



**Project:** TAUMATATOTARA WIND FARM - APPLICATION RM200019      **Memo:** 6/R1      **Page:** 1 of 15

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**Topic:** Assessment of Landscape & Visual Effects– Review

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**Date:** 13 September 2023

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**Attention:** Chris Dawson – Consultant Planner for Waitomo District Council

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**From:** Dave Mansergh – Consultant Landscape Architect for Waitomo District Council

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## INTRODUCTION

Ventus Energy (NZ) Ltd has applied to reduce the size of the consented Taumatotara Windfarm (Consent RM050019) from 22 turbines to 11 turbines and increase the height of the remaining turbines from 110m to 172.5m.

This document has been prepared as part of an analysis of the content and adequacy of information relating to landscape and visual amenity effects identified within the resource consent application and assessment of environmental effects (AEE).

Mansergh Graham Landscape Architects Ltd has been engaged by Waitomo District Council to review the landscape effects assessment and landscape management plan associated with the above application and to provide advice to Council around any required conditions of consent (should consent be granted).

## PURPOSE

This document has been prepared as part of an analysis of the content and adequacy of information relating to landscape and visual amenity effects identified within the resource consent application and assessment of environmental effects (AEE).

The purpose of this review is to determine the following:

- a. If the level of detail provided in the application documentation corresponds with the scale and significance of the effects on the environment under Schedule 4 (2)(3)(c) of the RMA; and
- b. If enough information is contained within relevant parts of the application documentation to allow a potentially affected person and/or the decision-maker to gain a clear and concise understanding of the nature and extent of effects that the development is likely to have on the landscape and visual amenity.
- c. If the findings of the landscape and visual assessment are supportable.
- d. The conditions of consent required (if consent was to be granted) to ensure that the landscape and visual effects identified in the application documentation are avoided, remedied or mitigated.

## REVIEW APPROACH

The *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines* were adopted by the NZILA in May 2021, replacing the *NZILA Best Practice Note: Landscape Assessment and Sustainable Management 10.1 (NZILA BPN 10.1)*.

While not intended as a template for landscape, natural character and visual effect reports, the guidelines provide clear direction and guidance around the general structure and content requirements. A landscape, natural character and visual assessment report (LNCVA) that has been prepared within the recommended framework should be able to be reviewed and the findings verified, without the need for further independent assessment.



This review was carried out within the context of the requirements of the RMA, the findings, and recommendations of *Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines* and the Quality Planning website. The following factors have been considered:

- a. If the assessment methodology used is consistent with the current accepted (“best practice”) approach to landscape, natural character and visual assessment and has been applied consistently.
- e. If the values and attributes of the existing landscape have been described in enough detail to convey a clear understanding of the existing landscape, and amenity baseline against which the assessment is undertaken. This should include any differences that exist between the existing physical environment, the consented environment, and the permitted baseline (where applicable).
- f. If the proposal has been described in enough detail to convey how it will alter the existing landscape, natural character, and visual amenity.
- g. If the effects of the proposal on the landscape (including its visual amenity) have been described and rated consistently and any relevant issues are identified.
- h. The accuracy and usefulness of any attached plans, maps, graphics, and visualisations.
- i. If the relevant statutory matters and provisions have been identified and addressed in sufficient detail.
- j. The extent to which any proposed mitigation approach avoids, remedies and/or mitigates any unacceptable adverse effects on the landscape, natural character, and visual amenity values within an acceptable time frame.
- k. If the conclusions and recommendations are supported by the analysis within the assessment.

This review is limited to determining whether the currently accepted approach to landscape, visual and natural character assessment has been followed by determining if it is likely that another experienced landscape architect would reach the same or similar conclusions, by applying the same methodologies given the information presented within the report.

The *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines* state:

*A peer review is a focused appraisal of the principal assessment, not a parallel assessment.*

The structure and style of the assessment reports and plans are not assessed.

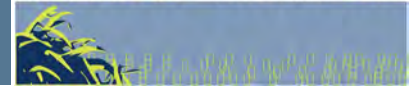
## BACKGROUND

Ventus Energy initially received consent for a 22-turbine, 110m high wind farm at Taumatotara West Rd, Te Anga in 2008. Subsequent amendments were approved: in 2011, an increase in the height of 11 northern turbines to 121.5m; and in 2016, an extension of the lapse date to 2024. Regional consents for earthworks have expired, and a new application is pending. The current application seeks to reduce the number of turbines to 11 and modify tip height conditions (Conditions 3 and 11) in the 2008 consent. Conditions 1 and 5 will also be updated to reference this new application. The financial viability of the site has improved due to advancements in wind energy technology and market conditions.

## DOCUMENTS REVIEWED

The following documents have been reviewed:

- a. *Proposed Variation to Consent Taumatotara Wind Farm Ltd Landscape and Visual Assessment*. Ref 3-C2022.00. June 25, 2020. WSP.
- b. *Proposed Variation to Consent Taumatotara Wind Farm Ltd Waitomo District Graphic Attachments*. June 18, 2020. WSP.
- c. *T4 Wind Farm ZVI Analysis*. Energy3 Services Ltd. 18 June 2020.
- d. *T4 Wind Farm response to Mansergh Graham Project Memorandum 2 December 2019*. Energy3



Services Ltd. 22 June 2020.

- e. *Landscape and Visual Assessment Proposed Variation to Consent. Revision 3. 22 March 2021. WSP.*
- f. *Waitomo District Council: Request for Clarification of Section 92 information – Application number RM200019 to amend conditions of the existing consent – Taumatotara Wind Farm Limited. Shearer Consulting. 26 August 2021.*

Other documents read to provide background information and context:

- g. *Taumatotara Windfarm Waitomo District, Waikato Landscape Visual Assessment S92 (1) Response Information. February 2012. Opus International Consultants Ltd.*

## SITE INSPECTION

The application site was inspected on 19 November 2019. All (public) viewpoints identified in the WSP landscape and visual assessment report (LVA) were visited.

## NEW ZEALAND LANDSCAPE ASSESSMENT GUIDELINES

In April 2021 the *Draft Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines* were formally adopted by the New Zealand Institute of Landscape Architects as the recommended best practice guidelines, replacing the *NZILA Best Practice Landscape Assessment 10.1 V3*. The final version of the guidelines was published in July 2022.

While *Te Tangi a te Manu* was not formally adopted until after the final VLA for the application was prepared, a draft version was in wide circulation before its remit for adoption was confirmed at the AGM of the NZILA. The *Landscape and Visual Assessment Proposed Variation to Consent. Revision 3*, prepared by WSP on 22 March 2021 appears to have been prepared within the context of the draft guidelines.

While the draft and final versions of *Te Tangi a te Manu* are, for all intents and purposes, identical, a key difference between the two documents is the position of the minor threshold relative to the recommended seven-point rating scale identified in the figure below:

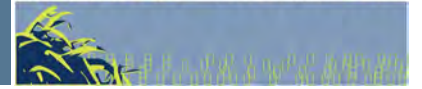


Figure 1: Recommended 7-point assessment scale contained in *Te Tangi a te Manu* (Page 151)

The draft version of the rating scale placed *LOW* and *LOW-MOD* entirely within the minor threshold of the RMA.

## REVIEW OF THE LANDSCAPE & VISUAL EFFECTS ASSESSMENT (LEA)

It is understood that the most up-to-date version of the VLA is the *Landscape and Visual Assessment Proposed Variation to Consent. Revision 3. 22 March 2021. WSP*. This version is subsequently supplemented by the response to a request for further information received from Shearer Consulting on 26 August 2021.



## Methodology

Te Tangi a te Manu states:

*While landscape assessment methods vary, they are all based on landscape character and values. Character is an expression of the landscape's collective attributes. Values are the reasons a landscape is valued. Values, though, are embodied in attributes. Effects are consequences for a landscape's values resulting from changes to attributes. The landscape's values are managed through managing such attributes.<sup>1</sup>*

A combination of the review of background information to identify key landscape features and attributes; relevant planning documents; and site investigations/observations have been used to identify the existing landscape context and assess the effects of the proposed industrial activities on landscape, natural character and visual amenity.

I have several concerns relating to the methodology. These were identified in Memorandums 4 and 5 and are repeated below. The memos stated:

*The WSP LVE report appears to be largely based on desktop review and analysis of the original assessment prepared in 2012 (as stated in the methodology section) with limited ground truthing carried out in 2019 in support of this application. There also seems to be a disconnect between the view locations identified in the WSP LVE report and the photomontages prepared by Energy3 Ltd, suggesting that the photomontages have not been prepared from view locations identified by the author of the LVE report. While the LVE report identifies that a site visit was undertaken in 2019, many of the photographs contained within the graphic attachment were taken in 2012 and have not been. It is unknown if these locations were visited during the ground truthing visit. In addition, reliance appears to have been made on the Google Earth Street View tool for the assessment of effects from view location 22. In my opinion, limited reliance can be placed on this tool for analysis purposes. Because the ratings provided are not supported by any analysis or independent research that explains how a difference in size affects visual perception and ratings, I am unable to verify how the effect ratings provided have been determined and therefore their validity. Without this information, it is difficult to understand why a 58% increase in the size of the proposed turbine only results in either a "low" adverse effect, or when considered in conjunction with the removal of the southern turbines, a "low-moderate" to "high" positive effect.*

I also consider that while the VLA identifies the physical attributes of the site and surroundings that contribute to landscape character, it does not identify or assess the wider values attributed to the landscape.

Landscape assessment involves identifying and valuing the attributes contributing to landscape (and urban) character. This includes recognising the physical environment, associative meanings, and perceptual experiences associated with places.

The various concepts and relationships between people and the landscape, that contribute to its values are identified in the following diagram. The relationship between Western and Maaori world views on landscape/whenua is shown as the integration of the three dimensions of landscape—physical, associative, and perceptual—along with maatauranga. This understanding forms the basis of landscape assessment work according to the Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines.

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<sup>1</sup> Page 105. Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines

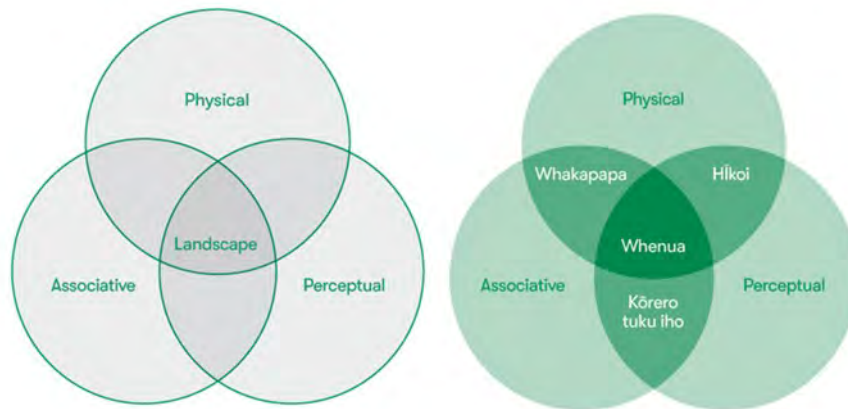


Figure 2: The integration of three dimensions of landscape—physical, associative, and perceptual—along with maaturanga from Te Tangi a te Manu

In my opinion, the LVA does not identify the existing landscape values or how the proposed increase in turbine height is likely to affect these values.

### Effects Ratings

The LVA uses a seven-point scale for the rating of effects, consistent with the recommendations of the *Te Tangi a te Manu*. The LVA states:

*The seven-point scale of effects<sup>14</sup> has been used in this LVA when assessing the potential adverse and positive landscape and visual effects arising from the change in turbine height. This effects scale ranges between: ‘very low’ to ‘low’ to ‘moderate to low’ to ‘moderate’ to ‘moderate to high’ to ‘high’ to ‘very high’ for both adverse and positive effects. It is generally understood that ‘less than minor’ adverse effects are equivalent to the ‘very low’ and ‘low’ adverse effects ratings (Appendix 3).<sup>2</sup>*

It is noted that the *minor* threshold adopted in the WSP reports differs from that contained in recommendations contained in the *New Zealand Institute of Landscape Architects Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines, April 2021*. The WSP memo states:

*Between: ‘Very Low’ to ‘Low’ to ‘Moderate to Low’ to ‘Moderate’ to ‘Moderate to High’ to ‘High’ to ‘Very High’. New Zealand Institute of Landscape Architects Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines, April 2021. It is generally understood that ‘less than minor’ effects are equivalent to ‘Very Low’, and ‘Low’ effects are equivalent to ‘minor’ effects in an RMA 1991 context within the NZ Landscape Guidelines, although the two scales do not align absolutely. ‘Very Low’ and ‘Low’ effects in this case are considered to be less than minor.<sup>3</sup> [Emphasis added]*

As such, care should be taken when comparing the effects ratings and thresholds used in the LVA with those contained in the draft and final versions of *Te Tangi a te Manu*.

### Project Description

The VLA identifies that resource consent has been granted for the installation of twenty-two 110m-high turbines, along with access roads and transmission lines. The new proposal seeks to modify the existing consent by reducing the number of turbines to eleven but increasing their maximum height to 172.5m. The eleven

<sup>2</sup> Page 8. Landscape and Visual Assessment Proposed Variation to Consent. Revision 3. 22 March 2021. WSP.

<sup>3</sup> Footnote 6, Page 3. WSP Memorandum 2. 23 August 2021





turbines would retain their original locations and basic design. Construction methods and specifics for access roads and transmission lines will remain largely unchanged, complying with the current consent conditions.

The updated design introduces 'narrow blade' turbines that reduce shadow flicker and have a lower rotation frequency, deemed improvements over the original consent. The design changes are reported to have negligible impact on landscape and visual effects, with net improvements identified in some locations. The rationale for these changes is to adapt to advancements in windfarm technology since the original 2008 consent.

## Identification of the Existing Site and Surrounding Landscape Context

The LVA describes the topography and land characteristics of the site where the wind turbines are proposed. The area features steep hills with well-defined ridgelines and narrow valleys to the north and south. Views are mostly contained by these natural formations. The highest peak nearby is Maungaakohe at 344m above sea level.

Land cover is mainly pastoral, with remnants of native vegetation on hill slopes and valleys. Exotic trees are scattered, mostly on hillside slopes to the south. Land use is also primarily pastoral, with rural residential buildings sparsely located, particularly in the sheltered, lower-lying areas away from the ridgelines.

The landscape to the north is highly modified and mostly open pastoral land, while to the south, a mix of native bush, forestry, and pastoral areas creates a more 'natural' appearance. Amenity value varies by dwelling, influenced by orientation, screening vegetation, and topography.

The landscape character is assessed to have a moderate amenity value and the LVA identifies that the assessment factors the existing consent to build a 22-turbine windfarm, as forming part of the baseline environment.

As identified above, the LVA does not identify or address other values that contribute to overall landscape value other than identifying that the site is not categorised as an outstanding natural feature or landscape in terms of s6b of the RMA.

## Relevant Planning Provisions

The LVA assesses the proposal against the following provisions of the Regional Policy Statement (RPS):

- Objective 3.20** *The values of outstanding natural features and landscapes are identified and protected from inappropriate subdivision, use and development.*
- Objective 3.21** *The qualities and characteristics of areas and features, valued for their contribution to amenity, are maintained or enhanced.*
- Objective 3.22** *The natural character of the coastal environment, wetlands, and lakes and rivers and their margins are protected from the adverse effects of inappropriate subdivision, use and development.*
- Policy 12.3** ***Maintain and enhance areas of amenity value***  
*Areas of amenity value are identified, and those values are maintained and enhanced. These may include:*
- a) areas within the coastal environment and along inland water bodies;*
  - b) scenic, scientific, recreational or historic areas;*
  - c) areas of spiritual or cultural significance;*
  - d) other landscapes or seascapes or natural features; and*



*e) areas adjacent to outstanding natural landscapes and features that are visible from a road or other public place.*

In addressing the above provisions, the LVA identifies:

- a. The site is not located within an outstanding natural feature or landscape.
- b. The proposal aligns with this objective by reducing the number of turbines, thereby lessening the development impact. This results in fewer roads, less vegetation removal, and reduced land loss for traditional rural uses. The proposal will maintain a low level of effect on amenity values, consistent with the original 2005 wind farm proposal, where such effects were deemed acceptable. The increased height of the eleven remaining turbines is considered to have only a 'low' impact on amenity levels.
- c. The site is not part of a coastal environment and does not include any wetlands, lakes or rivers.

The proposal is assessed against the following provisions of the Operative Waitomo District Plan (OWDP):

*Objective 11.3.8 To promote use of rural land in a manner which encourages maintenance and enhancement of amenity values of the rural environment, protects outstanding natural features and landscapes from inappropriate use and development, and preserves the natural character of the coastal environment, wetlands, lakes and rivers, and their margins.*

*Objective 11.3.9 To encourage maintenance and enhancement of rural visual character.*

In addressing these provisions, the LVA identifies:

- a. The site is not part of an ONLF, within the coastal environment, or contain any wetlands.
- d. 'Moderate' levels of rural amenity exist, requiring consideration.
- e. The increased turbine height is expected to have 'low' adverse effects on rural amenity.
- f. Reduction in the number of turbines will maintain some existing rural amenity values.
- g. Overall visual effects range from 'low' adverse to 'very high' positive compared to existing consented wind farm.
- h. Given the sites relative isolation, low population, and low visitor numbers, the proposal is considered appropriate.

The LVA does not address the following policies, relevant to amenity values:

*Policy 11.4.12 To ensure that all rural activities, including extractive industries, are established and operated so as to avoid, remedy or mitigate adverse effects on amenity or on neighbours, or on significant karst features. [Emphasis added]*

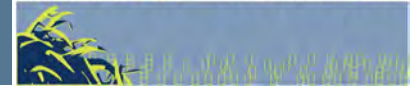
*Policy 11.4.17 To avoid, remedy or mitigate the adverse effects of rural buildings situated close to boundaries, and large non-farm buildings, on sunlighting, privacy, landscaping and amenity. [Emphasis added]*

It is unknown if the site contains limestone or karst features that would require further evaluation against other relevant objectives and policies contained within the OWDP.

## Landscape Effects

The LVA defines landscape effects as encompassing the physical changes to the setting, including character and levels of amenity. In comparison to what was originally consented to in 2005, the proposed changes to the wind farm are assessed by the LVA as being within acceptable limits.

The LVA identifies that while the construction of fewer turbines will require less vegetation removal overall, certain areas will need more vegetation removal to make way for a wider access road. The width of the access roads at the corners is set to increase from 10m to 14m. While the number of turbines is halved, the turbines



will be taller and require larger 18 x 18 m footings, compared to the originally consented 14 x 14 m. The report identified that the earthworks will be rehabilitated to reinstate natural grades and revegetated, as per the original consent conditions. Most of the site roading is planned along a ridgeline, limiting its visibility from public and private viewpoints. Therefore, any landscape effects relative to the original consent will be reduced, given the fewer number of turbines proposed and the subsequent reduction in the extent of physical interventions needed.

It is opined in the LVA that the change in height, combined with a reduction in the number of turbines, will have a positive impact on the landscape character and that any additional potentially adverse effects will be localized and confined close to the construction footprint. These include larger turbine footings, wider road bench widths, and the formation of taller cut and fill batters on either side of the road where required.

The LVA concludes that a reduction in the number of turbines from 22 to 11 will lead to reduced landscape effects. The project will require approximately 40% less roading overall, and the total area of turbine platforms will also decrease by 17%. Due to these reductions and the obscured location of the roading and turbine platforms, the earthworks' effects are assessed as being noticeably less than what has been previously consented. Overall, the landscape effects are conservatively assessed as 'moderate' positive.

In my opinion, the assessment of landscape and visual effects is not a simple numbers game. The removal of turbines that are yet to be built does not automatically negate the visual and landscape effects of replacing other turbines with much larger ones. While fewer turbines might imply less visual clutter, the increased size of the remaining turbines could introduce a new scale of impact that is more dominant and eye-catching. Taller turbines are likely to be visible from greater distances and could have a more pronounced effect on key viewpoints, altering the character and amenity of the landscape in a way that is not proportionately offset by the reduction in numbers. Therefore, both quantity and scale should be carefully considered when assessing visual and landscape impacts.

In my opinion, the LVA does not provide adequate support for its argument that the landscape effects will be "moderate" positive. It is strongly recommended that further support for this premise is presented in evidence at the consent hearing.

## Visual Effects

The LVA states:

*Levels of visual amenity are generally associated with how 'natural' a place is. The more natural or unmodified the place is, the higher the level of visual amenity will be, typically. The site context and the wider rural setting beyond it has been modified over time through vegetation clearance and land drainage practices to provide for pastoral farming activities (Attachments 1 – 1C and Cover). This has led to widespread erosion and unsightly scarring of the landscape - particularly on steeper slopes. As such, the landscape surrounding, and including the site cannot be considered as being a high-value landscape and is assessed as having a low to medium degree of 'naturalness'.*

*Given the extent of change that has occurred within the landscape discussed above, the area's relative remoteness and low population, it is considered that the area including the site potentially has a high level of capacity to absorb change, including windfarms.*

*In general, from public and most, if not all private viewpoints, there will be a positive change in the landscape and the visual amenity derived from the current proposal when comparing it with the consented twenty-two-turbine windfarm (Attachments 6-10). The visual effects generated by the increased height of the northern retained eleven turbines is offset, or at worst, evenly balanced by the halving in turbine numbers. <sup>4</sup> [Emphasis added]*

<sup>4</sup> Page 13. IBID





In my opinion, the premise used to determine visual amenity is too narrow and is not supported by the current best practice approach. Best practice considers visual attributes and values associated with a landscape as a subset of landscape character and as such visual assessment is a specific tool which focuses on the effects of change on landscape character change from specific locations.

As with the wider landscape analysis, consideration needs to be given to the various attributes that contribute to the visual amenity of each location. In my opinion, this includes other physical, perceptual and experiential factors which may include the various cultural, historical, and social elements that contribute to the character and quality of an area for the viewer. This often includes built structures, land use, and other anthropogenic features that form the backdrop to people's lives and experiences. Therefore, assessments of visual amenity must consider a range of factors, from natural topography and vegetation to human-made elements and modifications and how they interact to influence landscape character from each view location identified.

Again, I do not support the approach taken within the documents that suggest that an increase in the adverse effects at one location can be discounted by a decrease in effects on another location to give an average effect. This is because each view location represents a different viewing audience, whose perspective and sensitivities to change may also differ. It is now best practice to identify such sensitivities where known and is common to differentiate between the sensitivities of public and/or transient views from views around a dwelling and views from less frequented parts of a property. It is however acceptable to identify that a range of effects may occur and to discuss the frequency of each magnitude rating.

## Effects of Distance on Receptors

In discussing the effect of distance on visual effects the LVA identifies that the Zone of Theoretical Visibility (ZTV) analysis for the amended windfarm shows a small increase in the visibility of the proposed windfarm compared to the consented scheme. This increase is identified as mainly affecting the more sparsely occupied farm and forestry lands, and the adverse visual effect associated with the increase in turbine size will be low to very low.

The LVA states:

*During the site visit and assessment process, it was determined that an additional 62.5 m turbine height will be difficult to discern for occupants of residences and the public for the following reasons:*

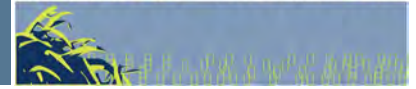
- Intervening topography and existing vegetation cover will screen or buffer views.*
- The distance between turbines and viewpoints will reduce any adverse visual effects through the diminishing effects of perspective.*
- The turbines are aligned along a north-south axis away from most residences.*
- Most of the residences are located to the south of the site who will be further from the proposed windfarm than they were from the consented windfarm.<sup>5</sup>*

Furthermore, the increased distance from properties to the south would help reduce any potential adverse visual effects. Wireframe images prepared by the Applicant were used as part of the assessment to help substantiate these points.

The VLA identifies that as the distance from the wind farm increases, adverse visual effects will lessen. The removal of eleven turbines near residential areas also contributes to an overall positive visual impact. Partial views may be possible from specific roads and villages, but given the considerable distance and the reduction in the number of turbines, the overall visual effects of the wind farm will be reduced, ranging from 'nil' to 'very

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<sup>5</sup> Page 14. IBID



high' positive depending on the viewpoint. Therefore, any change in visual effects due to increased turbine height will be largely unnoticeable from dwellings along specified roads and villages.

In my opinion, from a review perspective, the conclusion reached in the VLA that the effects will be positive, is not supported by sufficient analysis within the body of the report around the various premises considered in the assessment and how they have been applied and weighted. This is different from there being insufficient information contained within the VLA to understand the nature of the proposed development, which was addressed through the s92 process.

## Visual Effects Arising from the Specifics of the Proposal

This section of the VLA discusses specific effects in relation to:

- a. Zone of Theoretical Visibility (ZTV) Maps
- b. Hub and Tower Height
- c. Blade Tip Height (Overall Turbine Height)
- d. Changes at Ground Level
- e. Shadow Flicker; and
- f. Visual Effects on Specific Identified Third-Party Dwellings in the Receiving Environment.

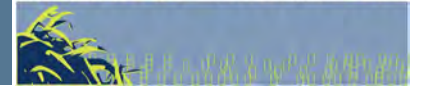
The ZTV maps indicate the theoretical visibility of the turbines within a 15 km radius. A digital comparison between the existing and proposed ZTVs by Energy3 shows no increase in the number of turbines visible from certain viewpoints, even with the increased height of eleven turbines. The maps also identify an area where visibility will decrease due to the removal of eleven southern turbines. However, it's important to note that these findings assume no intervening structures or vegetation, which could potentially significantly reduce visibility.

The hub height of the turbines will increase by 58%, from 60m to 95m, which is considered to have low adverse visual effects based on accurate visualizations provided by the Applicant. Changes in other dimensions of the turbine components, such as tower diameters and blade width, will increase between 22% and 40%. Despite these increases, the visual effects are considered acceptable and likely indiscernible from viewing distances, given that these changes are relatively small compared to the overall increase in turbine height.

These conclusions are not supported by the numerical data provided or a supporting analysis. While it is accepted that the proposed turbine will not be seen within the context of the existing consented design, in my opinion, it is an error of logic to conclude that the size increases will be indiscernible.

The VLA identifies that the blade tip height will increase by 58%, changing the turbine height from 110m to 172.5m. However, two mitigating factors will lessen the visual impact. First, the new 'narrow' blade design with a maximum width of 4m reduces the extent of the shadow flicker zone compared to the original design. Second, the larger turbines will have a slower maximum blade rotation speed of 12.5 rpm, compared to the consented 18 rpm, making the rotation appear 'calmer' and less visually intrusive. These factors partially compensate for the increased visual effects due to the overall height.

While I concur with the general analysis that a slower rotation speed will appear 'calmer', the LVA does not explain why or how the slower blade rotation speed affects levels of visual intrusion. Visual intrusion usually refers to the impact that a new structure has on the existing visual landscape, particularly when it is perceived as out of character or disruptive to its surroundings. The level of visual intrusion can depend on various factors such as the size, shape, colour, and location of the new elements, as well as the existing character of the landscape and how visible the new elements are from key viewpoints. Movement is likely to draw attention to an intrusive element, rather than being the cause of its intrusion.



In terms of shadow flicker, the VLA states:

*The extent of the shadow flicker zone is reduced by approximately 100 m compared with the consented turbines as the proposed turbines include 'narrow width' blades. Shadow flicker effects are determined by multiplying the maximum blade chord width by a factor of 26524. The maximum blade chord width is 4 m (or a radius of 1,060 m centred on each turbine). It is understood that no additional (recently constructed) dwellings are located within the potential shadow flicker zone compared with the consented windfarm. Shadow flicker effects are therefore not addressed further in this LVA.*

The shadow flicker zone is not identified in the VLA report, meaning that the conclusions reached around shadow flicker can not be independently verified through the review process.

The VLA assesses the effects of the proposal from public view locations representing the dwellings identified in Figure 1 of the attachments to the LVA (and shown in Figure 3 below):

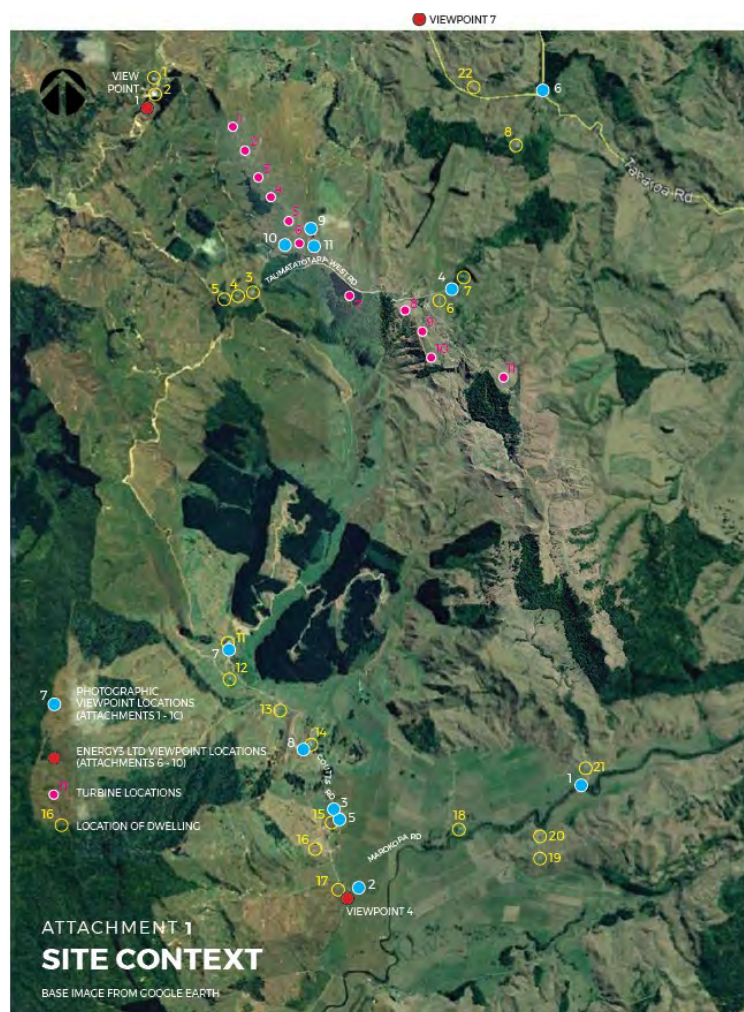
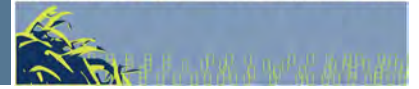


Figure 3: Attachment 1 from the LVA

The assessment of visual effects section of the LVA evaluates the visual effects of the proposed modification against those of the previously consented wind farm. The LVA identifies that the effects on visual amenity from the dwellings identified in Figure 3 (above) were considered and rated. ZTV mapping was used, supplemented by field-based observations and line-of-sight analysis, although some details like vegetation that could obscure views were not included.



For each dwelling, the assessment compares the new proposal to the consented scheme:

- a. Dwelling '22': Newer and not part of the original consent. Views were assessed from a nearby road. 10 of 11 new turbines are expected to be partially visible, compared to 4-6 in the original scheme.
- b. Dwellings '18' and '21': Fewer but taller turbines will be visible, reducing overall visual impact.
- c. Dwellings '19' and '20': 1-3 new turbines visible due to local topography, fewer than in the original scheme.
- d. Dwellings '14' to '17': Reduced but still significant visibility. Effects considered 'low-moderate' positive.
- e. Dwelling '13': Likely full screening by local topography and possible forestry, much reduced from the original scheme.

The LVA summarises the visual effects on the assessed dwellings as follows:

*In summary, any adverse visual effects of the variation to increase the turbine heights by 62.5m is balanced by the surrendering of eleven turbines which were closer to the twelve potentially affected dwellings at that time. Dwelling '22' is a 'new' dwelling in the area which was not considered when the visual effects assessment was carried out for the previously consented scheme. Nonetheless any visual effects relative to this dwelling have been assessed - based on the consented windfarm forming part of the baseline environment. This dwelling is elevated on a high point at a similar elevation to the windfarm with 360-degree views, where most of the windfarm will be visible, which will generate potentially 'low' adverse visual effects. Relative to the other dwellings located within the site context, the proposal will have varying degrees of positive visual effects on these parties ranging between 'low-moderate' and 'high' positive on the seven-point scale of effects used throughout this LVA.<sup>6</sup>*

The effects are categorized as "low," "low-moderate," "moderate," or "high" and are based on the number of turbines visible, the distance from the turbines, the elevation of the dwelling, and other factors like intervening topography and vegetation. Effect ratings from the LVA, for each dwelling, are summarised in the following table:

Dwelling	Turbines Visible (Proposed)	Turbines Visible (Consented)	Distance to Closest Turbine	Visual Effect Rating (Positive/Negative)
22 (Taharoa Road)	10 of 11	4-6	Not Specified	Low Adverse
18 (Marokopa Road)	4-6	7-9	4.2 kms (closest)	Low-Moderate Positive
21 (Marokopa Road)	1-3	4-6	3.7 kms (closest)	High Positive
19 (off Marokopa Road)	1-3	4-6	5.2 kms (closest)	Moderate Positive
20 (off Marokopa Road)	1-3	4-6	Not Specified	Moderate Positive
14-17 (Coutts Road)	10-11	19-22	3,850 m (closest)	Low-Moderate Positive
13 (Coutts Road)	1-6	13-15	3,700 m (closest)	Not Specified

The effects on other dwellings to the north are addressed in the s92 response from Shearer Consulting Ltd (26 August 2021) states:

*Overall, there are few dwellings to the north of the 11 turbine windfarm outside of the wind farm landowners. One of these have signed an affected party form. One has a view that is not significantly different from the existing consented environment. The other two dwellings on Te Waitere Road are some distance from the wind farm, with the furthest being able to view more turbines, and the effects assessed as being 'moderate' using the NZLI Assessment Guidelines, and the other 'low'. However overall, the previous landscape assessment for the variation proposal identified the effects of the proposed variation as being 'low'.<sup>7</sup> [Emphasis added]*

It is unknown if these dwellings were assessed or reviewed by the author of the WSP report. This should be clarified at the hearing.

<sup>6</sup> Page 21. IBID

<sup>7</sup> Page 2. p.Waitomo District Council: Request for Clarification of Section 92 information – Application number RM200019 to amend conditions of the existing consent – Taumatotara Wind Farm Limited. Shearer Consulting. 26 August 2021.





As identified previously in this memorandum, I am concerned by the “balancing” approach taken in the analysis of effects within the assessment.

From the surrounding public roads, the LVA rates the effects of the modified wind farm as ranging between conservatively 'low' adverse to 'very high' positive. The primary viewpoints are located on the local roads, where visibility is often limited due to winding routes, roadside vegetation, and topography. Several factors contributed to the assessment:

- a. The number of turbines is now half of what was previously consented to, reducing overall visibility.
- b. The area's remoteness and its already modified character increase its capacity to absorb further change, such as additional turbines.
- c. The wind farm's north-south orientation and its setback from busier roads like Coutts Road and Marokopa Road minimize visibility.
- d. The use of narrow turbine blades reduces shadow flicker effects compared to wider blades that were previously consented.
- e. Winding roads often pass through areas where the view is obstructed by cuttings or vegetation.
- f. Existing vegetation patterns, including forestry, further limit the visibility of the wind farm from various viewpoints.
- g. The slower rotational speed of the turbine blades, compared to previously consented turbines, lessens their visual impact.
- h. Given these mitigating factors, the report concludes that the increase in turbine height will not significantly alter the visual impact, maintaining it within a range of 'low' adverse to 'very high' positive.

In general, I concur with the approach taken for the assessment of public views, which are mostly transient and are expected to have lower viewer sensitivity.

## Conclusions

The key points contained within the conclusions are:

- a. The size of the turbines, whether 110 m or 172.5 m, are all very large, and the height difference is not easily discernible without a side-by-side comparison.
- b. The assessment aims to evaluate the differences in visual and landscape effects between the consented and proposed turbine attributes.
- c. The proposed changes will have at worst, 'low' adverse visual effects. For most potentially affected parties, the effects range from 'low-moderate' to 'very high' positive.
- d. Landscape effects are assessed as 'moderate' positive, and they will be less than the consented effects due to halving the number of turbines.
- e. The site is remote with low permanent occupancy and is not a tourist hotspot.
- f. Several dwellings near the proposal are owned by landowners who have consented to have turbines on their properties.
- g. The site is suitable for renewable energy and has been significantly modified for farming, affecting its physical landscape negatively.
- h. The proposal seeks to halve the consented number of turbines, and the remaining turbines are in similar locations to those originally consented.
- i. The slower rotational speed of the new blade design will offset any additional visual effects due to the increased height.

As identified previously, I do not consider the findings to be adequately supported by the analysis and therefore from a review perspective, it is difficult to understand how the various ratings have been determined.





## Recommendations

The LVA makes the following recommendations:

*Avoidance of effects has been primarily achieved through locating the proposed retained turbines to the north, away from the more settled areas located along Coutts Road and Marokopa Road. Other avoidance techniques are no different to what has been consented to date which includes locating most of the access roading along the ridgeline - avoiding more visible and potentially erodible slope faces.*

*No mitigation measures are proposed, nor considered feasible or effective. It is acknowledged that mitigation was not proposed in the original consent application.*

*As previously discussed, and no different to what has been consented to date, remediation includes the careful battering back of cut and fill slopes to natural grades where possible in areas where the access roading corridor is proposed. These exposed cut and fill areas will be fully revegetated to reduce erosion and prevent landscape scarring.<sup>8</sup>*

I concur with the above and agree that it is unlikely that any additional mitigation measures could be imposed on the development that would lessen its effects (from a landscape and visual amenity perspective).

## Plans and Graphics

Relevant maps and graphics contained in the VLA and Attachments include:

- a. Site Context Plan (Attachment 1): This plan identifies the location of the proposed turbines, viewpoints, and dwellings. Photographs from each viewpoint are included in the attachment. The photographs are not presented in a manner consistent with the recommendations of the *NZILA Best Practice Visual Simulations 10.2*.
- b. Zones of Theoretical Visibility Mapping (Attachment 2): ZTV analysis plans, which identify the theoretical zone of visibility surrounding the application site, are provided for the consented scheme, the proposed development, net visible increase and the visibility variance. The ZTV analysis is colour-coded to indicate the relative visibility of features within the area subject to the consent application.
- c. Photomontages: Photomontages and wireframe terrain models with turbines for each view location point identified by Energy3 Services Ltd are included. The photomontages are presented in general accordance with the *NZILA Best Practice Visual Simulations 10.2*. An explanation of the approach used in the preparation of the photomontages is contained in *T4 Wind Farm Response to Mansergh Graham Project Memorandum 2nd December 2019*. It is noted that the photomontage view locations sometimes differ from the view location points identified within the LVA.

## REVIEW OF SUBMISSIONS RECEIVED

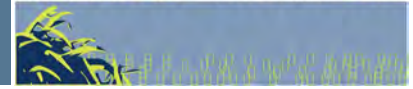
Of the 15 submissions received, 14 are in opposition with the remaining 1 in support. Submissions relating to landscape, visual or amenity effects comprise 6 of the total submissions, indicating that it is a prominent issue. Relatively little detail is presented in the submissions beyond raising the issue.

The key issue raised in the submissions relates to concerns over:

- a. Adverse effects on landscape character and/or visual amenity (Submissions 1, 4, 6, 9, 15)
- b. Adverse effects on the cultural Landscape (Submission 8)
- c. The effects of the flashing lights at night (Submission 4)

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<sup>8</sup> Page 8. Landscape and Visual Assessment Proposed Variation to Consent. Revision 3. 22 March 2021. WSP.



## FINDINGS

As identified above, while I consider that the LVA report (and supporting information) prepared by WSP provides sufficient information to understand the nature of the application and the effects that are likely to arise from it, I remain concerned that the premises and weighting applied during the assessment mean that the effects of the increase in the size of the proposed turbines are underestimated.

In my view, evaluating landscape and visual effects goes beyond a numerical approach. Eliminating yet-to-be-built turbines doesn't necessarily counterbalance the effect of installing larger turbines as replacements.

Although having fewer turbines may reduce the visual effects within the southern part of the visual catchment of the consented wind farm, it does not necessarily negate the effects of the larger turbines on the visual catchment in the north, which are likely to be more noticeable and dominant within that part of the landscape. Additionally, the larger turbines are likely to be visible over greater distances and could disproportionately influence key viewpoints, thereby changing the character and overall quality of the landscape. Consequently, both the number and the size of turbines should be thoughtfully weighed in assessing their visual and landscape impact.

From a review perspective, it is not clear how the various effects ratings have been determined as the effect ratings lack supporting analysis or independent research on how turbine size impacts visual perception. Consequently, the validity of the ratings is questionable, making it hard to understand how a 58% increase in turbine size results in minimal adverse effects or even positive effects when combined with other factors.

This does not necessarily mean that the conclusions reached in the LVA are incorrect, rather it means that the conclusions reached are not sufficiently supported to allow an independent reviewer to apply the same approach and reach the same conclusions.

The WSP LVE report largely relies on a desktop review and a 2012 original assessment, with minimal on-site verification done in 2019. In addition, the focus of the assessment is on the southern (Marokopa) end of the consent activity, with less analysis undertaken in the northern part of the visual catchment.

There's a discrepancy between the report's identified view locations and the photomontages by Energy3 Ltd. Although a site visit was reported in 2019, many included photos date back to 2012, and it's unclear if these locations were revisited. The report also relies on Google Earth Street View for assessing effects from one view location, which is not a reliable tool for in-depth analysis.

It is strongly recommended that further evidence is presented at the resource consent hearing to address these concerns.

## RECOMMENDED CONDITIONS OF CONSENT

I have reviewed the conditions of consent contained in the s42A report and support the inclusion of the landscape conditions, should consent be granted.

**Dave Mansergh**

DipP&RM(Dist), BLA(Hons), MLA. Registered ANZILA  
Director