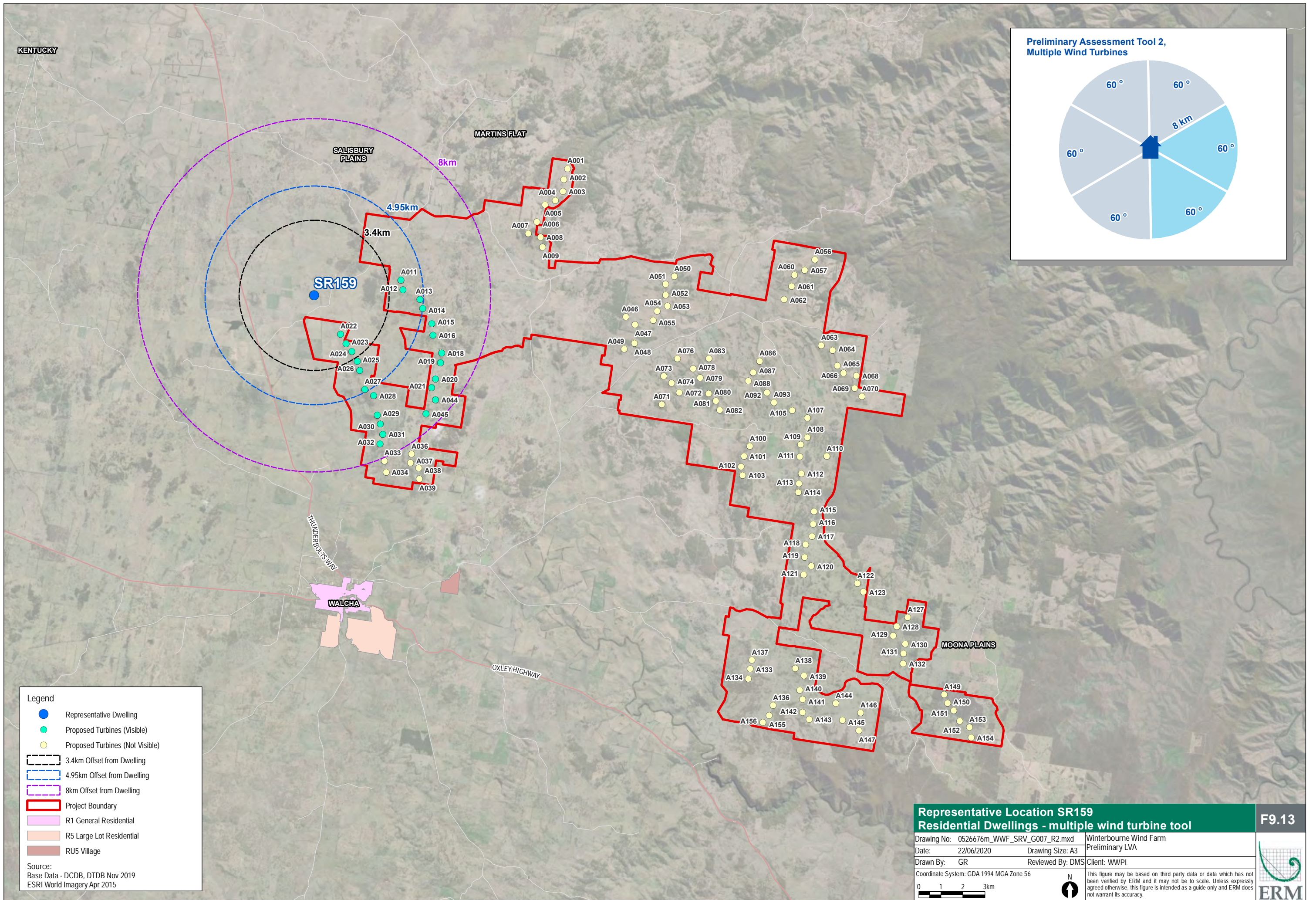
Preliminary Assessment Tool 2,  
Multiple Wind Turbines



F9.12



KENTUCKY



Representative Location SR159 Residential Dwellings - multiple wind turbine tool	
Drawing No: 0526676m_WWF_SRV_G007_R2.mxd	Winterbourne Wind Farm
Date: 22/06/2020	Preliminary LVA
Drawn By: GR	Reviewed By: DMS
Client: WWPL	
Coordinate System: GDA 1994 MGA Zone 56	
0 1 2 3km	
N	
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	



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SALISBURY PLAINS

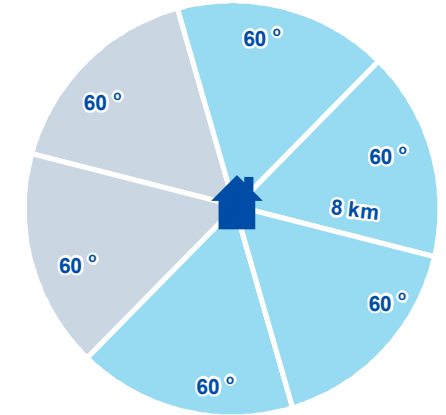
MARTINS FLAT

THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- ▬ Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Representative Location SR167  
Residential Dwellings - multiple wind turbine tool

F9.14

Drawing No: 0526676m\_WWF\_SRV\_G007\_R3.mxd  
Date: 22/06/2020  
Drawn By: GR  
Coordinate System: GDA 1994 MGA Zone 56

Winterbourne Wind Farm  
Preliminary LVA  
Reviewed By: DMS  
Client: WWPL

0 1 2 3km



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SALISBURY PLAINS

MARTINS FLAT

SR212

8km

4.95km

3.4km

THUNDERBOLT WAY

WALCHA

OXLEY HIGHWAY

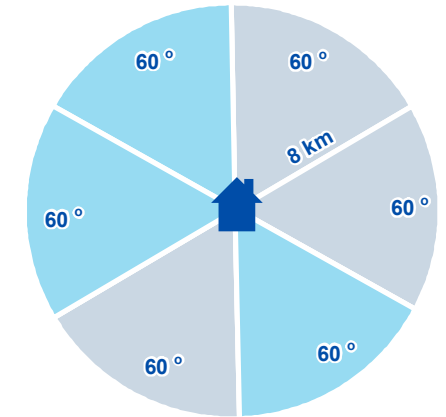
MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Representative Location SR212  
Residential Dwellings - multiple wind turbine tool

F9.15

Drawing No: 0526676m\_WWF\_SRV\_G007\_R2.mxd  
Date: 22/06/2020  
Drawing Size: A3  
Drawn By: GR  
Reviewed By: DMS

Winterbourne Wind Farm  
Preliminary LVA  
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km



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SALISBURY PLAINS

MARTINS FLAT

THUNDERBOLTS WAY

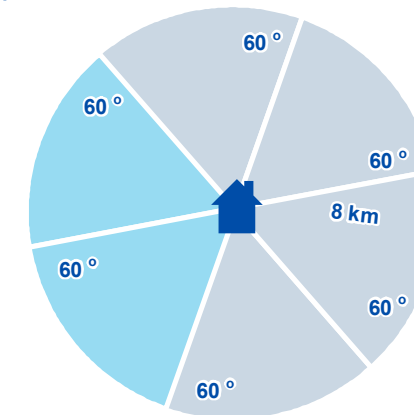
WALCHA

OXLEY HIGHWAY

MOONAPLAINS

SR216

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- ▬ Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Representative Location SR216  
Residential Dwellings - multiple wind turbine tool

F9.16

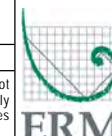
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Date: 22/06/2020  
Drawn By: GR  
Coordinate System: GDA 1994 MGA Zone 56

Winterbourne Wind Farm  
Preliminary LVA  
Reviewed By: DMS  
Client: WWPL

0 1 2 3km



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KENTUCKY

SALISBURY PLAINS

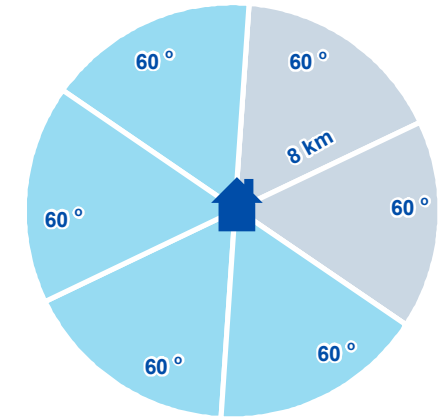
MARTINS FLAT

THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

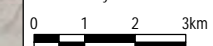
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Residential Dwellings - multiple wind turbine tool

F9.17

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Date: 22/06/2020  
Drawing Size: A3  
Drawn By: GR  
Reviewed By: DMS

Winterbourne Wind Farm  
Preliminary LVA  
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56



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KENTUCKY

SALISBURY PLAINS

MARTINS FLAT

THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

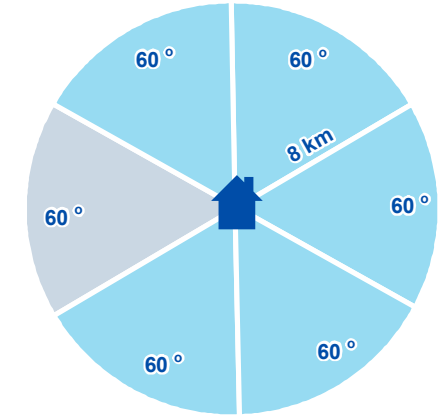
MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



SR240

Representative Location SR240  
Residential Dwellings - multiple wind turbine tool

F9.18

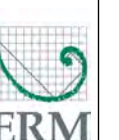
Drawing No: 0526676m\_WWF\_SRV\_G007\_R2.mxd  
Date: 22/06/2020  
Drawing Size: A3  
Drawn By: GR  
Reviewed By: DMS  
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km



This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.





KENTUCKY

SALISBURY PLAINS

MARTINS FLAT

SR262

THUNDERBOLTS WAY

WALCHA

OXLEY HIGHWAY

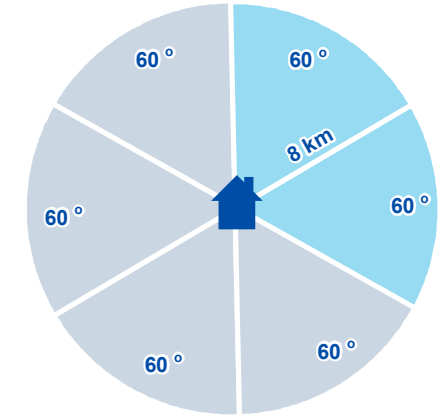
MOONAPLAINS

Legend

- Representative Dwelling
- Proposed Turbines (Visible)
- Proposed Turbines (Not Visible)
- 3.4km Offset from Dwelling
- 4.95km Offset from Dwelling
- 8km Offset from Dwelling
- Project Boundary
- R1 General Residential
- R5 Large Lot Residential
- RU5 Village

Source:  
Base Data - DCDB, DTDB Nov 2019  
ESRI World Imagery Apr 2015

Preliminary Assessment Tool 2,  
Multiple Wind Turbines



Representative Location SR262  
Residential Dwellings - multiple wind turbine tool

F9.19

Drawing No: 0526676m\_WWF\_SRV\_G007\_R2.mxd  
Date: 22/06/2020  
Drawn By: GR

Winterbourne Wind Farm  
Preliminary LVA

Drawing Size: A3  
Reviewed By: DMS  
Client: WWPL

Coordinate System: GDA 1994 MGA Zone 56

0 1 2 3km



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