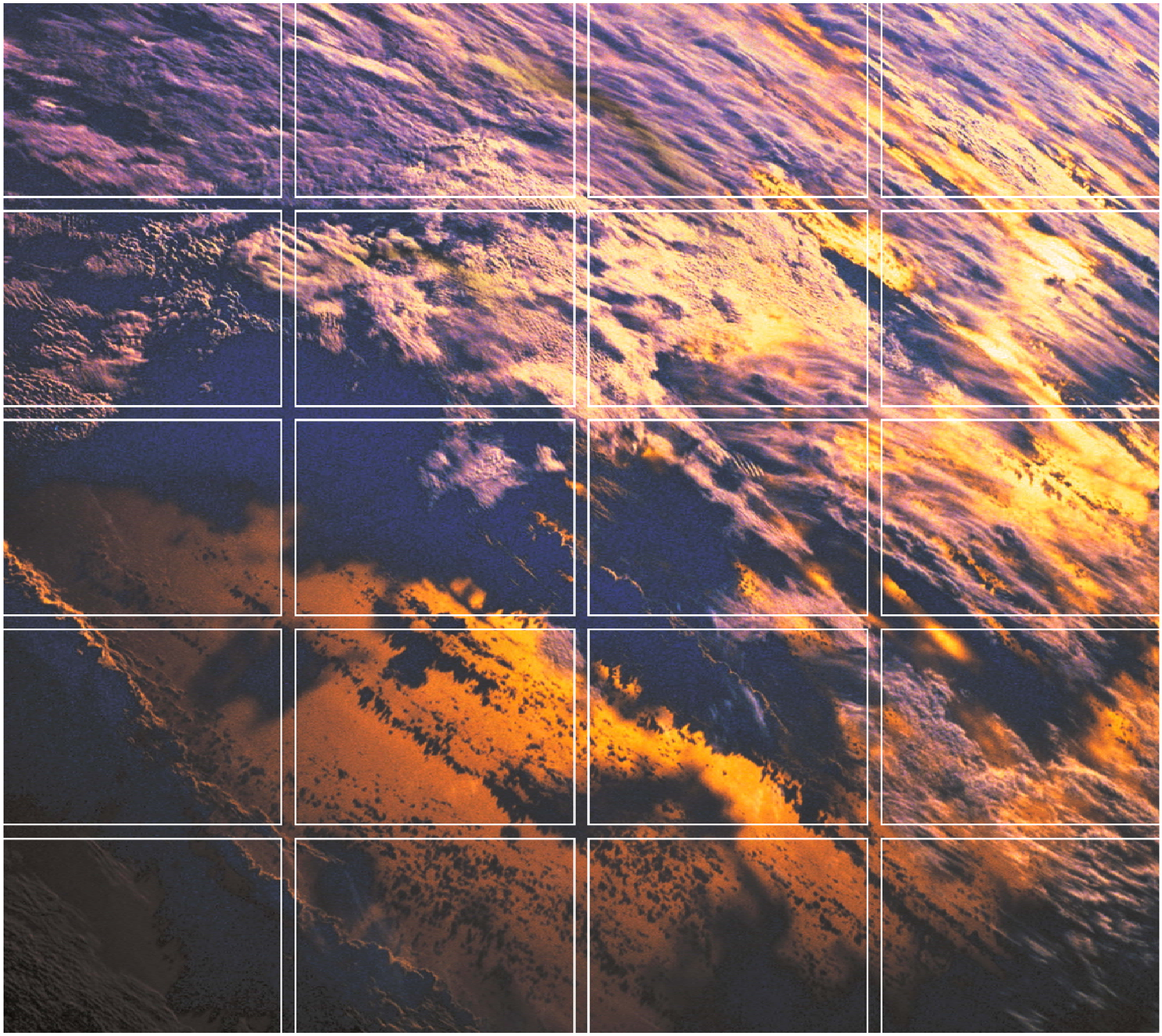

Rugby Wind Farm

Preliminary Environmental Assessment

Final Report

For Suzlon Pty Ltd and Windlab Developments Pty Ltd

October 2010

Reference: 0122160

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Delivering sustainable solutions in a more competitive world

Approved by:	*Christine Allen*
Position:	Project Manager
Signed:	
Date:	*October, 2010*
Approved by:	*Steve Laister*
Position:	Project Director
Signed:	
Date:	*October, 2010*

Environmental Resources Management Australia Pty Ltd Quality System

FINAL REPORT

Suzlon Pty Ltd and Windlab Developments Pty Ltd

Rugby Wind Farm
Preliminary Environmental Assessment

October 2010

Reference: 0122160

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1 INTRODUCTION

1.1 BACKGROUND

Suzlon Energy Australia Pty Ltd (Suzlon) and Windlab Developments Pty Ltd (Windlab) are jointly seeking approval to construct and operate a wind farm at Rugby in the South Eastern Highlands of NSW ('the Project'). The Project will involve the construction of up to 90 Wind Turbine Generators (WTG) with up to 290MW total generation capacity.

The Project will have an estimated capital investment value of approximately $390 million.

The wind farm is a facility for the generation of heat and electricity with a capital investment value of more than $30 million, and therefore requires approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Additionally wind farm projects have been declared 'Critical Infrastructure' by the Minister for Planning.

Environmental Resources Management Australia Pty Ltd (ERM) has been commissioned by Suzlon and Windlab to prepare the Preliminary Assessment Report (PAR) and Project Application for the Project. These documents are being submitted to the Department of Planning (DoP) to request the Director-General's requirements (DGRs) for the Project. Subsequent to receipt of the DGRs, an Environmental Assessment Report (EAR) will be prepared and submitted to the Minister for Planning to seek project approval under Part 3A of the EP&A Act.

1.2 PROPONENT

Suzlon Group is the third largest wind turbine manufacturer in the world. Founded in India in 1995, Suzlon has operations across 25 countries worldwide.

Suzlon's presence in Australia is headquartered in Melbourne, which manages business activities throughout Australia and New Zealand. Suzlon's achievements in Australia include:

- Australia's leading wind turbine supplier;
- winning contracts in excess of AUD 2 billion to supply over 750MW of clean power; and
- recently winning a contract from Infigen Energy for the EPC Turnkey delivery of the 42MW Woodlawn Wind Farm.

Windlab is a global wind energy development company established in 2003. Windlab use advanced wind modelling tools to remotely locate and validate new, highly prospective sites rapidly. Windlab has a growing portfolio of projects spanning Canada, USA, South Africa, Australia and New Zealand.

Windlab has continued to expand its team of experienced engineers and project developers. Alongside the meteorological scientists who developed the wind mapping technology, the management team comprises individuals who have been instrumental in shaping these early stages of the modern wind energy industry over the past 13 years.

1.3 REGIONAL AND LOCAL CONTEXT

The Project Area is located near Rugby NSW, approximately 40km north of Yass and 220km south west of Sydney, as shown on *Figure 1.1*. The closest townships to the Project Area are Rugby immediately to the east, and Boorowa approximately 30km west. The Project Area is located wholly within the Shire of Boorowa.

1.4 PURPOSE OF THIS DOCUMENT

Environmental Resources Management Australia Pty Ltd (ERM) has been commissioned by Suzlon to commence preparation of the environmental assessments for the proposed wind farm. This Preliminary Environmental Assessment (PEA) has been prepared to accompany a Major Project Application for project approval under Part 3A of the *Environmental Planning and Assessment Act, 1979.*

This PEA was prepared with the aim of ensuring that all relevant environmental and socio-economic matters are identified and considered in the Environmental Assessment (EA) process. Specifically it has been prepared to:

- describe the key components of the Project;
- identify the planning provisions that apply to the Project Area;
- identify the potential environmental, social and economic implications associated with the Project and provide a preliminary justification for the proposed focus of the EA;
- provide sufficient information for the relevant agencies to make an informed decision on the items to be addressed in the EA; and
- support the Project Application to gain the Director General's Requirements (DGRs) under Clause 75(F) of the *Environmental Planning and Assessment Act, 1979 (EP&A Act)* for the preparation of an EA.

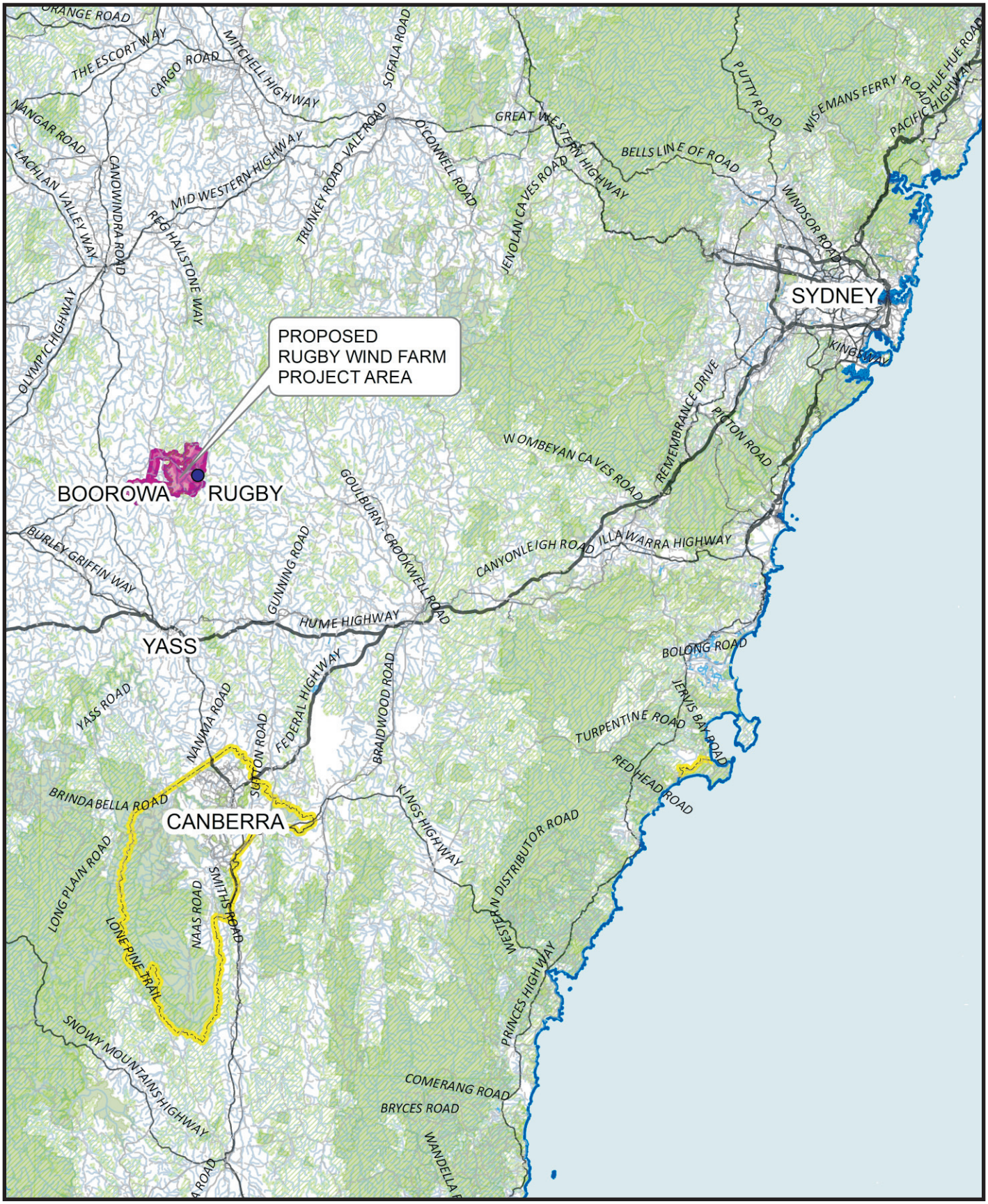

Figure 1.1

Locality Plan

Client:	Suzlon Energy Australia Pty Ltd & Windlab Developments Pty Ltd	
Project:	Rugby Wind Farm Preliminary Environmental Assessment	
Drawing No:	0122160h_PEA_C001_R1.cdr	
Date:	22/10/2010	Drawing size: A4
Drawn by:	JD	Reviewed by: CA
Scale:	Refer to Scale Bar	

N

0 10 20 30 40 50km

Maps and figures contained within this document may be based on third party data, may not be to scale and is intended for use as a guide only. ERM does not warrant the accuracy of any such maps or figures.

Environmental Resources Management Australia Pty Ltd

Brisbane, Canberra, Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney

Source:
Suzlon Energy Australia Pty Ltd

Suffix	Revisions	Date	Init
R0		20-10-10	JD
R1	Preliminary Issue	22-10-10	JD

ERM

1.5 REPORT STRUCTURE

This PEA is structured as follows:

Chapter 1 Introduction - Provides background information about the Project, the proponent and this report;

Chapter 2 Project Description - Describes the activities for which approval is sought;

Chapter 3 Statutory Considerations - Describes the planning context, including the approvals required;

Chapter 4 Consultation – describes the consultation undertaken to date, and the strategy for proposed consultation;

Chapter 5 Preliminary Environmental Assessment – To allow for prioritisation of issues for the Project and subsequent environmental assessment this section identifies potential risks to the existing environment; and

Chapter 6 Conclusion - provides concluding statements with respect to the preliminary assessment outcomes.

2 PROJECT DESCRIPTION

2.1 PROJECT AREA

2.1.1 Location and Tenure

The proposed Rugby Wind Farm is located in the South Eastern Highlands of NSW approximately 220km south west of Sydney. The Project Area covers an area of approximately 100,000ha on which the turbines and ancillary structures will be located. The Project Area will be situated on privately owned rural landholdings as listed in *Table 2.1* and shown on *Figure 2.1*.

In addition the Project Area also includes a land corridor required to site the connection between the wind farm and the existing electrical transmission network. Options are under consideration (see *Section 2.2.2*). Below ground electrical interconnections between turbines are also required.

Table 2.1 Land tenure

Lot	DP
Lot 7	2491
Lot 8	2491
Lot 10	2491
Lot 11	2491
Lot 12	2491
Lot 30	87949
Lot 1	111532
Lot 2	111532
Lot 6	111824
Lot 4	111824
Lot 3	111824
Lot 7	111824
Lot 5	111824
Lot 1	130327
Lot 2	223449
Lot 2	230084
Lot 1	230084
Lot 2	235655
Lot 1	235655
Lot 3	235655
Lot 1	525606
Lot 2	525606
Lot 1	527322
Lot 1	546411
Lot 2	629185
Lot 1	629185
Lot 1	661679
Lot 1	706236
Lot 12	719964

Lot	DP
Lot 11	719964
Lot 5	719964
Lot 6	719964
Lot 1	719964
Lot 9	719964
Lot 8	719964
Lot 3	719964
Lot 10	719964
Lot 14	719964
Lot 2	719964
Lot 13	719964
Lot 4	719964
Lot 7	719964
Lot 1	720200
Lot 2	727656
Lot 259	754098
Lot 221	754098
Lot 243	754098
Lot 113	754098
Lot 167	754098
Lot 275	754098
Lot 198	754098
Lot 201	754098
Lot 202	754098
Lot 203	754098
Lot 204	754098
Lot 211	754098
Lot 220	754098
Lot 269	754098
Lot 275	754098
Lot 283	754098
Lot 284	754098
Lot 30	754098
Lot 50	754098
Lot 118	754100
Lot 96	754100
Lot 17	754100
Lot 178	754100
Lot 110	754100
Lot 131	754100
Lot 111	754100
Lot 144	754100
Lot 153	754100
Lot 18	754100
Lot 147	754100
Lot 103	754100
Lot 128	754100

Lot	DP
Lot 164	754100
Lot 112	754100
Lot 87	754100
Lot 179	754100
Lot 54	754100
Lot 49	754100
Lot 148	754100
Lot 21	754100
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Lot 130	754100
Lot 177	754100
Lot 182	754100
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Lot 32	754100
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Lot 46	754100
Lot 80	754100
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Lot 182	754117
Lot 138	754117
Lot 100	754117
Lot 33	754117
Lot 35	754117
Lot 36	754117
Lot 32	754117
Lot 159	754117
Lot 90	754117
Lot 153	754117
Lot 76	754117
Lot 198	754117
Lot 148	754117
Lot 34	754117
Lot 174	754117
Lot 31	754117
Lot 100	754117
Lot 187	754117
Lot 171	754117
Lot 40	754117
Lot 21	754117
Lot 197	754117
Lot 38	754117
Lot 56	754117
Lot 158	754117
Lot 172	754117

Lot	DP
Lot 189	754117
Lot 210	754117
Lot 89	754117
Lot 106	754117
Lot 29	754117
Lot 39	754117
Lot 41	754117
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Lot 12	754142
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Lot 262	754142
Lot 60	754142
Lot 271	754142
Lot 165	754142
Lot 56	754142
Lot 237	754142
Lot 252	754142
Lot 186	754142
Lot 78	754142
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Lot 257	754142
Lot 222	754142
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Lot 52	754142
Lot 223	754142
Lot 232	754142
Lot 84	754142
Lot 18	754142
Lot 15	754142

Lot	DP
Lot 92	754142
Lot 74	754142
Lot 114	754142
Lot 246	754142
Lot 258	754142
Lot 259	754142
Lot 234	754142
Lot 59	754142
Lot 253	754142
Lot 233	754142
Lot 127	754142
Lot 41	754142
Lot 274	754142
Lot 112	754142
Lot 277	754142
Lot 109	754142
Lot 113	754142
Lot 87	754142
Lot 128	754142
Lot 229	754142
Lot 77	754142
Lot 38	754142
Lot 67	754142
Lot 224	754142
Lot 225	754142
Lot 223	754142
Lot 143	754144
Lot 142	754144
Lot 244	754145
Lot 150	754145
Lot 36	754145
Lot 37	754145
Lot 241	754145
Lot 233	754145
Lot 232	754145
Lot 135	754145
Lot 157	754145
Lot 245	754145
Lot 164	754145
Lot 246	754145
Lot 217	754145
Lot 210	754145
Lot 215	754145
Lot 163	754145
Lot 248	754145
Lot 216	754145

Lot	DP
Lot 243	754145
Lot 189	754145
Lot 237	754145
Lot 71	754145
Lot 72	754145
Lot 73	754600
Lot 72	754600
Lot 68	754600
Lot 69	754600
Lot 74	754600
Lot 59	754600
Lot 60	754600
Lot 63	754600
Lot 64	754600
Lot 65	754600
Lot 66	754600
Lot 88	754600
Lot 22	785960
Lot 1	821762
Lot 3	870170
Lot 1	870170
Lot 1	927746
Lot 6	1045855
Lot 3	1045855
Lot 7	1045855
Lot 4	1045855
Lot 1	1047255
Lot 11	1101415
Lot 10	1101415
Lot 2	1122968
Lot 1	1127589
Lot 1	1127589

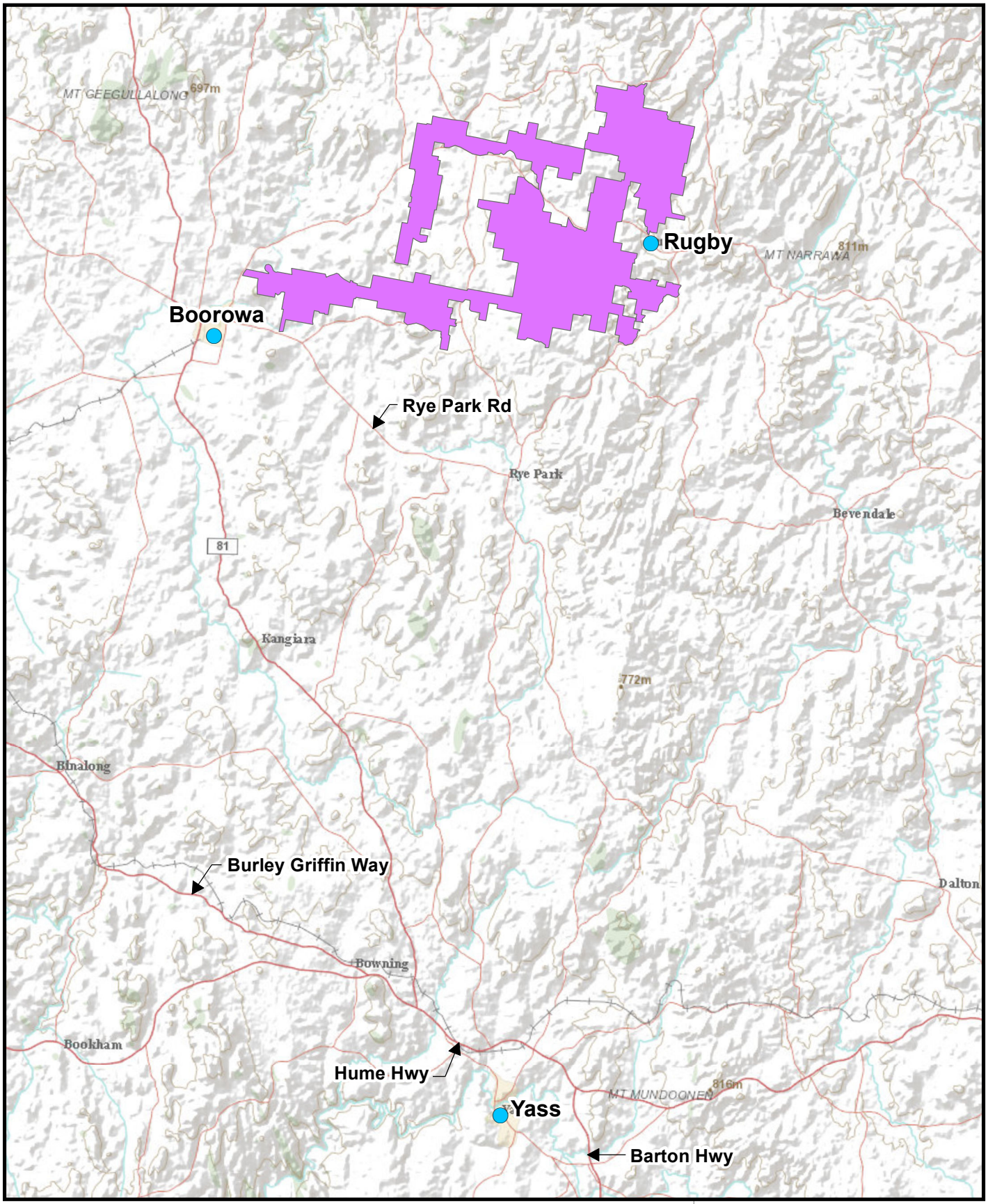
2.1.2 Description

The majority of the Project Area comprises rural land is used for commercial agriculture. The existing uses would continue with minimal interruption during the construction and operation of the wind farm.

Preliminary investigations have identified that approximately 20 dwellings are located within the vicinity of proposed wind turbine locations. These dwellings are located both within and outside of the Project Area. These dwellings are associated with the rural land uses and are generally dispersed across the locality. Final planning and design of the wind turbine layout will take into consideration the location of nearby houses and the corresponding visual and acoustic impact.

The topography of the Project Area is characterised by a series of rolling hills forming a number of gentle ridgelines suitable for turbine placement. A large proportion of the Project Area contains native vegetation, mostly made up of dry sclerophyll forest. Patches of dry sclerophyll forest were primarily located along the ridges.

There are no major waterways within Project Area, although there are some small ephemeral creeks that remain dry for the majority of the year. The Lachlan River is the principal river system for the broader region and is located 10km to the east.



Legend

Property_Boundary

Figure 2.1

Project Area

Client:	Suzlon Energy Australia Pty Ltd & Windlab Developments Pty Ltd	
Project:	Rugby Wind Farm Preliminary Environmental Assessment	
Drawing	0122160s_PEA_G002_R0.mxd	
Date:	29/10/2010	Drawing Size: A4
Drawn By:	SW	Reviewed By: RS
Projection:	GDA 1994 MGA Zone 55	
Source:	Suzlon Energy Australia Pty Ltd	

N

0 2 4 6Km

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ERM

The site ranges in elevation between 390m and 810m AHD. The elevation results in high average wind conditions with average wind speeds in the range of 25-30 km/h.

Rugby Road runs east-west through the Project Area and is the main access route to the area. There are also a number of unsealed roads and access tracks located on private properties across the area.

The existing TransGrid 132kV network is located approximately 3.5 km west of the site.

2.2 *WIND FARM DESCRIPTION*

The project will involve:

- construction of up to 90 wind turbines. Each turbine will be up to 160m above the ground level at the highest blade tip and have a maximum generating capacity of 3.4MW each;
- construction of a substation and transmission connection to the existing TransGrid 132kV transmission network located 3.5km west of the Project Area;
- electrical connections between wind turbines and the onsite substation via an underground/overhead 33kV cable network;
- construction of onsite control buildings and equipment storage facilities;
- temporary concrete batching facilities;
- construction of access tracks for each turbine and other onsite structures and upgrades to existing roads/tracks as required; and
- construction of monitoring masts for wind speed verification and monitoring.

2.2.1 *Wind Farm Layout*

Suitable locations for turbines are currently being selected based on topography and wind conditions, however the layout has not been finalised at this stage of the Project. Further detailed design will be completed taking into consideration the findings from the detailed assessments, constraints and engineering design as well as feedback from community consultation.

Further studies will provide greater information to determine the best location for wind farm infrastructure. Ecology studies have informed the wind farm layout and further studies are being conducted to identify any constraints which would require the relocation of infrastructure to avoid or minimise impacts to flora and fauna. All detailed studies and constraints mapping will be included in the Environmental Assessment Report (EAR).

Preliminary acoustic assessment has also been undertaken to inform the wind farm layout.

2.2.2 Transmission Route

Suzlon and Windlab is currently considering several transmission line options for connection to the transmission network. The route options being considered can accommodate single or dual circuit 132kV conductors and will connect into either one or both of the TransGrid 132kV lines located to the west of the Project Area. Detailed plans of the proposed line routes will be included in the EAR.

2.3 PROJECT TIMEFRAME

Suzlon and Windlab are currently undertaking a number of detailed studies for the Project. Following receipt of the Director General's Requirements (DGRs), it is expected that the EAR will be submitted in early 2011.

The following indicative timeframe is envisaged for the Project.

Table 2.2 Project Timeframe

Phase	Duration	Completion
Finalise design	2 years	2013
Site preparation	2 years	2013
Construction	18 months	2013
Commissioning	6 months	2014

3 STATUTORY CONSIDERATIONS

3.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Part 3A of the EP&A Act details the approval of major infrastructure and other significant 'projects'. It applies to:

> *"… the carrying out of development that is declared under this section to be a project to which this Part applies:*
>
> *(a) by a State Environmental Planning Policy, or*
>
> *(b) by order of the Minister published in the Gazette"* (Section 75(b)).

3.1.1 State Environmental Planning Policy (Major Development)

State Environmental Planning Policy (SEPP) Major Development 2005 provides a framework to identify major developments to be assessed under Part 3A of the EP&A Act. Schedule 1, clause 24 of the SEPP Major Development identifies facilities for the generation of heat and electricity development with a capital investment value of more than $30 million as being major projects. The proposed wind farm's capital value exceeds $30 million, therefore the SEPP is applicable and hence the project is to be assessed under Part 3A of the EP & A Act

On 11 November 2009 the NSW Minister for Planning declared renewable energy generators of 30 megawatts or more to be Critical Infrastructure Projects under Section 75 (C) of the EP&A Act. As the proposed Rugby Wind Farm has the capacity to generate in excess of 30 megawatts the critical infrastructure provisions of the EP & A Act also apply.

This PEA has been prepared to accompany a Major Project Application for project approval to be submitted to the Minister for Planning.

The EA, which assesses the likely impact of a project on the environment, will be prepared in accordance with Section 75(F) of the EP&A Act.

3.2 STATUTORY FRAMEWORK

Table 3.1 summarises the legislation relevant to this project.

Table 3.1 Statutory Framework

Legislation	Standard/ Requirement	Comment
Commonwealth		
Environment Protection and Biodiversity Conservation Act 1999	The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires approval of the Commonwealth Minister for the Environment for actions that may have a significant impact on matters of National Environmental Significance.	Potential impacts Matter of National Environmental significance (MNES) will be considered. If potential significant impacts to MNES are identified, a referral will be made to the Federal Minister for the Environment, for his decision as to whether the project is a Controlled Action, and if so, the level of assessment to be undertaken by the proponent in order to enable the minister to consider whether to approve the project. The ecology assessments currently in progress will inform this process. If timing permits a request will be made to consider any referral under the bi-lateral agreement between the State and Commonwealth.
Civil Aviation Safety Regulations 1998	The Civil Aviation Safety Regulations 1998 (made under the Civil Aviation Act 1988) require that CASA must be informed of proposals to build a structure greater than 110 metres above Australian Datum. This is required to allow assessment of whether the structure may represent a hazard to aircraft, and to provide any associated mitigation measures including any requirements for markings or lighting.	A circular regarding hazard lighting of wind farms has been released by CASA that is of relevance to this proposal. The AC139-18(0) advises that proponents of wind farms whose turbines exceed 110m above ground level should expect that CASA will require appropriate obstruction lighting and marking to reduce the hazard to aviation unless the circumstances at a particular wind farm are very unusual. AC139-18(0) has been withdrawn by CASA pending a review of the guideline material. Despite this, CASA has advised that the circular remains of relevance to proponents wishing to assess aeronautical impacts. Detailed discussions will be held with CASA during the next stage of the planning process, and consideration given to any revisions to CASA Guidelines, as part of the specialist investigations informing the EA.
New South Wales		
National Parks and Wildlife Act 1974 (NP&W Act)	The NP&W Act governs the establishment, preservation and management of national parks, historic sites and certain other areas. The NPW Act also provides the basis for the legal protection and management of threatened native flora and fauna and Aboriginal sites within NSW.	Section 75 (U) of the EP& A Act excludes projects approved under Part 3A from requiring approval under Clause 90 of the NP & W Act if Aboriginal objects or places will be disturbed or destroyed. An archaeological assessment will be undertaken for the EAR.

Legislation	Standard/ Requirement	Comment
Water Management Act 2000 (WM Act)	The WM Act incorporates the provisions of various Acts relating to the management of surface and groundwater in NSW.	Section 75 (U) of the EP& A Act excludes projects approved under Part 3A from the requirement to obtain a water use approval under Section 89 of the WM Act, a water management work approval under Section 90 or an activity approval under Section 91. The requirement for any other permits will be determined throughout the assessment.
Threatened Species Conservation Act 1995 (TSC Act)	Provides for the conservation of threatened species, populations and ecological communities of animals and plants. It provides a framework for the assessment of any action that may impact on threatened species.	The flora and fauna investigation in progress will assess the implications of this Act and in particular the need for targeted surveys for particular species.
Native Vegetation Act 2003 (NV Act)	The Native Vegetation Conservation Act 2003 provides for the conservation of native vegetation through the prevention of inappropriate clearing and promotion of rehabilitation practices.	Section 75 (U) of the EP& A Act excludes projects approved under Part 3A from requiring authorisation referred to in Section 12 of the NV Act.
Heritage Act 1977	The Heritage Act 1977 aims to protect and preserve items of non-indigenous Heritage significance. The Act provides for the protection of items of local, regional and State heritage significance.	Section 75 (U) of the EP& A Act excludes projects approved under Part 3A from requiring an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977.
Regional Instruments		
None identified		
Local Instruments		
Interim Development Order No. 1 – Shire of Boorowa	The Project Area is located wholly within the Non Urban A and Non Urban B zone.	Within the Non-urban 'A' zone agriculture and dwelling house are permissible without consent. Within the Non-urban 'B' zone development for the purposes of agriculture, or forestry is permissible without consent. All development in these zones, excepting prohibited development, is permissible with Council consent. The proposed development for the wind farm is not identified as prohibited development, and is therefore permissible with consent.

4 CONSULTATION

4.1 INTRODUCTION

Suzlon and Windlab recognise the importance of engaging with key stakeholders and the community throughout the life of the Project and particularly throughout the environmental assessment process. The objectives for consultation are to ensure:

- stakeholders have access to up to date, relevant information regarding the Project; and
- are provided with an opportunity to raise their concerns and have these responded to by Suzlon and Windlab.

4.2 CONSULTATION UNDERTAKEN TO DATE

4.2.1 *Consultation with Government Agencies*

Consultation has commenced with government agencies including:

- Department of Planning (DoP);
- Department of Environment, Climate Change and Water (DECCW).
- Shire of Boorowa Council.

A planning focus meeting (PFM) is proposed after submission of the PEA. if Required this will be followed by additional meetings with individual agencies to discuss assessment requirements and proposed approaches to assessing the Project.

4.2.2 Community Consultation

Suzlon and Windlab have commenced consultation with potentially affected residents and members of the local community. Information days are planned and consultation will continue and will be expanded as required.

4.3 STRATEGY FOR ONGOING CONSULTATION

The overall aim of consultation is for Suzlon and Windlab to establish relationships with key stakeholders, to facilitate and enable their inputs to be considered in the Project design, planning and implementation.

4.3.1 Consultation with Government Agencies

The Project team will continue to liaise closely with relevant State, and if appropriate, Federal government departments to ensure that the EA, technical reports and Project design meets key agency and statutory requirements. This will include face-to-face meetings, telephone conversations, e-mail and written correspondence.

Following lodgement of the PEA and project application, the DoP will request that relevant government agencies outline the issues that they require to be addressed in the EA. These individual agency requirements will form the basis of the DGRs.

4.3.2 Community Consultation

A Community Engagement Strategy has been developed to guide consultation throughout the EA process. The strategy has been designed to provide open and transparent communication and ensure:

- the local community and other stakeholders are aware of the Project and have access to information about the Project and its potential impacts on their lives, businesses and the local environment;
- multiple mechanisms are provided for participation of stakeholders in the EA process and for ongoing communication and feedback; and
- stakeholder issues and concerns are identified and appropriately managed.

Stakeholders will be identified on the basis of the potential direct and indirect impacts they may experience as a result of the Project, as well as their level of interest in the Project.

Community consultation tools to be used during the EA phase will include:

- distribution of newsletters to provide information and invite comment; and
- implementation of a 1800 information line and email address;
- a webpage linked to the Suzlon and Windlab main site which provides Project information and contacts through which enquires can be made; and
- a series of information sessions, to provide an opportunity for local residents to gain information and discuss concerns with the project team.

Details of consultation undertaken and outcomes will be included in the EAR.

Consultation with the local Aboriginal community is discussed in *Section 5.1.2*.

5 PRELIMINARY ENVIRONMENTAL ASSESSMENT

5.1 ISSUES IDENTIFICATION

Environmental, social and economic aspects with potential to be impacted by Project activities during construction and operations are identified in this chapter. The issues identification process was based on preliminary analysis of Project design, the existing environment and Project risks to the existing environment.

A preliminary risk assessment of issues was undertaken (refer *Section 5.2*) to identify the key risk areas upon which the EAR should be focussed, along with areas unlikely to be impacted by the Project and which therefore require only limited additional assessment.

Potential impacts will be fully assessed as part of the EAR. The EAR will also outline measures to manage any adverse environmental impacts identified in association with the Project.

5.1.1 *Flora and Fauna*

Investigations to date have included a desk top assessment to identify vegetation types in the Project Area and the likely presence of endangered flora and fauna species. This was followed by an initial site assessment and additional field surveys are currently underway. The results of works undertaken to date indicate that:

- a large proportion of the Project Area currently supports native vegetation, mostly in the form of dry sclerophyll forest including Red Stringybark and Mugga Ironbark Forests;
- no listed threatened flora species or ecological communities were recorded during surveys to date. However suitable habitat was considered to occur for a number of flora species; and
- the Project Area supports habitat for a variety of State listed threatened fauna species. Of these species the Superb Parrot, Powerful Owl, Square-tailed Kite, Flame Robin, Scarlet Robin, Brown Treecreeper, Varied Sittella, Diamond Firetail, Speckled Warbler, Koala and Eastern Bentwing Bat were recorded during surveys to date.

The EPBC listed Superb Parrot was confirmed as occurring at the Project Area, which may form part of the breeding area for this species. Further investigations will be undertaken to map suitable habitat of the Superb Parrot at the proposed wind farm site.

The EPBC listed Swift Parrot was not confirmed as occurring at the study area however it is considered that it may occur in the region when its preferred feeding tree (Mugga Ironbark) is flowering.

Targeted surveys will be undertaken to identify all State and Federal threatened species in the Project Area. A detailed flora and fauna assessment will be included in the EA including:

- assessment of potential Project impacts on ecological values;
- assessment of the significance of potential impacts on any threatened species identified as likely to occur in the Project Area;
- development of measures to avoid, mitigate or offset potential impacts; and
- dependant upon the outcomes of the surveys, a recommendation as to whether a referral to the Federal Environment Minister under the EPBC Act would be required or prudent.

5.1.2 Aboriginal Heritage

An Aboriginal heritage investigation will be undertaken including a search of the Department of Environment, Climate Change and Water (DECCW) Aboriginal Heritage Information Management System (AHIMS) and a review of relevant environment and history of land use information. These searches will inform a detailed Aboriginal heritage assessment, in addition to consultation with Aboriginal groups to be included in the EAR. The assessment will focus on areas where disturbance is proposed and any areas identified as significant through the AHIMS search and consultation with local Aboriginal groups. The assessment will include:

- consultation with the local Aboriginal community;
- targeted archaeological surveys to identify and record previously unrecorded sites which could be impacted by the Project;
- significance assessment of all identified sites within the Project Area, in conjunction with a conditions assessment to determine if any damage has occurred since the original site recordings (if any);
- impact assessment; and
- development of mitigation and management recommendations to manage any potential impacts.

5.1.3 Noise

A detailed noise assessment will be included in the EAR and will consider the likely construction and operational noise impacts at representative receivers in proximity to the turbines.

5.1.4 Visual Amenity

The proposed wind farm is located in a typical rural landscape with no large scale visual disturbance apart from agricultural clearing and cropping. There are potential visual impacts associated with the construction and operation of the wind farm through the alteration of the landscape.

A detailed visual assessment will be undertaken to assess visual impacts associated with the Project and will involve:

- defining the view shed and identifying publicly accessible locations to be assessed;
- preparation of photomontages; and
- a detailed impact assessment including a zone of visual influence analysis and assessment of community attitudes.

5.1.5 Shadow Flicker

A shadow flicker assessment will be undertaken to assess the impact of shadow flicker and blade glint from the wind farm on the surrounding area.

5.1.6 Electromagnetic Fields

An electromagnetic interference (EMI) assessment and an electromagnetic fields (EMF) assessment will be undertaken as part of the EAR. It will involve preparation of a detailed desktop assessment of existing electromagnetic services within the project area and recommend methods to avoid and/or mitigate the impact of the construction of the wind farm.

5.1.7 Aviation Risk

An aviation assessment will be undertaken for the Project to determine the risk to local civil and military aviation operations taking into consideration the Australian Aviation Regulations. The closest airport to the Project Area is Young approximately 40km north west of Boorowa. It is expected that given the location of the Project Area, an obstacle lighting plan is unlikely to be required.

5.1.8 Traffic and Transport

The Project Area is situated north-west of the Hume Highway. Rugby Road (M.2 240) and Rye Park Rugby Road (M.R 241) are the main access roads to the Project Area. A traffic and transport assessment will be undertaken, taking into consideration environmental issues associated with transport of equipment to site, site construction vehicles and operational traffic impacts.

The assessment will also consider potential impacts on local and regional roads including the road network and intersection operations, road safety and structural pavement integrity of roads and bridges. The means of access to individual properties will be investigated throughout the environmental assessment. Requirements for dilapidation surveys for post-construction road network reinstatement and repairs will also be addressed.

5.1.9 Water Management

A water resources assessment will be prepared to assess baseline surface and groundwater conditions and determine potential impacts associated with the proposed wind farm. The assessment will be desktop based and include a review of publicly available information. The *ANZECC 2000 Water Quality Guidelines* will be used to establish numerical water quality targets for the receiving water environment.

Key risks associated with the wind farm proposal are anticipated to be associated with erosion and sediment controls during the establishment of access trails for the construction and installation of each turbine.

A conceptual soil and water management plan will be developed to provide measures to guide construction to minimise the impact to receiving waters.

5.1.10 Bushfire

A desk top bushfire risk assessment will be undertaken to consider the risks of bushfire in native vegetation on the proposed location of turbines and associated infrastructure. The bushfire risk assessment will be undertaken in accordance with NSW guidelines.

5.2 *RISK ASSESSMENT*

A preliminary risk assessment was undertaken to identify the key risk areas on which to focus the EAR. *Table 5.1* provides a summary of the outcome of this assessment process with environmental factors given a high, medium or low risk rating based on potential impacts. It is important to note that the level of risk identified is based on the activity with no mitigation measures in place. This risk assessment is intended to guide the level of assessment undertaken for the EAR.

Table 5.1 Environmental Risk Assessment

Environmental Risk Area	Sub topic	Identified Risks associated with the Project	Level of Risk	Proposed Scope of Work for the EA	Justification
Flora and Fauna	Impacts to flora and fauna as a result of clearing and construction of the Project	Vegetation removal for the turbines and transmission lines may result in the disturbance or loss of habitat of threatened flora or fauna species, populations or ecological communities.	Medium	Detailed flora and fauna assessments will be undertaken and the impacts on threatened flora or fauna species, populations or ecological communities will be assessed and mitigation measure recommended.	Where possible, the project will be constructed within existing cleared areas. The proposed assessment will focus on sensitive areas and help avoid these.
	Impacts to birds as a result of the operation of the wind farm.	Direct mortality from collision with wind turbines and other structures. Barriers to movements.	Medium	Further assessment of the potential habitat of the EPBC listed species Superb Parrot and Swift Parrot will be undertaken to facilitate locating turbines away from these areas.	This level of assessment is considered appropriate.
Aboriginal Heritage	Impacts to Aboriginal heritage values as a result of construction activities.	There are potentially a number of Aboriginal heritage items located within the Project Area.	Medium	A detailed Aboriginal heritage assessment, including consultation with local aboriginal groups, will be undertaken in areas identified in the AHIMS search and areas to be disturbed that are identified as significant by the local Aboriginal community.	Where possible, the project will be constructed within existing cleared areas. The assessment will focus on sensitive areas and areas of disturbance. This level of assessment is considered appropriate.
Historic Heritage	Impacts to heritage listed items within the Project area.	The Bala Travelling Stock Route is a heritage item listed on the Register of National Estate, within the Project Area. It is not expected to be impacted by the Project.	Low	A review of existing data, heritage registers and literature will be undertaken. No further assessment will be undertaken.	No buildings will be demolished as part of the Project and the Project is not expected to impact on any heritage listed items.
Noise	Construction and operational noise impacts.	Construction noise associated with traffic and the establishment of the infrastructure within the Project Area may generate noise impacts to nearby sensitive receivers. Noise generated by turbines may impact nearby sensitive receivers.	Medium	An acoustic assessment will be undertaken to determine the likely noise impacts at representative receivers in proximity to the turbines.	This level of assessment is considered appropriate.

Environmental Risk Area	Sub topic	Identified Risks associated with the Project	Level of Risk	Proposed Scope of Work for the EA	Justification
Visual Amenity	Changes to the viewscape from residences and publicly accessible areas within and near the Project Area.	Negative visual impacts associated with the Project.	Medium	A visual impact assessment will be prepared to determine the impact of the Project on the surrounding visual environment. The assessment will focus on the viewscape from residences and publicly accessible areas within and near the Project Area.	Due to the height required for turbines the wind farm has the potential to be visible from public locations as well as residences. This level of assessment is considered appropriate.
Shadow Flicker	Impacts on residences within or near the Project area.	Disturbance to residences within or near the Project area.	Medium	A shadow flicker assessment will be undertaken to asses the impact of shadow flicker from the wind farm on the surrounding residences.	This level of assessment is considered appropriate.
Electromagnetic Fields	Effects on communication infrastructure. Effects on human health.	Interference with telecommunications infrastructure in the area. Potential human health impacts.	Medium	An electromagnetic interference (EMI) assessment including an electromagnetic fields (EMF) assessment will be undertaken.	This level of assessment is considered appropriate to help determine the best location for transmission lines and turbines and identify methods to avoid and/or mitigate the impact of the wind farm.
Aviation Risk	Impacts from the operation of the wind farm.	Impacts on local aviation operations.	Medium	A desktop assessment will be undertaken to identify risks to local aviation operations.	Given the location of the wind farm this level of assessment is considered appropriate.
Water Management	Local and regional water quality.	Environmental pollution. Availability of water for construction.	Medium	A conceptual soil and water management plan will be developed to provide measures to guide construction to minimise the impact to receiving waters. No water monitoring is proposed.	It is very unlikely that the Project will result in impacts to local waterways, therefore the proposed scope of works is considered appropriate.
Traffic and Transport	Vehicle movements generated by the Project during construction and operation.	Increase in traffic, particularly heavy vehicles, during construction. Practicality of transporting turbines. Impact on local road network including safety, performance and road pavement deterioration.	Medium	A detailed traffic assessment will be undertaken for the Project. Appropriate mitigation measures, including the requirement to prepare a traffic management plan will be recommended to minimise impacts to traffic as a result of the Project.	The increase in traffic levels will be primarily during the construction phase of the Project and will be temporary only. Very minimal increases in local traffic will result once the project is operation.

Environmental Risk Area	Sub topic	Identified Risks associated with the Project	Level of Risk	Proposed Scope of Work for the EA	Justification
Bushfire	Bushfire safety.	Impacts to the Project from bushfire.	Low	A desk top bushfire risk assessment will be undertaken. Mitigation measures will be recommended to help provide protection from bushfire.	Parts of the project area contain remnant bushland.
Air Quality	Dust and particulate matter.	Construction activities have the potential to generate dust and particulate matter.	Low	Appropriate mitigation measures will be recommended to minimise the impacts to air quality as a result of construction works. No air quality monitoring is proposed.	Minimal air quality impacts will be caused by the project, therefore the scope is considered appropriate.
Greenhouse Gas Emissions	Production of renewable energy.	Benefits of the project producing renewable energy.	Low	The benefits of renewable energy will be quantified and documented.	The project would make a positive contribution to reducing greenhouse gas (GHG) emissions by providing an alternative electricity source to fossil fuels.
Waste	Construction and operational waste.	Potential pollution of the surrounding environment from general rubbish, human waste, construction waste and fuels.	Low	Appropriate mitigation measures will be recommended for the storage and re use, recycling or disposal of all waste associated with the Project.	As the project is only likely to produce minimal amounts of waste the scope is considered appropriate.
Socio Economic	Economic benefits to the local and regional communities.	Socio economic impacts associated with loss of land value, health impacts and land use constraints.	Low	Assess potential social and economic impacts (positive and negative) associated with the project and provide management measures.	The proposed overview of the potential socio economic impacts is considered to be appropriate as the socio economic impacts of the Project are likely to be generally positive.

6 *CONCLUSION*

Suzlon and Windlab seek approval to develop a wind farm near Rugby, New South Wales. The project will include up to 90 turbines and associated infrastructure. The wind farm is expected to have a total generating capacity of up to 290MW.

This preliminary assessment has been prepared to support a Major Project Application for Project Approval and has identified the potential environmental, social and economic implications associated with the Project and outlined the proposed scope of works to be undertaken as part of the EA. In summary, the key environmental considerations identified in this preliminary assessment for the Project are:

- flora and fauna;
- Aboriginal heritage;
- noise;
- visual amenity;
- shadow flicker;
- electromagnetic fields;
- traffic and transport;
- water management;
- bushfire.

These issues will be addressed in detail in the EA and suitable mitigation, monitoring and management measures developed to address the potential impacts identified. The Project poses a low risk to other identified environmental aspects, including air quality, GHG, waste management and socio economic impacts. These aspects will therefore be assessed to a lesser extent in the EA.

An EA will be prepared and submitted to the DoP for adequacy review which will include consultation with agencies as determined by the DoP.

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