

Gideon Roux
 GPG Renewable Development Engineer
 Suite 4, Level 3, 24 Marcus Clarke Street
 Canberra, ACT 2600

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By email: gideon.roux@globalpower-generation.com.au

Dear Gideon,

Hawkesdale Wind Farm proposed wind turbine modification

Further to a request from ERM Pty Ltd (email 14 January 2021), we have undertaken a review of the endorsed and proposed Hawkesdale Wind Farm wind turbines. We confirm that our review of potential visual impacts arising from revisions to the endorsed wind turbine design has included a review of the Endorsed Development Plans and proposed wind turbine illustrations/elevations as provided by ERM.

The proposed wind turbine amendments seek to make minor adjustments to the wind turbine tower height and rotor blade dimensions. The proposed amendments would include:

- a 112 metre tower height and
- rotor blade diameter up to 136 metres.

The endorsed wind turbine tip height at 180 metres would remain unchanged. An overlay of the endorsed and proposed wind turbine is illustrated in **Figure 1**.

Table 1 outlines the endorsed and proposed wind turbine design criteria.

Table 1: Endorsed and proposed wind turbine design criteria

	Tower height	Rotor diameter	Tip height
Endorsed wind turbine	110m	140m	180m
Proposed wind turbine	112m	136m	180m
Difference	+ 2m	- 4m	No change
Percentage difference	+ 1.8%	- 2.8%	No change

The endorsed wind turbine swept path of 15,386 m² would be reduced to 14,519 m² (a reduction of 867 m² and percentage difference of - 5.6%).

Considering the above design criteria, and as illustrated in the endorsed and proposed wind turbine overlay (refer **Figure 1**), it is highly unlikely that the proposed wind turbine will result in any degree of increased

visibility or additional visual impacts upon surrounding key significant view locations. We specifically note the unchanged wind turbine tip height and the proposed wind turbine reduction in swept path.

In accordance with your request, an assessment of potential visual effect has been prepared from the non-stakeholder dwellings HW171 adjoining Kings Road, HW172 adjoining Irving Street and HW197 (refer **Figures 2 3 and 4** below).

Non-stakeholder dwelling HW171 is located around 108m west of the Peshurst Warrnambool Road at the junction of Kings Road. The general field of view from the dwelling toward the wind turbines extends to around 103 degrees and is defined between wind turbine A3 around 3.4km to the north east and wind turbine A28 around 2.8km to the south south west of the dwelling. The closest wind turbine (A26) is located generally east of the dwelling at around 1.2km. There is mature tree cover to the east and north of the dwelling providing screening and filtering of views toward wind turbines within the project site. Whilst there are wind turbines proximate to the dwelling the number of visible wind turbines (or portions of visible wind turbines) is likely to be minimised by existing screening. The wind farm is considered to have a potential low to moderate visual effect on non-stakeholder dwelling HW171. The onsite substation will not be visible from the dwelling. We understand that dwelling HW171 would be eligible for off-site landscape visual mitigation works in accordance with Condition 5 (a) of the Planning Permit. Supplementary screen planting to the north and east of the dwelling may provide some additional degree of visual mitigation in the mid to long term.

Non-stakeholder dwelling HW172 is located around 770m east of the Peshurst Warrnambool Road and adjacent to Irving Street. The general field of view from the dwelling toward the wind turbines extends to around 86 degrees and is defined between wind turbine A3 around 1.9km to the north east and wind turbine A26 around 1.75km to the south south east of the dwelling. The closest wind turbine (A23) is located generally east of the dwelling at around 1.64km. Mature tree cover extends to the east and north east of the dwelling, across the Hawkesdale Golf Club providing partial screening and filtering of views toward wind turbines within the project site. Tree planting is also located south of the dwelling, along either side of the Irving Street corridor and Warwillah Road around 250m south of the dwelling. Whilst there are wind turbines proximate to the dwelling the number of visible wind turbines (or portions of visible wind turbines) would be partly minimised by tree screening; however, views from the dwelling and the curtilage may extend toward wind turbines extending above tree screening beyond the dwelling. The wind farm is considered to have a potential low to moderate visual effect on non-stakeholder dwelling HW172. The onsite substation will not be visible from the dwelling. We understand that dwelling HW172 would be eligible for off-site landscape visual mitigation works in accordance with Condition 5 (a) of the Planning Permit. Supplementary screen planting to the east and south of the dwelling may provide some additional degree of visual mitigation in the mid to long term.

Non-stakeholder dwelling HW197 is located around 510m south east of the Minjah Road. The general field of view from the dwelling toward the wind turbines extends to around 55 degrees and is defined between wind turbine A26 around 3.5km to the south and wind turbine A1 around 2.8km to the south east of the dwelling. The closest wind turbine (A3) is located generally south east of the dwelling at around 2km. Mature tree cover extends to the south and additional scattered tree cover south east of the dwelling, between the dwelling and De Grandis Road which provides partial screening and filtering of views toward wind turbines within the project site. A block of plantation trees is located to the east to south east of the dwelling around 1km east of the dwelling. Whilst there are wind turbines proximate to the dwelling the number of visible wind turbines (or portions of visible wind turbines) would be partly minimised by tree screening; however, views from the dwelling and the curtilage may extend toward wind turbines extending above tree screening beyond the dwelling. The wind farm is considered to have a potential low to moderate visual effect on non-stakeholder dwelling HW197. The onsite substation will not be visible from the dwelling. We understand that dwelling HW197 would be eligible for off-site landscape visual mitigation works in accordance with Condition 5 (a) of the Planning Permit. Supplementary screen planting to the south east of the dwelling may provide some additional degree of visual mitigation in the mid to long term.

We confirm that Andrew Homewood, Director and Principal Landscape Architect of Green Bean Design is an appropriately qualified expert in landscape and visual impact assessment. Andrew holds a Bachelor of Science (Dual Honours) Degree in Landscape Design and Archaeology and a Graduate Diploma in Landscape Management and has over 30 years' experience in landscape consulting. Andrew has prepared landscape and visual impact assessments for over Australian 40 renewable energy projects including wind farms across Victoria. Andrew has also been engaged to undertake wind farm peer reviews in Victoria and New South Wales.

If you require any further information in relation to this review, then please do not hesitate to contact us.

Yours sincerely,



Registered Landscape Architect, AILA, MEIANZ

Green Bean Design Pty Ltd

ABN: 86 603 575 702

Principal: Andrew Homewood Grad Dip LM, BSc (Dual Hons) Landscape Design and Archaeology, National Dip Hort.

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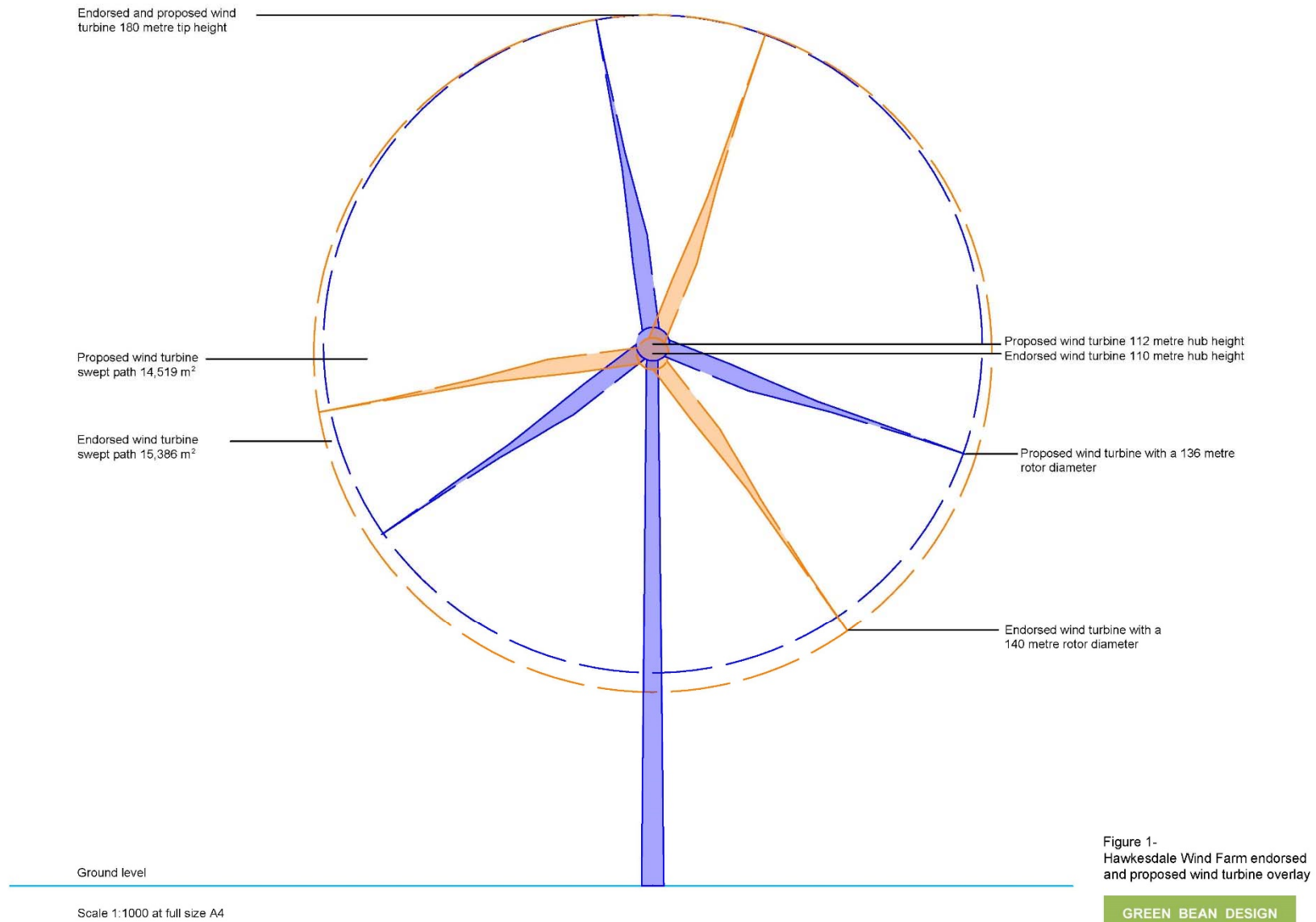


Figure 1-
Hawkesdale Wind Farm endorsed
and proposed wind turbine overlay



Figure 2 – Viewshed from non-stakeholder dwelling HW171



Figure 3 – Viewshed from non-stakeholder dwelling HW172



Figure 4 – Viewshed from non-stakeholder dwelling HW197

