LDĀDESIGN

Bloch Wind Farm Review

High Level Landscape and Visual Impact Review – Revised Scheme
24.04.2025

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Comment

This document has been prepared and checked in accordance with ISO 9001:2015.

1.0 Introduction

A Section 36 planning application for the proposed Bloch Wind Farm located approximately 2.5 km southwest of Langholm was submitted by RES Ltd in October 2022. The proposed wind farm seeks to erect 21 wind turbines with variable maximum tip heights ranging from 105m hub / 180m blade tip to 155m / 230m blade tip with associated infrastructure including a new track, borrow pits, substation and battery storage.

Following consultation with Dumfries and Galloway Council via emails and the circulation of an audit of the Landscape and Visual Impact Assessment (LVIA) by Ironside Farrar Ltd a Revised Scheme was presented to both the Council and Council's consultants at a meeting held on 18th February 2025 alongside supporting wirelines from Viewpoint 5, 6 and 8.

The Revised Scheme omits Turbine (T) 19, T20 and T21 and reduces in height T16, T17 and T18 from 230m to 180m in blade tip height.

Based on the outcome of discussions over the Revised Scheme and the Council's concerns over the impact of the proposed development from specific residential properties RES commissioned LDA to undertake a Technical Note covering the following tasks:

- A high-level landscape and visual review of a Revised Scheme against Submitted LVIA (2022 LVIA, Volume 1, Chapter 5) to determine the likely variance in landscape and visual effects; and
- A high-level review of specific agreed properties against the submitted Residential Visual Amenity Assessment (RVAA) (2022 LVIA, Technical Appendix 5.3 Residential Visual Amenity Assessment) and the Revised Scheme informed by additional agreed wirelines.

As discussed above in the context of this review the 2022 LVIA is referred to as the Submitted LVIA and revisions to the scheme referred to as the Revised Scheme.

1.1. Scope

This Technical Note is split into two sections covering the LVIA review and RVAA review. It covers

- A summary of the methodology used to assess the magnitude of change and level of effects;
- An overview of the material prepared to inform these reviews;
- Assumptions and limitations; and
- A high-level review of the potential for any new or different significant landscape and visual effects resulting from the Revised Scheme to those that were assessed in the Submitted LVIA.

1.2. Methodology

The methodology used to determine the landscape and visual effects of the Revised Scheme has been adopted from the Submitted LVIA and its Technical Appendix 5.1 LVIA

Glossary and Methodology (appended to this review in **Appendix 1**). Below is a summary of considerations used for this review:

- Landscape and visual receptors and viewpoints assessed in the Submitted LVIA as having daytime significance of **Moderate-Slight** (including) and higher have been selected for review;
- Receptors with daytime significance lower than **Moderate-Slight** i.e. Slight, Slight-Minimal and Minimal have been scoped out in this review;
- There would be a slight change in nighttime effects due to the loss of nacelle lights associated with T20 and T21;
- Only operational effects have been reviewed; and
- Cumulative effects are not considered in this review.

The RVAA forms Technical Appendix 5.3 RVAA to the Submitted LVIA. This review adopts the same four-step approach recommended by Technical Guidance Note (TGN) 02/19[1] (para. 4.1) that comprises:

> *1) Definition of study area and scope of the assessment – informed by the description of the proposed development, defining the study area extent and scope of the assessment with respect to the properties to be included.*
>
> *2) Evaluation of baseline visual amenity at properties to be included having regard to the landscape and visual context and the development proposed.*
>
> *3) Assessment of likely change to visual amenity of included properties in accordance with GLVIA3 principles and processes.*
>
> *4) Further assessment of predicted change to visual amenity of properties to be included forming a judgement with respect to the Residential Visual Amenity Threshold.*

The study area for the RVAA review remained at 2.5 km from the outermost wind turbine within the Revised Scheme. This review focused on specific properties or groupings of properties.

1.3. Material to inform the reviews

Additional information has been prepared to inform the LVIA and RVAA review which reflects the changes to the proposed development as described under the sub headings below and included in **Appendix 3**.

1.3.1. Site Plans

A new site location and context plan has been prepared to show the locations of the proposed wind turbines and distances from proposed turbines (**10067_Figure_5.1 Revised Version).**

[1] Residential Visual Amenity Assessment Guidance, TGN 02/19 Landscape Institute 2019

A residential properties plan has also been prepared demonstrating the location of properties relative to the Submitted LVIA viewpoints and locations of wirelines prepared for specific residential properties (10067_TA5_001 (Revised Scheme).

1.3.2. ZTVs

Bare earth and obstructed ZTVs models were prepared of the Revised Scheme:

- Figure 5.5 45 km Woodland and Settlement (10067_Figure_5.5 (Revised Version))
- Figure 5.6 ZTV Bare ground (10067_Figure_5.6 (Revised Version))
- Figure 5.7 ZTV 35 km Woodland and Settlement (10067_Figure_5.7 (Revised Version))
- Figure 5.13 ZTV study -2000 candela nacelle light visibility (10067_Figure_5.13 (Revised Version))

1.3.3. Wirelines

Wireframe visualisations of the Revised Scheme have been prepared for viewpoints VP5, VP6, and VP8.

New wireframe visualisations have been prepared to support the RVAA review for the following properties:

- Property P9 (10067_P09_OPT);
- Property P13/14 to represent properties P12, P13&P14, and P15 (10067_P13-14_OPT);
- Property P36 to represent properties P30, P31, P32, P33, P34, and P36 (10067_P36_OPT); and
- Property P27 to represent properties P26, P27, and P28 (10067_P27_OPT).

The RVAA review was also supported by aerials, Ordnance Survey maps, National Forestry Inventory data and TrueView augmented reality software where wireframes were unavailable and this data was used internally.

1.3.4. Assumptions and Limitations

- The study area for the LVIA review remained unchanged at 35 km with detailed study areas applied in relation to night-time effects (15km) and landscape character (daytime, 10km).
- The landscape and visual baseline remained unchanged from that described in the Submitted LVIA. Landscape Character Types (LCT) identified in NatureScot Landscape Character Assessment, 2019 have been used as landscape receptors. The Submitted LVIA also used some judgements on these LCTs from the Dumfries and Galloway Wind Landscape Capacity Study (DGWLCS).
- LCTs of the same reference number and name (e.g. LCT177 Southern Uplands) are repeatedly present within the study area. To distinguish between them, additional identification has been adopted from the Submitted LVIA which adds an identifying

description to the LCT name with reference to the relevant local authority and distance from the Site (e.g. *LCT177 Southern Uplands - Dumfries and Galloway (0.8 km, north)*).

- The Revised Scheme does not comprise changes large enough to affect the sensitivity of landscape and visual receptors and this therefore remained unchanged to the Submitted LVIA.
- The magnitude of change and significance of effect resulting from the Revised Scheme have been identified for each of the receptors and summarised in Table 1 and 3 for both the LVIA and RVAA review. Magnitude of change is the combination of scale, duration / reversibility and extent of the proposals. Significance results from combining sensitivity and magnitude. Effects are defined as adverse, neutral or beneficial.
- Wind turbines that have not been removed from the Revised Scheme remain in the same locations and are the same height apart from T16, T17 and T18. The review assumes that T16 would not be lit.
- The high level LVIA and RVAA review were desk based and informed by specific wirelines and a review of ZTVs as well as aerials and Ordnance Survey maps.
- The LVIA review was based on baseline photography and visualisations taken to support the Submitted LVIA. It was assumed that there were no changes to the then baseline.

2.0 LVIA Review

The LVIA review was based on an analysis of ZTV modelling (Figures 5.5, 5.6, 5.7, and 5.13 Revised Scheme) and revised wirelines for viewpoints 5, 6 and 8 refer to **Appendix 2 LVIA Viewpoints and Appendix 3 Figures and Visualisations**. Professional judgements were made regarding the nature of effects from remaining viewpoints based on the Revised Scheme. Judgements were based on a desktop study.

2.1. Baseline

2.1.1. Extent of theoretical visibility

A comparison between the ZTV for the Submitted LVIA and Revised Scheme shows that the extent of theoretical visibility of the proposed development would result in only a minimal change. The bare ground ZTV (Figure 5.6) shows that while the extent of ZTV remains similar, in some areas the blade tip of turbines would be visible instead of the turbine hub, especially in more distant locations between 15-35 km from the site. The obstructed ZTV (Figure 5.7, considering woodland and settlements) shows the same pattern and includes limited areas of change in the valley south of Langholm, south of VP6, VP7 and VP8.

A comparison between the ZTVs for the nacelle light nighttime visibility indicates that while the extent of visibility remains similar, larger areas of theoretical visibility would experience a reduction in the number of lights visible. The most marked difference occurring in the area around Langholm, in the western part of the site and in areas to the south and west of the site. f

The review indicates that no new landscape or visual receptors would be affected by the proposed changes to those considered in the Submitted LVIA.

2.2. Operation Phase Effects

2.2.1. Overview of proposed changes

As discussed in Section 1 two amendments have been made to the Revised Scheme:

- Three wind turbines have been removed (T19, T20, and T21); and
- The height of three turbines has been reduced from 230m to 180m blade tip height (T16, T17, and T18).

Turbines T1-T18 remain in the same locations as the submitted planning application and the heights of turbines T1-T15 would remain unchanged. The proposed changes aim to reduce the extent of encroachment across Bloch Hill, east of the Bloch Farm minor road and improve the relationship between Solwaybank Wind Farm and the proposed development. A reduction in height aims to further reduce the visual effect of turbines remaining at the foot of Bloch Hill as well as reducing the perception of foreshortening; achieving a more balanced relationship with other turbines and the horizon.

2.2.2. Landscape Character

The following LCTs have been selected for review based on those assessed in the Submitted LVIA as having a daytime Moderate-Slight and higher significance and adverse effect (locations and extent of individual LCTs are shown on Submitted LVIA Figure 5.3):

LCT175 Foothills – Dumfries and Galloway (includes Site)

The majority of the site and VP3 and VP5 lie within this LCT. LCT175 is influenced by existing wind development as it encompasses the operational wind farms of Solwaybank, Minsca and part of Ewe Hill.

The Submitted LVIA assessed this LCT to be of **Medium** sensitivity. The effects of the original layout were assessed to affect the eastern part of the LCT (east of operational Solwaybank Wind Farm) where they would be of **Large** to **Large-Medium** scale. These effects would be localised, **High-Medium** magnitude**, Major-Moderate** significance (significant) and **Adverse.** The Submitted LVIA deemed the effects on the western part of the LCT (west of Solwaybank Wind Farm) to quickly reduce to Negligible.

The Revised Scheme would see the removal of the three northernmost and highest located turbines on Bloch Hill. This would reduce the effect locally on the upper parts of Bloch Hill but this change would be insufficient to warrant a reduction in scale on the eastern part of the LCT. The effect associated with the Revised Scheme would therefore remain unchanged with a **Large** to **Medium-Large** scale, **High-Medium** magnitude, **Major-Moderate** significance (significant) and **Adverse**.

LCT172 Upland Fringe – Dumfries and Galloway (includes Site)

This LCT contains the southern part of the site with turbines T10, T12, and T13. The majority of the LCT is located to the south-west of the site. The Submitted LVIA notes that the effects would appear outside the main body of the LCT, adjacent to an existing wind farm and in an area with a more simpler vegetation pattern at the transition to the larger foothill landscapes. Sensitivity was judged to be **Medium**. The effects were assessed to be of **Large-Medium** scale, quickly reducing to **Negligible** beyond Solwaybank Wind Farm to the south-west. These effects would occur over **Localised** extent of the LCT and be of **High-Medium** magnitude, **Major-Moderate** significance (significant) and **Adverse**.

Based on the Revised Scheme there would be no change in the loss or reduction in turbines within LCT172; the removal of T19-T21 and a height reduction of T16-T18 are located within the neighbouring LCT. The reduction would not be large enough to reduce the effects on this LCT and the effects would therefore remain unchanged and be of **Large-Medium** scale in the affected parts of the LCT, **Localised** in extent, and be of **High-Medium** magnitude, **Major-Moderate** significance (significant) and **Adverse**.

LCT177 Southern Uplands – Dumfries and Galloway (0.8 km, north))

This LCT lies directly adjacent to LCT 175 to the north of the Site. It is noted that existing wind turbines *'are at times key defining characteristics of adjacent Landscape Character Types which can be felt strongly as nearby backdrops in the Southern Uplands - Dumfries and Galloway'* and that the landscape *'is sensitive to indirect effects from wind farm developments sited in nearby landscapes.'*

The Submitted LVIA assessed LCT 177 to be of **High-Medium** sensitivity and the effects to be of **Large-Medium** scale at the southern end of the character type, gradually reducing to Medium around Craig Wind Farm. It notes that *'in this area the proposed development will reduce the open and exposed character of the hill tops and the drama of the steep valleys, with the proposed development occupying views down the valleys to the south. To the north of Craig Wind Farm, visibility is predominantly limited and effects will be Negligible.*' These effects were assessed to relate to an **Intermediate** extent of the LCT and would be of **High-Medium** magnitude, **Major-Moderate** significance (significant) and **Adverse**.

The removal of T19-T21 and height reduction of T16-T18 would position the remaining wind turbines further south of the LCT's southern boundary and the next three closest turbines would be reduced in height, both of which would further reduce the visibility from the northern parts of the LCT.

The conclusion of this review is that the reduction of the wind turbine number and heights would also reduce the effects on the LCT, especially on its southern part. The effects of the Revised Scheme would therefore be of **Medium** scale at the southern end of the character type, **Intermediate** in extent **a**nd would be of **Medium** magnitude, **Moderate** significance (not significant) and **Adverse.**

LCT171 Flow Plateau (1.1 km, south)

This LCT comprises flat or gently rolling farmland to the south of the site between the A74(M) and the A7. At present, the influence from wind turbines arises from the distant wind farms of Minsca, Solwaybank and Beck Burn. Viewpoints VP1 and VP4 are located in LCT171.

The Submitted LVIA judged LCT 171 to be of **Medium** sensitivity. Regarding the scale of effect, the Submitted LVIA notes that it would not be consistent throughout the LCT and would range from Medium (see Viewpoint 1, Figure 5.14) in areas close to the border of LCT 172 south of the site , to Small (see Viewpoint 4, Figure 5.17) and then Negligible (see Viewpoint 15, Figure 5.28) scale by approximately 7.5 km from the site where the local pattern of vegetation and built form would break up the potential visual influence of the proposed development.

Overall, the Submitted LVIA judged the effects to be of **Wide** extent of the LCT and to be of **Medium** magnitude, **Moderate** significance (not significant) and **Adverse**.

The Revised Scheme of the proposed development would result in the reduction of the number of turbines visible across this LCT. However, because of the LCT's location to the south of the site , all the remaining turbines would still be visible. The reduction would only remove a small part of the proposed development visible. The effects would therefore remain unchanged. The scale of effect would range from Medium to Negligible across a **Wide** extent, and the effect would be of **Medium** magnitude, **Moderate** significance (not significant) and **Adverse.**

LCT161 Pastoral Valley – Dumfries and Galloway (1.4 km, east)

This LCT comprises a well-vegetated valley that runs along the River Esk and the A7 corridor between Canonbie and Langholm. Viewpoints VP6 and VP7 are located in this

LCT. The majority of the LCT lies within Langholm Hills RSA and as such, the LCT is deemed to be of **Local/District** value with a **High-Medium** sensitivity.

The Submitted LVIA assessed the effects to be of **Medium** scale. The LVIA further stated that '*Effects will primarily occur along the edges of the valley and in flatter areas to the south (see Viewpoint 7, Figure 5.20). Intervening structures, topography vegetation will greatly reduce or negate the extent of effects within the primary settlements (see Viewpoint 7, Figure 5.20). Middleholm Hill, located adjacent to the eastern boundary of the Site, reduces the sense of the proposed development 'overhanging' this LCT. Effects on LCT161 would occur across an* ***Intermediate*** *extent of the LCT, where they will be of* ***Medium*** *magnitude,* ***Major-Moderate*** *significance (significant) and* ***Adverse***.'

The Revised Scheme would remove three turbines and reduce the height of further three turbines closest to the LCT's western boundary. The reduction in number and height would noticeably reduce the number of turbines visible from VP6 and VP7 and across the LCT. The remaining proposed turbines would be seen as a compact group associated with operational Solwaybank Wind Farm.

The conclusion of this review is that the effects of the Revised Scheme would reduce the effects to **Medium-Small** scale. While the extent remains **Intermediate**, the magnitude would reduce to **Medium-Low** which will result in **Moderate** significance (not significant) and **Adverse** effects.

LCT176 Foothills with Forest – Dumfries and Galloway (3.2 km, east)

This LCT encompasses a small area of land to the east of the site, that is predominantly covered by forestry. LCT161 lies between the LCT containing the site and LCT176. Approximately half of this LCT lies within Langholm Hills RSA and as such the LCT is judged to be **of Local/District** value with a sensitivity of **High-Medium**. No viewpoints are located in this LCT.

The Submitted LVIA does not identify the scale of effect but notes that effects within this LCT would decrease from Medium to Negligible from west to east. Due to the presence of forestry which *'greatly reduces the extent of effect'* the effects would occur across an **Intermediate** extent of the character type, where they would be of **Medium-Low** magnitude, **Moderate** significance (not significance) and **Adverse.**

The Revised Scheme would reduce the number and height of proposed wind turbines closest to this LCT. This would reduce the extent of intervisibility resulting from a reduction in the number of turbines visible from this LCT across the intervening landscape of LCT161.

The conclusion of this review is that the scale of effect on this LCT would be of **Small** scale and would occur across an **Intermediate** extent. The resulting effect would be of **Low** magnitude, **Moderate-Slight** significance (not-significant) and **Adverse.**

LCT177 Southern Uplands – Dumfries and Galloway (3.2 km, north-east)

LCT177 encompasses an area of large upland hills to the east of the A7 between Langholm and Glenreif Rig. Viewpoint 8 (Figure 5.21) lies at Malcolm Monument within this LCT. Landscape sensitivity was assessed to be **High-Medium**.

The Submitted LVIA described the effects to be of **Medium** scale that would *'occur at the southern end of this character type, around Malcolm Monument (Viewpoint 8, Figure 5.21). Small scale effects will occur within the rest of this character type where the increased distance and intervening hills will reduce the perceived scale of the proposed developmen*t'. These effects would occur across an **Intermediate** extent of the character type and would give rise to effects of **Medium-Low** magnitude, **Moderate** significance (not significant) and **Adverse.**

The Revised Scheme would slightly reduce the number of turbines visible, but the reduction would be insufficient to reduce the overall effects on this LCT. The effects would remain unchanged covering an **Intermediate** extent, **Medium-Low** magnitude, **Moderate** significance (not significant) and **Adverse.**

LCT166 Upland Glens – Dumfries and Galloway (3.5 km, north-east)

This LCT follows the A7 road corridor between Langholm and Glenreif Rig. It follows the upper reaches of local rivers and contains the steep valley sides adjacent to the valley floor. Viewpoint 11 (Figure 5.24) is located around two-thirds of the way up the valley and affords linear views along the valley towards the site. It is noted whilst there is a lack of operational and consented wind farms within this LCT, and some areas of the LCT experience views of existing wind farms.

This LCT lies wholly within the Langholm Hills RSA and was assessed to be of **Local / District** value. Combined, this LCT was deemed to have a **High-Medium** landscape sensitivity.

The Submitted LVIA assessed the effects to be of ***'Small** scale and will occur across an **Intermediate** extent of the area. The proposed development will be visible intermittently throughout the glen, where it will feature in a key view towards the head of the glen. Effects will be lower within this area of LCT166 than other areas due to the A7, which gives a more developed and trafficked character to this glen*'. Effects would be of **Low** magnitude, **Moderate** significance (not significant) and **Adverse.**

The Revised Scheme would see the removal of three turbines closest to the LCT's southern boundary. The height reduction of further three turbines would further reduce the effects on the LCT. These changes to the scheme would eliminate the visibility of the proposed development from VP 11 almost entirely. The effects would therefore be of **Small** scale, **Low** magnitude, **Moderate-Slight** significance (not significant) and **Adverse.**

LCT172 Upland Fringe Dumfries and Galloway (3.6 km, east)

This LCT is characteristic of gently rolling pasture interspersed with area of mixed woodland. The Submitted LVIA notes that *'a small part of Langholm Hills RSA extends into this character type although not enough to raise the value above Community level.'* Sensitivity is judged to be **Medium.** No viewpoints are located within this LCT although VP 6 is located near the LCT's western boundary.

The Submitted LVIA assessed the effects to be of **Small** scale, **Wide** extent of LCT172 and **Medium-Low** magnitude, **Moderate** significance (not significant) and **Neutral.**

The Revised Scheme would remove three turbines closest to the north-western edge of the LCT. The effect would be further reduced by the distance of the LCT from the site and the intervening landscape of LCT161 in between. The effects caused by the Revised Scheme of

the proposed scheme would reduce from those identified in the Submitted LVIA and be of **Small** scale, **Low** magnitude and **Moderate-Slight** significance (not significant) and **Neutral.**

2.2.3. Designated Landscapes – Langholm Hills Regional Scenic Area

The Submitted LVIA identified potentially significant operational effects on the Langholm Hills Regional Scenic Area (RSA) located in close proximity (0.1km), north-east of the site (Figure 5.2 of the Submitted LVIA). Viewpoints VP5, VP6, VP7, VP8 and VP11 are located within this RSA as it spreads across several LCTs assessed above where it increases their landscape sensitivity:

- LCT161 Pastoral Valley – Dumfries and Galloway (1.4 km, east);
- LCT176 Foothills with Forest – Dumfries and Galloway (3.2 km, east);
- LCT166 Upland Glens – Dumfries and Galloway (3.5 km, north-east); and
- LCT172 Upland Fringe Dumfries and Galloway (3.6 km, east)

The Submitted LVIA concluded that the RSA is of **High-Medium** sensitivity. *'On balance, **Medium** scale effects on this RSA would occur across an Intermediate extent of the area and will give rise to **Medium** magnitude, **Major-Moderate** significance (significant) and **Adverse effects**. However, there will be no direct effects on the RSA and the proposed development would not compromise the key qualities and overall integrity of this RSA.'*

The Revised Scheme of the proposed development would see the removal of three wind turbines closest to the RSA's western boundary. As discussed above, the Revised Scheme of the proposed scheme would reduce the landscape effects on LCT161 Pastoral Valley – Dumfries and Galloway (1.4 km, east) from Major-Moderate and Adverse to Moderate and Adverse. The effect on LCT176 Foothills with Forest – Dumfries and Galloway (3.2 km, east) would reduce from Moderate to Moderate-Slight and Adverse. The effect on LCT166 Upland Glens – Dumfries and Galloway (3.5 km, north-east) would reduce from Moderate to Slight and Adverse while LCT172 Upland Fringe Dumfries and Galloway (3.6 km, east) would experience a reduction from Moderate to Moderate-Slight and Adverse effect.

Overall, this review concludes that there would be a reduction in landscape effect on the landscape within LCTs that comprise the RSA. The overall magnitude of change would reduce to **Low**, overall significance to **Moderate-Slight** and the effect would remain **Adverse**.

2.2.4. Visual Receptors – Representative Viewpoints

The Submitted LVIA identified 17 representative viewpoints shown on Figure 5.8 and supporting wireline visualisation for each viewpoint (Figures 5.14 - 5.30) of the Submitted LVIA. Technical Appendix 5.2 - Viewpoint Descriptions to the Submitted LVIA contains detailed descriptions of the location, character of the existing view and effects resulting from the proposed development. A detailed description of the effects of the Revised Scheme on individual viewpoints is contained in **Appendix 2** of this review.

2.2.5. Visual Receptors – Visual Receptor Groups

The Submitted LVIA explains that Visual Receptor Groups (VRG) *'encompass local residents; people using key routes such as roads; cycle ways, people within accessible or recreational landscapes; people using Public Rights of Way and Core Paths; or people visiting key viewpoints. In dealing with areas of settlement, Public Rights of Way and local roads, receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common.'*

The Submitted LVIA identified seven VRGs and assessed their sensitivity, magnitude of change, significance and effect. Below is a list of VRGs whose significance of daytime visual effects was assessed as **Moderate-Slight** and higher and which have been taken forward for a review against the Revised Scheme:

- Local roads, residents and core paths between the A7, A6071 and A74(M) (up to 1.8 km east, 9.0 km south and 8.0 km south-west)
- Langholm, local core paths and hills (2.3 km, north-east)
- A7 and local hills north of Langholm (2.5 km – 4.5 km north-east)
- Settlements along key road corridors, including the A7, A74(M) and A75 (up to 5.0 km east, 13.5 km south, 18.1 km south-west and 13.6km west)

Figures referred to below relate to figures within the Submitted LVIA unless stated otherwise. A summary of effects resulting from the Revised Scheme on individual viewpoints is in **Appendix 2**. Judgements were made based on a desk top study only.

Local roads, residents and core paths between the A7, A6071 and A74(M) (up to 1.8 km east, 9.0 km south and 8.0 km south-west)

This triangle of land between three major roads includes the site as well as small settlements, individual homes and farmsteads, core paths (including the path between Outer Hill and Old Irvine directly south of the site , parts of the path around Warb Law and the path to the north of the site between Cassel's Moss and Calfield Rig) (see Figure 5.1), walking routes and multiple minor connecting roads. Viewpoints 1, 2, 3, 4, 5 and 10 (Figures 5.14-5.18 and 5.23) lie within this VRG.

The Submitted LVIA assessed the effects to be **Large** or **Large-Medium** scale close to the site, reducing to **Small** scale towards the south and west of the receptor group. The submitted planning application would cover a **Wide** extent of this **High-Medium** sensitivity receptor group and would be of **Medium** magnitude, **Major-Moderate** significance (significant) and **Adverse**.

Effects caused by the Revised Scheme: Receptors within this VRG are the closest to the proposed wind turbines and their experience would differ in relation to their location. Receptors in the northern parts of this area would experience a larger change in views than receptors viewing the Revised Scheme from the south as reflected in the representative viewpoints. Following the removal of T19-T21 and the height reduction of T16-T18, there would likely be a reduction in the scale of effect for VP5. For VP1-5 and VP10, the scale would remain unchanged.

This review concludes that the effect would remain unchanged, the scale would be **Wide**, and the overall magnitude would remain **Medium**. Combined with **High-Medium** sensitivity, the significance of effect would remain **Major-Moderate** and **Adverse**.

Langholm, local core paths and hills (2.3km, north-east)

This receptor group comprises the town of Langholm including its public spaces. It also includes local hills and core paths (including the path between Calfield Rig and New Langholm, Old Irvine to Langholm and those east of Langholm around Whita Hill) (see Figure 5.1) within easy walking distance, primarily those separated from the site such as Whita Hill, Mid Hill and Black Knowe. Viewpoint 7 (Figure 5.20) represents the effects with the town, these are predominantly **Negligible** due to the local screening from buildings and vegetation. Viewpoint 8 represents views from local hills that residents of Langholm may use frequently as part of the immediate recreational offer.

The Submitted LVIA noted that visibility would primarily be limited to large open spaces within the town and on elevated ground on local hills. Effects would range from **Negligible** within the more enclosed areas of Langholm increasing **to Medium-Small** on elevated ground. Effects would arise across an **Intermediate** extent of this receptor group and would be of **Medium-Low** magnitude, **Moderate** significance (not significant) and **Adverse**.

Effects caused by the Revised Scheme: This review concludes that while there would be some reduction in numbers of turbines visible, the extent of effect would remain **Intermediate**, the scale would be **Medium-Small,** and the overall magnitude would remain **Medium-Low.** Combined with **High-Medium** sensitivity, the significance of effect would be **Moderate** (not significant) and **Adverse.**

A7 and local hills north of Langholm (2.5km – 4.5km north-east)

This receptor group includes the u-shaped valley and adjacent hills that run between Langholm and Glenreif Rig. The primary visual receptors would be users of the A7 at the base of the valley, however this group also includes residents of the individual properties and farmsteads within the valley and recreational users of the local hills. Viewpoint 11 (Figure 5.24) is located adjacent to the A7 and represents the view when travelling along the valley towards the site.

The Submitted LVIA assessed the effect to be of **Medium-Small** on the hill tops to **Small** within the majority of the valley which would be of **Intermediate** extent of the receptor group and would be of **Medium-Low** magnitude, **Moderate** significance (not significant) and **Adverse.**

Effects caused by the Revised Scheme: The removal of T19-T21 and height reduction of T16-T18 would reduce the visibility of the proposed development. As illustrated by VP11, visibility across the Esk Valley would noticeably limit the amount of the proposed development visible. This review concludes that the extent of effect would reduce to **Localised**, the scale would be **Small** and the overall magnitude would be **Low**. Combined with **High-Medium** sensitivity, the significance would be **Moderate-Slight** (not significant) and Adverse.

Settlements along key road corridors, including the A7, A74(M) and A75 (up to 5.0km east, 13.5km south, 18.1km south-west and 13.6km west)

This receptor group includes the land and settlements immediately adjacent to the main road corridors. This includes: Gretna to the southern edge of Langholm via the A7; Gretna to around Ecclefechan via the A74(M); and Gretna to Annan via the A75. Viewpoints 6, 9, 15 and 16 (Figures 5.19, 5.22, 5.28 and 5.29) represent effects from across this area.

The Submitted LVIA assessed the effect to be of *'**Wide** extent of the receptor group where the proposed development will be seen at a distance, often partially screened by local features and in the context of other wind farm development. Effects will range in scale from Medium (Viewpoint 6, Figure 5.19) to Small (Viewpoints 15 & 16, Figures 5.28-29) to Negligible (Viewpoint 9, Figure 5.22). These effects will be highest in the area immediately to the east of the Site, between Langholm and Canonbie, due to the proximity between the receptor group and the proposed development'*. On balance, effects within this receptor group would be of **Medium-Low** magnitude, **Moderate** significance (not significant) and **Adverse.**

Effects caused by the Revised Scheme: The removal of T19-T21 and the height reduction of T16-T18 would reduce the number of turbines visible and balance the remaining turbines in the views as evidenced by the assessment for the individual viewpoints. This review concludes that the extent of effect would reduce to **Intermediate,** the scale would be **Medium-Small** and the overall magnitude would remain **Medium-Low**. Combined with **High-Medium** sensitivity, the significance would be **Moderate** (not significant) and **Adverse.**

2.2.6. Overall Conclusion and Summary Table

This review has identified a number of LCTs that would experience a reduction in landscape effect as a result of the Revised Scheme of the proposed development. These changes would mostly affect LCTs located to the north and east of the proposed development as listed below:

- LCT177 Southern Uplands – Dumfries and Galloway, (0.8 km, north)
- LCT161 Pastoral Valley – Dumfries and Galloway, (1.4 km, east)
- LCT176 Foothills with Forest – Dumfries and Galloway, (3.2 km, east)
- LCT166 Upland Glens – Dumfries and Galloway, (3.5 km, north-east)
- LCT172 Upland Fringe Dumfries and Galloway, (3.6 km, east)

The turbines within the Revised Scheme would be set back from the boundaries of these LCTs as the result of the removal of T19-T21 and the height reduction of T16-T18 would further reduce intervisibility between the proposals and these LCTs. The reduction of effect is further aided by the topography of the landscape adjoining the site to the north and east which includes the valleys of the River Esk and Ewes Water, reducing intervisibility.

Landscape types to the south and west of the site would not benefit from the reduction of the Revised Scheme in its northern parts and the effect would therefore remain unchanged.

There would be a reduction in landscape effect on the landscape within LCTs that comprise the Langholm Hills RSA. The overall magnitude of change would reduce to **Low**, overall significance to **Moderate-Slight** and the effect would remain **Adverse**.

The removal of T19-21 and height reduction of T16-T18 would result in the reduction of scale of effect on the following representative viewpoints (**Appendix 2**).

- VP5: Calfield (0.9km, north)
- VP9: Longtown (10.0km, south)
- VP11: A7 near Unthank (13.1km, north-east)

The effect of the Revised Scheme on VRGs would differ in relation to their location. Receptors to the north of the site would experience a larger change in views than receptors viewing the Revised Scheme from the south. This review has identified that VRG A7 and local hills north of Langholm would experience the largest reduction in effect due to the intervening topography.

Table 1 below contains a comparative summary of conclusions of the Submitted LVIA and this review of the Revised Scheme. Where there are changes in magnitude and/or effect as a result of the Revised Scheme, those are denoted in **bold.**

Table 1: Landscape and Visual Receptors – Comparison

			Submitted LVIA				Revised Scheme			
Receptor	**Comments**	**Distance, Direction**	**Sensitivity**	**Magnitude**	**Significance**	**Positive / Neutral / Adverse**	**Sensitivity**	**Magnitude**	**Significance**	**Positive / Neutral / Adverse**
Landscape Character										
LCT175 Foothills – Dumfries and Galloway, (includes site)	Day	Includes site	Medium	High-Medium	Major-Moderate	Adverse	Medium	High-Medium	Major-Moderate	Adverse
	Night			High-Medium	Major-Moderate	Adverse		High-Medium	Major - Moderate	Adverse
LCT172 Upland Fringe – Dumfries and Galloway, (includes site)	Day	Includes site	Medium	High-Medium	Major-Moderate	Adverse	Medium	High-Medium	Major-Moderate	Adverse
	Night			Medium-Low	Moderate	Adverse		Medium-Low	Moderate	Adverse
LCT177 Southern Uplands – Dumfries and Galloway, (0.8 km, north	Day	0.8km, north	High-Medium	High-Medium	Major-Moderate	Adverse	High-Medium	**Medium**	**Moderate**	**Adverse**
	Night			High-Medium	Major-Moderate	Adverse		High-Medium	Major-Moderate	Adverse
LCT171 Flow Plateau, (1.1 km, south)	Day	1.1km, south	Medium	Medium	Moderate	Adverse	Medium	Medium	Moderate	Adverse
	Night			High-Medium	Moderate	Adverse		High-Medium	Moderate	Adverse
LCT161 Pastoral Valley – Dumfries and Galloway, (1.4 km, east)	Day	1.4km, east	High-Medium	Medium	Major-Moderate	Adverse	High-Medium	**Medium-Low**	**Moderate**	**Adverse**
LCT176 Foothills with Forest – Dumfries and Galloway, (3.2 km, east)	Day	3.2km, east	High-Medium	Medium-Low	Moderate	Adverse	High-Medium	**Low**	**Moderate-Slight**	**Adverse**
LCT177 Southern Uplands – Dumfries and Galloway, (3.2 km, north-east)	Day	3.2km, east	High-Medium	Medium-Low	Moderate	Adverse	High-Medium	Medium-Low	Moderate	Adverse
	Night			Medium-Low	Moderate	Adverse		Medium-Low	Moderate	Adverse
LCT166 Upland Glens – Dumfries and Galloway, (3.5 km, north-east)	Day	3.5km, north-east	High-Medium	Low	Moderate	Adverse	High-Medium	**Low**	**Moderate-Slight**	**Adverse**

			Submitted LVIA				Revised Scheme			
Receptor	**Comments**	**Distance, Direction**	**Sensitivity**	**Magnitude**	**Significance**	**Positive / Neutral / Adverse**	**Sensitivity**	**Magnitude**	**Significance**	**Positive / Neutral / Adverse**
LCT172 Upland Fringe Dumfries and Galloway, (3.6 km, east)	Day	3.6km, east	Medium	Medium-Low	Moderate	Neutral	Medium	**Low**	**Moderate-Slight**	**Neutral**
	Night			Medium-Low	Moderate	Adverse		Medium-Low	Moderate	Adverse
Designated Landscapes										
Langholm Hills RSA (0.1km, north east)	Day	0.1km, north-east	High-Medium	Medium	Major-Moderate	Adverse	High-Medium	**Low**	**Moderate-Slight**	**Adverse**
	Night			Low	Slight	Adverse		Low	Slight	Adverse
Visual Receptor Groups										
Local roads, residents and core paths between the A7, A6071 and A74(M)	Day	Up to 1.8km east, 9.0km south and 8.0km south-west	High-Medium	Medium	Major-Moderate	Adverse	High-Medium	Medium	Major-Moderate	Adverse
	Night		Medium	High-Medium	Moderate	Adverse	Medium	High-Medium	Moderate	Adverse
Langholm, local core paths and hills	Day	2.3km, north-east	High-Medium	Medium-Low	Moderate	Adverse	High-Medium	Medium-Low	Moderate	Adverse
	Night		Medium	Low	Slight	Adverse	Medium	Low	Slight	Adverse
A7 and local hills north of Langholm	Day	2.5km – 4.5km north-east	High-Medium	Medium-Low	Moderate	Adverse	High-Medium	**Low**	**Moderate-Slight**	**Adverse**
Settlements along key road corridors, including the A7, A74(M) and A75	Day	Up to 5.0km east, 13.5km south, 18.1km south-west and 13.6km west	High-medium	Medium-Low	Moderate	Adverse	High-medium	Medium-Low	Moderate	Adverse

3.0 Residential Visual Amenity Assessment (RVAA) Review

3.1. Introduction

Further to the meeting held on 18th February 2025 with Dumfries and Galloway Council and Ironside Farrar Ltd, a high-level desk-based review was undertaken of agreed residential properties, listed in Table 2 below including Property (P)2, P3, P9, P13/14, P27, P36 and P40.

Property 29 as described in Residential Visual Amenity Assessment (RVAA) (Submitted LVIA, Technical Appendix 5.3 Residential Visual Amenity Assessment) and demonstrated below was omitted due the extensive nature of vegetation surrounding the property and its curtilage.

Image of showing the northerly aspect of Property 29 The Kerr

The review appraised the variation in effects based on the Revised Scheme against the Submitted RVAA. The review was informed by additional wireframes based on the Revised Scheme (referred to in Table 2), photographs where available as well as aerials and Ordnance Survey maps and National Forestry Inventory data. Where wireframes were unavailable, judgements were made regarding the Revised Scheme based on existing wireframes in the Submitted RVAA and likely views modelled into TrueView augmented reality software, used internally.

Whilst the Submitted RVAA determined that only Property 2, Collin Cottage could fall within the RVAA threshold, for completeness and based on comments noted in the meeting of 18.02.2025, all agreed residential properties were appraised further.

Table 2 RVAA – List of specific properties which were subjected to a detailed assessment based on the Revised Scheme

RVAA High Level Review		
Residential Properties	**Existing Viewpoint and Wireframe based on Submitted LVIA**	**New Wireframe based on the Revised Scheme**
Property 2	Refer to Viewpoint 3 Figure 5.14 of the Submitted LVIA	
Property 3	Refer to Viewpoint 3 Figure 5.14 of the Submitted LVIA	
Property 9		Wireframe from Residential Property 9 (10067_P09_OPT);
Property 13/14 (This represents P12, P13 &P14, and P15)		Wireframe from Residential Property 13/14 (10067_P13/14_OPT);
Property 27 (This represents properties P26, P27 and P28)		Wireframe from Residential Property 27 (10067_P27_OPT);
Property 36 (This represents properties P30, P31, P32, P33, P34, and P36)		Wireframe from Residential Property 36 (10067_P36_OPT);
Property 40	Refer to Viewpoint 2 Figure 5.15 of the Submitted LVIA	

3.2. Detailed Assessment of Specific Properties

3.2.1. Property 2: Collin Cottage (lies close to viewpoint 3)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

This property is located outwith the site boundary, adjacent to the B7068. The property itself sits within moorland and tussocky grassland. The primary aspect has glazing on both the lower and upper floor and looks south-east towards Bigholms Wood, behind which the proposed development will be clearly visible. On the other facades the windows are generally smaller and fewer in number. The main garden is primarily located to the north of the property between the house and the road. At present, approximately nine proposed wind turbines at Solwaybank Wind Farm are clearly visible to the south and south-west, with further blade tips visible on the horizon.

Image showing the primary aspect of Collin Cottage

P2: Collin Cottage	
Distance and direction to nearest turbine	1.05 km, south (T5)
Approximate field of view	97 degrees (was 105 degrees in the Submitted RVAA)
Number of turbines visible	18
Financial involvement	No financial involvement

Likely Change to Visual Amenity based on the Revised Scheme

Based on Viewpoint 3 (Figure 15.16) which lies close to P2 and TrueView, the proposed development would be openly visible from the garden and main aspect of the house. One proposed wind turbine (T5) would be fully visible on the hill to the south, T7 and T8 would be prominent in the primary view, visible on open hillside. These proposed wind turbines, along with T4 and T6 which would be partially screened behind Bigholms Wood (assumed unfelled), would be most prominent in the view due to the proportion of the turbines visible and their proximity to the property.

Around seven of the remaining proposed wind turbines would likely be partially screened, with the nacelle likely to be seen above the trees (T9, T11, T14, T15, T16, T17, T18), and the remaining proposed wind turbines would likely be predominantly screened with views limited to blade tips above the trees (T1, T2, T3, T10, T12, T13). The proposed wind turbines would appear to be spread across the view and would be a prominent feature within the view.

At night, seven of the visible nacelles would be lit (T5, T6, T7, T8, T14, T17, T18), four of these proposed wind turbines are those noted as most prominent within the view.

Compared to the Submitted LVIA, the magnitude of change would remain unchanged at **High-Medium** resulting in a **Major** significance and **Adverse** effect. The removal of T19 – T21 and the height reduction of T16-T18 from P2 would only affect turbines that would already appear smaller in this view while the retained turbines in the foreground would continue to foreshorten the view. Whilst the geographical extent of the proposed development in the view would reduce this would be insufficient to tip the magnitude of change from one level to another.

RVAA Threshold Judgement

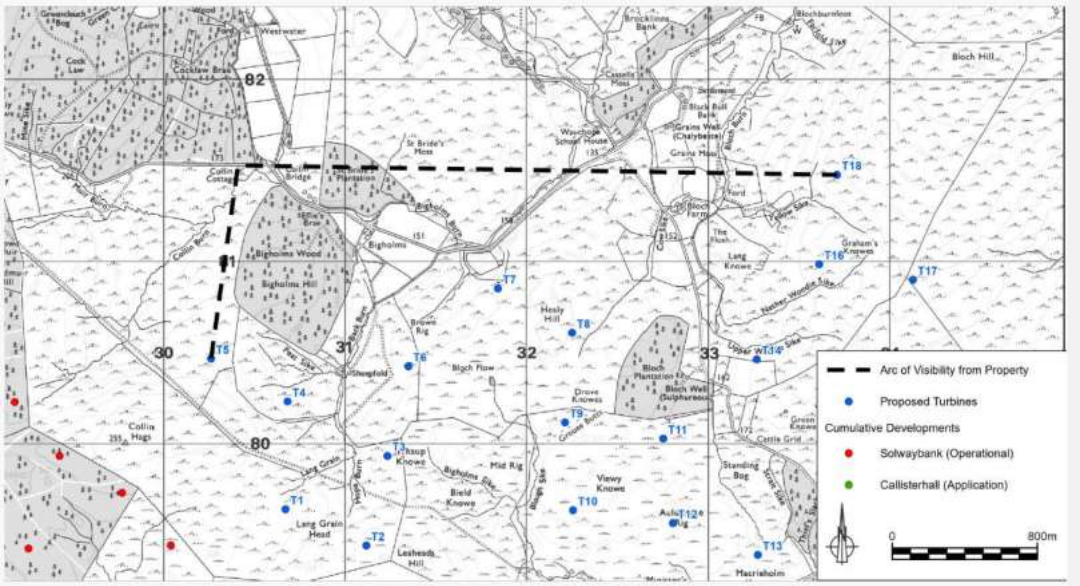
Turbines are already present within views from around this property. However, the proposed development would be noticeably closer, and proposed wind turbines would extend throughout the view from the primary aspect of the property.

Many of the proposed wind turbines would be partially screened behind local woodland. Of the five proposed wind turbines listed as most prominent within the view, T7 and T8 are sufficiently far away that they would not appear imposing or overbearing. Whilst T4 is located on higher ground, it is clearly screened behind Bigholms Wood, which provides a sense of separation between the property and the proposed wind turbines. As noted above, T5 would be most visible within the view and is the closest proposed wind turbine to the development. Whilst T5 would be clearly visible, it lies to the side of the property, outside of the main aspect and in an area where the existing wind turbines at Solwaybank Wind Farm can be clearly seen, albeit it is a much larger element within the view. Whilst the proposed wind turbines occupy a panoramic extent of the view from the primary aspect, many of the proposed wind turbines are screened and the wide extent of proposed wind turbines is not considered imposing or overbearing.

On balance, visual effects from this property would be insufficient to exceed the Residential Visual Amenity threshold and this would remain unchanged based on the Revised Scheme.

Map showing distance to nearest turbine

Map showing arc of visibility



3.2.2. Property 3: Holmfoot Cottage (lies close to viewpoint 2)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

Holmfoot Cottage is located on the northern side of the B7068 adjacent to Collin Bridge, Bigholms Wood and the woodland on Cock Law. The main aspect of this two storey property faces to the south and a garden is located on the western side of the property.

A large hedge and tall trees screen most of the views from property and garden towards the proposed development. Due to the height of the hedge, views would be limited to occasional glimpsed views through vegetation from the garden and views from the upper

floor of the property. The existing view from the upper floor looks out across a grassy hill towards the existing Solwaybank Wind Farm where approximately five wind turbines are visible or partially visible behind the hill.

P3: Holmfoot Cottage	
Distance and direction to nearest turbine	1.11 km, south (T5)
Approximate field of view	105 degrees
Number of turbines visible	13 turbines
Financial involvement	No financial involvement

Likely Change to Visual Amenity based on the Revised Scheme

Compared to P2, views from the property would be limited to a smaller number of proposed wind turbines visible behind Bigholms Wood / St Bride's plantation (assumed unfelled) on elevated ground. T4, T5 and T6 would likely be the most visible in the foreground with the blade tips of T3 appearing as a minor element of the view behind the woodland. The visibility of most of the proposed wind turbines would likely occur when approaching or leaving the property along the B7068 where multiple proposed wind turbines would be clearly visible in the view looking east.

Around four wind turbines would likely be partially screened, with the nacelle likely to be seen above the trees (T4, T6, T7, T8, T9, T10) and the remaining proposed wind turbines predominantly screened with views limited to blade tips above the trees (T1, T2, T3, T11, T12, T13).

At night, there would be visibility of lit wind turbines when approaching or exiting the property, However, once in the property these would be limited to direct views of the light on T5 from the upper floor. It is likely that curtains on the upper floors will be closed during the hours of darkness.

Due to the limited visibility of the proposed development, it is considered that the effects would not be so imposing as to be considered overbearing.

The magnitude of change based on the Submitted RVAA was **Low – Negligible** and this would remain unchanged alongside the significance of effect noted as **Moderate-Slight** and **Adverse.** The removal of T19 – T21 and the height reduction of T16 - T18 be insufficient to alter the magnitude of change since these turbines are located in the distance and more immediate turbines in the foreground would remain unchanged. The geographical extent of the proposed development in the view would reduce though this would be insufficient to tip the magnitude of change from one level to another.

RVAA Threshold Judgement

Turbines are already present within views from around this property. However, the proposed development would be noticeably closer, and proposed wind turbines would extend throughout the view from the upper floor of the primary aspect of the property.

Most of the proposed wind turbines would be partially screened behind woodland. All three proposed wind turbines listed as most prominent within the view (T4, T5 and T6) would be screened behind Bigholms Wood, which would provide a sense of separation between the property and the proposed wind turbines.

T7 and T8 would appear sufficiently far away that they would not appear imposing or overbearing.

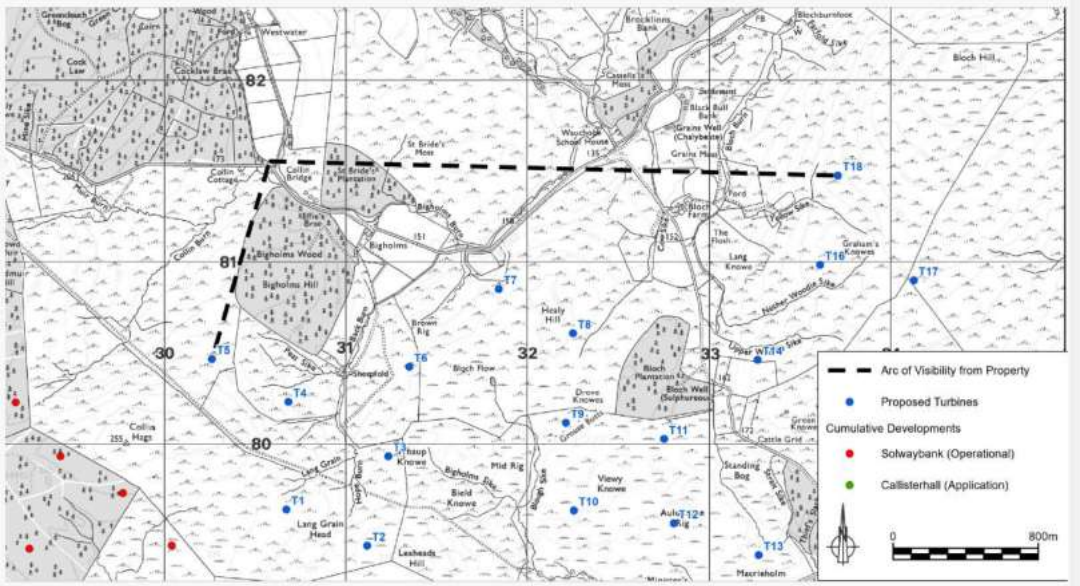
T5 is the closest proposed wind turbine to P3. Whilst T5 would be clearly visible, it lies to the side of the property, outside of the main aspect and in an area where the existing wind turbines at Solwaybank Wind Farm can be clearly seen, albeit it is a much larger element within the view.

To conclude whilst the proposed wind turbines occupy a wide extent of the view from the primary aspect, many of the proposed wind turbines are screened and the wide extent of proposed wind turbines is not considered imposing or overbearing.

On balance, visual effects from this property would not be sufficient to exceed the Residential Visual Amenity threshold and this would remain unchanged based on the Revised Scheme.

Map showing distance to nearest turbine

Map showing arc of visibility



3.2.3. Property 9: Westwater Cottage (new wireframe)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

This property is located within an open area of pastoral fields to the east of Green Burn and Greencleuch Wood. It comprises a single storey detached property with a small wrap around garden. The main aspect of the property faces south towards the proposed development. Existing intermittent visibility of Craig and Ewe Hill wind farms is possible when driving along the access drive.

Image of the primary aspect of Westwater Cottage

P9: Westwater Cottage	
Distance and direction to nearest turbine	1.88 km, south (T5)
Approximate field of view	85 degrees
Number of turbines visible	18 turbines
Financial involvement	No financial involvement

Likely Change to Visual Amenity based on the Revised Scheme

The proposed development would be partly visible in views from the south of the property. The proposed wind turbines would appear above and behind the farm buildings at Falcon Farm and Bigholms Wood.

T5 would likely be the most visible in the view with no screening though seen in context with Solwaybank Wind Farm. It is likely that thirteen wind turbines would be partially screened, with the nacelle likely to be seen above the trees (T1, T2, T3, T4, T6, T7, T8, T9, T10, T11, T12, T13, T14) and the remaining proposed wind turbines predominantly screened with views limited to blade tips (T15, T16, T17, T18).

The magnitude of change based on the Submitted RVAA was **Low** and this would remain unchanged alongside the significance of effect noted as of **Moderate** and **Adverse.**

The removal of T19 – T21 would slightly reduce the geographical extent of the proposed development to the east of the property and due to the height reduction of T16 - T18 only

the blade tips of these turbines would be visible rather than the nacelles. Views however of more immediate turbines in the foreground would remain unchanged. From this property it is considered that the loss of turbines and height reduction would be insufficient to tip the magnitude of change from one level to another.

RVAA Threshold Judgement

The property already experiences turbines within views. However, the proposed development would be closer, and proposed wind turbines would extend the view of turbines from the primary aspect of the property.

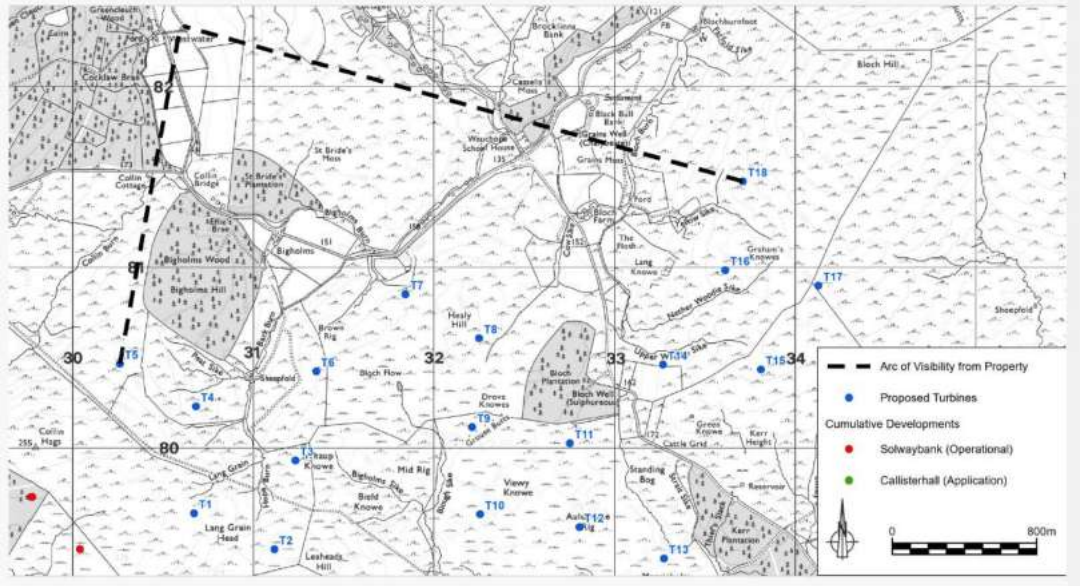
Most of the proposed wind turbines would be partially screened behind woodland or buildings with blade tips only visible for remaining turbines.

The closest turbine would be T5 though at nearly 2 km, with T4, T6 and T7 set slightly further beyond. All four turbines appear sufficiently far away that they would not appear imposing or overbearing. For T4, T6 and T7 Bigholms Wood (assumed unfelled) would provide a sense of separation between the property and the proposed wind turbines.

To conclude the proposed development would feel remote from this property due to the distance, intervening buildings and woodland, which would partly screen views. It is considered that the effects would not be so imposing as to be considered overbearing and therefore would not exceed the Residential Visual Amenity threshold based on the Revised Scheme.

Map showing distance to nearest turbine

Map showing arc of visibility



3.2.4. Properties 13/14: 1 and 2 Cleunchfoot Cottages (This also represents P12 and P15)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

P13 and P14 are considered as a group as the properties form two halves of a semi-detached house and the experience of the proposed development would be the same for both properties.

These properties are located on a minor road adjacent to Logan Water. From the access road directly opposite the properties, at least one Ewe Hill turbine is visible above the horizon to the north-west.. Several more Ewe Hill turbines are intermittently visible from the access road when driving from the junction with the B7068 towards the properties. When driving along the access road away from the properties, there are intermittent views of the existing wind farms at Solwaybank to the southwest, however, these views do not start until over 0.6km away from the properties. The properties' main aspect faces south towards the site. There are gardens to the northern side of both properties and an area of hardstanding to the south. At present the primary aspect looks south over Logan Water and across a field to a belt of trees on a locally elevated bank. The cottages themselves are single storey buildings with a dormer attic conversion.

P15 and P12 though slightly different elevations; slightly higher and lower respectively, would appreciate a similar orientation of view.

P13/14: 1 and 2 Cleunchfoot Cottages	
Distance and direction to nearest turbine	1.55 km, south (T7) based on P13
Approximate field of view	101 degrees

Number of turbines visible	15 turbines
Financial involvement	No financial involvement

Likely Change to Visual Amenity based on the Revised Scheme

The proposed development would be openly visible from the main aspect of the properties, where proposed wind turbines will be visible behind the elevated bank. In views from the garden and around the properties, views of the proposed development would be more panoramic and the proposed development would be seen across the view to the south.

Based on the wireframe from P13/14 it is likely that T3, T6, T7, T8, T9, T10, T11, T12, T13, T14 are partially screened by broadleaved woodland in the foreground on the banks of Logan Water with some further conifer screening beyond associated with Bloch Plantation (assumed unfelled). Only blade tips of T4, T5, T10 would likely be visible and some turbines namely T1, T2 would not be discernible in the view.

T7, T8 and T18 would appear in the foreground of views though at a distance and partially screened.

A reduction in the height of T16 - T18 would improve the balance of the turbines on the horizon and improve continuity with T14 and T15 in terms of their relationship with the horizon.

Proposed aviation lighting would be clearly visible at night on the proposed wind turbines not obscured by trees (T7, T8, T13 and T14) and partially visible, especially in winter, on other proposed wind turbines where the nacelle would be partly screened by deciduous trees. Due to the distance and intervening trees the proposed development would be viewed similarly to the existing wind turbines within the landscape, albeit they will occupy a larger extent of the view.

The magnitude of change based on the Submitted RVAA was **Medium** and this would remain unchanged alongside the significance of effect noted as of **Major-Moderate** and **Adverse.** The removal of T19 – T21 and the height reduction of T16 - T18 from the view from Property 13/14 would be insufficient to alter the magnitude of change since such turbines are located in the distance and more immediate turbines in the foreground would remain unchanged. The geographical extent of the development in the view would reduce though this would be insufficient to tip the magnitude of change from one level to another.

RVAA Threshold Judgement

The properties already experiences turbines within views. However, the proposed development would be closer, and proposed wind turbines would extend the view of turbines from the primary aspect of the properties.

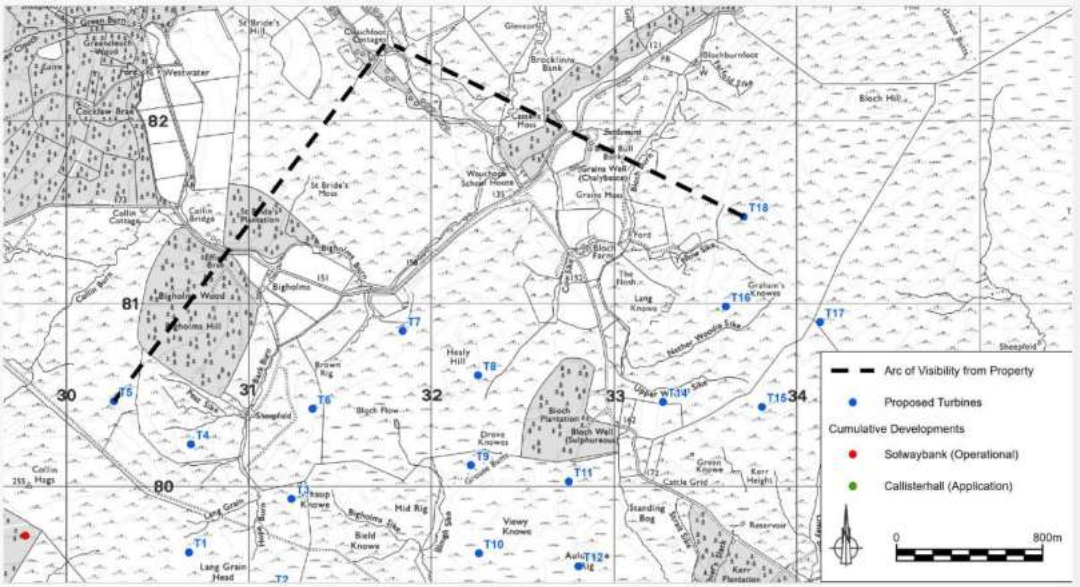
Several proposed wind turbines would be partially screened behind woodland with blade tips only visible for remaining turbines.

The closest turbine would be T7 though at nearly 1.55 km, with T8 and T18 set slightly further back. All three turbines would appear sufficiently far away that they would not appear imposing or overbearing.

Given the separation of the properties from the proposed development and intervening vegetation it is considered that the effects would not be so imposing as to be considered overbearing and therefore would not exceed the Residential Visual Amenity threshold based on the Revised Scheme.

Map showing distance to nearest turbine

Map showing arc of visibility



3.2.5. Property 27: 2 Old Irvine Cottages (also represents P26 and P28)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

P27 is located at the foot of Warb Law, on the corner of a minor T-junction. The property consists of a detached house and small wrap around garden. It lies on the edge of an area of woodland that encroaches from the east.

The main elevation of the property looks to the south and the secondary elevation looks to the north up Docken Beck towards Warb Law.

P27 has the same orientation as P26 and P28.

P27: 2 Old Irvine Cottages	
Distance and direction to nearest turbine	2.4 km, northwest (T17)
Approximate field of view	26 degrees
Number of turbines visible	17 turbines
Financial involvement	No financial involvement

Likely Change to Visual Amenity based on the Revised Scheme

Views of the proposed development would be from the secondary elevation that looks to the north. Turbines would be seen partially screened behind landform. From the access drive and parts of the garden most of the proposed wind turbines would likely be partly visible behind the landform.

The closest turbine is T17, 2.4 km away from the property with T14, T15 and T16 slightly further away. Of the 17 turbines visible, the blade tip of six turbines would likely be visible; T1, T3, T4, T6, T7 and T18.

At night proposed wind turbine lighting would be visible.

The magnitude of change would remain unchanged at **Medium** resulting in a significant effect of **Major-Moderate** and **Adverse.** Whilst the removal of T19 – T21 and the height reduction of T16 - T18 from P27 would reduce the geographical extent of the proposed development, existing turbines are not present in the baseline view and therefore the change is insufficient to alter the magnitude of change from one level to another.

RVAA Threshold Judgement

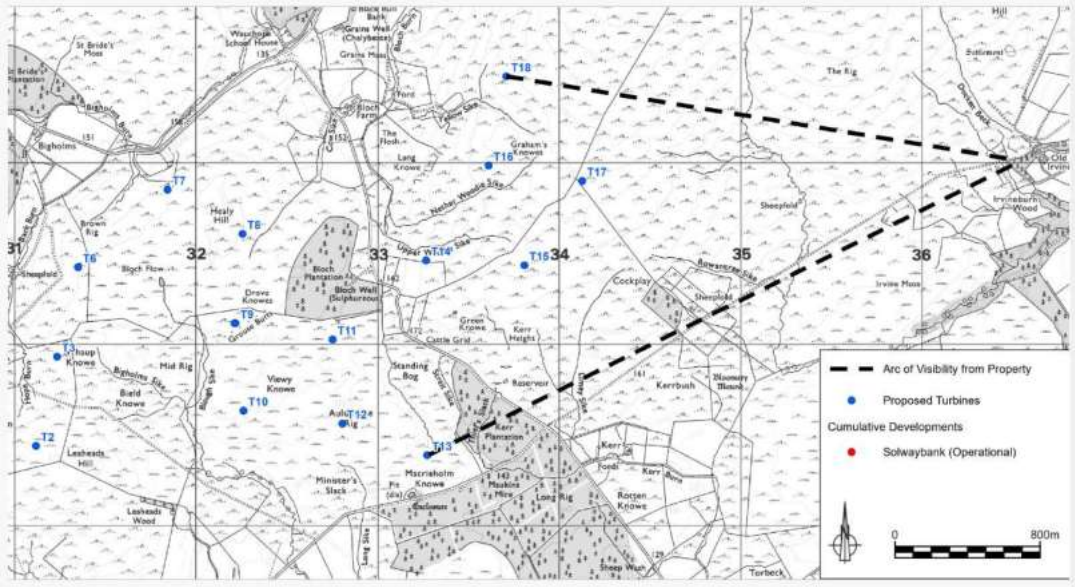
There are no turbines present within views from around this property. Turbines would likely be partially visible behind landform and views appreciated to the rear of the property and garden.

Many of the turbines would likely be partially screened by landform and this would create a sense of separation from the proposed development such that views would not be imposing or overbearing.

On balance, visual effects from this property would not be sufficient to exceed the Residential Visual Amenity threshold and this would remain unchanged based on the Revised Scheme.

Map showing distance to nearest turbine

Map showing arc of visibility



3.2.6. Property 36: March Cottage (also representing properties P30, P31, P32, P33 and P34)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

P36 is a small bungalow located on a minor road to the south-east of Outer Hill. The property consists of the bungalow with a large outbuilding directly to the north. An area of lawn lies directly to the east of the property and includes two mature trees. The primary aspect faces the road to the south-west and the north, east and west elevations all include multiple windows.

P30, P31, P32, P33 and P34 would appreciate a similar orientation of view, though further forestry planting (assumed unfelled) east of March Cottage would contribute to further screening for some properties.

Image of the western aspect of March Cottage

Property 36: March Cottage	
Distance and direction to nearest turbine	1.42 km, north (T13)
Approximate field of view	68 degrees
Number of turbines visible	17 turbines
Financial involvement	No financial involvement
Survey details	Property viewed from adjacent public road

Likely Change to Visual Amenity based on the Revised Scheme

The site lies to the north of the property and the proposed development would be clearly visible across the local hills to the north and north-west of the property. From inside the bungalow, views would likely be most prominent to the north-west. To the north the outbuilding would screen most views. From the garden and driveway, the proposed wind turbines would appear primarily to the north and north-west of the property, where they would be clearly visible, but partially screened behind the landform.

The closest turbine is T13 which would be 1.42km from the property, followed by T12, T11 and T10. Long Rig conifer plantation (assumed unfelled to the west) in the foreground would likely provide some screening of the lower sections of the turbines and this would relate to T7, T8, T11, T12. Only blade tips of T3, T4, T5 and T6 would be discernible. It should be noted that Outer Hill appears to include new forestry planting, however this is not yet at a height to provide sufficient screening.

At night there is no existing lighting within the landscape and the lighting will be clearly visible on the majority of the lit proposed wind turbines including T13.

The magnitude of change based on the Submitted RVAA would be **Medium** and this would remain unchanged alongside the significance of effect noted as **Major-Moderate** and **Adverse.** The removal of T19 – T21 and the height reduction of T16-T18 would be insufficient to alter the view . The turbines which are either removed or reduced in height would be distant in this view, while the retained turbines in the foreground would continue to foreshorten the view. The geographical extent of the proposed development would reduce slightly but this would be insufficient to tip from one criteria of magnitude of change to another.

RVAA Threshold Judgement

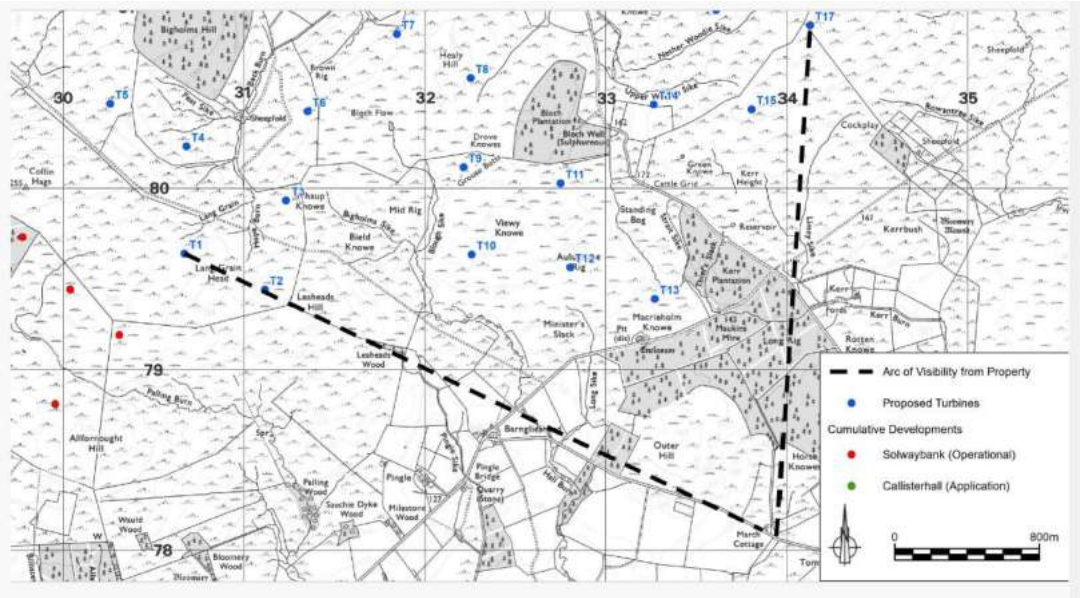
From outside the property half of the proposed wind turbines would likely be at least partly screened by the intervening trees and buildings or landform, which will prevent the proposed development from feeling imposing or overbearing.

T13, T12, T11 and T10 would appear the closest turbines in the view though appear sufficiently far away that they would not appear imposing or overbearing. The proposed development would be seen in context with Solwaybank Wind Farm with T1 and T2 appearing to "link" with the existing wind farm.

To conclude whilst the proposed wind turbines would occupy a wide extent of the view, there is sufficient distance and partially screening by trees and buildings in the foreground to ensure that they would appear separate from the property. The proposed wind turbines would not be considered imposing or overbearing.

Map showing distance to nearest turbine

Map showing arc of visibility



3.2.7. Property 40: Barnglieshead (Figure 15.15 Viewpoint 2)

Summary of Baseline Visual Amenity based on Technical Appendix 5.3 RVAA

This property lies on a local high point to the south of the site . It is comprised of a single detached property that abuts a minor road directly to the north. It has a small driveway to the east of the property and a garden on the east, south and west sides. There are large trees around the property, especially to the east, and large barns lie directly to the north of the property.

Property 40: Barnglieshead	
Distance and direction to nearest turbine	1.05 km, north (T10)
Approximate field of view	140 degrees
Number of turbines visible	18 turbines
Financial involvement	No financial involvement

Likely Change to Visual Amenity based on the Revised Scheme

Viewpoint 2, (Figure 5.15 of the Submitted LVIA) is located to the north of the property in an area of more open visibility towards the site than from the property itself. Solwaybank Wind Farm is visible to the west from areas around the property. The main elevation of the house is oriented to the south, away from the site. The proposed development is located to the north of the property and from the ground floor and external areas it will be predominantly screened by the barns and trees to the north of the house.

The nacelles of five to six proposed wind turbines (T8, T9, T10, T11, T12, T13) will likely be visible. Three of the listed turbines will be lit and aviation lighting will be visible. From the upper floor, there would be a slight increase in visibility due to the elevated position. The trees to the north of the property are a mix of deciduous and evergreen and there would be a slight increase in partial, glimpsed views when some of trees lose their leaves.

At night there is no existing lighting within the landscape and the lighting will be clearly visible on the majority of the lit proposed wind turbines.

The magnitude of change based on the Submitted RVAA was **Medium** and this would remain unchanged alongside the significance of effect noted as **Major-Moderate** and **Adverse.** The removal of T19 – T21 and the height reduction of T16 - T18 would be insufficient to alter the view. The turbines which are either removed or reduced in height would be distant in this view, while the retained turbines in the foreground would continue to foreshorten the view. Visual clustering would reduce through the loss of turbines, slightly improving the balance of the overall scheme, and the reduction in heights of T16 - T18 would increase the perceived distance between the turbines and the property. The extent of the proposed development however in the view would remain unchanged.

RVAA Threshold Judgement

From outside the property most of the proposed wind turbines would be at least partly screened by the intervening trees and buildings, which would prevent the proposed development from feeling imposing or overbearing.

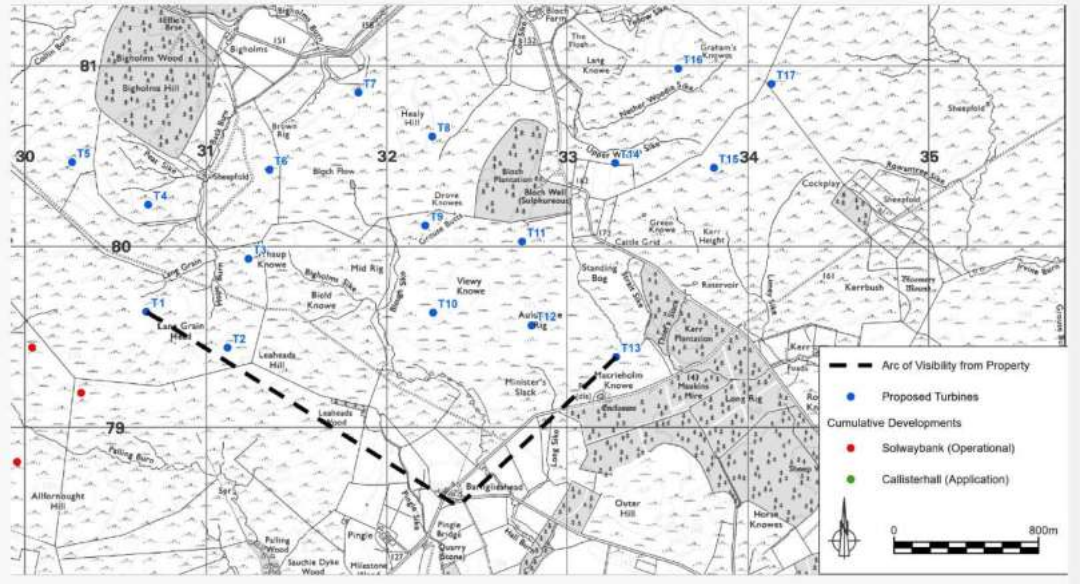
T10, T12 and T13 would appear the closest turbines in the view and would be seen in context with Solwaybank Wind Farm albeit appearing a larger element of the view, partially screened by trees and buildings in the foreground and viewed from the rear of the property and associated curtilage.

T8, T9 and T11 would appear sufficiently far away that they would not appear imposing or overbearing.

To conclude whilst the proposed wind turbines would occupy a wide extent of the view, this would be from the rear aspect and partially screened by trees and buildings in the foreground. The proposed wind turbines would not considered imposing or overbearing.

Map showing distance to nearest turbine

Map showing arc of visibility



3.3. Overall Conclusion and Summary Table

The high level review of the RVAA concludes that there would be no change in the magnitude of change or significance of effects based on the Revised Scheme compared to the submitted planning application refer to **Table 3** below. Based on a detailed desk top study of the agreed residential properties none of the residential properties would reach the Residential Visual Amenity Threshold due to intervening vegetation, buildings, landform, orientation / aspect as well as proximity and presence of existing turbines.

Table 3: RVAA comparison between the Submitted LVIA and Revised Scheme

Residential Properties	Submitted LVIA			Revised Scheme		
	Sensitivity	Magnitude of Change	Significance	Sensitivity	Magnitude of Change	Significance
Property 2	High	High-Medium	Major adverse	High	High-Medium	Major adverse
Property 3	High	Low-Negligible	Moderate-Slight adverse	High	Low-Negligible	Moderate - Slight adverse
Property 9	High	Low	Moderate adverse	High	Low	Moderate adverse

Residential Properties	Submitted LVIA			Revised Scheme		
	Sensitivity	Magnitude of Change	Significance	Sensitivity	Magnitude of Change	Significance
Property 13/14 (This represents P12, P13 &P14, and P15)	High	Medium	Major-Moderate adverse	High	Medium	Major-Moderate adverse
Property 27 (This represents properties P26, P27 and P28)	High	Medium	Major-Moderate adverse	High	Medium	Major-Moderate adverse
Property 36 (This represents properties P30, P31, P32, P33, P34, and P36)	High	Medium	Major-Moderate adverse	High	Medium	Major-Moderate adverse
Property 40	High	Medium	Major-Moderate adverse	High	Medium	Major-Moderate adverse

Appendix 1. Technical Appendix 5.1 Glossary and Methodology

LDĀDESIGN

Bloch Wind Farm

Technical Appendix 5.1

Landscape and Visual Impact Assessment Glossary and Methodology

Contents

Technical Appendix 5.1 – Glossary and Methodology

1.0 Glossary

Cumulative effects. The additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.

Illustrative Viewpoint. A viewpoint chosen specifically to demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations.

Landscape Character Areas. These are single unique areas which are the discrete geographical areas of a particular landscape type.

Landscape Character Type. These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, and historical land use, and settlement pattern, and perceptual and aesthetic attributes.

Landscape effects. Effects on the landscape as a resource in its own right.

Landscape character. A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.

Landscape quality (or condition). A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.

Landscape receptors. Defined aspects of the landscape resource that have the potential to be affected by a proposal.

Landscape value. The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.

Magnitude (of effect). A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term, in duration.

Mitigation. Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects).

Representative Viewpoint. A viewpoint selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where the significant effects are unlikely to differ.

Sensitivity. A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.

Specific Viewpoint. A viewpoint because it is key and sometimes a promoted viewpoint within the landscape, including for example specific local visitor attractions, viewpoints in areas of particularly noteworthy visual and/or recreational amenity such as landscapes

with statutory landscape designations, or viewpoints with particular cultural landscape associations.

Susceptibility. The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.

Visual amenity. The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of people living, working, recreating, visiting or travelling through an area.

Visual effect. Effects on specific views and on the general visual amenity experienced by people.

Visual receptor. Individuals and/or defined groups of people who have the potential to be affected by a proposal.

Zone of Theoretical Visibility (ZTV). A map, usually digitally produced, showing areas of land within which a development is theoretically visible.

Definitions from *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Landscape Institute with the Institute of Environmental Management and Assessment, 2013

2.0 Methodology

2.1. Introduction

This technical appendix contains additional detail regarding the assessment methodology, supplementing the information provided within Chapter 5 of this EIA Report. This technical appendix sets out a standard approach – specific matters in terms of the scope of assessment, study area and modifications to the standard approach for this assessment are set out within the LVIA.

The methodology has the following key stages, which are described in more detail in subsequent sections, as follows:

- Baseline – includes the gathering of documented information; agreement of the scope of the assessment with the EIA co-ordinator and local planning authority; site visits and initial reports to the EIA co-ordinator of issues that may need to be addressed within the design.
- Design – input into the design / review of initial design / layout / options and mitigation options.
- Assessment – includes an assessment of the landscape and visual effects of the scheme, requiring site based work and the completion of a full report and supporting graphics.
- Cumulative Assessment – assesses the effects of the proposal in combination with other developments, where required.

2.2. Baseline

The baseline study establishes the planning policy context, the scope of the assessment and the key receptors. It typically includes the following key activities:

- A desk study of relevant current national and local planning policy, in respect of landscape and visual matters, for the site and surrounding areas.
- Agreement of the main study area radius with the local planning authority. A study area of 35km has been adopted for the assessment, with more detailed study areas listed below. These study areas were proposed in the formal scoping report (April 2022) and as part of a further scoping agreement letter issued to Dumfries and Galloway Council in July 2022. At the time of writing this chapter (September 2022) no response has been received from Dumfries and Galloway Council.
  - 15km for night-time effects;
  - 10km for detailed assessment of effects on landscape character (daytime);
  - 35km for cumulative effects; and
  - 2.5km for the residential visual amenity assessment.
- A desk study of nationally and locally designated landscapes for the site and surrounding areas.

- A desk study of existing landscape character assessments and capacity and sensitivity studies for the site and surrounding areas.
- A desk study of historic landscape character assessments (where available) and other information sources required to gain an understanding of the contribution of heritage assets to the present day landscape.
- Collation and evaluation of other indicators of local landscape value such as references in landscape character studies or parish plans, tourist information, local walking & cycling guides, references in art and literature.
- The identification of valued character types, landscape elements and features which may be affected by the proposal, including rare landscape types.
- Exchanging information with other consultants working on other assessment topics for the development as required to inform the assessment.
- Draft Zone of Theoretical Visibility (ZTV) studies to assist in identifying potential viewpoints and indicate the potential visibility of the proposed development, and therefore scope of receptors likely to be affected. The methodology used in the preparation of ZTV studies is described below.
- The identification of and agreement upon, through consultation, the scope of assessment for cumulative effects.
- The identification of and agreement upon, through consultation, the number and location of representative and specific viewpoints within the study area.
- The identification of the range of other visual receptors (e.g. people travelling along routes, or within open access land, settlements and residential properties) within the study area.
- Site visits to become familiar with the site and surrounding landscape; verify documented baseline; and to identify viewpoints and receptors.
- Input to the design process.

The information gathered during the baseline assessment is drawn together and summarised in the baseline section of the report and reasoned judgements are made as to which receptors are likely to be significantly affected. Only these receptors are then taken forward for the detailed assessment of effects (ref. GLVIA 3rd edition, 2013, para 3.19).

2.3. Design

Beyond design changes to proposed development layouts, including number and size of wind turbines, opportunities for significant mitigation measures are inevitably limited due largely to the nature of the proposed development. The scale of development means that there are no real meaningful on-site opportunities for incorporating mitigation measures for the main elements of the proposed development. However, within the evident constraints of the proposed development, mitigation measures have been considered and, wherever possible, incorporated into the evolving scheme in order to best address potential effects.

The design, siting and mitigation of potential effects of the access tracks, control buildings, grid connection and monitoring mast has also been considered.

The design process was resolved through a series of iterative design reviews which considered the full constraint data. These design options varied in the number of wind turbines and sizes, and were ultimately narrowed down to the final 21 wind turbine layout.

Details of the design considerations in respect of landscape and visual matters for this scheme are discussed within the assessment as part of the scheme description, which describes the proposed development and any mitigation measures incorporated within the proposals to help reduce identified potential landscape and visual effects.

A summary of the design evolution and alternative considerations is included within Chapter 3 of the main EIA Report.

2.4. Assessment

The assessment of effects includes further desk and site based work, covering the following key activities:

- The preparation of a ZTV based on the finalised design for the proposed development.
- The preparation of computer-generated wirelines showing the proposed development from the agreed representative viewpoints, and, potentially, selected residential properties.
- An assessment, based on both desk study and site visits, of the sensitivity of receptors to the proposed development.
- An assessment, based on both desk study and site visits, of the magnitude and significance of effects upon the landscape character, designated and recreational landscape and the existing visual environment arising from the proposed development.
- An informed professional judgements as to whether each identified effect is positive, neutral or adverse.
- A clear description of the effects identified, with supporting information setting out the rationale for judgements.
- Identification of which effects are judged to be significant based on the significance thresholds set out within the LVIA
- The production of photomontages from a selection of the agreed viewpoints showing the anticipated view following construction of the proposed development.

2.5. Site

The effect of physical changes to the site are assessed in terms of the effects on the landscape fabric.

2.6. Landscape and Townscape Character Considerations

The European Landscape Convention (2000) provides the following definition:

"Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."

And notes also in Article 2 that landscape includes *"natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas".*

An Approach to Landscape Character Assessment (Natural England, 2014) defines landscape character as:

"a distinct and recognisable pattern of elements, or characteristics, in the landscape that make one landscape different from another, rather than better or worse."

The susceptibility of landscape character areas is judged based on both the attributes of the receiving environment and the characteristics of the proposed development as discussed under 'susceptibility' within the methodology section of the LVIA. Thus, the key characteristics of the landscape character types/areas are considered, along with scale, openness, topography; the absence of, or presence, nature and patterns of development, settlement, landcover, the contribution of heritage assets and historic landscape elements and patterns, and land uses in forming the character. The condition of the receiving landscape, i.e. the intactness of the existing character will also be relevant in determining susceptibility. The likelihood of material effects on the landscape character areas can be judged based on the scale and layout of the proposal and how this relates to the characteristics of the receiving landscape.

The introduction of any development into a landscape adds a new feature which can affect the 'sense of place' in its near vicinity, but with distance, the existing characteristics reassert themselves.

The baseline is informed by desk study of published landscape character assessments and field survey. It is specifically noted within An Approach to Landscape Character Assessment (Natural England, 2014) that:

"Our landscapes have evolved over time and they will continue to evolve – change is a constant but outcomes vary. The management of change is essential to ensure that we achieve sustainable outcomes – social, environmental and economic. Decision makers need to understand the baseline and the implications of their decisions for that baseline."

At page 51 it describes the function of Key Characteristics in landscape assessment, as follows:

"*Key characteristics are those combinations of elements which help to give an area its distinctive sense of place. If these characteristics change, or are lost, there would be significant consequences for the current character of the landscape. Key characteristics are particularly important in the development of planning and management policies. They are important for monitoring change and can provide a useful reference point against which landscape change can be assessed. They can be used as indicators to inform thinking about whether and how the landscape is changing and whether, or not, particular policies – for example - are effective and having the desired effect on landscape character*."

It follows from the above that in order to assess whether landscape character is significantly affected by a development, it should be determined how each of the key characteristics would be affected. The judgement of magnitude therefore reflects the degree

to which the key characteristics and elements which form those characteristics will be altered by the proposals.

2.7. Landscape value - considerations

Paragraph 5.19 of GLVIA states that "*A review of existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape- such as trees, buildings or hedgerows -may also have value. All need to be considered where relevant*."

Paragraph 5.20 of GLVIA indicates information which might indicate landscape value, including:

- Information about areas recognised by statute such as National Parks, Areas of Outstanding Natural Beauty;
- Information about Heritage Coasts, where relevant;
- Local planning documents for local landscape designations;
- Information on features such as Conservation Areas, listed buildings, historic or cultural sites;
- Art and literature, identifying value attached to particular areas or views; and
- Material on landscapes of local or community interest, such as local green spaces, village greens or allotments.

An assessment of landscape value is made based on the following factors outlined in Table 1 of the Landscape Institute's 'Technical Guidance Notes 02-21: Assessing landscape value outside national designations': natural heritage; cultural heritage; landscape condition; associations; distinctiveness; recreational; perceptual (scenic); perceptual (wildness and tranquillity); and functional.

In addition to the above list, consideration is given to any evidence that indicates whether the landscape has particular value to people that would suggest that it is of greater than Community value.

2.8. Viewpoints and Visual Receptors - considerations

A wide variety of visual receptors can reasonably be anticipated to be affected by the proposed development. Within the baseline assessment, the ZTV study and site visits are used to determine which visual receptors are likely to be significantly affected and therefore merit detailed assessment. In line with guidance (GLVIA, 3rd Edition, 2013); both representative and specific viewpoints may be identified to inform the assessment. In general, the majority of viewpoints will be representative – representing the visual receptors at the distance and direction in which they are located and of the type(s) that would be present at that location. The representative viewpoints have generally been selected in locations where significant effects would be anticipated; though some may be selected outside of that zone – either to demonstrate the reduction of effects with distance; or to specifically ensure the representation of a particularly sensitive receptor. The types of visual receptors likely to be included with the assessment are:

- Users of walking routes or accessible landscapes including Public Rights of Way, National and Regional Trails and other long distance routes, Common Land, Open Access Land, permissive paths, land held in trust (e.g. Woodland Trust, National Trust) offering free public access, and other regularly used, permitted walking routes;
- Visitors to and residents of settlements;
- Visitors to specific valued viewpoints;
- Visitors to attractions or heritage assets for which landscape and views contribute to the experience; and
- Users of roads or identified scenic routes.

Visual receptors are grouped for assessment into areas which include all of the routes, public spaces and homes within that area. Groups are selected as follows:

- Based around settlements in order to describe effects on that that community – e.g. a settlement and routes radiating from that settlement; or
- An area of open countryside encompassing a number of routes, accessible spaces and individual dwellings; or
- An area of accessible landscape and the routes within and around it e.g. a country park; and
- such that effects within a single visual receptor group are similar enough to be readily described and assessed.

With the exception of specific viewpoints, each route, settlement or location will encompass a range of possible views, which might vary from no view of the development to very clear, close views. Therefore, effects are described in such a way as to identify where views towards the development are likely to arise and what the scale, duration and extent of those views are likely to be. In some cases, this will be further informed by a nearby viewpoint and in others it will be informed with reference to the ZTV, aerial photography and site visits. Each of these individual effects are then considered together in order to reach a judgement of the effects on the visual receptors along that route, or in that place.

The representative viewpoints are used as 'samples' on which to base judgements of the scale of effects on visual receptors. The viewpoints represent multiple visual receptors, and duration and extent are judged when assessing impacts on the visual receptors.

For specific viewpoints (key and sometimes promoted viewpoints within the landscape), duration and extent are assessed, with extent reflecting the extent to which the development affects the valued qualities of the view from the specific viewpoint.

Visual Receptor Sensitivity – typical examples

		Susceptibility		
		High	**Medium**	**Low**
Value	**National/International**	1	4	8
	Local/District	2	5	8
	Community	3	6	9
	Limited		7	10

1) Visitors to valued viewpoints or routes which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps.
2) People in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas.
3) People in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land).
4) Users of promoted scenic rail routes.
5) Users of promoted scenic local road routes.
6) Users of cycle routes, local roads and railways.
7) Outdoor workers.
8) Users of A-roads which are nationally or locally promoted scenic routes.
9) Users of sports facilities such as cricket grounds and golf courses.
10) Users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work.

2.9. Visual Receptor Sensitivity – Night Time

The sensitivity of visual receptors at night is generally rated as follows:

- National value and High susceptibility – visitors to Dark Sky Parks.
- Local value and High susceptibility – visitors to dark sky discovery sites or public observatories.
- Community value and High susceptibility – wild campers, people engaged in night time activity such as bat watching, residents of notably dark areas (i.e. rural locations with no street lighting) in the streets around their homes or footpaths where dark skies are integral to the amenity.

- National (or Local) value and Medium susceptibility – visitors to nationally important or well known local landmarks that are illuminated at night e.g. the Kelpies.
- Community value and Medium susceptibility – residents in urban areas or semi-urban/rural areas in the streets around their homes, users of cycle routes and footpaths where street lighting/illumination is characteristic.
- Community value and Low susceptibility – drivers using local, unlit roads and train passengers.
- Limited value and Low susceptibility – users of main roads, illuminated minor roads and people at their place of work.

2.10. Positive / Neutral / Adverse - considerations

Whether an effect is Positive, Neutral or Adverse is identified based on professional judgement. GLVIA 3rd edition indicates at paragraph 2.15 that this is a *"...particularly challenging"* aspect of assessment, particularly in the context of a changing landscape and the need to address climate change. In the case of windfarms, much depends upon the attitudes and predispositions of the individual. As has been shown in a number of opinion surveys, the attitudes of the general public vary widely from those who think that windfarms blight the landscape to others who feel that they are a beautiful or positive addition, in some instances regardless of the natural beauty/ value of the landscape in question. In general terms there appears to be a majority view that is positive towards wind energy generation and its appearance in the countryside and this is particularly so once a windfarm is built in a particular location. A 2012 MORI poll indicated that 67% of people favour the use of wind energy in the UK, with only 8% opposed. Attitudes to the appearance of windfarms in the landscape indicated that 42% find this acceptable, with only 13% who do not. Based on this data, the argument that effects on the landscape and views should always be treated as adverse (on a 'worst case' or precautionary principle) seems to go against the majority opinion.

In examining visual effects, it is relevant to recognise this range of public opinion (and the likelihood that professionally qualified landscape architects may have differing positions) when discussing the effect upon views perceived by the public. However, it should be recognised that there is not an established policy position which aims to maintain unchanged views (similar to those for landscape character), visual effects may be described as being Neutral unless specific factors contribute to positive or adverse effects as identified within design guidance (Siting and Designing Windfarms in the Landscape, NatureScot, 2017) or local guidance.

Public opinion is also pertinent when considering effects on landscape receptors, as the way in which an individual regards wind turbines plays a part in their perceptual response to them within the landscape. If one regards them as industrial, alien structures, then it is understandable to perceive their influence as adverse. Likewise, those who have concerns regarding climate change may welcome wind turbines as a physical expression of action being taken. For those who derive particular value from associations with the past, the uncompromising modernity of wind turbines may be jarring within a familiar landscape, whilst for others, wind turbines may have positive associations with human progress. All

of these responses are equally valid and will affect the perceptual aspects of landscape character. However, in keeping with the general planning policy presumption that distinctive character should not be altered and designated landscape should be protected from development, effects on landscape receptors are generally presumed to be Adverse.

2.11. Preparation and use of Visuals

The ZTVs are used to inform the field study assessment work, providing additional detail and accuracy to observations made on site. Photomontages may also be produced in order to assist readers of the assessment in visualising the proposals, but are not used in reaching judgements of effect. The preparation of the ZTVs (and photomontages where applicable) is informed by the Landscape Institute's Technical Guidance Note 06/19 'Visual Representation of development proposals' and SNH 'Visual Representation of Wind Farms Best Practice Guidance' (both the 2007 and 2017 editions).

The following points should be borne in mind in respect of the ZTV study:

- Areas shown as having potential visibility may have visibility of the development obscured by local features such as trees, hedgerows, embankments or buildings.
- Since only the wind turbine hubs and blade tips have been modelled, this may be all that is visible – rather than the wind turbine tower. This is particularly true of areas near the edges of potential visibility.

The following points should be borne in mind in respect of visualisations, as identified in Annex A of the NatureScot Guidance (2017):

"Visualisations of wind farms have a number of limitations which you should be aware of when using them to form a judgement on a wind farm proposal. These include:

- *A visualisation can never show exactly what the wind farm will look like in reality due to factors such as: different lighting, weather and seasonal conditions which vary through time and the resolution of the image;*
- *The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate;*
- *A static image cannot convey turbine movement, or flicker or reflection from the sun on the turbine blades as they move;*
- *The viewpoints illustrated are representative of views in the area, but cannot represent visibility at all locations;*
- *To form the best impression of the impacts of the wind farm proposal these images are best viewed at the viewpoint location shown;*
- *The images must be printed at the right size to be viewed properly (260mm by 820mm);*
- *You should hold the images flat at a comfortable arm's length. If viewing these images on a wall or board at an exhibition, you should stand at arm's length from the image presented to gain the best impression.*

It is preferable to view printed images rather than view images on screen. If you do view images on screen you should do so using a normal PC screen with the image enlarged to the full screen height

to give a realistic impression. Do not use a tablet or other device with a smaller screen to view the visualisations described in this guidance."

A detailed description of the methods by which ZTVs, wirelines and photomontages are prepared is included below.

2.12. Visualisations and ZTV Studies

ZTV Studies

ZTV studies are prepared using the ESRI ArcGIS Viewshed routine. This creates a raster image that indicates the visibility (or not) of the points modelled. Each wind turbine is analysed at both the blade tip and hub heights. LDA Design undertake two separate ZTV studies, with the first using a topographic model alone (often referred to as a Bareground ZTV), in accordance with NatureScot guidance. The second study is designed to include visual barriers from settlements and woodlands (with heights derived from NEXTMAP 25 surface mapping data). If significant deviations from these assumed heights are noted during site visits, for example young or felled areas of woodland, or recent changes to built form, the features concerned will be adjusted within the model or the adoption of a digital surface model will be used to obtain actual heights for these barriers. In this instance this has not been required.

NextMAP 25 data has been used to derive the height of vegetation and built form for Figures 5.5-5.8, 5.10-5.11 and 5.13. Both the bare ground and visual barrier models are also designed to take into account both the curvature of the earth and light refraction using the curvature and refractivity equation published in the NatureScot guidance.

In accordance with NatureScot guidance LDA Design undertake all ZTV studies with observer heights of 2m.

The ZTV analysis begins at 1m from the observation feature (for example a wind turbine) and will work outwards in a grid of the set resolution (in this instance 25m^2) until it reaches the end of the terrain map for the project.

For all plan production LDA Design will produce a ZTV that has a base and overlay of the 1:50,000 Ordnance Survey Raster mapping or better. The ZTV will be reproduced at a suitable scale on an A1 template to encompass the study area in accordance with NatureScot guidance (2017). For printing purposes all A1 figures will be produced at 600 dpi to allow interpretation of the base map.

Ground model accuracy

Depending on the project and level of detail required, different height datasets may be used. Below is listed the different data products and their specifications:

Product	Distance Between Points	Vertical RMSE Error
LiDAR	50cm – 2m	up to +/- 5cm
Photogrammetrically Derived Heights	2m – 5m	up to +/- 1.5m
Ordnance Survey OS terrain 5	5m	up to +/- 2.5m

NextMap25 DTM	25 m	+/- 2.06m
Ordnance Survey OS terrain 50	50 m	+/- 4m

For most purposes, the NextMap25 data will be used, but in some cases, more detailed analysis of areas close to the site or in relation to residential properties may be required, in which case, more detailed ZTVs using more detailed surface mapping products such as Photogrammetrically Derived Heights (from Getmapping or Bluesky), or LiDAR may be used. This has not been required for this assessment.

Visualisations

Visualisations are produced in 11 stages:

1) Photography is undertaken using a full frame digital SLR camera and 50mm lens. A tripod is used to take overlapping photographs which are joined together using an industry standard application to create a single panoramic image for each viewpoint. These are then saved at a fixed height and resolution to enable correct sizing when reproduced in the final images. The photographer also notes the GPS location of the viewpoint and takes bearings to visible landmarks whilst at the viewpoint.

2) Creation of a ground model and 3D mesh to illustrate that model. This is created using NextMap25 DTM point data (or occasionally other terrain datasets where required, such as site-specific topographical data or Photogrammetrically Derived Heights) and ground modelling software.

3) The addition of the proposed development to the 3D model. The wind turbines are correctly proportioned to match the nacelle height and blade lengths proposed for the proposed development. They are also modelled to resemble the proposed wind turbine type. The wind turbines are then inserted into the 3D model at the proposed locations and elevations.

4) Wireline generation – The viewpoints are added within the 3D CAD model with each observer point being inserted at 1.5m above the modelled ground plane. The location of the landmarks identified by the photographer may also be included in the model. Before wireline generation, the wind turbines are rotated so that they face in the direction of the viewpoint from the centre of the site, with blade tips upwards. The view from the viewpoint is then is then replicated using virtual cameras to create a series of single frame images, which also include bearing markers. For cumulative sites consented and operational sites shown in black and green respectively, site in planning are shown in orange and sites in scoping/screening are shown in pink. As with the photographs, these single frame images are joined together using an industry standard application to create a single panoramic image for each viewpoint. These are then saved at a fixed height and resolution to ensure that they are the same size as the photographs.

5) Wireline matching – The photographs are matched to the wirelines using a combination of the visible topography, bearing markers and the landmarks that have been included in the 3D model.

6) These matched images then form the baseline panorama and are presented as determined by the 2017 NatureScot standards.

7) In order to produce the main wireline, a wireline is created in the same way as above, but without the cumulative sites. This image is then cropped both horizontally and vertically and re-projected (around the centre of the cropped image) using an image processing application to create a 'planar projection' as required by the 2017 NatureScot standards.

8) For the photomontage, an industry standard 3D rendering application is used to produce a rendered 3D view of the proposed wind turbines from the viewpoint. The rendering uses a pale grey colour (similar to that used for many wind turbines) and lighting conditions according to the date and time of the viewpoint photograph. The rendered wind turbines are then added to the photographs in the positions identified by the wireline (using an image processing application) to ensure accuracy. The images are then layered to ensure that the wind turbines appear in front of and behind the correct elements visible within the photograph, proposed felling is taken into account and the woodland is modified in photoshop to match the proposals. As for the main wireline, this matched image is then cropped and re-projected around the same centre as the main wireline, to create a 'planar projection' as required by the 2017 NatureScot standards. The proposed borrow pits are not modelled due to their temporary nature. The proposed substation and BESS compounds and access tracks are not modelled due to the general lack of visibility of these features.

9) Wind turbine order – wind turbines are listed as they are shown left-right within the view and labelled above the wind turbine. For the wireline this includes all wind turbines not screened by terrain (i.e. those visible on the wireline), and for the photomontage this includes all wind turbines not screened by intervening features (i.e. those visible on the photomontage).

10) Key to cumulative sites – for each viewpoint, information regarding the cumulative sites shown is shown on the baseline panorama. The sites are listed in the order they appear on the sheets with a distance to each of the sites. A key to the colours is shown on Fig. 5.9).

11) In accordance with the guidance provided in Landscape Institute Technical Guidance Note 06/19, visualisations are prepared to the technical methodology set out in below. The photomontages prepared in support of the LVIA adhere to the Type 3 visualisation specification as surveyed locational accuracy is not generally necessary but image enlargement, to illustrate perceived scale, would be appropriate.

Technical Methodology

Information	Technical Response
Photography	
Method used to establish the camera location	Aerial photography in ESRI ArcGIS along with GPS reading taken on site
Likely level of accuracy of location	Better than 1m

Information	Technical Response
If lenses other than 50mm have been used, explain why a different lens is appropriate	N/A
Written description of procedures for image capture and processing	See above
Make and type of Panoramic head and equipment used to level head	Manfrotto Levelling Head 338 and Manfrotto Panoramic Head MH057A5
If working outside the UK, geographic co-ordinate system (GCS) used	N/A
3D Model/Visualisation	
Source of topographic height data and its resolution	NextMap 25
How have the model and the camera locations been placed in the software?	Camera locations taken from photography viewpoint locations
Elements in the view used as target points to check the horizontal alignment	Existing buildings, infrastructure/road alignments, telegraph poles/street lighting/signage, field boundaries, DSM
Elements in the view used as target points to check the vertical alignment	Topography, existing buildings
3D Modelling / Rendering Software	Civil 3D / AutoCAD / 3DS Max / Rhino / V-Ray

2.13. Night-Time Montage Methodology

Calibration photographs were taken of the offshore demonstrator wind turbine at Methil in Fife which is fitted with 2000 candela nacelle lighting similar to that proposed. These photographs were taken from locations at a similar distance and ambient light level to those viewpoints being montaged and using similar camera equipment and exposure settings to the photographs used to produce the montages.

The model of the proposals was then rendered with wind turbine lighting shown in the correct locations, using industry standard software with realistic lighting reflecting the date and time of day the viewpoint photographs were taken at in order to give an impression of the 'brightness', colour relating to light on surfaces, and texture of surfaces at night. This rendered model was then fitted to the night-time photographs using the wireframes created for the day-time photomontage as a reference.

Finally, the proposals were rendered in a photo editing package to illustrate the proposals appearance based on existing lighting in the panoramas, the calibration photographs, foreground features in the view that would screen parts of the proposal and the render from the 3D model to give an accurate representation of the proposals. Red lights typically appear 'less red' in photographs than experienced with the naked eye so the proposed

lighting shown in montages has been enhanced to present a colour that more closely resembles that which would be experienced in real life.

Appendix 2. LVIA Viewpoints

1.0 Appendix 2: Visual Impact Assessment - Viewpoints

1.1. Introduction

1.2. The Submitted LVIA identified 17 No. representative viewpoints shown on Figure 5.8.and supported by wireframe visualisations for each viewpoint (Figures 5.14-5.30). Technical Appendix 5.2 - Viewpoint Descriptions to the Submitted LVIA contains detailed descriptions of the location, character of the existing view and effects resulting from the proposed development.

1.3. The Submitted LVIA identified the scale of effect for each representative viewpoints. This Review has been prepared to accurately reflect the changes that would occur as a result of the Revised Scheme of the proposals. All viewpoints are assessed to have **Medium-High sensitivity**.

Below is a summary of the viewpoint descriptions and assessment of scale of the Revised Scheme. This is supported by three further wireframes from viewpoints 5, 6 and 8 detailed in **Appendix 3**. Judgements were made based on a desk top study only.

1.4. Assessment of Individual Viewpoints

1.4.1. VP1: High Stenries (2.4 km, south)

Location: On a minor road to the south of the site, opposite the access road to High Stenries Farm. The road connects the main road network to the east and west and along the route there are a small number of properties and farmsteads, often isolated or in small groups.

Character of the existing view: The viewpoint looks out across tussocky and rolling grassland towards the existing Solwaybank Wind Farm. Between the viewer and the site there a number of blocks and belts of woodland, often following field boundaries, and scattered individual or small groups of trees. The view opens up to the east, looking directly along the road, where the ground falls to reveal a wider landscape of rolling hills. Overhead lines form a noticeable feature within the foreground.

Wind turbines within Solwaybank and Minsca Wind Farm are clearly visible on more distant hills to the north-west. Wind turbines at Crossdykes and Ewe Hill Wind Farms are visible in the background behind the western end of Solwaybank Wind Farm, alongside some blade tips at Craig Wind Farm which appear above the horizon. Once constructed, blade tips at Little Hartfell Wind Farm (consented) would be visible behind distant hills in the area between Minsca and Solwaybank Wind Farms.

Effects caused by the Revised Scheme: The proposed development would be clearly visible on the upland as it would extend the existing development further east. The lower parts of most turbines would be partially screened by landform and vegetation. Turbines T5, T4, and T1 would appear behind the eastern end of Solwaybank and would be in keeping with the scale of the existing wind turbines. The remaining turbines would appear irregularly spaced across the view and clustered with overlapping towers and blades. The removal of T19 – T21 and height reduction of T16 – T18 would reduce the number of

turbines visible within the central part of the proposed development in this view. T2 and T8 would appear to form an extension to Solwaybank populated by other turbines; T1, T3, T4, T5, T6 and T7. Turbines T14, T11, T10, and T17 would form a distinct group with T9, T16 and the blade of T18 in between and slightly irregularly spaced. T13 would appear as an outlier.

The Submitted LVIA assessed the scale of effect would to be **Large-Medium and Adverse**. Although the Revised Scheme would see the removal of three turbines and the reduction in height of further three turbines, the extent of development in this view would remain unchanged. The scale of effect would remain unchanged at **Large-Medium.**

1.4.2. VP2: Minor road near Barngliehead (0.6 km, south)

Location: This viewpoint is located close to the southern boundary of the site on the edge of a small farmstead (P40) and on the same minor road as VP1.

Character of the existing view: The view looks out past a small barn, animal pens and dry stone walls to the rolling hills where the existing Solwaybank Wind Farm is visible on and partly behind the hills. A small number of wind turbines and blade tips at Ewe Hill and Craig (blade tips only) Wind Farms are visible on the horizon between Solwaybank and the barn. In views to the south-east of the landscape there are more open views of an agricultural landscape amidst areas of trees.

Effects caused by the Revised Scheme: The proposed development would be clearly visible above the landform in the middle distance of the view. Within the Revised Scheme of the proposals, turbines T1, T2, T5, and T4 would be located on top of a hill to the east of Solwaybank and would appear higher than the existing turbines in the view. These turbines would appear to sit individually at irregular spacings. T3, T6 and T7 would appear further away than a cluster of T9, T10 and T8. Further east, T11 and T12 would appear larger in comparison with T14 located further to the north. T17 and T15 would form a standalone cluster and T13 would appear as an outlier.

The Submitted LVIA identified the scale of effect of the original scheme to be **Large and Adverse.** This Review concludes that the removal of T19 – T21 and the height reduction of T16-T18 would affect turbines that would already appear smaller in this view while the retained turbines in the foreground would continue to foreshorten the view. The extent of the development in the view would remain unchanged. the Revised Scheme would result in **Large** scale of effect**.**

1.4.3. VP3: Collin Burn (0.0 km, north)

Location: This viewpoint is located on the B7068 on the northern boundary of the site. The B7068 connects Langholm to Lockerbie and there are a number of individual dwellings and farmsteads along the route (P2, P3, P4).

Character of existing view: The landscape within the view comprises gently rolling hills covered with tussocky grassland and is broken up by medium sized units of forestry. The existing turbines at Solwaybank are clearly visible on, and descending down the back of, the hill to the south. To the rear of the view, dense forestry screens all but immediate views of the woodland edge.

Effects caused by the Revised Scheme: The proposed development would adjoin the Solwaybank development and be clearly visible across a wide extent of this view, considerably extending the proportion of the view affected by wind development as demonstrated by wireframe visualisation in Figure 5.16_VP03_BP. The removal of T20 and T21 from the Revised Scheme to the eastern end of the scheme would reduce the extent of the visible proposed development. The height reduction of T16-T18 would achieve turbines of a broadly uniform height across the eastern part of the proposals. T5 would be the closest to the viewpoint and would not be screened by landform and/or vegetation. The majority of the development (Turbines T3 onwards going east) would be partially screened by the existing woodland plantations.

The Submitted LVIA assessed the scale of effect to be **Large and Adverse**. This Review concludes that the Revised Scheme would reduce the extent of the proposed development but the scale would remain **Large**.

1.4.4. VP4: Milltown (3.7 km, south)

Location: Viewpoint 4 is located to the south of the site on the B6357, on the edge of the minor settlement of Milltown. The minor road links Canonbie to Kirkpatrick-Fleming, with houses and farmsteads along this route tending to be clustered in small groups.

Character of existing view: This view looks out across gently rolling agricultural fields towards the more dramatic upland hills in the distance. Many of the field boundaries within the foreground of the view are tree lined which creates a sense of distance between the viewer and the upland hills in the background. Two sets of small overhead lines cross the view in the foreground and a third set runs along the side of the road in the rear of the view.

The existing turbines at Solwaybank are clearly visible within the view and some turbines at Ewe Hill and Craig Wind Farms can be perceived on the horizon.

Effects caused by the Revised Scheme: The proposed development would be visible to the right of Solwaybank Wind Farm and in front of the other visible wind farms, closer to the viewer. The proposed development would be partially screened by an area of woodland in the foreground of the view. Turbines appearing largest would be those closest to the viewpoint, i.e. T10-T13 with the hubs likely visible above the existing woodland. The eastern part of the proposed development comprising T16-T18 would be screened only minimally by intervening landform and almost the whole length of the turbine towers would be visible. The removal of T19-T21 and the height reduction of T16-T18 would reduce the extent of wind development visible, especially in the areas not screened by woodland.

The Submitted LVIA identified the scale of effect to be **Medium and Adverse**. This Review considers that the removal of and height reduction of the most exposed turbines would reduce the extent of the effect to an **Intermediate, Medium scale.**

1.4.5. VP5: Calfield (0.9 km, north)

Location: This viewpoint is located to the north of the site on a small unmetalled farm track that is adjacent to a core path and featured as a local walking route.

Character of the existing view: The view looks out across a shallow valley which contains mixed broadleaf and deciduous trees along its base. In the foreground the fields are primarily pastoral grassland, whilst hills on the opposite side of the valley are more tussocky grassland and heather. Minor overhead lines follow the path of the farm track. Solwaybank Wind Farm is visible on the hills in the background of the view.

Effects caused by the Revised Scheme: The proposed development would be clearly visible across the hills on the opposite side of the valley and would appear larger than Solwaybank due to its proximity and the scale of the turbines. The removal of T19-T21 from the upper slopes of Bloch Hill would reduce the extent of development in this view and the prominence of wind turbines on the elevated ground. The height reduction of T16 and T18 would reduce their prominence albeit T18 would still appear larger than the neighbouring turbines and T15, T16 and T18 would appear as a small group though off centre from the main wind farm and Solwaybank wind farm. The height reduction of T17 would reduce its prominence on the side of Bloch Hill though from this angle T17 would appear as an outliner.

The Submitted LVIA identified the scale of effect to be **Large and Adverse.** This Review concludes that the Revised Scheme would result in a **Large-Medium scale and Intermediate extent of effect**.

1.4.6. VP6: B6318 north-west of Claygate (3.7 km, east)

Location: Viewpoint 6 is located adjacent to a small farmstead on the B6318 to the east of the site.

Character of existing view: The view towards the site overlooks the valley of the River Esk. A tussocky pastoral field forms the foreground while the rolling landscape increases in scale to larger hills in the middle and background of the view, including Bloch Hill to the north. In the midground of the view, the roof of a low residential property can be seen nestled amongst trees and hedges. Large areas of forestry line the banks of the Esk and its tributary Irvine Burn and together with the woodland in the Long Rig/Bloch Plantation area partially screen views of the existing Solwaybank windfarm.

Effects caused by the Revised Scheme: The proposed development would be clearly visible in front and to the right of Solwaybank and would appear to extend to the foot of Bloch Hill. Proposed turbines T1 – T4, and T9-T13 would be partially hidden behind existing woodland. The remaining turbines would receive no screening by vegetation or topography. All proposed turbines would appear higher than the existing Solwaybank development.

The removal of T19-T21 from the upper parts of Bloch Hill would reduce the extent of development in this view. T1-T15 would appear as a compact group overlapping with Solwaybank while T16-T17 would form a small cluster separated from the main body of turbines. T18 would appear as an outlier. The height reduction of T16-T18 would ensure

these turbines appear similar in size to the rest of the development and appear balanced on the horizon with T15 to the left of the view, stepping down in almost two horizontal rows.

The Submitted LVIA identified the scale of effect to be **Medium and Adverse**. This Review considers that the removal of and height reduction of the northern parts of the proposals would reduce the extent of effect to **Intermediate, Medium scale.**

1.4.7. VP7: Langholm Bridge (2.9km, east)

Location: Viewpoint 7 is located on Thomas Telford Bridge in the middle of Langholm.

Character of existing view: The view looks south along the River Esk, towards Warb Law hill. Warb Law is higher than Bloch Hill with which it forms a short ridgeline. Mature woodland along the river and on the hillside of Warb Law forms a strong backdrop and allows only the upper parts of the hill to be visible. A radio mast is situated atop the hill. Some built form is visible on both banks of the river, intermixed with vegetation.

Effects caused by the Revised Scheme: The proposed development would be almost wholly screened by the woodland and visibility would be limited to occasional views of a small number of blade tips and the occasional glimpsed view of a nacelle. The Revised Scheme would remove T20 which would have appeared the highest in this view. The removal of T19 and T21 and the height reduction of T16 would further remove the view of their blades behind Warb Law. The remaining turbines would be glimpsed amongst the vegetation.

The Submitted LVIA identified the scale of effect to be **Negligible and Neutral**. This Review concludes that the Revised Scheme would reduce the extent of effect **to Limited, Negligible scale.**

1.4.8. VP8: Malcolm Monument, Langholm (4.0 km, north-east)

Location: This view is located next to Malcolm Monument on Whita Hill and offers panoramic views across the surrounding landscape.

Character of existing view: The long-distance view south and south-east looks out across a low-lying landscape towards craggy hills of the Lake District and the Solway Firth. To the east the view is across a valley, containing Langholm and areas of forestry, to gently rolling hills. The wind farms of Solwaybank and Minsca appears as discrete units on these hills. Ewe Hill and Craig are visible together on the same hill, with blade tips at Crossdykes also occasionally visible.

Effects caused by the Revised Scheme: The proposed development would be fully visible on the hill across the valley in front of Solwaybank Wind Farm, with the proposed development appearing taller and more prominent in the view due to proximity and the size of the proposed turbines. The removal of T19-T21 and the height reduction of T16-T18 would reduce some of the clustering of turbines and foreshortening in this view. It would not, however, reduce the extent and scale of development due to the position and orientation of this view. The development would occupy a similar proportion of the view as the submitted scheme while featuring a slightly lower number of turbines. T12, T15, and T17 would form a small cluster in the left part of the view and T13 would appear as an outlier.

The Submitted LVIA identified the scale of effect to be **Medium-Small and Adverse.** This Review concludes that the Revised Scheme would result in an **Intermediate** extent of effect, **Medium-Small** scale**.**

1.4.9. VP9: Longtown (10.0 km, south)

Location: Viewpoint 9 is located on the A7 to the north-west of Longtown.

Character of existing view: A view towards the site overlooks a flat arable field which looks out across an arable field towards a series of farm buildings and barns. A dense mixed woodland lies behind the farmstead and forms a wooded skyline. Existing wind turbines are visible above and behind vegetation to the left of (Beck Burn), and behind (Hallburn), the viewer.

Effects caused by the Revised Scheme: The existing woodland would largely prevent views of the proposed turbines within the Revised Scheme of the proposed development. The removal of T19-T21 and height reduction of T16-T18 would further reduce the limited number of blade tips potentially visible above the trees.

The Submitted LVIA identified the scale of effect to be **Small and Neutral**. This Review concludes that the Revised Scheme would result in a **Negligible scale and Limited extent of effect**.

1.4.10. VP10: Burnswark Hill Fort (10.6 km, west)

Location: This viewpoint is located on Burnswark Hill by the remains of a series of Roman camps and an Iron Age hillfort.

Character of existing view: The elevated, panoramic view looks out across a rolling landscape comprising a mosaic of fields and forests. As with Viewpoint 8, there are a number of operational wind farms visible from the elevated viewpoint, the most notable of these is Minsca which is located directly in front of the viewer. Behind Minsca, Crossdykes, Ewe Hill, Craig and Solwaybank are clearly visible in the middle distance. Little Hartfell (consented) would also be visible as part of this group once constructed.

Effects caused by the Revised Scheme: The proposed development would be seen behind the turbines at Solwaybank. The turbines would appear slightly larger than those of Solwaybank but both developments would appear as one group of wind turbines. The Revised Scheme of the proposed development would extend the Solwaybank Wind Farm in the direction of Minsca. The removal of T19-T21 would reduce the extent of turbines near Solwaybank but leave T17 as appearing slightly detached from the main array. The height reduction of T16-T18 would appear balanced against Solwaybank.

The Submitted LVIA identified the scale of effect to be **Small and Neutral**. This Review concludes that the Revised Scheme would result in a **Small scale and Localised extent of effect**.

1.4.11. VP11: A7 near Unthank (13.1 km, north-east)

Location: This viewpoint is located on the A7 leading though a steep-sided, u-shaped valley formed by the floodplain of the Ewes Water River.

Character of existing view: The view is channelled by the steep valley sides towards the southern end of the valley where it appears to be closed by a series of hills (Potholm Hill, Wrae Hill, north of Langholm). The eastern side of the valley is predominantly covered in woodland, whilst the western slopes comprise grassland. A line of large and small overhead lines also run along the valley floor which predominantly comprises pasture fields.

Effects caused by the Revised Scheme: The proposed development would be predominantly hidden behind the hills at the end of the valley. The removal of T19-T21 and height reduction of T16-T18 would leave only the blade tip of T15 partially visible behind Potholm Hill.

The Submitted LVIA identified the scale of effect to be **Small and Adverse**. This Review concludes that the Revised Scheme would result in a **Small-Negligible scale and Localised extent of effect**.

1.4.12. VP12: Bowness-on-Solway (18.6 km, south-west)

Location: This viewpoint was taken from a small car park on a local road (National Cycle Route 72) on the western edge Bowness-on-Solway.

Character of existing view: The view looks across the Solway Firth. The primary focus of the view is the water and the immediate coastline on the opposite side. The view looks across the water to the low, plateau landscape in the midground. This area of the view appears compressed due to the flat nature of the view. Settlements of Annan, Dornock, Eastriggs and some commercial built form (Newbie) are seen against a backdrop of vegetation and open fields. The skyline is formed by the hills to the north of Langholm. Existing wind farms tend to appear in small groups of two wind farms with clear separation between them. These are grouped as follows: Minnygap and Harestanes; Minsca and Little Hartfell (consented); Crossdykes and Ewe Hill; and Solwaybank and Craig.

Effects caused by the Revised Scheme: The proposed development would be clearly visible at a similar distance to Solwaybank Wind Farm and would increase the geographical extent of wind turbines visible. The removal of T19-T21 would reduce the clustering of turbines but would also leave T13, T15, and T17 as a cluster slightly detached from the main body of turbines. The proposed development would appear slightly foreshortened in the view based on their relative size to the existing turbines of Solwaybank.

The Submitted LVIA identified the scale of effect to be **Small-Negligible and Neutral**. This Review concludes that the Revised Scheme would result in a **Small-Negligible scale and Localised extent of effect**.

1.4.13. VP13: Caerlaverock Castle (30.2 km, south-west)

Location: Viewpoint 13 is located on the access drive to Caerlaverock Castle and looks over a field boundary hedgerow and fence towards the proposed development.

Character of existing view: The view looks across low farmland, often divided by hedgerows and small groups of trees, and interspersed with minor settlements. Small hills to the left of the view screen the larger hills to the north-east and the view remains predominantly flat. Minsca Wind Farm is partially screen by Burnswark Hill but remains clearly visible within the view. On days with very good visibility or better (as defined by the Met Office) Little Hartfell (consented), Crossdykes, Ewe Hill, Craig and Solwaybank wind farms are visible.

Effects caused by the Revised Scheme: The proposed development would be seen behind and slightly to the right of the existing Solwaybank wind turbines. The loss of R19-T21 would reduce the perception of clustering slightly.

The Submitted LVIA identified the scale of effect to be **Small-Negligible and Neutral**. This Review concludes that the Revised Scheme would result in a **Small-Negligible scale and Neutral and Localised extent of effect**.

1.4.14. VP14: Banks, Hadrian's Wall (26.6 km, south-east)

Location: This view is located within a field on the route of Hadrian's Wall Path to the west of a small settlement of Banks.

Character of existing view: The view looks over undulating landscape formed by a mosaic of woodland and fields. The view is framed by distant higher hills. Looking south and south-west over England there are a number of individual turbines and small wind farms visible around Carlisle on clear days. The radio masts at Anthorn Radio Station and transmitting mast at Caldbeck Transmitting Station, Hill Top, Brocklebank can also be seen against the sky. Beck Burn is visible in the middle distance to the west, in a group with Hallburn. Looking over Scotland, the viewpoint affords views of multiple wind farms. Minsca, Solwaybank, Ewe Hill and Craig are all visible as separate wind farms.

Effects caused by the Revised Scheme: The proposed development would be visible to the right of Solwaybank and partially in front of Ewe Hill. The removal of T19-T21 would reduce the extent of development visible and the height reduction of T16-T18 would ensure these turbines are compatible in size to turbines within Ewe Hill. The rest of the proposed development would appear slightly foreshortened in the view compared to their relative size to the existing turbines in the background.

The Submitted LVIA identified the scale of effect to be **Small-Negligible and Neutral**. This Review concludes that the Revised Scheme would result in a **Small-Negligible and Neutral scale and Localised extent of effect**.

1.4.15. VP15: Gretna Green / Springfield (10.5 km, south)

Location: This viewpoint is located on a crossroads at the northern edge of Gretna Green/Springfield, on National Cycle Route 7 and a locally signposted walking route which runs along Core Path 326.

Character of existing view: Tall hedges line the side of the roads and restrict visibility towards the site. Despite the hedgerows a radio tower, electricity pylon and the existing wind farms at Solwaybank, Ewe Hill and Craig are visible on the upland hills above the hedges to the north and Beck Burn is visible much closer to the edge of the settlement, also behind a hedgerow.

Effects caused by the Revised Scheme: The proposed development would be partially visible to the right of Solwaybank Wind Farm, behind the vegetation and the radio tower. The removal of T19-T21 would slightly reduce the extent of development visible. The height reduction of T16-T18 would make these turbines compatible in size to those visible behind them. The rest of the proposed development would be arranged in small clusters and would appear foreshortened in the view due to their relative in size compared to the existing turbines behind them.

The Submitted LVIA identified the scale of effect to be **Small-Negligible and Neutral**. This Review concludes that the Revised Scheme would result in a **Small-Negligible and Neutral scale and Localised extent of effect**.

1.4.16. VP16: Kirkpatrick-Fleming (9.1 km, south)

Location: This view is located is located on the main road (B7076) that passes through Kirkpatrick-Fleming.

Character of existing view: The view looks out through a gap between houses. In the foreground of the view is a small field behind which runs the A74(M) on a slightly elevated route. There are individual and small clusters of trees along the motorway corridor. Behind the motorway more fields rise up to a local ridgeline which screens any further distant views. The fields behind the motorway are separated by hedgerows and occasional larger trees. Solwaybank Wind Farm is visible on the horizon, intermittently screened by vegetation.

Effects caused by the Revised Scheme: The proposed development would be partially visible on the horizon adjacent to Solwaybank and would be partially screened by trees along the motorway corridor. The removal of T19 and T21 would leave T13, T15, and T17 as a cluster detached from the main body of turbines. The height reduction of T17 would ensure the turbines in this cluster appear similar in size. The removal of T20 and height reduction of T18 and T16 would reduce the clustering in the right-hand side of the visible proposals.

The Submitted LVIA identified the scale of effect to be **Small-Negligible and Adverse**. This Review concludes that the Revised Scheme would result in a **Small-Negligible scale and Intermediate-Localised extent of effect**.

1.4.17. VP17: Repentance Tower, Hoddom (15.8 km, south-west)

Location: The viewpoint is located adjacent to Repentance Tower, a square sided 16th Century stone watch tower on elevated land which is surrounded by a stone wall. This viewpoint was listed in the DGWLCS as providing a key view of development within the host Landscape Character Type.

Character of existing view: This panoramic view looks to the north, east and south. The view to the north is partially screened by a copse of pine trees immediately adjacent to the tower, beyond this the ground falls away steeply to reveal the towers of Hoddom Castle set amidst an area of woodland. A mosaic of fields and forest lie behind, across a large rolling hill, and in the far distance the rugged uplands of Scotland can be seen. To the east the view continues to consist of woodland and agricultural land with many settlements and buildings visible within the view. The A74(M) corridor forms a noticeable feature in this direction. The wind farms of Crossdykes, Minsca, Ewe Hill and Solwaybank are all visible in this direction. To the south the land falls away towards the Solway Firth and small wind farms are visible on the opposite side of the Firth.

Effects caused by the Revised Scheme: The proposed development would be visible behind and to the right of Solwaybank on the horizon and these two developments together would create a dense group of wind turbines. The removal of T19-T21 and height reduction of T16-T18 would not alter the extent of development visible but it would balance the heights of Solwaybank and Bloch turbines as they are seen together.

The Submitted LVIA identified the scale of effect to be **Small-Negligible and Neutral**. This Review concludes that the Revised Scheme would result in a **Small-Negligible** and **Neutral scale and Localised extent of effect**

Table 1: Scale of Effect - Comparison

Scale of Effect	Submitted LVIA	LVIA Review
VP1: High Stenries (2.4km, south)	Large-Medium and Adverse	Large-Medium and Adverse
VP2: Minor road near Barngliehead (0.6km, south	Large and Adverse	Large and Adverse
VP3: Collin Burn (0.0.km, north)	Large and Adverse	Large and Adverse
VP4: Milltown (3.7km, south)	Medium and Adverse	Medium and Adverse
VP5: Calfield (0.9km, north)	Large and Adverse	Large-Medium and Adverse
VP6: B6318 north-west of Claygate (3.7km, east)	Medium and Adverse	Medium and Adverse
VP7: Langholm Bridge (2.9km, east)	Negligible and Neutral	Negligible and Neutral
VP8: Malcolm Monument, Langholm (4.0km, north-east)	Medium-Small and Adverse	Medium-Small and Adverse
VP9: Longtown (10.0km, south)	Small and Neutral	Negligible and Neutral
VP10: Burnswark Hill Fort (10.6km, west)	Small and Neutral	Small and Neutral
VP11: A7 near Unthank (13.1km, north-east)	Small and Adverse	Small-Negligible and Adverse

Scale of Effect	Submitted LVIA	LVIA Review
VP12: Bowness-on-Solway (18.6km, south-west)	Small-Negligible and Neutral	Small-Negligible and Neutral
VP13 Caerlaverock Castle (30.2km, south-west)	Small-Negligible and Neutral	Small-Negligible and Neutral
VP14: Banks, Hadrian's Wall (26.6km, south-east)	Small-Negligible and Neutral	Small-Negligible and Neutral
VP15: Gretna Green / Springfield (10.5km, south)	Small-Negligible and Neutral	Small-Negligible and Neutral
VP16: Kirkpatrick-Fleming (9.1km, south)	Small-Negligible and Adverse	Small-Negligible and Adverse
VP17: Repentance Tower, Hoddom (15.8km, south-west)	Small-Negligible and Neutral	Small-Negligible and Neutral

Appendix 3. Selection of Revised Site Plans and Visualisations Associated with Property 9, 13/14, 27 and 36

BLOCH WIND FARM REVISED VERSION

FIGURE 5.1

SITE LOCATION & CONTEXT

Proposed Turbines

- 105m (Hub) / 180m (Tip)
- 125m (Hub) / 200m (Tip)
- 155m (Hub) / 230m (Tip)
- Turbines removed from proposals
- Site Boundary
- Distance from Proposed Turbines (1, 2.5 and 5km)
- Viewpoints
- Viewpoints with revised layout wirelines
- Core Paths

Cumulative Developments

- Craig (Operational)
- Ewe Hill (Operational)
- Callisterhall (Application)
- Loganhead (Application)
- Solwaybank (Operational)

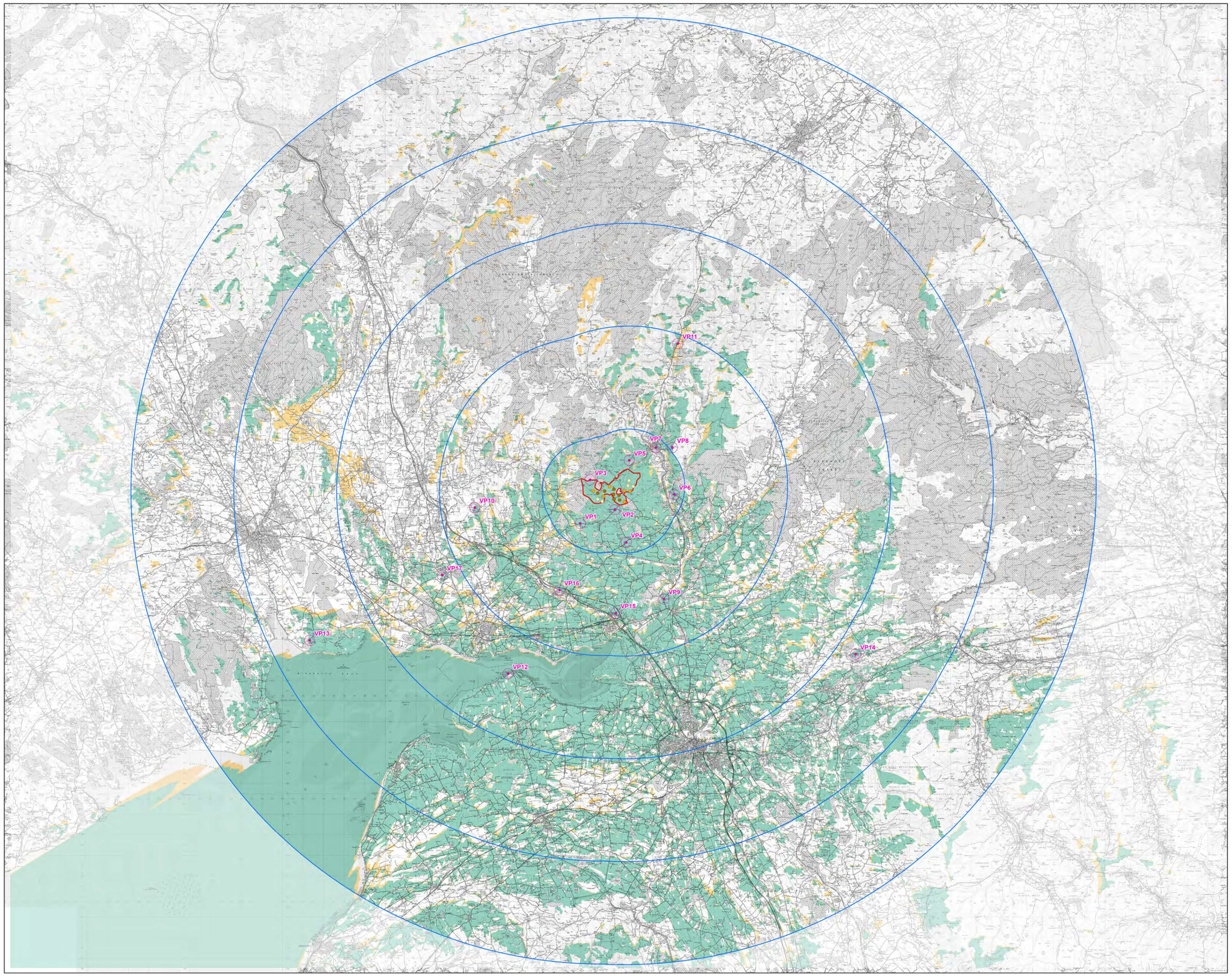
LAYOUT DWG	T-LAYOUT NO.
04097-RES-LAY-DR-PE-001 (Revised Version)	PSCOsbe024 (Revised Version)

DRAWING NUMBER

10067_Figure_5.1 (Revised Version)

SCALE - 1:50,000 @ A3

ENVIRONMENTAL IMPACT ASSESSMENT REPORT 2022 (REVISED VERSION)



BLOCH WIND FARM REVISED VERSION

FIGURE 5.5

ZONE OF THEORETICAL VISIBILITY (ZTV) STUDY - INCLUDING WOODLANDS AND SETTLEMENTS (45KM)

Proposed Turbines

- 105m (Hub) / 180m (Tip)
- 125m (Hub) / 200m (Tip)
- 155m (Hub) / 230m (Tip)
- Site Boundary
- Distance from Proposed Turbines (5, 15, 25, 35, 45km)
- Viewpoints

VP1 - High Stenries
VP2 - Minor road near Barnglieshead
VP3 - Collin Burn
VP4 - Milltown
VP5 - Calfield
VP6 - B6318 north-west of Claygate
VP7 - Langholm Bridge
VP8 - Malcolm Monument, Langholm
VP9 - Longtown
VP10 - Burnswark Hill Fort
VP11 - A7 near Unthank
VP12 - Bowness-on-Solway
VP13 - Caerlaverock Castle
VP14 - Banks, Hadrian's Wall
VP15 - Gretna Green/Springfield
VP16 - Kirkpatrick-Fleming
VP17 - Repentance Tower, Hoddom

Zone of Theoretical Visibility (ZTV)

- Hub
- Blade Tip

This drawing is based upon computer generated Zone of Theoretical Visibility (ZTV) studies produced using the viewshed routine in the ESRI ArcGIS Suite. The areas shown are the maximum theoretical visibility, taking into account topography, principal woodlands and settlements, which have been included in the model with the heights obtained from Nextmap 25. It should be noted that in some areas woodlands included within the ZTV may comprise active forestry, resulting in the felling and replanting of some areas modelled in the ZTV study. The ZTV study reflects this pattern at a specific point in time, as it is based on real height information. Whilst the felling cycle will alter the heights of different areas of forestry over time, altering localised visual effects, the wider pattern will remain relatively constant.

The model does not take into account any localised features such as small copses, hedgerows or individual trees and therefore still gives an exaggerated impression of the extent of visibility. The actual extent of visibility on the ground will be less than that suggested by this plan.

The ZTV includes an adjustment that allows for Earth's curvature and light refraction. It is based on Nextmap 25 terrain data and has a 25m^2 resolution.

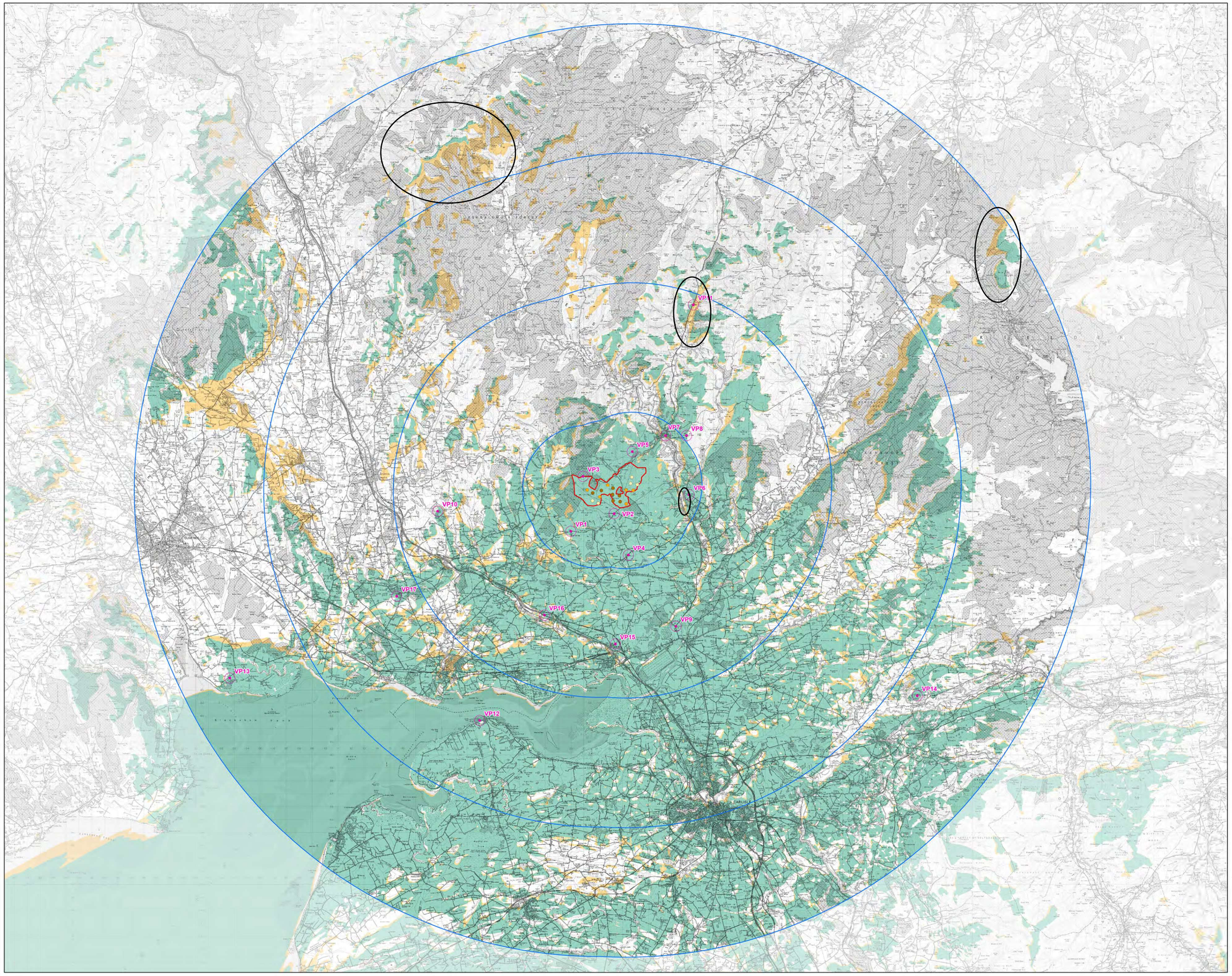
LAYOUT DWG	T-LAYOUT NO.
04097-RES-LAY-DR-PE-001 (Revised Version)	PSCOsbe024 (Revised Version)

DRAWING NUMBER

10067_Figure_5.5 (Revised Version)

SCALE - 1:170,000 @ A1

ENVIRONMENTAL IMPACT ASSESSMENT REPORT 2022 (REVISED VERSION)



BLOCH WIND FARM REVISED VERSION

FIGURE 5.6

ZONE OF THEORETICAL VISIBILITY (ZTV) STUDY - BARE GROUND

Proposed Turbines

- 105m (Hub) / 180m (Tip)
- 125m (Hub) / 200m (Tip)
- 155m (Hub) / 230m (Tip)
- Site Boundary
- Distance from Proposed Turbines (5, 15, 25, 35km)
- Viewpoints

VP1 - High Stenries
VP2 - Minor road near Barnglieshead
VP3 - Collin Burn
VP4 - Milltown
VP5 - Calfield
VP6 - B6318 north-west of Claygate
VP7 - Langholm Bridge
VP8 - Malcolm Monument, Langholm
VP9 - Longtown
VP10 - Burnswark Hill Fort
VP11 - A7 near Unthank
VP12 - Bowness-on-Solway
VP13 - Caerlaverock Castle
VP14 - Banks, Hadrian's Wall
VP15 - Gretna Green/Springfield
VP16 - Kirkpatrick-Fleming
VP17 - Repentance Tower, Hoddom

Zone of Theoretical Visibility (ZTV)

- Hub
- Blade Tip

This drawing is based upon computer generated Zone of Theoretical Visibility (ZTV) studies produced using the viewshed routine in the ESRI ArcGIS Suite. The areas shown are the maximum theoretical visibility, taking into account topography only, which has been included in the model with the heights obtained from Nextmap 25. The model does not take into account any above ground features and therefore gives an exaggerated impression of the extent of visibility. The actual extent of visibility on the ground will be noticeably less than that suggested by this plan and visibility from principal settlements is likely to be possible from peripheral areas only.

The ZTV includes an adjustment that allows for Earth's curvature and light refraction. It is based on Nextmap 25 terrain data and has a 25m² resolution.

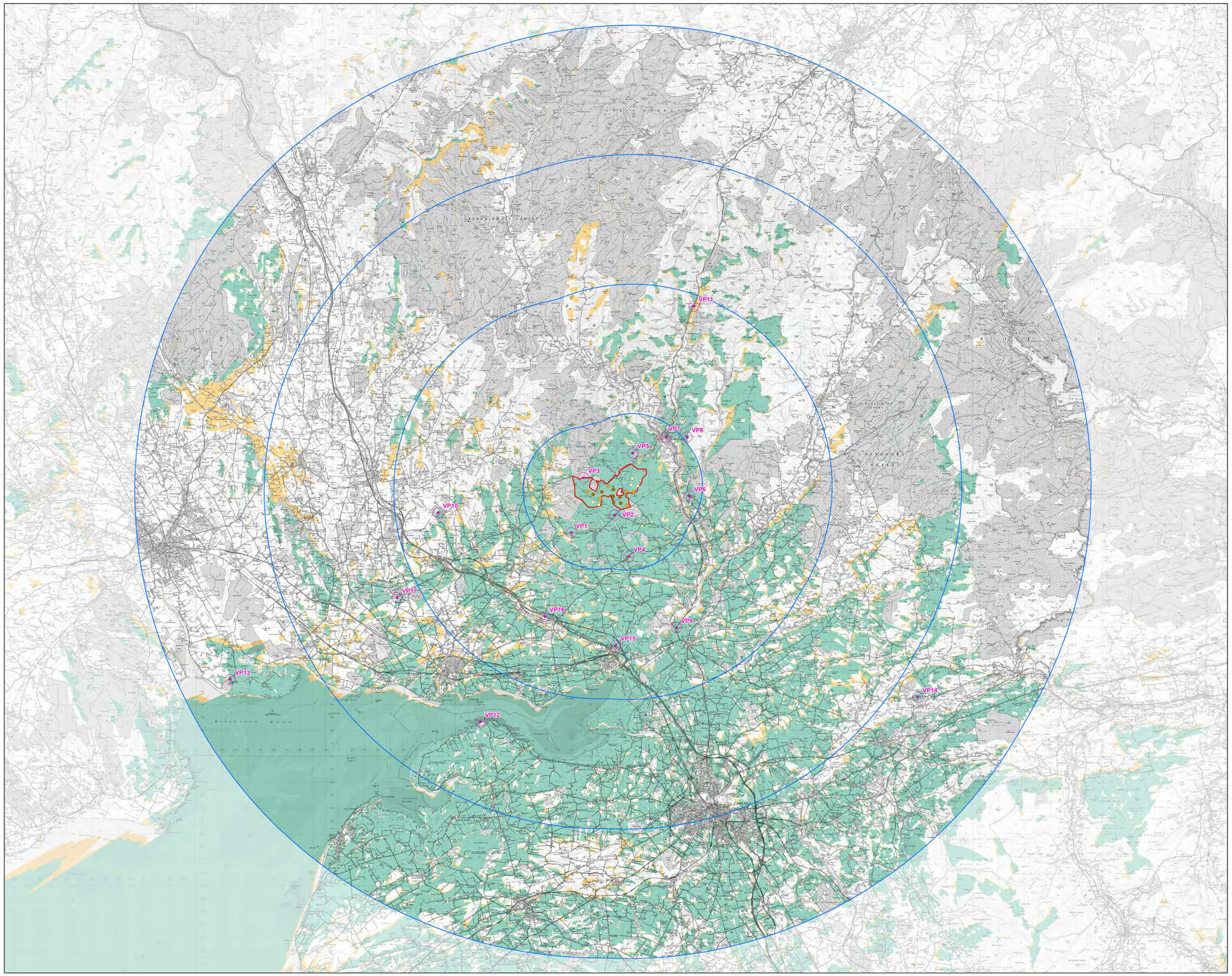
LAYOUT DWG	T-LAYOUT NO.
04097-RES-LAY-DR-PE-001 (Revised Version)	PSCOsbe024 (Revised Version)

DRAWING NUMBER

10067_Figure_5.6 (Revised Version)

SCALE - 1:135,000 @ A1

ENVIRONMENTAL IMPACT ASSESSMENT REPORT 2022 (REVISED VERSION)



BLOCH WIND FARM REVISED VERSION

FIGURE 5.7

ZONE OF THEORETICAL VISIBILITY (ZTV) STUDY - INCLUDING WOODLANDS AND SETTLEMENTS

Proposed Turbines

- 105m (Hub) / 180m (Tip)
- 125m (Hub) / 200m (Tip)
- 155m (Hub) / 230m (Tip)
- Site Boundary
- Distance from Proposed Turbines (5, 15, 25, 35km)
- Viewpoints

VP1 - High Stenries
VP2 - Minor road near Barnglieshead
VP3 - Collin Burn
VP4 - Milltown
VP5 - Calfield
VP6 - B6318 north-west of Claygate
VP7 - Langholm Bridge
VP8 - Malcolm Monument, Langholm
VP9 - Longtown
VP10 - Burnswark Hill Fort
VP11 - A7 near Unthank
VP12 - Bowness-on-Solway
VP13 - Caerlaverock Castle
VP14 - Banks, Hadrian's Wall
VP15 - Gretna Green/Springfield
VP16 - Kirkpatrick-Fleming
VP17 - Repentance Tower, Hoddom

Zone of Theoretical Visibility (ZTV)

- Hub
- Blade Tip

This drawing is based upon computer generated Zone of Theoretical Visibility (ZTV) studies produced using the viewshed routine in the ESRI ArcGIS Suite. The areas shown are the maximum theoretical visibility, taking into account topography, principal woodlands and settlements, which have been included in the model with the heights obtained from Nextmap 25. It should be noted that in some areas woodlands included within the ZTV may comprise active forestry, resulting in the felling and replanting of some areas modelled in the ZTV study. The ZTV study reflects this pattern at a specific point in time, as it is based on real height information. Whilst the felling cycle will alter the heights of different areas of forestry over time, altering localised visual effects, the wider pattern will remain relatively constant.

The model does not take into account any localised features such as small copses, hedgerows or individual trees and therefore still gives an exaggerated impression of the extent of visibility. The actual extent of visibility on the ground will be less than that suggested by this plan.

The ZTV includes an adjustment that allows for Earth's curvature and light refraction. It is based on Nextmap 25 terrain data and has a 25m² resolution.

LAYOUT DWG	T-LAYOUT NO.
04097-RES-LAY-DR-PE-001 (Revised Version)	PSCOsbe024 (Revised Version)

DRAWING NUMBER

10067_Figure_5.7 (Revised Version)

SCALE - 1:135,000 @ A1

ENVIRONMENTAL IMPACT ASSESSMENT REPORT 2022 (REVISED VERSION)

BLOCH WIND FARM REVISED VERSION

FIGURE 5.13

ZONE OF THEORETICAL VISIBILITY (ZTV) STUDY - 2000 CANDELA NACELLE LIGHT VISIBILITY

- Proposed Turbines with Nacelle Lighting
- Proposed Turbines without Lighting
- Site Boundary
- Distance from Proposed Turbines (5, 10 and 15km)
- Viewpoints

VP1 - High Stenries
VP2 - Minor road near Barnglieshead
VP3 - Collin Burn
VP4 - Milltown
VP5 - Caffield
VP6 - B6318 north-west of Claygate
VP7 - Langholm Bridge
VP8 - Malcolm Monument, Langholm
VP9 - Longtown
VP10 - Burnswark Hill Fort
VP11 - A7 near Unthank
VP12 - Bowness-on-Solway
VP13 - Caerlaverock Castle
VP14 - Banks, Hadrian's Wall
VP15 - Gretna Green/Springfield
VP16 - Kirkpatrick-Fleming
VP17 - Repentance Tower, Hoddom

Note: Viewpoints 12-14 and 17 lie outwith the study area for night time effects.

Zone of Theoretical Visibility (ZTV) - Nacelle Lights

- 1 - 5 Nacelle Lights
- 6 - 10 Nacelle Lights
- 11 - 14 Nacelle Lights

This drawing is based upon computer generated Zone of Theoretical Visibility (ZTV) studies produced using the viewshed routine in the ESRI ArcGIS Suite. The areas shown are the maximum theoretical visibility, taking into account topography, principal woodlands and settlements, which have been included in the model with the heights obtained from Nextmap 25. It should be noted that in some areas woodlands included within the ZTV may comprise active forestry, resulting in the felling and replanting of some areas modelled in the ZTV study. The ZTV study reflects this pattern at a specific point in time, as it is based on real height information. Whilst the felling cycle will alter the heights of different areas of forestry over time, altering localised visual effects, the wider pattern will remain relatively constant.

The model does not take into account any localised features such as small copses, hedgerows or individual trees and therefore still gives an exaggerated impression of the extent of visibility. The actual extent of visibility on the ground will be less than that suggested by this plan.

The ZTV includes an adjustment that allows for Earth's curvature and light refraction. It is based on Nextmap 25 terrain data and has a 25m² resolution.

LAYOUT DWG	T-LAYOUT NO.
04097-RES-LAY-DR-PE-001 (Revised Version)	PSCOsbe024 (Revised Version)

DRAWING NUMBER

10067_Figure_5.13 (Revised Version)

SCALE - 1:60,000 @ A1

ENVIRONMENTAL IMPACT ASSESSMENT REPORT 2022 (REVISED VERSION)

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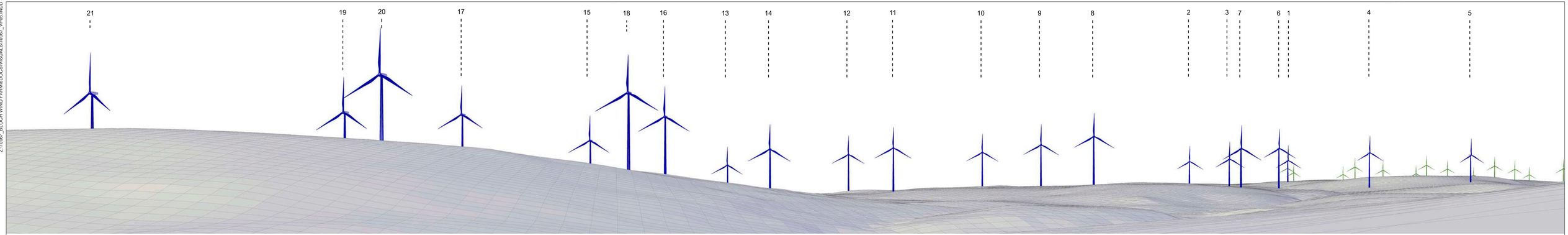
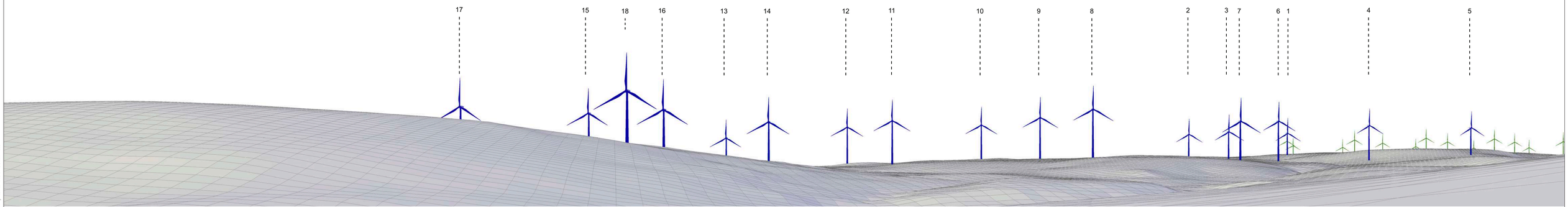


Wireline drawing - left to right: Bloch (1.6km), Solwaybank (5.4km)



Wireline drawing: Revised Version - left to right: Bloch (2.0km), Solwaybank (5.4km)

LDĀDESIGN

Camera Location (OS Grid Reference):	333739 E 583442 N
Ground Level (mAOD):	172.7m
Direction of View: bearing from North (0°):	190°
Nearest Turbine:	1581m, T20 / 1972m, T18

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	19/05/2022 12:56
Camera Model and Sensor Format:	Canon EOS 6D, FFS
Lens Make, Model and Focal Length:	Canon EF50mm f/1.8 STM
Height of Camera Lens above Ground (mAOD):	1.5m

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

res

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

DRAWING TITLE
Viewpoint 5 - Calfield

FIGURE 10067_VP05_OPT DATE 17/02/2025 Sheet 1 of 1

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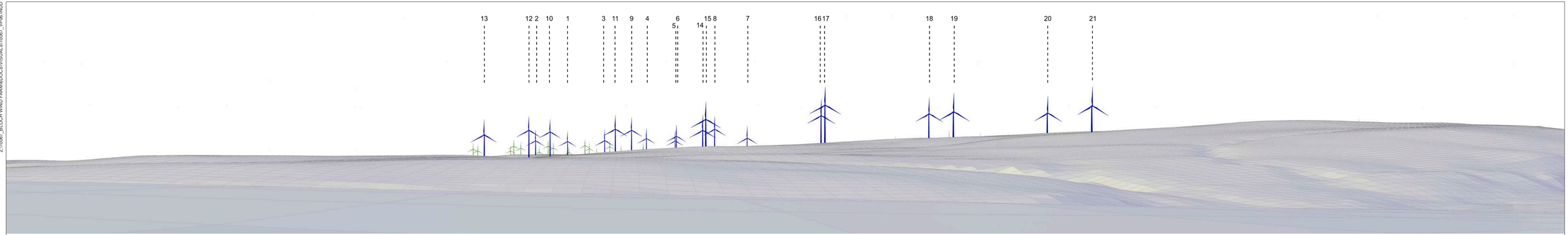
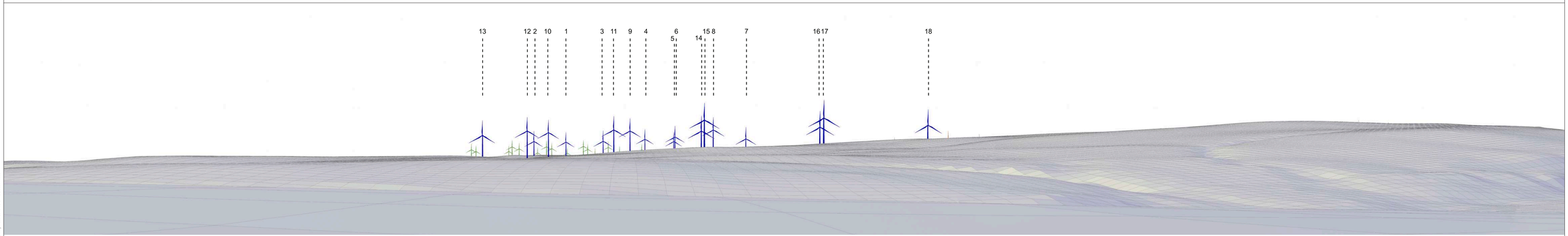


Wireline drawing: Revised Version - left to right: Solwaybank (7.9km), Bloch (3.9km), Callisterhall (9.5km), Loganhead (8.3km)



Wireline drawing: Revised Version - left to right: Solwaybank (7.9km), Bloch (4.1km), Callisterhall (9.5km), Loganhead (8.3km)

LDĀDESIGN

Camera Location (OS Grid Reference):	338120 E 580104 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	19/05/2022 15:34
Ground Level (mAOD):	101.9m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D, FFS
Direction of View: bearing from North (0°):	279°	Enlargement Factor:	TBC	Lens Make, Model and Focal Length:	Canon EF50mm f/1.8 STM
Nearest Turbine:	3867m, T21 / 4072m, T17	Visualisation Type:	Type 2	Height of Camera Lens above Ground (mAOD):	1.5m

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

DRAWING TITLE
Viewpoint 6 - B6318 north-west of Claygate

FIGURE 10067_VP06 DATE 17/02/2025 Sheet 1 of 1

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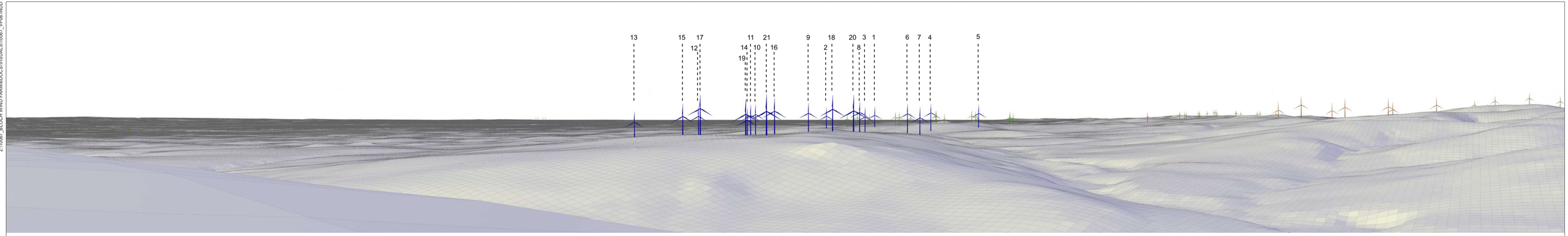
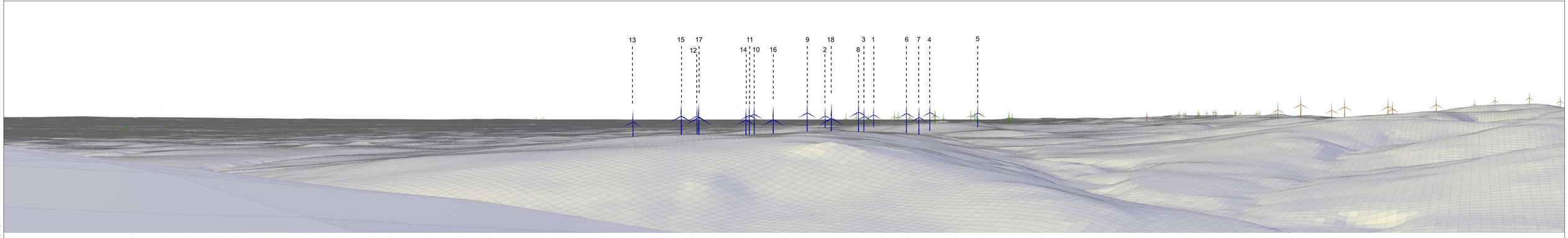


Wireline drawing - left to right: Todhills (22.4km), Spital Sykes Farm (30.1km), Orton Park (32.1km), Orton Grange Farm (32.5km), Tempest Tower (29.7km), Beck Burn (15.5km), Great Orton (31.8km), Midtown Farm (31.3km), Hellrigg (41.2km), Bloch (4.3km), Solwaybank (9.4km), Crossbankhead (14.2km), Minsca (16.0km), Callisterhall (8.9km)



Wireline drawing: Revised Version - left to right: Todhills (22.4km), Spital Sykes Farm (30.1km), Orton Park (32.1km), Orton Grange Farm (32.5km), Tempest Tower (29.7km), Beck Burn (15.5km), Great Orton (31.8km), Midtown Farm (31.3km), Hellrigg (41.2km), Bloch (5.3km), Solwaybank (9.4km), Crossbankhead (14.2km), Minsca (16.0km), Callisterhall (8.9km)

LDĀDESIGN

Camera Location (OS Grid Reference):	337927 E 584680 N
Ground Level (mAOD):	353.1m
Direction of View: bearing from North (0°):	230°
Nearest Turbine:	4323m, T21 / 5307m, T18

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	16/09/2022 08:30
Camera Model and Sensor Format:	Sony A7R III, FFS
Lens Make, Model and Focal Length:	Sony FE 50mm F1.8
Height of Camera Lens above Ground (mAOD):	1.5m

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

DRAWING TITLE
Viewpoint 8 - Malcolm Monument, Langholm

FIGURE 10067_VP08 DATE 17/02/2025 Sheet 1 of 1

LDĀDESIGN

RVAA Review

Figures:

Residential Properties within 2.5 km (10067_TA5-3_001 (Revised Version)

Visualisations: Wireframes to support RVAA Review:

- Property P9 (10067_P09_OPT)
- Property P13/14 to represent properties P12, P13&P14, and P15 (10067_P13-14_OPT)
- Property P36 to represent properties P30, P31, P32, P33, P34, and P36 (10067_P36_OPT)
- Property P27 to represent properties P26, P27, and P28 (10067_P27_OPT)

BLOCH WIND FARM REVISED VERSION

TECHNICAL APPENDIX 5.3 FIGURE 1

RESIDENTIAL PROPERTIES WITHIN 2.5KM

- Proposed Turbines
- Site Boundary
- Distance from Proposed Turbines (0.5, 1, 2.5km)
- Viewpoints
- Residential Properties Wirelines

Cumulative Developments

- Callisterhall (Application)
- Solwaybank (Operational)
- Core Paths
- Residential Properties

LAYOUT DWG	T-LAYOUT NO.
04097-RES-LAY-DR-PE-001 (Revised Version)	PSCOsbe024 (Revised Version)

DRAWING NUMBER

10067_TA5-3_001 (Revised Version)

SCALE - 1:30,000 @ A3

ENVIRONMENTAL IMPACT ASSESSMENT REPORT 2022 (REVISED VERSION)

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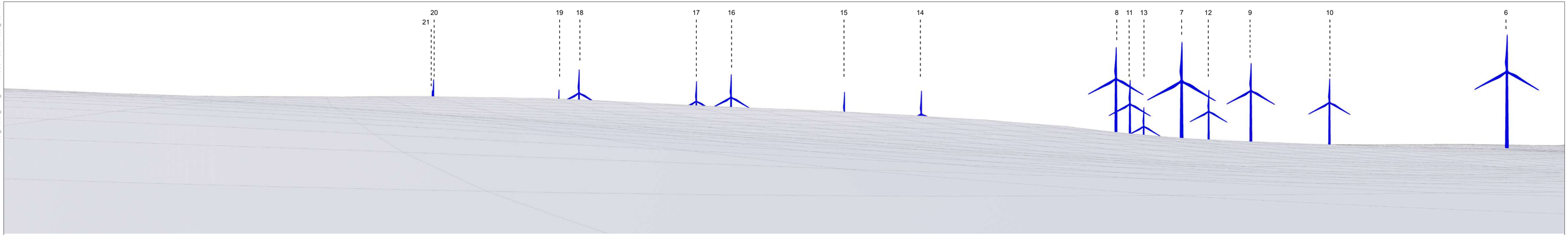
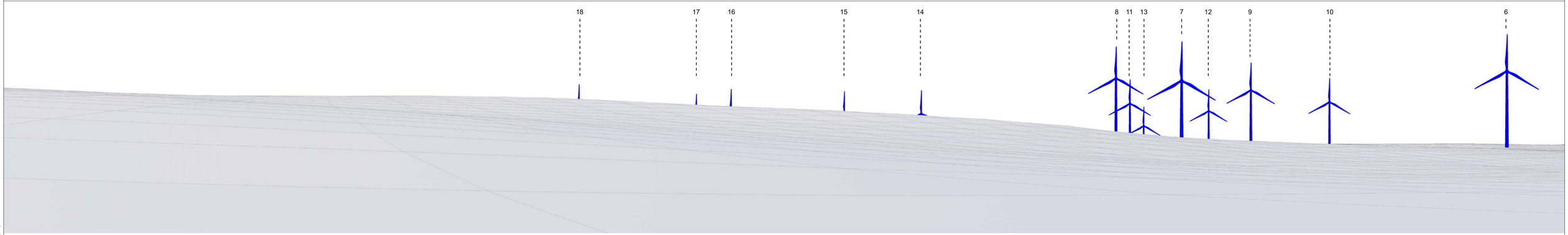


Wireline drawing - left to right: Bloch (1.9km), Solwaybank (2.5km)



Wireline drawing: Revised Version - left to right: Bloch (1.9km), Solwaybank (2.5km)

LDĀDESIGN

Camera Location (OS Grid Reference):	330609 E 582317 N
Ground Level (mAOD):	172.0m
Direction of View: bearing from North (0°):	117°
Nearest Turbine:	1882m, T5 / 1882m, T5

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	N/A
Camera Model and Sensor Format:	N/A
Lens Make, Model and Focal Length:	N/A
Height of Camera Lens above Ground (mAOD):	1.5m

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

DRAWING TITLE
Wireframe from Residential Property 9 - Westwater Cottage

FIGURE 10067_P09_OPT DATE 05/03/2025 Sheet 1 of 2

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Wireline drawing - left to right: Bloch (1.9km), Solwaybank (2.5km)

Wireline drawing: Revised Version - left to right: Bloch (1.9km), Solwaybank (2.5km)

LDĀDESIGN

Camera Location (OS Grid Reference):	330609 E 582317 N
Ground Level (mAOD):	172.0m
Direction of View: bearing from North (0°):	207°
Nearest Turbine:	1882m, T5 / 1882m, T5

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	N/A
Camera Model and Sensor Format:	N/A
Lens Make, Model and Focal Length:	N/A
Height of Camera Lens above Ground (mAOD):	1.5m

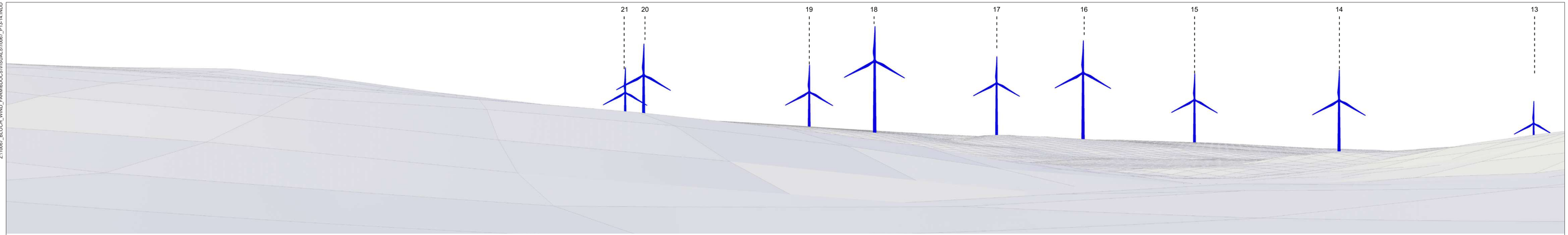
This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

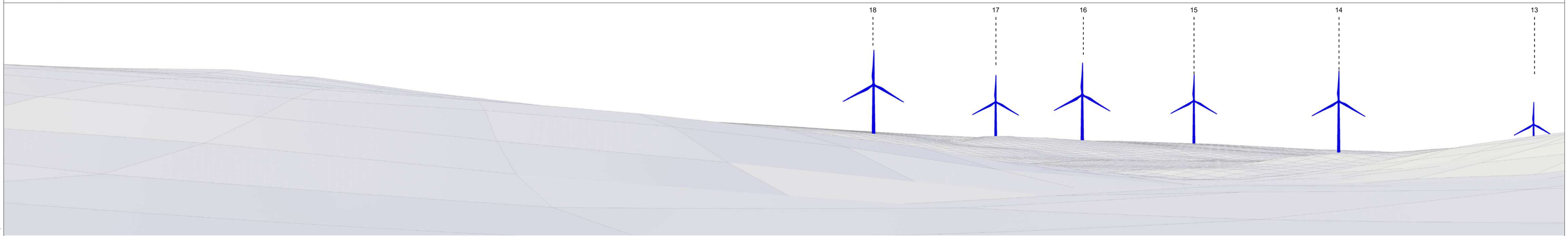
DRAWING TITLE
Wireframe from Residential Property 9 - Westwater Cottage

FIGURE 10067_P09_OPT DATE 05/03/2025 Sheet 2 of 2

Z:\10067_BLOCH_WIND_FARM\60OCS\VISUALS\10067_P13-14.NDD



Wireline drawing - left to right: Bloch (1.5km), Solwaybank (3.3km)



Wireline drawing: Revised Version - left to right: Bloch (1.5km), Solwaybank (3.3km)

LDĀDESIGN

Camera Location (OS Grid Reference):	331756 E 582394 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	N/A		
Ground Level (mAOD):	144.8m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	N/A		
Direction of View: bearing from North (0°):	110°	Enlargement Factor:	TBC	Lens Make, Model and Focal Length:	N/A		
Nearest Turbine:	1544m, T7 / 1544m, T7	Visualisation Type:	Type 2	Height of Camera Lens above Ground (mAOD):	1.5m		

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

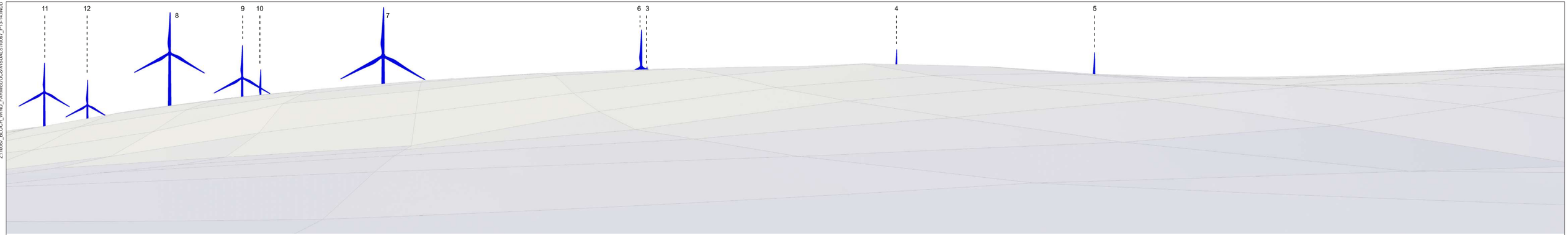
res

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

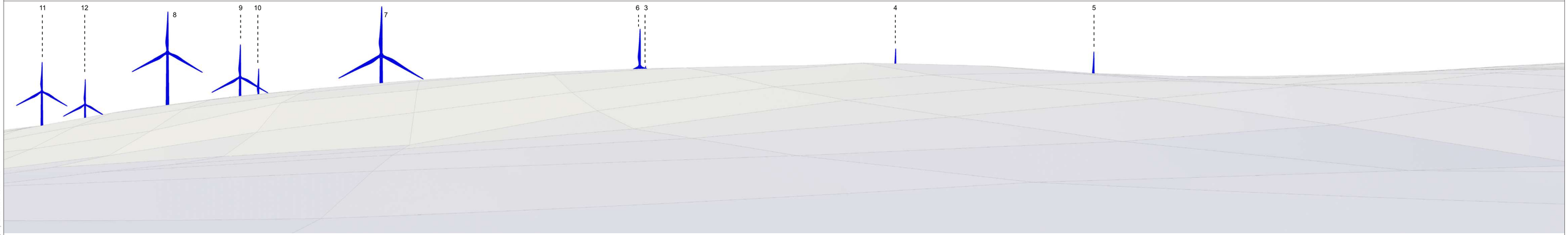
DRAWING TITLE
Wireframe from Residential Property 13 & 14 - 1 & 2 Cleuchfoot Cottages

FIGURE 10067_P13-14_OPT DATE 05/03/2025 Sheet 1 of 2

Z:\10067_BLOCH_WIND_FARM\60OCS\VISUALS\10067_P13-14.NDD



Wireline drawing - left to right: Bloch (1.5km), Solwaybank (3.3km)



Wireline drawing: Revised Version - left to right: Bloch (1.5km), Solwaybank (3.3km)

LDĀDESIGN

Camera Location (OS Grid Reference):	331756 E 582394 N
Ground Level (mAOD):	144.8m
Direction of View: bearing from North (0°):	200°
Nearest Turbine:	1544m, T7 / 1544m, T7

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	N/A
Camera Model and Sensor Format:	N/A
Lens Make, Model and Focal Length:	N/A
Height of Camera Lens above Ground (mAOD):	1.5m

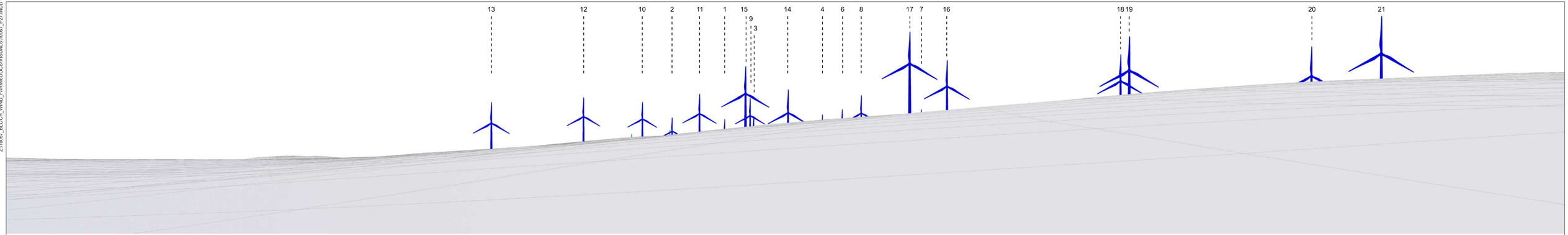
This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

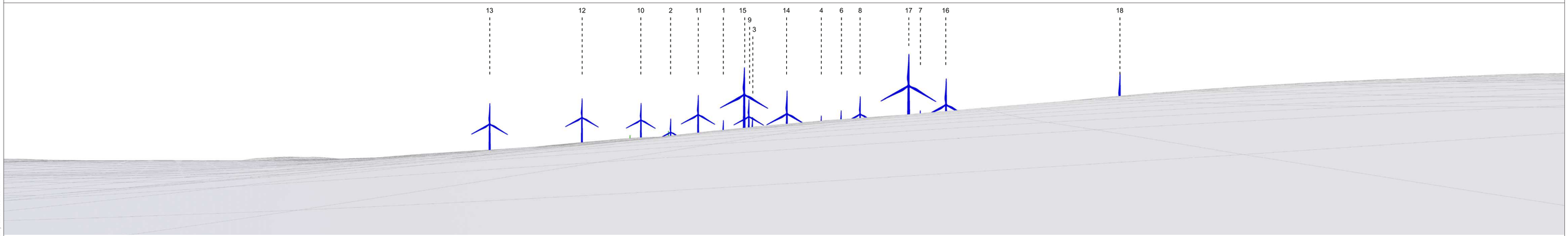
DRAWING TITLE
Wireframe from Residential Property 13 & 14 - 1 & 2 Cleuchfoot Cottages

FIGURE 10067_P13-14_OPT DATE 05/03/2025 Sheet 2 of 2

Z:\10067_BLOCH_WIND_FARM\6DOCS\VISUALS\10067_P27.NDD



Wireline drawing - left to right: Bloch (2.0km), Solwaybank (6.4km)



Wireline drawing: Revised Version - left to right: Bloch (2.4km), Solwaybank (6.4km)

LDĀDESIGN

Camera Location (OS Grid Reference):	336483 E 581006 N
Ground Level (mAOD):	135.5m
Direction of View: bearing from North (0°):	270°
Nearest Turbine:	2001m, T21 / 2357m, T17

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	N/A
Camera Model and Sensor Format:	N/A
Lens Make, Model and Focal Length:	N/A
Height of Camera Lens above Ground (mAOD):	1.5m

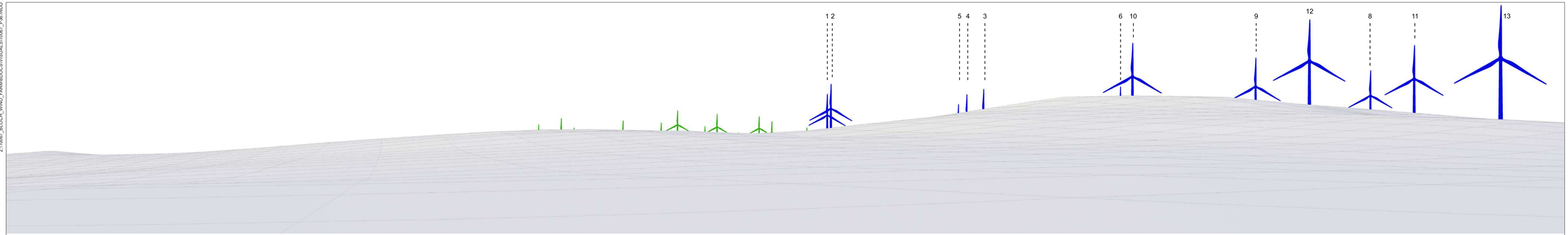
This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

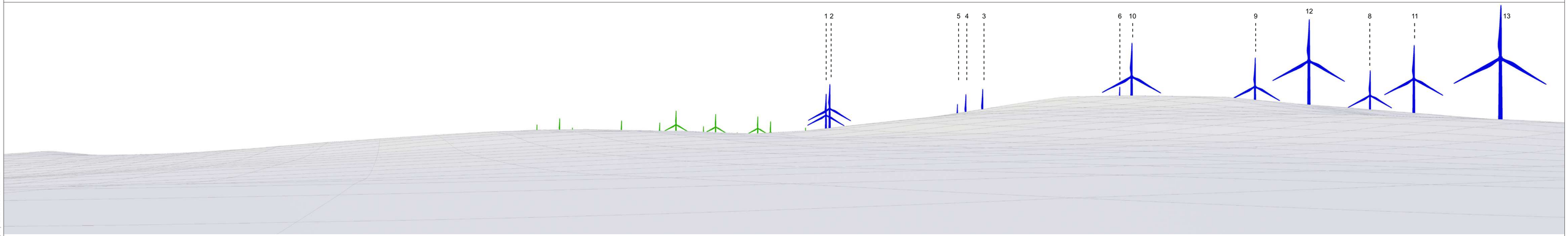
DRAWING TITLE
Wireframe from Residential Property 27 - 2 Old Irvine Cottages

FIGURE 10067_P27_OPT DATE 05/03/2025 Sheet 1 of 1

Z:\10067_BLOCH_WIND_FARM\6DOCS\VISUALS\10067_P36.NDD



Wireline drawing - left to right: Bloch (1.4km), Solwaybank (3.7km)



Wireline drawing: Revised Version - left to right: Bloch (1.4km), Solwaybank (3.7km)

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Camera Location (OS Grid Reference):	333887 E 578115 N
Ground Level (mAOD):	117.0m
Direction of View: bearing from North (0°):	293°
Nearest Turbine:	1416m, T13 / 1416m, T13

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	TBC
Visualisation Type:	Type 2

Photo Date / Time:	N/A
Camera Model and Sensor Format:	N/A
Lens Make, Model and Focal Length:	N/A
Height of Camera Lens above Ground (mAOD):	1.5m

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

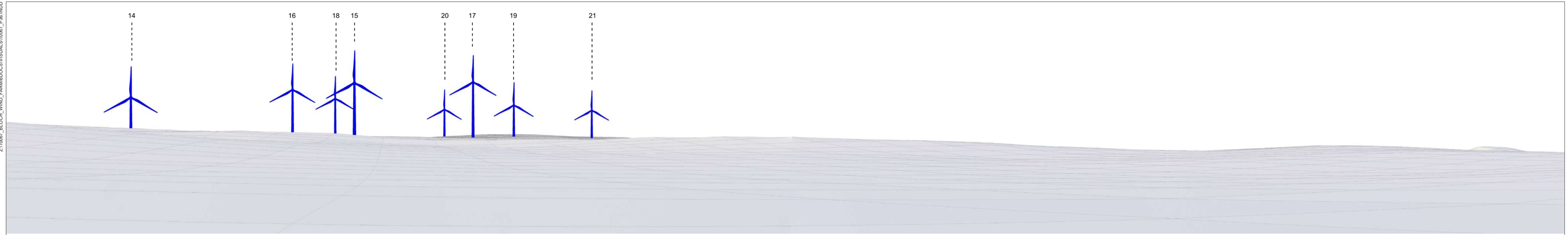
res

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

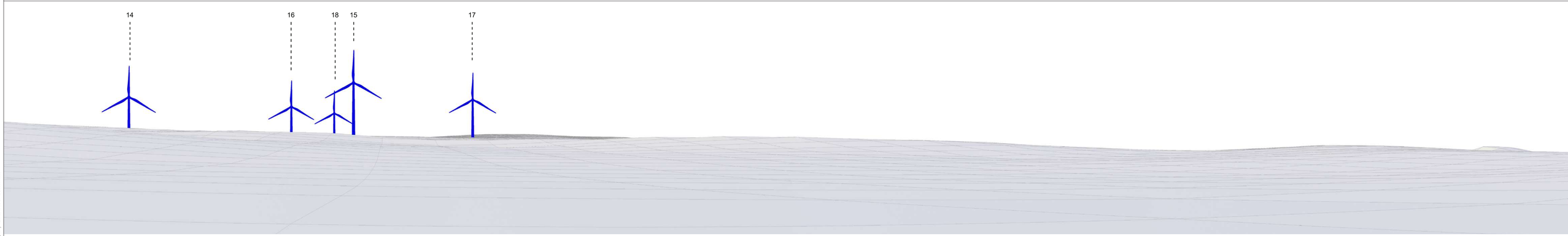
DRAWING TITLE
Wireframe from Residential Property 36 - March Cottage

FIGURE 10067_P36_OPT DATE 05/03/2025 Sheet 1 of 2

Z:\10067_BLOCH_WIND_FARM\6DOCS\VISUALS\10067_P36.INDD



Wireline drawing - left to right: Bloch (1.4km), Solwaybank (3.7km)



Wireline drawing: Revised Version - left to right: Bloch (1.4km), Solwaybank (3.7km)

LDĀDESIGN

Camera Location (OS Grid Reference):	333887 E 578115 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	N/A		
Ground Level (mAOD):	117.0m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	N/A		
Direction of View: bearing from North (0°):	23°	Enlargement Factor:	TBC	Lens Make, Model and Focal Length:	N/A		
Nearest Turbine:	1416m, T13 / 1416m, T13	Visualisation Type:	Type 2	Height of Camera Lens above Ground (mAOD):	1.5m		

This wireframe is based upon Nextmap25 data with spot heights at 25m intervals and does not precisely model small scale changes in landform or sharp breaks in slope. The wireframe model does not allow for the screening effects of vegetation or buildings.
The model of turbine shown is similar to that proposed for the development.

PROJECT TITLE
BLOCH WIND FARM
REVISED VERSION

DRAWING TITLE
Wireframe from Residential Property 36 - March Cottage

FIGURE 10067_P36_OPT DATE 05/03/2025 Sheet 2 of 2