
Stockyard Hill Wind Farm

***Landscape & Visual Assessment Review
Allan Wyatt – Expert Evidence Statement***

For: Stockyard Hill Wind Farm Pty Ltd

January 2017 | Final

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Allan Wyatt – Expert Evidence Statement**

Client	Stockyard Hill Wind Farm Pty Ltd
Project No	15023
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Signed	
Approved by	Allan Wyatt
Date	29 January 2017

XURBAN

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1. Introduction

Allan Wyatt undertook the Landscape and Visual Assessment of the Stockyard Hill Wind Farm for the original planning application whilst a partner at ERM.

ERM prepared the following reports pertaining to landscape and visual impacts as part of the assessment of the original planning permit application.

- Landscape and Visual Impact Assessment as part of the Planning Application Report dated 6th February 2009.
- Final Landscape and Visual Impact Assessment (LVA) dated October 2009 as part of the Planning Permit Application.
- Presentation of ‘Allan Wyatt - Expert Witness Statement’ dated 25 March 2010 and presentation of evidence at Panel hearing.

Panel findings

The Panel Report dated February 2009 recommended that a Planning Permit be issued for:

“Use and development of land for a Wind Energy Facility comprising a maximum of 157 wind turbines and associated buildings and works including access tracks, underground cabling, overhead 132kV powerlines, not more than five substations, temporary concrete batching plants, up to 8 permanent anemometers (monitoring masts), a maintenance facility, car parking and bicycle facilities, a business identification sign, removal of native vegetation and the creation or alteration of access to roads in a Road Zone Category 1.”

Furthermore, the Panel Report stipulated that “the wind energy facility must meet the following requirements:

- a) the wind energy facility must comprise no more than 157 wind turbines;*
- b) the overall maximum height of the wind turbines (to the tip of the rotor blade when vertical) must not exceed 132 metres above natural ground level;*
- c) wind turbines must be mounted on a tubular tower with a height of no greater than 80 metres;*
- d) each wind turbine is to have not more than three rotor blades, with each blade having a length of no greater than 52 metres;*
- d) no aviation safety lighting is permitted on any turbine.”*

Proposed amendment

Stockyard Hill Wind Farm Pty Ltd is proposing to amend the project and has submitted an Amendment Application which includes a number of changes to the existing planning permit PL-SP/05/0548-1, including:

- A rotor diameter of up to 142 metres (an increase from the permitted blade length of 52 metres / rotor diameter of up to 104 metres);
- A hub-height of up to 120 metres (an increase from the permitted hub-height of up to 80 metres);
- A ground clearance from the bottom of the blades to the ground level not less than 32 metres (not previously specified); and
- A total blade tip height up to 180 metres (an increase from the permitted height of up to 132 metres).

Whilst at XURBAN, I undertook a ‘Landscape & Visual Impact Assessment to accompany an Application to Amend Planning Permit No. PL-SP/05/0548’ which was prepared by ERM under my direction and dated 21 April 2016.

Any Additional Work Undertaken Since Submission of Amendment Application

Since the submission of the Amendment Application I prepared a letter of advice to Herbert Smith Freehills dated 12 August 2016 which in part found:

- *The level of impact brought about by the proposed amendment application and as shown in the photomontages would not alter the impact levels that was approved by Planning Permit No. PL-SP/05/0548. The proposed amendment does not alter the quantum of the impact, that is the impact would not change from low to medium, or from medium to high as a result of a change from 104 m diameter to 140 m diameter.*
- *Given this analysis of a much greater change, a further increase in the rotor diameter from 140 m to 142 m would be completely imperceptible.*
- *The proposed change in rotor diameter will not result in a change in height. The overall height will remain at maximum height of 180 m.*
- *The ERM assessment found that the proposed alteration in wind turbine diameter from 104 m to 140 m will result in a negligible alteration to the level of visual impact that was assessed and approved. The change in wind turbine rotor diameters from 140 m to 142 m will make no difference to this conclusion.*

Whilst preparing this Expert Witness Statement, I undertook a site visit and prepared an addition photomontage.

Expert Evidence – Practice Note

I acknowledge that I have read and complied with the Guide to Expert Evidence (dated April 2015). In compliance with this Guide, I provide the following information.

Name & address

Allan Wyatt – Landscape Architect
XURBAN
Suite 1103, 408 Lonsdale Street
Melbourne, Victoria, 3000.

Qualifications & experience

I am a registered Landscape Architect with over 30 years' experience and I have a Grad.Dip.L.D. from RMIT (1980) and I am a member of the Australian Institute of Landscape Architects.

I have given expert evidence on landscape, urban design and visual impact assessment at the former Administrative Appeals Tribunal (AAT) and VCAT and provided expert evidence before panel hearings in Victoria. I have also given expert evidence before Planning Appeal bodies in NSW, South Australia, Tasmania, Queensland and New Zealand.

A Curriculum Vitae is attached as Annexure A to this report.

Instructions

Allan Wyatt of XURBAN has been engaged, following the lodgement of the Amendment Application, by Herbert Smith Freehills (now White and Case) acting on behalf of Stockyard Hill Wind Farm Pty Ltd (SHWFPL) to prepare an Expert Witness Statement which comments on the proposed amendment and variation as well as responding to submissions which raise issues concerning landscape and / or visual impact. My instructions are attached to the Statement in Annexure B.

Facts, matters and assumptions

The facts, matters and assumptions, on which the opinions expressed in this report are based, include the turbine dimensions, locations and deletions as set out above. These were provided by SHWFPL.

I have received a copy of the submissions on the Amendment Application in relation to landscape and visual impact.

People assisting with this report

The original photomontages (2009) were prepared under my direction while I was a Partner at ERM. The photomontages of the amended proposal (2016) were prepared by XURBAN. No other person assisted in the preparation of this Expert Witness Statement.

The photomontage of the view from Chepstowe Pittong Road (NVP#4) was prepared by XURBAN based on photographs taken on a site visit on the 23rd January 2017.

Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Panel.

I adopt the exhibited reports as part of my evidence.

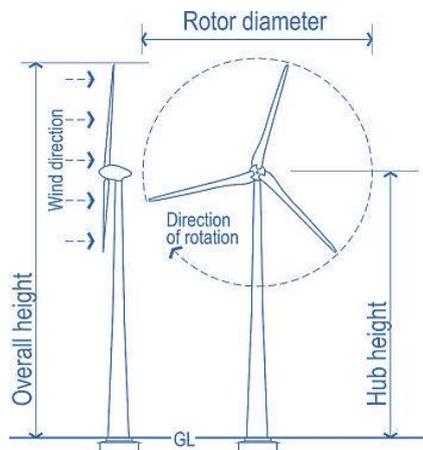
2. Proposed changes

The issued Planning Permit was for 157 wind turbines. The wind turbines were approved at 132 m high.

Changes to the wind turbine dimensions

As part of this permit amendment process the height of the wind turbines is proposed to be increased from 132 m to 180 m. The wind turbines will remain three bladed wind turbines similar in profile to the wind turbine depicted in **Figure 1**.

Figure 1 Wind turbine profile



The dimension of the wind turbines which were used in the original assessment and amended wind turbine heights and dimensions are listed in **Table 1**.

Table 1 Wind turbine dimensions

	Hub (m)	Rotor dia. (m)	Overall height (m)
Approved Layout	Up to 80	102	Up to 132
Amended Layout	Up to 120	142	Up to 180

The chord of the blades for a 142 m rotor, that is the width of the blade, is the same for blades for 80 m rotors and for 142 m rotors. This is simply because the blade chord is designed such that blades still fit under bridges and it is typically in the order of 4.2 m.

It is the impact of the increased height and width of the proposed wind turbines that will be assessed in more detail within this report.

Resultant changes to the viewshed

The LVA defined the viewshed as “The area that may potentially be visually affected by the wind turbines is called the viewshed. This viewshed may be broadly based on the characteristics of human vision” (LVA Section 4, The Viewshed, ERM, October 2009). The LVA then calculated a range of ‘Zones of Visual Impact’ based on a turbine height of 132 m.

Given that the overall height of the wind turbines at 132 m, the viewshed can be considered to extend to a distance at which the 132 m wind turbines will take up less than 5% of the full vertical field of view. Typically, the field of view of a person is 10° (vertical); therefore 0.5° is less than 5% of the vertical field of view. Based on these calculations, a wind turbine 132 m high viewed from a distance of 15.1 km will take up 5% of the vertical field of view (Refer Annexure A). However, to be conservative, this report will use 17 km as the extent of the viewshed.

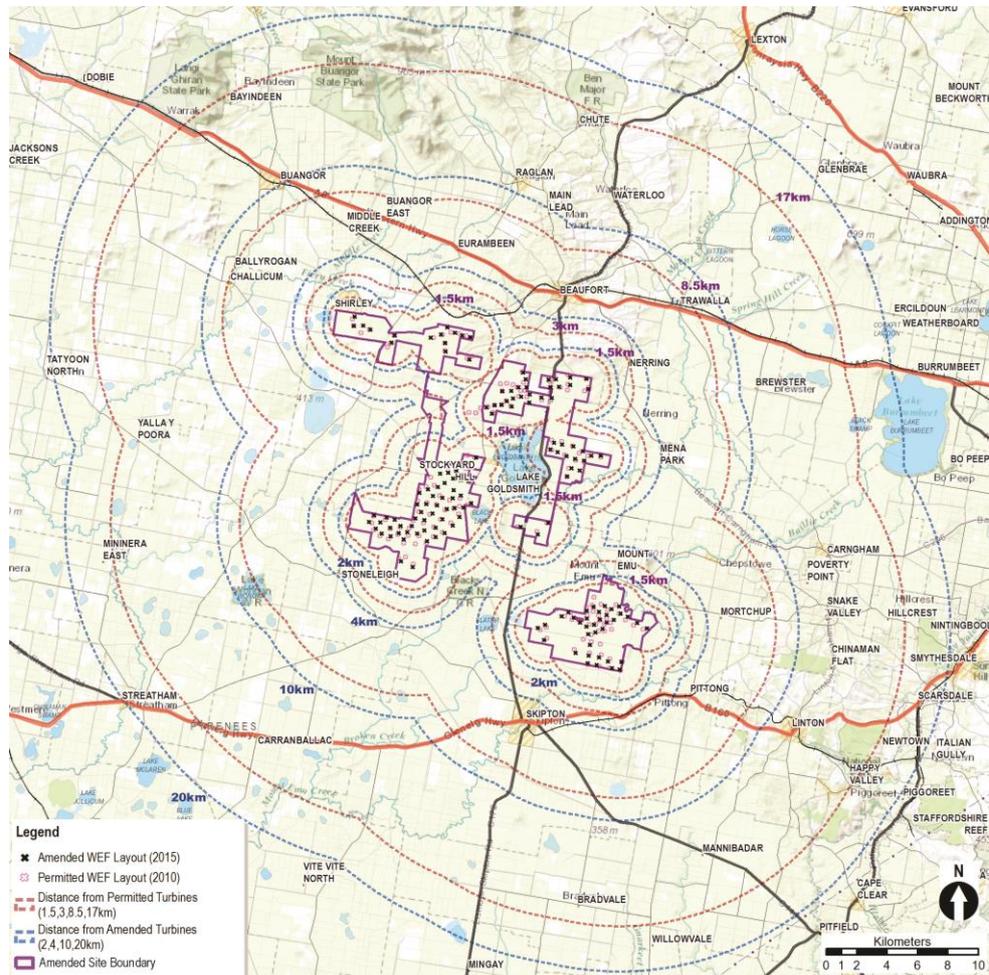
Given the proposed amendment in the overall height of the proposed wind turbines the zones of visual impact will alter. The comparative zones of visual influence based upon a 132 m wind turbine (approved) and a 180 m wind turbine are shown in **Table 2**.

Table 2 Zones of visual impact

Visual Impact	Approved layout (132m)	Amended layout (180m)
Visually insignificant	>17 km	>20 km
A very small element in the viewshed, which is difficult to discern and will be invisible in some lighting or weather circumstances.		
Potentially noticeable, but will not dominate the landscape.	8.5 - 17 km	10 - 20 km
The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer, however the wind turbines do not dominate the landscape.		
Potentially noticeable and can dominate the landscape.	3 – 8.5 km	4 - 10 km
The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer		
Highly visible and will usually dominate the landscape	1.5 - 3 km	2 - 4 km
The degree of visual intrusion will depend on the wind turbines’ placement within the landscape and factors such as foreground screening.		
Will be visually dominant in the landscape from most viewing locations.	<1.5 km	<2 km
Dominates the landscape in which they are sited.		

These changes to the initial viewshed are shown in Figure 2.

Figure 2 Comparative viewshed and ZVI of Permitted and Amended Layout (Source ERM, Amendment application, April 2016)



It was recognised in the LVA that based on a wind turbine height of 132 m, the major impact occurred to a distance of approximately 3 km, in the zones where the wind turbines will be highly visible and will usually dominate the landscape.

It was in this zone that the Panel recommended landscape mitigation be provided by Stockyard Hill Wind Farm Pty Ltd.

The proposal by Mr Wyatt to offer mitigation plantings to non-participant dwellings within 3km of turbines should the WEF proceed is supported.” (Panel report, August 2010, p135)

In the proposed amended layout, the increased height of the wind turbines, has increased these zones from 3 km to 4 km.

Recommendation

Given that the zone of visual influence has expanded, the Amendment Application to amend the Permit should extend the requirement for voluntary landscape mitigation (Condition 34) to residents within 4 km of the nearest wind turbine.

The proposed wording (bold = changes) is as follows:

OFF-SITE LANDSCAPING PLAN

*34. Within 6 months of the date of endorsement of the development plan under Condition 1, a program of voluntary landscape mitigation works to the satisfaction of the Minister for Planning must be made available to the owners of dwellings within **4 kilometres** of the nearest turbine.*

The offer to owners to participate in the program must remain available up until 12 months after the commissioning of the last wind turbine of the development or relevant stage.

If a program of voluntary landscape mitigation works is accepted by one or more owners, as part of that program, an off-site landscaping plan must be prepared in consultation with each landowner participating in the landscaping program for their property at the cost of the operator under this permit and to the satisfaction of the responsible authority.

The plan must:

- a) provide details of planting or other treatments that will be used to reduce the visual impact of the wind turbines at the landowner's dwelling including plant species to be used and the expected height and spread of plants at maturity;*
- b) include the maintenance of the landscaping for a period of two years; and*
- c) include a timetable for implementation of the landscaping works.*

When approved by the Minister the plans will be endorsed accordingly and will then form part of this permit.

The landscaping as shown on the endorsed off-site landscape plans must be completed to the satisfaction of the Minister for Planning within 12 months of the endorsement of the particular plan unless otherwise agreed by the landowner."

Changes to the Seen Area Analysis

As a result of the increased height of the proposed wind turbines there was a resultant change to the Seen Area Analysis. This is a minor change and a diagram showing both the Seen Area Analysis for a 132 m wind turbine and a 180 m wind turbine is included within the Amendment Application report (ERM, Figures 6.1 and 6.2). A further figure (Figure 6.3) shows the areas that have changed.

Figure 2 highlights that the change to the Seen Area Analysis between the permitted and amended layouts, as well as the change, as a result of the proposed amended height, is minimal.

Changes to the powerlines

This amendment only relates to the WEF component, not the grid connection.

Overhead power lines were permitted as part of the Permit. Some overhead power lines have been removed. It is also proposed to remove one permitted substation.

As these changes reduce the extent of electrical infrastructure, there may, from some viewpoints, be a slight diminution in the level of visual impact. However, in the context of the overall WEF, this diminution will not be significant and therefore the landscape and visual impacts of the reduced powerlines were not re-assessed within the Amendment Application nor within this Expert Witness Statement.

3. Planning policy implications

Since the initial Planning Approval, the following studies / changes have been released;

- Wind Farm Guidelines for Victoria, amended January 2016;
- The South West Victoria Landscape Assessment Study – Landscape Character of South West Victoria (DPCD & Planisphere, June 2013), (SWVLAS); and
- Kanawinka Geopark.

The implications of these studies are discussed in the following sections.

Wind Farm Guidelines for Victoria

The 2009 version of the Guidelines was used in the original assessment.

The Victorian Guidelines (Amended in January 2016) states that:

“Wind energy facilities will have a degree of impact on the landscape.

A responsible authority needs to determine whether or not the visual impact of a wind energy facility in the landscape is acceptable. In doing so, they should consider planning scheme objectives for the landscape, including whether the land is subject to an Environmental Significance Overlay, Vegetation Protection Overlay, Significant Landscape Overlay or a relevant strategic study that is part of the relevant planning scheme.” (Page 32).

The current Guidelines (2016) recognise other strategic landscape studies referred to in planning schemes. These were not included within the 2009 Guidelines. The relevant strategic landscape studies are discussed below.

The Wind Farm Guidelines do not specifically advise on the methodology for assessing an amendment or variation. However, in order to assess the change in the visual impact of the Amended Layout in comparison to the Approved layout, a comparative assessment of the visual impact can be undertaken by:

- preparing comparative photomontages of Approved and Amended Layouts to illustrate the change and discuss the associated impacts; and
- reviewing public and residential viewpoints discussed within the LVA based on assessment criteria and scale of effects.

This comparative assessment has been undertaken as part of the application for the amendment and is discussed further in Chapter 5 of this expert witness report.

The South West Victoria Landscape Assessment Study

The South West Victoria Landscape Assessment Study (SWVLAS) is not a reference document as it is not referenced in the Pyrenees Planning Scheme. However, the Guidelines acknowledge that a number of landscape studies have been completed.

A responsible authority and proponents must consider (as relevant) Clause 12.04 (Significant environments and landscapes) of the SPPF.

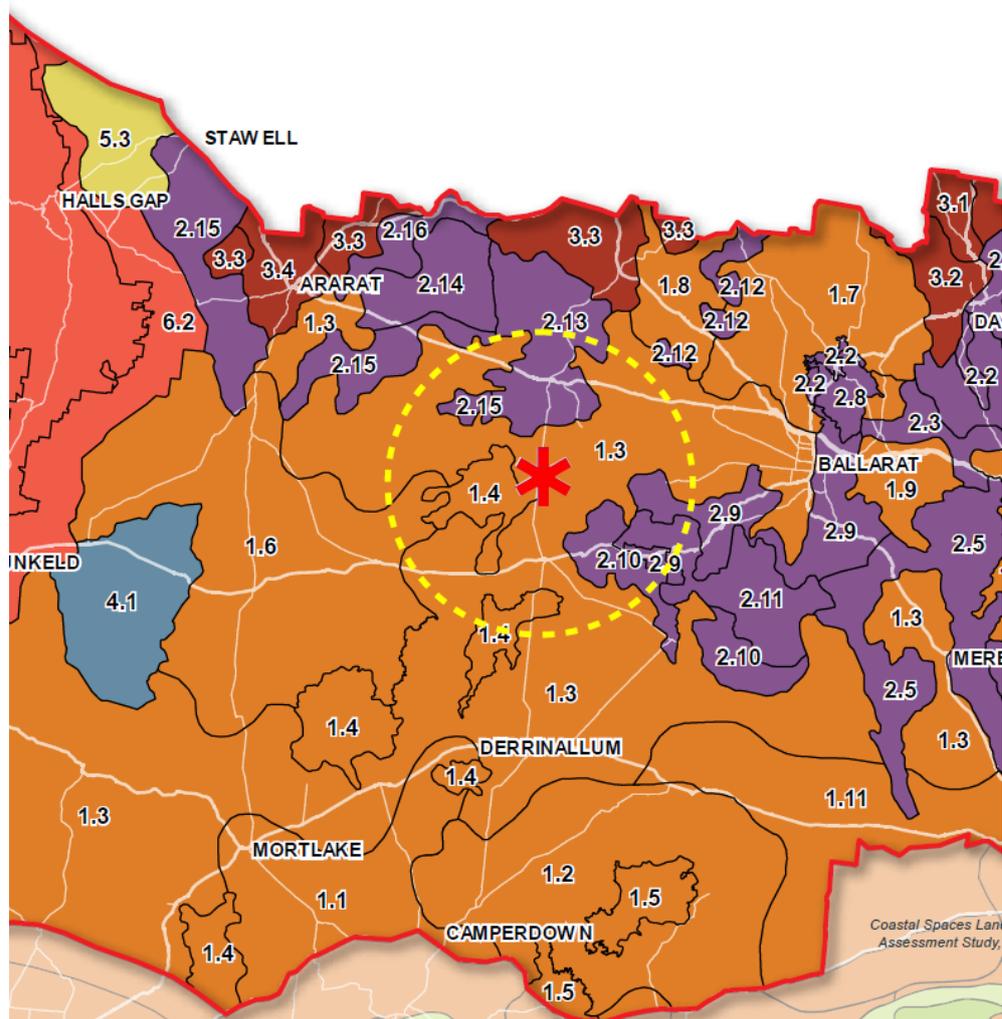
In addition, strategic landscape studies have been completed for a number of regions across Victoria, including the Great Ocean Road Region Landscape Assessment Study (2004) and the Coastal Spaces Landscape Assessment Study (2006). These studies identify visually significant landscapes and provide appropriate recommendations for improved planning scheme guidance. Clause 12.02 (Coastal areas) of the SPPF requires these studies to be considered by a decision maker.

In planning schemes relevant local strategic studies may also be referenced in the Local Planning Policy Framework, and significant landscapes may be recognised in overlays, such as the Environmental Significance Overlay (the Guidelines, section 2.2.2)

The SWVLAS recognises and values the geological formations that occur within the landscape of the Western Volcanic Plains and therefore increasing the landscaping sensitivity. The SWVLAS recognises the change that this landscape has undergone since European settlement and the anticipated increased level of development suggesting lower landscape sensitivity.

The Stockyard Hill Wind Farm is within the Western Volcanic Plains region (Character Type 1) as identified within the SWVLAS. The location of the wind farm (designated with an asterisk) and the surrounding character types are shown in Figure 3.

Figure 3 Wind farm location within SWVLAS



Character Type 1 – Western Volcanic Plain

The proposed wind farm and much of its viewshed is located within the Western Volcanic Plain Landscape Character Type and is described as follows:

The fertility and cleared nature of the Western Volcanic Plains were ideal for grazing. The region became very wealthy and was dominated by large pastoral properties. These large properties often had extensive exotic gardens as the new settlers aimed to recreate their familiar British landscapes.

The landscape that we see today represents a hybrid of generally undisturbed underlying topography with patchwork remnants of the natural landscape which are protected by national and state parks. Intertwined with this lies the heavily modified landscape of exotic shelterbelts, dry stone walls, farming, infrastructure, rural development and wind farms.

The Western Volcanic Plains has the following sensitivity to change:

The volcanic plain is highly sensitive to change, the flat nature of the plain offers long range views and thus creates a landscape on which there is 'nowhere to hide'. There is limited capacity for this character type to absorb development without it becoming prominent in the viewed landscape.

However, balanced against this is the degree to which this landscape has been modified, shaped by man over generations.

This would seem to suggest, on balance (as underlined above), that the volcanic plain has a reduced landscape sensitivity which is supported by the landscape changes that are anticipated for this landscape character type which are:

- *The Volcanic Plain forms Australia's First UNESCO Global Geopark and as such it is anticipated that there will be an increase in tourism within this character type.*
- *There is an increasing awareness from farmers as to the value of biodiversity, setting aside existing vegetation or native revegetation to create linked habitat corridors may change the aesthetics of this vast cleared plain.*
- *This area is subject to a number of wind farm developments and proposals.*
- *The State Governments planning zones review may lead to an increase in tourism, retail and accommodation uses in rural areas, a potential increase in rural living density and a potential increase in smaller lots and dwellings in the farming zone. (SWLAS, The Western Volcanic Plain, p8).*

The first two dot points may point to an increase in landscape sensitivity, whilst the last two dot points would seem to suggest a lower landscape sensitivity for wind farms as these are already anticipated within this Draft SWLAS as are an increased level of development.

Two character areas fall within the Western Volcanic Plain are:

- *Character area 1.3 - Volcanic agricultural. Key features identified are:*
 - *"Open pastoral landscape with long distance views; Exotic shelterbelts and Stands of remnant vegetation.*
- *Character area 1.4 - Stony rises and lava flows. Key features identified are:*
 - *"Geology and geological features, Starkness and rough texture of the landscape, Exposed rocky outcrops and sinkholes and Textural contrast with adjacent paddocks.*

Most significant features within the Western Volcanic Plain are geological formations that remain intact even after extensive modifications such as farming and development of infrastructure such as power lines, wind farms and the built environment.

Character Type 2 – The Uplands

The Uplands has been described to have the following sensitivity to change:

The undulating to hilly topography and vegetation cover of the area allows development to be absorbed without undue visual interference. Development on hillsides or ridges however, has the potential to be highly visible.

Anticipated landscape change:

- *A number of wind farm applications have been proposed and approved which will dramatically alter the appearance of the landscape;*
- *The State Governments planning zones review may lead to an increase in tourism, retail and accommodation uses in rural areas, a potential increase in rural living density and a potential increase in smaller lots and dwellings in the farming zone.*

The four character areas that fall within the Uplands Character Type are:

- *Character area 2.9 – Rural Living.* Key features identified are:
 - *“area is highly modified with abundant exotic vegetation, built development and managed paddocks”.*
 - Mount Buninyong is a key feature.
 - The Glenelg Highway is a main viewing corridor within the viewshed.
- *Character area 2.10 – Valley views.* Key features identified are
 - *“A vegetated horizon line is common when adjacent to State Parks or reserves, and the distinctive humped shape of Mount Emu is visible on the horizon to the north of the area. Development is fairly sparse and consists of modest farm houses and associated outbuildings”*
- *Character area 2.13 – Eastern Pyrenees.* Key features identified are
 - *“A combination of cleared paddocks, forested areas, cropping and plantations enhance this patchwork effect.”*
 - *Numerous State Forests, Mount Lonarch and views towards Mount Cole are key features.*
 - *Western Highway and Stockyard Hill Road are the main viewing corridors within the viewshed.*
- *Character area 2.15 – Upland Interface.* Key features identified are:
 - *The plain, agricultural fields with rounded undulations that rise up to form low ranges, such as the Black Range to the west of Ararat, and the rounded ridgeline south of Mount Langi Ghiran, which is dominated by the Chalicum Hills Wind Farm.*
 - Chalicum Hills Wind Farm.

The South West Landscape Assessment (SWLAS) has classified the landscape within the viewshed, but acknowledges the presence of wind turbines in this man-modified landscape. The LVA discussed four landscape units that are broadly consistent with the classification of landscape character areas identified in the SWLAS.

Whilst the SWLAS does not assess landscape sensitivity per se, the descriptions quoted above do not imply a higher degree of landscape sensitivity to those areas within the viewshed than that attributed within the LVA. The SWLAS recognises the changes brought about by farming and the landscape sensitivity of the Flat Farmland Landscape Unit was assessed as low within the LVA (ERM, LVA, Section 5.4, p20). The Hilly Farmland Landscape Unit and the Forested Hills Landscape Unit were given a medium to high landscape sensitivity in the initial assessment (ERM, LVA, p24).

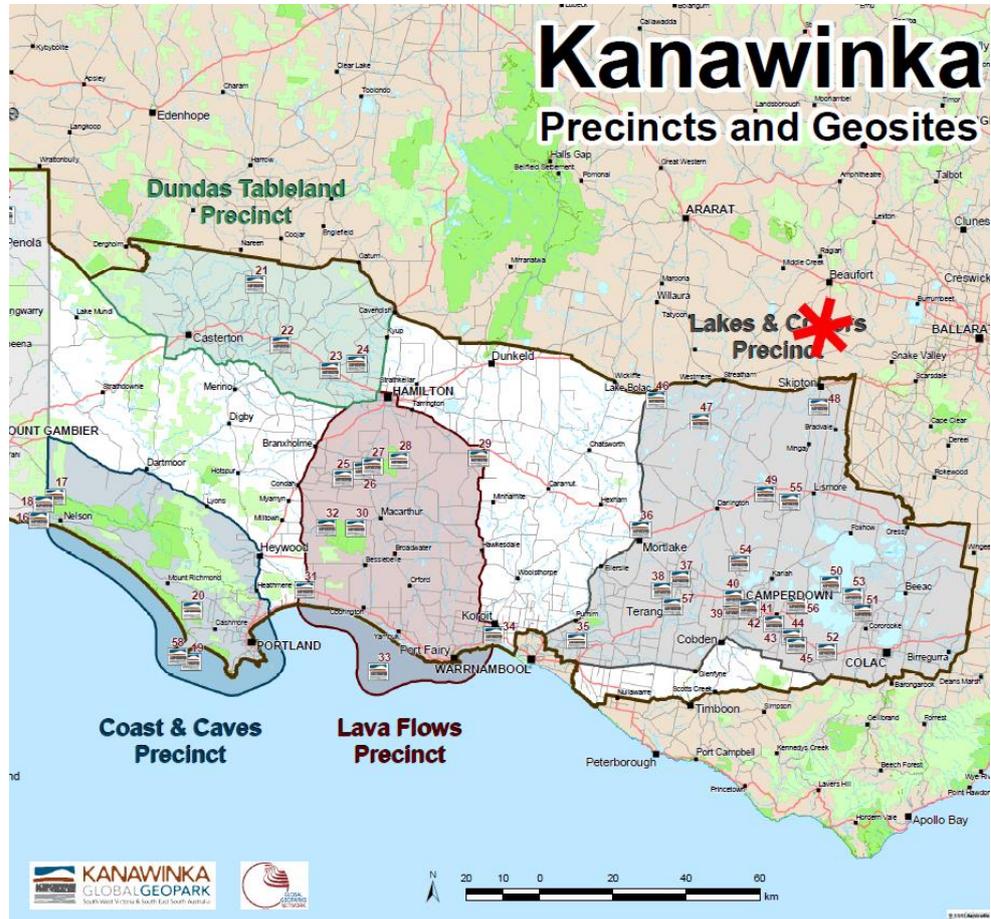
As well the SWLAS does not identify any views of state or regional significance located within the viewshed of the Stockyard Hill Wind Farm.

Therefore any evaluation of the change in visual impact between the approved turbines at 132 m and the proposed wind turbines at 180 m will not change as a result of the SWLAS.

Kanawinka Geopark

The Stockyard Wind Farm is outside the area that was included within the Kanawinka Geo Park.

Figure 4 Kanawinka Geo Park



Therefore, the Kanawinka Geo Park has no impact on the previous LVA which was considered by the Panel, nor this proposed amendment, nor is it referenced in the Planning Scheme.

4. Visual impact methodology

The assessment methodology used to determine the level of visual impact has been slightly modified and refined since the initial LVA was prepared. The current methodology is set out below.

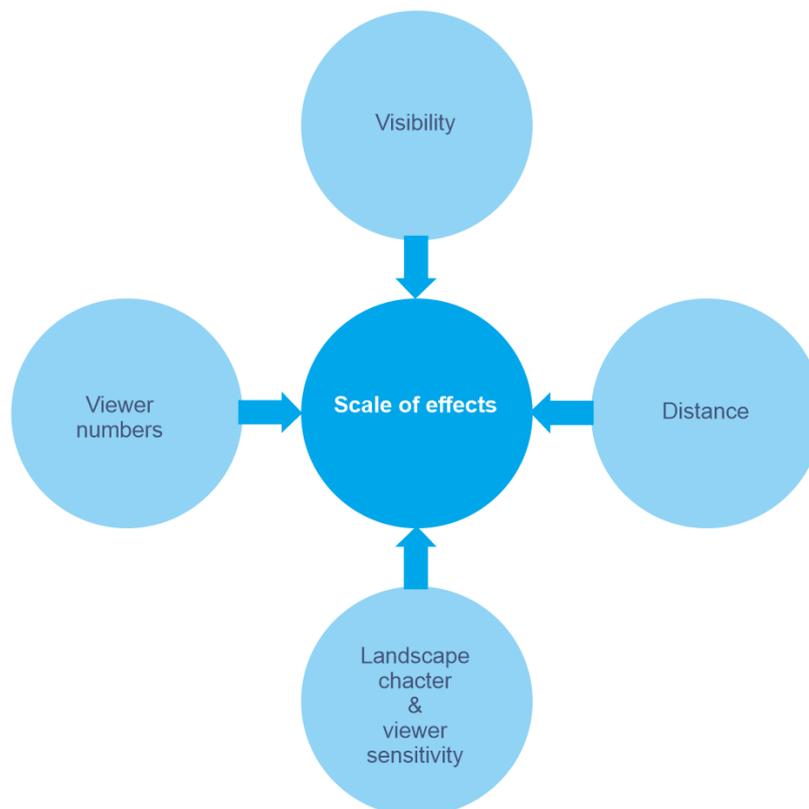
The criteria for assessing visual impact are different for publicly accessible and private residential viewpoints.

Assessment criteria – publicly accessible viewpoints

In assessing the visual impact of a wind farm from the public domain the assessment of visual impact is based on four criteria. The resultant scale of effects ranges from Negligible to High and also recognises that a visual change may have a Positive or a Nil impact.

The assessment of the level of visual impact is based on four criteria, namely visibility, distance, landscape character & viewer sensitivity and the number of viewers.

Figure 5 Assessing the visual impact



- **Visibility:** The visibility of a wind farm can be affected by intervening topography, vegetation and buildings.
- **Distance:** The distance of the viewer from the proposed nearest wind turbine. The level of visual impact decreases as distance increases.
- **Landscape character and viewer sensitivity:** The character of the surrounding landscape, both around the site and adjacent to the viewing location, must be considered. Generally, a man-modified landscape is considered of low sensitivity and a pristine landscape is considered highly sensitive. A residential townscape would be given a higher sensitivity than an industrial landscape.

- Number of viewers: The level of visual impact decreases where there are fewer people able to view the wind farm. Alternatively, the level of visual impact increases where views are from a recognised vantage point. Viewer numbers from a recognised vantage point would be rated as high.

These four criteria need to be considered in the assessment of each viewpoint. However, the ratings of each criterion are not numerically based and cannot be simply added together and averaged to arrive at an overall rating.

Scale of Effects

The scale of effects, for rating the overall visual impact of the proposed wind farm from publicly accessible viewpoints, could range from no impact (**nil**) to a potentially **positive** visual impact. Negative visual impacts are graded from **negligible** to **high**.

Nil – there is no perceptible visual change.

Positive – is a visual change that improves the outlook or view.

Negligible – minute level of effect that is barely discernible over ordinary day-to-day effects. The assessment of a “negligible” level of visual impact is usually based on distance. That is, the proposed wind farm would be at such a distance that, when visible in good weather, the wind turbines would be a minute element in the view within a man-modified landscape or will be predominantly screened by intervening topography and vegetation.

Low – visual impacts that are noticeable but that will not cause any significant adverse impacts. The assessment of a “low” level of visual impact can be derived if the rating of any one of four criteria, that is visibility, distance, viewer numbers and landscape sensitivity, is assessed as low.

Therefore, a wind farm in a landscape which is man-modified and which already contains many buildings or other vertical elements may be rated as a low level of visual impact. Similarly, if the distance from which it is viewed means that its scale is similar to other elements in the landscape it would also be assessed as a low level of visual impact.

Medium – visual impact occurs when significant effects may be able to be mitigated / remedied. The assessment of a “medium” visual impact will depend upon all four-assessment criteria being assessed as higher than “low.”

High or unacceptable adverse effect – extensive adverse effects that cannot be avoided, remedied or mitigated. The assessment of a “high or unacceptable adverse effect” from a publicly accessible viewpoint requires the assessment of all three elements to be high. For example, a highly sensitive landscape, viewed by many people, with the proposed wind farm in close proximity and largely visible would lead to an assessment of an unacceptable adverse effect.

Residential viewpoints

The assessment of visual impact from residential properties is slightly different to one undertaken from publicly accessible viewpoints. An assessment of viewer numbers is not applicable and the landscape sensitivity is always rated as “high,” as it must be recognised that people feel most strongly about the view from their house and from their outdoor living spaces.

The visibility of a wind farm and the distance between the residential location and the development are the two criteria that vary within an assessment of the visual impact from a residential property. Viewer sensitivity is always rated as “high”.

This methodology is similar to that used within the LVA in 2009. There are no changes to the assessment of the amendment as a result of the evolution of the methodology over the past seven years.

Photomontages

Photomontages can assist in the assessment by illustrating the scale and location of the proposed wind turbines.

This assessment is in part based on photomontages which typically show the changes in a 60° horizontal field of view. This horizontal field of view represents the central cone of view in which symbol recognition and colour discrimination can occur.

The vertical field of view is between $10^\circ - 15^\circ$. The field of view of human vision is shown in **Figure 6**.

Figure 6

Horizontal and Vertical field of view

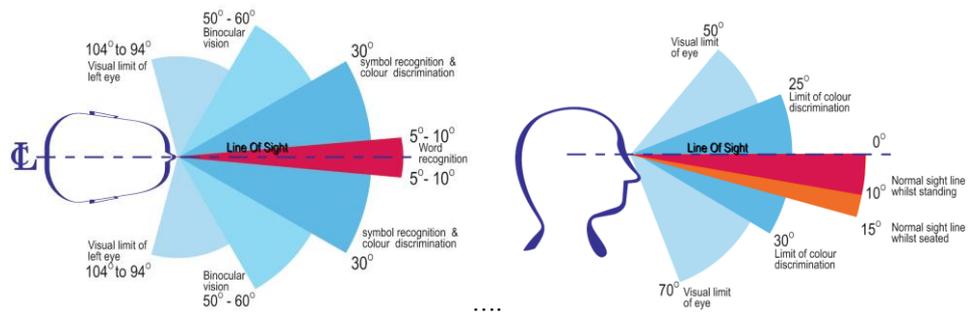


Figure 6 is based upon a diagram within 'Human Dimension and Interior Space', Julius Panero & Martin Zelnik, Witney Library of Design, 1979. Similar data can be found in the more recent publication entitled 'The Measure of Man and Woman, Revised Edition', Henry Dreyfuss Associates, John Wiley & Sons, 2012.

In landscapes it is the horizontal field of view that is important if the photomontage images are to represent the change in the landscape.

The photomontages are appended to this report (Refer Annexure B for A3 size photomontages).

It is recognised that the small photographs and the A3 photomontages included within this assessment whilst technically accurate, are not perceptually accurate. The A3 images, which are appended to this report (Annex B), are clearer than the smaller images in the text, as these are larger.

A0 photomontages have been prepared and will be made available to the panel and these provide a clear indication of the actual visual impact – these are perceptually accurate.

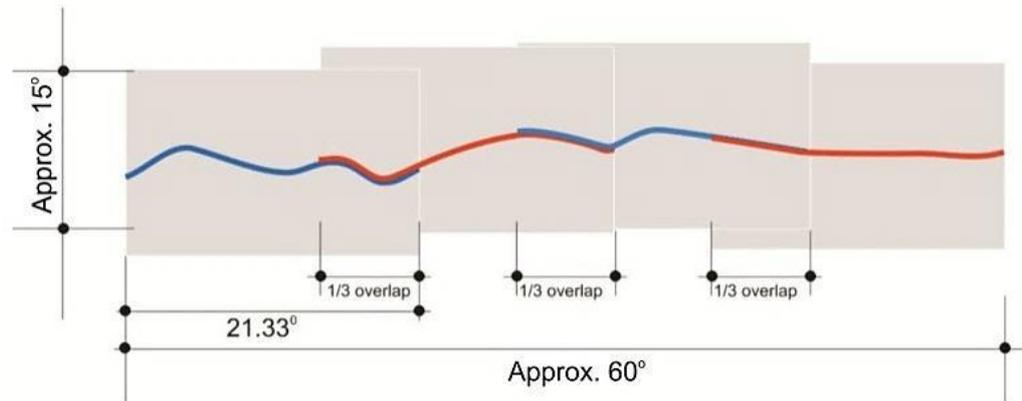
Camera data

A 70 mm lens on a Nikon D3 digital camera has a picture angle of 26.5° and a horizontal angle of view of approximately 21.3° .

http://nikonimaging.com/global/products/lens/af/micro/af_micro60_mmf_28d/.

The camera is held at eye level, approximately 1.65 m above ground level. Four photographs overlapped 1/3 to create an image approximately the same as the central cone of view of human vision, i.e. $50-70^{\circ}$ horizontal and 15° vertical. **Figure 7** demonstrates the overlap of the photographs which are used to create the panorama in the photomontages.

Figure 7 Photomontage construction



Computer modelling and the wireframe model

Cadastral data as well as the proposed development are modelled within a computer program (3D Max). A virtual camera is set up in the model at the GPS coordinates for each of the photographs that are being used within the panorama.

The digital model or wireframe view is then overlaid on the photographic panorama. Known points within survey information such as topography, building locations or other infrastructure are registered into the base photographs (or other predetermined points). For technical accuracy, these points must align. This verifies the location and apparent height and scale of the proposed wind turbines.

After the background reference points have been aligned, the wireframe is removed, leaving only the wind turbines, which is rendered, either to match the lighting conditions at the time the photographs were taken or, more typically, to maximise the wind turbine's visibility by increasing the contrast against the background sky.

GPS Coordinates

GPS coordinates were also taken based on a separate hand held GPS and the locations from which the photographs were taken is also marked on a digital map within Google Earth Pro.

5. Comparative assessment

In order to undertake comparative assessment of the approved layout as against the amended layout, photomontages were prepared that were representative of the range of views available and provide a reasonable level of understanding of the effects of increased wind turbine heights for a viewer.

Initially three locations were selected within the public domain and a photomontage was prepared showing both the full extent of the panoramic views as well as sheets which showed the changes in a 60° field of view.

These three photomontages were prepared by ERM under my direction in January 2016.

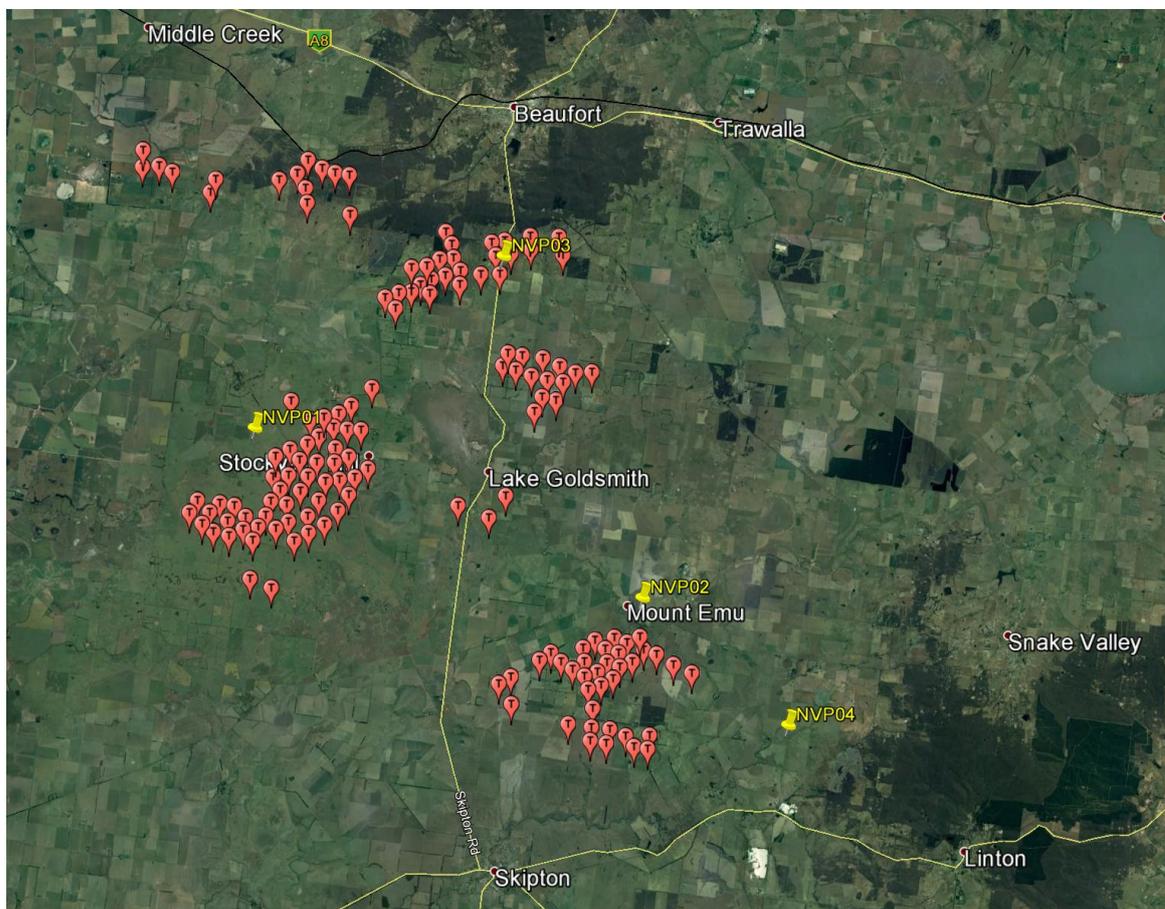
- NVP01 – Beaufort-Carranballac Road 0.2 km to nearest wind turbine
- NVP02 – Streathan-Carngham Road 1.8 km to nearest wind turbine
- NVP03 – Skipton Road 0.3 km to nearest wind turbine

Whilst preparing this report, I also revisited the site on the 23rd January 2017 and prepared a fourth photomontage.

- NVP04 – Chepstowe Pittong Road 3.9 km to nearest wind turbine

Viewpoint NVP04 was prepared to show the difference in visual impact of the permitted turbines and the proposed amended turbines when viewed from the distance it is proposed to offer landscape mitigation to residential properties.

Figure 8 Photomontage viewpoint locations



Comparative photomontages have been prepared from these selected viewpoints. An A3 version of the comparative photomontages prepared from these viewpoint locations is included in Annex A of this report.

A comparative assessment of the photomontages indicates a negligible increase in the visual impact of the wind turbines from the viewpoints. There will be minimal alteration to the view of the approved wind turbines given the increase in the overall height of the turbines being imperceptible to any viewer. The overall assessment of the visual impacts remains consistent with those discussed in the LVA.

NVP01 – Beaufort-Carranballac Road

This location along the Beaufort-Carranballac Road is approximately 1.4 km from the nearest wind turbine (T99). The impact of the proposed amendment to the heights and diameter of the wind turbines is shown in **Figure 9**.

Figure 9 Photomontage comparison of NVP01 (Source ERM)



The change in height is discernible between the two images in **Figure 9**. The approval was for wind turbines within this landscape. Although there is a perceptible change when comparing the photomontages between the approved and the amended application, both still show wind turbines in the landscape and the closest is still approximately 1.4 km from this viewpoint. The change is one of scale not of character nor, without the side by side comparison, one of impact. The change in visual impact is **negligible**.

The proposed change in height does not alter the significance or the level of visual impact that was assessed by the LVA and the Panel.

NVP02 – Streatham - Carngham Road

This location along the Streatham-Carngham Road is approximately 1.7 km from the nearest wind turbine (T192). The impact of the proposed amendment to the heights and diameter of the wind turbines is shown in **Figure 10**.

Figure 10 Photomontage comparison of NVP02 (Source ERM)



The impact shown on the photomontages is very similar to what was considered by the Panel and presented in the LVA. There is no significant alteration in the level of visual impact between the approved wind turbines and the proposed wind turbines.

The change in visual impact is **negligible**.

NVP03 – Skipton Road

This location along Skipton Road is approximately 200 m from the nearest wind turbine (T41). The impact of the proposed amendment to the heights and diameter of the wind turbines is shown in both a panoramic view and a series of 60° degree views in the photomontages appended to this report. **Figure 11** shows a view to the closest wind turbine.

Figure 11 Photomontage comparison of NVP03 (Source ERM)



The impact shown on the photomontages is very similar to what was considered by the Panel and presented in the LVA for locations of a similar distance. At a distance of 200 m the wind turbines at 132 m high or at 180 m high are a dominant element in the landscape.

There is a noticeable difference in the height between the two photomontages, which is expected especially at this close distance. However, the change in visual impact is not proportional to the change in height. The nearest wind turbine in both photomontages is a dominant element in the landscape and the quantum of visual impact does not change from that assessed in the original LVA and considered by the panel to be acceptable in this landscape.

There is no significant alteration in the level of visual impact between the approved wind turbines and the proposed wind turbines.

The change in visual impact is **negligible**.

NVP04 – Chepstowe Pittong Road

This location along the Chepstowe Pittong Road is approximately 4,000 m from the nearest wind turbine (T214) in the permitted layout and approximately 3,900 m from the nearest wind turbine (V7) in the amended layout.

The impact of the proposed amendment to the heights and diameter of the wind turbines is shown in both a panoramic view and a series of 60° degree views in the photomontages appended to this report. **Figure 12** shows a view to the closest wind turbine at bearing 295°.

Figure 12 Photomontage comparison of NVP04



There is no significant alteration in the level of visual impact between the approved wind turbines and the proposed wind turbines.

The change in visual impact is **negligible**.

RVP14 – Mawallok

The changed impact from Mawallok was assessed as part of the “*Landscape and Visual Impact Assessment to accompany an Application to Amend Planning Permit No. PL-SP/05/0548*” and this re-assessment showed a wireframe view of the permitted WEF as well as a wireframe view of the proposed amended WEF. These images are re-produced below.

Figure 13 Wireframe of permitted WEF (Source ERM)



Figure 14 Wireframe of amended WEF (Source ERM)



This assessment concluded that:

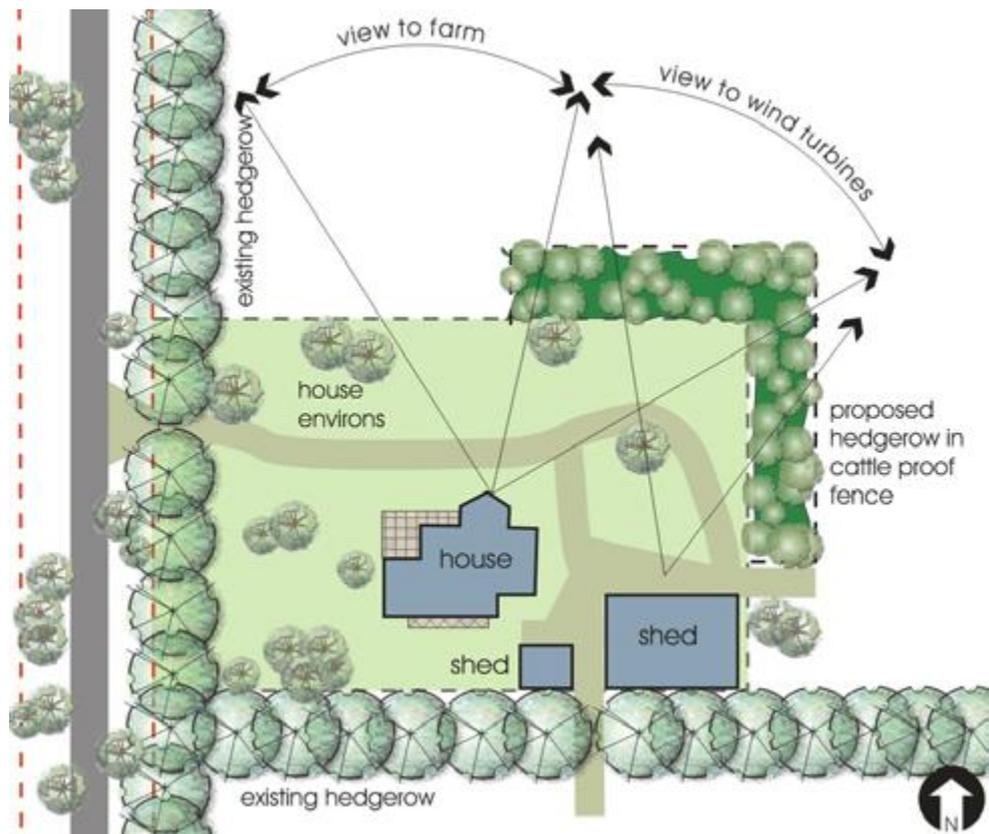
The wireframe prepared shows that all turbines to the north are not visible, including the permitted WEF and the amended WEF. Therefore, the change in visual impact from “Mawallok” is assessed as Nil.

6. Landscape mitigation

The existing permit requires landscape mitigation to be offered to land owners with houses within 3 km of the nearest wind turbine, where a wind turbine is visible. This distance is recommended to be increased to 4 km as a result of the higher wind turbines proposed as part of this amendment.

An example of landscape mitigation measures was given in the LVA and this is replicated in **Figure 15**.

Figure 15 Potential landscape mitigation measures (Source: ERM, LVA, Figure 11.47)



Of potential concern is the effectiveness of the proposed landscaping given the increased height of the wind turbines. The question that needs to be addressed is whether the proposed landscaping can be effective with wind turbines that are proposed to be 180 m high?

Figure 16 shows the sightlines calculated for a wind turbine at 132 m in height and a wind turbine 180 m in height.

Figure 16 Sight lines to a wind turbine at 2 km



Figure 16 demonstrates that the angle of view to a wind turbine of 132 m compared to the angle of view for a turbine that is 180 m high is similar at a distance of 2 km. The viewing angle increases from 3.79° to 5.14° , an increase of slightly more than 1° in the vertical field of view.

This slight increase in viewing angle does not impact significantly on the effective height of vegetation that is required to screen or filter views to the proposed wind turbines.

Figure 17 Vegetation heights to achieve effective screening

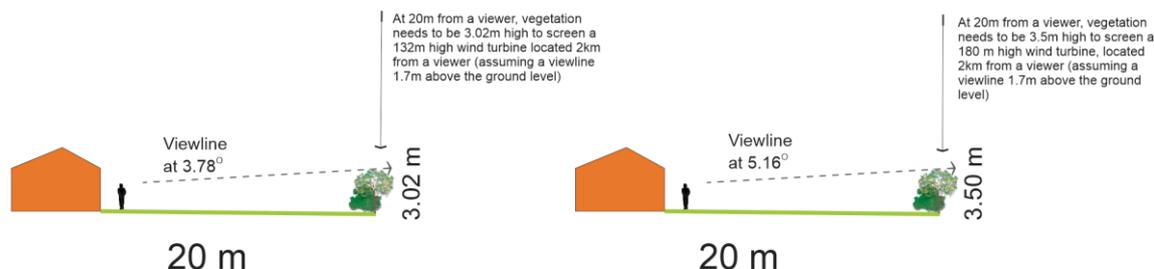


Figure 17 shows planting some 20 m from a viewing location or house. A distance of 20 m was considered adequate for fire setback and to ensure that the house perimeter was uncluttered.

The height of the planting needs to reach 3 m in height to screen a 132 m high wind turbine for a viewer with an eye level approximately 1.7 m above the ground line. This vegetative height needs to be 3.5 m to screen a 180 m high wind turbine.

Planting would be more effective if planted closer to the house. If owners wished planting closer to the house, then this would be more effective and conversely if planting was located further away, then it would take longer to reach the greater height required to screen the view to wind turbines. The difference in height of the vegetation to achieve screening is not dissimilar, whether the vegetation is screening a 132 m high wind turbine or a 180 m high wind turbine.

Findings based on this analysis

The offer of landscape mitigation to residences up to 4 km from the nearest wind turbine is an effective solution to screening wind turbines, if such is the desire of the owner of the affected property.

The impact with and without any landscape mitigation was assessed in the LVA and the Panel report. This assessment would not change with the proposed amendment to the heights of the wind turbines.

This analysis shows that the increase in height and blade diameter makes little difference to the effectiveness of screening for residential properties. As this is the case there is no further need to further analyse the visual impact from residential properties.

7. Aviation lighting

There is no intention for night lighting to be installed as part of this amendment. Therefore, there is no requirement to alter the existing permit conditions.

The proposed night lighting was assessed in the LVA which concluded:

If lights are required by CASA, it is considered that the solution constructed at Mt Millar provides an acceptable level of visual impact while providing the required level of night time hazard identification. (ERM, LVA, Section 13.3, page 148).

The panel assessed the night lighting initially proposed and found:

Aviation hazard lights are to be prohibited by condition on any permit granted for the WEF.

Any application for aviation hazard lights should be made and processed under section 72 and following of the Act.

Should aviation hazard lighting need to be reconsidered at some time, we recommend that technological developments may be available, such as the capacity to turn lights on only when needed (when an aircraft is detected in the vicinity), be part of that assessment. (Panel report, page 150).

Casa's current requirements for Aviation lighting are:

CASA recommends that the wind farm is lit with steady red low intensity lighting at night as per Section 9.4 of the CASA Manual of Standards Part 139. Characteristics of low intensity lights are stated in subsection 9.4.7.

This removes the requirement for flashing light, however from observations of past completed projects, there is also a strobing effect as the blades pass through the light. Although there is a slight benefit in having lights permanently on rather than flashing, this would not significantly change the level of visual impact. The lights would still be visible and some strobing will be apparent, especially from closer distances.

8. Proposed quarry

A separate assessment of the Stockyard Hill Wind Farm Quarry was prepared by Jacobs in June 2014.

Jacobs found that the visual impact of the quarry will be the overburden storage and bunds created on the north, east and south sides of the proposed quarry. The pit itself, while being a maximum of 7.5m in depth, will be screened behind this bunding.

I agree with this assessment that in the context of this landscape the proposed quarry will have a low level of visual impact.

9. Submissions received

Submissions that were received mentioned visual amenity as an issue, in particular Submission number 7, 12, 18, 22, 23, 25, 26, 27, 28, 29, 30, 40, 44 and 45. Some submissions were received that were in favour of the proposed amendment.

Generally, in the submissions there was a belief that the presence of the approved wind farm in the landscape was unacceptable and a sense of disappointment in the initial Panel decision with the fear that the increase in height would further exacerbate the impacts that were initially approved.

Increased visual impact

Some submissions state that the proposal to amend the height and width of the wind turbines will exacerbate the level of visual impact that was approved in the initial panel decision. A common theme argues that this increase of nearly 50 m and “their RSA by 36%” will have a significant visual impact.

A comparative assessment of the approved and amended wind turbines has been undertaken in Chapter 5 of this Expert Witness Statement. This assessment of three viewpoints show the differences between the:

- 2009 Photomontage (132m high, 102m diameter); and
- Proposed amendment 2016 (180m high, 142m diameter).

These comparative photomontages further support the conclusion that there is not a significant degree of difference between the level of visual impact approved by the panel and the level of visual impact created by the proposed amendment or variation. The level of difference is negligible. The changes in height and width do not make a quantum change.

Landscape limitations

Other submissions were concerned that “*Planting trees on our treeless plain where trees grow very slowly will not give respite for anything.*”

A comparative assessment of the landscape screening impact of the approved and amended wind turbines is undertaken in Chapter 6 of this Expert Witness Statement. This assessment demonstrated that landscape mitigation can be an effective response to reduce the level of visual impact.

Visual simulations & viewpoint selection

It is asserted that the “*montages presented by Origin are very deceptive – white turbines against white sky*”. Photomontages taken at NVP01 and NVP02 shows the wind turbines against a cloudy sky and many have had shadows applied to increase their visibility. The closest turbines in NVP03 are rendered white against a darker sky. Whilst a turbine to the left has been rendered in dark shadow to increase its visibility in the photomontage.

This submission is critical of the sky colours in the photomontages. They were not selected to minimise the impact, in fact often the wind turbines are rendered in shadow (dark grey) to increase the visual contrast with a paler sky, or rendered in sun (white) where the sky is darker. However, it is recognised that the small-scale images are not as clear and the photomontages will be presented on A0 sheets for the Panel hearing.

10. Conclusion

The preceding analysis illustrates that whilst there is a change to the height and diameter of the proposed wind turbines, such a change has a negligible impact on views.

Negligible was defined in the Visual Impact Methodology (Chapter 4) as a “*minute level of effect that is barely discernible over ordinary day-to-day effects.*”

Looking at the difference between the photomontages depicting wind turbines at 132 m and at 180 m high and with rotor diameters that vary from 102 m (approved) to 142 m with the same background and lighting, the difference in visual impact is negligible. Similar differences will occur in different light situations with no change in the height or rotor diameter. Similar variation in the scale will also be apparent if a viewer moved forward or backward from the viewpoint locations.

The real visual impact of the wind farm is the presence of tall vertical structures with sweeping blades in a rural landscape. This impact was assessed by the Panel and the impact was, on balance, found to be acceptable.

The level of impact shown in the photomontages would not alter the impact levels that were assessed in the LVA and considered by the Panel. There is a slight change in the degree of impact, but one which does not alter the quantum of the impact, that is the impact would not change from low to medium, or from medium to high.

Therefore, the alteration of height and rotor diameter is considered to have a negligible visual impact above that of the approved wind farm.

Potential residential impact

The approval was also subject to landscape mitigation measures being offered to affected residential properties within 3 km.

With the proposed amendment increasing the heights of the proposed wind turbines to 180 m, it would be appropriate if the distance within which landscape mitigation was offered was increased. It is my recommendation that landscape mitigation be offered to residential properties within 4 km of the nearest visible wind turbine.

Annexure A

Allan Wyatt – Curriculum vitae

Allan Wyatt - Curriculum Vitae

Allan has extensive experience in assessing the landscape and visual impacts of wind energy developments to assist in the management of environmental and related risks.

Allan also has the capabilities to prepare and present evidence in legal hearings in all states and territories with regard to landscape and visual impacts. Allan regularly appears before independent panel hearings, the Victorian Civil and Administrative Tribunal (VCAT) and other appellant bodies as an expert witness in the areas of urban design, visual assessment and landscape architecture.

More recently, Allan has specialised in large scale masterplanning and urban design work with major projects being undertaken for local government, boards of management as well as for private developers both in Australia and in China, Hong Kong, India and Malaysia

2015 to present

Landscape Architect - XURBAN

1997 to 2015

Environmental Resources Management Pty Ltd
Partner & Practice Leader - Urban Design and
Landscape Architecture - Asia Pacific

1989 to 1996

Ratio Consultants Pty Ltd Partner

1980 to 1989

Allan Wyatt Pty Ltd - Principal

1976 to 1979

Public Works Department, Victoria - Landscape
Architect

1974 to 1976

Peter Jones Architect & Landscape Consultant -
Landscape Architect

Professional Affiliations and Registrations

Associate, Australian Institute of Landscape
Architects

Fellow, Victorian Planning and Environmental Law
Association

Fields of Competence

Urban Design

Landscape Architecture

Visual Assessments.

Education

Graduate Diploma Landscape Design (RMIT) 1979

Languages

English

Publications

*Community perception studies as a means of
evaluating landscape quality*, NZ Wind Energy
Conference.

Photomontages and perceptual accuracy, NZ WE
Conference paper.

*Visual assessment and environmental restoration of
mine and quarry operations*, paper presented to the
joint VPELA and Victorian Chamber of Mines

*Trees in the urban jungle and other Neighbourhood
conflicts*, paper represented to joint
AILA/VPELA/RAPI Seminar.

*Concerns regarding statutory control on tree planting
in our cities*, published in Victorian Planning and
Environmental Law Association Newsletter.

Key Projects

Some examples of key projects are listed below.

Windfarm projects

Allan Wyatt has provided advice and visual assessments for more than 30 wind farms in Australia and New Zealand. These include:

Mount Mercer Wind Farm (WestWind Energy Pty Ltd)

Allan Wyatt provided advice as part of the Notification to the Minister for Planning (Vic) under the Environment Effects Act 1978 and preparation and lodgement of the Planning Application material for the proposed Mount Mercer Wind Farm. This project was granted planning approvals in April 2007.

Ryan Corner Wind Farm (TME Australia Pty Ltd)

ERM was engaged to prepare the Environment Effects Statement (EES), subject to the provisions of the Environment Effects Act 1978. Allan Wyatt was commissioned to prepare and present evidence on Landscape and Visual Assessment at the hearing before Planning Panels Victoria.

Lal Lal Wind Farm (WestWind Energy Pty Ltd)

Allan Wyatt managed a research project to determine the attitudes of the community to wind farm developments in Victoria, and in particular in relation to the proposed Lal Lal Wind Farm. This research is designed to provide a quantitative and defensible data as to the level of community support or opposition for the project. The data was utilised in the application material.

Other wind farm projects

Other wind farm projects on which Allan Wyatt prepared visual and landscape assessments include:

- Dundonnell Wind Farm, Victoria
- Stockyard Hill Wind Farm;
- Turitea Wind Farm, New Zealand;
- Waubra Wind Farm;
- Darlington & Berrybank Wind Farm;
- Newfield Wind Farm;
- Mount Mercer Wind Farm;
- Hawkesdale Wind Farm;
- Oaklands Hill Wind Farm;
- Newfield Wind Farm;
- Sidonia Hills Wind Farm;
- Gullen Range Wind Farm;
- Mortlake Wind Farm;
- Macarthur Wind Farm;

- Dollar Wind Farm;
- Bald Hills Wind Farm;
- Ararat Wind Farm;
- Crowlands Wind Farm;
- Portland Wind Energy Project;
- Yass Wind farm, NSW
- Taralga Wind Farm, NSW;
- Nirranda South Wind Farm;
- Black Springs Wind Farm, NSW;
- Berrybank Wind Farm;
- Yoloak Estate Wind Farm; and
- Waubra Wind Farm.

Urban design, masterplanning & golf courses

Dalingshan, Dongguan Province, China

Urban design for a city expected to grow to 3 million. As a central component of the urban planning for the revitalisation of this City, open space provided contiguous corridors for both recreational needs, flood management and pollution control.

Nanjing Lake and the Purple Mountain

The masterplanning of this central 44 km² area in central Nanjing involved heritage issues as well as ideas to dramatically retreat major freeways that were dividing the historic precinct in central Nanjing.

Pukou, Central China

This 21 km² new urban area in central China was designed around LEED ND principles and incorporated a new arterial road network as well as urban planning for a design population of 200,000 along with commercial and employment nodes.

Royal Palms, Goregaon, Mumbai, India

The masterplanning of this 90 ha precipitous quarry site in India encompassed a golf course, a 5 star and a 4 star hotel, luxury housing and condominiums set in a high quality lake and parkland setting.

Integrated Tourism Resort, Powai, India - Stage 2

Preparation of a site masterplan for a golf course, hotels, convention centre, time share and residential apartments, golf lodges, aquarium, butterfly house and cultural village. The site was on a steeply sloping volcanic ridge.

Pearl Island Golf & Country Club, Penang, Malaysia

Following the masterplanning of this site and the subsequent documentation of the golf course, ERM has been engaged to create the extensive landscape

spaces which are to be an integral part of this major facility

PPH Resorts, Penang, Malaysia

Landscape and masterplanning options as well as on-going documentation and contract administration of a major 18 hole golf course and associated facilities in a mountainous region of Malaysia.

*Queenscliff Coastal Action Plan *

Undertake a study of future land use options, pedestrian and vehicular strategies for the on-going development of one of Victoria's premier coastal resorts for the Central Coastal Board. Community and stakeholder consultation was a key component of the study.

City of Casey Planning and Urban Design

Various structure plan reviews and urban design works examining built form, streetscape, traffic and landscape improvements to increase the identity, character and pedestrian amenity of the City of Casey.

Victoria Racing Club (VRC), Melbourne, Victoria, Australia

Flood wall treatments along the Maribyrnong River were followed with the masterplanning, documentation and contract administration for the new wetlands at Flemington Racecourse, Melbourne. The entries on Flemington Road were also part of this project.

Eli Waters, Hervey Bay, Queensland

Landscape Masterplan for this large residential estate in Queensland, which focuses on an 18-hole golf course and an extensive wetlands and lakes system.

Dalian Waterfront, Dalian, China

Design team for a new waterfront including parklands and commercial facilities.

Clifton Park, Victoria

Project coordination and contract administration for the construction of a large community park in Brunswick.

HK University Ideas Competition, Hong Kong

Preparation of landscape masterplan for the existing university campus and the proposed western expansion.

Residential project, Wo Shang Wai, Hong Kong

Preparation of a Landscape Master Plan and Sustainable Landscape Design Guidelines for a confidential project near a sensitive wetland environment in Hong Kong.

Open space planning

Karkarook Lake and Wetlands

The masterplanning & documentation of the lake and wetlands of the largest man-made wetlands in Melbourne and treats urban run-off as well as providing a substantial recreation resource.

Confidential project, Taiwan

Preparation of a Landscape Master Plan and Sustainable Landscape Design Guidelines for a confidential new city development in Taiwan.

Croydon Open Space Study

The City of Croydon contained many areas of open space derived from residential contributions. This study examined their ecological value and made recommendations for future development.

Tarneit Wetlands, Victoria, Australia

Masterplanning of a large new wetlands system at the head of the Werribee River to deal with stormwater retention, habitat creation and is to create community open space for the surrounding residential developments.

Botanica Springs, Melbourne, Australia

Concept and detailed design of an ornamental wetlands system associated with a large residential development.

Infrastructure

Urban Design Framework, East West Link, Melbourne

Undertake a study to inform tenderers on this project of the standard expected in the final urban design outcomes. These included key objectives for new 'gateways' to Melbourne, as well as for open space and wetland redesign as well as future bike and pedestrian linkages.

Melbourne Desalination Plant

Landscape and visual assessment for this major infrastructure project that also involved the assessment of a 220kV transmission line and a pipeline easement cutting through residential and rural landscapes.

Yarra Pedestrian Bridge

Urban design and landscape involvement on this major pedestrian link between the MCG and Birrarung Marr.

LNG Terminal, South Soko, Hong Kong

Landscape and Visual Assessment components within an EES that also included a fly through model of the proposed development on South Soko Island.

Channel Deepening Project, Port of Melbourne (POMC)

Visual assessment of this major piece of Victorian infrastructure which included an examination of the visual impacts of the plume created by dredging activities in Port Philip Bay.

Basslink

Visual assessment of proposed transmission line options and associated components for major inter-connector between Tasmania and Victoria.

Parramatta Rail

Visual assessment and the development of subsequent site design and documentation for key nodal areas on this railway line upgrade.

Wind Farm Visual Assessments

Undertake the visual assessment and the preparation of photomontages for more than 30 wind farms in Victoria, South Australia, NSW and New Zealand.

Bass Link

Strategic siting as well as detailed visual assessment of the selected route as well as landscape mitigation for this major interconnection between the electrical grids of Tasmania and Victoria.

Various Road projects

Allan has been the Project Director within ERM for various road projects which have included highway bridge duplication in NSW as well as more recently providing visual assessment input and providing the photomontages for the Geelong Bypass and working on the Urban Design Framework for East West Link.

Airports at Cairns, Broken Hill, Alice Springs and Devonport

Site and landscape design of pedestrian and entry treatments. Typically these projects involved extensive external landscape treatment for visual amelioration and, in the case of Broken Hill, the landscape treatment was critical for dust control.

Mallacoota Boat Launching Ramp & foreshore masterplan

Responsible for the revised Masterplanning in response to a visual assessment for this foreshore redevelopment project.

Mines and quarries

Preparation of end use masterplans as well as staged rehabilitation plans for large long term mining and quarrying projects. Many of these projects have also involved a visual assessment of the proposal and integrated this visual assessment with proposed staging and rehabilitation works.

Quarries as part of the Dundonnell Wind Farm

Two quarries were proposed as part of the infrastructure to construct the Dundonnell Wind Farm.

Chiltern Quarry

Visual assessment as well as a landscape proposal which sought to replicated the landscape pattern of the surrounding countryside.

Mount Shamrock Quarry, Pakenham

Visual and Landscape assessment for proposed Works Authority extension to existing quarry. The work involved Landscape Rehabilitation and Mitigation Planting to address environment and visual issues.

Uranium Mine, Northern Territory, Australia

Preparation of 3D modelling, photomontages based on a conceptual site layout and landscape plans for a confidential client in Australia.

Montrose Quarry

Development of end use guidelines and rehabilitation recommendations for Montrose Quarry.

Gold mine, WA

Preparation of confidential end use plans for mining tenements that were reaching completion.

Grantville Sand Quarry

Staged rehabilitation plans for this sand quarry, particularly the slimes storage areas.

Yea Sand & Gravel Quarry

Quarry rehabilitation of an area subject to flooding and adjacent to the Yea River.

Sunshine Quarry

The rehabilitation of this quarry involved the creation of a nine-hole golf course as well as special landscape treatments for the extensive battered slopes on the Maribyrnong River.

Niddrie Quarry redevelopment masterplan

Residential and recreational land use planning of the quarry.

Annexure B

Instructions



HERBERT
SMITH
FREEHILLS

Mr Allan Wyatt
XURBAN
Suite 1103
408 Lonsdale Street
MELBOURNE VIC 3000
allan.wyatt@xurban.com.au

11 August 2016
Matter 82489236
By Email

Dear Mr Wyatt

Confidential and Privileged

Stockyard Hill Wind Farm Engagement of Expert Witness - Visual impact

We are acting as legal advisors to Stockyard Hill Wind Farm Pty Ltd (**Stockyard Hill**) in connection with the Stockyard Hill Wind Farm (**Project**), and specifically the following applications:

- application to amend the existing planning permit PL-SP/05/0548-1 for the Project (**Amendment Application**),
together with three associated planning permit applications:
 - two applications for the removal of native vegetation and to create an alter access to a Road Zone, Category 1 (External Overhead Powerlines) (Permit Application No. PA1600101 under the Pyrenees Planning Scheme and Permit Application No. PA 1600126 under the Corangamite Planning Scheme) (**Transmission Line Applications**); and
 - application for Extractive Industry (On-site Quarry) (Planning Permit Application No. PA2499/16 under the Pyrenees Planning Scheme) (**Quarry Application**).

1 Background

The Amendment Application includes a number of changes to the existing planning permit PL-SP/05/0548-1, including:

- A rotor diameter of up to 142 metres (an increase from the permitted blade length of 52 metres / rotor diameter of up to 104 metres);
- A hub-height of up to 120 metres (an increase from the permitted hub-height of up to 80 metres);
- A ground clearance from the bottom of the blades to the ground level the not less than 32 metres (not previously specified); and
- A total blade tip height up to 180 metres (an increase from the permitted height of up to 132 metres).

On 8 August 2016, the Minister for Planning determined to call-in the Transmission Line Applications and the Quarry Application under section 97B of the *Planning and Environment Act 1987* (Vic) (**PE Act**). The Minister indicated he will consider these applications concurrently with the Amendment Application, and, following completion of the public notification period, appoint a panel of inquiry (**Panel**) under the PE Act if submissions are received as a result of the public notice. The Minister confirmed this would be a combined panel hearing considering all of the applications referred to above which have been made by Stockyard Hill.

Doc 55395131.2



1.1 Proposed modification to Amendment Application

Stockyard Hill is now seeking to amend the Amendment Application to seek wind turbine specifications (Condition 4 of PL-SP/05/0548) which include a rotor diameter of up to 142 metres (increased from 140 metres) and a ground clearance from the bottom of the blades to the ground level of no less than 32 metres (not previously specified).

The layout of the location of turbines and all other parameters associated with the Amendment Application remain the same.

2 Scope

2.1 Expert witness statement

We would like you to prepare a witness statement in accordance with Planning Panel Victoria's *Guide to Expert Evidence* which prescribes the content and form of expert witness statements. We enclose a copy of the Guide for your reference. You are required to review and understand the Guide and to ensure your witness statement addresses all matters set out in the Guide, in particular those matters listed under the heading 'Content and Form of Experts Report'. Please contact us if there is anything in this Guide which you do not understand, or if you have questions in relation to it. Your witness statement should include matters required as set out in the Guide such as:

- (a) A reference to any technical report or reports that you rely upon;
- (b) A statement to the effect that you adopt the findings in reports you help prepare and were submitted as part of the amendment application and identifying any departure from the findings and opinions you express in those reports;
- (c) Any key assumptions made in preparing your witness statement.

Once submissions have been received that are relevant to your area of expertise we will also request you consider those submissions and respond to any relevant matters in your witness statement.

We have prepared a template to assist you to prepare and order your expert witness statement. You should treat the template as an aid and should not consider yourself constrained by it if you would prefer to structure your statement differently.

2.2 Memo in relation to proposed increase to maximum rotor diameter

We would like you to prepare a short memo or letter to accompany Stockyard Hill's proposed modification to the Amendment Application, which outlines how the proposed increase in maximum rotor diameter (by two metres) either does or does not affect the conclusions of '*Landscape and Visual Impact Assessment to accompany an Application to Amend Planning Permit No. PL-SP/-05/0548*' prepared by Environmental Resource Management Pty Ltd and submitted with the Amendment Application.

3 Timing

We would appreciate receiving a letter which addresses the above section 2.2 of the above scope by **Friday, 12 August 2016**.

As the dates for a potential Panel hearing have not been confirmed, the timing of your expert witness statement is to be advised. We will let you know as soon as we can.

Any documents you prepare under this engagement should be marked 'Confidential and subject to legal professional privilege.'

4 Fee estimate and invoicing

It is important to note that you will continue to be contractually engaged by Stockyard Hill. Stockyard Hill is responsible for payment of your fees. Invoices should be sent to Herbert Smith Freehills (attention Michelle Keen) and will be included as disbursements on our invoices to Stockyard Hill. It will assist if your invoice can be provided to us before the



end of the month so that it may be included as early as possible on invoices to the Stockyard Hill.

5 Confidentiality

Your expert report prepared in accordance with this retainer is confidential and is not to be copied or used for any purpose unrelated to the Panel hearing without our permission.

Material supplied by Herbert Smith Freehills is, unless it is already in the public domain, confidential and is not to be copied or used for any purpose unrelated to your retainer without our permission.

6 Conflict of interest

It is important that you are free from any possible conflict of interest in providing your advice. You should again ensure that you have no connection with any potential party to the panel hearing which could preclude you from providing your opinion in an objective and independent manner.

7 Your duties and responsibilities as an expert witness

As set out in Planning Panel Victoria's *Guide to Expert Evidence (Guide)*, an expert witness has a duty to the Panel and not to the person engaging the expert. You are not an advocate for any party. Consequently, though you are retained by Stockyard Hill, you are retained as an expert to assist the Panel, and have an overriding duty to it. The Panel will expect you to be objective, professional and form an independent view as to the matters in respect to which your opinion is sought.

We enclose a copy of the Guide for your reference. You are required to review and understand the Guide and to ensure your witness statement addresses all matters set out in the Guide in particular those matters listed under the heading content and form of expert's report. Please contact us if there is anything in this Guide which you do not understand, or if you have any questions in relation to it.

Until your peer review is in final form it should not be signed. You should, however, be aware that unsigned documents may need to be disclosed to other parties.

8 Communications

Unless advised otherwise, all communications, whether verbal or written, should be directed to our office so that we can coordinate, manage and integrate work activities with legal requirements and ensure legal professional privilege is maintained as appropriate. It is however quite appropriate for your communication to be copied into Stockyard Hill.

If you have any questions about this letter, your role in the hearing, or the approval process, and would like to discuss your availability or the content of your report, please contact us.

Yours sincerely

Michelle Keen
Special Counsel
Herbert Smith Freehills

+61 3 9288 1824
+61 439 950 963
michelle.keen@hsf.com

Tom Mouritz
Solicitor
Herbert Smith Freehills

+61 3 9288 1570

tom.mouritz@hsf.com

Herbert Smith Freehills LLP and its subsidiaries and Herbert Smith Freehills, an Australian Partnership ABN 98 773 882 646, are separate member firms of the international legal practice known as Herbert Smith Freehills.



Attached

- 1 Guide to Expert Evidence
- 2 Pro forma expert witness statement

Annexure C

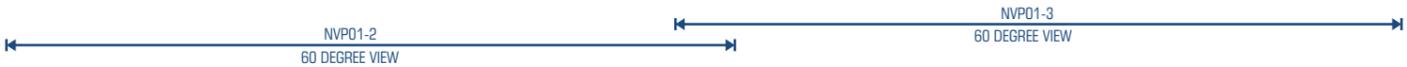
Photomontages



PHOTOMONTAGE OF PERMITTED WIND TURBINES (132M HIGH)



PHOTOMONTAGE OF AMENDED WIND TURBINES (180M HIGH)



Revision No: -

NVP01
 Location data reference:
 Grid Datum: MGA94 Zone 54

 Easting: 700429
 Northing: 5842993
 Elevation: 334m

 Distance to nearest permitted turbine:
 1.4km approx. (T99 to SE)
 Distance to nearest amended turbine:
 1.6km approx. (C7 to SE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
 Viewpoint NVP01
 Beaufort-Carranballac Road

Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVP01-1	Drawn by: AE
Revision No: -	Reviewed by: AW



60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)



60 DEGREE VIEW OF AMENDED WIND TURBINES (180M HIGH)

Revision No: -

NVP01
 Location data reference:
 Grid Datum: MGA94 Zone 54

Easting: 700429
 Northing: 5842993
 Elevation: 334m

Distance to nearest permitted turbine:
 1.4km approx. (T99 to SE)

Distance to nearest amended turbine:
 1.6km approx. (C7 to SE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
 Viewpoint NVP01
 Beaufort-Carranballac Road

Project No: 0247530 Date: 22 JANUARY 2016
 Drawing No: NVP01-2 Drawn by: AE
 Revision No: - Reviewed by: AW



60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)



60 DEGREE VIEW OF AMENDED WIND TURBINES (180M HIGH)

Revision No: -

NVP01
 Location data reference:
 Grid Datum: MGA94 Zone 54

Easting: 700429
 Northing: 5842993
 Elevation: 334m

Distance to nearest permitted turbine:
 1.4km approx. (T99 to SE)

Distance to nearest amended turbine:
 1.6km approx. (C7 to SE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
 Viewpoint NVP01
 Beaufort-Carranballac Road

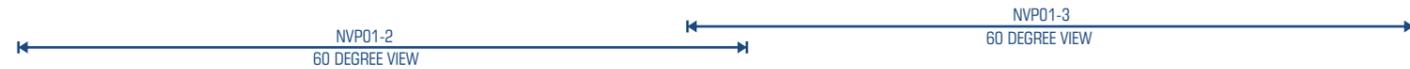
Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVP01-3	Drawn by: AE
Revision No: -	Reviewed by: AW



WIREFRAME OF PERMITTED WIND TURBINES (132M HIGH)



WIREFRAME OF AMENDED WIND TURBINES (180M HIGH)



Revision No: -

NVP01

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 700429
Northing: 5842993
Elevation: 334m

Distance to nearest permitted turbine:
1.4km approx. (T99 to SE)
Distance to nearest amended turbine:
1.6km approx. (C7 to SE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP01
Beaufort-Carranballac Road

Project No: 0247530

Drawing No: NVP01-4

Revision No: -

Date: 22 JANUARY 2016

Drawn by: AE

Reviewed by: AW



PHOTOMONTAGE OF PERMITTED WIND TURBINES (132M HIGH)



PHOTOMONTAGE OF AMENDED WIND TURBINES (180M HIGH)



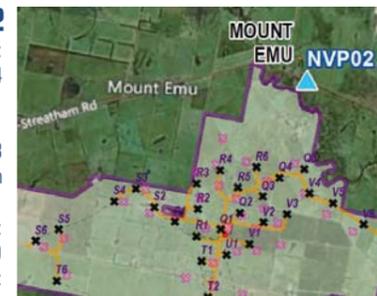
Revision No: -

NVP02

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 714471
Northing: 5835833
Elevation: 350m

Distance to nearest permitted turbine:
1.7km approx. (T192 to S)
Distance to nearest amended turbine:
1.8km approx. (Q5 to S)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP02
Streathan-Carngham Road

Project No: 0247530

Drawing No: NVP02-1

Revision No: -

Date: 22 JANUARY 2016

Drawn by: AE

Reviewed by: AW



60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)



60 DEGREE VIEW OF AMENDED WIND TURBINES (180M HIGH)

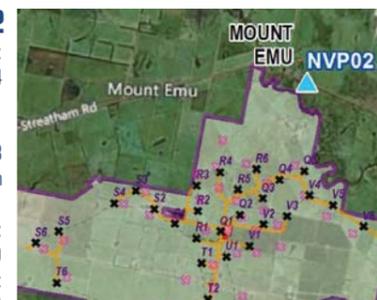
Revision No: -

NVP02

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 714471
Northing: 5835833
Elevation: 350m

Distance to nearest permitted turbine:
1.7km approx. (T192 to S)
Distance to nearest amended turbine:
1.8km approx. (Q5 to S)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP02
Streathan-Carngham Road

Project No: 0247530

Drawing No: NVP02-2

Revision No: -

Date: 22 JANUARY 2016

Drawn by: AE

Reviewed by: AW



60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)



60 DEGREE VIEW OF AMENDED WIND TURBINES (180M HIGH)

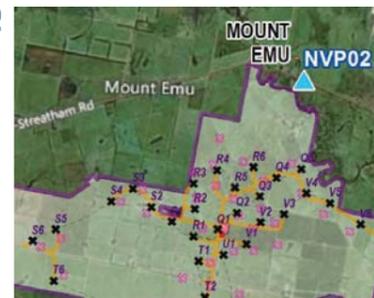
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NVP02

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 714471
Northing: 5835833
Elevation: 350m

Distance to nearest permitted turbine:
1.7km approx. (T192 to S)
Distance to nearest amended turbine:
1.8km approx. (Q5 to S)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP02
Streathan-Carngham Road

Project No: 0247530
Drawing No: NVP02-3
Revision No: -

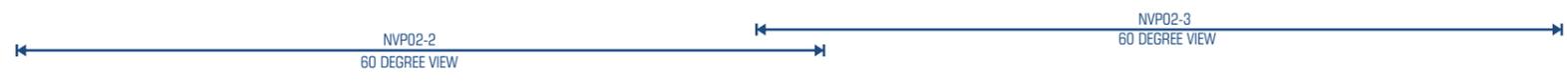
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Drawn by: AE
Reviewed by: AW



WIREFRAME OF PERMITTED WIND TURBINES (132M HIGH)

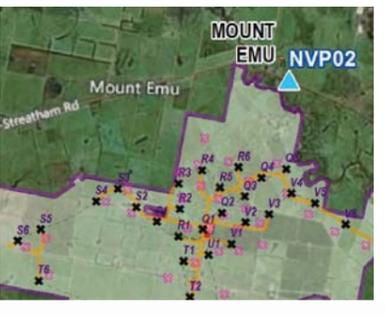


WIREFRAME OF AMENDED WIND TURBINES (180M HIGH)



Revision No: -

NVP02
 Location data reference:
 Grid Datum: MGA94 Zone 54
 Easting: 714471
 Northing: 5835833
 Elevation: 350m
 Distance to nearest permitted turbine:
 1.7km approx. (T192 to S)
 Distance to nearest amended turbine:
 1.8km approx. (Q5 to S)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
 Viewpoint NVP02
 Streathan-Carngham Road

Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVP02-4	Drawn by: AE
Revision No: -	Reviewed by: AW



PHOTOMONTAGE OF PERMITTED WIND TURBINES (132M HIGH)



PHOTOMONTAGE OF AMENDED WIND TURBINES (180M HIGH)



Revision No: -

NVPO3

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest permitted turbine:
0.2km approx. (T41 to NW)
Distance to nearest amended turbine:
0.3km approx. (J2 to NE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVPO3
Skipton Road

Project No: 0247530

Drawing No: NVPO3-1

Revision No: -

Date: 22 JANUARY 2016

Drawn by: AE

Reviewed by: AW



030°

040°

NE

050°

060°

070°

080°

60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)

Revision No: -

NVP03

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest permitted turbine:
0.2km approx. (T41 to NW)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP03
Skipton Road

Project No: 0247530
Drawing No: NVP03-2
Revision No: -

Date: 22 JANUARY 2016
Drawn by: AE
Reviewed by: AW



Revision No: -

NVP03
 Location data reference:
 Grid Datum: MGAG4 Zone 54

Easting: 710048
 Northing: 5848861
 Elevation: 378m

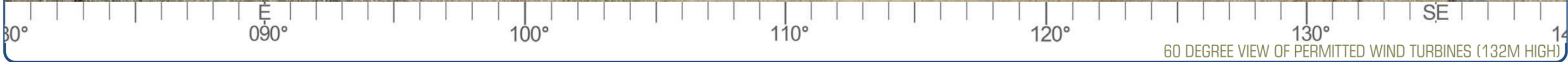
Distance to nearest amended turbine:
 0.3km approx. (J2 to NE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
 Viewpoint NVP03
 Skipton Road

Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVP03-3	Drawn by: AE
Revision No: -	Reviewed by: AW



Revision No: -

NVP03
 Location data reference:
 Grid Datum: MGA94 Zone 54

Easting: 710048
 Northing: 5848861
 Elevation: 378m

Distance to nearest permitted turbine:
 0.2km approx. (T41 to NW)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
 Viewpoint NVP03
 Skipton Road

Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVP03-4	Drawn by: AE
Revision No: -	Reviewed by: AW



60 DEGREE VIEW OF AMENDED WIND TURBINES (180M HIGH)

Revision No: -

NVP03

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest amended turbine:
0.3km approx. (J2 to NE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP03
Skipton Road

Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVP03-5	Drawn by: AE
Revision No: -	Reviewed by: AW



60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)

Revision No: -

NVP03

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest permitted turbine:
0.2km approx. (T41 to NW)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP03
Skipton Road

Project No: 0247530

Drawing No: NVP03-6

Revision No: -

Date: 22 JANUARY 2016

Drawn by: AE

Reviewed by: AW



Revision No: -

NVP03

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest amended turbine:
0.3km approx. (J2 to NE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVPO3
Skipton Road

Project No: 0247530

Drawing No: NVP03-7

Revision No: -

Date: 22 JANUARY 2016

Drawn by: AE

Reviewed by: AW



60 DEGREE VIEW OF PERMITTED WIND TURBINES (132M HIGH)

Revision No: -

NVP03

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest permitted turbine:
0.2km approx. (T41 to NW)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVP03
Skipton Road

Project No: 0247530
Drawing No: NVP03-8
Revision No: -

Date: 22 JANUARY 2016
Drawn by: AE
Reviewed by: AW



60 DEGREE VIEW OF AMENDED WIND TURBINES (180M HIGH)

Revision No: -

NVP03

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest amended turbine:
0.3km approx. (J2 to NE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd
Viewpoint NVP03
Skipton Road

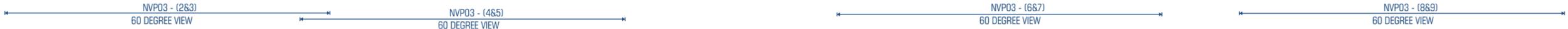
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Drawing No:	NVP03-9	Drawn by:	AE
Revision No:	-	Reviewed by:	AW



WIREFRAME OF PERMITTED WIND TURBINES (132M HIGH)



WIREFRAME OF AMENDED WIND TURBINES (180M HIGH)



Revision No: -

NVPO3

Location data reference:
Grid Datum: MGA94 Zone 54

Easting: 710048
Northing: 5848861
Elevation: 378m

Distance to nearest permitted turbine:
0.2km approx. (T41 to NW)
Distance to nearest amended turbine:
0.3km approx. (J2 to NE)



Stockyard Hill Wind Farm

For: Stockyard Hill Wind Farm Pty Ltd

Viewpoint NVPO3
Skipton Road

Project No: 0247530	Date: 22 JANUARY 2016
Drawing No: NVPO3-10	Drawn by: AE
Revision No: -	Reviewed by: AW



180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 000° 010° 020° 030°

← 60 DEGREE FIELD OF VIEW - REFER NVP04-B →

Photomontage of permitted wind turbines (132m high)



180° 190° 200° 210° 220° 230° 240° 250° 260° 270° 280° 290° 300° 310° 320° 330° 340° 350° 000° 010° 020° 030°

← 60 DEGREE FIELD OF VIEW - REFER NVP04-C →

Photomontage of amended wind turbines (180m high)

XURBAN

Urban Design
Landscape Architecture
Visual Assessment

Suite 1103, 408 Lonsdale Street,
Melbourne Victoria 3000

P: 61 3 9642 8040
E: allan.wyatt@xurban.com.au

NVP04

Location data reference: Grid Datum: GDA94 Zone 54
Latitude: -37.643866°
Longitude: 143.490156°
Ground level: 340m
Distance to:
Nearest permitted wind turbine (T214) 4,080m approx.
Nearest amended wind turbine (V7) 3,895m approx.
Bearing 295° approx

Photography data

Photography date: 23 January 2017
Camera: Nikon D5
Lens: 60mm



Project:
Stockyard Hill Wind Farm

Client:
Stockyard Hill Wind Farm Pty Ltd

Drawing:
Viewpoint NVP04
Chepstowe Pittong Road looking west

PANORAMIC VIEW

Date: 27 January 2017 Project No: 15023
Drawing No: **NVP04 - A** Revision No:



**Photomontage of permitted wind turbines (132m high)
60 degree field of view**

XURBAN

Urban Design
Landscape Architecture
Visual Assessment

Suite 1103, 408 Lonsdale Street,
Melbourne Victoria 3000

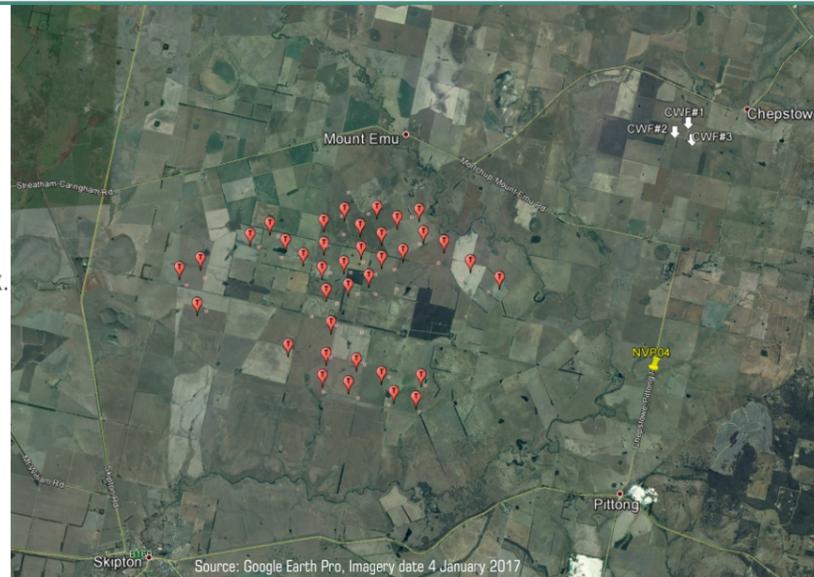
P: 61 3 9642 8040
E: allan.wyatt@xurban.com.au

NVP04

Location data reference: Grid Datum: GDA94 Zone 54
Latitude: -37.643866°
Longitude: 143.490156°
Ground level: 340m
Distance to:
Nearest permitted wind turbine (T214) 4,080m approx.
Nearest amended wind turbine (V7) 3,895m approx.
Bearing 295° approx

Photography data

Photography date: 23 January 2017
Camera: Nikon D5
Lens: 60mm



Project:
Stockyard Hill Wind Farm

Client:
Stockyard Hill Wind Farm Pty Ltd

Drawing:
Viewpoint NVP04
Chepstowe Pittong Road looking west

PHOTOMONTAGE - PERMITTED

Date: 27 January 2017 Project No: 15023

Drawing No: **NVP04 - B** Revision No:



**Photomontage of amended wind turbines (180m high)
60 degree field of view**

XURBAN

Urban Design
Landscape Architecture
Visual Assessment

Suite 1103, 408 Lonsdale Street,
Melbourne Victoria 3000

P: 61 3 9642 8040
E: allan.wyatt@xurban.com.au

NVP04

Location data reference: Grid Datum: GDA94 Zone 54
Latitude: -37.643866°
Longitude: 143.490156°
Ground level: 340m
Distance to:
Nearest permitted wind turbine (T214) 4,080m approx.
Nearest amended wind turbine (V7) 3,895m approx.
Bearing 295° approx

Photography data

Photography date: 23 January 2017
Camera: Nikon D5
Lens: 60mm



Project:
Stockyard Hill Wind Farm

Client:
Stockyard Hill Wind Farm Pty Ltd

Drawing:
Viewpoint NVP04
Chepstowe Pittong Road looking west

PHOTOMONTAGE - AMENDMENT

Date: 27 January 2017 Project No: 15023

Drawing No: **NVP04 - C** Revision No: