

Flyers Creek

WIND FARM

Environmental Assessment

CHAPTER 4

Property



4. Property Access Issues

4.1 Introduction

This chapter provides details of the lands associated with the proposed Flyers Creek Wind Farm, the facilities to be located on respective lands and details of land ownership or access arrangements.

The Flyers Creek Wind Farm will be located on privately owned lands that are primarily used for pastoral purposes. Additional properties are associated with the 132 kV transmission line to connect the wind farm to the electricity grid; these properties are currently utilised for mining and pastoral purposes.

Flyers Creek Wind Farm Pty Ltd (FCWF), as the proponent of the project, has entered into leases with the landowners of the properties on which the wind farm development is to be located. Under the terms of these leases FCWF has the consent of the landowners to lodge the Project Application and the supporting Environmental Assessment.

The lease agreements also provide landowner agreement for FCWF to lease the land to construct, operate and decommission the wind farm, subject to the necessary approvals being obtained.

Small areas of crown land including some road reserves also occur within the project area. In addition, there are gas pipeline easements, power lines, mineral exploration licences and communication facilities subject to various access agreements. Details of land ownership or stakeholder interests for the project area are described in the following sections.

4.2 Rural properties associated with the wind farm site

There are 23 privately owned properties that will be leased by the proponent for the wind farm site as shown in Table 4.1. Table 4.2 lists five properties associated with the proposed 132 kV transmission line required for grid connections other than lands associated with the wind farm site. The project components proposed for each of the properties is shown in Table 4.1. The total area of properties leased for the project is approximately 61 km².

Within the project area key elements of the wind farm involve:

- turbine sites
- access tracks
- collection circuits (33 kV underground cables and sections of 33 kV overhead line)
- a 33 kV/132 kV substation and operations control centre
- a 132 kV overhead line for grid connection and a 132 kV switching station
- temporary construction site office and laydown area

The number of turbines on each of the properties is indicated in Table 4.1 together with the nature of ancillary items on respective land parcels. Locations of access tracks, collection circuits, the substation and the line for grid connection are also shown in Figure 4.1. The leases between landowners and FCWF allow for the infrastructure listed above.

The properties on which the wind farm will be located are referred to as windfarmer properties. Residences on these properties can be subject to different impact assessment criteria than is applied to residences neighbouring the project area.

The properties adjoining the project area are also shown in Figure 4.1. In general, neighbouring properties are small to moderate size pastoral properties with some that could be regarded as rural living. However, the entire project and surrounding area is zoned General Rural 1a. Residences on neighbouring lands are generally referred to as non windfarmer residences or 'relevant' residences for the purpose of impact assessment. The distinction between windfarmer and non-windfarmer 'relevant' residences is based on the windfarmer landowners signing agreements to participate in the wind farm project and have wind turbines constructed on their property.

Table 4.1 – Property details for land on which the wind farm is located

Property or Landowners	Land Title Details		Turbine Numbers	Met Mast	Wind farm ancillary items
	Lot	DP			
Wind Farm Area 1	12	1063204			
	6	550053	3	Northern	New track, track upgrade, 33kV UG Cabling
	76	750358			
	53	750358	5, 6, 7		New track, track upgrade, 33kV UG Cabling
	50	750358			
Wind Farm Area 2	41	750367			UG cabling and possible track
	28	750367	4		Site office, New track, track upgrade, 33 kV UG Cabling
Wind Farm Area 3	8	750358			Substation, 132 kV Line, 33kV Line, 33 kV UG Cabling, track upgrade
	52	750358			Nil
Wind Farm Area 4	62	750358	8		New track, 33 kV UG Cabling, 33kV Line
	181	750358	10, 11, 12		Track upgrade, 33 kV UG Cabling, New Track
	180	750358			132 kV line, New track
	10	750358			New track
Wind Farm Area 5	63	750358	9		33 kV UG Cabling
Wind Farm Area 6	7	750358	13, 14		New track, track upgrade
	66	750358			New track, track upgrade
	65	750358			
Wind Farm Area 7	68	750358	16		33 kV UG Cabling, 33 kV Line, New track
Wind Farm Area 8	67	750358	15		New track and track upgrade, 33 kV UG Cabling
Wind Farm Area 9	69	750358	17	Central	Central, New track, 33 kV UG Cabling
Wind Farm Area 10	5	1031238			33 kV OH Line
Wind Farm Area 11	6	1031238			New track, 33 kV OH Line
Wind Farm Area 12	163	750358			
	427	1067009	21, 22, 24		New track, track upgrade, 33 kV UG Cabling
	425	1067009			
	426	1067009			
Wind Farm Area 13	162	750358	18, 19		New track, 33 kV Line
Wind Farm Area 14	161	750358	20		New track, 33 kV UG Cabling, 33 kV Line

	Land Title Details				
Wind Farm Area 15	208	750359	38		New track, 33 kV UG Cabling, 33 kV Line
	72	750359			Access track to T38
	66	750359	39, 40		Access tracks and UG cabling
	1	1089162			
	2	1089162			
	1	1089147			
	2	1089147			
	3	1089147			33 kV UG Cabling
	96	750358			New track
	95	750358			New track
	94	750358			Track upgrade
Wind Farm Area 16	75	750358	43 to 46		New track, track upgrade, 33 kV UG cabling
Wind Farm Area 17	1	396680	23, 25		New track, track upgrade, 33 kV UG cabling
	1	1079963	26, 31, 32		New track, track upgrade, 33 kV UG cabling
Wind Farm Area 18	201	750359	28, 29		New track, 33 kV UG cabling
Wind Farm Area 19	202	750359	27, 30		New track, 33 kV UG cabling
	204	750359			
Wind Farm Area 20	206	750359	33, 34	Southern	New track, 33 kV UG cabling
	2	519767			
	120	750359			
	1	519767			
	84	750359			New track
Wind Farm Area 21	533	749105	35		New track, 33 kV UG cabling
	1	1071270			Nil
Wind Farm Area 22	83	750359	36, 37		New track, 33 kV UG cabling
Wind Farm Area 23	78	750359	41, 42		New track, 33 kV UG cabling
	62	750359			Nil
	1	927568			Nil

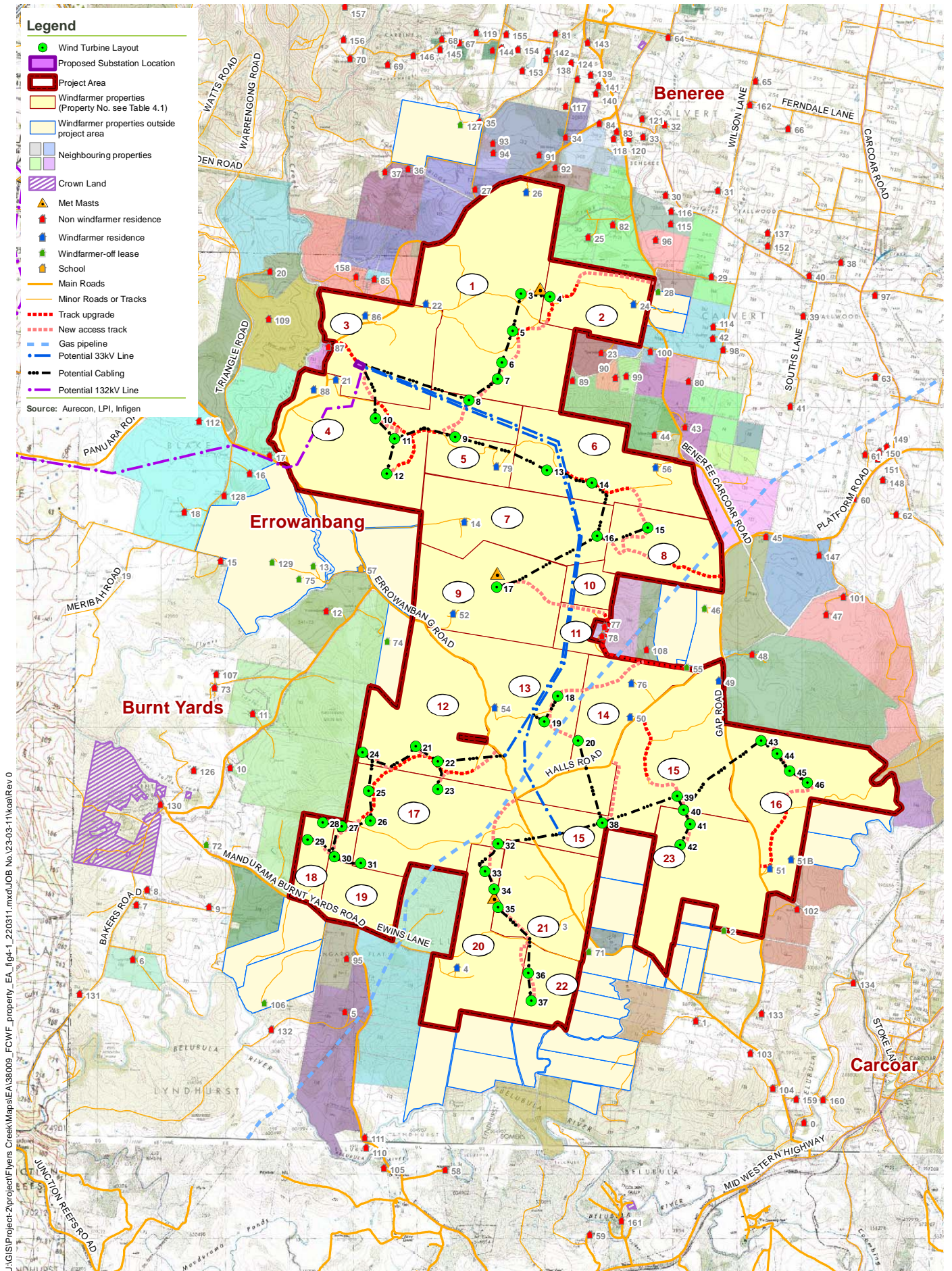
4.3 Properties where the line for grid connection is to be located

It is proposed that the wind farm connects to Country Energy's 132 kV line from Orange to Cadia Mine at a point about 500 metres west of the Cadia Mine substation. This power line is the appropriate voltage and has sufficient capacity to receive the output from the proposed wind farm. The proposed connection point is the closest national grid connection point to the wind farm site and has the least amenity impact on residences at the wind farm locality.

A new 14.5 kilometre 132 kV overhead transmission line is proposed for connection of the wind farm to the electricity grid on the properties shown in Table 4.2 and Figure 4.2.

Table 4.2 – Property details for land on which the 132 kV transmission line for grid connection is located

Property or Landowners	Land Title Details		Length of transmission line	Other facility
	Lot	DP		
Wind Farm area 3	8	750538	464 m	substation
Wind Farm area 4	180	750538	1647 m	
Transmission Line area 1	51	39600	139 m	
Transmission Line area 2	20	1038104	2600 m	
	43	750362	1485 m	
Transmission Line area 3	14	750362	380 m	
Transmission Line area 4	22	1038104	1150 m	
Transmission Line area 5	21	1038104	55 m	
	201	1037198	820 m	
	25	750362	386 m	
	24	750362	1018 m	
	1	731180	600 m	
	21	825426	670 m	
	1	816924	18 m	
	64	750362	220 m	
	152	750362	420 m	
	155	750415	547 m	
	151	750415	243 m	
	192	750415	386 m	
	193	750415	410 m	
	240	750415	66 m	
	101	576778	180 m	
	10	252284	28 m	
	6	865599	555 m	Switching Station
Total length of transmission line			14.5 km	

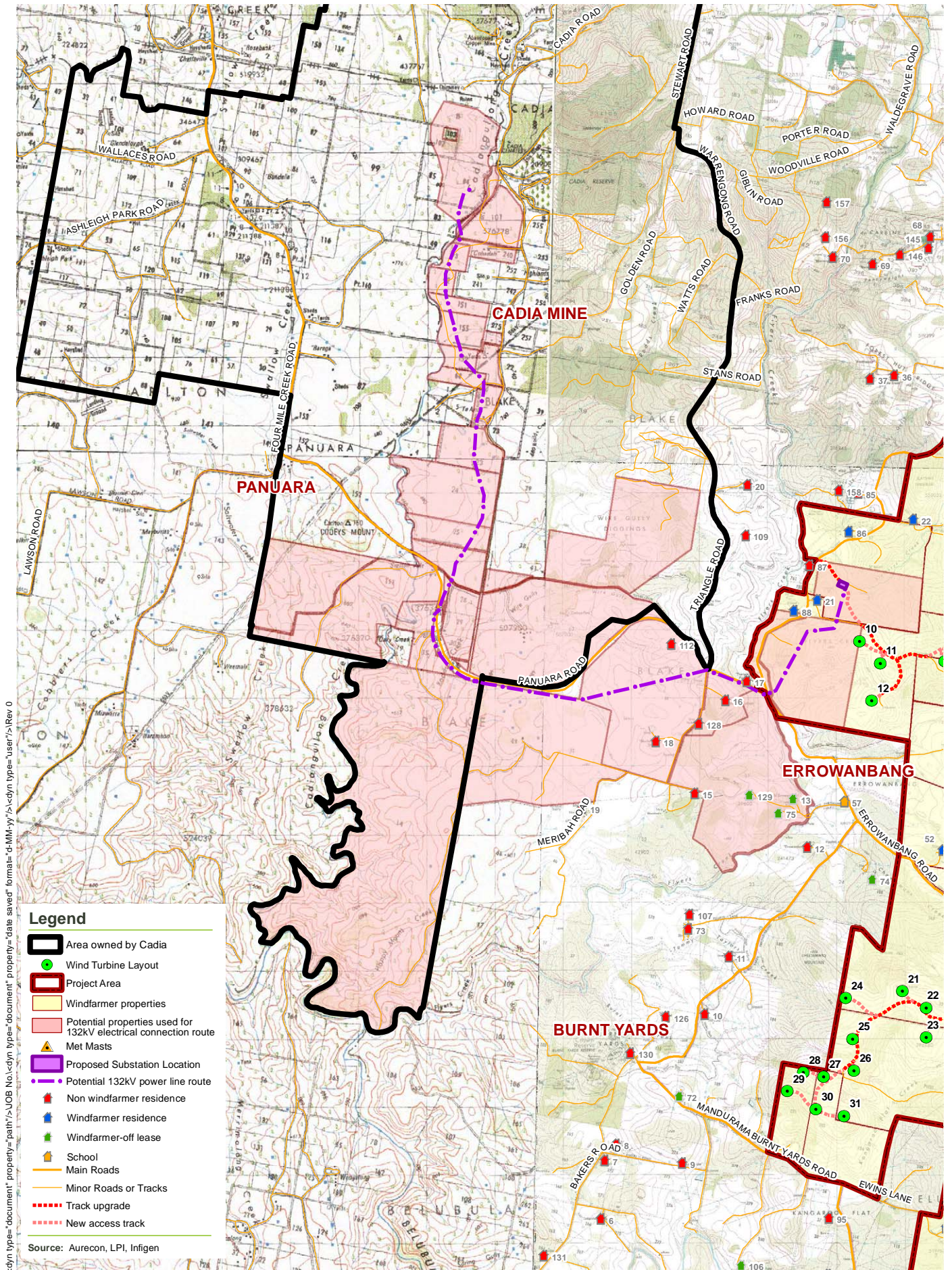


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Projection: GDA 1994 MGA Zone 55

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FIGURE 4.1: Property Map



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0 1 2kilometres

Projection: GDA 1994 MGA Zone 55

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FIGURE 4.2: 132 kV Electrical connection route - property map

4.4 Other land title considerations for the project area

Within the project area there are also small areas of land that are associated with other uses. These include local roads, Trigonometrical survey stations, a high pressure gas pipeline easement, various power line power line easements (33 kV or less) and a telecommunications facility. The following sections discuss these issues.

4.4.1 Crown land reserves

The project area encompasses a number of crown land reserves including road reserves and the Hopkins Trig Reserve (see Section 4.4.2). There will be no turbine structures or any substation facilities within crown reserves. Locations of Crown Lands are shown in Figure 4.1

4.4.2 Trigonometrical Stations

Trigonometrical (Trig) Stations are located at the northern and southern parts of the wind farm site, as shown in Figures 4.3 and 4.4 and Plates 4.1 and 4.2. The Land and Property Management Authority (LPMA) is the NSW Government Authority responsible for Trig Station facilities and survey operations within NSW. The LPMA has provided advice on the status of the two Trig Stations as follows.



Plate 4.1 – Calvert Trig Station. The Cairn structure has been damaged and landowners have indicated that it has been in this state for some time



Plate 4.2 – Hopkins Trig Station view to the south to the southern Met Mast and Hope Hill. In mid 2010, only the concrete block was evident.

“Both Trigonometrical Stations Calvert (TS 5592) and Hopkins (TS 7069) are known as “Spine Stations” which form the basis of the State’s network breakdown. They have the highest possible horizontal accuracy of Class 2A and Order 0. In addition TS Hopkins is protected by Trigonometrical Reserve 37025. The Trigonometrical Stations are marked by concrete pillars, mast and vanes that were placed in 1983.”

The Surveyor General, Land and Property Management Authority (LPMA) also provided advice on the suitability of clearances for Turbine placement relative to the Trig Stations and sight lines as follows:

- *No amount of overhang for either of these Trigonometrical Stations would be acceptable*
- *TS Calvert is of lesser strategic importance, and accordingly, the wind turbines could be located reasonably close (say 100m)*
- *TS Hopkins has significant strategic importance, and accordingly, it would be preferable if the wind turbines were sited further away (say at least 200m) and well away from Trigonometrical Reserve 37025.*

- *Maintaining adequate clearance to the north of the Trig Stations was more important than buffers to the south*
- *It is important for the wind turbines not to interfere with sight lines between Trig Stations.*

The Surveyor General also provided details of sight lines and these have been noted and the proposed positions of the relevant turbines has included set backs from the existing Trig facilities (Figures 4.3 and 4.4).

As evident in Plate 4.1, the Calvert Trig Station has been damaged and the landowners indicate that this has been the case for several years. Hopkins Trig Station was intact when inspected over a year ago, but it has since been damaged and is in a similar state as the Calvert Trig station.

4.4.3 Telecommunications facility

An existing telecommunications tower is located on Hope Hill to the west of the Errowanbang Road and south of the Hopkins Trig Reserve. Turbine sites are proposed to the north and south of the telecommunications facility. The facility is owned and operated by Crown Castle and there is Optus and Telstra equipment located at the facility.

Potential issues of telecommunications transmission paths across the project area were considered in the development of the project layout. A telecommunications assessment was conducted to verify that there would not be any disruption to telecommunications services from the on-site communication tower and other communication towers in the district. The Telecommunications report is summarised in Chapter 13 and the specialist assessment by Lawrence Derrick and Associates provided as Appendix H.

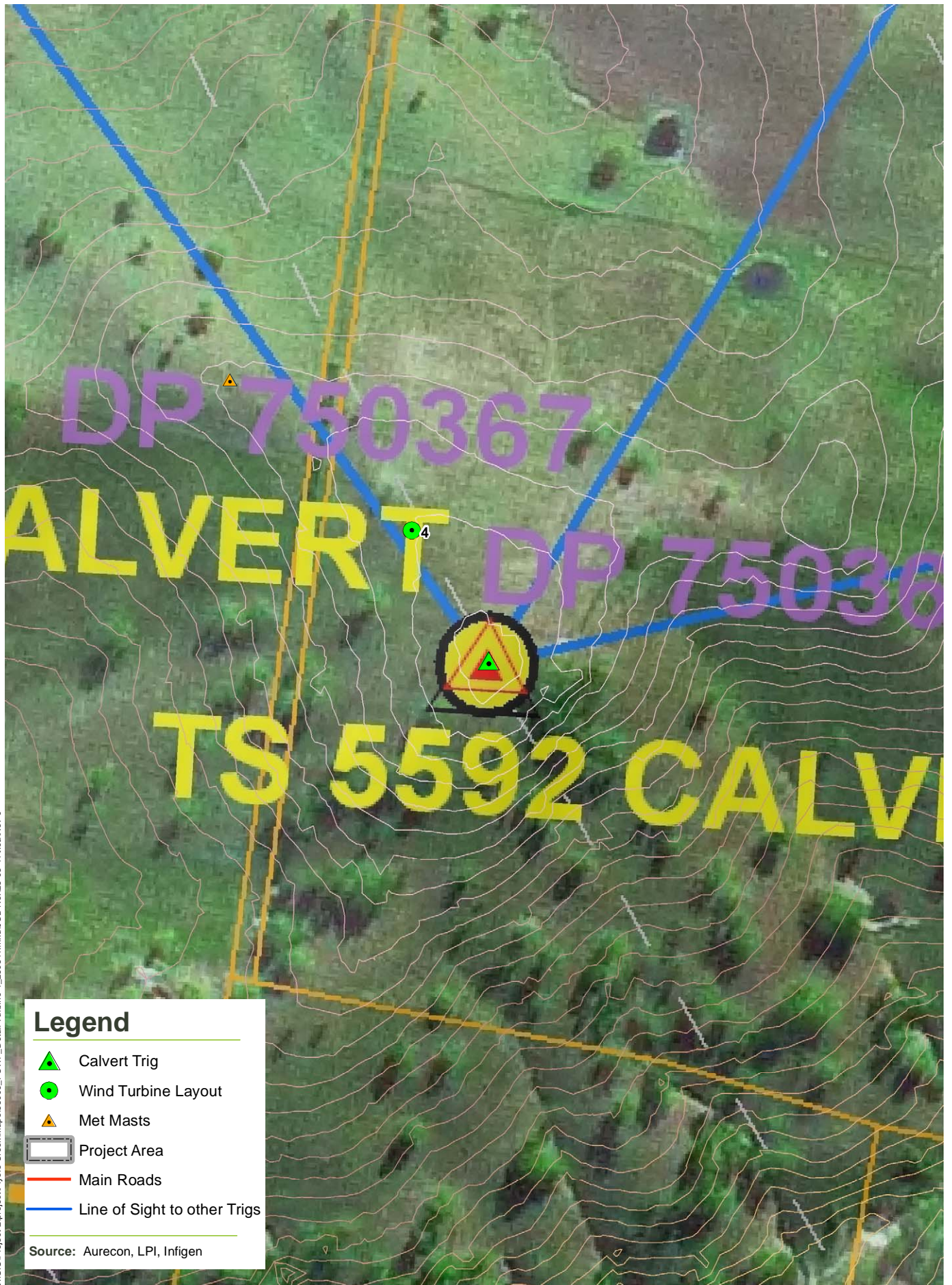
4.4.4 High pressure gas pipeline

A high pressure natural gas pipeline (Orange Lateral Pipeline subsidiary to the Moomba to Sydney Gas Pipeline) crosses the wind farm area from southwest to northeast. The location of the gas pipeline is shown in Figure 4.1. The pipeline is owned and operated by the APA Group that is comprised of the Australian Pipeline Trust and APT Investment Trust. APA Group is a major ASX-listed gas transportation business with interests in gas infrastructure across Australia. The pipeline is indicated to be buried at a depth of approximately one metre or greater.

The main wind farm design consideration in respect of the gas pipeline relates to the routing of power between turbines in the southern part of the wind farm and the substation at the north-western side of the wind farm. The electrical collections will avoid the need for 33 kV underground cabling to cross the gas pipeline easement and will instead utilise a 33 kV overhead transmission line where it is necessary to cross the pipeline easement. The management of this issue is described in Chapter 3, Project Description.

Based on the approach outlined above, none of the wind farm structures other than access tracks and overhead power lines (not including poles) will be located in the gas pipeline easement. All construction works, particularly transport of overmass vehicles on tracks crossing the pipeline easement will be assessed, in conjunction with APA, to ensure that there are no detrimental effects to this existing pipeline structure.

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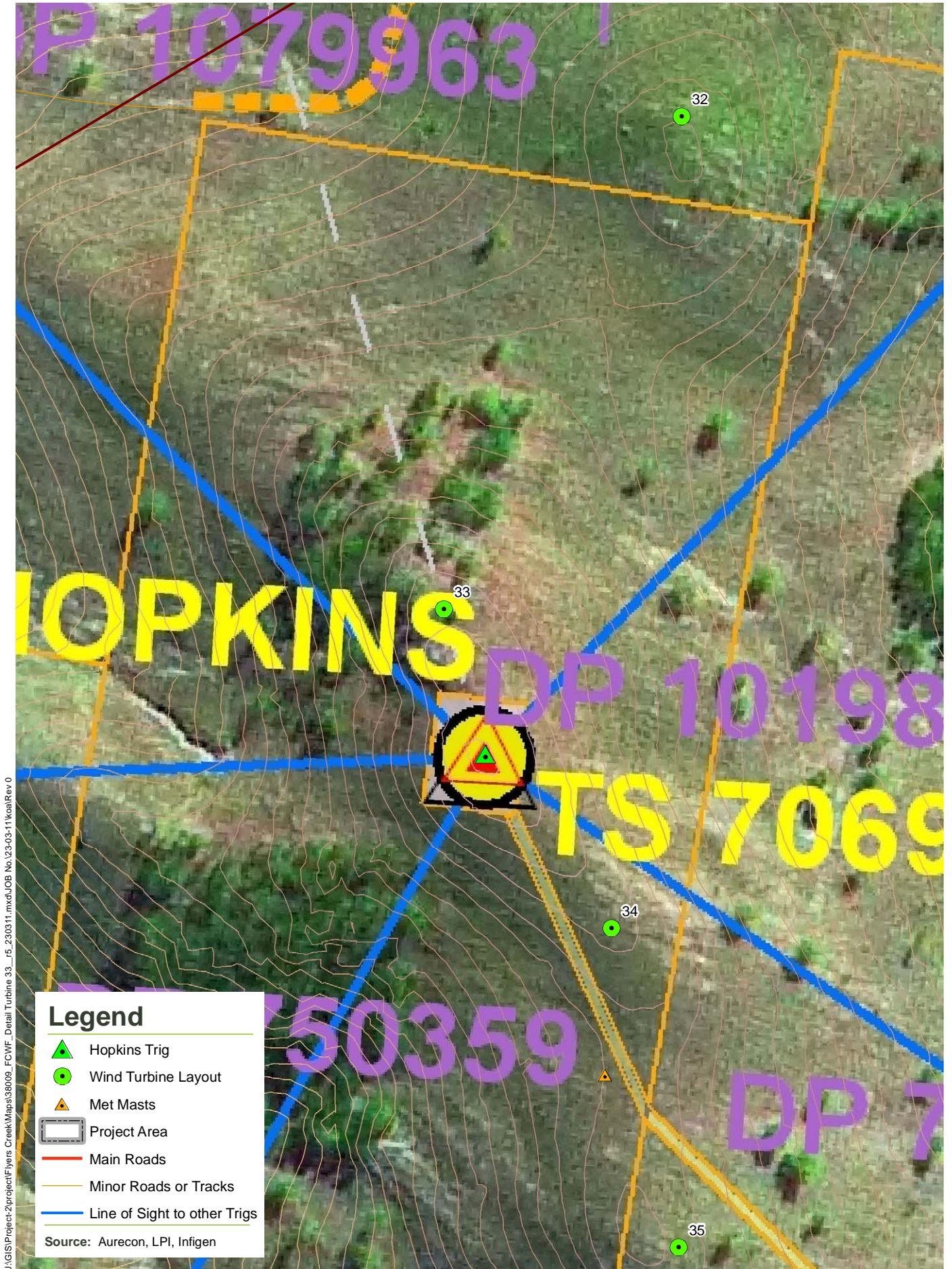


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Projection: GDA 1994 MGA Zone 55

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FIGURE 4.3: Calvert Trig Station and sight lines



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Projection: GDA 1994 MGA Zone 55

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FIGURE 4.4: Hopkins Trig Station and sight lines

4.4.5 Mineral Exploration Licences

Figure 4.5 displays the mineral exploration licence areas overlaying the project area and the respective companies holding the licences.

Three mineral exploration licences overlap the properties where the wind farm will be located. The extent of the exploration licences are displayed in Figure 4.5 and their details are outlined in Table 4.3 below. The area is likely to be of high mineral prospectivity and has had exploration activities occurring, as shown in Table 4.3, for at least 28 years.

Table 4.3 – Mineral exploration licences overlapping the project area

Licence No	Description	Grant Date	Expiry Date	Company
2033	Exploration Licence	07 Jul 1983	06 Jul 2011	Climax Australia Pty Limited
2378	Exploration Licence	26 Feb 1985	25 Feb 2012	Climax Australia Pty Limited
5922	Exploration Licence	15 Feb 2002	14 Feb 2012	Templar Resources Pty Ltd

Climax Australia Pty Ltd is understood to be a joint venture company which has Newcrest Mining Ltd as a major partner. Templar Resources is understood to be a company owned by Goldminco Corporation.

Flyers Creek Wind Farm Pty Ltd has, since 2009, consulted with the Department of Industry and Investment, Goldminco and Newcrest in relation to the exploration licences. Both companies supplied maps showing the highly prospective areas within the Flyers Creek project site that they would prefer to remain clear of the wind farm infrastructure. These maps were utilised in the design of the wind farm project and placement of wind farm infrastructure in the highly prospective areas indicated on the maps has largely been avoided. There is only one wind turbine proposed to be located within a highly prospective area; however, the owner of the exploration license has not expressed any concern with this wind turbine's proposed location.


It has generally been agreed that construction and operation of the wind farm does not represent a significant hindrance to future mineral exploration activities. Mineral exploration drilling can continue within the operating wind farm site as long as the drilling does not occur in close proximity to wind turbines and other infrastructure such as underground electrical cables. Details of the allowable distance between drilling operations and wind farm infrastructure and additional related information have been provided to both exploration license holders.

During discussions with the Department of Industry and Investment and exploration license holders, other means of mineral exploration have also been said to be feasible after the wind farm is constructed.

For example, electromagnetic surveys were indicated to be feasible even with underground cables present, as long as the cable locations were provided to the mineral exploration company. With this knowledge, it is understood the electromagnetic survey team would be able to 'compensate' for the known position and characteristics of the electrical cables. Also, experienced surveyors are able to use qualitative and quantitative analysis to separate the geological data, which is of interest, from the non-geologic (man made) data. While low level aerial surveying in close proximity to the wind turbines would not be possible, aerial surveys in large areas of the site without wind turbines could still be accomplished. In addition, aerial surveys can continue without hindrance over the entire area until wind farm construction begins, in about two years at the earliest.

Construction and operation of the wind farm would have no significant impact on any mineral resources present.

A large mineral mine and a wind farm are incompatible land uses. In fact, there are very few land uses that are compatible with an active mine site. Therefore, if the wind farm were to proceed to



construction and operation, and continued exploration were to confirm an identified and economic resource to mine, and a mining license applied for and granted, then the owner of the mining license would either have to wait for the wind turbines to reach the end of their design life (~20 years) and be removed or arrive at a mutually acceptable negotiated arrangement with the owners of the wind farm (and the property owners).

4.4.6 Cadia Mine Holdings

The Cadia mine, owned and operated by Newcrest Mining Ltd, is located about five kilometres north-west of the Flyers Creek Wind Farm project. The mine commenced operating in 1998 and produces significant quantities of gold and copper ore. The Cadia Mine has undergone several stages of development and is currently working on the Cadia East underground mine which is a significant expansion.

Meetings with Newcrest Mining and Cadia Valley Operations have occurred over the past several years keeping the mining company up to date with regards to the progress of the proposed Flyers Creek wind farm project. While the power line is proposed in areas under mining lease, it is proposed to run next to existing 33 kV power lines in areas where future mining activity is not expected to occur.

A 132 kV Switching Station is proposed at the connection point to Country Energy's Orange to Cadia Mine 132 kV transmission line.

4.4.7 Country Energy and grid connection

Country Energy is the owner of a substantial transmission and distribution system throughout rural New South Wales. It is also the owner and operator of the existing 132 kV transmission line between Orange and the Cadia Mine site. As the existing transmission line is part of the national electricity grid, the technical rules and requirements for grid connection are covered by the National Electricity Rules. FCWF and Country Energy will work together, along with Cadia Valley Operations, to reach a suitable design that facilitates the wind farm operation while maintaining reliability and security of the electricity network. The grid connection arrangement is described in Chapter 3.

4.4.8 Existing electricity distribution lines

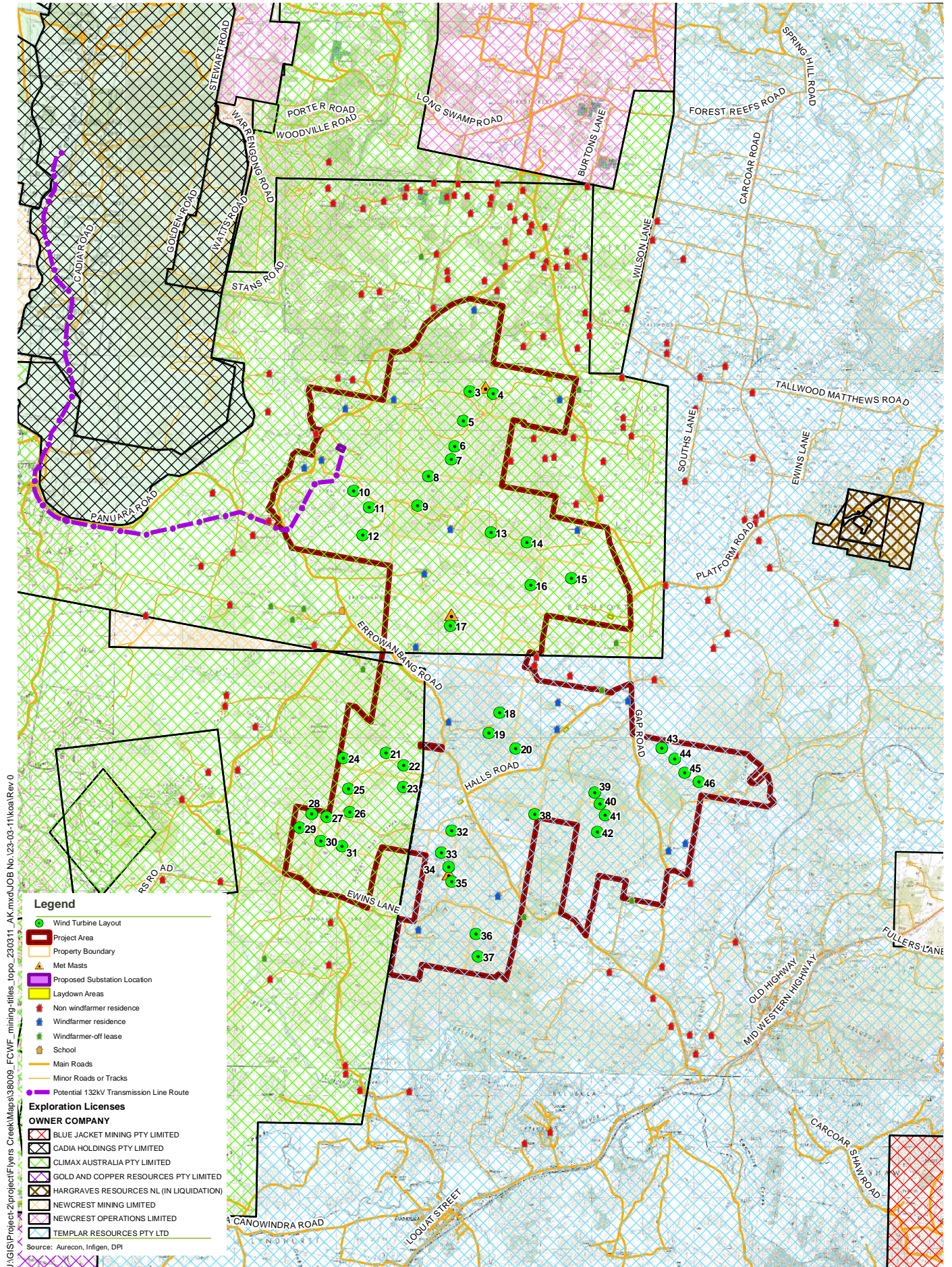
There are a number of electricity distribution lines within the project area that serve rural residences and other facilities in the local area. The lines are owned and operated by Country Energy and are all generally rated at voltages of less than 33 kV. The project design will avoid impact on these lines. The substation may also require connection to one of these lines to serve as a backup supply for services at times when the wind farm is not operating.

4.5 Local Government Areas

The proposed Flyers Creek Wind Farm, the associated 33 kV/132 kV substation and 132 kV overhead line for grid connection are wholly within Blayney Shire Local Government Area (LGA) (Figure 5.1) and the Blayney Local Environment Plan 1998 (BLEP) is applicable. Blayney Shire Council has responsibility for local roads and represents the interests of its constituent community including those in and around the wind farm site. The arrangements for accessing the site with Restricted Access Vehicles (RAVs) during the construction stage are outlined in Chapter 12.

The Cabonne Shire is located to the west of the project site and is in proximity to the route of the 132 kV transmission line that will connect the wind farm and the existing Cadia Mine to Orange 132 kV transmission line.

The Orange City Council LGA is located to the north of the project area and is not directly impacted by the project. The LGA may be slightly affected by marginal changes to traffic movements and some additional economic activity particularly during the construction stage. Orange City Council is also the owner and operator of the Orange Aerodrome north of the project.



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Projection: GDA 1994 MGA Zone 55

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FIGURE 4.5: Mining exploration licenses for the project area