

PALING YARDS WIND FARM AERONAUTICAL

PURPOSE

Aviation Projects Pty Ltd (Aviation Projects) was commissioned by UFWA to assess the aeronautical and obstacle lighting impacts arising from the project.

Under the Civil Aviation Safety Regulations, the owner of a structure (or proponents of a structure) that will be 110m or more above ground level must inform the Civil Aviation Safety Authority (CASA).

This is to allow CASA to assess the effect of the structure on aircraft operations and determine whether or not the structure will be hazardous to aircraft operations.

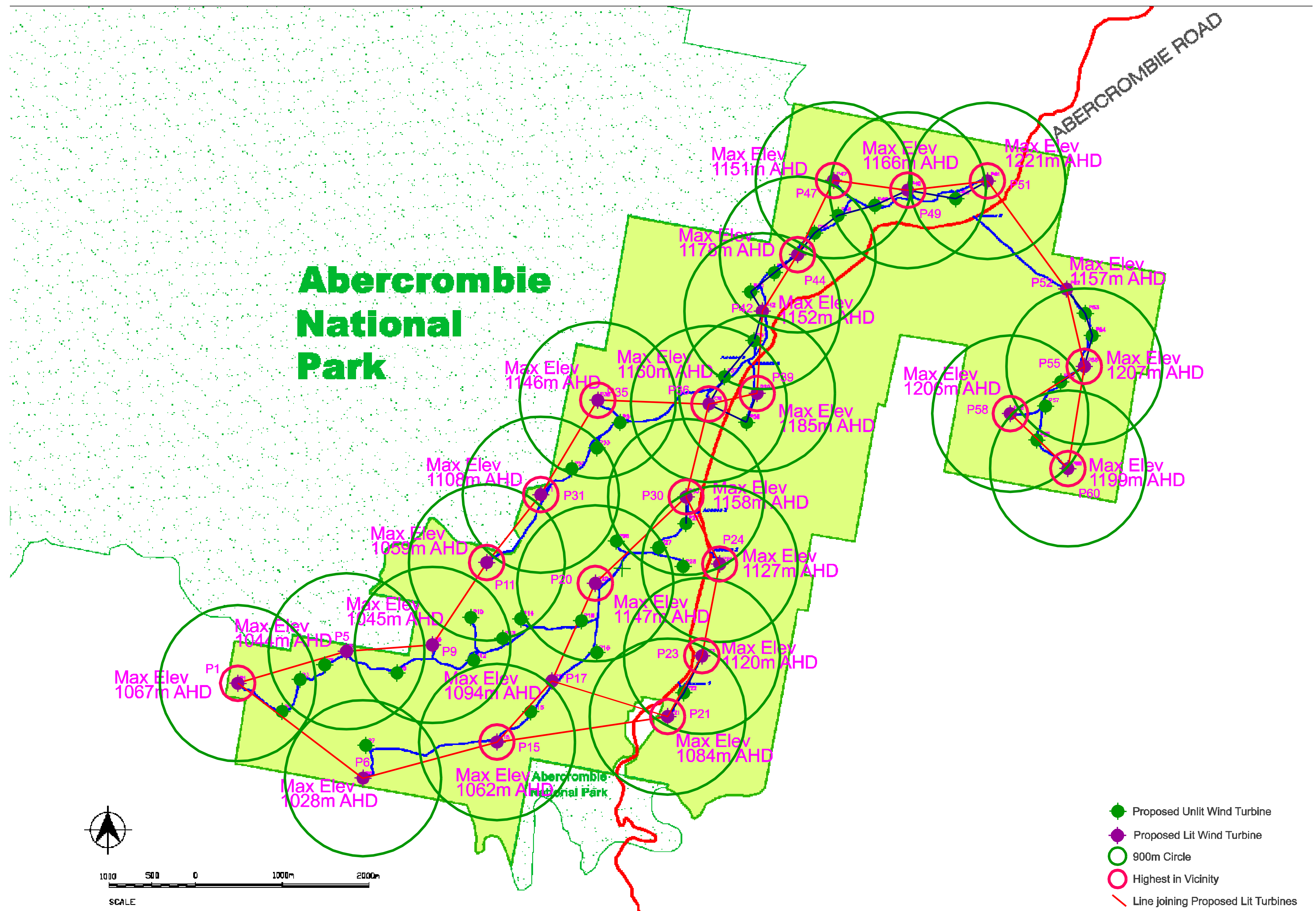


FIGURE 51 Indicative Turbine Lighting Layout

KEY FINDINGS & IMPACTS

Aviation Projects concluded that the proposed development does not impose any significant risk to normal flying operations, provided aircraft are operated in compliance with applicable regulatory and operational control requirements and with the application of good airmanship.

The proposed wind farm may result in an increased area that would potentially be restricted from aerial application of agricultural fertilisers and/or pesticides and fire fighting.

In relation to nearby aerodromes and aircraft landing areas, Bell ALA agricultural operation remains operational. The aeronautical assessment acknowledged that the project will most likely prevent fixed wing aerial agricultural operations on the wind farm site; however, Aviation Projects conclude that safe aerial application operations would be possible on properties neighbouring the proposed wind farm, subject to final turbine locations, and subject to a case-by-case assessment.

There are a number of larger aerodromes at distances greater than 30km from the site, none of which will be impacted. The project is not anticipated to have an adverse impact on obstacle limitation surfaces, PANS-OPS surfaces, radar interference, communication systems, defined air traffic routes, navigation aids, or electric or magnetic fields. For operating aircraft, in order to avoid the wind farm, aircraft will have to fly at a higher altitude or divert around it.

While aerial fire-fighting operations may potentially be restricted in the vicinity of the proposed wind farm, Aviation Projects note that there is still a valid ground-based means of fighting bushfires. Please see the Fire information board for more detail on this issue.

The need for obstacle lighting will depend on the final turbine model selected; if the turbine model ultimately selected has a blade tip height of less than 150 metres above the ground level there will be no requirement for the turbines to be lighted.

However, Aviation Projects determined that if the turbine model ultimately selected has a blade tip height in excess of 150 metres above ground level, then the turbines may be considered obstacles and selected turbines may require obstacle lighting. An aeronautical study of the requirement for obstacle lighting should be prepared once the final model is selected and the final turbine layout and design has been determined.

If lighting is required, lights are recommended for turbines 1, 5, 6, 9, 11, 15, 17, 20, 21, 23, 24, 30, 31, 35, 36, 39, 42, 44, 47, 49, 51, 52, 55, 58 and 60. This lighting design is subject to confirmation of the final turbine layout. Refer to Figure 51 – Indicative Turbine Lighting Layout. Note that turbines 2, 6, 7 and 11 have been removed from the proposal since preparation of the indicative lighting design. If an aeronautical study determines that obstacle lighting will be required, the final lighting design will reflect the final approved turbine layout. In any case, the number and location of lit turbines will not change significantly from the indicative layout at Figure 51.

KEY FINDINGS & IMPACTS

The report recommends that the following actions be implemented to mitigate the aeronautical impacts of the project:

- Final (approved) turbine coordinates and elevations should be provided to RAAF AIS.
- The rotor blades, nacelle and the supporting mast of the wind turbines should be painted white, off-white or a light grey colour.
- An aeronautical study to determine the requirement for obstacle lighting, in the form of a detailed and thorough risk assessment using internationally recognised standards, should be prepared once the final approved turbine layout and design turbine height are known. UFWA may consider other factors in its decision as to whether obstacle lights should be installed.
- If lighting is required, lights are recommended for turbines 1, 5, 6, 9, 11, 15, 17, 20, 21, 23, 24, 30, 31, 35, 36, 39, 42, 44, 47, 49, 51, 52, 55, 58 and 60.
- Obstacle lighting should be designed in accordance with the characteristics specified in ICAO Annex 14 Vol 1 Chapter 6 and MOS 139 Chapter 9, while minimising visual impact.

THE PROPOSED DEVELOPMENT DOES NOT IMPOSE ANY SIGNIFICANT RISK TO NORMAL FLYING OPERATIONS

- Consideration should be given to marking the wind monitoring towers according to the requirements set out in MOS 139 Section 8.10.
- Overhead transmission lines and/or supporting poles that are located where they could adversely affect aerial application operations should be marked in accordance with MOS 139 Section 8.10.
- Alternatively, consideration could be given to installing the AAAA endorsed power line marker reportedly developed in conjunction with Country Energy.

To minimise the visual impact on the environment, some shielding of the obstacle lights is recommended by Aviation Projects. Shielding may be provided to restrict the downward component of light to either, or both, of the following:

- such that no more than 5% of the nominal intensity is emitted at or below 5 degrees below horizontal; and
- such that no light is emitted at or below 10 degrees below horizontal.

All obstacle lights on a wind farm should be synchronised so that they flash simultaneously.

In the event the immediate neighbouring landowner(s) would require aerial agriculture spraying of their land adjacent to the wind farm and there is an increase in cost associated with the proximity to turbines, the proponent will cover the reasonable cost increase for the aerial agriculture activity. The landowner seeking compensation for the cost increase must demonstrate and justify this increase with previous records.



PHOTO View north east from Levels Road