Highfield Farm Wind Turbine Repowering Application Reference: 4/24/2334/0F1

Planning Statement Addendum

Prepared for

CONSTANTINE WIND ENERGY

Constantine Wind Energy

February 2025
3369-09-PSA-03

Document Control

Revision	Date	Prepared By	Reviewed / Approved By
3369-09-PSA-02	January 2025	HS	ARB / MP
3369-09-PSA-03	February 2025	HS	SH

Well House Barns, Chester Road, Bretton, Chester, CH4 0DH

Camelia House, 76 Water Lane, Wilmslow, Cheshire, SK9 5BB

T: 0344 8700 007
enquiries@axis.co.uk
www.axis.co.uk

CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1.1 This Planning Statement Addendum has been prepared on behalf of Constantine Wind Energy (hereafter referred to as 'CWE' or 'the Applicant') in support of planning application (ref: 4/24/2334/0F1), which was validated by Cumberland Council (as the local planning authority, LPA) on 30th September 2024. This Addendum should be read alongside the original Planning Statement.

1.1.2 The planning application seeks to install and operate a single replacement 250 kilowatt (kW) wind turbine up to 76 m tall ('the Proposed Development') at an existing wind turbine site located at Highfield Farm, Egremont ('the site').

1.1.3 This Addendum specifically responds to a number of clarifications requested by the LPA. For ease of reference the points of clarification have been set out below and are addressed in subsequent sections of this report:

i) **Output of the proposed turbine** – the LPA has requested an explanation on what this would be when compared against the existing turbine on the site.
ii) **Consideration of a smaller turbine** – the LPA has set out *'assuming there is no proposed significant increase in output, is there scope to consider replacement with a smaller turbine with similar increase in efficiencies'*.
iii) **Biodiversity Net Gain** – the LPA has requested an accompanying statement for the submitted metric to explain what the metric shows.
iv) **The New Copeland Local Plan** – the new Local Plan was formally adopted by Cumberland Council on 5th November 2024. The LPA has requested that the Addendum assesses the proposals against the policies in the New Local Plan.
v) **Coronation Terrace and adjacent Springbank, Low Walton and High Walton** – the LPA has identified that these residential receptors may be affected by the Proposed Development in respect of proximity, views to the rear, noise and shadow flicker. The LPA has also requested assessment of a further representative viewpoint from this location.
vi) **Noise and Shadow Flicker assessments** – the LPA has requested that these documents are revisited in case there are inconsistencies in the planning documentation, as well as to provide more clarity on what is assessed and any likely impacts.

vii) **Benefits of the Scheme** - whilst the LPA notes that it is not a requirement for the Applicant to demonstrate the overall need for the development (para 168 revised National Planning Policy Framework (NPPF)) the LPA has requested that the Applicant sets out the *'associated benefits'* of the repowering scheme, noting that the NPPF refers to over and above the existing, and its contribution to net zero.

2.0 THE PROPOSED DEVELOPMENT

2.1.1 The site currently operates as a single 250 kW turbine derated to match the maximum grid capacity of site 225 kW, with a 30 m hub height, 29 m diameter blades, and a total tip height of 44.5 m.

2.1.2 The Proposed Development is for a Vestas V52 turbine which has a hub height of up to 50 m, 52 m diameter blades and a maximum tip height of 76 m.

2.2 Output of the Proposed Development

2.2.1 The repowering of existing renewable energy facilities, particularly existing turbines, is a key component of the future energy mix in the UK, and it is paramount that as much energy is generated and captured at operational sites across the UK to meet the UK Government's net zero targets.

2.2.2 The amount of electrical energy generated by a wind turbine that is exportable to grid for wider consumption is limited in part by its grid point of connection. Before a developer connects their wind turbine to the grid, they are offered and agree the maximum capacity of the export at the point of connection.

2.2.3 The export capacity of the point of connection at Highfield is 225 kW. This means that in any one hour a maximum of 225 kilowatt-hours (kWh)[1] of electricity may be exported to the grid from this site, and in two hours this would mean a maximum of 450 kWh (etc.).

2.2.4 Currently, the site at Highfield is not maximising the use of its grid connection for the export of electricity as the existing turbine is not as efficient as newer models.

2.2.5 The Proposed Development would increase the total amount of electricity generated on the site, and maximise the amount of renewable energy being exported to the grid, through the installation of a more efficient wind turbine, which:

[1] *kW (kilowatt): indicates the instantaneous power output i.e. the power the wind turbine is generating at a specific moment.*
kWh (kilowatt-hour): measures energy i.e. the electrical energy output over an hour period.

i) Can capture the increased wind speeds at higher elevations. Wind flows more freely with increases in height, as there is less friction and gravity has a reduced effect, even at modest height increases at higher elevations;
ii) Has an increased swept area of wind capture due to the larger blades, which allows the turbine to operate more efficiently at lower wind speeds;
iii) Has an improved energy conversion efficiency due to the newer turbine technology, meaning less energy is transferred away from grid export by the mechanical workings of the turbine; and
iv) Is more reliable and less prone to maintenance and repairs in the longer term.

2.2.6 Due to the increased swept area and improved conversion efficiency alone, the proposed turbine would generate more electricity at any one wind speed than the existing model.

2.2.7 Table 2.1 below captures the difference in generation at typical wind speeds. The data in able 2.1 has been taken from the wind turbine specification documents, and the relevant page for the existing wind turbine is found at Appendix B of this planning statement addendum and the proposed turbine is in Appendix C.

Table 2.1: Comparison of existing and proposed wind turbines electricity generation at different wind speeds.

	Existing Turbine	Proposed Turbine
Wind m/s	**kW Generated**	**kW Generated**
1	0	0
2	0	0
3	0	0
4	6.3	25.5
5	16.8	67.4
6	27.8	124
7	46.2	197
8	**73.1**	**225**
9	101.8	225
10	130.1	225
11	156.3	225
12	179.4	225
13	198.8	225
14	214	225
15	225	225
16	225	225

2.2.8 Using the wind speed 6 meters per second (m/s) as an example, it can be seen that the existing turbine at that wind speed only produces 27.8 kW – or in other words 27.8 kWh for each hour it experiences that speed. In comparison the proposed turbine would produce 124 kW. Additionally, the proposed turbine would maximise the site's grid export capacity at winds as low as 8 m/s, while the proposed turbine can only achieve this at much less frequent winds of 15 m/s and above.

2.2.9 The Proposed Development is rated to meet the annual electricity needs of approximately 322 UK homes compared to the 159 UK homes that the current turbine provides for (which is an additional 163 homes a year or 198 % uplift).

2.3 Consideration of a Smaller Turbine

2.3.1 The Proposed Development has various advantages, as set out in 2.2.5 above. However, fundamentally it has been specifically designed to ensure that it efficiently generates the 225 kW permitted through the grid connection. The additional electricity generation would meet the needs of a further 163 UK homes, when compared to the output of the existing turbine (159 homes). This 198 % uplift and more effective output to the grid assists in justifying the scale of the Proposed Development. A smaller turbine would be less efficient than the Proposed Development, would result in less electricity generated, and would not maximise the output of electricity on the site / into the grid connection.

2.3.2 The Government has set an ambitious target to decarbonise Great Britain's electricity grid by 2030. In terms of onshore wind energy generation, the National Energy System Operator (NESO) Clean Power 2030 report calculates that 1.9 GW of onshore wind energy will need to be delivered a year from 2023 to 2030. This equates to doubling the existing (13.7 GW) capacity, which took almost 25 years to become operational, in seven years to reach the required 27.3 GW output. Therefore, existing onshore wind turbines must remain operational or be repowered to increase their productivity to meet the Government's 2030 target. The continued use of existing sites and their grid connection reduces environmental impacts (associated with new sites) and will not diminish the current renewable energy generation baseline. The Proposed Development is wholly in line with the need to increase capacity and decarbonised the grid.

2.3.3 Finally, it is also relevant that as demonstrated through the planning submission and associated documentation, the Proposed Development has been found to accord with the relevant policies of the Local Plan and would not result in any impacts on residential amenity (see section 6.0 below). As such there is no technical or policy basis to justify the installation of a smaller turbine.

3.0 PLANNING POLICY UPDATE

3.1.1 Since the planning application was submitted to the LPA, a new NPPF has been released and the new Copeland Local Plan has been adopted. This is discussed further in this section of the planning statement addendum.

3.2 National Planning Policy Framework (NPPF)

3.2.1 The revised NPPF was issued by the Government in December 2024 and minor revisions have been made to the previous December 2023 version. Changes made to chapter 14 'Meeting the challenge of climate change, flooding and costal change' are set out in Table 3.1 below, along with a planning policy assessment to assess whether the Proposed Development accords with the revised NPPF.

Table 3.1: Summary of changes to NPPF's chapter 14 and policy assessment.

2023 NPPF paragraph no.	Revised 2024 NPPF paragraph no.	Commentary on changes and policy assessment
157	161	Minor amendments to paragraph wording. Overall, the Proposed Development accords with the requirement to '*support the transition to net zero by 2050'*.
-	163	New paragraph inserted: *'163. The need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account the full range of potential climate change impacts'.* The Proposed Development aligns with the '*need to mitigate'* climate change through aiding in the transition to net zero.
161	-	Paragraph removed.
163	168	*'168. When determining planning applications for all forms of renewable and low carbon energy developments and their associated infrastructure, local planning authorities should:* *a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future;* *b) recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions;* *c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site'*. The Proposed Development accords with paragraph 168 (b) as it is a small-scale project which provides a '*valuable contribution to cutting greenhouse gas emissions'*.

2023 NPPF paragraph no.	Revised 2024 NPPF paragraph no.	Commentary on changes and policy assessment
		The Proposed Development's should be afforded significant weight for using an established site and optimising an existing grid connection point.
Footnote 57	-	*Footnote removed from revised 2024 NPPF, therefore no longer a requirement for wind energy developments to be consented through local development orders, neighbourhood development orders, and community right to build orders.*
Footnote 58	-	*Footnote removed from revised 2024 NPPF, which previously limited repowering applications to areas identified as suitable for wind energy developments in local planning policy and guidance, and following consultation, was given community support.*

3.2.2 Overall, the NPPF has been revised to give more support to repowering planning applications, particularly paragraph 168 (c), given the benefits associated with renewable energy generation and the re-use and optimisation of the existing grid connection. The Proposed Development therefore accords with the ambitions of the NPPF.

3.3 The New Adopted Copeland Local Plan 2021-2039

3.3.1 Cumberland Council adopted the Copeland Local Plan 2021-2039 on 5th November 2024 (hereafter referred to as the 'adopted Local Plan'). The adopted Local Plan comprises:

i) Copeland Local Plan 2021-2039
ii) Copeland Local Plan 2021-2039 Appendices
iii) Copeland Local Plan Proposals Map North
iv) Copeland Local Plan Proposals Map South

3.3.2 The adopted Local Plan replaces the Copeland Local Plan 2013-2028: Core Strategy and Development Policies DPD and the remaining saved policies from the Copeland Local Plan 2001-2016.

3.3.3 As requested, the Proposed Development has been assessed against relevant policies contained within the adopted Local Plan below.

3.4 Site Allocation

3.4.1 The Proposals Maps which support the adopted Local Plan illustrated that the site is not allocated or designated (i.e. it is 'white land').

3.4.2 The nearest policy allocations are an area of ancient woodland (Policy N14) circa (c.) 520 m to the north of the site and the Bigrigg Sustainable Rural Village settlement boundaries (Policy DS1 and DS2), and Policy H5 housing sites (references HBI1 and HBI2) c. 1 km to the east of the site.

3.5 Policy CC2: Wind Energy Developments

3.5.1 The key adopted Local Plan policy of relevance to the Proposed Development is Policy CC2, which states (with Axis's emphasis added):

> *"Large Turbines*
>
> *Wind turbines 50m in height or over must be located in an Area Suitable for Wind Energy as shown on the Local Plan Proposals Map,* ***unless the proposal is for the repowering of existing turbines or windfarms or is for a proposal to extend the life of an existing turbine.***
>
> *All Turbines*
>
> *Careful consideration should be given to siting, scale and design of wind energy developments and associated infrastructure to avoid individual and/or cumulative impacts on the following:*
>
> - *Landscape character including Historic landscape character*
> - *Residential amenity*
> - *Visual amenity and sensitive views*
> - *Biodiversity*
> - *Geodiversity*
> - *Flood risk*
> - *Townscape*
> - *Coastal change*
> - *Heritage assets and their setting including the St Bees and Whitehaven Heritage Coast*
> - *Highway safety*
> - *Aviation and defence navigation systems/communication*
> - *The amenity of sensitive neighbouring uses (including by virtue of noise, dust, odour, shadow flicker, air quality, traffic, visual impact or glare)*
> - *The Outstanding Universal Value of the English Lake District and the Frontiers of the Roman Empire (Hadrian's Wall) World Heritage Sites*

- *Water resources and water quality (including catchment land for public water supply purposes)*

Where proposals would result in significant adverse effects, proposals will only be accepted where this is outweighed by the wider environmental, economic, social and community benefits and in the case of the historic environment balanced against public benefit. Where harm is unavoidable, the planning application must include details of mitigation measures proposed in order to overcome or reduce such harm.

Proposals will only be considered suitable where it can be demonstrated that the planning impacts identified by local communities during consultation have been fully addressed…

Proposals for the re-powering of turbines in areas which are identified as unsuitable in principle could potentially be permitted where the impacts of such development, including cumulative effect, are considered acceptable. *This will be assessed on a case by-case basis."*

3.5.2 Paragraph 9.3.1, which supports the policy, states: *"In contributing towards the achievement of renewable energy targets the Council has produced a study that identifies and assesses appropriate land to allocate as Areas Suitable for Wind Energy (Wind Energy Technical Study). Full consideration must be given to the Study prior to submitting proposals for wind turbines."*

3.5.3 The Proposed Development relates to the repowering of an existing wind turbine, therefore it does not need to be located in the Area Suitable for Wind Turbines. For completeness the site is not located in the identified area.

3.5.4 The criteria listed in the policy above is responded to below in terms of the Proposed Development.

i) **Landscape character including Historic landscape character** – the potential impact the Proposed Development would have on the landscape character is discussed and assessed in the Landscape and Visual Appraisal submitted in support of the planning application. See section 5.0 of this Addendum for more detail on the landscape and visual effects of the Proposed Development. To summarise, the presence of wind turbines at the site is a well-established influence on the local landscape, and this would not change as a result of the Proposed Development.

i) **Residential amenity** – a shadow flicker assessment and a noise assessment have been conducted and submitted in support of the planning application to understand any likely impacts the Proposed Development would have on residential amenity. See section 6.0 of this Addendum for more details on this matter.

   a) With respect to noise, there are marginal exceedances of the 35 A-weighted decibels (dBA)[2] level set by ETSU-R-97 for the V52 and V58 turbines predictive noise modelling for residential receptors at Coronation Terrace, Wireless Station, Quarry Cottages, and Low Walton. Therefore, the predictive modelling noise levels at these properties have been compared to existing background noise levels and the predicted noise impacts from all three turbine models would be below the recorded background noise levels. Therefore, noise impacts are unlikely to occur at the receptors. As Highfield Farm is financially involved this receptor has a noise limit of 45 dBA as set by ETSU-R-97.

   b) With respect to shadow flicker, Quarry Cottages is anticipated to experience 2.7 hours of theoretical shadow flicker per year which sits well under the guideline annual threshold to flicker effects upon dwellings (30 hours a year), and under the realistic scenario this shadow flicker is eliminated.

ii) **Visual amenity and sensitive views** – a Landscape and Visual Appraisal has been submitted in support of the planning application and a further assessment is included in section 5.0 of this Addendum. In summary, a relatively small number of visual receptors would experience any visual change due to the Proposed Development and, while this is a landscape which largely comprises large-scale open farmland and has a low level of built form, it would be visible in and amongst other tall structures such as pylons which are located within close proximity to the site.

[2] Weighted decibels - to account for the fact that very low and high-pitched sounds appear less loud to the human ear, noise is usually measured in A-weighted decibels (dB(A)). A-weighting gives more value to middle frequencies and less value to high and low frequencies.

iii) **Biodiversity** – the Proposed Development would result in the removal of habitats of low to moderate biodiversity value. Furthermore, this loss will be replaced with biodiversity enhancements resulting in 10% above the existing baseline value.

iv) **Geodiversity** – the Proposed Development would not result in any impacts on geological designations within the vicinity of the site (the closest being Clints Quarry SSSI is c. 1.6 km from the site).

v) **Flood risk** – the site is not located within an area at risk from any source of flooding. Furthermore, the Proposed Development would not constitute a level of new hardstanding that would lead to a material change in the existing levels of surface run-off.

vi) **Townscape** – this is not relevant to the Proposed Development as the site is not located within or adjacent to an urban settlement.

vii) **Coastal change** – this is not relevant to the Proposed Development as the site is not located on the coastline.

viii) **Heritage assets and their setting including the St Bees and Whitehaven Heritage Coast** – this is not relevant to the Proposed Development as there are no on-site heritage assets nor would it impact the setting of any on-site assets. Noting the nearest heritage assets are c. 2 km away in the settlement of St Bees, which are not inter-visible with views of the site.

ix) **Highway safety** – a route access plan for large construction vehicles has been included within the planning submission. The main site access will use the existing access track to the site. Temporary traffic management is likely to be required for the delivery of abnormal loads and it is suggested that this is controlled through a suitably worded planning condition requiring the submission of a Construction Traffic Management Plan (CTMP).

x) **Aviation and defence navigation systems/communication** – the Applicant has not formally consulted with any of the key aviation stakeholders ahead of submitting the planning application. However, the height increase would not exceed parameters set out by the Civil Aviation Authority and it is considered, based on the Applicant's experience with other turbines of a similar height, that there would be no risk to aircraft or radar, which has been confirmed during the statutory consultation with stakeholders (MOD and NATS) during determination.

xi) **The amenity of sensitive neighbouring uses** *(including by virtue of noise, dust, odour, shadow flicker, air quality, traffic, visual impact or glare)* – see section 6.0 of this Addendum for more detail on the shadow flicker and noise effects and

section 5.0 for more detail on visual impacts of the Proposed Development. Dust, air quality and traffic impacts could occur during the construction of the Proposed Development and these impacts could be controlled through a suitably worded planning condition requiring the submission of a Construction Environmental Management Plan (CEMP). There would be no odour or glare impacts associated with the Proposed Development.

xii) **The Outstanding Universal Value of the English Lake District and the Frontiers of the Roman Empire (Hadrian's Wall) World Heritage Sites** – the Proposed Development would not result in any impact on either World Heritage Site due to the distance between the site and these heritage assets.

xiii) **Water resources and water quality** (including catchment land for public water supply purposes) – the Proposed Development would not result in any negative impacts to water resources and water quality.

3.5.5 Overall, as demonstrated above it is clear that the Proposed Development meets the criteria set out within the adopted Local Plan Policy CC2 as a repowering scheme.

3.6 Other Relevant New Adopted Local Plan Policies

3.6.1 An assessment of the Proposed Development against other adopted Local Plan policies is set out under the following subheadings:

i) Landscape and visual;
ii) Ecology and Biodiversity;
iii) Hydrology and hydrogeology;
iv) Traffic and transport;
v) Aviation and telecommunications;
vi) Design;
vii) Residential amenity – noise and shadow flicker; and
viii) Historic environment.

3.7 Landscape and Visual

3.7.1 Strategic Policy N6 Landscape Protection sets out criteria for how the local landscape will be protected and enhanced.

3.7.2 A comprehensive Landscape and Visual Assessment (LVA) was submitted as part of the planning submission. See section 5.0 of this Addendum for more detail on the landscape and visual effects of the Proposed Development.

3.7.3 A relatively small number of visual receptors would experience any visual change due to the Proposed Development and, while this is a landscape which largely comprises large-scale open farmland and has a low level of built form, it would be visible in and amongst other tall structures such as pylons which are located within close proximity to the site.

3.8 Ecology and Biodiversity

3.8.1 Policy N14 Woodlands, Trees and Hedgerows and Policy DS5 Hard and Soft Landscaping sets out that ancient hedgerow or woodland should only be removed in exceptional circumstances and that a management plan for the landscaping scheme should be submitted with proposals for development.

3.8.2 Policy N1 Conserving and Enhancing Biodiversity and Geodiversity sets out that any potential harm to biodiversity and geodiversity as a result of development must be identified at the earliest opportunity. The policy includes the 'Avoidance – Mitigation – Compensation' mitigation hierarchy for the approach to minimising harm to biodiversity and geodiversity. Strategic Policy N3 Biodiversity Net Gain sets out that all development should result in at least 10% biodiversity net gain. Furthermore, this must be managed and monitored by the landowner for a minimum period of 30 years.

3.8.3 In terms of geodiversity, the only statutory designation within 5 km of the site is the Florence Mine Site of Special Scientific Interest (SSSI). This is c. 3.57 km from the site. Due to the distance between the site and this SSSI, potential impacts are unlikely. Furthermore, there have been no impacts reported on the SSSI as a result of the construction and operation of the existing wind turbine, therefore it is unlikely that the Proposed Development would result in any.

3.8.4 The Preliminary Ecological Appraisal sets out the ecological conditions of the site and any potential ecological or biodiversity impacts the Proposed Development would cause.

3.8.5 The site is not within any statutory designated site for nature conservation, nor is it directly adjacent any statutory designated sites. Six national statutory designated sites are located within 5 km of the site, the closest (Clints Quarry SSSI) is located c. 1.56 km east.

3.8.6 The site does not include, nor is it adjacent, to any non-statutory designated sites. Four non-statutory designated sites are situated within 2 km of the site, the closest (Stanley Pond Local Wildlife Site (LWS)) is located c.1.44 km northwest.

3.8.7 The site is dominated by artificially unvegetated, unsealed surfaces (i.e., access tracks) and modified grassland, being bordered by vegetated linear features and encroached by native hedgerow. Open habitats within the site that would be impacted by the Proposed Development have low ecological value, and are not recognised as priority habitat types of any local significance. However, hedgerows, earth banks and other neutral grassland verge which border the site boundary are considered to be of moderate value to biodiversity, with hedgerows recognised as a priority habitat type.

3.8.8 There will be no hedgerow or woodland removal as part of the Proposed Development. The primary impact to on-site habitats is the small loss of grassland habitats.

3.8.9 No landscaping works are proposed as part of the Proposed Development due to the nature and location of the site. However, biodiversity enhancements are proposed to meet a 10% net gain (0.45 habitat units and 0.01 hedgerow units are required). The location of the biodiversity enhancement works will be agreed with the LPA through a planning condition and subsequent legal agreement. Further detail on biodiversity net gain is set out in section 4.0 below.

3.8.10 Overall, the Proposed Development is in line with the requirements of adopted Local Plan Policies N14, DS5, N1 and N3. Therefore, it is considered that the biodiversity enhancement to be delivered by the Proposed Development carries **some positive weight** in the overall planning balance.

3.9 Hydrology and Hydrogeology

3.9.1 Strategic Policy DS6 Reducing Flood Risk, Policy DS7 Sustainable Drainage and Policy N5 Protection of Water Resources relate to ensuring development does not result in flooding or negatively impact on water quality. Policy DS8 Soils, Contamination and Land Stability ensures that development does not result in soil degradation, surface water run-off, contamination and / or land instability.

3.9.2 The site is not located within an area at risk from either river, coastal or surface water flooding. Furthermore, the Proposed Development would not constitute a level of new hardstanding that would lead to a material change in the levels of surface run-off. The site will not be connected to the drainage network and will therefore rely on surface water drainage soaking away on the permeable land as is currently the case.

3.9.3 There will be no potential for soil degradation, contamination or land instability as a result of the Proposed Development.

3.9.4 It is anticipated that a CEMP would need to be submitted to the LPA ahead of any works commencing on the site to agree the construction methodology and ensure no negative impacts on soils could occur.

3.9.5 As demonstrated above, the Proposed Development would not result in flooding, or the deterioration of the water environment or on the quality of existing waterways in accordance with adopted Local Plan Policies DS6, DS7, DS8 and N5. Overall, the impacts of the Proposed Development on hydrology and hydrogeology would be **neutral** in the overall planning balance.

3.10 Traffic and transport

3.10.1 Section 3.0 of the Planning Statement submitted in support of the planning application sets out the likely number of HGV trips needed for the construction of the Proposed Development. Any potential traffic impacts and temporary traffic management for abnormal loads to arrive to the site are anticipated to be controlled through a suitably worded planning condition requiring the submission of a CTMP. Therefore, any potential traffic and transport impacts during the temporary construction phase of Proposed Development would be fully controlled and mitigated through a CTMP as agreed with the LPA.

3.10.2 The Proposed Development therefore complies with the relevant requirements outlined in Policy CC2. Overall, the impacts of the Proposed Development on traffic and transport would be **neutral** in the overall planning balance.

3.11 Aviation and telecommunications

3.11.1 In terms of impact on aviation, the site is located within the Ministry of Defence Low Flying Area (LFA) 17 and the closest listed aerodrome to the Proposed Development is Walney aerodrome c. 55 km south in Barrow-on-Furness. Whilst the Applicant has not formally consulted with any of the key aviation stakeholders, the height increase would not exceed parameters set out by the Civil Aviation Authority[3]. It is considered based on the Applicant's experience with other turbines of a similar height that there would be no risk to aircraft or radar, however this would be confirmed during statutory consultation with stakeholders during determination.

3.11.2 With regard to telecommunications, the current turbine has not resulted in any objection / issue, and it is not envisioned that the Proposed Development would materially impact on telecommunications than the current installation.

3.11.3 The Proposed Development therefore complies with the relevant requirements outlined in Policy CC2.

3.11.4 The impact of the Proposed Development on aviation and telecommunications would be **neutral** in the overall planning balance.

3.12 Design

3.12.1 Policy DS4 Design and Development Standards sets out a number of design criteria for new development to meet to contribute positively to the health and wellbeing of residents.

3.12.2 Given the Proposed Development consists of the repowering of an existing wind turbine, there is limited options for the siting of the new turbine as the ambition is to remain as close to the existing turbine foundation as possible to minimise and effects on the environment. The construction of the Proposed Development are set by the

[3] *CAP 764, 2016*

manufacturers of the proposed wind turbine and is anticipated to consist of a steel tower and a lightweight composite material for the blades. The Proposed Development will reuse the existing ancillary infrastructure, with a minor extension to the existing crane pad and slight access track widening (near the crane-pad) constructed of crushed rock hardcore. This will allow for larger vehicles to install and sporadically access the site (to conduct repair works) as well as the eventual decommissioning of the Proposed Development. In terms of lighting, this will be required for the construction period only and would be controlled via condition, through the CEMP.

3.12.3 Overall, the Proposed Development has been designed to minimise impacts on its surroundings and is therefore considered to be in accordance with adopted Local Plan Policy DS4. Therefore, the Proposed Development's design is given **neutral** in the overall planning balance.

3.13 Residential Amenity – noise and shadow flicker

3.13.1 See section 6.0 of this Addendum for more detail on the shadow flicker and noise effects of the Proposed Development.

3.14 Historic Environment

3.14.1 Strategic Policy BE1 Heritage Assets, Policy BE2 Designated Heritage Assets, Policy BE3 Archaeology and Policy BE4 Non-Designated Heritage Assets relate to the protection of designated and non-designated heritage assets.

3.14.2 A full assessment of the Proposed Development's impact on surrounding heritage assets is found in section 6.6 of the Planning Statement submitted in support of the planning application. Overall, the Proposed Development has a negligible impact on surrounding heritage assets and is therefore considered to be in accordance with adopted Local Plan Policies BE1, BE2, BE3 and BE4.

3.14.3 The impacts of the Proposed Development on the historic environment would be **neutral** in the overall planning balance.

4.0 BIODIVERSITY NET GAIN

4.1.1 The Biodiversity Net Gain (BNG) metric submitted as part of the planning application sets out the existing conditions on the site, i.e. the baseline, and how many units will be lost due to the Proposed Development.

4.1.2 The BNG metric sets out that the Proposed Development results in a loss of 0.32 habitat units, and no loss of hedgerow units. The deficit of units required to reach 10% net gain post development are 0.45 habitat units and 0.01 hedgerow units.

4.1.3 There is no legal requirement to include the details of the enhancement measures, i.e. a 10% uplift in biodiversity on top of the baseline, within a planning application.

4.1.4 In line with planning practice guidance, it is anticipated that the BNG 10% requirement would be agreed through the standard planning condition attached to the decision notice. The details of the biodiversity enhancements are then submitted to the LPA as part of a condition discharge application. The future management of the ecological enhancement is also agreed through a planning condition discharge application and if necessary a legal agreement with the LPA.

4.1.5 As set out in section 3.6 above, the Proposed Development is in line with the requirements set out in adopted Local Plan Policy N3. Therefore, it is considered that the biodiversity enhancement to be delivered by the Proposed Development carries **some positive weight** in the overall planning balance.

5.0 LANDSCAPE AND VISUAL APPRAISAL

5.1.1 An LVA was submitted as part of the planning submission which assessed the Proposed Development against a baseline of no wind turbine present, which represents the worst-case scenario on the site based on landform alone and without surface screening features (such as trees and vegetation).

5.1.2 The LVA concluded the following:

i) The highest level of operational visual effects identified on representative viewpoints are Moderate Adverse at:
   a. Viewpoint 1, which represents a small number of properties located on Mirehouse Road, located at the southern extent of Whitehaven, 2.5 km to the north, north-west of the site. Views from Whitehaven, would be almost entirely screened and views of the Proposed Development would be limited to a small number of residential properties (mainly from upper storey windows) located on Mirehouse Road.
   b. Viewpoint 3, which is located on the western extent of Bigrigg, 1.2 km to the east, north-east of the site. This represents a small number of residential properties on the western edge of the settlement with most views from Bigrigg screened.
   c. However, the scale of effect is based upon the introduction of a turbine into the local environment, considered without the presence of the existing turbine at this location, as stipulated by relevant guidance. Therefore, it must be recognised that when considered against the existing turbine at the Site, the change in visual impact for the small number of receptors would not be at the level identified in the LVA, which is undeniably worse case.

ii) The Proposed Development would not alter any of the physical features of the Lake District National Park. Views of the Proposed Development would occur at a long distance and will form only a minor element of much wider views of the landscape. The Proposed Development would not alter any of the special qualities of this designated landscape and its setting.

iii) The Proposed Development would accord with the landscape objectives identified by Copeland Borough Council in the Wind Energy Technical Document, 2020. The area within which the turbine is located is assessed as having

moderate capacity for wind energy development of this scale. This capacity assessment considers sensitivity to development, landscape values and national designations. The presence of wind turbines at the site is a well-established influence on the local landscape, and this would not change as a result of the Proposed Development. Therefore, the capacity of the landscape to accommodate wind energy development would not be exceeded.

5.1.3 Overall, a relatively small number of visual receptors would experience any visual change due to the Proposed Development and, while this is a landscape which largely comprises large-scale open farmland and has a low level of built form, it would be visible in and amongst other tall structures such as pylons which are located within close proximity to the site.

5.1.4 The LPA requested additional viewpoints were assessed at a representative viewpoint from Coronation Terrace. This additional appraisal is discussed below.

5.2 Coronation Terrace, Springbank, Low Walton and High Walton

5.2.1 The LPA has requested that a set of residential properties, located 0.5 km west of the proposed turbine, are considered further from a landscape and visual perspective, along with representative views from this location.

5.2.2 Visual effects on nearby residential receptors were considered fully within the LVA, based on desk and site survey work, and the following was stated in the conclusion of the LVA at para. 6.1.4:

"The main views of the Proposed Development would be from within approximately 3 km from the site and would be from a small number of residential properties and footpaths which connect farms and local roads together."

5.2.3 In response to the comments raised, the Applicant has provided the following additional graphic information which complements the LVA submitted with the planning application:

- **Figure 1**: A plan at 1:5000 scale which utilises the ZTV information already shown on Figure 2.2 of the LVA and which focuses in on the location of Coronation Terrace, Springbank, Low Walton and High Walton.

- **Figure 2.1**: A wireframe which represents the existing view from Coronation Terrace. This illustrates that only the tips of the existing turbine blades are visible at present. As the wireframe is based on terrain data only, it does not include the screening effect of trees which are located on the eastern boundary of the properties, and which would likely heavily filter views of the existing turbine, particularly during summer months.
- **Figure 2.2**: A wireframe which represents the proposed view from Coronation Terrace. This illustrates that the proposed taller turbine would be more evident within the view than the existing turbine, however only the turbine blades would be visible, and the majority of the turbine mast would be screened. Within the view from Coronation Terrace, the proposed wind turbine would be located behind the brow of the intervening hill, reducing its prominence in the view. As mentioned in relation to Figure 2.1, the wireframe view does not include the screening effect of trees which are located on the eastern boundary of the properties.
- **Figure 3**: A wireframe from Low Walton which would be the same for the existing and proposed turbines as the intervening landform would screen the proposed turbine.

5.2.4 The ZTV shown on **Figure 1** illustrates the following:

- From the northern extent of properties mentioned by the LPA do not have a view of the existing turbine, nor would there be a view of the proposed turbine due to screening by the intervening landform. This comprises the properties at Low Walton.
- From the central properties, in the vicinity of Springbank Farm, the blue shading indicates that only turbine blades would be evident above the intervening landform. This does not take into account tree cover in the vicinity of the properties, which would filter views.
- From the southern properties, at High Walton and Coronation Terrace, while the proposed turbine blades and part of the turbine mast would be evident above the intervening landform, again this does not take into account tree cover adjacent to the properties.

5.2.5 Overall, the Proposed Development would be within the acceptable limits prescribed within adopted Local Plan Policy CC2 and Strategic Policy N6. Therefore, it is considered that the operational visual effects and the operational landscape effects should be given **some negative weight** in the planning balance.

6.0 RESIDENTIAL AMENITY - NOISE AND SHADOW FLICKER ASSESSMENTS

6.1.1 This section provides more clarity on the method and results of the noise assessment and shadow flicker assessment submitted in support of the planning application.

6.2 Noise

6.2.1 The correct Noise Assessment can be found at Appendix D of this Planning Statement Addendum, which is based on a slightly revised wind turbine location and resulted in a slightly reduced predicted noise levels at residential receptors for the V52 model. An assessment of Springbank and High Walton has been included in Table 6.1 below.

6.2.2 Noise emissions include from construction activities, operational vibration from the wind turbines, road traffic noise during the operation of the Proposed Development, infrasound and low frequency noise, and decommissioning effects. It is important to understand any noise impacts from the Proposed Development at the nearest noise sensitive receptors, which includes dwellings and gardens.

6.2.3 The assessment included taking background noise levels from the nearest noise-sensitive receptors to understand the baseline (existing) noise levels at these locations. A noise modelling assessment was then conducted by projecting the noise emission from the proposed turbine to these background noise levels. This calculated the operational noise level at the receptor locations under a range of wind speeds using the worst-case scenario of bare ground without any object screening.

6.2.4 The operational assessment of noise has been undertaken in accordance with the recommendations of ETSU-R-97, which requires the assessment of wind turbine noise to be assessed at night (between 23:00 and 07:00 hours) and during the ‘quiet daytime hours’ (evenings from 18:00 and 23:00, Saturday afternoons between 13:00 and 18:00 and Sundays from 07:00 until 18:00).

6.2.5 For the day-time period a noise limit of 35-40 dBA or 5 dBA above the prevailing background noise level is set (whichever is the greater). The distinction between the use of the absolute noise limit of 35 or 40 dBA is not explicitly stated. However, it relates to the number of receptor properties, the effect of the noise limit on the amount of electrical power generated and the duration of the level of exposure. At

night the noise limit is 43 dBA or 5 dBA above the prevailing background noise level, whichever is greater. Highfield Farm has a financial interest in the development, and therefore, in line with ETSU-R-97 the fixed lower limits referenced above (35 – 40 dBA daytime and 43 dBA at night time) can increase to 45 dBA at all times. The results of the noise assessment are set out in Table 6.1 below and subsequently discussed.

Table 6.1: Predicted noise modelling at residential properties

Property	Dwelling / garden proximity to Turbine (m)	Predicted Noise dB(A) ($LA_{90,10min}$)			ETSU-R-97 Noise Limit dB(A) ($LA_{90,10min}$)*	
		V52	E48	V47	Quiet daytime*	Quiet nighttime*
Highfield Farm (financially involved)	400	38.0	33.6	38.4	45**	45**
Coronation Terrace	495	35.9	31.6	36.3	52.1	50.8
Wireless Station	495	35.8	31.6	36.2	52.1	50.8
Quarry Cottages	470	36.4	32.1	36.8	52.1	50.8
Low Walton	505	35.6	31.4	36.0	52.1	50.8
Additional residential receptors assessed as requested by the LPA						
Springbank	530	35.1	30.9	35.5	52.1	50.8
High Walton	585	34.1	30.0	34.5	52.1	50.8

** Please note that 5 dB has been added to the background noise readings in line with ETSU-R-97.*
*** As Highfield Farm is financially involved a 45 dB limit has been applied in line with ETSU-R-97.*

6.2.6 In terms of potential noise impacts, both the V52 and V47 models would result in noise levels that are marginally greater than 35 dB $L_{A90,T}$ threshold prescribed in ETSU-R-97. However, the E48 model meets the required thresholds at all properties.

6.2.7 Due to the marginal exceedances associated with the V52 and V58 turbines, the noise levels at these properties have been compared to background noise levels, which were recorded at Coronation Terrace, in accordance with the ETSU-R-97 methodology for both the quiet daytime and for the nighttime periods. Background noise levels in the area surrounding the site are affected by noise sources including from road traffic using the A595 to the north-east. The selected measurement location at Coronation Terrace is representative of receptors furthest from the A595 where background noise levels are likely to be lowest. Background noise levels at

other receptor locations are therefore expected to be higher than those measured at Coronation Terrace.

6.2.8 The background noise levels at wind speeds of 10 m/s at Coronation Terrace were recorded as:

i) Quiet Daytime – 47.1 dB L_{A90}
ii) Quiet Nighttime – 45.8 dB L_{A90}

6.2.9 Using these background levels as a proxy for all receptor locations, it is clear that the predicted noise impacts from all three turbine models would be below the recorded background noise levels. Therefore, noise impacts are unlikely to occur at the receptors identified in Table 6.1.

6.3 Shadow Flicker

6.3.1 An updated Shadow Flicker Report can be found at Appendix E of this Planning Statement Addendum, which includes the assessment of Wireless Station, Coronation Terrace, Springbank and High Walton.

6.3.2 Shadow flicker is an effect that can occur when the shadow of a moving wind turbine blade passes over a small opening (e.g. a window), briefly reducing the intensity of light within the room, and causing a flickering effect to be perceived. Shadow flicker occurs when a certain combination of conditions[4] prevails at a certain location, time of day and year, and may have a negative effect on residents and occupants of affected properties.

6.3.3 Windfarm 4.2.1.7 has been used as the software modelling the results of shadow flicker impacts at properties within a buffer of 10 times the rotor diameter of the Proposed Development. Therefore, the assessment has been carried out using the model of a Vestas V52, with a 50 m hub height and 52 m rotor diameter, i.e. the largest turbine. A study area of 520 m radius regardless of bearing from turbine has

[4] Combination of conditions include: direct sunlight (no cloud cover, mist, fog etc. causing lower visibility which is shining in direct alignment onto the turbine to cause a shadow of the turbine onto receptors. Therefore, these conditions only occur at certain times of the year.

been examined, alongside additional properties exterior to this, and the modelling assumes the worst-case scenario of bare ground and 0% cloud cover at all times.

6.3.4 A separate more realistic scenario has also been assessed which uses meteorological (weather) data from the nearest Met Office Meteorological Station to reflect the local weather conditions.

6.3.5 The last update to the UK Shadow Flicker Guidance Evidence Base[5] stipulates those properties within 10 blade rotor diameters of a proposed turbine, within 130 degrees of due north, should be assessed for potential impacts. Whilst this update does not provide any acceptable levels of shadow flicker, best practice guidance from various countries suggests that a limit of 30 hours per year, or a maximum of 30 minutes per day on the worst affected day are appropriate thresholds.

Table 6.2: Predicted shadow flicker events (0.5 hours = 30 minutes) at residential properties

Property	Façade of dwelling proximity to Turbine (m)	Hours per year of Shadow Flicker (SF)	Maximum hours per day of Shadow Flicker	Realistic Shadow Flicker events in one year (hours)
Highfield Farm (financially involved)	400	No SF recorded	No SF recorded	No SF recorded
Low Walton	510	No SF recorded	No SF recorded	No SF recorded
Quarry Cottages	480	2.7	0.3	0.8
Additional residential receptors assessed as requested by the LPA				
Wireless Station	500	No SF recorded	No SF recorded	No SF recorded
Coronation Terrace	520	9.25	0.42	2.64
Springbank	550	No SF recorded	No SF recorded	No SF recorded
High Walton	600	No SF recorded	No SF recorded	No SF recorded

6.3.6 With respect to shadow flicker, only two of the nearby identified receptors is anticipated to have times of possible shadow flicker. In accordance with PPS18, these properties would only be subject to a combined maximum of 11.95 hours of theoretical shadow flicker per year, without realistic adjustments which drastically reduce this number, which sits well under the acceptable guideline annual threshold to flicker effects upon dwellings. It is therefore considered that the height increase of

[5] *DECC (2011) Update of UK Shadow Flicker Evidence Base*

the Proposed Development would not cause unacceptable shadow flicker on nearby receptors.

Summary of Impact on Residential Amenity

6.3.7 The Proposed Development would not cause unacceptable environmental impacts on residential amenity and therefore accords with the requirements of adopted Local Plan Policy CC2. Therefore, the perceived shadow flicker and noise impacts are considered to hold **minimal negative weight** in the overall planning balance.

7.0 SUMMARY OF PLANNING ASSESSMENT

7.1.1 The Proposed Development is for the repowering of an existing wind turbine. Therefore, whilst the site is located within the open countryside, the principle of the development has been set through the approval of the previous planning application ref: 4/13/2047/0F1.

7.1.2 The changing nature of the UK's energy requirements is clearly defined by national planning policy, which clearly identifies an essential requirement for additional generation capacity to meet demand and support the transition to a low carbon, resilient energy network. The Proposed Development should be afforded **significant positive weight** in this regard as it would support by support decarbonisation of the electricity generation through the replacement of the existing turbine with a more an efficient and larger turbine, which provides a greater contribution to the UK's energy security ambitions and carbon emissions reductions.

7.1.3 The operational landscape effects as a result of the Proposed Development would be no greater than Minor Adverse, which is given **limited negative weight**. In terms of operational visual effects, a small number of residential properties on Mirehouse Road (VP1) and on the edge of Bigrigg (VP2) would experience a 'Moderate Adverse' effect, which is given **some negative weight**. Overall, operational visual effects are also given **some negative weight** in the planning balance. However, as set out in the landscape and visual assessment, this scale of effect is based upon the introduction of a turbine into the local environment, without the presence of the existing turbine at this location. Therefore, it must be recognised that when considered against the existing turbine at the site, the change in visual impact for the small number of receptors would be to a lesser overall extent to that assessed level identified in the LVA, which is undeniably a worst-case assessment of effects. Moreover, any visual effects would only be temporary owing to the temporary nature of the Proposed Development.

7.1.4 When the actual change in visual impact is considered against the increased level of renewable energy produced at an existing electrical generation station, it is clear that, on balance, the visual impacts associated with the increase in turbine height and rotor diameter, are outweighed by the beneficial contribution the replacement

turbine would make in the transition away from fossil fuels and the ability to meet the UK Government's Net Zero targets.

7.1.5 As identified in the preceding sections, the Proposed Development would give rise to minor positive effects on biodiversity and it would not have any material detrimental impacts in respect of aircraft and radar systems, flood risk and drainage or telecommunications or residential amenity.

7.1.6 An assessment of the Proposed Development against adopted Local Plan Policy CC2 has demonstrated that the Proposed Development accords with the policy criteria as a repowering scheme and should therefore be deemed acceptable by the LPA. In addition, it is worth noting that the amendments made in the revised NPPF paragraph 168 specifically support the repowering of wind turbines.

7.1.7 In conclusion, and based on the findings of this Planning Statement, the **significant positive weight** afforded to the uplift in the replacement wind turbine's renewable energy output by 198 % (equivalent to an estimated increase of 163 average households' energy use) and the other minor beneficial effects of the Proposed Development (biodiversity) would outweigh the temporary landscape and visual effects resulting from the introduction of a taller turbine. Therefore, the granting of planning permission can be justified and the Proposed Development supported.

7.1.8 These overall findings are set out in Table 7.1 below.

Table 7.1: Benefits and Harm of the Proposed Development and Associated Weight

Issue	Effect	Weight
Principle of the Proposed Development	Positive	Significant
Biodiversity	Positive	Some
Hydrology and Hydrogeology	Neutral	None
Traffic and Transport	Neutral	None
Aviation and Telecommunications	Neutral	None
Design	Neutral	None
Historic Environment	Neutral	None
Shadow Flicker	Negative	Minimal
Noise	Negative	Minimal
Landscape and Visual	Negative	Some

Appendix A – Email from Copeland Council

Appendix B – Existing Wind Turbine Power Curve

Appendix C – Proposed Wind Turbine Power Curve

Appendix D – Noise Assessment

Appendix E – Updated Shadow Flicker Report