Chapter 7

Landscape and Visual Impact Assessment

SCOTTISHPOWER RENEWABLES

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7.1 Executive summary

1. The proposed Development follows the natural rhythm of the undulating landscape with a similar design relationship to other windfarms in the Southern Uplands. The design guidance for the Ken unit LCT 19a Southern Uplands with Forestry within DGWFLCS has been influential in the development of the project and the scheme largely follows the guidance. The steepness of landform, which is characteristic of the Southern Uplands, leads to a pattern of intervisibility where either panoramic views are possible on open high ground but from lower ground views become very constrained.

2. The extent of operational effects upon landscape character would be limited by the steep topography of the Southern Uplands. Intervisibility and influence on landscape character would tend to occur mainly within the open elevated upland areas within the study area, which are already influenced by wind energy development. Significant impacts would be confined to an approximate 6 km radius of the proposed turbines within the Southern Uplands LCTs (with and without forestry) and Narrow Wooded River Valley LCT. Beyond this there would be No Significant effects on landscape character in the wider parts of these LCTs or any other landscape character types. The increased size of the proposed turbines compared to the operational and under construction windfarms would only tend to be noticeable from within the Southern Uplands LCTs itself, or other upland locations within the study area. Here the scale of the turbines would appear a similar scale to the receiving landscape itself.

3. With regard to the overall strategic pattern of development with the operational and under construction baseline, the proposed Development would likely become part of the Hare Hill group (with Sanquhar and Whiteside Hill) extending this group south, but Euchanhead would be 'behind' these developments when perceived from settlement within upper Nithsdale. It would be clearly perceived with the core of the Southern Uplands LCTs. The enlarged Hare Hill group would not coalesce with any other windfarms of groups of windfarms.

4. There would be Significant visual effects for hillwalkers on the SUW, Core Paths, and Striding Arches through/near the site and hillwalkers above Glen Afton. There would also be Significant effects for a few properties living within the upper Shinnel Glen and the upper Water of Ken valley. Whilst there would be views from Glen Afton, the Euchan Water valley and from the summit of Cairnsmore of Carsphairn, these views would occur in the context of other closer windfarms and Significant effects are not predicted. Views from Sanquhar, Kirkconnel and the A76 would be much more limited and Not Significant.

5. The residential visual amenity assessment was extended to a 5 km radius of the proposed turbines to conform with the latest Dumfries and Galloway WED Supplementary Guidance and considered the effects for private residents at 24 properties. The assessment found that there would only be Significant impacts at 6 of the properties and in no case would they be overbearing.

6. Significant construction landscape effects would be limited to the two host areas Ken unit Southern Uplands with Forest D&G and Southern Uplands Ayrshire for access route A where Moderate effects would be experienced. The Significant construction visual effects would be limited to users of the SUW.

7. There would be no Significant effects on landscape designations.

8. The cumulative assessment assumes that all the windfarms within each of the Scenarios (2 and 3) would be constructed as proposed and part of the assessment baseline. The cumulative assessment considers the additional changes which would result from the introduction of Euchanhead.

9. With regard to the fully consented baseline (Scenario 2), the addition of Euchanhead would create an enlarged renewable energy group from Hare Hill to Lorg, which is similar to the effect already noted within the LVIA but is extended north and south to include the two consented sites. Whilst there would be a notable increase in height of the Euchanhead turbines, compared with the others within this Hare Hill/Lorg group, this difference would be less apparent due to the Euchanhead turbines being in the centre of the group. It should be noted that this group already contains a variety of turbine sizes and generally, the larger the group the easier it tends to be to integrate different turbines sizes effectively. There would be notable visual cumulative interactions within Euchan Water valley, Polskeoch Burn and Water of Ken valley as well as from recreational hillwalkers on the SUW, upland Striding Arches sculptures, Core Paths within the Site, above Glen Afton (Blackcraig), and on Cairnsmore of Carsphairn. In all cases the addition of Euchanhead would further reinforce the increased influence from renewable energy but would result in the same level of effect reported for Scenario 1 (operational and under construction).

10. With regard to the other cumulative proposals, these are considered in turn, in combination with the fully consented baseline. The most notable cumulative effects would occur with Sanquhar II which is adjacent to Euchanhead. In the case where both developments are substantively present, Euchanhead would generally be enveloped by the larger Sanquhar II development, appearing within or adjacent to Sanquhar II, increasing the density of turbines visible or as an extension. The exception to this would be in the Lorg Glen/ Water of Ken valley where it is mainly the Euchanhead turbines which are present or at the upland Striding Arches sculptures where Euchanhead has the greater influence. Assuming the prior presence of this development in the landscape, the levels of effect resulting from the addition of Euchanhead would tend to be similar or reduced in level, due to the prior presence of Sanquhar II (along with the fully consented baseline) within the local landscape.

11. The proposed Development will require visible aviation lighting on the nacelles and towers. A range of proven mitigation options have been considered in relation to night-time impacts, as set out within the Aviation Lighting Landscape and Visual Impact Mitigation Plan in **Technical Appendix 15.3**. Embedded mitigation within the proposed Development will include a reduced intensity light (from 2000cd to 200cd) in good visibility on the nacelle. Additional mitigation would include an aircraft detection lighting system to further mitigate the potentially Significant impacts identified.

12. The night-time assessment concluded that with just the embedded mitigation included in the proposed Development there would be Significant night-time impacts on the nearest Southern Uplands and Narrow Wooded River Valley landscapes and few isolated residents within Shinnel Glen and Water of Ken valley. Impacts on the distant Merrick Wild Land or visitors to the Galloway Dark Sky Park would not be Significantly affected. However, with the additional mitigation of an aircraft detection lighting system, all these effects would reduce to Minor or Minor/Negligible and Not Significant, due to the short duration the lights would be lit.

13. In summary, the changes arising from a project may engender positive or negative responses depending on individual perceptions regarding the merits of renewable energy. However, the assessment has taken a precautionary approach in considering that all effects on the landscape and on views, which would result from the construction and operation of the proposed Development, would be adverse; however, many people would not consider the effects to be adverse.

14. Overall, the scale and topography of the receiving landscape is considered appropriate to accommodate the proposed Development. Whilst there would be some Significant effects identified on both landscape and visual receptors within the study area, it is evident from this assessment that the proposed Development has avoided impacts on sensitive landscapes and the number of people affected would be very limited.

7.2 Introduction

7.2.1 Background

15. Stephenson Halliday was commissioned, as part of the EIA team in 2019 for the proposed Development, as well as having involvement in earlier design work and Scoping in 2012 - 2013. Stephenson Halliday prepared the landscape and visual impact assessment (LVIA) of Euchanhead Renewable Energy Development on behalf of ScottishPower Renewables (SPR).

16. This assessment defines the existing landscape and visual baseline environments; assesses their sensitivity to change; describes the key landscape and visual related aspects of the proposed Development; describes the nature of the anticipated changes and assesses the effects arising during construction and once completed.

7.2.2 The Site and proposals

17. **Figure 3.1** places the proposed Development within its local context. The Site forms part of the relatively remote upland area north of Dumfries comprising widespread coniferous plantation and open moorland. The Site is characterised predominantly by steeply sloping landform covered in commercial plantation forestry with open areas on the summits.

18. The proposed Development would comprise 21 three-bladed horizontal axis turbines up to 230 m tip height with a combined rated output of around 126 MW, with the incorporation of around 31.5 MW of energy storage. There would also be associated infrastructure including access tracks, control buildings and elements to support construction including borrow pits. It is not proposed to time limit any consent.

7.2.3 Assessor statement of competence

19. This Chapter along with the design and mitigation of the proposed Development has been prepared by Chartered Landscape Architects at Stephenson Halliday. The Practice has over 24 years of experience working on wind energy for over 200 proposals throughout the UK. Key individuals working on this project have over 18 years of experience as chartered landscape architects.

20. Stephenson Halliday is a Landscape Institute and IEMA registered practice and all work is prepared and reviewed internally by highly experienced senior landscape planners with Public Local Inquiry experience. The Practice is also ISO 9001 accredited.

21. To inform the assessment, site visits were made to various locations within the study area including, but not restricted to, representative viewpoints by Stephenson Halliday's assessment team from June – August 2020 as well as previous site work conducted in 2013.

7.2.4 Stakeholder consultation

22. Information regarding consultation and scoping is included in **Chapter 6: Scoping and Consultation**. A formal Scoping Report was submitted to ECU in 2013 and a Scoping Opinion issued by ECU later that year. Given the length of time elapsed, a further direct scoping consultation was undertaken with consultees including Dumfries & Galloway Council (DGC), East Ayrshire Council (EAC) and Scottish Natural Heritage (SNH[1]) between January and June 2020 in order to refine the scope of this assessment including agreement of the representative viewpoint locations and visualisations, and scope of the cumulative, wild land and night-time assessments.

23. The key consultation responses from 2020 are detailed in **Table 7.1**. Consultation responses from 2013 were also reviewed and incorporated into the 2020 scope, bearing in mind the changes to the proposed Development and updates to various planning policy and guidance documents which occurred over the intervening period.

Table 7.1: Summary of stakeholder consultation

Consultee	Issue	How this is addressed
SNH (March 2020)	**Viewpoints**: a viewpoint at Moniaive should be included.	DGC 2020 recommended that a viewpoint here was not necessary due to limited visibility. However, an additional wireline has been included from Moniaive in **Volume 3c**.
SNH (March 2020)	**Visualisations**: all viewpoints should be supported with baseline photography and photomontages.	Visualisations have been produced in line with SNH guidance 'Visual Representation of Wind Farms – Version 2.2' (February 2017). Visualisations are included within **Volumes 3b and 3c**. Following on from DGC, some viewpoints have not included photomontages where it was agreed that impacts are unlikely to be Significant.

[1] SNH were renamed to NatureScot on 24 August 2020.

Consultee	Issue	How this is addressed
SNH (March and June 2020)	**Cumulative assessment**: a 30 km study area is the minimum within which schemes should be considered for inclusion. Proposed focus of cumulative assessment agreed with request to consider a cluster based ZTV approach presented using legible 1:50k base mapping.	An initial 30 km study area has been used in order to review potential cumulative schemes to be included. Further detail is provided in the cumulative assessment at **Section 7.8**.
SNH (March and June 2020)	**Night-time effects**: effects of turbine lighting on the night-time qualities of the Merrick Wild Land Area should be considered. Effects of lighting should be considered from all viewpoints. A cumulative night-time visualisation should be provided from a viewpoint at an elevated location, such as Cairnsmore of Carsphairn. Only include visible lighting mitigation where CAA have agreed in writing.	Night-time effects on the Merrick Wild Land Area are considered at **Section 7.9**. Lighting has been represented for all viewpoints. and a night-time visualisation is provided from Cairnsmore of Carsphairn (**Viewpoint 9**) which includes all cumulative lit sites. A range of proven mitigation options have been considered in relation to lighting impacts, as set out within ALLVIMP in **Technical Appendix 15.3**.
DGC (June 2020)	**Study area** agreed. **Viewpoints:** additional locations requested to be included and excluded.	Additional VPs at Head of Lorg Glen, SUW Culmark Hill, near Todholes Hill mast, Scaur Water, Cloud Hill and wirelines at Stroanfreggan Crag, A76 Closeburn within **Volumes 3b and 3c**.
DGC (June 2020)	**Key sensitivities:** list of additional sensitivities identified. **DGC SG WED / DGWLCS:** full reference should be given to this key document.	Key sensitivities and reference to DGC Supplementary Guidance are included throughout this assessment.
DGC (June 2020)	**Forestry and felling:** visualisations should demonstrate changes in forest cover resulting from the proposed Development.	Photomontages for all viewpoints within 5 km will illustrate the change in land use of the commercial forest and Site infrastructure (e.g., tracks, substations, anemometer mast) within **Volumes 3b and 3c**.
DGC (June 2020)	**Night-time/Wild Land:** include effect on Merrick WLA, Galloway Forest Dark Sky Park and Crawick Multiverse; wirelines indicating lights for all viewpoints; Night-time montages requested.	Night-time assessment in **Section 7.9** includes the impact at these receptors. All viewpoints will include indication of lighting and night-time montages included for three viewpoints within **Volumes 3b and 3c**.
EAC (2020)	**Viewpoints**: it was requested that consideration should be given to adding a further viewpoint within East Ayrshire at Afton Reservoir. **Cumulative:** agreed 15 km study area. **Night-time Assessment:** agreed wirelines indicating lighting is sufficient and requested consideration of radar active lighting.	A viewpoint at Afton Reservoir has been included within the assessment (**Viewpoint 5**). A range of proven mitigation options have been considered in relation to lighting impacts, as set out within ALLVIMP in **Technical Appendix 15.3**.

24. A summary of correspondence is included within **Technical Appendix 6.1: Consultation Response Table**.

7.2.5 Study area

25. It is accepted practice within landscape and visual assessment work that the extent of the study area for a development proposal is broadly defined by the visual envelope of the proposed Development. In this case a broad study area of 45 km has been used (as shown by **Figures 7.1 – 7.3)** This study area was based on recommendations contained within SNH's

publication Visual Representation of Wind Farms (Version 2.2) (SNH, 2017) and was confirmed by the consultation responses, as noted in **Table 7.1**.

26. More detailed study areas have been agreed for the detailed cumulative assessment and residential visual amenity, as noted later in this Chapter.

7.2.6 Report structure and terminology

27. This Chapter is structured as set out in the table of contents and is supported by the **Figures** and **Visualisations** in **Volume 3a-c**.

28. Supporting Technical Appendices have been prepared to supplement the sections regarding methodology, landscape baseline, landscape sensitivity, viewpoint analysis, and residential visual amenity. The Technical Appendices are important to the assessment and should be read alongside this Chapter.

29. Key terms used within the assessment are described in **Technical Appendix 7.1: LVIA Methodology** within the methodology.

30. Impacts on Gardens and Designed Landscapes, inventory and non-inventory are assessed in **Chapter 11: Archaeology and Cultural Heritage**.

7.3 Methodology

7.3.1 Introduction

31. The detail of the methodology is described in **Technical Appendix 7.1: LVIA Methodology**. A summary of the primary judgements is provided in the following sections.

7.3.2 Sensitivity

32. Sensitivity is judged taking into account the component judgments about the value and susceptibility of the receptor. A slightly greater weight is given to susceptibility in judging sensitivity of visual receptors as indicated by **Table 7.2** and **Table 7.3**. Where sensitivity is judged to lie between levels, an intermediate assessment is adopted.

Table 7.2: Landscape sensitivity

		Susceptibility		
		High	**Medium**	**Low**
Value	**National**	High	High/Medium	Medium
	Regional	High/Medium	Medium	Medium/Low
	Community	Medium	Medium/Low	Low

Table 7.3: Visual sensitivity

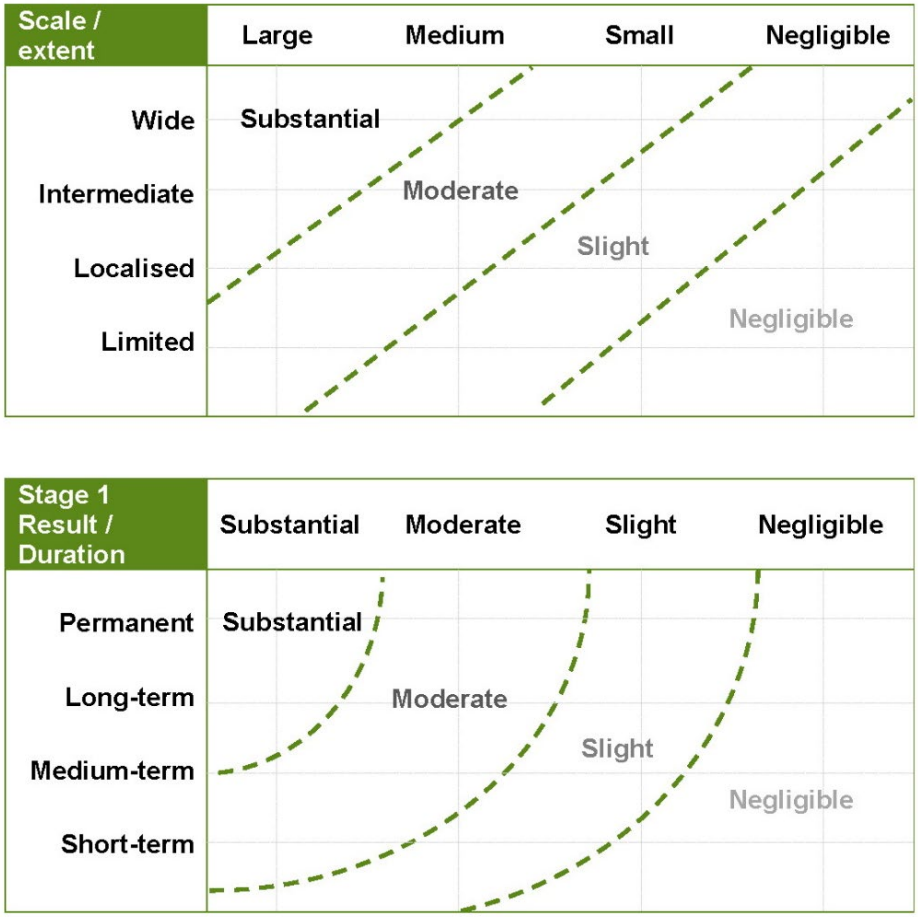
		Susceptibility		
		High	**Medium**	**Low**
Value	**National**	High	High/Medium	Medium
	Regional	High/Medium	High/Medium	Medium/Low
	Community	High/Medium	Medium	Low

7.3.3 Magnitude

33. Scale of effect is the primary factor in determining magnitude; which may be higher if the effect is particularly widespread and/or long lasting, or lower if it is constrained in geographic extent and/or timescale. **Table 7.4** illustrates how this judgement is considered as a two-step process. Firstly, scale and extent are considered, for which the outcomes are illustrated by the

first part of the table; the second part of the table illustrates the influence of duration on this initial judgement. Where magnitude is judged to lie between levels, an intermediate assessment will be adopted.

Table 7.4: Magnitude



7.3.4 Significance of effects

34. The significance of any identified landscape or visual effect is assessed as major, moderate, minor or negligible. These categories are based on the consideration of sensitivity with the predicted magnitude of change as illustrated by **Table 7.5**. This is not used as a prescriptive tool and illustrates the typical outcomes, allowing for the exercise of professional judgement. In some instances, a particular parameter may be considered as having a determining effect on the analysis.

Table 7.5: Significance of effects

		Magnitude of Change			
Receptor Sensitivity		**Substantial**	**Moderate**	**Slight**	**Negligible**
	High	Major	Major/Moderate	Moderate	Minor
	Medium	Major/Moderate	Moderate	Moderate/Minor	Minor/Negligible
	Low	Moderate	Moderate/Minor	Minor	Negligible

35. Where the effect has been classified as Major or Major/Moderate this is considered to be equivalent to likely Significant effects referred to in the EIA Regulations. Where Moderate effects are predicted, professional judgement will be applied to ensure that the potential for Significant effects arising has been thoroughly considered. The conclusion that some effects are 'Significant' should not be taken to imply that they should warrant refusal in any decision-making process.

7.3.5 Beneficial/adverse

36. Landscape and visual effects can be beneficial or adverse and, in some instances, may be considered neutral. Taking a precautionary stance, changes to rural landscapes involving construction of man-made objects of a large scale are generally considered to be adverse.

37. With regard to the visual effects of windfarms, it is important to recognise the differing views revealed by extensive available research and to take into account that for the same development, some may view the impact as adverse, some as beneficial and yet others as neutral. This depends to some extent on the viewer's predisposition towards landscape change but also their opinion regarding the principle of renewable energy development, including windfarms in the landscape. Taking a precautionary approach in making an assessment of the 'worst case scenario', the assessment considers that all effects on views which would result from the construction and operation of the proposed Development to be adverse, unless specified otherwise in the text. It should be noted, however, that many people would not consider the effects to be adverse.

7.3.6 Cumulative assessment

38. Cumulative assessment relates to the assessment of the effects of more than one development. The Cumulative Landscape and Visual Impact Assessment (CLVIA) is presented in full in **Section 7.8**. The CLVIA describes the likely combined cumulative effects of the proposed Development in association with operational, consented and other proposed Developments.

39. It is important to differentiate between the assessment of cumulative effects arising from the proposed Development with other developments that are:

- **Scenario 1** (current baseline): Operational or under construction, which have been included as part of the baseline assessed in the LVIA chapter;
- **Scenario 2** (future baseline): Consented, which can be considered as part of a scenario with some certainty; and
- **Scenario 3**: Proposed, of which there can be little certainty.

40. The potential cumulative scenarios assessed in the cumulative assessment are Scenario 2 and Scenario 3. Scoping and pre planning windfarms have little or no fixed proposals and, therefore, are not considered in detailed assessments or illustrations. The burden of assessment would fall with subsequent applications.

41. Given the amount of development in and around the area, cumulative effects are a key issue for this proposed Development. As agreed with SNH, a cumulative search area plan out to a 30 km radius was prepared for consideration of the potential cumulative impacts and this is illustrated in **Figure 7.5**.

42. The approach to the CLVIA follows SNH guidance (2012). As such, it focuses upon those wind turbine developments that have the potential to give rise to Significant cumulative effects and those likely to have an influence on decision making, rather than an assessment of every potential cumulative effect.

43. Following a review of the cumulative search area, it was agreed with SNH that the main influencing distance for the potential for Significant cumulative effects are those windfarms located within approximately 10 km of the proposed Development. These mainly include those south of the A76 to the Carsphairn Forest and south to the B729 (between Moniaive and Knowehead) and are listed in **Table 7.6** and on **Figure 7.6**. As some developments fall into clusters, the impacts of the proposed Development with these clusters are considered in the assessment, as requested by SNH.

Table 7.6: Windfarms considered within the detailed cumulative assessment (end of July 2020)

Windfarm	Status	Number of Turbines	Tip Height (m)	Distance from Proposal
Scenario 1: Operational and Under Construction				
Sanquhar	Operational	9	130	Adjacent
Whiteside Hill	Operational	10	121.2	2.8 km
Hare Hill and Ext	Operational	20+39	64 + 70 to 91	2.0 km
Afton	Operational	25	100 / 120	2.8 km

Windfarm	Status	Number of Turbines	Tip Height (m)	Distance from Proposal
Windy Standard 1 & 2	Operational	36+30	53.5 + 100/120	4.1 km
Windy Rig	Under Construction	12	125	4.5 km
Wether Hill	Operational	14	91	4.9 km
Twentyshilling	Under Construction	9	124.9	8.3 km
Sunnyside	Operational	2	62	10 km
Scenario 2: Consented				
Lorg	Consented	9	130/149.9	Adjacent
Sanquhar 6	Consented	6	130	Adjacent
Sandy Knowe	Consented	24	125	3.4 km
Pencloe	Consented	19	125	5.3 km
Lethans (2019)	Consented	22	220, 200, 176	9.4 km
Glenmuckloch	Consented	8	149.9	9.0 km
Scenario 3: Proposals (with submitted/validated Planning Applications or at Appeal)				
Sanquhar II (resubmission July 2020)	Proposed	44	200/149	Adjacent
Lorg Increased Tip Height	Proposed	9	149.9	Adjacent
Cornharrow	Proposed	8	149.9	4.3 km
Pencloe (2019)	Proposed	19	149.9	5.3 km
Windy Standard 3	Proposed	20	125/177.5	9.9 km
Shepherds Rig	Proposed	17	125/149.9	7.6 km

44. EAC requested that consideration be given to approximately a 15 km radius and include North Kyle. Sites within a 15-20 km radius have been included on the figures and visualisations, and if Significant impacts are likely they will be included within the detailed assessment.

7.3.7 Night-time assessment

45. The proposed Development includes aviation lighting for which an assessment of potential night-time impacts is included in **Section 7.9** There is a distinction between light pollution or nuisance and the effect of lighting on the character and amenity of the landscape at night. This is not a technical lighting assessment but focusses on the night-time effects as a result of the introduction of new artificial lighting within the landscape, with consequent effects on the night character and visual amenity of the area.

46. In this context, effects on landscape character are almost exclusively concerned with perceptions of darkness and remoteness as most of the key characteristic constituent elements of landscapes are generally obscured after dark. The existing light environment and landscape character is illustrated in **Figure 7.4**. The impact on the landscape designations including the Merrick Wild Land Area will be included in the assessment and illustrated with reference to **Figure 7.17**.

47. For visual receptors, the value attached to night-time views is considered to be low unless there is a particular feature that can be best appreciated in the hours of darkness. The susceptibility of visual receptors also differs at night reflecting the different activities people undertake in the hours of darkness, such as stargazing. As a result, the receptors for night-time impacts may be different from those which experience day-time impacts. The impacts on users within the Galloway Forest Dark Sky Park will be included in the assessment and illustrated with reference to **Figure 7.17**.

48. Cumulative night-time impacts will also be included for receptors identified.

7.3.8 Residential visual amenity

49. As set out within Landscape Institute (LI) Technical Guidance Note 02/19 ‘Residential Visual Amenity Assessment (RVAA)’:

"Changes in views and visual amenity are considered in the planning process. In respect of private views and visual amenity, it is widely known that, no one has 'a right to a view.'...

It is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their place of residence as a result of introducing a new development into the landscape. In itself this does not necessarily cause particular planning concern. However, there are situations where the effect on the outlook / visual amenity of a residential property is so great that it is not generally considered to be in the public interest to permit such conditions to occur where they did not exist before."

50. The methodology for and assessment of effects on residential visual amenity for the most affected included in **Technical Appendix 7.8: RVAA**. In line with the LI guidance, this would normally be included out to an approximate 2 km radius from the nearest turbines, as stated in scoping. However, due to the recently revised DGC Wind Energy Development Supplementary Guidance (February 2020), the scope of this assessment has been extended to include additional properties to a 5 km radius and includes a cumulative assessment where appropriate.

7.3.9 Distances

51. Where distances are given in the assessment, these are approximate distances between the nearest wind turbine and the nearest part of the receptor in question, unless explicitly stated otherwise.

7.3.10 Visual aids

52. Photographs of the existing views and photomontages showing the proposed Development are shown in **Volumes 3b and 3c** of the application. The method of visualisation selected has been informed by Landscape Institute Technical Note 02/17 Visual representation, with photomontages being selected as being the most appropriate approach given the scale of the development and public interest. There is also a range of wireframes, sequential images, and figures used to support the assessment.

53. The methodology for production of the photomontage visualisations and figures is included in **Technical Appendix 7.2: LVIA Methodology**.

7.4 Planning policy and guidance

7.4.1 National planning policy

54. Relevant national planning policy is set out in **Chapter 4: Climate Change, Renewable Energy and Planning Policy.**

7.4.2 Local planning policy – Dumfries and Galloway

55. Current local planning policy is described in the Dumfries & Galloway Local Development Plan 2 (DGLDP2), adopted October 2019. This plan is supported by a number of technical studies and Supplementary Guidance documents. Those of relevance to this assessment are:

- Wind Energy Development: Development Management Considerations, draft Supplementary Guidance (adopted February 2020) and its associated Appendix C Landscape Capacity Study; and
- Regional Scenic Areas Technical Paper, January 2018.

Dumfries & Galloway Local Development Plan 2 (adopted October 2019)

56. Most of the proposed Development is located within DGC and relevant policies include:

- **Policy OP1: Development Considerations** – which specifically requires that "*development proposals should respect, protect and/or enhance the region's rich landscape character, and scenic qualities, including features and sites identified for their landscape qualities or wild land character … of wild land areas. They should also reflect the scale and local distinctiveness of the landscape.*"
- **Policy IN1: Renewable Energy** – is a broad policy relating to all forms of renewable energy and notes (inter alia) that development will be assessed against considerations including landscape and visual impact, cumulative impact, impact on local communities and individual dwellings.

- **Policy IN2: Wind Energy** – which sets out considerations for such developments, including "*the extent to which … significant detrimental landscape or visual impacts*" are avoided; and design considerations including scale, character and respecting site features. "*Visual dominance*" is also identified as a consideration in respect of effects on communities, dwellings and local amenity.
- **Policy ED11: Policy Dark Skies** – which aims to ensure that external lighting is designed and installed in order to protect the quality of the dark sky in the DSP and across the region and has a SG on good lighting practice.
- **Policy NE1: National Scenic Areas** – notes that development that may have an effect on a National Scenic Area should only be permitted where "*it will not adversely affect the integrity of the area or the qualities for which it has been designated*".
- **Policy NE2: Regional Scenic Areas** – this policy indicates that "*development … which affects Regional Scenic Areas, may be supported where the Council is satisfied that …the factors taken into account in designating the area would not be significantly adversely affected*".
- **Policy NE3: Areas of Wild Land** – states that "*Development which would affect the Merrick Wild Land Area in Galloway and the Talla Hart Fell Wild Land Area north of Moffat would not be supported unless the Council is satisfied that it is demonstrated that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation*".

Wind Energy Development: Development Management Considerations, Supplementary Guidance (February 2020)

57. The WED SG supplements DGLDP2 Policy IN2 provides further detail with regard to development and management considerations. It provides some guidance with respect to siting and design of wind energy proposals and also the assessment of landscape, visual, cumulative and residential visual amenity effects although typically defers to other recognised guidance produced by SNH and the Landscape Institute.

58. Maps within Appendix B to the WED SG identify the sensitivity of the landscape to various wind turbine typologies and are informed by the Dumfries & Galloway Wind Farm Landscape Capacity Study (DGWFLCS) which is included as Appendix C to the document.

59. The DGWFLCS provides an assessment of landscape 'sensitivity' for each landscape character type (LCT) identified within Dumfries and Galloway. The proposed Development is largely situated within LCT 19a (i) Ken unit of Southern Uplands with Forest which is identified as being of high-medium 'sensitivity' to very large (150 m+) typology turbines but of medium/low value. The DGWFLCS is referred to in considering the effects of the proposed Development in **Table 7.7** and **Section 7.7**.

Regional Scenic Areas Technical Paper, January 2018

60. This document sets out the basis for designation and boundaries of the Regional Scenic Areas (RSAs) identified within Dumfries and Galloway. This paper has informed this assessment in relation to considering effects of the proposed Development on RSAs in **Section 7.7**.

7.4.3 Local planning policy – East Ayrshire

61. The majority of the proposed Development is located outside EAC area, but proposed access route A extends through EAC. Whilst there are no turbines located within EAC, their policies relating to the acceptability of turbines are included in recognition of their status as a neighbouring authority.

62. Current local planning policy is described in the East Ayrshire Local Development Plan 2017 (adopted April 2017). This plan is supported by a number of statutory and non-statutory guidance documents. Those of relevance to this assessment are:

- East Ayrshire Local Development Plan Supplementary Guidance Planning for Wind Energy (Dec 2017);
- Non statutory planning guidance East Ayrshire Landscape Wind Energy Capacity Study (EALWCS) last updated June 2018; and
- Non statutory Background Paper: Sensitive Landscape Areas March 2015.

East Ayrshire Local Development Plan 2017 (adopted April 2017)

63. Relevant policies include:

- **Overarching Policy OP1: Development Considerations** – which specifically requires that development proposals *"be fully compatible with… and have no unacceptable impacts on the environmental quality of the area".* Proposals must

ensure *"that the size, scale, layout and design enhance the character and amenity of the area"* and *"that there is no unacceptable impacts on the landscape character or tourism of the area".*

- **Policy RES 11: Residential Amenity –** seeks to protect, preserve and enhance residential character, protecting against " *the establishment of non-residential uses within, or in close proximity to, residential areas which potentially have detrimental effects on local amenity or which cause unacceptable disturbance to local residents."*
- **Policy TOUR 4: The Dark Sky Park –** policy supports Galloway Forest Dark Sky Park and the SG on Dark Sky Park Lighting includes guidance for proposed Developments within the buffer and transition zones which may have a lighting impact on the Dark Sky Park.
- **Policy RE3: Wind energy proposals over 50 meters in height** – which sets out assessment criteria as per the spatial framework for wind development (shown on Map 12 of the LDP) and all other relevant policies. The policy states that any development must prove that it "*is acceptable in terms of all applicable renewable energy criteria set out in Schedule 1"* of the LDP and development in protected areas maybe appropriate where *"any significant adverse effects… can be substantially overcome by siting, design or mitigation".*
- **Policy ENV7: Wild Land and Sensitive Landscape Areas** – this policy indicates that "*any development deemed to have unacceptable impacts on wild land and SLAs will not be supported by the Council. All development proposals within these areas will also require to be assessed against policy ENV 8: Protecting and Enhancing the Landscape*". Access route A extends through the SLA.
- **Policy ENV8: Protecting and Enhancing the Landscape** – this policy indicates that:
  - (i) Development proposals should be sited and designed to respect the nature and landscape character of the area and to minimise visual impact.
  - (ii) Where visual impacts are unavoidable, development proposals should include adequate mitigation measures to minimise such impacts on the landscape.
  - (iii) Particular features that contribute to the value, quality and character of the landscape are conserved and enhanced.

East Ayrshire LDP Supplementary Guidance Planning for Wind Energy (December 2017)

64. This document underpins LDP Policy RE3 in further detailing the East Ayrshire spatial framework for wind energy and the considerations to apply to all wind energy developments over 50 metres which include environmental criteria such as: landscape and visual impacts; cumulative impacts; wild land; forestry and woodlands.

65. Within the document, Maps 2 and 3 delineate group 2 (areas of significant protection) and group 3 (areas with potential for wind development) of the Spatial Framework for Wind Energy respectively. The proposed access route A is mainly located within group 3 areas of the Spatial Framework.

Non-statutory planning guidance: East Ayrshire Landscape Wind Energy Capacity Study (EALWCS) last updated June 2018

66. This document aims to inform both strategic and spatial planning for wind energy and offers guidance for development through a landscape and visual sensitivity assessment for developments sited in the various Landscape Character Type within East Ayrshire. Landscape and visual 'sensitivity' is assessed on the host LCT's landscape context, scale and openness, landform, land cover pattern, built environment, perceptual qualities, visual amenity and cumulative effects and is assigned an overall 'sensitivity' rating based on its ability to accommodate wind energy within LCT given the sum of these factors.

67. Annex G provides 'sensitivity' summary tables for each LCT to wind turbine development over 130 metres, while sections 5 – 16 provide further detail of the LCTs specific formal characteristics and capacity for wind development.

68. The proposed access route A is located within LCT 20a East Ayrshire Southern Uplands which is considered to be of high or high-medium 'sensitivity' to wind turbines in this area, but there are no turbines proposed in this area.

Non-statutory Background Paper: Sensitive Landscape Areas March 2015

69. This document sets out the basis for designation and boundaries of the Sensitive Landscape Areas (SLAs) identified within East Ayrshire. These areas cover nearly 37% of the local authority area. This paper has informed this assessment in relation to considering effects of the proposed Development on SLAs in **Section 7.7**.

7.5 Baseline

7.5.1 Introduction

70. An overview of the baseline study results is provided in this section with the full baseline description of the individual landscape and visual receptors being provided alongside the assessment in **Section 7.7** for ease of reference.

71. This section identifies those landscape and visual receptors which merit detailed consideration in the assessment of effects, and those which are not taken forward for further assessment as effects "*have been judged unlikely to occur or so insignificant that it is not essential to consider them further*" (GLVIA3, para. 3.19).

72. Both this baseline section, and the effects section, describe landscape character and visual receptors before considering designated areas as it is common for designations to encompass both character and visual considerations within their special qualities or purposes of designation.

7.5.2 ZTV study

73. A Zone of Theoretical Visibility (ZTV) study was generated based on the design of the proposed Development. The analysis was carried out using a topographic model, shown on **Figures 7.8** and **7.10**, and incorporating the screening effects of forestry, woodland and buildings, shown on **Figures 7.9** and **7.11**, to show potential visibility of the proposed turbines. Other elements of the proposed Development such as roads and compounds are not included within the ZTV study. The long term open areas within the Site as a result of the Forestry Plan and the proposed Development has been updated within the ZTV model. The model does not take into account any localised features such as small copses, hedgerows or individual trees which may result in additional screening. The vegetation (woodlands and forestry) which has been included in the ZTV with screening is identified on the ZTV.

74. The ZTV study was used to aid the identification of those landscape and visual receptors that are likely to be most affected by the proposed Development and those that do not require detailed consideration. It should be noted that in many areas woodlands included within the ZTV may comprise active forestry, resulting in the felling and replanting of some areas modelled in the ZTV study, including those found across the Site. 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.

75. The bare earth ZTV studies show that there would be little theoretical visibility at most of the nearest settlements and transport routes. When the Hub Height ZTV with screening is considered, the only larger settlements include Sanquhar and limited parts of Kirkconnel/Kelloholm have potential for visibility. Visibility is also predicted within upper parts of some of the surrounding valleys including the upper Shinnel, upper Scaur and Lorg valleys. There would be more extensive areas of intervisibility with mainly open upland areas surrounding the proposed Development and extending northeast as far at the Lowther Hills and southwest as far as the Galloway Hills.

76. Effects on landscape or visual receptors outside the areas of visibility shown on the ZTV studies would be Negligible and are not considered further.

7.5.3 Landscape character

77. Landscape character types across the wider study area are shown on **Figure 7.3**. Baseline landscape character for the study area is described within the online SNH national landscape character assessment (updated 2019). These descriptions are supplemented within Dumfries and Galloway by the information within the DGWFLCS (updated 2016) and within East Ayrshire by the information within the EALWECS (updated 2018) both of which provides a more detailed, local analysis of characteristics potentially susceptible to wind energy development; LCTs identified by the three studies share the same boundaries in the core of the study area and both references are provided in the text for ease of reference.

78. The proposed Development is situated largely within Ken area of the Southern Uplands with Forest – Dumfries and Galloway (SNH 178/ DG 19ai) although the access route A comes in from Hare Hill Windfarm within Southern Uplands - Ayrshire (SNH 81 / EA 20a). Effects on the following LCTs are considered in **Section 7.7**, with the SNH baseline descriptions provided in **Technical Appendix 7.3: SNH Baseline Landscape Character**:

- Ken unit Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a) host LCT;
- Southern Uplands - Ayrshire (SNH 81/ EA20a) – access route A is located within this LCT to the west;

- Carsphairn and Nithsdale units Southern Uplands - Dumfries and Galloway (SNH 177/D&G 19) adjacent LCT to the east and over 3 km to the south west;
- Ken unit Narrow Wooded River Valley - Dumfries and Galloway (SNH 160/D&G 4) approximately 1 km south west of nearest wind turbine;
- Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9) approximately 5 km north east of nearest turbine;
- Shinnel unit Upland Glens - Dumfries and Galloway (SNH 166/ D&G 10) approximately 2 km south east of nearest wind turbine;
- Upland Glen - Ayrshire (SNH 73/ EAC 14) approximately 1 km west of the nearest wind turbine; and
- Tynron, Keir and Dalmacallan units Foothills - Dumfries and Galloway (SNH 175/D&G 18) 6 km, 3 km and 7 km south east from nearest turbines.

79. Other LCTs within the study area are excluded from detailed assessment due to limited intervisibility, extensive forestry cover or intervening distance limiting the potential for Significant impacts, with reference to **Figure 7.15**.

80. Representative viewpoints have been selected to aid the assessment of effects on landscape receptors.

7.5.4 Visual receptors

81. Visual receptors are "*the different groups of people who may experience views of the development*" (GLVIA, 3rd edition, para 6.3). In order to identify those groups who may be Significantly affected, the ZTV studies, baseline desk study and site visits have been used.

82. The different types of groups assessed within this report encompass local residents; people using key routes such as roads; cycle ways, people within accessible or recreational landscapes; people using Public Rights of Way; or people visiting key viewpoints. In dealing with areas of settlement, core paths, 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.

83. Representative viewpoints have been selected to aid the assessment of effects on visual receptors.

Baseline visual environment

84. The study area is predominantly rural with settlement focused along the A76 corridor between Cumnock and Dumfries and extending out from Dumfries including the A713 / Glen Kens or A702 to Moniaive. Due to the steep topography and tree cover within many of the valleys, as well as extensive areas forestry within the study area, visibility would be predominantly restricted to open upland areas and the heads of a few valleys which extend towards the proposed Development.

85. There are numerous other windfarms located in the area, including operational, consented and proposed in planning. These are illustrated in **Figures 7.5 and 7.6**.

Visual receptor groups

86. The following visual receptor groups are located within the study area and are likely to have visibility of the proposed Development, as shown on the ZTVs in **Figures 7.8 - 7.11 and 7.16** and are considered further in **Section 7.7**.

- Sanqhuar – includes local residents and users of local roads and recreational paths in and around Sanquhar;
- Kirkconnel/Kelloholm - – includes local residents and users of local roads and recreational paths;
- Euchan Water valley - includes local residents travelling to and from their places of residence;
- Glen Afton - includes local residents and recreational visitors to Afton Reservoir, local heritage trail Old Road from New Cumnock to Dalquhairn;
- Hillwalkers above Glen Afton - includes Blackcraig;
- Tynron – includes local residents and road users as well as recreational users of Core Paths around the village;
- Shinnel Glen– includes local residents travelling to and from their places of residence as well as recreational users of forestry tracks at the head of the valley;
- Core Paths within the Site and Lorg Glen – excludes SUW, which is assessed separately;
- Local Heritage Trail Sanquhar to Stroanpatrick Path – includes Core Path 215 through Lorg Glen;
- Water of Ken valley – includes local residents travelling to and from their places of residence;
- Hillwalkers Cairnsmore of Carsphairn – includes those on summits of Cairnsmore of Carsphairn, Beninner and on the Knockgray Trail;

- Local Heritage Trails Moniaive to Sanquhar Drove Road - route remains as a track or faint route between tracks;
- Cairn Water valley– includes Wallaceton, Dunscore and B729; and
- Hillwalkers Lowther Hills - excludes SUW, which is assessed separately.

87. Based on the range of ZTVs presented, the potential for Significant effects would not occur from the following receptor groups and, therefore, have not been included in the assessment:

- New Cumnock – no visibility identified in the bare earth ZTV to blade tip;
- Cumnock – bare earth ZTVs identify some theoretical visibility 17 km away but screening would result in little actual visibility;
- Wanlockhead and Leadhills - no visibility identified in the bare earth ZTV to blade tip;
- Thornhill and Carronbridge – bare earth ZTVs indicate visibility over 15 km away would be limited to tips only but screening would result in little actual visibility;
- Scaur Water valley – little or no visibility identified in the bare earth ZTV to blade tip (individual residents along Polskeoch Burn included within RVAA);
- Penpont - no visibility identified in the bare earth ZTV to blade tip;
- Moniaive – little or no visibility identified in the bare earth ZTVs to blade tip and hub;
- Dalwhat Water valley - little or no visibility identified in the bare earth ZTV to blade tip (individual residents at the head of the valley included within RVAA);
- Dumfries, Locharbriggs and Cargenbridge –bare earth ZTVs identify some theoretical visibility over 30 km away but screening would result in little actual visibility;
- Corsock, Balmaclellan, New Galloway - little or no visibility identified over 20 km away in the bare earth ZTVs to blade tip and hub and screening would result in little actual visibility; and
- St Johns Town Dalry, Carsphairn, Dalmellington no visibility identified in the bare earth ZTVs to blade tip and hub.

Key routes

88. The following key routes through the study area are likely to have visibility of the proposed Development, as shown on the ZTVs **Figures 7.8-7.11** and are considered further in **Section 7.7.**

- A76 – Dumfries to Kilmarnock; and
- Southern Upland Way.

89. Based on the range of ZTVs presented, the potential for Significant effects would not occur from the following routes and, therefore, have not been included in the assessment:

- M74 - no visibility identified in the bare earth ZTVs;
- A70 – Douglas to Ayr - little or no visibility identified in the bare earth ZTVs;
- A75 - bare earth ZTVs identify some theoretical visibility 35 km away but screening would result in little actual visibility;
- A702 – M74 Elvafoot to St Johns Town Dalry via Thornhill, Moniaive - little or no visibility identified in the bare earth ZTVs and screening would restrict views east of Tynron;
- A713 through the Glen Kens - bare earth ZTVs identify some theoretical visibility 13 km away but screening would reduce visibility to very limited locations along the route; and
- B729 - little or no visibility identified in the bare earth ZTVs.

Specific viewpoints

90. The following ‘specific’ viewpoints are included within the assessment:

- Striding Arches Sculptures (and Core Paths between) (**Viewpoints 1 and 3**); and
- East Mount Lowther (**Viewpoint 16**).

7.5.5 Landscape designations and value

91. The Site itself is not covered by any national landscape designations. Proposed access route A falls within EAC Special Landscape Area, but the remaining part of the proposed Development is not located within any other landscape designations. Landscape designations within the study area are illustrated on **Figures 7.1 and 7.2**.

92. There are several National Scenic Areas within the wider 45 km study area, but none are closer than 35 km away. The impacts would not be Significant and, therefore, are not assessed further within the assessment.

93. There are numerous regionally designated landscapes of value from multiple local authorities within the wider study area. Given the separation distance and screening as illustrated in the ZTVs, the following areas within the study area may have the potential for Significant effects as a result of the proposed Development and are considered further in **Section 7.7**.

- Thornhills Uplands Regional Scenic Area;
- Galloway Hills Regional Scenic Area; and
- East Ayrshire Sensitive Landscape Area (illustrated as SLA on **Figure 7.2**).

94. Given the separation distance of over 25 km from the nearest Wild Land Area at Merrick, it was agreed with SNH that a Wild Land assessment was not required. However, SNH requested that the night-time impacts on the Merrick Wild Land Area ad Galloway Forest Dark Sky Park were assessed and is considered further in **Section 7.9.**

7.6 The proposed development

7.6.1 The proposed development

95. The proposed Development is described in detail in **Chapter 3: Description of the proposed Development** in detail and illustrated on **Figure 3.1** and comprises around 126 MW of wind energy, around 31 MW battery storage and associated infrastructure including access tracks, control buildings, borrow pits and construction components. The proposed Development would re-use and share existing and planned infrastructure from the existing onsite forestry operations and existing windfarm access tracks, where possible.

96. The components of the proposed Development with the potential for landscape and visual effects include:

- up to 21 wind turbines with tip heights up to 230 m. The candidate turbine used for landscape and visual assessment purposes has rotor diameter of 150 m and hub heights of 155 m and is representative of the turbine dimensions that may be used on Site. However, the final turbine selection would be made following consent and the geometry below the blade tip height would be variable;
- energy storage facility (likely to be containerised battery units similar to shipping containers typically 17 m x 8 m x 4 m) in the substation / control building compound with a storage capacity of around 31.5 MW;
- foundations and crane hardstandings for wind turbine installation;
- transformer/switchgear housings located adjacent to turbines;
- new and upgraded onsite access tracks including watercourse crossings where necessary, passing places and turning heads (approximately 19.8 km of upgraded track and 32.6 km of new track);
- access to Site from the A76: access route A would be a new access route constructed linking the Site to the existing SPR Hare Hill Windfarm; or access route B would be access from Blackaddie Road, Sanquhar;
- underground electrical cabling;
- substation compound 100 m by 75 m surrounded by 3 m security fencing containing substation infrastructure, control building (single storey approximately 14 m x 23 m x 7 m) and energy storage facility;
- one main Site construction and maintenance compound, two secondary compounds, one laydown area and a security compound;
- one permanent lattice construction meteorological mast up to 149.9 m;
- search areas for up to seven borrow pits, at least one of which would remain open during the operating life of the proposed Development;
- improved access paths providing additional elements to the section of the Southern Upland Way crossing the Site, as illustrated in **Figure 14.2**;
- signage and improved access to archaeological features within the Site such as Allan's Cairn; and
- habitat improvements, as outlined in the proposed Habitat Management Plan, found in **Technical Appendix 8.8: Habitat Management Plan**.

97. Micrositing of up to 50 m tolerance for turbine locations and up to 100 m for all other Site infrastructure, with some further limitation due to Site boundary or mitigation;

98. Visible aviation lighting is required on turbines in excess of 150 m to blade tip with a medium intensity (2000 candela) steady red aviation warning light on the nacelle (with dimming option to 200cd when visibility is good) and a low intensity light (25cd) half way down the tower as well as infra-red lights. As noted in **Technical Appendix 15.3: Indicative Aviation Lighting Landscape and Visual Impact Mitigation Plan**, embedded mitigation and additional mitigation has been proposed.

99. The construction phase is expected to last approximately 22 months, refer to **Chapter 3: Description of the proposed Development**. The construction phase activities and temporary features with the potential to cause an effect on landscape and visual amenity include HGV & abnormal load deliveries to the Site, the movement of vehicles therein and construction of all elements of the proposed Development including the use of cranes for erection of wind turbines.

100. The operational phase would follow and there is no proposal to limit the lifetime of the proposed Development.

7.6.2 Operational phase - design process

101. The description of the Site selection rationale and the iterative design process is described within **Chapter 2: Site Description and Design Evolution**. The design of the proposed Development has been a staged process with the aim of arriving at an optimal design configuration in respect of landscape and visual effects, and a range of other environmental, yield and technical factors. Mitigation measures (including embedded mitigation) as proposed by the Applicant to reduce the level of potential impacts and to inform the assessment of residual effects which would occur with mitigation in place are described in the following sections.

7.6.3 Design approach and mitigation

102. The design approach is described in full within **Chapter 2: Site Description and Design Evolution.** The following identifies the landscape and visual specific aspects of the Mitigation and Design.

Design principles and considerations

103. Siting and Designing Windfarms in the Landscape Version 3 (SNH, 2017) provides a framework for the consideration of key design issues including wind turbine size, layout composition, relating windfarm design to landscape character, forestry and designing for multiple windfarms. This guidance is referenced by the latest DGC WED SG. Further information regarding good forestry design published by Forestry Commission has also been considered. The fundamental design issues to be addressed from a landscape and visual perspective may be summarised as follows:

- the proposed layout of wind turbines should present a clearly structured, balanced arrangement which relates to the underlying landscape characteristics of a similar scale and/or prominence; landform composition; and, the key characteristics of the landscape of the Site and surrounding area;
- the layout design should respond to the key landscape features, forestry and grain of local topography;
- the design of a windfarm composition from key viewpoints and sequential routes should be an overriding factor in the windfarm's composition, in order to achieve a simple balanced composition in terms of the overlapping relationship between turbines, skyline effects and back-grounding;
- careful consideration is needed in the siting and design of windfarms, and between windfarms, to avoid confusing the sense of visual perspective;
- when designing with multiple windfarms with an established pattern, compatibility of design is very important within an area to limit visual confusion and reinforce each development seeking to improve the overall pattern and character of development;
- where windfarms are proposed within or near woodland, the effect on the forest is an important consideration in the design of the windfarm and the redesign of the forest management plan itself;
- attention should be given to other design issues, including turbine colour, size and siting; the design and form of the substation/control building; and the alignment of access tracks to ensure these proposed features relate to the key characteristics of the landscape; and
- with regard to aviation lighting, effects are likely to be more Significant in areas with less artificial lighting. Lit turbines may lessen the contrast between developed and undeveloped areas.

Mitigation during operation

104. The operational period of the proposed Development would not be time limited and would include Site and forestry management to ensure the adequate maintenance of Site facilities and landscape features such as access tracks, field boundaries, gates, and signage. Measures to reduce landscape and visual impacts have been embedded into the design of the proposed Development and include:

- design compatibility with the operational Sanquhar and Whiteside Hill windfarms near the Site, as well as the consented Lorg and Sanquhar Six, as the proposed Development has been designed to be read in the context of the operational and consented windfarms. It has also been designed in combination with the adjacent proposed Sanquhar II;
- turbines have been located along the ridges following the natural rhythm of the undulating landscape and design compatibility with other operational windfarms;
- turbines at 230 m to tip for compatibility of design with the scale of proposed Sanquhar II and ensuring the proposal is commercially viable and taking advantage of the available wind resource as efficiently as possible;
- adjustments in turbine locations to increase offset from some of the nearest residential receptors, users of SUW and those visiting the Striding Arches sculptures;
- turbines are well set back from any settlements and nearest individual residential receptors within the valleys tend to be screened from most of the turbines;
- approximately half of the turbines (T3, T7, T9 -T11, T13, T14 - T16, T20 and T21) are located within or adjacent to existing or planned open areas within the forestry, and given the scale of the turbines there would be very little impact on the commercial forestry landuse;
- visible aviation lighting embedded mitigation includes dimming option to 200cd in good visibility. Additional mitigation of an aircraft detection lighting system has also been proposed, as noted in **Technical Appendix 15.3: Aviation Lighting Landscape and Visual Impact Mitigation Plan**;
- the track layout makes use of around 20 km of existing tracks where possible (to be upgraded for the delivery of wind turbine components), to minimise the requirement for new tracks within the Site;
- location of substation compound set partially within an old borrow pit on the edge of the forestry areas to minimise effects on landscape fabric and within a visually discreet position to limit visual impacts with colour and finish of substation/control building to be visually recessive; and
- new recreational features within the Site including new circular route from SUW and interpretation of cultural heritage features.

Mitigation during construction

105. Construction of the proposed Development would follow an agreed construction method statement that would include arrangements for implementation of various aspects of the works to mitigate local adverse impacts during construction. These would be designed in agreement with DGC and other statutory agencies. Specific mitigation measures during construction would include:

- protection of valued features that are to be retained within the Site and minimising land clearance/vegetation removal as far as possible;
- placing of turbines on gentle gradients, where possible, to minimise the groundworks necessary to accommodate the turbines bases, crane pads and access requirements;
- location of temporary construction compounds and laydown areas where they already exist or in visually discreet parts of the Site and in areas of forestry to minimise effects on landscape fabric;
- location of borrow pits search areas either where these features already exist or would be visually discreet;
- restoration of all but one borrow pit post-construction, with an overall aim of creating a naturalistic and sympathetically designed landscape profile. Reinstatement would be carried out as soon as possible after sections of work are complete;
- maintaining the Site and temporary construction compound in a tidy and contained condition;
- removing all temporary construction materials from the Site once work is completed; and
- controlling construction lighting so that it does not impinge into sensitive views (e.g. from residential dwellings).

Dumfries and Galloway Landscape Capacity Guidance

106. This section of the appraisal considers the proposed Development in respect of guidance contained within the DGWFLCS. The majority of the proposed Development is within the Ken unit of LCT19a: Southern Uplands with Forest (SNH 178). Guidance on development for this LCT states that capacity for additional development (large turbines up to 150 m) is likely to be very limited within the Ken unit, although some scope for repowering and/or small extensions to operational windfarms may be possible provided that the effects on promoted recreational routes and more sensitive glens are minimised.

Table 7.7: Review of design against capacity study

Concerns raised in DGWFLCS Ken unit 19A	Response
Cumulative Issues: '*The potential creation of a concentrated band of wind farm development visually linking wind farms located in the Ken unit with the Blackcraig and Mochrum wind farms located in the Stroan unit of the Foothills with Forest (18a) to the south*.'	The proposed Development would consolidate and increase the operational and consented windfarm development between Harehill, Sanquhar, Whiteside Hill and Lorg but would not extend further south within the Ken unit, maintaining a similar separation distances to Wether Hill, Blackcraig and Mochrum Fell windfarm.
Cumulative Issues: '*Additional development located in the Ken unit which could exacerbate impacts on adjacent Narrow Wooded Valleys (4) and Upland Glens (10) and effects on the SUW and other recreational routes.*'	There would be some Significant effects on the upper parts of the Narrow Wooded Valley but no Significant effects identified on the Upland Glens. The SUW extends through the centre of the Site and, therefore, Significant effects are inevitable, however, mitigation is proposed.
Cumulative Issues: '*While the sparsely settled nature of the Southern Uplands with Forest (19a) reduces visual sensitivity, cumulative effects would arise on more elevated views from popularly accessed hills such as Cairnsmore of Carsphairn and from the Rhinns of Kells as well as from the SUW and the Striding Arches in the Ken unit*.'	There would be views of the proposed Development from elevated hill summits and the effect on these are illustrated with **Viewpoints 1, 3, 4, 9, 14, 16, 17 and 18**. No Significant effects are predicted for users accessing Cairnsmore of Carsphairn or the Rhinns of Kells but there were Significant effects on recreational users on the SUW and Striding Arches.
Cumulative Issues: *'Effects on the setting and on views from the sensitive Loch Doon area in neighbouring East Ayrshire and on the setting and views to the landmark hill of Cairnsmore of Carsphairn in combination with the operational and consented wind farms which already have an effect on these features.'*	There would be no impact on the setting and views to the Loch Doon area or Cairnsmore of Carsphairn, as illustrated in **Viewpoints 1, 3 and 13**.
Key Constraints: *'The arc of hills which includes Benbrack, Cairn and Blackcraig which form a key focus at the head of the Upper Glen (10) of the Dalwhat Water within the Ken unit. The presence of the SUW and the landmark sculptures of Striding Arches add to the sensitivities of this area.'*	The proposed Development is located further north of this arc of hills with limited impact on the Upper Glen of the Dalwhat Water. The proposed Development shares the Site with the SUW and Striding Arches sculpture at Colt Hill.
Key Constraints: *'The rim of open-topped rugged higher hills extending from Loch Fell (688 m) north-west of the Eskdalemuir unit, visually prominent from the Corbetts of White Coombe and Hart Fell in the Moffat Hills.'*	Not applicable to the Ken unit.
Key Constraints: '*The proximity of the dramatic sculptural hill of Cairnsmore of Carsphairn to parts of the Ken and Carsphairn units.'*	There is an 8 km separation distance between the proposed Development and the summit of Cairnsmore of Carsphairn with little impact on its setting, as illustrated in **Viewpoints 1, 3 and 13**.
Key Constraints: '*The open hills lying on the eastern edge of the West Langholm unit which are important in providing a backdrop to Eskdale and are covered by an RSA.'*	Not applicable to the Ken unit.
Key Constraints: '*Occasional areas of more complex landform and deeply incised valleys, some of these masked by extensive forest. The Logan Water Valley, the upper water of Ken Valley and Lorg Glen and dramatic open hills at the head of the Ken unit are of increased sensitivity*.'	Part of the proposed Development is visible from the head of the Lorg Glen but only a limited number of turbines would be visible from this area.
Key Constraints: '*Potential for cumulative effects to arise with additional wind farm development sited within the Ken, Carsphairn and West Langholm landscape units.'*	There would be additional cumulative effects as a result of the proposed Development within the Ken unit. However, the proposed Development has been located within an area which is already strongly influenced by renewable energy, thereby moderating an increase in cumulative effects.

Concerns raised in DGWFLCS Ken unit 19A	Response
Opportunities: '*The expansive scale of this character type and its predominantly simple, gently rolling landform. The sparsely settled nature of this character type and its distance from more populated lowland areas. Extensive commercially managed forestry which covers the majority of the character type which precludes a strong sense of wildness.'*	The proposed Development takes advantage of these opportunities resulting in limited impacts on settlement and location of the Site within existing commercial forestry site.
Guidance: '*Limiting turbines within repowering schemes to around 150m high would fit better with the scale of the Ken unit.'*	Turbine size has been maximised to take advantage of efficiencies in wind resource within the interior of this unit, which is itself of very large scale. Whilst the turbine size is larger than those operational and consented sites, it is consistent with other contemporary proposals nearby and similar in scale to the receiving landscape.
Guidance: '*All development should avoid the more pronounced open-topped hills which provide an important backdrop and containing edge to smaller scale valleys and upland glens and areas of more complex landform. They should also be sited to avoid impacting on the site and setting of significant and distinctive archaeological sites.*'	The proposed Development is located between operational and consented sites amongst the afforested hills but not amongst the highest summits within the unit. No Significant impacts are predicted on the setting of any significant archaeological sites, as stated in **Chapter 11: Archaeology and Cultural Heritage**.

107. Overall, the proposed Development responds to much of the guidance regarding turbine development within the Ken unit of the LCT19a: Southern Uplands with Forest (SNH 178).

7.7 Landscape and visual effects

7.7.1 Introduction

108. This section sets out the effects that the proposed Development would have on landscape and visual receptors.

109. Effects during construction and for the completed development are considered for each landscape and visual receptor.

7.7.2 Effects on site fabric

110. Changes to landscape fabric occur where there would be physical changes to the landscape. In this instance, changes to landscape fabric would predominantly occur within the Site.

111. Due to the height of the proposed turbines they would only require a 50 m keyhole and there would be only very limited impacts on the existing land use. There would be some alterations to the Forestry Plan on Site and some felling would be brought forward. As noted in **Technical Appendix 3.2: Forestry**, the species composition of the forest would change with a reduction of c.159.3 ha conifers but an increase of c.83.7 ha of broadleaves. The area of unplanted ground would increase and the net loss of woodland would be c.67.6 ha which would be mitigated with compensatory planting. There would also be some loss of grassland for the proposed access route A, on site tracks and infrastructure at the bases of some of the turbines.

112. The proposed turbines and their bases would represent the addition of new man-made elements of considerable scale into the local landscape. However, the introduction would only directly affect a relatively small portion of the existing landscape fabric. Where the platforms for the bases would occur on steeply sloping ground outside the forestry, the groundworks to accommodate this would be a noticeable change to the smooth landform of the Site and could result in changes to this valuable landscape element. However, most turbines have been sited on more gentle gradients or within commercial forestry to minimise the impacts.

113. Associated infrastructure (such as proposed access route A, onsite tracks and substation compound) would represent further man-made features within a predominantly man-modified Site, with limited qualities of wildness. There would be approximately 19.8 km of upgraded and 32.6 km of new track required to maintain the wind turbines, energy storage facility

and on site substation. Electricity cables, meanwhile, would all be laid underground in trenches alongside the new tracks, which would limit effects.

114. In addition to the operational effects above, during construction there would be short term effects on the landscape fabric as a result of the temporary construction-phase features, such as the borrow pits and construction and storage compounds. As illustrated in **Figure 3.1**, most of these temporary features are located within areas of commercial forestry to limit landscape and visual effects.

7.7.3 Construction stage effects

Landscape construction stage effects

115. The construction stage of the proposed Development would result in some short term effects within the host Ken unit Southern Uplands with Forest D&G and Southern Uplands Ayrshire for access route A. The effects would result primarily from either the erection of the wind turbines or the ground level construction activities such as: track construction, borrow pits, turbine bases/ platforms, construction compounds and substation compound, as well as the activity and movement of large construction vehicles/ cranes within the upland Site. These activities would disturb the more remote and static qualities of landscape character; however, given that this is an area with extensive commercial forest activity, some of this activity could be difficult to distinguish from the baseline.

116. The landscape character of the Ken unit Southern Uplands with Forest is considered to be of Medium/low landscape sensitivity and Southern Uplands Ayrshire is considered to be Medium sensitivity to short term construction activity. The retained forestry and topography would limit the influence of construction operations, particularly ground-level operations from many vantage points outwith the Site within these landscape types, with the exception of nearby elevated open hill summits, such as Blackcraig Hill. The effects of construction activity are considered to be Large in scale but only over a Localised extent of these two landscape types in the short term. Accordingly, the magnitude of change is considered to be Moderate, which gives rise to a Moderate but Significant effect on the Ken unit Southern Uplands with Forest and Southern Uplands Ayrshire LCTs.

Visual construction stage effects

117. In terms of visual receptors users of the SUW and residents of some of the nearby houses would be likely to see vehicle movements and some of the ground level construction works in nearby parts of the Site during construction. These effects would be different in nature to those experienced once the proposed Development is complete. Much of the preliminary construction work such as proposed access route A and onsite track construction, turbine bases/foundations, borrow pit extraction, and electrical infrastructure (pre erection of wind turbines) would be at ground level and in some areas screened by retained forestry and/or landform. There would be a temporary diversion of the SUW during construction to reduce some of these impacts, but for these users the change as a result of the ground level construction activity is considered to be Large in scale due to the contrast with the baseline but only over a limited extent of this path in the Short term. Accordingly, the magnitude of change is considered to be Moderate/Slight, which would give rise to a Moderate and Significant effect.

118. If proposed access route B were to be used, then the Euchan Water valley receptor group would experience a notable change to their visual amenity as a result of the increased number of construction vehicles present along Blackaddie Road. Whilst this would be a noticeable increase, it would tend to be focused at the beginning or end of the working day and therefore of more limited duration. This would result in a Medium scale of change over an Intermediate extent in the Short term which would result in Moderate/slight magnitude of change for receptors of high/medium sensitivity resulting in a Moderate effect which would be Not Significant. The effect on individual residents is presented within **Technical Appendix 7.8: RVAA**. The impact on traffic and transport is located in **Chapter 12: Access, Traffic and Transport**.

119. The erection of the proposed wind turbines involving the use of large cranes would be another component of the construction stage. Compared to the ground level construction activities noted previously, the visual influence of this activity would be available to a wider range of receptors, more similar to the operational phase. However, the duration of these effects would be short term and, therefore, would result in a lower magnitude of change and level of effect compared to the operational stage effects. These construction effects would occur for the same visual receptors as reported in the operational phase in **section 7.7.6** and, therefore, have not been repeated here.

7.7.4 Viewpoint analysis

120. Viewpoint analysis has been undertaken from a total of 18 viewpoints. The final list of viewpoints was prepared following consultation with SNH, DGC and EAC and was agreed in the Scoping and Gatecheck report response received from these consultees, as noted in **Table 7.1** and outlined in **Chapter 6: Scoping and Consultation**.

121. The viewpoint locations are illustrated on **Figures 7.8 – 7.11**. The visualisations from the agreed viewpoints, comprise photographs of the existing view, wireframes and photomontages from most locations and are located with **Volumes 3b and 3c**.

122. The full viewpoint analysis is contained within **Technical Appendix 7.5: Viewpoint Analysis**. The findings are summarised in **Table 7.8**: Viewpoint Analysis Summary. In each case, distances are listed in relation to the nearest turbine.

123. Please note that **Technical Appendix 7.5: Viewpoint Analysis** considers the sensitivity of the receptors, and the nature and the scale of changes to character and views at each viewpoint location only. The wider extent of the effect (beyond the individual viewpoint location) and its duration are in the consideration of the magnitude and significance of effects which follow in the rest of the assessment, starting **section 7.7.5**.

Table 7.8 Viewpoint analysis summary

Vp No.	Viewpoint	Distance from Nearest Turbine	Landscape Character Type	Scale of Landscape Change	Visual Receptors	Scale of Visual Change
1	Colt Hill (Striding Arches sculpture)	0.3 km	Ken unit Southern Uplands with Forest LCT (SNH178/D&G19a)	Large	Hillwalkers visiting the Striding Arches sculpture	Large
2	Lorg Glen	2.0 km	Ken unit Narrow Wooded River Valley - Dumfries and Galloway (SNH 160/D&G 4) / Ken unit Southern Uplands with Forest LCT (SNH 178/D&G 19a)	Large	Hillwalkers/ recreational users of core paths in the area	Large
3	Benbrack, Southern Upland Way (Striding Arches sculpture)	2.5 km	Ken unit Southern Uplands with Forest LCT (SNH 178/D&G19a)	Large	Hillwalkers on SUW and those recreational users visiting the Striding Arches sculptures	Large
4	Blackcraig Hill (East Ayrshire)	2.8 km	Southern Uplands - Ayrshire (SNH 81/ EAC 20a)	Large	Hillwalkers	Large
5	Afton Reservoir	3.0 km	Upland Glen - Ayrshire (SNH 73/ EAC 14)	Medium/large	Recreational users	Medium/large
6	Southern Upland Way crossing Cloud Hill	5.4 km	Southern Uplands – Dumfries and Galloway (SNH 177/ D&G 19)	Medium/large	Recreational users on Southern Upland Way	Medium/large
7	Minor road in upper Shinnel Water, near Auchenbrack	6.0 km	Shinnel unit Upland Glens - Dumfries and Galloway (SNH 166/ D&G 10)	Medium	Residents and road users in Shinnel Glen	Medium
8	Kirkconnel	7.5 km	Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9)	Negligible	Residents at Kirkconnel / Kelloholm	Small /negligible

Vp No.	Viewpoint	Distance from Nearest Turbine	Landscape Character Type	Scale of Landscape Change	Visual Receptors	Scale of Visual Change
9	Cairnsmore of Carsphairn	8.1 km	Southern Uplands - Dumfries and Galloway (SNH 177 / D&G 19)	Medium/small	Hillwalkers	Medium
10	Sanquhar High School	10.1 km	Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9)	Negligible	Residents at Sanquhar and road users on A76	Small /negligible
11	Fingland road near Todholes Hill	10.5 km	Southern Uplands (SNH 177/ DGC 19)	Small	Minor road users	Small
12	Auchengibbert Hill	10.7 km	Tynron unit Foothills - Dumfries and Galloway (SNH 175/D&G 18)	Small	Hillwalkers	Medium/small
13	Culmark Hill, Southern Upland Way	10.8 km	Stroan unit Foothills with Forest LCT (SNH 176/ D&G 18a)	Small	Recreational users on Southern Upland Way	Medium/Small
14	Southern Upland way, above Sanquhar	10.9 km	Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9)	Small/ negligible	Recreational users on Southern Upland Way	Small
15	A76, near Mennock	11.5 km	Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9)	Negligible	Road users	Small/ negligible
16	East Mount Lowther Hill, near Southern Upland Way	19.6 km	Lowthers unit Southern Uplands LCT (SNH 177 /D&G19)	Small/ negligible	Recreational users on Southern Upland Way	Small
17	Corserine, Rhinn of Kells	21.9 km	Rhinns of Kells unit Rugged Uplands LCT (SNH 180/ D&G 21)	Small/ negligible	Hillwalkers	Small
18	Queensberry	27.9 km	Lowthers unit Southern Uplands LCT (SNH 177 /D&G19)	Negligible	Hillwalkers	Negligible

124. Each of the viewpoints is a ‘sample’ of the potential effects, representing a wide range of receptors – including not only those actually at the viewpoint, but also those nearby, at a similar distance and/or direction.

125. From these viewpoints the impacts on receptors in the study generally fall into two groups regardless of distance from the proposed Development:

- those on high ground with open and extensive views which include most or all the proposed Development; and
- those on low ground where views are fully or predominantly curtailed to just a few of the proposed turbines.

7.7.5 Effects on landscape character

126. Descriptions for each of the assessed LCTs are briefly summarised in the following sections, along with further observations from site-based work.

Ken unit Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a)

127. As shown on **Figure 7.15**, this LCT includes the Site and surrounding hills. Intervisibility of the proposed turbines with this LCT would be limited to open areas on mainly high ground facing the proposed Development. These hills include Munwhirr Hill at the northern end of this LCT, Blacklorg Hill, Alhang, Dodd Hill, Wether Hill and Bennan at the southern end. The majority of this LCT is within forestry and would be much less influenced by the proposed Development.

128. The DGWFLCS assesses landscape sensitivity, potential cumulative effects, constraints and opportunities and provides guidance on potential capacity for development in respect of different sized turbine typologies. The results are provided for all LCTs and noted in **Table 7.7**. The 'inherent' sensitivity and strategic recommendation regarding capacity for each LCT provide a useful guide and starting point to a site specific assessment. However, as stated in the DGWFLCS, '*Overall findings, conclusions and recommendations can be used to inform strategic planning for wind energy development…*' It is a well held planning principle that each proposal should be considered on its own merit. Within the DGWFLCS, the Ken unit Southern Uplands with Forest is considered to have a high/medium sensitivity to very large turbine (150 m+) typologies, but is of medium/low value.

129. **Technical Appendix 7.4: Landscape Sensitivity** sets out a site and project specific assessment of landscape sensitivity which draws on the DGWFLCS and SNH baseline LCA. As identified within **Technical Appendix 7.4: Landscape Sensitivity**, the susceptibility of this LCT is judged to be Medium/low. The scale is large and expansive, landform smooth and flowing with sparse settlement but there are pockets of greater complexity and reduced scale in places. As described within **Technical Appendix 7.4: Landscape Sensitivity**, the value of the LCT within this character type is judged to be Community. There are no national designations and it is largely free from any regional landscape designations or highly valued features but with a degree of remoteness and the Southern Upland Way which extends through the Ken unit. Considering susceptibility and value together, the sensitivity is judged to be medium/low.

130. **Table 7.9** outlines the local characterising effect the proposed Development would have on the key characteristics of the Ken unit, as stated in the SNH LCA 2019 for LCT 178 Southern Uplands with Forest – Dumfries and Galloway (recorded in **Technical Appendix 7.3: SNH Baseline Landscape Character**).

Table 7.9: Ken unit Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a)

Key Characteristic	Effect of the proposed Development
Large, smooth dome-shaped hills with large scale dark green forests on slopes and over lower summits.	Large scale and smooth form of the landscape accords with the large scale and simple form of the turbines. The site access tracks and platforms required for the turbines would affect the smoothness and shape of some of these hills, but this would predominantly occur within or adjacent to forestry to minimise these impacts.
Predominantly simple, gently rolling landform.	The proposed Development would not alter this characteristic but may add a degree of increased complexity over the Site which is already affected by forestry.
Some areas of more complex and smaller-scale landscapes, with steep slopes enclosing heads of valleys and/or where uplands remain open.	The proposed Development is predominantly located on the more elevated positions either within or adjacent to forestry. However, there would be some intervisibility and influence on open areas and nearest valleys within this LCT.
Changing landscapes with large scale forestry operations and wind farm development.	The proposed Development would reinforce this perception in an area which is already under large scale forestry operations.
Forested areas dominated by Sitka Spruce, interspersed with mixed conifers and broadleaf planting, and undergoing felling and replanting in large coupes.	There would be some very minor changes to the Forestry Plan but due to the height of the proposed turbines, land use on the Site would not be notably altered, thereby not affecting this key characteristic.
Wind farms are a key characteristic in some areas.	This is already the case within this part of the LCT and the proposed Development would reinforce this.
Expansive scale.	The scale of the landscape would remain expansive with the addition of the proposed Development to the current baseline.

131. The proposed Development would increase the presence and influence of renewable energy generation within the Southern Uplands with Forest LCT, strengthening those characteristics but the effect on the remaining key characteristics would be relatively limited. The proposed turbines would be located in the northern part of the Ken unit between Lamgarroch and Well Hill.

132. The operational Sanquhar, Whiteside and Hare Hill windfarms form a grouping at the northern end of this LCT across to the adjacent LCT, as they are located predominantly within these two units, Southern Uplands – D&G and Ayrshire LCTs (SNH 177 and 81). Twentyshilling windfarm is currently under construction, over 8 km to the east within the adjacent LCT. The more extensive Windy Standard group of windfarms is located over 3 km to the west, between Afton Reservoir and A713 within the Southern Uplands LCTs (both within and outwith forestry) but in separate landscape units. The operational Wether Hill is located c.5 km south at the southern end of the Ken unit of this LCT.

133. The Southern Uplands with Forest LCT is characterised by extensive forestry and large, steep smooth dome-shaped hills which create a complex screening effect within this and adjacent LCTs which limits the influence of these turbine groups from most valleys and low level areas. By contrast, however, within the open elevated parts of these landscapes there is extensive visibility of windfarms. This is evident from the pattern of visibility found on the screening ZTV **Figure 7.15** for the proposed Development, Visualisations, and the cumulative ZTVs **Figures 7.18 and 7.19**.

134. **Viewpoints 1** and **3** are both located on open hill summits within the Ken unit of this LCT and the nature of the change at these viewpoints is described in detail within **Technical Appendix 7.5: Viewpoint Analysis.** Views from within the Site or on the boundary are represented by **Viewpoint 1** from the Southern Upland Way. Views from other open elevated parts of this LCT are represented by **Viewpoint 3,** also on the SUW.

135. Where visible from surrounding open hilltops and hillslopes, the proposed turbines would represent additional very large scale features in this expansive very large scale landscape. The scale of the wind turbines proposed is similar in scale to the receiving landscape. The proposed Development would accord with the simplicity of landform, vertical emphasis of the steep topography and would accord with other wind turbine development within the Southern Uplands. Due to the slower perceived movements of these very large scale turbines, they would not draw the eye as much as the smaller operational turbines in the landscape and the separation distance between turbines would be greater compared to the more dense form of existing windfarm development. However, the scale of these very large turbines would contrast more strongly with any of the smaller scale elements of landscape character.

136. The proposed Development would appear adjacent to the Hare Hill group and would extend the group southwards. The larger turbines of the proposed Development would be noticeable compared to the rest of this group from many places within the landscape. However, there is variation in the scale of existing operational turbines in this group and these variations tend to be better accommodated within larger groups. This enlarged Hare Hill group would extend south but would not coalesce with the Windy Standard group which is located further east in a different landscape unit, separated by Glen Afton.

137. The introduction of the proposed Development would influence the Ken unit of this landscape, especially within the open areas. However, the extent of commercial forestry and existing wind energy development would Moderate this influence, to some extent. Within approximately a 6 km radius of the proposed turbines there would be a Large or Large/ Medium scale of change over an Intermediate extent of this area. These changes are considered to be Permanent which would lead to a Substantial/ Moderate magnitude of change within the Site and within a 6 km radius. For this LCT of Medium/low sensitivity, this would lead to a Major/ Moderate to Moderate effect, which would be Significant. However, this effect would be localised in nature, not extending beyond 6 km from the proposed Development.

138. For those areas beyond approximately 6 km from the proposed turbines, the scale of change would reduce to Medium or less and the impacts would not be considered Significant.

139. The Carsphairn Forest unit of Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a) is located over 4 km to the west, and is already Significantly influenced by the Windy Standard windfarm group and extensive commercial forestry. The impacts on the landscape character of this unit would be minor based on a slight magnitude of change.

Southern Uplands - Ayrshire (SNH 81/ EA 20a)

140. As shown on **Figure 7.15**, this LCT includes the access route A from Hare Hill windfarm. The impact would also arise as a result of intervisibility of the proposed turbines on east facing slopes within this LCT, which are currently occupied by Hare Hill windfarm, as well as the upper slopes of Blackcraig Hill above Glen Afton.

141. Within the EALWCS, the Southern Uplands is considered to have a high 'sensitivity' to very large turbines (130 m+) topologies located within this LCT; however, this is not the same as the sensitivity assessed in the EIAR. The scale is very large and expansive, landform smooth and flowing with simple landcover and very limited settlement but with long distance views out. As a result, the susceptibility of this LCT is judged to be Medium/low. The value of this LCT within this character type is judged to be Regional. This LCT is largely included within the EA Sensitive Character Landscape Area with a degree of scenic quality, remoteness and recreational value. Considering susceptibility and value together, the sensitivity is judged to be Medium.

142. **Table 7.10** outlines the local characterising effect the proposed Development would have on the key characteristics of the Southern Uplands - Ayrshire (SNH 81/ EA 20a) (recorded in **Technical Appendix 7.3: SNH Baseline Landscape Character**).

Table 7.10: Southern Uplands - Ayrshire (SNH 81/ EA 20a)

Key Characteristic	Effect of the proposed Development
Steep, smooth slopes rising to rounded summits.	There would be some direct impacts on the side slopes but not summits due to proposed access route A between Hare Hill and the proposed Development.
Series of distinctive valleys cut into the uplands created by glacial erosion, with U-shaped cross sections, precipitous side slopes, hanging valleys, waterfalls, crags and screes.	No impact on this characteristic
Relatively simple landcover.	No impact on this characteristic
Heather-flecked grassland on summits.	No impact on this characteristic
Scarce semi-natural woodland is, limited to a few more sheltered glens, gullies and clefts.	No impact on this characteristic
Occasional forested areas and shelterbelts on lower side slopes leaving the domed peaks exposed.	No impact on this characteristic
Absence of modern settlement in these exposed uplands, it being concentrated in river valleys and the larger glens.	No impact on this characteristic
Expansive, remote and largely untamed landscape, most parts of the uplands are accessible on foot only.	Access route A, extended from Hare Hill windfarm to the proposed Development, would impact on this key characteristic, reducing its presence of this on the eastern side of Blackcraig.
Long distance and panoramic views encompass the settled Ayrshire lowlands to the north and west and remote Galloway Hills to the south and east.	Views to the Ayrshire lowlands to the north and west, or the Galloway Hills to the south would be unaffected. However, the views east towards Thornhill and the Lowther Hills would contain additional wind turbines.

143. The proposed Development would increase the influence of renewable energy generation within the Ayrshire Southern Uplands LCT, which is already affected by wind energy development. There would be no proposed turbines located within this LCT but proposed access route A would have an impact on the key characteristics. The proposed turbines would affect the visual characteristics from most elevated east facing slopes, as illustrated on the screening ZTV **Figure 7.15**. However, many of the key characteristics would remain unaffected and the undulations of the array would mirror the simple sweeping undulations of the topography.

144. **Viewpoint 4** is located on the eastern side of Blackcraig summit within this LCT and the nature of the change at this viewpoint is described in detail within **Technical Appendix 7.5: Viewpoint Analysis.** This LCT is already strongly influenced by wind energy development, to the east by the Hare Hill group as illustrated in **Viewpoint 4** and to the west by the Windy

Standard group on the western side of Glen Afton. The increase in the scale of the proposed turbines, compared to the operational turbines would be clearly apparent. However, there are few or no smaller scale elements in this landscape to act as scale markers and the scale of these turbines would generally be seen within the expansive scale of this LCT.

145. The introduction of the proposed Development would influence this LCT, as a result of proposed access route A and within elevated east facing slopes. However, the extent of influence by existing wind energy development would Moderate this to some extent. Within approximately a 6 km radius of the proposed turbines, there would be a Large reducing to Medium scale of change over an Intermediate extent of this area. These changes are considered to be Permanent which would lead to a Substantial/Moderate magnitude of change within the Site and within a 6 km radius. For this LCT of Medium sensitivity, this would lead to a Major/ Moderate effect, which would be Significant. However, this effect would be localised in nature, focused in an area already influenced by wind energy development and would not extend beyond the occurrence on the eastern side of Glen Afton.

Carsphairn and Nithsdale units Southern Uplands - Dumfries and Galloway (SNH 177/D&G 19)

146. As shown on **Figure 7.15**, there are no turbines or new elements within this LCT, but is in close proximity to the proposed Development in places. The impact would mainly arise as a result of intervisibility from slopes facing towards the proposed Development within this LCT and the influence that would have on this LCT. In some cases turbines are already present within this LCT, such as parts of the Hare Hill group and Windy Standard group as well as Twentyshilling Hill and Windy Rig both currently under construction.

147. Within the DGWFLCS, the Southern Uplands is considered to have a high 'sensitivity' to very large turbines (150 m+) topologies appearing within this LCT and of either High or Medium value. However, these ratings are not the same as the sensitivity assessed within the EIAR. The scale is very large with an open and exposed character with smooth flowing landform and simple landcover and very limited settlement. As a result, the susceptibility of this LCT is judged to be Medium/low. The value of this LCT is judged to be Regional as some of this LCT is included within various Regional Scenic Areas with a degree of remoteness and good recreational value. Considering susceptibility and value together, the sensitivity is judged to be Medium.

148. **Table 7.11** outlines the local characterising effect the proposed Development would have on the key characteristics of the Southern Uplands - Ayrshire (SNH 177/ DGC 19) (recorded in **Technical Appendix 7.3: SNH Baseline Landscape Character**).

Table 7.11: Southern Uplands – Dumfries and Galloway (SNH 177/ DGC 19)

Key Characteristic	Effect of the proposed Development
Large, smooth dome/conical shaped hills, predominantly grass-covered.	No impact
Open and exposed character except within incised valleys.	No impact, the turbines accord with this characteristic
Dramatically sculpted landforms and awe-inspiring scale.	The proposed Development would not be located within this LCT. The degree of separation from the dramatic sculpted hills, such as Cairnsmore of Carsphairn (8 km from the summit and 6 km from the base) would limit the impact on this characteristic and it would not be Significantly altered.
Distinctive dark brown/purple colour of heather on some of the higher areas.	No impact
Pockets of woodland in incised valleys.	No impact
Stone dykes occasionally define the lower limit.	No impact
Legacy of lead and other mining activity, with extensive archaeological remains around the former mining village of Wanlockhead.	No impact
Wind farms locally characteristic, away from the more dramatic, scenic and sculptural slopes and skylines.	The proposed Development would add more turbines in the landscape, reinforcing this characteristic and on the skyline in places.

149. The proposed Development would increase the influence of renewable energy generation within the Dumfries and Galloway Southern Uplands LCT, which is already affected by wind energy development. The proposed Development would not be located within this LCT but there would still be an impact on some of the visual characteristics of a few of the key characteristics. The parts of this LCT which might be affected as a result of intervisibility with the proposed Development are illustrated on the screening ZTV **Figure 7.15**, as well as ZTVs presented in **Figures 7.8 - 7.11**. However, many of the key characteristics would remain unaffected as noted in **Table 7.11**.

150. **Viewpoint 6** is located on the SUW crossing Cloud Hill within the Nithsdale unit and **Viewpoint 9** is located on the summit of Cairnsmore of Carsphairn within the Cairnsmore unit. **Viewpoint 11** is taken from the minor road to Fingland near Todholes Hill within the North West Lowther unit and **Viewpoints 15 and 16** are located on summits of the Lowther Hills within the Lowther unit. The nature of change at these viewpoints is described in detail within **Technical Appendix 7.5: Viewpoint Analysis.**

151. This LCT is already strongly influenced by wind energy development, to varying degrees and to a greater extent within the Nithsdale and Carsphairn units. The increase in the scale of the proposed turbines, compared to the operational turbines would be clearly apparent within these two units. However, there are often few smaller scale elements in this landscape to act as scale markers and the scale of these turbines would generally be seen beyond the expansive scale and often strong vertical emphasis of this LCT.

152. The introduction of the proposed Development would influence the visual and perceptual characteristics of this LCT where it is seen in combination with the key characteristics of this LCT. However, it would not be present in all views and many of the visual aspects of the key characteristics have already been affected by wind energy, which would moderate the impact to some extent. Within approximately a 6 km radius of the proposed turbines, there would be a Large or Large/ Medium scale of change over a Wide extent of this area. These changes are considered to be Permanent which would lead to a Substantial/ Moderate magnitude of change within a 6 km radius. For this LCT of Medium sensitivity, this would lead to a Major/ Moderate effect, which would be Significant. However, this effect would be localised in nature and focused in an area already influenced by wind energy development.

153. For those areas beyond approximately 6 km from the proposed turbines, the scale of change would reduce to Medium or less and the impacts would not be considered to be Moderate or less and Not Significant.

154. The North West Lowthers and Lowthers units of Southern Uplands– Dumfries and Galloway (SNH 178/177/D&G 19) all located on the north side of Nithsdale, over 9 km away would have some intervisibility with the proposed Development. The nearest of these areas are less influenced by operational wind energy development, but some of the more distant parts of the Lowther units are more influenced by wind energy. From these landscapes, the proposed Development would generally appear on the part of the skyline already affected by wind energy development and in some cases the increase in scale of the turbines would not be readily apparent. Whilst there would be an increase in the density of turbines present in those views, the impact on these more distant units would be Moderate/Minor or less and Not Significant (slight or less magnitude of change).

Ken unit Narrow Wooded River Valley - Dumfries and Galloway (SNH 160/D&G 4)

155. As shown on **Figure 7.15**, this LCT includes the valley along the Water of Ken, which extends north towards the Site from Stroanfreggan Bridge. The impact would arise as a result of intervisibility of the proposed turbines on open areas within this valley. **Viewpoint 2** is located at the head of this valley in the Lorg Glen but is not particularly representative of this landscape character type. Additional Wireline at Stroanfreggan Craig in **Volume 3a** is located within this LCT along with wirelines within the **Technical Appendix 7.8 RVAA** for Corlae and Auchrae.

156. The susceptibility of this unit of LCT is judged to be high/medium. This results of the narrowness, strong vertical emphasis, and degree of containment as a result of the landform and landcover together with the smaller scale/intimate nature of this LCT. The value of the landscapes within this LCT is judged to be Community. This results from this landscape not being designated at a national or regional level but recognising the extent of recreational value associated with the core and heritage paths in this valley. Considering susceptibility and value together the sensitivity is judged to be Medium.

157. There is only very limited influence from existing wind energy within this valley, as a result of framed views up the Holm Burn (near Nether Holm of Dalquhairn) to Windy Standard and Windy Rig when constructed or possibly views to Windy Rig up Polifferie Burn (near Craigengillan).

158. As the proposed Development is not located within this LCT, any impacts would arise on the visual and perceptual characteristics. For this LCT, the proposed Development has the potential to affect the key characteristic of '*Intimate unspoilt landscape focussing on the river views with some adjacent policy landscape*', as stated in the SNH LCA (recorded in **Technical Appendix 7.3: SNH Baseline Landscape Character**). This key characteristic indicates predominantly insular views within the valley, but may still be sensitive to change. The other key characteristics would be unlikely to be affected.

159. From much of the valley, intervening landform would screen the majority of the proposed Development. In places tree cover and forestry would also provide notable screening to the proposed Development. The visual experience is changeable along the Water of Ken valley, appearing contained and narrow in some places, then in others becoming more open with pockets of pasture and arable fields. The proposed turbines would appear on the skyline beyond the head of the valley within the uplands in some of these more open views to the north. However, not all the turbines would be visible and for the most part only T6-11 would be visible above the head of the valley, with T1-5 being fully screened by landform and T12-21 being predominantly screened by the landform which forms the eastern side of the valley. This is illustrated in Additional Wireframe at Stroanfreggan Craig and the wirelines within the **Technical Appendix 7.8 RVAA** for Corlae and Auchrae.

160. The proposed turbines would be clearly perceived in the adjacent uplands landscape, rather than within this LCT. The very large scale of the proposed turbines would be clearly apparent and would appear at a similar scale to the receiving landscape itself. The steep vertical emphasis of the landform, typical of the Southern Uplands, would accord with the strong vertical emphasis of the turbines. However, the scale of the turbines would contrast strongly with the smaller scale features within the Narrow Wooded River Valley.

161. The introduction of the proposed Development would influence the visual and perceptual characteristics of this LCT where it is seen in combination with the key characteristics of this LCT. However, given the extent of screening and enclosure by landform and woodland/forestry, it would not be present in all views throughout this valley. Within approximately a 6 km radius of the proposed turbines, there would be a Large or Large/ Medium scale of change over an Intermediate extent of this area. These changes are considered to be Permanent which would lead to a Substantial/ Moderate magnitude of change within a 6 km radius. For this LCT of High/medium sensitivity, this would lead to a Major/ Moderate effect, which would be Significant. However, these impacts would be contained with the northern part of this LCT and the southern part would be less affected due to screening by landform, tree cover and increasing separation distance.

162. Beyond approximately 6 km from the turbines, the scale of change would reduce to Medium or less and the impacts would be considered Moderate or less and Not Significant. There would be no other occurrences of this LCT which would experience Significant effects.

Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9)

163. There would be little or no effect on any of the key characteristics of this LCT and there would be little or no impact on the Upper Dale LCT within the Thornhills RSA. As illustrated on the ZTVs and the **Viewpoints 8,10, 14** and **15**, given separation distance, screening by landform and the existing influence of wind energy development already present within this area, the impact would be no greater than Minor. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Shinnel unit Upland Glens - Dumfries and Galloway (SNH 166/ D&G 10)

164. As shown on **Figure 7.15** and illustrated in the ZTVs there would be a few, fairly restricted locations where there would be intervisibility with the proposed Development, due to the screening by topography and woodland/forestry. Despite some contrast with the traditional upland farming characteristic, there would be little impact on this or remaining key characteristics of this LCT. As a result of the change in the views from a few parts of this glen, there would be a Moderate effect which would be Not Significant. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Upland Glen - Ayrshire (SNH 73/ EAC 14)

165. As shown on **Figure 7.15**, this LCT includes the Glen Afton which extends southeast towards the proposed Development from New Cumnock. There are operational windfarms within parts of this and within adjacent LCTs, resulting in an influence over the southern parts of this Upland Glen. As illustrated in the ZTVs and **Figure 7.12,** there would be a few, fairly restricted locations where there would be intervisibility with the proposed Development, due to the screening by topography and woodland/forestry. There would be a Moderate effect which would be Not Significant due the limited extent of this glen

affected and existing influence by the Afton windfarm. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Tynron, Keir and Dalmacallan units Foothills - Dumfries and Galloway (SNH 175/D&G 18)

166. As shown on **Figure 7.15**, this LCT includes the series of foothills which extend to the north west between Moniaive and Thornhill, towards the proposed Development. There would be little or no intervisibility with the Nithsdale unit. There are only patches of intervisibility from the highest ground within the Tynron, Keir and Dalmacallan units and visual characteristics are not strongly expressed within this landscape leading to a limited impact on the key characteristics of this LCT. Given the limited influence of visual characteristics on local landscape and context of the proposed Development, the effect would be Moderate/Minor and Not Significant.

Landscape summary and conclusions

167. The proposed Development follows the natural rhythm of the undulating landscape with a similar design relationship to other windfarms in the Southern Uplands. The design guidance for the Ken unit LCT 19a Southern Uplands with Forestry within DGWFLCS has been influential in the development of the project and the scheme largely follows the guidance.

168. The extent of operational effects upon landscape character would be limited by the steep topography of the Southern Uplands. Intervisibility and influence on landscape character would tend to occur mainly within the open elevated upland areas within the study area, which are already influenced by wind energy development. Significant impacts would be confined to an approximate 6 km radius of the proposed turbines within the Southern Uplands LCTs (with and without forestry) and Narrow Wooded River Valley LCT. Beyond this there would be No Significant effects on landscape character in the wider parts of these LCTs or any other landscape character types. The increased size of the proposed turbines compared to the operational and under construction windfarms would only tend to be noticeable from within the Southern Uplands LCTs itself, or other upland locations within the study area. Here the scale of the turbines would appear of a similar scale to the receiving landscape itself.

169. With regard to the overall strategic pattern of development with the operational and under construction baseline, the proposed Development would likely become part of the Hare Hill group (with Sanquhar and Whiteside Hill) extending this group south, but Euchanhead would be ‘behind’ these developments when perceived from settlement within upper Nithsdale. It would be clearly perceived with the core of the Southern Uplands LCTs. However, the enlarged Hare Hill group would not coalesce with the Windy Standard group (between Afton Reservoir and the A713) to the southwest within a separate landscape unit, separated by Glen Afton. The enlarged Hare Hill group would remain clearly separate from Wether Hill, 5 km to the south and Twentyshilling Hill, 8 km to the east.

170. The Significant construction effects would be limited to the two host areas Ken unit Southern Uplands with Forest D&G and Southern Uplands Ayrshire for access route A where Moderate effects would be experienced.

Table 7.12: Summary of landscape effects

Landscape Character Type	Sensitivity	Level of Effect
Host: Ken unit Southern Uplands with Forest (SNH 178/D&G 19a)	**Medium/low**	**Construction: Moderate – Significant Major/Moderate to Moderate and Significant within 6 km radius of the proposed turbines**
Host: Southern Uplands - Ayrshire (SNH 81/ EA 20a)	**Medium**	**Construction: Moderate – Significant Major/Moderate and Significant within 6 km radius of the proposed turbines**
Carsphairn and Nithsdale units Southern Uplands - Dumfries and Galloway (SNH 177/D&G 19)	**Medium**	**Major/Moderate and Significant within 6 km radius of the proposed turbines**
Ken unit Narrow Wooded River Valley - Dumfries and Galloway (SNH 160/D&G 4)	**Medium**	**Major/Moderate and Significant within 6 km radius of the proposed turbines**
Upper Nithsdale unit Upper Dale – Dumfries and Galloway (SNH 165/ D&G 9)	Medium (where impact occurs)	Minor, Not Significant
Shinnel unit Upland Glens - Dumfries and Galloway (SNH 166/ D&G 10)	High/medium	Moderate, Not Significant

Landscape Character Type	Sensitivity	Level of Effect
Upland Glen - Ayrshire (SNH 73/ EAC 14)	High/medium	Moderate, Not Significant
Tynron, Keir and Dalmacallan units Foothills - Dumfries and Galloway (SNH 175/D&G 18)	Medium	Moderate/Minor, Not Significant

7.7.6 Visual effects

Visual receptor groups

172. This assessment focuses on the effect on groups of visual receptors. The assessment of effects focuses on the visual amenity from public spaces, though views from groups of dwellings are noted in the descriptions. Receptors are generally assessed as being of High susceptibility and Community value resulting in a High/Medium sensitivity to the proposed Development unless stated otherwise.

173. Effects on private residential visual amenity are a separate matter and are assessed within **Technical Appendix 7.8: RVAA.**

174. **Sanquhar receptor group** (over 9.6 km east of the proposed turbines) – receptors within this group comprise local residents and users of local roads and recreational paths in and around Sanquhar. The ZTVs indicate fairly widespread visibility from peripheral areas of Sanquhar, reducing in central parts of the settlement where there is a greater extent of built development. As illustrated at **Viewpoint 10**, and a few turbines would be visible but not be readily discernible from the existing wind turbine development. There would be a Minor and Not Significant effect on receptors in this group. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

175. **Kirkconnel/Kelloholm receptor group** (over 6.8 km north east of the proposed turbines) – receptors within this group comprise local residents and users of local roads and recreational paths in and around Kirkconnel and Kelloholm, two adjacent villages with no clear separation. The historic core of Kirkconnel lies to the north of the River Nith, along the A76 and the settlement pattern here is of a higher density and views towards the site from public areas are very limited. However, there would visibility from some of the outlying areas, as illustrated by **Viewpoint 8,** where there are relatively open views of existing turbines at Sanquhar and Whiteside Hill and the proposed Development would add a small number of additional turbines into this existing pattern of development, but not readily discernible from the existing turbines. There would be a Minor and Not Significant effect on receptors in this group. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

176. **Euchan Water valley receptor group** (over 2.4 km east of the proposed turbines) – receptors within this group primarily comprise local residents travelling to and from their places of residence. The Euchan Water valley extends south west from Sanquhar; it is relatively broad and visually open at its north eastern end, near the settlement, becoming narrower and more visually contained as it extends to the south west to meet the eastern boundary of the Site. As illustrated by the ZTVs there would be intermittent visibility of a small number of the proposed turbines at the northern end of the site along the length of the Euchan Water valley. However, existing turbines would remain a more notable feature of views, appearing above nearer hillsides and of generally greater prominence. There would be a Moderate and Not Significant effect on receptors in this group. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

177. **Glen Afton receptor group** (over 2.3 km west of the proposed turbines) – receptors within this group primarily comprise local residents and recreational visitors to Afton Reservoir, local heritage trail Old Road from New Cumnock to Dalquharin and the surrounding area. Glen Afton extends south from New Cumnock; it is relatively broad and visually open at its northern end, more so to the west than the east, and becomes narrower and more visually contained as it extends to the south, terminating at Afton Reservoir. Roadside and riverside vegetation in this area would intermittently screen views of the proposed Development and when visible it would often be seen in the context of existing turbines at Afton and Hare Hill windfarms which are intermittently visible here on nearby hilltops. Visibility within Glen Afton would be extremely variable and there would be a Moderate and Not Significant effect on receptors in this group. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

178. **Hillwalkers above Glen Afton receptor group** (over 2.8 km northwest of the proposed turbines) – receptors within this group comprise hillwalkers above Glen Afton, including Blackcraig. This group would be of high susceptibility to the proposed Development and views are judged to be of regional value as identified within the East Ayrshire Sensitive Landscape Area. Considering both the susceptibility and value, the group is judged to be of High/medium sensitivity to the proposed Development.

179. The ZTVs indicate that there would be extensive visibility from the eastern side of the summits of Hare Hill, Blackcraig, Blacklorg Hill, Alhang/Alwhat and Wedder Hill at the head of the valley. **Viewpoint 4** illustrates the open views from the eastern side of Blackcraig summit, but it should be noted that from most of the broad summits visibility would be more restricted and in the case of Hare Hill and Wedder Hill they share their position with operational windfarms. There would be limited visibility from The Knipe and Ashmark Hill or from the west facing side of the valley, including the climb up to Blackcraig.

180. Where there would be open views to the proposed Development, they would also tend to include views to other windfarms in the area, some of which at very close range, such as at Hare Hill or Wedder Hill. However, the proximity and scale of turbines, the views of the proposed Development would still represent a notable addition. In some locations, proposed access route A from Hare Hill Windfarm would be a new notable addition in the view as well as the turbines and associated ground level infrastructure within forestry.

181. There would be a Large scale of change, as illustrated in **Viewpoint 4**, but confined to the summits only which would be a Localised extent of the routes/area. These Permanent effects would be Substantial/Moderate in magnitude and result in a Major/Moderate effect which would be Significant.

182. **Tynron receptor group** (over 10.9 km southeast of the proposed turbines) – receptors within this group comprise local residents and road users as well as recreational users of Core Paths around the village. The ZTVs indicate there would be no potential visibility from the core part of Tynron, centred around the bridge, although there are some areas of potential visibility shown to the south and south east of the main village along minor roads running parallel to Shinnel Water. Views from these areas would be notably less than illustrated by the ZTVs due to extensive roadside and garden vegetation, even during winter months when leaf cover is reduced. There would be a Minor and Not Significant effect on receptors in this group. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

183. **Shinnel Glen receptor group** (over 4.0 km southeast of the proposed turbines) – receptors within this group primarily comprise local residents travelling to and from their places of residence. This group would be of high susceptibility to the proposed Development and, being largely within the Thornhill Uplands RSA, views are judged to be of Regional value. Considering both the susceptibility and value, the group is judged to be of High/medium sensitivity to the proposed Development.

184. This group extends from northwest of Tynron, along the glen to end of the public road. The area contains dispersed settlement within the glen, less so as it extends away from Tynron. It is more heavily vegetated than many other valleys further north, including Glen Afton and the Euchan Water valley, with fairly extensive areas of broadleaved woodland in the valley bottom and coniferous shelterbelts and small areas of forestry extending down valley sides.

185. The ZTVs indicate almost no potential visibility from within the lower part of the glen between Tynron and Broomy Knowe, to the north east of Thistlemark Hill. There would be little or no visibility for settlement along Kirkconnel Burn. Within the upper part of Shinnel Glen (towards Auchenbrack) there would be views of a small number of the proposed turbines although these would tend to be heavily filtered through vegetation within the glen. At Auchenbrack the glen opens out slightly and there would be more open views of a small number of turbines. In this upper part of the glen, two or three proposed turbines would be seen at the head of the glen with some further blade tips just visible beyond, as illustrated by **Viewpoint 7** and the wireline within **Technical Appendix 7.8 RVAA** for High Appin. However, views within the upper Shinnel Glen would remain variable, with the proposed Development entirely screened by intervening topography from some areas, as illustrated by the wireline within **Technical Appendix 7.8 RVAA** for Appin Lodge.

186. Visibility within the Shinnel Glen would be variable, with little or no impacts on the lower part of Shinnel Glen. Within the upper Shinnel Glen, the scale of change to views resulting from the proposed Development would be no greater than Medium, as at **Viewpoint 7**, and would occur over an Intermediate extent of the group. Permanent effects would be Moderate in magnitude and considering the High/Medium sensitivity of the group, would be Moderate and Significant, due to the limited influence of renewable energy currently present within the glen.

187. **Core Paths within the site and Lorg Glen** (0 km) - receptors within this group comprise recreational users of Core Paths in and around the site, as illustrated on **Figure 7.16**. This group would be of high susceptibility to the proposed Development while views are judged to be of Community value. Considering both the susceptibility and value, the group is judged to be of High/medium sensitivity to the proposed Development.

188. The site comprises a large area of commercial forestry, amongst which many of the forest tracks are identified as Core Paths which typically provide a link between dead end roads within surrounding valleys and the Southern Upland Way. The paths pass within close proximity of the proposed turbines and infrastructure and there would be intermittent views to this although the extent of visibility would vary with the changing state of commercial forestry. If there was no forestry present on a section of a Core Path, then the views would often include large number of both existing and the proposed turbines. If there is more mature forestry enclosing views, then these would tend to be limited to a small number of turbines or infrastructure at any one time but these would generally be large and prominent, seen at close proximity, and travelling along the various paths there would be numerous encounters. **Viewpoints 1 and 2** and wireframes within **Technical Appendix 7.8 RVAA** for Shinnelhead and Euchanbank illustrate some views from within this group although more constrained views would also occur when within forestry.

189. Core Path DS14 to Alwhat would consist of open close range views to the proposed Development, illustrated with **Viewpoint 2** and the scale of change is set out in **Technical Appendix 7.5: Viewpoint Analysis**. The route extends on the southern side of Ewe Hill where views would be progressively screened by intervening topography. Core Path DS 13 would be partially screened by adjacent forestry until the reaching the summit where open close range views would be available.

190. The scale of change to views within this group would be up to Large and typically would occur over an Intermediate extent, assuming some forestry would be present at any one time. Permanent effects would be Substantial/Moderate magnitude and, considering the High/Medium sensitivity of the group, would be Major/Moderate and Significant.

191. **Water of Ken valley receptor group** (2.7 km south west of the proposed turbines) – receptors within this group primarily comprise a small number of local residents travelling to and from their places of residence and the southern end of local heritage trail Sanquhar to Stroanpatrick. The central section of the Sanquhar to Stroanpatrick path is Core Path 215 and assessed within the Core Paths within the Site and Lorg Glen group, and the northern end is the SUW, assessed in that group. This group would be of high susceptibility to the proposed Development while views are judged to be of Community value. Considering both the susceptibility and value, the group is judged to be of High/medium sensitivity to the proposed Development.

192. This group extends south from Lorg Glen at Holm of Dalquhairn Bridge as far as the B729 at Stroanpatrick. The valley is relatively broad and visually open although forestry provides a degree of enclosure to the south and to the north. At the southern end of the valley there would be relatively open but distant views, around 8 km away, of five or six of the proposed turbines in the central part of the array (T6-T11) on top of open hills which would be seen in conjunction with the turbines at Windy Rig, currently under construction, located on the western side of the valley. Some blade tips of proposed turbines in the southern part of the array may also be visible although would generally be screened by forestry. Views from the heritage path would occur intermittently from high ground from Stroanfreggan Craig to Auchrae Hill, as illustrated in the **Additional Wireline** in **Volume 3c**.

193. Views are more constrained within the central part of the valley with intervening landform screening views of the Windy Rig turbines and any potential views of proposed turbines within the southern part of the array. The group of five or six of the proposed turbines would remain visible towards the head of the valley although intervening landform of Ewe Hill and Lorg Hill would screen lower parts of turbines within this group, as illustrated by the wirelines within **Technical Appendix 7.8 RVAA** for Auchrae, Corlae and Craigythorn. The route of the heritage path between Auchrae Hill and the public road at Strahanna is via forestry track, which if there were no forestry present the views be available to some of the central turbines (T6-T11), but restricted when forestry is standing.

194. Moving north of these locations to the upper part of the valley the intervening landform continues to reduce potential views of the proposed turbines from the western side of the valley, such that they would be almost entirely screened from view, while views of existing turbines at Windy Standard and Windy Rig, currently under construction, become possible looking north along the side valley of the Holm Burn, as illustrated by the wirelines within **Technical Appendix 7.8 RVAA** for Nether Holm of Dalquhairn and Upper Holm of Dalquhairn. To the eastern side of the valley here, from the minor road, more open views are possible although there is some localised screening from roadside vegetation and forestry. Core Path 188 runs along the eastern valley side at this northern end although is unlikely to have any views of proposed turbines as it runs through forestry.

195. The scale of change to views resulting from the proposed Development within this receptor group would be Large/Medium and would occur over an Intermediate extent of the group. Permanent effects would be Moderate magnitude and, considering the High/Medium sensitivity of the group, would be Moderate and Significant.

196. **Hillwalkers Cairnsmore of Carsphairn receptor group** (8.1 km south west of the proposed turbines) – receptors within this group comprise hillwalkers on summits of Cairnsmore of Carsphairn, Beninner and those on the Knockgray Trail. Visibility from the most popular route would occur only at the summit and Black Shoulder. Visibility from a longer route or Knockgray Trail would occur only at the summit of Cairnsmore of Carsphairn and Bennier. Due to the limited extent of visibility, there would only be a Moderate effect which would be Not Significant.

197. **Local Heritage Trails Moniaive to Sanquhar Drove Road** (8 km south east of the proposed turbines) –This route remains as a track or faint route between tracks and has been illustrated on **Figure 7.16**, in relation to the ZTV with screening. There would be a Slight in magnitude and Moderate/Minor effect which would be Not Significant. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

198. **Cairn Water valley receptor group** (10 km southeast of the proposed turbines) – receptors within this group primarily comprise local residents southeast of Moniaive along the B729, including recreational users on Core Paths. There would be some scattered visibility along this valley in places with views nearer to the proposed Development more screened than those more distant but elevated positions, further southeast towards Dumfries. the effect would be Moderate/Minor and Not Significant. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

199. **Hillwalkers Lowther Hills receptor group** (15 km north east of the proposed turbines) – hillwalkers within the Lowther Hills. The impact on users on the Southern Upland Way, which extends across the Lowther Hills is assessed separately. As illustrated at the viewpoints, the proposed turbines would be seen 10-30 km away, in between the windfarms which are closer (Twentyshilling Hill, Whiteside Hill and Sanquhar) and those beyond including Hare Hill and the Windy Standard group. There would be a Moderate/Minor effect which would be Not Significant. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Key routes

200. **A76** (7 km northeast of the proposed turbines) – this is the main road route between Dumfries and Kilmarnock through Nithsdale. The ZTVs indicate that there would be a few patches of visibility likely between Dumfries and Kilmarnock, but visibility would not be extensive. There would be a few scattered distant views but the notable views of the proposed Development would occur between Mennock and Kirkconnel and this would result in a Moderate/Minor effect which would be Not Significant. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

201. **Southern Upland Way** (through the Site) – The SUW is Scotland's first and only official coast-to-coast long distance route, running across the country from the Irish Sea to the North Sea. From Portpatrick on the west coast the route runs 341 km to Cove and Cockburnspath on the east coast. This route already passes through and adjacent several operational windfarms on route. Recreational users of this National value route would have a High susceptibility to the proposed Development and would be of High sensitivity.

202. As illustrated on the ZTVs in **Figures 7.8-7.11**, visibility from this route would be possible between St John's Town of Dalry, 20 km away, through to the Lowther Hills, 30 km away, passing through the centre of the proposed Development. **Viewpoints 1, 3, 6, 13,14 and 16** are located on, or near the path at different distances and directions.

203. There would be views of the proposed Development from the cairn on the summit of Waterside Hill, above Dalry c. 20 km away, but more limited views from the path itself. There would be no views on the descent or through Dalry. North of Dalry there would be views to the proposed Development, in the northbound direction of travel, amongst the Southern Uplands when on the highest ground through the foothills and then dropping away again whilst along the valleys. This intermittent visibility would continue as the route approaches the Site itself. **Viewpoint 13** on Culmark Hill above the B729 illustrates the view from high ground c.11 km to the south. Other windfarms are visible on this section of the route including Blackcraig Hill to the east, Wether Hill to the north, as well as some turbines of the Windy Standard group to the northwest from some of the highest positions. Views would continue on the descent to the B729, reducing until there would be no views at the road itself.

204. Crossing the B729 on the ascent of Manquhill Hill, visibility would be predominantly screened by intervening landform with the potential for a few tips 6-8 km away. Once on Manquhill Hill, there is theoretical visibility along the long summit, but at present the state of the forestry does not allow views out from this entire ridge but there would be views to the proposed Development c.5 km away to the northeast, in the direction of travel from the open parts of the summit, as indicated on the screening ZTVs. Here, T12-21 would be predominantly screened by Benbrack but T1-T11 would be clearly visible. Visibility of the proposed Development would drop away again until reaching the summit of Benbrack. The view from Benbrack is

illustrated at **Viewpoint 3**, where nearly all the 21 turbines would be visible. The view also contains other windfarms including Hare Hill, Sanquhar, Whiteside Hill and Twentyshilling hill to the north, Wether Hill to the south, some of the Windy Standard group to the west. There would be continued visibility, at variable degrees due to the undulating landform with open panoramic views at Cairn Hill and Black Hill again. **Viewpoint 1** is located on a signposted spur from the route to visit the Striding Arch on the summit of Colt Hill. Again, open views are available at very close range to the proposed Development, as well as other operational and under construction windfarms.

205. From the descent of Black Hill, the route enters the Site and walkers on this route would travel through the centre of the proposed Development amongst the commercial forestry, which would change the experience on this part of the route. However, the experience on this section of the route is already adversely affected by the commercial forestry. There is a bothy present amongst the forestry in a more protected dip in topography and those staying at the bothy would experience the proposed wind turbines in close proximity on the hills on both sides. Beyond the bothy the route follows the Polskeoch Burn through the valley to Polgown with views to Whiteside Hill windfarm to the north. For those travelling north, the proposed Development would be behind the walker but a few turbines of the proposed Development would still be visible at close range from this part of the valley, but many would be fully screened.

206. From Polgown the route climbs Cloud Hill, keeping Whiteside Hill windfarm to the north and the view from this position is illustrated in **Viewpoint 6**. Here views from the open hillside up the Polskeoch Burn would contain the proposed Development on the skyline on both sides of the burn along with Whiteside Hill windfarm in close proximity. The route, and views of the proposed Development, continues up towards Whing Head.

207. Beyond this, on the descent to Sanquhar, views of the proposed Development would drop away to only the top of one or two tips which would be unlikely to be noticeable through Sanquhar. The proposed Development would only become noticeable again on the steep climb out of Sanquhar and **Viewpoint 14** is located c.11 km away, at the viewing platform part way up the hill. Here there are panoramic views south across the upper Nithsdale to the Southern Uplands and the proposed Development would be seen behind the operational Whiteside Hill and Sanquhar turbines.

208. From Sanquhar to the Lowther Hills, as illustrated on the ZTVs, intermittent views would continue on this route when on open summits and south facing slopes. There would be no views at Wanlockhead and the views from East Mount, Lowther is illustrated with **Viewpoint 16**. Here the proposed Development would be visible 19 km away amongst the Southern Uplands and within the other wind energy development to the west, behind Twentyshilling Hill. Apart from a 2 km length of the route above Daer Reservoir, 30 km away there would be no further visibility within the study area.

209. In summary, from the section of the route between Manquhill Hill and Whing Head there would be intermittent views of the proposed Development within approximately 7-8 km in either direction. Some of these views would be at very close range and include the proposed turbines and site infrastructure, albeit the nearest views would be within commercial forestry. This would lead to a Large to Medium scale of change which would occur over an Intermediate length of the route. This Permanent change would lead to a magnitude of change which would range from Substantial to Moderate across this section of the route and would lead to a Major to Major/Moderate effect which would be Significant.

210. However, beyond this section views would be much more limited, consisting of intermittent distant views on high points along the remaining length. As a result, the effect would reduce to Moderate or less and Not Significant.

Specific viewpoints

211. **Striding Arches Sculptures** (4 km west of the proposed turbines) – Striding Arches is a series of Andy Goldsworthy sculptures set in the landscape at Cairnhead in the Dalwhat Glen about 11 km from Moniaive, with locations illustrated on **Figure 7.16**. There are four arches in total here; three are on the summits of Benbrack, Colt Hill and Bail Hill, the fourth is at the Byre at Cairnhead and is easily accessible from the forest track. Benbrack is on the SUW and Colt Hill is accessible from a spur off the SUW. This part of the SUW is accessible from a forestry track from Cairnhead. Bail Hill is not very accessible and infrequently visited. The three summit arches are visible to one another but not to Cairnhead. There are other arches made of the Dumfries sandstone in Canada, USA and New Zealand, echoing the travels of emigrating Scots over the last 200 years or so. Visitors are considered to be of High susceptibility as they are likely to appreciate the view whilst visiting the arches and it is judged that the view is of Regional value. Visitors to this viewpoint are judged to have a High/Medium sensitivity to the proposed Development.

212. There would be no views of the proposed Development from the arch at the Byrne at Cairnhead. There would be views from the three arches on the summits. Viewpoints 1 and 3 illustrate the views from the arches at Colt Hill and Benbrack and the scale of change is set out in **Technical Appendix 7.5: Viewpoint Analysis.** The view to each of the other summits would remain intact and the views of the arches from surrounding areas would remain intact. However, the turbines would be visible alongside the sculptures. The scale of change at Colt Hill and Benbrack would be Large and the scale of change at Bail Hill would be slightly less at Large/medium, on account of the array appearing more compact and slightly further away. The Permanent change to views would result in a Substantial magnitude of change on these users of High/medium sensitivity leading to a Major effect which would be Significant.

213. **East Mount Lowther** (19 km north east of the proposed turbines) – This viewpoint is identified on OS base mapping and is located just off the Southern Upland Way and illustrated in **Viewpoint 16**. The impact on users on the SUW is assessed separately. From this summit, long distance views are possible across Nithsdale to the proposed Development and would result in a Moderate/Minor effect which would be Not Significant. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Visual summary and conclusions

214. In summary, there would be Significant visual effects for hillwalkers on the SUW, Core Paths, and Striding Arches near/through the Site and hillwalkers above Glen Afton. There would also be Significant effects for a few of those living within upper Shinnel Glen and the Water of Ken valley. Whilst there would be views from Glen Afton, the Euchan Water valley and from the summit of Cairnsmore of Carsphairn, these views would occur in the context of other closer windfarms and Significant effects are not predicted. Views from Sanquhar, Kirkconnel and the A76 would be much more limited and Not Significant.

215. The residential visual amenity assessment in **Technical Appendix 7.8: RVAA** was extended to a 5 km radius of the proposed Development to conform with the latest Dumfries and Galloway WED Supplementary Guidance and considered the effects for private residents at 24 properties. The assessment found that there would only be Significant impacts at 6 of the properties, P2, P3, P5, P6, P13 and P22, but in no case would these be overbearing. Five further properties would experience a Moderate but Not Significant effect, and the others would experience a Minor or no effect due the screening by steep local topography.

216. The Significant construction effects would be limited to users of the SUW and if proposed access route B were used, then there would be Significant effects within the Euchan Water valley group and for a few of the nearest private residents.

Table 7.13: Summary of visual effects

Visual receptor	Sensitivity	Level of Effect and Significance
Sanqhuar	High/medium	Minor and Not Significant
Kirkconnel/Kelloholm	High/medium	Minor and Not Significant
Euchan Water valley	High/medium	**Construction: Major/Moderate and Significant – with access route B only** Operational: Moderate and Not Significant
Glen Afton	High/medium	Moderate and Not Significant
Hillwalkers above Glen Afton	**High/medium**	**Major/Moderate and Significant**
Tynron and lower Shinnel Glen	High/medium	Minor and Not Significant
Upper Shinnel Glen Lower Shinnel Glen	**High/medium**	**Moderate and Significant** Minor and Not Significant
Core Paths within Site and Lorg Glen	**High/medium**	**Major/Moderate and Significant**
Water of Ken valley	**High/medium**	**Moderate and Significant**
Hillwalkers Cairnsmore of Carsphairn	High/medium	Moderate and Not Significant
Local Heritage Trail Moniaive to Sanquhar Drove Road	High/medium	Moderate/Minor – Not Significant
Cairn Water valley	High/medium	Moderate/Minor – Not Significant
Hillwalkers in Lowther Hills	High/medium	Moderate/Minor – Not Significant

Visual receptor	Sensitivity	Level of Effect and Significance
A76 – Dumfries to Kilmarnock	Medium	Moderate/Minor – Not Significant
Southern Upland Way	**High**	**Construction: Moderate – Significant** **Operational: Major - Significant**
Striding Arches Sculptures	**High/medium**	**Major - Significant**
East Mount Lowther	High	Moderate/Minor – Not Significant

7.7.7 Designated areas

Sensitive Landscape Character Area (East Ayrshire)

218. Proposed access route A through Hare Hill windfarm extends through the Southern Uplands within the Sensitive Landscape Character Area (SLCA), but the main site and proposed turbines are located just outside this area, as shown on **Figure 7.2** and with ZTV on **Figure 7.12**. Inclusion within the SLCA does not preclude development, but requires that landscape impacts be given particular focus in the preparation of development proposal. Careful consideration has been given to minimise the impacts on these LCTs. The impact on landscape character would occur where there is already a strong influence by wind energy development. Proposed access route A would be the only element within this area and it would have limited impacts. Whilst the scenic quality of the area would be altered it, it would not compromise the overall integrity of the landscape character of the SLCAs. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Thornhills Uplands Regional Scenic Area (Dumfries and Galloway Council)

219. The Thornhills Uplands RSA is located over 1 km east of the nearest turbine and is shown on **Figure 7.2** and with ZTV on **Figure 7.12**. The proposed Development is wholly outside this designation and there would be no physical change to the components of landscape character within this designation. The impacts would be on the visual components of landscape character. Given the very limited intervisibility from the valley LCTs, the key qualities of the RSA would not be Significantly altered. The proposed Development would not result in any Significant material effects upon the Thornhills Uplands RSA and would not compromise the overall integrity of this RSA. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Galloway Hills Regional Scenic Area (Dumfries and Galloway Council)

220. The Galloway Hills RSA is located over 5 km southwest of the nearest turbine and is shown on **Figure 7.2** and with ZTV on **Figure 7.12**. The proposed Development is wholly outside this designation and there would no physical change to the components of landscape character within this designation. The impacts would be on the visual components of landscape character. Whilst there would be some change in the composition of the views from some of the most popular hill summits, the impact would not be Significant and this does not form a key part of this designation. The key qualities of the RSA would not be Significantly altered and, therefore, the proposed Development would not result in any Significant material effects upon the Galloway Hills RSA and would not compromise the overall integrity of this RSA. Further detail is presented within **Technical Appendix 7.6: Not Significant Landscape and Visual Effects**.

Table 7.14: Summary of effects on designated areas

Designated Area	Sensitivity	Significant effect?
East Ayrshire Sensitive Landscape Area	High/Medium	No
Thornhills Uplands Regional Scenic Area	High/Medium	No
Galloway Hills Regional Scenic Area	High/Medium	No

7.8 Cumulative landscape and visual effects

7.8.1 Introduction

221. In line with GLVIA3 (paragraph 7.5) and SNH guidance on Assessing the Cumulative Impact of Onshore Wind Energy Developments (paragraph 33), the assessment of cumulative effects should focus on whether there are any likely Significant cumulative impacts which are reasonably foreseeable and which are likely to influence the decision making of the proposed Development, rather than an assessment of every potential cumulative effect. As recommended by the SNH cumulative guidance, this assessment focusses on the '*additional cumulative change which would be brought about by the proposed development'* (paragraph 70).

222. In this section, the proposed Development is referred to as Euchanhead in order to prevent confusion and differentiate it from other proposed Developments that are being considered.

7.8.2 Assessment scenarios

223. It is important to differentiate between the assessment of cumulative effects arising from Euchanhead with projects that are operational or under construction and have been included as part of the baseline; and those which are consented and can be considered as part of a scenario with some certainty; and those that are proposed and about which there can be little certainty. Accordingly the assessment distinguishes between: the predicted cumulative effects arising from Euchanhead with operational windfarms (which has been included as part of the LVIA as Scenario 1); the effects arising from Euchanhead with the operational and consented wind turbines (Scenario 2); and finally, the effects arising from Euchanhead with operational, consented and other proposed windfarms (Scenario 3). The assessment has not included consideration of proposals at scoping stage, as there is no certainty that these proposals will progress to planning submissions and the nature of the proposed schemes may be subject to change.

224. The scenarios considered within this part of the cumulative assessment here are as follows:

- Scenario 2 (future baseline) – this considers the proposed Development along with all operational and consented developments; and
- Scenario 3 – this considers the proposed Development along with all operational, consented and proposed Developments with a submitted planning application.

225. As noted in **Section 7.3.6**, the potential for Significant cumulative effects would be contained within a 10 km radius and these mainly include those south of the A76 to the Carsphairn Forest and south to the B729 (between Moniaive and Knowehead) and the cumulative windfarms are listed in **Table 7.6**. The location of these potential developments are illustrated on **Figure 7.6**. The cumulative ZTVs presented in **Figures 7.18 – 7.26** replicate the various grouped assessment scenarios to be assessed. The full cumulative situation in the direction of the proposed Development is presented within the visualisations for all viewpoints, within **Volumes 3b and 3c**. The cumulative situation is also included in **Technical Appendix 7.5: Viewpoint Analysis**.

226. Scenario 2 contains six consented developments listed in **Table 7.6**, in addition to the operational baseline. Scenario 3 consists of a further four new renewable energy proposals and changes to two of the consented schemes (increased tip height and turbine location changes). Given the density and potential complexity of the cumulative assessment, SNH has requested that the assessment considers grouped developments in order to simplify the assessment and ZTVs. This has been incorporated into the assessment and ZTVs but left as individual developments or phases on the visualisations for analysis purposes.

7.8.3 Cumulative landscape and visual effects

227. In landscape terms, Significant cumulative effects can occur when the introduction of the proposed Development would: extend the geographic limits of existing character effects; or when its presence would influence prevailing local characterising effects to such an extent whereby the baseline landscape character type/area would be transformed or redefined, resulting in a change to its classification.

228. Euchanhead is located within the Ken unit Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a). The location of other windfarm projects in relation to LCTs within an approximate 10 km radius is illustrated within **Figure 7.15**.

229. Significant cumulative effects on visual amenity would potentially arise where either in combination or sequentially with the assessment scenario, the additional effect of Euchanhead would become visually Significant for the receptor. The location of other windfarm projects in relation to visual receptors is illustrated within **Figure 7.16**. Notable cumulative interactions in Scenario 2, with the consented sites would primarily consist of Lorg and Sanquhar 6, which are located adjacent at either end of Euchanhead. It should be noted that consent for Sanquhar 6 would be withdrawn if Sanquhar II were to be consented and, therefore, only occurs in Scenario 2. Interactions with the consented Sandy Knowe would tend to occur only within Nithsdale or from areas with clear views of Nithsdale. There would be very little interaction with the consented Pencloe due to screening by landform and forestry of the two developments. There would be some cumulative interactions with the Lethans/Glenmuckloch group on the north side of Nithsdale.

230. Notable cumulative interactions in Scenario 3, with other proposals would most notably include Sanquhar II. The potential for Significant impacts with the increased tip height proposal of Lorg would be much more limited, despite its proximity. Cumulative interactions with the windfarms to the south including Cornharrow, Shepherds Rig, Troston Loch and proposed increased height of Glenshimmeroch would be more limited due to the separation distance and screening effects of topography and forestry. Cumulative interactions with those to the west including Pencloe (increased tip height and adjusted turbine locations) and Windy Standard 3 would also be limited due to the screening effects of topography and forestry.

231. The following assessment focuses on the likely Significant cumulative interactions on landscape character and key visual receptors including local residents, settlements, key routes and recreational receptors. The steepness of landform which is characteristic of the Southern Uplands leads to a pattern of visibility where either panoramic views are possible on open high ground or from lower ground where the views are very constrained. This reduces the potential for likely Significant cumulative interactions with many landscape and visual receptors.

Scenario 2: Fully Consented Future Baseline Assessment

Landscape character

232. The following assessment assumes that all the consented development would be constructed as proposed and is present in the assessment baseline. The assessment considers the additional changes which would result from the introduction of Euchanhead.

233. The fully consented baseline without Euchanhead would consist of a group of turbines which include Hare Hill, Sandy Knowe, Sanquhar, Sanquhar 6 (S6) and Whiteside Hill and extends from the upper Nithsdale LCT to the Southern Uplands with and without forestry LCTs. The addition of Euchanhead, which is adjacent to Sanquhar/S6, would extend this group to Lorg, which is adjacent to the southern end of the Euchanhead array. This would create an enlarged renewable energy group from Hare Hill to Lorg which stays within those LCTs already affected. This is a similar effect already noted within the LVIA but is extended north and south to include the two consented sites.

234. Whilst there would be a notable increase in height of the Euchanhead turbines, compared with the others within this Hare Hill/Lorg group, as illustrated in the visualisations this difference would be less apparent from the north, south and east, due to the Euchanhead turbines being in the centre of the group. It should be noted that this group already contains a variety of turbine sizes and generally, the larger the group the easier it tends to be to integrate different turbine sizes effectively. The design ethos remains consistent amongst the group, despite an increase in separation distance required with the larger scale turbines.

235. This enlarged Hare Hill group would remain a similar distance from Twentyshilling Hill and still separated by the Scaur Water glen. Lethans/Glenmuckloch would also remain a similar distance from this group, as Euchanhead is no closer than Sandy Knowe and still separated from the enlarged group by the upper Nithsdale. Wether Hill is located within the same LCT but would remain separate due to the clear separation distance of 5 km from Lorg or Euchanhead. The enlarged Hare Hill/Lorg group would not coalesce with the Windy Standard group (between Afton Reservoir and the A713) to the southwest with a separate landscape unit, separated by Glen Afton.

236. The addition of Euchanhead to the fully consented baseline would remain at Major/Moderate to Moderate effect (Significant) and would not raise the effect.

Visual effects

237. The following assessment assumes that all the consented development would be constructed as proposed and is present in the assessment baseline. The assessment considers the additional changes which would result from the introduction of Euchanhead.

238. Due to the extent of screening by landform and tree cover and the extent of baseline development located between Euchanhead and the receptors to the north and west (settlement in upper Nithsdale, A76, receptors within the Lowther Hills), additional effects as a result of Euchanhead would be rather limited. This is evident in the visualisations from these positions including **Viewpoints 8, 10, 11, 14, 15,16,** and **18**.

239. There would be very little influence within the nearby glens and valleys at Afton, Shinnel and Tynron from consented development and, therefore, the impact would be very similar to that reported for the existing baseline in the main LVIA. This is evident in the visualisations from these positions including **Viewpoints 2, 5,** and **7** and **Additional Wirelines** in **Volumes 3b and 3c** and within **Technical Appendix 7.8: RVAA**. The exception to this would be within parts of the Euchan Water valley and along the Polskeoch Burn where S6 and Lorg would be visible and where Lorg would be visible from parts of the Water of Ken valley. Within the Euchan Water valley, the introduction of Euchanhead would have a similar impact to that reported with the operational baseline (Scenario 1). Within the Polskeoch Burn some of the tops of the Lorg turbines would be visible, but the introduction of Euchanhead in front of these would have a similar impact to that reported within the operational baseline (Scenario 1). Within the Water of Ken valley, there would be views to Lorg from some but not all places. This would introduce a more notable influence on this valley than currently exists. The addition of Euchanhead would further reinforce this effect, often appearing relatively close to Lorg, and would result in the same Moderate effect which would be Significant.

240. The locations where visual receptors would experience the most noticeable cumulative effects with the fully consented baseline would be from surrounding open elevated locations where panoramic views are typical. As illustrated in **Viewpoints 1, 3, 4, 6,** and **9,** from these open summits there would be open views; and the higher the viewpoint, the more extensive the visibility. The addition of Lorg and S6 to the existing baseline would be most notable, as Sandy Knowe and Pencloe would often be screened by landform from these positions. Lethans and Glenmuckloch would often be visible but at greater distance separated by upper Nithsdale and appearing in the background. The receptors likely to be affected by consented developments include predominantly recreational hillwalkers in the surrounding area including those on the Southern Upland Way, upland Striding Arches, Core Paths within the Site, above Glen Afton (Blackcraig), and on Cairnsmore of Carsphairn.

241. From the SUW, Lorg will introduce turbines in close proximity to the route and Euchanhead would also add turbines in close proximity on the other side of the SUW from Lorg, within the mainly afforested section. The S6 turbines would be present in the views which already contain Sanquhar. Sandy Knowe would add a sequential windfarm, mainly visible where the route crosses through upper Nithsdale. Assuming the prior presence of the fully consented baseline, the addition of Euchanhead would add a strong influence of renewable energy development along a section of the route which would already be influenced strongly by renewable energy (Lorg), but would change the experience from passing alongside it, to passing through it. This would also be the case for the operational baseline and the level of impact would remain at Major and Significant.

242. A similar effect with the consented development would occur for those visiting the upland Striding Arches, as illustrated at **Viewpoints 1** and **3**. Lorg would add new turbines in close proximity but the addition of Euchanhead to this baseline would still result in a Major and Significant effect.

243. For users of the Core Paths within the Site and within Lorg Glen, the extent of forestry present along the routes would change the visual amenity which might be available at any one time in any one direction. But given the proximity of Lorg, this is likely to be visible from some locations along these paths. S6 is also in close proximity to some of the routes and is also likely to be visible from some parts of the routes. These consented developments would likely have an influence similar in nature to the impact that the operational sites already have on these routes. The Euchanhead turbines would appear closer to these routes than operational or consented sites and would increase the potential for wind turbines being present when views out are available. As a result, the addition of Euchanhead to this baseline would still result in a Major/Moderate and Significant effect.

244. Those hillwalking above Glen Afton, as illustrated in **Viewpoint 4** on the summit of Blackcraig, would experience views to S6 in close range views to the east and Lorg a bit further away to the southeast. However, this impact would only tend to occur from the summit ridges or within the Hare Hill windfarm and not on the west facing slope rising from Glen Afton. Assuming

the prior presence of the fully consented baseline, the addition of Euchanhead would add a strong influence of renewable energy development from the summits/ridges and would still result in a Major/Moderate effect which would be Significant.

245. Cairnsmore of Carsphairn, as illustrated in **Viewpoint 9** on the summit, is a more elevated summit and as a result would experience views over a greater extent of the area. As a result, the consented baseline would result in more wind energy development visible to the northwest (Benbrack and South Kyle as well as Overhill, Polquhairn and Enoch Hill). Pencloe would be visible behind the Windy Standard group to the north. However, S6 and Sandy Knowe would not be so noticeable. Lorg would be visible to the east. However, it should be noted that these views would only occur on the summit and not on the majority of the popular route to the summit. Euchanhead would appear to the northeast within the extent of pre-existing renewable energy, thereby not increasing its extent. The increased height of the Euchanhead turbines would be noticeable. However, there will be a variety of different turbines sizes already present in this view and the variation tends to be easier to accommodate in these expansive landscapes which include numerous windfarms. The addition of Euchanhead to this baseline would still result in a Moderate effect which would be Not Significant, given the context of the baseline.

Landscape designations

246. With regard to the East Ayrshire Special Landscape Character Areas, the consented Pencloe windfarm would occur within the Southern Uplands with Forestry area, adjacent to Afton and impacts from this would be more related to that development than Euchanhead. As a result, the impact would remain similar to that reported for the operational baseline (Scenario 1).

247. For the Galloway Hills and Thornhill RSA, the impact as a result of adding Euchanhead to the fully consented baseline, would result in Euchanhead filling the gap between Lorg, Sanquhar/S6 and Whiteside Hill, where views of this area are possible. It would be similar in nature to that described with the operational baseline and as a result the level of impact would remain similar.

Scenario 3: Consented Baseline with other Proposals

248. The following assessment assumes that all the operational, under construction and consented development would be constructed as proposed (Scenario 2) plus each of the proposals and that these are present within the baseline. The assessment considers the additional changes which would result from the introduction of Euchanhead.

Lorg Increased Tip Height

249. Lorg is included in Scenario 2 and the only change for Scenario 3 is that all turbines would be 149.9 m to tip, instead of being 130 m to tip. This change would only be noticeable for a few visual receptors and as a result the impact with this proposal would remain very similar to that assessed for Scenario 2 for both landscape and visual receptors.

Sanquhar II

250. As part of the proposal for Sanquhar II, the consent for S6 would be replaced by SII, so both would not be present in the landscape or within views (as presented within the visuals for analysis purposes).

251. **Landscape Character**: In Scenario 3 with Sanquhar II, this proposal would have a similar effect on linking the Hare Hill/Sandy Knowe/Sanquhar/Whiteside Hill group to Lorg, identified in Scenario 2. The addition of Euchanhead to this scenario would increase the density of turbines within the already expanded group but would not cause any further extension or change to local landscape character or the strategic pattern of development. As a result, assuming the prior presence of the fully consented baseline and Sanquhar II, the addition of Euchanhead would result in a reduced Moderate magnitude of change leading to a Moderate/Minor effect which would be Not Significant, given the baseline situation.

252. **Visual Effects**: Given the close proximity of the Sanquhar II and nature of the two proposals, most of the visual receptors affected by Euchanhead would also be affected by Sanquhar II. As illustrated in the **Visualisations in Volumes 3b and 3c** and **Technical Appendix 7.5: Viewpoint Analysis**, in these cases where both developments are substantively present, Euchanhead would generally be enveloped by the larger Sanquhar II development. Whilst this is not exclusively the case for every visual receptor, this would hold true for the majority. Usually Euchanhead would appear within or adjacent to Sanquhar II, increasing the density of turbines visible in the view or as an extension in the view. As a result, the scale of change would be either similar to that of Scenario 2 or reduced in scale due to the presence of Sanquhar II.

253. The exception to this would be in the Lorg Glen/ Water of Ken valley where it is mainly the Euchanhead turbines which are present and more limited presence of Sanquhar II. Sanquhar II would also have a noticeably reduced effect on the upland Striding Arches sculptures than Euchanhead.

Cornharrow

254. **Landscape Character**: This development would sit within the same LCT, adjacent to Wether Hill. Given the 5 km separation distance would be maintained between Lorg/Euchanhead group and the Cornharrow/Wether Hill group the impact on landscape character would remain separate and there would be no further changes to the strategic pattern of wind energy. The addition of Euchanhead to this baseline would not result in additional Significant cumulative landscape effects with this proposal.

255. **Visual Effects**: There are few visual receptors which would obtain views of both Cornharrow and Euchanhead, due to the screening by topography, as demonstrated in CZTV **Figure 7.25,** and it would be reduced further by the extensive forestry/woodland cover. The only combined receptors would be hillwalkers on the SUW, to the upland Striding Arches and on hill summits in the surrounding area. In all cases there would be a clear separation between the developments. Cornharrow would be perceived in the context of Wether Hill, while Euchanhead would be perceived within the larger Hare Hill/ Lorg group to the north.

256. For those along the SUW and visitors to the upland Striding Arches, there would be a notable increase in the combined and successive views of these two proposals at relatively close range from the high points. In addition to these effects, those travelling on the SUW between Stroanpatrick and Black Hill would experience the influence of renewable energy sequentially when moving from one to the other. However, this would also be the case for this Scenario 3as a result of Lorg and Cornharrow, but the addition of Euchanhead would reinforce this Significant effect.

257. For those visiting hill summits in the area, such as on Cairnsmore of Carsphairn, the two developments would be visible at the same time from some parts of the flat summit. A clear separation would be maintained and limited interaction would occur. Assuming the prior presence of the fully consented baseline and Cornharrow, the addition of Euchanhead would result in a similar level of effect as Scenario 2.

Shepherds Rig

258. **Landscape Character**: This development would sit within the same LCT as Lorg and Euchanhead. However, Euchanhead would be located on the opposite side of Lorg and would be not be any closer to Shepherds Rig. A clear separation would be maintained and there would be no further changes to the strategic pattern of wind energy. Therefore, the addition of Euchanhead would not result in additional Significant cumulative landscape effects with this proposal.

259. **Visual Effects**: There are few visual receptors which would obtain views of both Shepherds Rig and Euchanhead, due to the screening by topography, as demonstrated in CZTV **Figure 7.26,** and it would be reduced further by the extensive forestry/woodland cover. The only combined receptors would be those within the Water of Ken valley, hillwalkers on the SUW and on hill summits in the surrounding area. In all cases there would be a clear separation between the developments. Shepherds Rig would be perceived on its own and Euchanhead would be perceived within the larger Hare Hill to Lorg group to the north.

260. For those within the Water of Ken valley, Shepherds Rig would be perceived in the opposite direction, leading to successive or sequential views only. A few turbines of Lorg would also be visible from parts of this valley as noted in Scenario 2. Assuming the prior presence of the fully consented baseline and Shepherds Rig, this scenario would lead to a greater influence of renewable energy then would exist in Scenario 2. Assuming the prior presence of the fully consented baseline and Shepherds Rig, the level of impact resulting from the addition of Euchanhead would remain at Moderate and Significant effect.

261. For those along the SUW, there would be a notable increase in the number of windfarms visible from the route, but with a separation of over 2 km from the SUW, the influence would be much reduced compared to Euchanhead or Lorg. There would be an increase in mainly successive and sequential views of these two proposals. Assuming the prior presence of the fully consented baseline and Shepherds Rig, the level of impact resulting from the addition of Euchanhead would remain at Major and Significant.

262. For those visiting hill summits in the area, such as on Cairnsmore of Carsphairn, the two developments would be visible at the same time from some parts of the flat summit. But they would not interact and would remain clearly separate. Assuming the prior presence of the fully consented baseline and Shepherds Rig, the addition of Euchanhead would result in a similar level of effect as Scenario 2.

Pencloe (2019 increased tip height and amend turbine locations)

263. Pencloe is included in Scenario 2 and the only change for Scenario 3 is that all turbines would be 149.9 m to tip, instead of 125 m to tip and two would be relocated within the site. This change would only be noticeable for a few visual receptors and as a result the impact with this proposal would remain very similar to that assessed for Scenario 2 for both landscape and visual receptors.

Windy Standard 3

264. **Landscape Character**: This development would sit within the same/similar LCT as the rest of the Windy Standard group, but on the western end of the group adjacent to South Kyle. Given the separation distance, screening by intervening landform and forestry, and the rest of the Windy Standard group, the addition of Euchanhead would not alter the local landscape relationships or strategic pattern any further with this development. Additional Significant cumulative effects on landscape character with this proposal are not predicted.

265. **Visual Effects**: As illustrated by the visualisations, there would be few locations where views of both proposals would be available, with the only notable location being **Viewpoint 9** at the summit of Cairnsmore of Carsphairn. Usually this hill itself would screen views of the two proposals, however, from the summit both are possible. Given the degree of separation between the two, a clear separation would be maintained and limited visual interaction would occur. As a result there would be no additional Significant cumulative visual effects.

Potential cumulative combinations

266. **Landscape Character**: The operational pattern of development established a clustered pattern of development within the Southern Uplands. The consented baseline has expanded this further and expanded some groups and also added in some additional developments, such as Lorg. Assuming all of the proposed Developments were consented and constructed, the strategic pattern of wind energy would remain similar. As noted above Euchanhead and Sanquhar II would link Hare Hill, Sanquhar, Sandy Knowe and Whiteside to Lorg. Twentyshilling Hill would remain separate. Cornharrow would join with Wether Hill but remain separate. Shepherds Rig would remain separate. Windy Standard 3 would join the rest of the Windy Standard group and South Kyle/Benbrack. The other groups would remain separate. The existing groups would be expanded further and a few other individual sites would be added.

267. **Visual Effects**: Given the pattern of visibility, these greater combined impacts would tend only be noticed from the highest summits, such as at Cairnsmore of Carsphairn or sequentially from the SUW which visits numerous summits and extends through the Southern Uplands. Most other visual receptors would not tend to experience the full extent of these proposals.

Cumulative summary and conclusions

268. The steepness of landform, which is characteristic of the Southern Uplands, leads to a pattern of visibility where either panoramic views are possible on open high ground or from lower ground where the views are very constrained. This reduces the potential for likely Significant cumulative interactions with many landscape and visual receptors. The cumulative assessment assumes that all the windfarms within each of the Scenarios (2 and 3) would be constructed as proposed and these are present baseline. The cumulative assessment considers the additional changes which would result from the introduction of Euchanhead.

269. With regard to the fully consented baseline (Scenario 2), the addition of Euchanhead would create an enlarged renewable energy group from Hare Hill to Lorg, which is similar to the effect already noted within the LVIA but is extended north and south to include the two consented sites. Whilst there would be a notable increase in height of the Euchanhead turbines, compared with the others within this Hare Hill/Lorg group, this difference would be less apparent due to the Euchanhead turbines being in the centre of the group. It should be noted that this group already contains a variety of turbine sizes and generally, the larger the group the easier it tends to be to integrate different turbines sizes effectively and the design ethos remains consistent. There would be notable visual cumulative interactions within Euchan Water valley, Polskeoch Burn and Water of Ken valley as well as from recreational hillwalkers on the SUW, upland Striding Arches sculptures, Core Paths within the Site, above Glen Afton (Blackcraig), and on Cairnsmore of Carsphairn. In all cases the addition of Euchanhead would further reinforce the increased influence from renewable energy but would result in the same level of effect reported for Scenario 1.

270. With regard to the other proposals, these are considered in turn, in combination with the fully consented baseline. The most notable cumulative effects would occur with Sanquhar II which is adjacent to Euchanhead. In the case where both developments are substantively present, Euchanhead would generally be enveloped by the larger Sanquhar II development,

appearing within or adjacent to Sanquhar II, increasing the density of turbines visible or as an extension. The exception to this would be in the Lorg Glen/ Water of Ken valley where it is mainly the Euchanhead turbines which are present or at the upland Striding Arches sculptures where Euchanhead has the greater influence. Assuming the prior presence of this development in the landscape, the levels of effect resulting from the addition of Euchanhead would tend to be similar or reduced in level, due to the prior presence of Sanquhar II (along with the fully consented baseline) within the local landscape.

271. With regard to the other proposals, the addition of Euchanhead would further reinforce the increased influence from renewable energy but would result in the same level of effect reported for Scenario 2.

7.9 Night-time effects

7.9.1 Summary of visible aviation lighting requirements and mitigation

272. The proposed Development will require visible aviation lighting. As set out within **Technical Appendix 15.3**: **Indicative Aviation Lighting Landscape and Visual Impact Mitigation Plan (ALLVIMP**) and the aviation section of **Chapter 15**, the current Civil Aviation Authority (CAA) policy statement (July 2017) requires that the lights will comprise a single 2000 candela steady red light mounted on the nacelle and a 32 candela steady red light mounted around the tower (three are required so as to be visible in all directions) at half the hub height.

273. Unlike many aviation lights which currently exist in Scotland, such as on large TV masts, bridges and some existing wind turbines, the lights proposed would include some mitigation. As noted in **Technical Appendix 15.3 ALLVIMP**, this includes automatic (controlled by sensors installed on the turbines) dimming of the lights to a nominal intensity of 200 candela during periods of meteorological visibility in excess of 5 km. This embedded mitigation is included within this assessment.

274. As noted in **Technical Appendix 15.3: ALLVIMP**, the switching on and off of lights would be controlled by a timer 30 minutes after sunset until 30 minutes before sunrise, and not by photocells or similar that respond to particular light levels, thereby not incurring effects in the daytime.

275. As noted in **Technical Appendix 15.3: ALLVIMP,** an aircraft detection lighting system is proposed as further mitigation following further discussions with the regulator and has not been assessed separately within the assessment.

7.9.2 Approach and scope of the assessment

276. The methodology used in this assessment is consistent with Guidelines of Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) and that in **Technical Appendix 7.1**: **LVIA Methodology**.

277. There is a distinction between light pollution or nuisance and the effect of lighting on the character and amenity of the landscape at night. This is not a technical lighting assessment but focusses on the night-time effects as a result of the introduction of new artificial lighting within the landscape, with consequent effects on the night character and visual amenity of the area.

278. In this context, effects on landscape character are almost exclusively concerned with perceptions of darkness and remoteness as the key characteristic constituent elements of landscapes are generally obscured after dark. **Figure 7.4** illustrates the existing light environment with landscape character overlaid.

279. The aviation lighting ZTVs are presented in **Figures 7.12** and **7.13**, with and without screening. These ZTVs illustrate the potential for visibility of the nacelle lights (same as the hub height ZTVs) and tower lights combined. **Figure 7.17** is an aviation lighting ZTV which focussed on the Merrick WLA and Galloway Forest Dark Sky Park, which was identified by Consultees as an important night-time receptor. All wirelines have included the potential visibility of lighting. Visualisations at dawn/dusk have been prepared for **Viewpoints 7, 9, and 11** and include the embedded mitigation noted above as well as potential cumulative night-time impacts. These have been selected as representative of potential landscape and visual receptors which are most likely to be affected at night from a range of directions and elevations. **Additional Wirelines** in **Volume 3c** from the summit of Merrick have also been included.

7.9.3 Potential effects

280. The aviation lights would be visible as points of light, especially where there would be a high degree of contrast at the viewpoint (i.e. the lights were seen against a dark sky / dark landmass or where there would be little or no existing artificial light sources present).

281. During periods of greater ambient light, (e.g. sunset, twilight, dusk, dawn) there would be a reduced effect as the contrast of the aviation lighting against the background would be less. The hours of darkness vary considerably across Scotland. The lights would be switched on 30 minutes after sunset until 30 minutes before sunrise. Therefore, in Sanquhar on the longest day on 21st June, the lights would be on between 22:31 and 04:03 but there would be no full darkness. By contrast on the shortest day on 21st December, the lights would be on between 16:17 and 08:11 and full darkness is c.12 hours. This variation means that in summer the lighting would not be switched on when people are predominantly active and contrast with the background would be reduced. However, in winter the lighting would be switched on during peak active times.

282. Due to the location of the lighting on the turbines relative to the rotating blades, this can result in a blinking effect caused by the screening effect of blades as they travel past the lights. These effects are dependent upon the rotation speed of the blades, direction of wind and the location of the receptor. Where a number of lit turbines are present in the view, such blinking is likely to be at the same frequency but uncoordinated.

7.9.4 Sensitivity of receptors

283. For landscape character areas, susceptibility is judged based on the degree to which they are currently characterised by darkness. Value is judged based on the same factors as for the daytime assessment unless suggested otherwise. For example, identification of a dark sky park which would increase value; or where factors that contribute to value in daytime are irrelevant at night – which may reduce value at night.

284. For visual receptors, the value attached to night-time views are considered to be low unless there is a particular feature that can be best appreciated in the hours of darkness. This may include views of stars and the night sky that are only possible in particularly dark areas or views of well-known landmarks that are lit up at night. The susceptibility of visual receptors also differs at night reflecting the different activities people undertake in the hours of darkness. For example, drivers using roads at night tend to be more focused on the road and the area illuminated by their headlights than during the day and may have oncoming headlights, cats eyes or other reflective signage drawing their attention, resulting in lower susceptibility. This is particularly the case on unlit rural roads that may be narrow and winding. On the other hand, people taking part in activities requiring darkness, such as stargazing, would be of higher susceptibility.

7.9.5 Existing night-time environment of the study area

285. The existing environment at night is predominantly very dark, particularly the southern half of the study area, with more lighting present in upper Nithsdale along the A76 corridor. **Figure 7.4** which uses satellite data to map light pollution confirms this.

286. Part of the Site is located within the Transition Zone of the Galloway Dark Sky Park, which extends around 16 km beyond the park boundary, with the proposed turbines all located beyond 14 km from the outer park boundary and over 22 km away from the core area of the Dark Sky Park. The Merrick Wild Land Area is located within the Core Area of the Dark Sky Park, c.25 km away. These areas can be sensitive to changes at night.

287. The Crawick Multiverse is located just north, above Sanquhar, c.10 km away and runs night-time star gazing activities, which can be sensitive to changes at night.

7.9.6 Potential cumulative night-time impacts

288. Consultees have requested that worst case night-time cumulative impacts be considered. Of the cumulative developments within the detailed cumulative assessment those which have, or are over 150 m where obstacle lighting would be required include:

- Windy Standard 2 (Extension) – Operational site of 100 m & 120 m to tip turbines fitted with 25 cd flashing nacelle light in a cardinal arrangement (N,S,E & W) but due to the flashing not being synchronised, all four may not be shown illuminated on the baseline night-time photography so this is illustrated in the cumulative night-time montages;
- Lethans – recently consented where all 22 turbines (176-220 m to tip) require lighting and mitigation proposed includes reduced intensity in good visibility and direction intensity reduction;

- Sanquhar II – proposal of 44 turbines, 42 of which are 200 m to tip and require nacelle and tower lighting; and
- Windy Standard 3 – proposal of 20 turbines, 12 of which would be 177.5 m to tip which requires nacelle and hub lighting and mitigation proposed includes reduced intensity lighting.

289. There would also be a few other windfarms in the study area over 150 m where obstacle lighting would be required, including:

- Glenshimmeroch – consented turbines did not require lighting but proposed increased height turbines 160/182 m to tip would require nacelle and tower lighting and mitigation stated includes reduced intensity, direction intensity reduction, timed lighting as well as the possibility of radar activated lighting;
- Fell proposal – 9 turbines 180/200 m to tip and mitigation proposed includes reduced intensity, direction intensity reduction, as well as the possibility of radar activated lighting; and
- Kennoxhead and Extension – 19 consented turbines 180 m to tip and a further 8 turbines proposed in the extension at the same height and mitigation proposed includes reduced intensity, direction intensity reduction as well as the possibility of either a reduced lighting scheme or radar activated lighting.

7.9.7 Viewpoint analysis

290. The night-time viewpoint analysis for all viewpoints is located within **Technical Appendix 7.7: Night-time Viewpoint Analysis**. Receptors are different from the daytime analysis and the analysis includes cumulative.

7.9.8 Landscape effects

291. In terms of the potential for landscape character effects at night, these are almost exclusively concerned with perceptions of darkness, wildness and remoteness as the remaining key characteristic constituent elements of landscapes are generally obscured after dark. The following landscape character types were assessed either, as having Significant daytime effects or identified as being particularly susceptible to night-time impacts as a result of a very high degree of wildness.

Ken unit Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a)

292. There are no key characteristics which relate to wildness, which reduces the susceptibility to night-time effects. However, this LCT can '*feel remote'* particularly in the interior of these landscapes and is very dark, as illustrated by **Figure 7.4**, and parts are located within the transition zone of the Dark Sky Park. This landscape is considered to be of medium/low susceptibility and community value leading to a Medium/low sensitivity.

293. The baseline at night is very dark and as illustrated on the ZTVs for Aviation Lighting **Figures 7.12 - 7.13**, many of the areas influenced in the day would also be affected at night by the aviation lights. However, this would be limited to mainly the open summits and hill slopes facing towards the proposed Development within this heavily afforested landscape. From the open areas, the reduction in intensity of the nacelle lighting in good visibility would reduce the brightness of the lighting and thereby reduce the influence of the lighting on local landscape, but any visible lighting would still contrast with the dark baseline.

294. The introduction of aviation lighting would influence the Ken unit of this landscape, especially within the open areas. However, the extent of commercial forestry would limit areas where lights may be experienced and moderate this influence. There would be a Large/Medium scale of change over an Intermediate extent of this unit. These changes are considered to be Permanent which would lead to a Substantial/Moderate magnitude of change within the Ken unit. For this LCT of Medium/low sensitivity, this would lead to a Major/Moderate to Moderate effect, which would be Significant. However, this effect would be confined within the Ken unit.

295. **Cumulative effects:** Night-time cumulative effects with the consented Lethans would be limited due to the separation distance and differing landscape units. Windy Standard 3 would be located in the same LCT but in the Carsphairn unit on the other side of Cairnsmore of Carsphairn, rather than the Ken unit and, therefore, cumulative night-time impacts are likely to be limited. There would be the potential for notable cumulative night-time impacts with Sanquhar II, as this is also located within the Ken unit and would add 44 lit turbines into the northern part of the Ken unit. The addition of Euchanhead would increase the number present to a total of 65 lit turbines, but they would be located amongst the Sanquhar II turbines, thereby concentrating the impact rather than extending it. Assuming the prior presence of the fully consented baseline and Sanquhar II, the addition of Euchanhead would lead to a Medium scale of change over a Localised extent of this unit. These changes are considered to be Permanent which would lead to a Moderate magnitude of change within the Ken unit. For this LCT of Medium/low sensitivity, this would lead to a Moderate effect, which would be Not Significant, assuming the full extent of Sanquhar II lighting was present.

296. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be on would be so limited as to reduce the magnitude of change to Slight/Negligible resulting in a Minor/Negligible level of effect for Euchanhead. This effect would be Not Significant.

Southern Uplands – Ayrshire (SNH 81/ EA20a)

297. One of the key characteristics relates to the landscape as being '*Expansive, remote and largely untamed...*', which comes from the 1998 LCA. However, as illustrated on **Figure 7.15,** the unit east of Glen Afton is now strongly influenced by wind energy including Hare Hill and the Windy Standard group and the more recent EAWLCS states, "*operational wind farm development in these uplands and within close proximity in Dumfries and Galloway, together with nearby extensive commercial forestry inhibits a strong sense of wildness*". Therefore, this characteristic is not expressed as strongly here as in other parts of this LCT. The area to the east of Glen Afton is very dark, as illustrated by **Figure 7.4**, but is not within the transition zone of the Dark Sky Park. This landscape is considered to be of medium/low susceptibility and regional value leading to a Medium sensitivity.

298. The baseline at night is very dark with some influence from nearby settlement and possibly from the cardinal lights on Windy Standard 2. As illustrated on the ZTVs for Aviation Lighting **Figures 7.12-13**, many of the areas influenced in the day would also be affected at night by the aviation lights. However, this would be limited to areas which are already directly affected by wind energy development or nearby summits/hill slopes facing towards the proposed Development which no longer strongly express the '*remote and largely untamed'* characteristics. From these limited areas which would obtain views of the aviation lighting within the adjacent forestry, the reduction in intensity of the nacelle lighting in good visibility would reduce the brightness of the lighting and thereby reduce the influence of the lighting on this part of the landscape, but any visible lighting would still contrast with the dark baseline in this part of the LCT.

299. The introduction of aviation lighting would reduce, even further, this part of the landscape expressing the '*remote and largely untamed'* characteristics at night, which is part of the baseline landscape character for this landscape type as a whole. There would be a Large reducing to Medium scale of change over an Intermediate extent of this unit. These changes are considered to be Permanent which would lead to a Substantial/Moderate magnitude of change within the Southern Uplands-Ayrshire. For this LCT of Medium sensitivity, this would lead to a Major/Moderate effect, which would be Significant. However, this effect would be confined within the area east of Glen Afton. **Cumulative effects:** Night-time cumulative effects with the consented Lethans would be limited due to the separation distance and differing landscape units. Windy Standard 3 would be located in a different LCT over 4.5 km away on the south western side of the Windy Standard group and combined visibility of both sites is unlikely to be widespread and, therefore, the impacts would be more limited. There would be the potential for notable cumulative night-time impacts with Sanquhar II, in the same area as Euchanhead which would add 44 lit turbines into this and the adjacent landscape unit. The addition of Euchanhead would increase the number present to a total of 65, but would be located amongst the Sanquhar II turbines, thereby concentrating the impact rather than extending it. Assuming the prior presence of the fully consented baseline and Sanquhar II, the addition of Euchanhead would lead to a Medium/small scale of change over a Localised extent of this unit. These changes are considered to be Permanent which would lead to a Moderate/Minor magnitude of change within the Ken unit. For this LCT of Medium sensitivity, this would lead to a Moderate/Minor effect, which would be Not Significant, assuming the full extent of Sanquhar II lighting was present.

300. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be on would be so limited as to reduce the magnitude of change to Slight/Negligible resulting in a Minor level of effect for Euchanhead. This effect would be Not Significant.

Nithsdale unit Southern Uplands – Dumfries and Galloway (SNH 177/D&G 19)

301. There are no key characteristics which relate to wildness, which reduces the susceptibility to night-time effects. However, this LCT does have a '*strong wild character'* but the sense of remoteness can be limited nearer areas of large scale commercial forestry or wind energy development. It also is very dark but not located within the transition zone of the Dark Sky Park. This landscape is considered to be of medium susceptibility and regional value leading to a Medium sensitivity.

302. The baseline at night is very dark with some influence from nearby settlement, as illustrated by **Figure 7.4**. As illustrated on the ZTVs for Aviation Lighting **Figures 7.12-13**, many of the areas influenced in the day would also be affected at night by the aviation lights. However, this would generally occur in areas which are already affected by wind energy development or nearby summits/hill slopes facing towards the proposed Development which no longer strongly express the '*strong wild character*'. From these areas which would obtain views of the aviation lighting, the reduction in intensity of the nacelle lighting

would reduce the brightness of the lighting and thereby reduce the influence of the lighting on this part of the landscape, but any visible lighting would still contrast with the dark baseline in this part of the LCT.

303. The introduction of aviation lighting would reduce, even further, this part of the landscape expressing the '*strong wild character'* at night, which is part of the baseline landscape character for this landscape type as a whole. There would be a Large reducing to Medium scale of change within a Wide extent of this area. These changes are considered to be Permanent which would lead to a Substantial/Moderate magnitude of change. For this LCT of Medium sensitivity, this would lead to a Major/Moderate effect, which would be Significant. However, this effect would be confined within the Nithsdale unit. **Cumulative effects:** Night-time cumulative effects with the consented Lethans would be limited due to the separation distance and differing landscape units. There would be the potential for notable cumulative night-time impacts with Sanquhar II, where it would add 45 lit turbines into this and the adjacent landscape unit. The addition of Euchanhead within the Ken unit would increase the number present to a total of 65, but would be located amongst the Sanquhar II turbines, thereby concentrating the impact rather than extending it. Assuming the prior presence of the fully consented baseline, Windy Standard 3 and Sanquhar II, the addition of Euchanhead would lead to a Medium/small scale of change over an Intermediate extent of this unit. These changes are considered to be Permanent which would lead to a Moderate/slight magnitude of change. For this LCT of Medium sensitivity, this would lead to a Moderate/Minor effect, which would be Not Significant, assuming the full extent of Sanquhar II lighting was present.

304. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be lit would be so limited as to reduce the magnitude of change to Slight/Negligible resulting in a Minor level of effect for Euchanhead. This effect would be Not Significant.

Carsphairn unit Southern Uplands – Dumfries and Galloway (SNH 177/D&G 19)

305. There are no key characteristics which relate to wildness, which reduces the susceptibility to night-time effects. However, this LCT does have a '*strong wild character'* but the sense of remoteness can be limited nearer areas of large scale commercial forestry or wind energy development. It also is very dark (located within the transition zone of the Dark Sky Park). This landscape is considered to be of medium susceptibility and regional value leading to a Medium sensitivity.

306. The baseline at night is very dark, as illustrated by **Figure 7.4**, with possibly some influence from the cardinal lights on Windy Standard 2. As illustrated on the ZTVs for Aviation Lighting **Figures 7.12-13**, many of the areas influenced in the day would also be affected at night by the aviation lights. However, this would generally occur in areas which are already affected by wind energy development or nearby summits/hill slopes facing towards the proposed Development which no longer strongly express the '*strong wild character'*. From these areas which would obtain views of the aviation lighting, the reduction in intensity of the nacelle lighting would reduce the brightness of the lighting and thereby reduce the influence of the lighting on this part of the landscape, but any visible lighting would still contrast with the dark baseline in this part of the LCT.

307. The introduction of aviation lighting would reduce, even further, this part of the landscape expressing the '*strong wild character'* at night, which is part of the baseline landscape character for this landscape type as a whole. There would be a Large reducing to Medium scale of change within an Intermediate extent of this unit. These changes are considered to be Permanent which would lead to a Substantial/Moderate magnitude of change within the Carsphairn. For this LCT of Medium sensitivity, this would lead to a Major/Moderate effect, which would be Significant. However, this effect would be confined to this unit.

308. **Cumulative effects:** Night-time cumulative effects with the consented Lethans would be limited due to the separation distance and differing landscape units. Windy Standard 3 would be located within the adjacent LCT, on the south western side of the Windy Standard group and would have some influence the Carsphairn unit. There would be the potential for some cumulative night-time impacts with Sanquhar II, where it would add 44 lit turbines into a nearby landscape unit. The addition of Euchanhead within the Ken unit would increase the number present to a total of 65 lit turbines, but would be located amongst the Sanquhar II turbines, thereby concentrating the impact rather than extending it. Assuming the prior presence of the fully consented baseline, Windy Standard 3 and Sanquhar II, the addition of Euchanhead would lead to a Medium/small scale of change over a Wide extent of this unit. These changes are considered to be Permanent which would lead to a Moderate/Minor magnitude of change. For this LCT of Medium sensitivity, this would lead to a Moderate/Minor effect, which would be Not Significant, assuming the full extent of Sanquhar II lighting was present.

309. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be lit would be so limited as to reduce the magnitude of change to Slight/Negligible resulting in a Minor level of effect for Euchanhead. This effect would be Not Significant.

Ken unit Narrow Wooded River Valley – Dumfries and Galloway (SNH 160/D&G 4)

310. There are no key characteristics which relate to wildness, which reduces the susceptibility to night-time effects. However, the Ken unit is one of the valleys which are '*more secluded, verging on the remote*.' It also is very dark, as illustrated by **Figure 7.4**, and the Ken unit is located within the transition zone of the Dark Sky Park. This landscape is considered to be of medium susceptibility and community value leading to a Medium sensitivity.

311. The baseline at night is very dark and as illustrated on the ZTVs for Aviation Lighting **Figures 7.12 - 7.13**, many of the areas influenced in the day would also be affected at night by the aviation lights. However, given the extent of forestry and tree cover within the valley the areas which would be influenced would be limited, mainly the valley floor some of the more open side slopes. Given the screening by intervening landform, the number of tower and nacelle lights visible from within this valley would generally be rather limited (T6-T11), thereby reducing the influence. However, the upper Water of Ken valley is a valley which strongly expresses the '*more secluded, verging on the remote'* characteristic typical of this LCT. The reduction in intensity of the nacelle lighting would reduce the brightness of the lighting and, thereby, reduce the influence of the lighting on local landscape. However, any visible lighting would still contrast with the very dark baseline.

312. The introduction of aviation lighting would influence the Ken unit of this landscape, especially within the valley bottom. However, the extent of screening by landform and extent of commercial forestry and tree cover would moderate this influence. There would be a Medium scale of change over an Intermediate extent of this unit. These changes are considered to be Permanent which would lead to a Moderate magnitude of change within the Ken unit. For this LCT of High/Medium sensitivity, this would lead to a Moderate effect, which would be Significant. However, this effect would be confined within the Ken unit.

313. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be on would be so limited as to reduce the magnitude of change to Slight/Negligible resulting in a Minor level of effect which would be Not Significant.

314. **Cumulative effects**: There would be no night-time cumulative effects with the consented Lethans or proposed Windy Standard 3 due to screening by landform. There would only be a very limited number of aviation lights visible from Sanquhar II, being predominantly screened by landform. As a result, there would be no Significant night-time cumulative effects.

7.9.9 Visual effects

315. The impact on visual receptors at night is different from the impact in the daytime presented in the main LVIA. The receptors potentially affected are different and their sensitivity may also be different.

316. Residents would remain of similar sensitivity. However, road users would have a low value to the view, as there is no amenity value from the roads at night in this area, which reduces their overall sensitivity. In terms of recreational users, long distance paths, core paths, users of tourist routes and sculpture trails are unlikely to be used at night and would not have any amenity value and therefore are not considered. However, recreational users specifically gazing at the night sky, such as those in the Galloway Dark Sky Park, would be sensitive to changes in the night sky and have been included as the main recreational users.

Residents and settlements

317. The effect on those nearest residents within 5 km has been included within the **Technical Appendix 7.8: RVAA**.

318. As Illustrated in the ZTVs, visualisations and the main LVIA the impacts on nearest settlements would be very limited. From Kirkconnel/Kelloholm and Sanquhar only a few of the nacelle lights would be visible to the south 7.5-10 km away. Residents in these settlements would experience only a small/negligible scale of change given the extent of lighting within each of the settlements, over an Intermediate extent of the settlements which would be permanent. The magnitude of change would be Slight/Negligible which, for a receptor of high/medium sensitivity, would result in a Minor effect (Not Significant).

319. For the few isolated properties within upper Shinnel Glen of high/medium sensitivity, the baseline is very dark. A few of the aviation lights would be visible within the glen and the impact at the upper part of the glen is illustrated with the night-time montage for **Viewpoint 7** near Auchenbrack. The reduced intensity mitigation during good visibility, would reduce the brightness of these lights noticeably but would still be present in views. The scale of change would be Medium over an Intermediate extent of this group and the Permanent change would result in a Moderate magnitude of change. For this receptor of High/medium sensitivity, this would result in a Moderate and Significant effect.

320. For the few residents within the Water of Ken valley of high/medium sensitivity, the baseline is very dark. Five or six lights of the proposed Development would be visible in the central part of the array (T6-T11) around 8 km away. The reduced intensity mitigation would reduce the brightness of these lights noticeably but would still be present in views. The scale of change would be Medium over an Intermediate extent of this group and the Permanent change would result in a Moderate magnitude of change. For this receptor of High/medium sensitivity, this would result in a Moderate and Significant effect.

321. **Cumulative effects**: There would be no night-time cumulative effects with any consented developments. Only a few of the aviation lights of Sanquhar II would be visible, alongside, a few of the Euchanhead lights. Assuming the prior presence of the fully consented baseline, and Sanquhar II, the addition of Euchanhead would lead to a Medium scale of change over an Intermediate extent of this group and the Permanent change would result in a Moderate magnitude of change. For this receptor of High/medium sensitivity, this would result in a Moderate and Significant effect.

322. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be on would be so limited as to reduce the magnitude of change for residents to Negligible resulting in a Minor/Negligible level of effect for Euchanhead which would be Not Significant.

Galloway Dark Sky Park

323. Visual receptors within the Dark Sky Park would be considered to be of High/medium sensitivity. This results from a high susceptibility to the changes in nightscape and these views would be considered of Regional value, being clearly set out in local planning policy within DGC and EAC.

324. Part of the Site is located within the transition zone of the Dark Sky Park, but all proposed turbines are located 14 km or more from the outer park boundary and over 22 km from the core area. Most visual receptors within the Dark Sky Park, as identified on the Dark Skies Leaflet produced by the Forestry Commission Scotland in 2010 and **Figure 7.17**, (including the observatory at Craigengillian) would have no potential visibility the proposed Development. The exception to this would be the summit of Brockloch Hill within the Galloway Red Deer Range, where up to eight nacelles on the eastern end of the array would be visible above the horizon over 30 km away to the northeast. The embedded reduced intensity mitigation would reduce the brightness of these lights noticeably during periods of good visibility, but it would still be present in views from the summit only. The scale of change would be Small over a Limited extent of the Deer Range and the Permanent change would result in a Slight/Negligible magnitude of change. For this receptor of High/medium sensitivity, this would result in a Moderate/Minor but Not Significant effect.

325. It should be noted that there would be limited intervisibility within the park and no other visual receptors would be affected.

326. **Cumulative effects:** There would be very limited visibility of Euchanhead from visual receptors within the Dark Sky Park, which would limit the potential for cumulative effects. From Brockloch Hill within the Galloway Red Deer Range, there would also be a few lights visible from Sanquhar II, but would not result in a Significant cumulative effect.

327. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be lit would be so limited as to reduce the magnitude of change to Negligible resulting in a Minor/Negligible level of effect for Euchanhead. This effect would be Not Significant.

Crawick Multiverse

328. Crawick Multiverse is located just north, above Sanquhar, c.10 km away and occasionally runs night-time star gazing activities to compliment the sculpture which is normally only open during the day. Given that these events are to appreciate the night sky, the susceptibility to turbine lighting would be high. The site is not covered by any landscape designation and, although locally promoted, there is no wider recognition of its value as a stargazing location. It is judged to be of Community value and overall would be of High/Medium sensitivity.

329. Views of turbine lights are only likely to notable from on top of the mounded landforms and elevated northern end of the site from which settlement lighting at Sanquhar and Kelloholm/Kirkconnel is visible in the same direction. From these most elevated locations, most of the nacelle lights and some of the tower lights would be visible just above the skyline to the southwest, looking across Nithsdale. The impact would be similar in nature to that illustrated in **Viewpoint 14** and the night-time visualisation from **Viewpoint 11**, but there would be fewer lights visible from this latter location. The reduced intensity mitigation would reduce the brightness of these lights noticeably during good visibility but would still be present in views. Lights would not be located in a position where they would interfere with observations of the night sky which tend to involve looking upwards rather than towards the horizon in a horizontal plane.

330. The scale of change would be Small over an Intermediate extent of this receptor and the Permanent change would result in a Slight magnitude of change. For this receptor of High/Medium sensitivity, this would result in a Moderate/Minor effect (Not Significant).

331. **Cumulative effects**: A few of the consented Lethans nacelle lights may be theoretically visible to the west, but likely to be partially screened by woodland to the west of the site. Many of the Sanquhar II lights would be visible where open views are possible to the southwest. The addition of Euchanhead would increase the number visible amongst the Sanquhar II group, thereby concentrating the impact rather than extending it. The impact would be similar in nature to that illustrated in **Viewpoint 14** and the night-time visualisation from **Viewpoint 11**, but there would be fewer lights visible from this location. Assuming the prior presence of the fully consented baseline and Sanquhar II, the addition of Euchanhead would lead to a Small/Negligible scale of change over an Intermediate extent of this receptor. These changes are considered to be Permanent which would lead to a Slight/Negligible magnitude of change. For this receptor of High/Medium sensitivity, this would result in a Minor (Not Significant) effect.

332. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be lit would be so limited as to reduce the magnitude of change to Negligible resulting in a Minor/Negligible level of effect for Euchanhead. This effect would be Not Significant.

7.9.10 Impact on designated or valued landscapes

Merrick Wild Land Area

333. This area has been identified as having some of the strongest wild land qualities within Scotland. It is also located within the Galloway Forest Dark Sky Park and Galloway Hills RSA. As a result, the susceptibility to night-time impacts would be High and it would be of National value at night leading to a High sensitivity at night.

334. This area is located 25-35 km away from the Proposed development and as illustrated on the ZTVs and **Figure 7.17**, visibility would be confined to a few of the highest east facing hill slopes in the northern part of the WLA (near Shalloch of Minnoch) and a few summits including Merrick, as illustrated in the **Additional Wireline**s in **Volume 3c** from Merrick summit. From here some, but not all, of the nacelle lights would appear below or near the horizon itself over 29 km away and a few of the tower lights to the northeast, in the direction of main settlements.

335. Below are the key attributes and qualities of the Merrick WLA with the potential for impacts as a result of the proposed Development.

Table 7:15: Key attributes and qualities of the Merrick WLA

Key Attributes and Qualities[2]	Potential Impacts at night.
A relatively small wild land area but with a strong perception of naturalness, few human artefacts and little contemporary land use	Given the separation distance there would be little or no impact on the perception of naturalness or contemporary land uses within this WLA.
A wild land area that contrasts with the adjacent Forest Park, especially in terms of human activity	Given the separation distance and limited extent of intervisibility, there would be little or no impact on this attribute.

[2] 01 Merrick Description of Wild Land Area – 2017, SNH

Key Attributes and Qualities[2]	Potential Impacts at night.
Human elements are widely visible from the tops and outermost slopes but lower-lying areas have a much stronger sense of remoteness	Given the separation distance and limited extent of intervisibility (mainly from the summits only which tend not to be visited at night), there would be little reduction in the '*sense of sanctuary'*. As illustrated in **Figure 7.17**, There would be no intervisibility with the centre swathe of lower lying moorland and lochs.
A rugged landscape that provides a surprisingly high degree of physical challenge	There would be no impact on this quality.

336. Whilst it is acknowledged that there would be distant intervisibility with some of the aviation lighting at night, the potential impacts on the key attributes and qualities of the WLA would be limited given the separation distance of over 25 km and limited extent of intervisibility. Despite the high sensitivity of this receptor at night, there would be no Significant impacts on any of the key attributes and qualities of the Merrick WLA as a result of the proposed Development.

337. **Cumulative effects:** As illustrated in the **Additional Wireline** in **Volume 3c** from Merrick, to the northeast there are/would be some very distant lights (c.21 km away) visible from Windy Standard 2, Lethans, Kennockhead and Windy Standard 3 in a group to the left side of Cairnsmore of Carsphairn. The Sanquhar II turbines would be visible adjacent to this group, extending the lighting to the other side of Cairnsmore of Carsphairn with some screening provided by it. This combined group would extend for approximately 25 degrees of the view, over 25 km away and assuming all were consented and built as proposed (no further mitigation incorporated) would become a new notable feature in the nightscape to the northeast. The Euchanhead lights would appear behind Cairnsmore of Carsphairn which would screen some of these lights but in front of the Sanquhar II lights, thereby, concentrating the impact rather than extending it out wider.

338. Whilst it is acknowledged that if the fully consented baseline and all the current proposals to the northeast were built without any further mitigation, this would become a new notable distant feature in the nightscape to the northeast. However, the key attributes of the Merrick WLA would remain intact and not be Significantly altered or affected. Therefore, Significant cumulative effects are not predicted as a result of the addition of Euchanhead turbine lighting to the cumulative scenarios.

339. **Additional Mitigation**: If an aircraft detection lighting system were to be implemented, the duration the lights would be lit would be so limited as to reduce the magnitude of change to Negligible resulting in no impacts on any of the key attributes and qualities of the Merrick WLA as a result of Euchanhead.

East Ayrshire Special Landscape Character Area

340. There are only limited references to valued elements of landscape character which would be affected at night, as most refer to the recreational value of the SLCA, which would not occur at night. However, there is reference to Afton Glen being '*a relatively remote and tranquil landscape'*. As illustrated in the ZTVs and visualisations, the proposed Development would add only a few aviation lights (T7, 9 and 10) visible into this valley and, therefore, the impact on the Upland Glen character would be limited. The reduced intensity mitigation would reduce the brightness of these lights noticeably but would still be present in views.

341. There would be more noticeable impacts on the nearest character areas of the East Ayrshire Southern Uplands, as noted in the impacts on that LCT in **section 7.9.8**. However, the recreational users mentioned in this part of the designation would not be present at night. Therefore, the impacts on this designation would be consistent with those on the landscape character within this designation.

Thornhill Uplands RSA

342. There are no highlighted wild or remote qualities identified as being a reason for the designation of this as an RSA and, therefore, there would be no Significant impacts as a result of the aviation lighting at night.

Galloway Hills RSA

343. There are limited references to wild or remote qualities identified as being the reason for the designation, but it is noted that the '*central area is uninhabited and accessible only via forestry roads or on foot'*. The proposed Development would not affect this aspect of the designated area. Most references refer to the visual qualities which would not be present at night to be affected. Therefore, there would be no Significant impacts as a result of the aviation lighting at night.

7.9.11 Night-time summary and conclusions

344. The proposed Development will require visible aviation lighting on the nacelles and towers. A range of proven mitigation options have been considered in relation to night-time impacts, as set out within ALLVIMP in **Technical Appendix 15.3**. Embedded mitigation within the proposed Development will include a reduced intensity light (from 2000 cd to 200 cd) in good visibility on the nacelle. Additional mitigation would include an aircraft detection lighting system to further mitigate the potentially Significant impacts identified.

345. With just the embedded mitigation included in the proposed Development, the assessment concludes that there would be Significant night-time impacts on the nearest Southern Uplands and Narrow Wooded River Valley landscapes and residents within upper Shinnel Glen and upper Water of Ken valley. Impacts on the distant Merrick Wild Land or visitors to the Galloway Dark Sky Park would not be Significantly affected. However, with the additional mitigation of an aircraft detection lighting system, all these effects would reduce to Minor or Minor/Negligible and Not Significant, due to the short duration the lights would be lit.

Table 7.16: Summary of key night-time effects

Receptor	Sensitivity	Night-time effect with Embedded Mitigation	Residual Effect with Additional Mitigation of Aircraft Detection Lighting
Ken unit Southern Uplands with Forest – Dumfries and Galloway (SNH 178/D&G 19a)	**Medium/low**	**Major/Moderate to Moderate and Significant**	Minor/Negligible and Not Significant
Southern Uplands – Ayrshire (SNH 81/ EA20a)	**Medium**	**Major/Moderate and Significant**	Minor and Not Significant
Nithsdale unit Southern Uplands – Dumfries and Galloway (SNH 177/D&G 19)	**Medium**	**Moderate and Significant**	Minor and Not Significant
Carsphairn unit Southern Uplands – Dumfries and Galloway (SNH 177/D&G 19)	**Medium**	**Moderate and Significant**	Minor and Not Significant
Ken unit Narrow Wooded River Valley – Dumfries and Galloway (SNH 160/D&G 4)	**Medium**	**Moderate and Significant**	Minor and Not Significant
upper Shinnel Glen residents	**High/Medium**	**Moderate and Significant**	Minor and Not Significant
upper Water of Ken valley residents	**High/Medium**	**Moderate and Significant**	Minor and Not Significant
Galloway Dark Sky Park	High/medium	Moderate/Minor and Not Significant	Minor and Not Significant
Crawick Multiverse	High/medium	Moderate/Minor and Not Significant	Minor and Not Significant
Merrick Wild Land	High	Not Significant	No effect

7.10 Statement of significance

7.10.1 Construction effect

346. Significant temporary construction landscape effects would be limited to the two host areas Ken unit Southern Uplands with Forest D&G and Southern Uplands Ayrshire for access route A where Moderate effects would be experienced.

347. The Significant temporary construction visual effects would be limited to users of the SUW.

7.10.2 Operational landscape effects

348. Significant impacts would be confined to an approximate 6 km radius of the proposed turbines, resulting in Major/ Moderate to Moderate effects within the two host landscapes Ken unit Southern Uplands with Forest (SNH 178/D&G 19a) and Southern Uplands - Ayrshire (SNH 81/ EA 20a) and within the adjacent Carsphairn / Nithsdale units Southern Uplands -

Dumfries and Galloway (SNH 177/D&G 19) and Ken unit Narrow Wooded River Valley - Dumfries and Galloway (SNH 160/D&G 4).

349. Moderate effects would also occur within the Shinnel unit of the Upland Glens - Dumfries and Galloway (SNH 166/ D&G 10) and Upland Glen - Ayrshire (SNH 73/ EAC 14), but these would be Not Significant.

7.10.3 Operational visual effects

350. There would be Significant visual effects for hillwalkers on the SUW, Core Paths, Striding Arches and heritage path through the Site and hillwalkers above Glen Afton. There would also be Significant effects for those few living within the upper Shinnel Glen and the Water of Ken valley.

351. Whilst there would be views from Glen Afton, the Euchan Water valley and from the summit of Cairnsmore of Carsphairn, these views would occur in the context of other closer windfarms and Significant effects are not predicted. Views from Sanquhar, Kirkconnel and the A76 would be much more limited and Not Significant.

352. The residential visual amenity assessment was extended to a 5 km radius of the proposed turbines to conform with the latest Dumfries and Galloway WED Supplementary Guidance, considered the effects for private residents at 24 properties. The assessment found that there would only be Significant impacts at 6 of the properties, P2, P3, P5, P6, P13 and P22 but in no case would these be overbearing. Five further properties would experience a Moderate but Not Significant effect, and the others would experience a Minor or no effect due the screening by steep local topography.

7.10.4 Operational effects on designated areas

353. Effects on all designated areas would be Not Significant.

7.10.5 Operational cumulative effects

354. The cumulative assessment assumes that all the windfarms within each of the Scenarios (2 and 3) would be constructed as proposed and these are present baseline. The cumulative assessment considers the additional changes which would result from the introduction of Euchanhead.

355. With regard to the fully consented baseline (Scenario 2), the addition of Euchanhead would create an enlarged renewable energy group from Hare Hill to Lorg, which is similar to the effect already noted within the LVIA but is extended north and south to include the two consented sites. There would be notable visual cumulative interactions within Euchan Water valley, Polskeoch Burn and Water of Ken valley as well as from recreational hillwalkers on the SUW, upland Striding Arches sculptures, Core Paths within the Site, above Glen Afton (Blackcraig), and on Cairnsmore of Carsphairn. In all cases the addition of Euchanhead would further reinforce the increased influence from renewable energy but would result in the same level of effect reported for Scenario 1(operational and under construction).

356. With regard to the other proposals, these are considered in turn, in combination with the fully consented baseline. The most notable cumulative effects would occur with Sanquhar II which is adjacent to Euchanhead. Assuming the prior presence of this development in the landscape, the levels of effect resulting from the addition of Euchanhead would tend to be similar or reduced in level, due to the prior presence of Sanquhar II (along with the fully consented baseline) within the local landscape. With regard to the other proposals, the addition of Euchanhead would further reinforce the increased influence from renewable energy but would result in the same level of effect reported for Scenario 2.

7.10.6 Operational night-time effects

357. The assessment concluded that with just the embedded mitigation included in the proposed Development there would be Significant night-time impacts on the nearest Southern Uplands and Narrow Wooded River Valley landscapes and few isolated residents within upper Shinnel Glen and upper Water of Ken valley. Impacts on the distant Merrick Wild Land or visitors to the Galloway Dark Sky Park would not be Significantly affected.

358. However, with the additional mitigation of an aircraft detection lighting system, all these night-time effects would reduce to Minor or Minor/Negligible and Not Significant, due to the short duration the lights would be lit.

7.11 References

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East Ayrshire Local Development Plan 2017

East Ayrshire Local Development Plan Supplementary Guidance Planning for Wind Energy 2017

East Ayrshire Supplementary Guidance: Dark Sky Lighting 2016

Scottish Natural Heritage National Landscape Character Assessment 2019

Dumfries and Galloway Wind Farm Landscape Capacity Study 2020

Non statutory planning guidance East Ayrshire Landscape Wind Energy Capacity Study (EALWCS) 2018

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