

10. Mitigation Measures

10.1 Introduction

The 2004 EIS set out mitigation measures for each of the phases of the project and the development consent lists the Ministers' conditions for the project implementation. The 2010 SEE provided detail of the additional measures and proposed changes arising from the approved modification.

This chapter provides details of the additional measures and proposed changes to the current requirements arising from the construction and operation of the additional three turbines and their associated infrastructure.

10.2 Consent conditions

The 2010 SEE provided an extensive review of the consent conditions and provided suggested changes to the existing consent conditions in respect of the modified project. Where considered appropriate, the Department of Planning has included the proposed changes or suitable amendment in the conditions for Approval Modification, which is included in Appendix B along with the original Approval Conditions.

The following section addresses suggested changes to the existing consent conditions in respect of the amended project.

10.2.1 Schedule 1

Proposed revisions (**in bold**) for aspects of Schedule 1 are set out below.

Proposed Development:	Construction and operation of a wind farm consisting of 23 wind turbines (80 m hub height and 88 m blade diameter), two temporary and two permanent meteorological masts and associated infrastructure including a 12 km 33 kV double circuit transmission line, underground cabling, tracks, strengthening of the Capital Wind Farm substation access road causeway, a public viewing area, temporary works (construction site office, laydown area and gravel pit) and augmentation of the Capital Wind Farm substation to enable grid connection of Woodlawn Wind Farm, as described in the Woodlawn Wind Farm Statement of Environmental Effects, prepared by Aurecon and dated January 2010
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10.2.2 Schedule 2

Schedule 2 provides a list of terms referred to in the consent document. No changes are proposed.

10.2.3 Conditions of Consent

The aim of the Conditions of Consent is to ensure that the Applicant implements all practicable measures to prevent and minimise any harm to the environment that may result from the Construction, Commissioning, Operation and Decommissioning of the Development.

The following table provides only the clauses that require revisions (**in bold**) of the existing Conditions of Consent based on the outcomes of the supplementary SEE.

Table 10.1 – Proposed revisions of the existing Conditions of Consent

Conditions of Consent	Clause Number	Proposed change
GENERAL CONDITIONS		
Scope of Development	2	The applicant shall carry out the development in accordance with the following documents. (a) Application for Modification of development Consent July 2010 (b) Application for Modification of development Consent January 2010 (c) Woodlawn Wind Farm Amendment Statement of Environmental Effects prepared by Aurecon and dated January 2010 (d) As per previous 2004 EIS, etc (Not including revised transmission line option 11/2/2005 –no longer applicable)
Traffic and Transport Management Sub Plan	28	Mitigation measures as per 2010 SEE and additional measures proposed in 2010 supplementary SEE
VISUAL AMENITY		
General	46	Update in respect of this supplementary SEE

10.3 Existing Mitigation measures

Section 22 of the 2004 EIS provided a summary of the mitigation measures proposed for the Woodlawn Wind Farm site. The mitigation measures were reviewed as part of the 2010 SEE and it was proposed that most of the proposed mitigation measures would be implemented.

Four measures considered not applicable to the modified project were excluded and a number of additional measures were proposed to take into account the modifications and additional studies that were undertaken as part of the 2010 SEE.

10.4 Additional measures

With the proposed construction of the additional three turbines and associated infrastructure, Woodlawn Wind Pty Ltd identified the need for additional assessments. These are described below:

- A further noise assessment was undertaken by Vipac Engineers & Scientists in July 2010 (Appendix E) to take into account the additional three turbines
- Additional flora and fauna (Appendix F) and heritage assessments (Appendix G) were undertaken at the additional turbine locations.
- Lawrence Derrick & Associates (LDA) assessed telecommunications services likely to be impacted as a result of the proposed additional turbines (Appendix H)

These assessments have recommended additional measures, which will be taken into account during the construction and operation of the Woodlawn Wind Farm. It is expected that the addition of the three turbines and associated infrastructure would be constructed and operated taking these measures into account.



10.4.1 Noise mitigation measures

The following mitigation measures were recommended for possible noise impacts in the 2010 SEE.

- If a noise nuisance is reported by a relevant receiver after the wind farm is commissioned, Woodlawn Wind will review the nature of the noise impact and assess the potential sources. If necessary, the equipment supplier will be required to perform testing to confirm that equipment performance is in accordance with the required noise specification.
- If any noise exceedance is shown to be occurring at a relevant receiver due to the turbine operation, Woodlawn Wind can vary operation of the relevant turbine(s) to achieve noise compliance. In addition, Woodlawn Wind may consult with any affected landowner in regard to other measures such as installation of double glazing or other forms of sound insulation.
- A Construction Noise Management Plan will be implemented as part of the project Environmental Management Plan for the construction stage of the project to mitigate potential adverse noise impacts that could affect nearby residents.

10.4.2 Flora and fauna mitigation measures

The locations of the proposed additional three turbine sites and associated infrastructure are considered to be heavily grazed sheep paddocks and highly modified environments. Some areas of native grassland and remnant woodland do occur in the general area, but these communities are not part of any listed threatened ecological community. Threatened bird species occur in the general area from time to time, but the developments do not significantly impact upon any habitat likely to be important for such species.

The following additional mitigation measures have been proposed to minimise and avoid impacts of flora and fauna.

- Avoid removing or disturbing the remnant woodland patches near the turbine sites and access tracks. These are the only habitats that could be important for threatened woodland birds in the locality.
- Develop a soil and water management plan to ensure that adequate controls over soil movement is minimised and that there is appropriate rehabilitation of the disturbed areas.

10.4.3 Heritage mitigation measures

Implementation of the modified project will include the following measures to mitigate the potential impacts on indigenous heritage values for the areas to be disturbed by the project construction works.

- Measures established in the 2004 EIS for salvage and care of surface artefact items at the Woodlawn Wind Farm site (Permit/Consents # 2288 and 2289) will be implemented.
- The project Cultural Heritage Management Sub-Plan under the project CEMP and subsequent OEMP will be updated to reflect safeguarding the integrity of the additional artefact sites identified in this assessment.
- Areas that are considered sensitive, and where salvage has not occurred, will be fenced off to avoid disturbance in accordance with the CEMP.
- No further archaeological work is required; however, Aboriginal objects and places remain protected by the relevant legislation.

10.4.4 Telecommunications mitigation measures

The following mitigation measures were recommended by LDA and in the 2010 SEE. These remain unchanged with the proposed construction of the three additional turbines.

For individuals experiencing degraded FM or television broadcasting service due to identified interference from the wind farm, possible techniques to reduce the interference to acceptable limits include:

- Replacement of receiving antenna system with a higher gain more directive model
- Repositioning of the antenna in height or horizontally on the dwelling
- Installation of an antenna elsewhere on the property and cable to dwelling
- Change the orientation of antennas to receive an alternative station if available. For example, point the aerial to Illawarra or Goulburn instead of Canberra
- Use available digital television channels instead of analogue. This would require a digital Set Top Box or digital television set
- Provision of an alternative satellite service eg, Free to Air or Austar pay television service.
- Where feasible, consideration could be given to the installation of a television or FM repeater station to provide service to groups of residents in a shadow zone.

Potential point to point system and mobile base coverage conflicts are not predicted to occur with turbines being located with recommended clearance zones from radio sites or point to point ray lines. There is only one identified link passing the turbines and final micro siting adjustments of one turbine would avoid any impacts. The

Any minor near field effects to medium frequency broadcasting would occur within tens of metres of the turbines only and with a buffer zone of at least 500 m to any dwelling, no corrective action will be required.

10.4.5 Transport

A number of measures will be incorporated for the construction and operation of the wind farm to ensure that transport and traffic impacts arising out of the development are minimised. These measures will be incorporated into a Traffic Management Plan for the project and will be developed in consultation with Goulburn Mulwaree and Palerang Councils and will form part of the CEMP to be approved by the Department of Planning. These mitigation measures have been fully addressed in the 2004 EIS and the 2010 SEE.

Additional measures associated with the new proposed route for crane movements are as follows:

- The proposed route along Collector Road is used for the transport of the crane only and all other ancillary large vehicles will be directed via the normal route through Goulburn to Tarago and onto Collector Road.
- Permits will be obtained from the RTA for the crane movement
- Notification will be provided to neighbours to the Collector Road in advance of the crane movement
- A speed limit of 40 km/hour is proposed as the maximum for the crane movement on Collector Road. The speed will be further reduced at any locations presenting safety concerns such as narrow winding sections of road.
- Crane transport will be subject to an escort

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- Movement of the crane along Collector Road will avoid the pre-school and post-school times and School Bus travel times
 - Any inadvertent damage to Collector road (as advised by Council and due to the Crane movement) will be repaired by the proponent

10.5 Compliance reviews

Compliance review is adequately covered in the existing Consent Conditions and is deemed to be applicable to the modified project.