

5 Landscape & Visual Impact Assessment

5.1 Introduction

5.1.1 This chapter considers the likely significant landscape and visual effects associated with the construction and operation of the proposed development. The specific objectives of the chapter are to:

- describe the current baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address the likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation measures.

5.1.2 The assessment has been carried out by Ruth Knight BA (Hons) DipLA MA CMLI and Sam Hammersley BSc (Hons) MLA CMLI of LDA Design, both of whom are chartered members of the Landscape Institute. The lead assessor has over 20 years of experience preparing LVIAs and collectively they share over 24 years of experience.

5.1.3 The chapter is supported by:

- Technical Appendix 5.1 - Glossary and Methodology
- Technical Appendix 5.2 - Viewpoint Descriptions
- Technical Appendix 5.3 - Residential Visual Amenity Assessment

5.1.4 Figures 5.1 - 5.30 are referenced in the text where relevant.

5.2 Legislation, Policy and Guidance

5.2.1 A full review of planning policy of relevance to the proposed development can be found in the Planning Statement which accompanies this application. Only those policies of direct relevance to this Landscape and Visual Impact Assessment (LVIA) are considered below. Landscape designations and policy areas set out in the policy description below are illustrated on Figure 5.2.

National Planning Policy

5.2.2 Relevant national planning policy is expressed in the Scottish Planning Policy (SPP) (June 2014)¹ with specific guidance published in the “Onshore wind turbines” Planning Advice Note (PAN) (last updated May 2014)². SPP sits alongside the National Planning Framework 3 (NPF3) which sets out the spatial strategy to guide future development and land use. The Scottish Government is currently reviewing NPF3 and SPP, with NPF4 expected to be approved late 2022.

Local Planning Policy

5.2.3 The site lies within the eastern areas of Dumfries and Galloway. The current Local Development Plan for Dumfries and Galloway comprises the Dumfries & Galloway Local Development Plan 2 (LDP2) (October 2019)³ and its associated statutory Supplementary Guidance.

5.2.4 Scottish Borders Council, Northumberland County Council, Northumberland National Park Authority, Carlisle City Council, Allerdale Borough Council and Eden District Council local authorities are also located within the study area. From 1 April 2023 local government in Cumbria will change and the six district councils will be replaced by two unitary authorities; Carlisle and Allerdale will form part of Cumberland Council, whilst Eden will form part of Westmorland and Furness Council. Policy for these districts is only relevant to this assessment insofar as it identifies locally valued landscapes and their purposes of designation. The following local plans have been reviewed:

- Scottish Borders Council Local Development Plan (2016)⁴ - identifies Special Landscape Areas (Policy EP5) but not within the study area;
- Scottish Borders Council Proposed Local Development Plan (2020)⁵ - this emerging Local Development Plan also identifies Special Landscape Areas (Policy EP5) but not within the study area;
- Northumberland Local Plan 2016-2036 (2022)⁶ - identifies no local landscape designations;

¹ Scottish Government. (December 2020). Scottish Planning Policy. Available at: <https://www.gov.scot/publications/scottish-planning-policy/>

² Scottish Government. (June 2014). Onshore wind turbines: planning advice. Available at: <https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/>

³ Dumfries and Galloway Council. (October 2019). Local Development Plan 2. Available at: <https://www.dumgal.gov.uk/ldp2>

⁴ Scottish Borders Council. (2016). Local Development Plan. Available at: https://www.scotborders.gov.uk/info/20051/plans_and_guidance/121/local_development_plan

⁵ Scottish Borders Council. (2020). Proposed Local Development Plan. Available at: https://www.scotborders.gov.uk/info/20051/plans_and_guidance/121/local_development_plan/2

⁶ Northumberland County Council. (March 2022). Northumberland Local Plan 2016 - 2036. Available at: <https://www.northumberland.gov.uk/Planning/Planning-policy/Plan.aspx>

- Northumberland National Park Local Plan (2020)⁷ - identifies no local landscape designations;
- Carlisle District Local Plan 2015-2030 (2016)⁸ - identifies no relevant local landscape designations;
- Allerdale Local Plan Part 1 (2014)⁹ and Part 2 (2020)¹⁰ - identify no local landscape designations; and
- Eden Local Plan 2014-2032 (2018)¹¹ - identifies no local landscape designations.

Dumfries and Galloway Local Development Plan 2 (LDP2) (2019)

5.2.5 The following adopted policies will be relevant to the proposed development in the context of this LVIA:

- **Policy OP1: Development Considerations** sets out the development considerations for new proposals, stating that development should be 'compatible with the character and amenity of the area'. Within the policy, key issues which may form material considerations, including light pollution, are identified and principles for the protection of landscape character and scenic qualities are identified.
- **Policy HE2: Conservation Areas** requires new development to preserve or enhance the character, appearance and setting of conservation areas, whilst also maintaining or enhancing the quality of views within, from and into the area.
- **Policy HE5: Hadrian's Wall** lists a presumption against development which would have an adverse impact on the setting and Outstanding Universal Value of Hadrian's Wall.
- **Policy HE6: Gardens and Designed Landscapes** sets out the considerations for the protection of landscapes, including the protection of the setting, character and key views.
- **Policy NE1: National Scenic Areas (NSAs)** states that development will not be permitted where it adversely affects the integrity or qualities of a NSA or where adverse effects are not clearly outweighed by social, environmental or economic benefits of national importance.
- **Policy NE2: Regional Scenic Areas (RSAs)** requires development to respect the special qualities of RSAs. Development affecting RSAs will only be permitted

where there are no significant effects on the RSA or there is a specific need for development in that location.

- **Policy NE3: Areas of Wild Land** states that development will not be supported if it affects Wild Land unless significant effects on the qualities of these areas can be substantially overcome.
- **Policy IN1: Renewable Energy** states development proposals will be supported where they are located, sited and designed appropriately. The policy provides considerations against which proposals should be assessed and information on the level of detail that should be included.
- **Policy IN2: Wind Energy** is supported by 'Supplementary Guidance: Wind Energy Development' (see below) and sets out the issues that will be considered for all specific proposals.

Local Guidance and Baseline Studies

5.2.6 In addition to the policy document identified above, there are local guidance and baseline documents as follows:

- The Dumfries and Galloway LDP2 Wind Energy Development: Development Management Considerations Supplementary Guidance (February 2020)¹² is adopted statutory supplementary guidance and forms part of the Local Development Plan. The supplementary guidance provides further detail to support Policy IN2: Wind Energy alongside the Dumfries and Galloway Wind Farm Landscape Capacity Study (DGWLCS)¹³ which is attached as an appendix to the supplementary guidance. The DGWLCS was last updated in June 2017 and provides an assessment of the sensitivity of landscape character types to wind energy developments; it includes recommendations that can be used to inform strategic development planning.
- Scottish Borders Council's Wind Energy Consultancy Landscape Capacity and Cumulative Impact Report (July 2013)¹⁴ which sets out the landscape sensitivities to wind development for landscape character types within Scottish Borders.
- The Cumbria Wind Energy Supplementary Planning Document (July 2007)¹⁵ which sets out guidelines for landscape and visual issues including the landscape sensitivities to wind development for landscape character types within Cumbria.

⁷ Northumberland National Park. (July 2020). Local Plan. Available at: <https://www.northumberlandnationalpark.org.uk/planning/planning-policy/local-plan/>

⁸ Carlisle City Council. (January 2016). Carlisle District Local Plan 2015-2030. Available at: <https://www.carlisle.gov.uk/planning-policy/Adopted-Plans/Carlisle-District-Local-Plan-2015-2030>

⁹ Allerdale Borough Council. (July 2014). Allerdale Local Plan (Part 1). Available at: <https://www.allerdale.gov.uk/en/planning-building-control/planning-policy/local-plan-part-1/>

¹⁰ Allerdale Borough Council. (July 2020). Allerdale Local Plan (Part 2). Available at: <https://www.allerdale.gov.uk/en/siteallocations/>

¹¹ Eden District Council. (2018). Eden Local Plan 2014-2032. Available at: <https://www.eden.gov.uk/planning-and-building/planning-policy/adopted-eden-local-plan/eden-local-plan-adoption/>

¹² Dumfries and Galloway Council. (February 2020). Wind Energy Development: Development Management Considerations Supplementary Guidance. Available at: <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

¹³ Dumfries and Galloway Council. (February 2020). Part 1 Wind Energy Development: Development Management Considerations Appendix 'c' Dumfries and Galloway Wind Farm Landscape Capacity Study (June 2017). Available at: <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

¹⁴ Scottish Borders Council. (July 2013). Wind Energy Consultancy Landscape Capacity and Cumulative Impact Report. Available at: https://www.scotborders.gov.uk/directory_record/47226/landscape_capacity_and_cumulative_impact/category/28/approved_planning_guidance

¹⁵ Cumbria County Council. (July 2007). Cumbria Wind Energy Supplementary Planning Document. Available at: <https://www.allerdale.gov.uk/en/planning-building-control/planning-policy/supplementary-planning-documents-spd/wind-energy-copy/>

5.2.7 These form part of the documented baseline and are reviewed in the relevant Sections below, with accompanying commentary on the implications for the proposed development siting and design and the assessment methodology, as appropriate.

5.3 Scoping and Consultation

5.3.1 A formal scoping report was issued to the Energy Consents Unit (ECU) in April 2022 and a response was provided in June 2022. A summary of consultation responses relevant to the landscape and visual assessment is set out in Table 5.1 below.

5.3.2 The scoping comments were reviewed, and a formal response was issued as part of a gate check report in September 2022 which detailed how the comments would be addressed. A further response was received from NatureScot in October 2022 and is included within the table below.

Table 5.1: Scoping Responses

Consultee	Summary of Response	Where & How Addressed
Energy Consents Unity	As the maximum blade tip height of turbines exceeds 150m the LVIA must include a robust Night Time Assessment with agreed viewpoints to consider the effects of aviation lighting and how the chosen lighting mitigates the effects.	An assessment of night time effects, and commentary on mitigation, is included within this chapter. Three viewpoints (VPs 1, 4, 6) have been selected for night photomontages and confirmation of the acceptance of these night time VPs has been sought from Dumfries and Galloway Council.
	It is recommended by the Scottish Ministers that the study area in kilometres from the outer most turbines of the proposed development and the final list of viewpoints and visualisations, including those for Night Time Assessment, should be agreed following discussion between the Company, Dumfries and Galloway.	Agreement has been sought with Dumfries and Galloway Council. Study areas are set out within the relevant sections of this report.
	To ensure that assessments are as up-to-date as possible, developments to be included in cumulative landscape impact assessments should be discussed and agreed by the Company and Dumfries and Galloway Council. Photography and visualisations submitted in the EIA Report should reflect the most up-to-date cumulative position and the most up-to-date ecological and vegetation position.	Agreement has been sought with Dumfries and Galloway to agree the cumulative schemes for inclusion within the assessment and a cut-off date for finalising the list. The approach to cumulative schemes is set out within Section 5.4 of this chapter and a cut-off date of 19 August 2022 has been used. Photography for visualisations has been taken during May and September 2022 and reflects the current cumulative position.
	Mitigation measures suggested for any significant environmental impacts should be presented as a conclusion to each chapter.	Mitigation measures relevant to this chapter are embedded within the design of the proposed development. Further detail of the

Consultee	Summary of Response	Where & How Addressed
		design evolution can be found within Chapter 3 of this EIA Report.
Historic Environment Scotland	Design work should be informed by a robust environmental assessment including relevant supporting ZTV information and visualisations.	ZTV studies and visualisations have been used throughout the design process, as summarised in Chapter 3, to help shape the layout and design of the proposed development. Visualisations, ZTVs and other figures are included as part of this chapter.
	Kinmount House Garden and Designed Landscape should be given consideration.	The landscape setting of Kinmount House is considered as part of this chapter.
NatureScot	As the height of the turbines (including rotors) exceeds 150m, we recommend an initial ZTV distance (from the nearest turbine or outer circle of the wind farm) of 45km (as per our “Visual Representation of Wind Farms” guidance). Similarly, we recommend the night time assessment takes account of this guidance, particularly the section turbine lighting.	Following site and desk-based assessment a study area of 35km has been deemed appropriate for this assessment with a ZTV out to 45km included to demonstrate the appropriateness of this approach. This demonstrates that to the north, east and west there are very limited areas with any potential visibility beyond 35km. To the south, theoretical visibility would continue along Solway Firth and to the south of Carlisle, in a similar pattern to the ZTV produced for scoping, with some areas of additional visibility indicated in the North Pennines Area of Outstanding Natural Beauty to the south-east. From the majority of these additional areas, the views towards the site would be affected by other large wind farms which would be closer. NatureScot’s guidance documents have been considered as part of this chapter.
		The majority of views listed within paragraph 6.1.5 of the scoping report (April 2022) were incorporated within the initial viewpoint list, following consideration of NatureScot’s comment, Viewpoint 15 - Gretna Green/Springfield and Viewpoint 16 - Kirkpatrick-Fleming have been included within the assessment.
		NatureScot acknowledged the inclusion of the additional viewpoints within the gate check response.
NatureScot (Gate Check Response)	Our landscape adviser has reviewed the report and our scoping response and, given the proposed turbine heights, we advise that an initial 45km radius be retained as per our guidance.	As noted above the 35km study area is deemed appropriate for this assessment, a 45km ZTV is included within the report to demonstrate the appropriateness of this approach.
	Based on the supporting information provided we also advise that the study areas in paragraph 5.1.1 of the gate check report be revisited; particularly for night time and	Through a thorough assessment of effects, both the study areas have been deemed appropriate to the assessment.

Consultee	Summary of Response	Where & How Addressed
	landscape character effects, given the scale and proposed location over the elevated foothills/ upland fringe and likely subsequent extensive visibility of the proposal to the south, south-east and south-west.	
	In addition, the proposed night time viewpoints identified for the production of night time visuals (paragraph 5.2.6) are all within 5km of the proposal. We advise that viewpoints at greater distance and representative of the experience from varying directions also be considered to allow for a thorough assessment of night time effects.	No further night time viewpoints have been captured as part of the assessment. The selected night viewpoints (1, 4, 6) were chosen due to their proximity to the site and the presence of receptors likely to be affected during the hours of darkness, beyond 5km lights along major road networks often become the dominant feature within the view.
Historic England	The potential visibility of the proposed windfarm from Hadrian's Wall is acknowledged within the Landscape and Visual chapter of the scoping report and as such, there is some potential for adverse impacts to the significance of this designated heritage asset.	The landscape and visual impact on Hadrian's Wall remain a consideration as part of this chapter.
Langholm, Ewes, and Westerkirk Community Council	Langholm Ewes & Westerkirk Community Council are not going to support this development until such times the developers can provide more information and visuals on what the development would look like on the local landscape.	This chapter provides full detail on the visual impact of the proposed development on the local landscape through written description and visualisations. Draft visualisations were made available to the Community Council during pre-application events as part of the design development.
Middlebie and Waterbeck Community Council	Objections are raised relating to the 'disproportionate' size and scale of the proposed development, cumulative impact, and impact on residential properties.	This chapter provides an assessment of the landscape and visual impact of the proposed development, including the cumulative and residential visual amenity impact.
Natural England	General scoping advice is provided which states the EIA Report should refer to relevant National Character Areas, include full assessment of the potential impacts on local landscape character, assess effects on the 'special qualities' of designated landscapes, and assess cumulative effects.	This chapter follows best practice guidance and includes an assessment of the potential landscape and visual impact on the receptors mentioned. In line with paragraphs 5.13-5.15 of the third edition of the Guidelines for Landscape and Visual Impact Assessment ¹⁶ landscape character studies at the national or regional level are used to "set the scene" and understand the landscape context where they are available, with Local Authority Assessments forming the basis of the assessment of effects on landscape character due to the additional detail they provide.

5.3.3 In response to the responses from relevant consultees a further scoping agreement letter was issued to Dumfries and Galloway Council in July 2022 to agree landscape and visual matters. At the time of writing this chapter (October 2022) no response has been received.

5.4 Methodology

Scope of Assessment

5.4.1 "Landscape and Visual Impact Assessment is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and people's views and visual amenity." (GLVIA 3, para. 1.1).

5.4.2 Paras. 2.20-2.22 of the same guidance indicate that the two components (assessment of landscape effects, and assessment of visual effects) are "related but very different considerations".

5.4.3 The assessment method for this LVIA draws upon the established GLVIA3; An Approach to Landscape Character Assessment (Natural England, 2014)¹⁷, Landscape Institute Technical Information Note (LI TIN) 05/2017¹⁸ regarding townscape character; LI Technical Guidance Note 02/2019 Residential Visual amenity assessment (RVAA)¹⁹; Landscape Institute's Technical Guidance Note 02/21: Assessing landscape value outside national designations²⁰; LI Technical Guidance Note 06/19 Visual Representation of development proposals²¹ and other recognised guidelines.

5.4.4 The methodology is described in more detail in Technical Appendix 5.1.

Baseline Characterisation

Study Areas

5.4.5 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 and the anticipated extent of visibility arising from the development itself, based on the Zone of Theoretical Visibility (ZTV) study. In this case a study area of 35km has been deemed as being appropriate to cover all potentially material landscape and visual impacts. Further detailed study areas are included as follows:

¹⁶ Landscape Institute with the Institute of Environmental Management and Assessment (2013). The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition. Routledge, Oxon.

¹⁷ (2014). An Approach to Landscape Character Assessment. Natural England.

¹⁸ (2018). Townscape Character Assessment Technical Information Note 05/2017. Landscape Institute.

¹⁹ (2019). Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 02/19. Landscape Institute.

²⁰ (2021). Assessing Landscape Value Outside National Designations Technical Guidance Note 02/21. Landscape Institute.

²¹ (2019). Visual Representation of Development Proposals Technical Guidance Note 06/19. Landscape Institute.

- 10km for detailed assessment of effects on landscape character (daytime);
- 15km for night time effects;
- 35km for cumulative effects; and
- 2.5km for the residential visual amenity assessment.

Desk Study / Field Survey

- 5.4.6 A baseline study has been conducted to establish the existing and future baseline conditions at the site and in the surrounding area.
- 5.4.7 For this assessment, this has comprised a desk-based review of the relevant current national and local planning policy, designations, character assessments and other key considerations.
- 5.4.8 Zone of Theoretical Visibility (ZTV) studies have been produced to help identify the potential visual effects and therefore the scope of receptors likely to be affected. This has been tested on site during site visits in May and October 2022.
- 5.4.9 Full details of the baseline study are included within Technical Appendix 5.1.

Assessment Terminology and Judgements

- 5.4.10 A full glossary is provided in Technical Appendix 5.1. The key terms used within this assessment are:
- Susceptibility and Value - which contribute to Sensitivity of the receptor;
 - Scale, Duration and Extent - which contribute to the Magnitude of effect; and
 - Significance.
- 5.4.11 These terms are described in more detail below

Sensitivity Criteria

- 5.4.12 **Susceptibility** indicates the ability of a landscape or visual receptor to accommodate the proposed development “without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.” (GLVIA3, para. 5.40).

Table 5.2: Landscape Susceptibility

High	Undue consequences are likely to arise from the proposed development.
Medium	Undue consequences may arise from the proposed development.
Low	Undue consequences are unlikely to arise from the proposed development.

- 5.4.13 Susceptibility of landscape character areas is influenced by their characteristics and is frequently considered (though often recorded as ‘sensitivity’ rather than

susceptibility) within documented landscape character assessments and capacity studies.

- 5.4.14 Susceptibility of designated landscapes is influenced by the nature of the special qualities and purposes of designation and/or the valued elements, qualities or characteristics, indicating the degree to which these may be unduly affected by the development proposed.
- 5.4.15 Susceptibility of accessible or recreational landscapes is influenced by the nature of the landscape involved; the likely activities and expectations of people within that landscape and the degree to which those activities and expectations may be unduly affected by the development proposed.
- 5.4.16 Susceptibility of visual receptors is primarily a function of the expectations and occupation or activity of the receptors (GLVIA3, para 6.32).
- 5.4.17 **Landscape Value** is “the relative value that is attached to different landscapes by society” (GLVIA3, page 157).

Table 5.3: Landscape Value

National/International	Designated landscapes which are nationally or internationally designated for their landscape value.
Local / District	Locally or regionally designated landscapes; also areas which documentary evidence and/or site observation indicates as being more valued than the surrounding area.
Community	‘Everyday’ landscape which is appreciated by the local community but has little or no wider recognition of its value.
	Despoiled or degraded landscape with little or no evidence of being valued by the community.

- 5.4.18 **Sensitivity** is assessed by combining the considerations of susceptibility and value described above. The differences in the tables below reflect a slightly greater emphasis on value in considering landscape receptors, and a greater emphasis on susceptibility in considering visual receptors.

Table 5.4: Landscape Sensitivity

Landscape Sensitivity		Susceptibility		
		High	Medium	Low
Value	National/International	High	High-Medium	Medium
	Local/District	High-Medium	Medium	Medium-Low
	Community	Medium	Medium-Low	Low
	Limited	Low	Low-Negligible	Negligible

Table 5.5: Visual Sensitivity

Visual Receptor Sensitivity		Susceptibility		
		High	Medium	Low
Value	National/International	High	High-Medium	Medium
	Local/District	High-Medium	High-Medium	Medium
	Community	High-Medium	Medium	Medium-Low
	Limited	Medium	Medium-Low	Low

5.4.19 For visual receptors, susceptibility and value are closely linked - the most valued views are also likely to be those where viewer's expectations will be highest. The value attributed relates to the value of the view, e.g. a National Trail is nationally valued for access, not necessarily for the available views. Typical examples of visual receptor sensitivity are plotted in a diagram in Technical Appendix 5.1.

Magnitude of Effect

5.4.20 **Scale** of effect is assessed for all landscape and visual receptors and identifies the degree of change which would arise from the development.

Table 5.6: Scale of Effect

Large	Total or major alteration to key elements, features, qualities or characteristics, such that post development the baseline will be fundamentally changed.
Medium	Partial alteration to key elements, features, qualities or characteristics, such that post development the baseline will be noticeably changed.
Small	Minor alteration to key elements, features, qualities or characteristics, such that post development the baseline will be largely unchanged despite discernible differences.
	Very minor alteration to key elements, features, qualities or characteristics, such that post development the baseline will be fundamentally unchanged with barely perceptible differences.

5.4.21 **Duration** of effect is assessed for all landscape and visual receptors and identifies the time period over which the change to the receptor as a result of the development would arise.

Table 5.7: Duration of Effect

Permanent	The change is expected to be permanent and there is no intention for it to be reversed.
Long-term	The change is expected to be in place for 10-25 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.
Medium-term	The change is expected to be in place for 2-10 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.
	The change is expected to be in place for 0-2 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.

5.4.22 The effects are considered to be reversible as after a period of 50 years the wind farm will be removed, unless a further application to extend the life of the proposed development is applied for and granted, or an alternative application to 'repower' with new wind turbines and associated infrastructure is applied for and granted. Whilst 50 years is regarded as Permanent for the purposes of this assessment, the effects of the proposed development on the landscape are reversible.

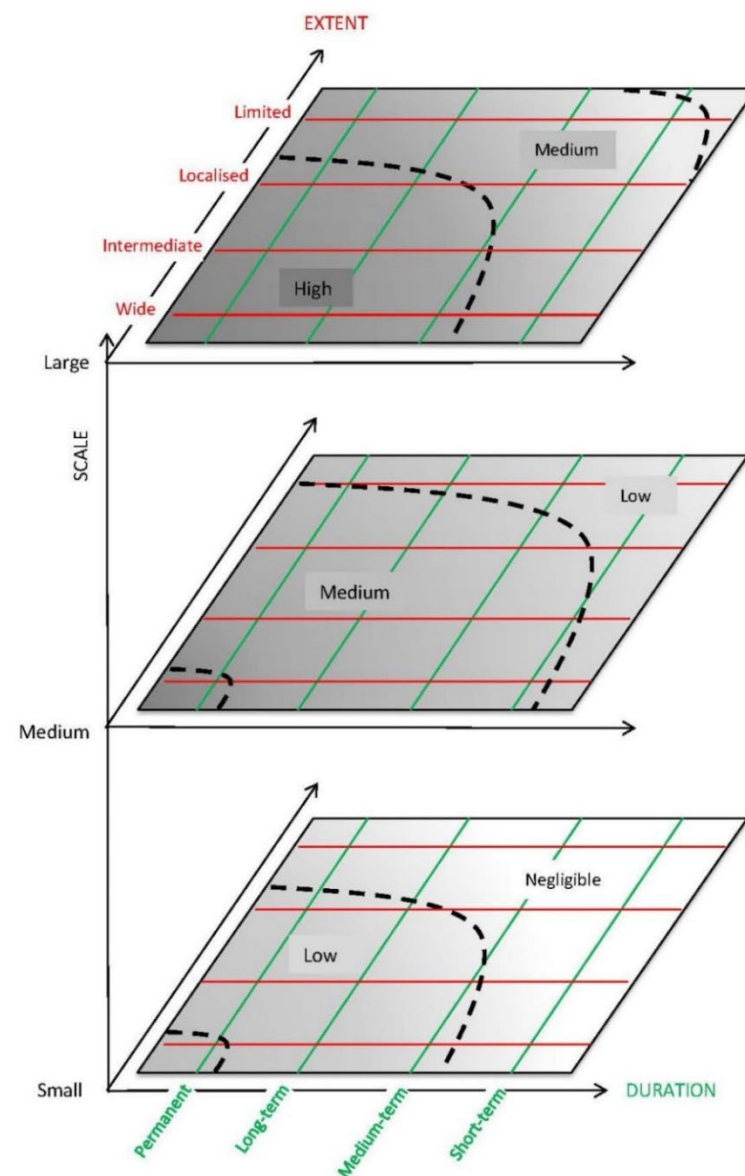
5.4.23 **Extent** of effects is assessed for all receptors and indicates the geographic area over which the effects will be felt.

Table 5.8: Extent of Effect

Wide	Beyond 4km, or more than half of receptor.
Intermediate	Up to approx. 2-4km, or around half of receptor area.
Localised	Site and surroundings up to 2km, or part of receptor area (up to approx. 25%).
	Site, or part of site, or small part of a receptor area (< approx. 10%).

5.4.24 The **Magnitude** of effect is informed by combining the scale, duration and extent of effect. **Diagram 5.1** illustrates the judgement process:

Diagram 5.1: Magnitude of Effect

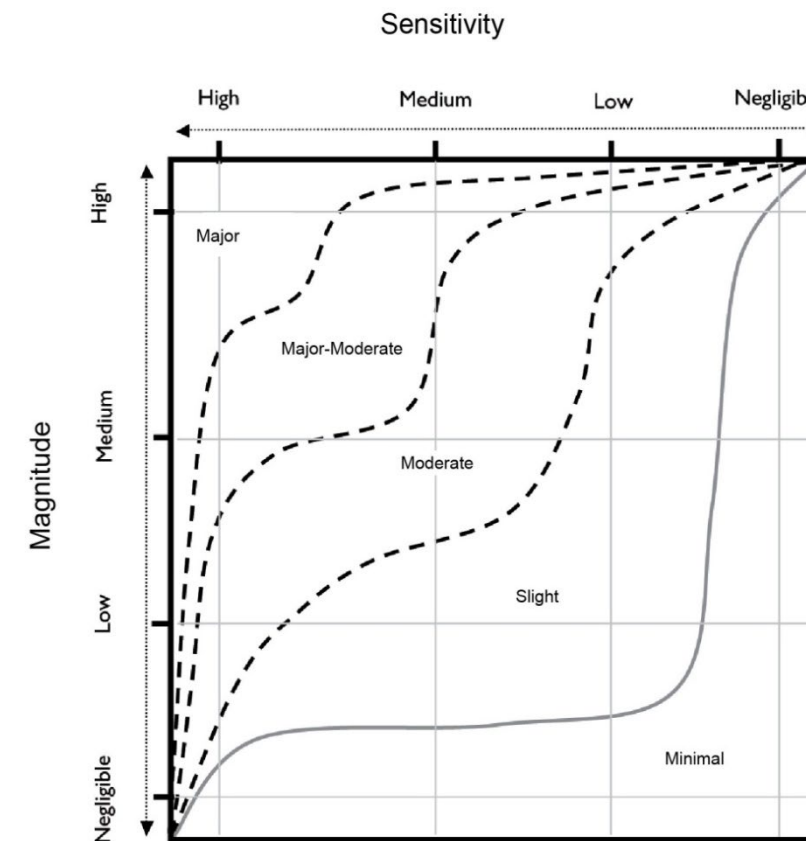


5.4.25 As can be seen from the illustration above, scale (shown as the layers of the diagram) is the primary factor in determining magnitude; most of each layer indicates that magnitude will typically be judged to be the same as scale, but may be higher if the effect is particularly widespread and long lasting, or lower if it is constrained in geographic extent or timescale. Where the Scale of effect is judged to be Negligible the Magnitude is also assumed to be Negligible and no further judgement is required.

Significance

5.4.26 **Significance** indicates the importance or gravity of the effect. The process of forming a judgement as to the degree of significance of the effect is based upon the assessments of magnitude of effects and sensitivity of the receptor to come to a professional judgement of how important this effect is. This judgement is illustrated by Diagram 5.2 below:

Diagram 5.2: Significance



5.4.27 The significance ratings indicate a ‘sliding scale’ of the relative importance of the effect, with Major being the most important and Minimal being the least. Effects that are Major-Moderate or Major are considered to be significant. Effects of moderate significance or less are “of lesser concern” (GLVIA3, para 3.35). It should also be noted that whilst an effect may be significant, that does not necessarily mean that such an impact would be unacceptable, or should necessarily be regarded as an “undue consequence” (GLVIA3, para 5.40).

5.4.28 Where intermediate ratings are given, e.g. “Moderate-Slight”, this indicates an effect that is both less than Moderate and more than Slight, rather than one which varies across the range. In such cases, the higher rating will always be given first; this does not mean that the impact is closer to that higher rating but is done to

facilitate the identification of the more significant effects within tables. Intermediate judgements may also be used for judgements of Magnitude.

Beneficial / Adverse / Neutral

- 5.4.29 Effects are defined as adverse, neutral or beneficial. Neutral effects are those which overall are neither adverse nor beneficial but may incorporate a combination of both.
- 5.4.30 The decision regarding the significance of effect and the decision regarding whether an effect is beneficial or adverse are entirely separate. For example, a rating of Major and Beneficial would indicate an effect that was of great significance and on balance beneficial, but not necessarily that the proposals would be extremely beneficial.
- 5.4.31 Whether an effect is Beneficial, Neutral or Adverse is identified based on professional judgement. GLVIA3 indicates at paragraph 2.15 that this is a “*particularly challenging*” aspect of assessment, particularly in the context of a changing landscape.

Night Time Assessment

- 5.4.32 Onshore wind turbines of over 150m in height require mandatory visible spectrum aviation lighting. Night time assessment of visible aviation lighting for onshore wind turbines on landscape and visual receptors is a relatively new area and there is as yet no specific policy or guidance on the subject. Emerging best-practice, including Annex 1 of ‘General preapplication and scoping advice for onshore wind farms’ by NatureScot (2022)²², will be followed in undertaking this assessment.
- 5.4.33 A study area of 15km for night time effects has selected as appropriate for this assessment. Beyond 15km lighting from other sources, such as from cumulative schemes, settlements or roads, would result in the proposed development being seen as a minor element within the view.

Effects on Landscape Character

- 5.4.34 For landscape character areas, susceptibility is judged based on the degree to which they are currently characterised by darkness and/or an absence of development. Value is judged based on the same factors as for the daytime assessment unless particular factors suggest 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.

Effects on Visual Receptors

- 5.4.35 For visual receptors, the assessment will take account of the different importance attached to views in the night time environment. Generally, 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. 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.
- 5.4.36 The susceptibility of 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, cat’s 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. Technical Appendix 5.1 provides further detail on the approach taken to visual receptor sensitivity at night.

Cumulative Assessment

- 5.4.37 Cumulative assessment relates to the assessment of the effects of more than one development.
- 5.4.38 A search area from the site (typically of a similar scale to the study area) is agreed with the planning authority. In terms of selecting which wind turbine proposals within the study area should be included, NatureScot Guidance ‘Assessing the Cumulative Impact of Onshore Wind Energy Developments’ (March 2021)²³ advises that:
- 5.4.39 “An assessment of cumulative impacts associated with a specific development proposal should encompass the effects of the proposal in combination with:
- *existing development, either built or under construction;*
 - *approved development, awaiting implementation; and*
 - *proposals awaiting determination within the planning process with design information in the public domain. Proposals and design information may be deemed to be in the public domain once an application has been lodged, and the decision-making authority has formally registered the application.” [para. 26] - note that this category also includes recently refused applications which may yet be appealed.*

²² (2022). General Pre-Application and Scoping Advice for Onshore Wind Farms. NatureScot.

²³ (2021). Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments. NatureScot.

- 5.4.40 For each of these schemes, agreement should be reached with the planning authority as to whether they should be included in the assessment. Initial cumulative ZTVs, showing the likely areas where schemes may be visible may be used to inform such discussions.
- 5.4.41 For this assessment, the following detailed criteria will be used for the cumulative assessment:
1. Full detail (including wind turbine locations and heights) are included for wind farms of 50m to tip (or greater) within the full 35km study area. The 35km radius is applied flexibly such that wind farms only just beyond this distance and/or those that are judged to be particularly relevant to the assessment based on the assessed effects of the proposed development are also included in full detail.
 2. A cut off for finalising the sites of 19 August 2022 has been used.
 3. The visualisations model all developments identified above.
- 5.4.42 These criteria were proposed in the formal scoping report (April 2022) and as part of a further scoping agreement letter issued to Dumfries and Galloway Council in July 2022. At the time of writing this chapter (October 2022) no response has been received from Dumfries and Galloway Council.
- 5.4.43 Schemes which are in scoping are noted for context but are not included within the assessment unless they have become active applications before the LVIA is submitted, with occasional exceptions for schemes where reliable information is available with respect to the scheme design, and the application is known to be imminent.
- 5.4.44 The cumulative assessment examines the same landscape and visual receptors as the assessment for the proposed development. The assessment is informed by cumulative ZTVs, showing the extent of visual effects of the schemes in different colours to illustrate where visibility of more than one development is likely to arise. Cumulative wireframes have been prepared which show each of the developments in different colours so that they are each readily identifiable.
- 5.4.45 In addition, the effects on users of routes through the area, from which wind farms may be sequentially visible as one passes through the landscape are also considered. This assessment is based on the desk study of ZTVs and aerial photography, and site visits to travel along the routes being assessed.
- 5.4.46 It is important to note the following:
- Operational and consented wind farms are treated as being part of the landscape and visual baseline i.e. it is assumed that consented schemes will be built except for occasional exceptions where there is good reason to assume that they will not be constructed. Reflecting this, the main LVIA assesses effects on the basis that these developments are (and will be for consented developments) in place as part of the baseline.
 - Schemes ‘in planning’ are assessed via a series of scenarios involving one or several of the other developments being consented along with (or before) the proposed development. Two assessment ratings are provided for each scenario - one which indicates the combined effects if all of the schemes in in that scenario were consented together (combined effects); and one which indicates the additional effects that consenting the application scheme would have if the other schemes were already consented (incremental effects).
- 5.4.47 For each assessed receptor, combined effects may be the same as for the application scheme, or greater (where the influence of multiple schemes would increase effects, or where schemes in planning other than the application scheme would have the predominant effects).
- 5.4.48 For each assessed receptor, incremental effects may be the same as for the application scheme, or reduced (where the influence of other schemes in planning would be such that were they consented and considered to be part of the baseline, the incremental change arising from the addition of the application scheme would be less).
- ### Residential Visual Amenity Assessment
- 5.4.49 Wind farms are generally regarded as being a form of development for which it is appropriate to undertake a residential visual amenity assessment, as the scale of development is such that the wind turbines may lead to effects being perceived as ‘overbearing’ or ‘overwhelming’ as set out within the Landscape Institute’s Residential Visual Amenity Assessment (RVAA) Guidance (LI TGN 02/19) (2019).
- 5.4.50 For the proposed development a 2.5km study area for the RVAA has been selected. The full methodology for the study, in line with LI TGN 02/19, is set out within Technical Appendix 5.3.

- 5.4.51 Cross references are made between the LVIA and the RVAA as follows:
- where viewpoints are located close to properties, this is noted in the RVAA;
 - the availability of views from properties towards the proposed development will be noted where relevant within the LVIA (for example in respect of effects on settlements); and
 - an overview of visual effects on the properties covered by the RVAA will be provided within the summary.

Distances

- 5.4.52 Where distances are given in the assessment, these are approximate distances between the nearest part of the site and the nearest part of the receptor in question, unless explicitly stated otherwise.

5.5 Baseline

- 5.5.1 An overview of the baseline study is provided in this section, presenting a review of the key local guidance documents and all of the landscape and visual receptors identified within the extent of the study area.
- 5.5.2 This section has undertaken an initial assessment of all the identified receptors and sets out which receptors merit further detailed consideration in Section 5.6: Assessment of Potential Effects; and which receptors 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). Full baseline descriptions are provided alongside the assessment of effects for those receptors taken forward to Section 5.6, for ease of reference.
- 5.5.3 Both this baseline study section and Section 5.6 describe landscape character and visual receptors before considering designated landscapes. It is common for designations to encompass both character and visual considerations within their special qualities or purposes of designation. It therefore makes a more natural reading sequence to draw together those aspects of character and views which relate to the designation if they have been described earlier in the report.

Zone of Theoretical Visibility (ZTV) Studies

- 5.5.4 ZTV studies have been generated based on the layout of the proposed development and the candidate wind turbine sizes. The ZTVs have been used as a tool to inform the professional judgements made in this LVIA during the iterative design process and stages.

- 5.5.5 The ZTV studies are shown on Figures 5.6 and 5.7 and indicate areas of potential visibility. In accordance with NatureScot guidance ‘Visual Representation of Wind Farms’ (2017)²⁴ the analysis has been prepared using a topographic model alone (Figure 5.6) and including woodlands and settlements (with heights derived from NEXTMAP25 surface mapping data) as visual barriers to provide a more realistic indication of potential visibility (Figure 5.7).
- 5.5.6 In response to NatureScot’s scoping comments a ZTV has been produced (Figure 5.5) showing theoretical visibility up to 45km, demonstrating that the pattern of visibility does not change beyond the adopted 35km study area. This figure should be used for reference only and is not considered as part of the assessment.
- 5.5.7 The ZTV studies have been used to determine which landscape and visual receptors are likely to be affected and merit detailed consideration in the assessment of effect, and those which are unlikely to have visibility.
- 5.5.8 Further ZTV studies have been prepared to support the assessment of character (Figure 5.8), night-time (Figures 5.12 and 5.13) and cumulative (Figures 5.10 and 5.11) effects.
- 5.5.9 It should be borne in mind that the ZTVs represents a theoretical model of the potential visibility of the proposed development. In reality, landscape features such as trees, hedgerows, embankments, landform and / or buildings found on the ground, but not accounted for within the surface mapping dataset, are likely to combine to screen the proposed development to a greater degree. It should be noted that there is active forestry within the area, resulting in the felling and replanting of some areas of woodland modelled in the ZTV study (Figure 5.7) which may result in localised variations to the visibility pattern. As a result, the extent of actual visibility experienced on the ground may differ to that suggested by the ZTV study.

ZTV and Zone of Visual Influence (ZVI)

- 5.5.10 The ZTV studies shown on Figures 5.6 and 5.7 indicate that the theoretical visibility of the proposed development would be widely visible within 5km of the proposed development, except where woodland or steep topography would screen the proposed development from view. The settlement of Langholm lies along the base of a steep, wooded river valley and theoretical visibility is predominantly limited to the northern-western side of the valley and in open spaces such as from the bridge over the River Esk (see Viewpoint 7, Figure 5.20) and Castleholm Country Park to the north of the settlement.

²⁴ (2017). Visual Representation of Wind Farms. NatureScot.

- 5.5.11 Between 5-15km theoretical visibility becomes increasingly intermittent to the north, east and west; in these areas there is an increase in forestry land and the landform is comprised of numerous small, steep hills, which serve to limit visibility. To the south-east, south and south-west, theoretical visibility remains more widespread across the more open, flatter land. Beyond 15km the pattern of theoretical visibility continues in a similar manner, gradually becoming patchier as distance from the site increases.
- 5.5.12 The anticipated main area of visibility, hereafter referred to as the ‘Zone of Visual Influence’ (ZVI), is described below. A ZVI is used to describe the ZTV with a greater degree of accuracy and is based on site observations and detailed study of the ZTVs.
- 5.5.13 Site observations confirm that the ZVI will extend:
- within 5km of the site in all directions;
 - to the north along the A7 road corridor and on the adjacent minor hills to a distance of approximately 25km;
 - to the east, south of Kershope Forest to the edge of Spadeadam;
 - to the south-east to the railway line between Carlisle and Gilsland;
 - to the south to the northern edge of Carlisle;
 - to the south-west to 25km; and
 - to the west approximately 30km to Caerlaverock Castle (VP13) at the mouth of the River Nith and no further north than the southern extent of the Forest of Ae.
- 5.5.14 Based on fieldwork observations, it is judged that effects on landscape or visual receptors outside the ZVI described above will experience **Negligible** change and are not assessed in further detail in this report.

Current Baseline

Landscape Character

- 5.5.15 Paragraphs 5.13-5.15 of GLVIA3 indicate that landscape character studies at the national or regional level are best used to “*set the scene*” and understand the landscape context. It indicates that Local Authority Assessments provide more detail and that these should be used to form the basis of the assessment of effects on landscape character - with (appropriately justified) adaptation, refinement and interpretation where required.

- 5.5.16 In Scotland, NatureScot commissioned a series of regional Landscape Character Assessments (LCAs) in the 1990s which mapped the landscape character of all of Scotland and typically covered individual local authority areas.
- 5.5.17 Following a recent review, these assessments have been superseded by NatureScot’s 2019 Landscape Character Assessment which provides a unified approach to Landscape Character Types (LCTs) across local authority areas and take into account the latest available data.
- 5.5.18 NatureScot’s 2019 Landscape Character Assessment will be used as the basis consideration of effects on landscape character for this assessment.
- 5.5.19 The DGWLCS was produced prior to NatureScot’s 2019 assessment and utilises the 1998 LCAs. These areas remain broadly similar to those within NatureScot’s assessment and information within the DGWLCS will also be utilised to inform the assessment of effects on landscape character. Where character areas differ between the 2019 assessment and the DGWLCS these changes will be described and reasonable inferences will be made in transposing this information.
- 5.5.20 Landscape character within the districts of Allerdale and Carlisle is covered by the Cumbria Landscape Character Guidance and Toolkit (2011) which provides detail on Cumbria’s Landscape Character Types. No more detailed local documents exist covering these areas.
- 5.5.21 In Northumberland, landscape character is covered either within the Northumberland Landscape Character Assessment (2010) or the Update of Landscape Character Assessment for Northumberland National Park (2019).
- 5.5.22 The relevant LCTs and LCAs are shown on Figure 5.3.

National Landscape Character

- 5.5.23 There is no ‘high level’ national landscape character assessment for Scotland, instead landscape character is provided at a local level within NatureScot’s 2019 Landscape Character Assessment.
- 5.5.24 In England, national landscape character is described within Natural England’s National Character Area (NCA) Profiles (2014)²⁵, within the study area these include:
- NCA6: Solway Basin (5.1km, south)
 - NCA5: Border Moors and Forests (9.9km, east)
 - NCA9: Eden Valley (25.2km, south-east)

²⁵ Natural England. (2014). National Landscape Character Area Profiles. Available at: <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles>

- NCA11: Tyne Gap and Hadrian's Wall (26.3km, south-east)
- NCA10: North Pennines (29.6km, south-east)

5.5.25 The NCA profiles provide the wider context to the landscape character assessment. Together they describe the transition in character from the low-lying, primarily pastoral landscape of Solway Basin (NCA6) into the more undulating and wooded landscape of Eden Valley (NCA9) in the south; and in the east they describe how the sparsely populated, afforested upland plateau of the Border Moors and Forests (NCA5) are separated from the remote upland moorlands of the North Pennines (NCA10) by the mosaic of arable pasture land, conifer plantations and well wooded valley sides of the Tyne Gap and Hadrian's Wall NCA (11).

5.5.26 The NCAs provide context to the assessment but given the scale of the NCAs, and the presence of more detailed character areas at a local level, effects on NCAs are not assessed in further detail.

Local Landscape Character

5.5.27 Only those landscape character areas within 15km of the nearest wind turbine are included in this assessment, as local character areas beyond 15km will not experience more than Negligible effects on character, given the reduction of effects with distance, the theoretical visibility pattern shown on the ZTV (see Figure 5.7) and the existing pattern of wind farm development (see Figure 5.9). Figure 5.8 has been prepared which overlays the ZTV study (Figure 5.7) with the landscape character areas/types shown on Figure 5.3 to help aid the narrative below. The NatureScot Landscape Character Assessment (2019) and the Cumbrian Landscape Character Guidance and Toolkit (2011) will provide the primary references for landscape character within this 15km area.

NatureScot Landscape Character Assessment (2019)

5.5.28 The site is primarily situated within LCT175 Foothills - Dumfries and Galloway, with a small area of the site in LCT172 Upland Fringe - Dumfries and Galloway. The site sits at the western end of a linear band of LCT175 which extends to the north-west, whilst LCT 172 extends intermittently to the eastern edge of Dumfries and Galloway and away to the west.

5.5.29 The following character areas are excluded from more detailed assessment on the basis that effects are likely to be Negligible:

- LCT178 Southern Uplands with Forest - Dumfries and Galloway (1.3km, north) - this character area has limited visibility of the proposed development and already contains Crossdykes, Ewe Hill and Craig Wind Farms. Therefore, the minor areas of limited visibility resulting from the proposed development will not alter the character of this area.
- LCT160 Narrow Wooded River Valley - Dumfries and Galloway (2.6km, north); LCT176 Foothills with Forest - Dumfries and Galloway (6.8km, north-west); LCT93 Southern Uplands with Scattered Forest - Borders (8.3km, east); LCT176 Foothills with Forest - Dumfries and Galloway (10.2km, north); LCT178 Southern Uplands with Forest - Dumfries and Galloway (10.7km, north); LCT113 Upland Valley with Pastoral Floor (10.5km, east); LCT96 Southern Uplands with Forest - Borders (13.8km, east) - these character areas have limited to no visibility of the proposed development, as indicated by the ZTV studies at Figure 5.6 - 5.8 and the description of the ZVI in Section 5.5, and there will therefore be limited alteration to the character of these landscapes.

5.5.30 Effects on the following character areas are assessed within Section 5.6, with baseline descriptions provided alongside the assessment of effects for ease of reference:

- LCT175 Foothills - Dumfries and Galloway (includes site)
- LCT172 Upland Fringe - Dumfries and Galloway (includes site)
- LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north)
- LCT171 Flow Plateau (1.1km, south)
- LCT161 Pastoral Valley - Dumfries and Galloway (1.4km, east)
- LCT176 Foothills with Forest - Dumfries and Galloway (3.2km, east)
- LCT177 Southern Uplands - Dumfries and Galloway (3.2km, north-east)
- LCT166 Upland Glens - Dumfries and Galloway (3.5km, north-east)
- LCT172 Upland Fringe - Dumfries and Galloway (3.6km, east)
- LCT177 Southern Uplands - Dumfries and Galloway (3.6km, north)
- LCT160 Narrow Wooded River Valley - Dumfries and Galloway (4.7km, south-west)
- LCT163 Middle Dale - Dumfries & Galloway (5.9km, east)
- LCT158 Coastal Flats - Dumfries & Galloway (5.9km, south)
- LCT160 Narrow Wooded River Valley - Dumfries and Galloway (7.3km, south-east)
- LCT170 Coastal Plateau - Dumfries & Galloway (9.9km, south-west)
- LCT162 Lower Dale - Dumfries & Galloway (11.7km, south-west)

Cumbria Landscape Character Guidance and Toolkit (2011)

5.5.31 Effects on the following character areas are assessed within Section 5.6, with baseline descriptions provided alongside the assessment of effects for ease of reference:

- LCT5b Low Farmland (5.2km, south)
- LCT8b Broad Valleys (6.7km, south)
- LCT2b Coastal Mosses (8.4km, south)
- LCT5b Low Farmland (8.8km, south-east)
- LCT2c Coastal Plain (9.3km, south)
- LCT6 Intermediate Farmland (10.7km, south-east)
- LCT9c Forests (11.8km, east)
- LCT1a Intertidal Flats (12.2km, south)
- LCT1b Coastal Marsh (13.0km, south)

5.5.32 The remaining Cumbrian LCTs within the study area are excluded from more detailed assessment on the basis that effects are likely to be Negligible.

Visual Receptors

5.5.33 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 study, baseline desk study and site visits have been used.

5.5.34 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 and Core Paths; or people visiting key viewpoints. In dealing with areas of settlement, Public Rights of Way and local roads, receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common.

5.5.35 17 representative viewpoints have been selected to assess the effects on visual receptors. In addition specific viewpoints may be identified where there are key promoted viewpoints within the study area, or illustrative viewpoints to “*demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations*” (GLVIA, 3rd edition, para 6.19).

Visual Environment of the Site

5.5.36 As shown on Figure 5.1, the proposed development is located within an area of open rolling moorland directly to the south of the B7068. Figure 5.4 shows the topography of the site which varies from west to east. The western extent of the site is located around Collin Hags (hill) which peaks at 255m above ordnance datum (AOD), moving east the landform falls to around 165m AOD near Back Burn, before rising in the centre of the site at Healy Hill to around 202m AOD. Further east the landform falls again to around 140m AOD near Bloch Burn, before rising quickly to the summit of Bloch Hill (271m AOD) on the eastern boundary of the site.

5.5.37 The landscape to the south of the site is generally composed of lower, rolling agricultural land interspersed with small areas of woodland and forestry, which provide a degree of enclosure and screening of views from within this area. To the east, west and north of the site, the landscape becomes rugged with a greater number of steeper hills and larger areas of forestry cover.

5.5.38 The town of Langholm lies along the river valley 2.3km north-east of the site and is primarily accessed by the A7 which runs north-south past the site. There are multiple small settlements and farmsteads in the vicinity of the site (see Figure 5.1).

5.5.39 As shown on Figure 5.1 and Figure 5.9 there are multiple operational and consented wind farms within 35km of the site. The nearest operational wind farm is Solwaybank Wind Farm, which lies adjacent to the western boundary of the site. Further operational and consented wind farms within the study area include: Craig, Ewe Hill, Minsca, Crossdykes, Pines Burn, Harestanes and Minnygap in Scotland; and Beck Burn, Hallburn, Little Hartfell, Todhills, Tempest Tower, Spital Sykes Farm, Midtown Farm, Orton Park, Orton Grange Farm, Great Orton, and Hellrig in England.

Visual Receptor Groups

5.5.40 Visual effects are assessed for groups of visual receptors within close proximity of each other and that are judged to experience similar visual effects arising from the proposed development. These are referred to as ‘visual receptor groups’ and include motorists on local roads, users of rights of way and local residents or visitors to settlements.

5.5.41 The following visual receptor groups have been identified within the extent of the ZVI and are taken forward for detailed assessment in Section 5.6. The extents of the Visual Receptor Groups are described in the following sections.

5.5.42 It is judged that for those visual receptors located outside of the ZVI there will be little to no visibility of the proposed development, and that effects will be negligible at most. Visual receptors located outside of the ZVI are not taken forward for detailed assessment.

Table 5.9: Visual Receptor Groups taken forward for assessment

Visual Receptor Group Name	Location / Description
(1) Local roads, residents and core paths between the A7, A6071 and A74(M) (up to 1.8km east, 9.0km south and 8.0km south-west)	Residents and users of the local roads, core paths and the wider landscape between the A74(M) in the west and the A7 in the east (see VPs 1,2,3,4 and 5). This group excludes the major roads and the larger settlements along them (see group 4).
(2) Langholm, local core paths and hills (2.3km, north-east)	Residents and visitors within the town and public open spaces of Langholm, including Malcolm Monument and Whita Hill directly east of Langholm (see VPs 7 and 8).
(3) A7 and local hills north of Langholm (2.5km - 4.5km north-east)	Users around the A7 and adjacent local roads, residents and users of local landscapes between Langholm and Teviothead, and between Peat Rig in the west and Roan Fell in the east.
(4) Settlements along key road corridors, including the A7, A74 (M) and A75 (up to 5.0km east, 13.5km south, 18.1km south-west and 13.6km west)	Users around key movement corridors and settlements along these routes. This group extends from Gretna: along the A6071/A7 to southern edge of Langholm, taking into account Longtown and Canonbie; along the A75/B721 to the River Annan, incorporating Eastriggs and Annan; and along the A74(M)/B7076 taking into account settlements such as Kirkpatrick-Fleming, Kirtlebridge and Ecclefechan. This group does not extend to Castlemilk or Lockerbie.
(5) Distant roads, residents and recreational landscapes between 8.7km and 29.1km west	Residents and users of movement routes and the local landscape west from Bankshill and Brydekirk to 29.1km west of the site. This group includes the banks of the estuary between Annan and Caerlaverock Castle.
(6) Distant roads and residents in the low-land of Carlisle (11.4km - 28.2km, south-east)	Resident, users of local roads and the wider landscape to the east of Carlisle, south of the River Esk and Kershope Forest, west of Spadeadam Forest and north of the railway line between Carlisle and Gilsand.
(7) Distant roads and residents along the estuarine landscape west of Carlisle (16.8km - 25.1km, south)	Residents, users of local roads and the wider landscape to the west of Carlisle up to Cardurnock Flatts and not beyond 25.1km from the site.

Roads and Rail

5.5.43 The following key road and rail routes lie within the ZVI and are considered in detail in the Assessment of Effects at Section 5.6:

- A7 (2.1km, east) - which runs north from Carlisle, through Langholm towards Teviothead.

- A74(M)/M6 (8.7km, south-west) - which runs north-west from Carlisle to Lockerbie, before turning north.
- A75 (11.3km, south) - which runs south-east from Dumfries to Gretna.
- West Coast Mainline (8.9km, south-west) - which runs north-west from Carlisle broadly in parallel to the A74(M)/M6 road corridor.
- Glasgow South Western Line (11.1km, south) - which runs north from Carlisle to Gretna, before turning west to Dumfries.

5.5.44 There are a number of routes within the ZVI which are excluded from the detailed assessment. These include:

- The A709 (15.4km, west) which runs from Dumfries to Lockerbie, visibility will be restricted to limited views of a small number of blade tips on the distant horizon.
- The A6071 (10.9km, south) which runs east from Gretna to Longtown, before turning south-east to Brampton, it is a predominantly tree and hedgerow lined route that passes close to operational Becks Burn and Hallburn Wind Farms. The A6071 affords limited glimpsed views towards the site, with the exception of a short (c.120m) section between Gretna and Blackbank where the wind turbines will be clearly visible along with Solwaybank and Beck Burn.
- The A689 (20.1km, south) which runs east from Carlisle to Longtown, where it then turns to the south-east, it is largely lined by trees and hedgerows, with plentiful local vegetation between the route and the site which provide screening for the majority of the route. Due to the distance, views will be limited to glimpsed distant views of the site on the horizon.
- The A69 (25.2km, south) which runs east from Carlisle through Longtown, it is predominantly lined by trees and hedgerows which screen views towards the site. If seen, the proposed development will likely be visible in infrequent, glimpsed views only as a distant element on the horizon.

Long Distance Routes

5.5.45 The following long distance walking route is located within the ZVI and is considered in the Assessment of Effects:

- Hadrian's Wall Path (18.2km, south)

5.5.46 The following route lies within the ZVI and is excluded from the detailed assessment:

- Annandale Way (13.0km, south-west). This route runs north from Annan just beyond Moffat, it is largely sheltered along the River Annan corridor, where it lies low down adjacent to the river. There are multiple consented and operational wind farms between the route and the site.

5.5.47 Scotland's tourism site 'Visit Scotland' also promotes a series of Scenic Driving Routes²⁶, three of which run through the ZVI:

- Borders Historic Route (Scots Dyke to Edinburgh) (2.2km, east);
- Galloway Tourist Route (Gretna to Ayr) (11.2km, south); and
- South West Coastal 300 (Dumfries to Dumfries) (14.9km, west).

5.5.48 These Scenic Driving Routes are considered in the Assessment of Effects at Section 5.6 and inform the sensitivity of key road routes.

National, Regional and Local Cycle Routes

5.5.49 Figure 5.2 shows the National Cycle Routes (NCRs) and Regional Cycle Routes (RCRs) present in the study area. The routes within the ZVI are as follows:

- NCR 7 (7.4km, south);
- NCR 74 (8.8km, south-west);
- NCR 10 (15.4km, east);
- NCR 72 (18.0km, south); and
- RCR 11 (9.7km, south-west).

Specific Viewpoints

5.5.50 DGWLCs identifies Burnswark Hill Fort (10.7km, west) and the Repentance Tower at Hoddam (15.9km, south-west) as key elevated viewpoints towards the host character type. Burnswark Hill Fort has been included as Viewpoint 10 and Repentance Tower has been included as Viewpoint 17.

5.5.51 There are no further specific viewpoints identified on OS Maps with the ZVI.

Landscape Designations and Value

Designated Landscapes

5.5.52 Landscape designations are shown of Figure 5.2. The following designated landscapes lie within the ZVI and are considered in detail in the Assessment of Effects:

Areas of Outstanding Natural Beauty (AONBs)

- Solway Coast AONB (13.2km, south).

National Scenic Areas (NSA)

- Nith Estuary NSA (23.4km, south-west).

Regional Scenic Areas (RSA)

- Langholm Hills RSA (0.1km, north-east);
- Torthorwald Ridge RSA (19.0km, west); and
- Solway Coast RSA (20.5km, south-west).

World Heritage Sites

- Frontiers of the Roman Empire (Hadrian's Wall) (Core Area) (18.0km, south); and
- Frontiers of the Roman Empire (Hadrian's Wall) (Buffer Area) (12.1km, south).

5.5.53 There is one Garden and Designed Landscape (GDL) located within the ZVI, this is excluded from the detailed assessment; Kinmount GDL (18.3km, south-west) is bounded by woodland which screens the proposed development from the majority of the GDL, including the parkland and house that lie within the centre of the GDL.

5.5.54 Non-Inventory GDL are identified on Figure 5.2 and designated within Dumfries and Galloway's LDP2. Non-inventory GDLs were originally mapped to identify their key features, such as areas of parkland, woodland, pleasure paths or water features. Sites within the ZVI have been investigated for features such as avenues or vistas facing towards the site that may be affected by the proposed development. No such features have been identified and landscape and visual effects on Non-Inventory GDLs are not considered further.

Wild Land Areas

5.5.55 The Talla - Hart Fell Wild Land Area lies outside the ZVI and has not been considered in the assessment.

Local Landscape Value

5.5.56 Within the study area there are a number of features that contribute to the value of the landscape and townscape value.

5.5.57 Areas with national or international designations are deemed to be of National/International value. Within the ZVI this includes Hadrian's Wall World Heritage Site core area and buffer zone, Nith Estuary NSA and Solway Coast AONB.

5.5.58 The major settlements of Carlisle and Dumfries lie outwith the ZVI but they are judged to be of Local value due to the concentration of multiple Conservation Areas and Gardens and Designed Landscapes/Registered Parks and Gardens/Non-Inventory Gardens and Designed Landscapes. RSAs are also assessed to be of Local value.

²⁶ Visit Scotland. (2022). Scenic Driving Routes. Available at: <https://www.visitscotland.com/see-do/tours/driving-road-trips/routes/>

5.5.59 Beyond the areas stated above, the parts of the study area that lie within the ZVI are judged to be of Community value.

Future Baseline

5.5.60 In the absence of the proposed development, it is likely that the land will continue to be used as pastoral farmland and the character of the site is therefore unlikely to undergo significant change.

5.5.61 There are large areas of forestry within the local area which are likely to give rise to some changes in the surrounding area through the felling and replanting of trees.

5.6 Assessment of Potential Effects

Introduction

5.6.1 This section sets out the effects that the proposed development will have on both landscape and visual receptors. The effects are considered to be reversible as after a period of 50 years the wind farm will be removed, unless a further application to extend the life of the proposed development is applied for and granted, or an alternative application to ‘repower’ with new wind turbines and associated infrastructure is applied for and granted. Whilst 50 years is regarded as Permanent for the purposes of this assessment, the effects of the proposed development on the landscape are reversible.

Construction and Decommissioning Effects

5.6.2 Key potential impacts during the construction of the wind turbines and associated infrastructure will be short-term, with the construction programme anticipated to be 15 months in duration. Activities will include the movement of vehicles; construction of foundations, hardstands, access tracks, site entrances, the substation compound, the Battery Energy Storage System (BESS) and the temporary construction compound; the opening of borrow pits; and the use of large cranes to erect the wind turbines.

5.6.3 The footprint of the wind turbines is relatively small, and the ground works associated with the foundations, hardstands, compounds and access tracks will be largely screened beyond 2.5km from the site. The main effects that will arise will be from cranes and the erection of wind turbines. These effects will be different in nature to those experienced once the proposed development is complete, but similar in their magnitude and significance.

5.6.4 Construction effects are assumed to be broadly the same as operational effects whilst cranes or standing wind turbines are on-site. Before and after the wind turbines are on-site effects from all other construction activities will be restricted to localised, very short term, temporary views of construction activity, which will not give rise to significant effects. Construction activities will not give rise to significant landscape character or visual effects over and above those of the operational site. The primary effects arising will be from the wind turbines and this assessment therefore focusses on the operational effects.

5.6.5 Decommissioning effects will be largely similar to those during construction, albeit in reverse. These effects are considered synonymous to the construction effects and are not discussed separately.

Operational Effects on Landscape Character

5.6.6 The proposed development is situated across a series of gently undulating hills, covered with tussocky agricultural grassland. The site is typical of its primary host character type, LCT175 Foothills - Dumfries and Galloway, with a combination of neighbouring scattered farmsteads, small settlements, the presence of minor roads, and the influence of wind energy development, notably from the adjacent Solwaybank Wind Farm. The site is located at a clear transition between the lower landscape to the south and the uplands to the north. In keeping with the character of LCT175 the northern edge of the LCT extends into areas of large conifer plantation.

5.6.7 Large scale effects will occur within the eastern part of the site itself, from Bloch Burn eastwards, and extending to the eastern boundary of LCT175 and to the southern boundary of LCT172 where it is directly south of the site, where the sense of being located within a wind farm landscape will be created.

5.6.8 Due to the presence of the existing Solwaybank Wind Farm effects will reduce to Large-Medium scale within the western part of the site as there is an existing sense of being within or close to a wind farm landscape when in and adjacent to the existing wind turbines. Further Large-Medium scale effects would extend to Bloch Burn and to the southern boundary of LCT172 where it is directly south of the site. To the north of the site, Large-Medium scale effects will gradually reduce to Medium at Craig Wind Farm.

- 5.6.9 Medium scale effects will occur up to approximately 5km to the east, within LCT161 and the local hills to the east, and including the area around Malcolm Monument (VP8). To the south and south-east, Medium scale effects will gradually reduce to Small and then Negligible scale by approximately 7.5km from the site where the local pattern of vegetation and built form will break up the potential visual influence of the proposed development. Where Medium scale effects occur, wind farms form part of the existing character of the landscape, and the proposed development will form a noticeable addition to the scale and extent of wind farms within this area.
- 5.6.10 Small scale effects will occur along LCT166 and on the minor hills adjacent to this LCT where the proposed development will be visible in glimpsed views along the road corridor or from high points within the landscape.
- 5.6.11 Effects to the north beyond Craig Wind Farm, and to the west beyond Solwaybank Wind Farm, will quickly diminish to Negligible due to the presence of multiple local wind farms which create a sense of distance and limit effects.
- 5.6.12 Taking the above considerations into account, effects on the following character types will be Negligible and effects on these are not considered further:
- LCT160 Narrow Wooded River Valley - Dumfries and Galloway (4.7km, south-west);
 - LCT163 Middle Dale - Dumfries & Galloway (5.9km, east);
 - LCT158 Coastal Flats - Dumfries & Galloway (5.9km, south);
 - LCT160 Narrow Wooded River Valley - Dumfries and Galloway (7.3km, south-east);
 - LCT170 Coastal Plateau - Dumfries & Galloway (9.9km, south-west);
 - LCT162 Lower Dale - Dumfries & Galloway (11.7km, south-west);
 - LCT5b Low Farmland (5.2km, south);
 - LCT8b Broad Valleys (6.7km, south);
 - LCT2b Coastal Mosses (8.4km, south);
 - LCT5b Low Farmland (8.8km, south-east);
 - LCT2c Coastal Plain (9.3km, south);
 - LCT6 Intermediate Farmland (10.7km, south-west);
 - LCT9c Forests (11.8km, east);
 - LCT1a Intertidal Flats (12.2km, south); and
 - LCT1b Coastal Marsh (13.0km, south).
- 5.6.13 Descriptions for each of the assessed LCTs are briefly summarised below, along with an assessment of effects which is informed by site-based observations.

NatureScot Landscape Character Assessment (2019)

LCT175 Foothills - Dumfries and Galloway (includes site)

- 5.6.14 As illustrated by Figure 5.3 this LCT encompasses the majority of the site within the east of the character area and extends north-west away from the site towards the B723 at Boreland. Viewpoints 3 and 5 (Figures 5.16 and 5.18) lie within this character type. The key characteristics are defined in NatureScot's 2019 Landscape Character Assessment as:
- *“Generally undulating land between 170 and 250 metres, with rounded peaks. Higher in the west, up to nearly 550 metres with craggier peaks.*
 - *Foothills dissected by incised valleys.*
 - *Semi-improved pasture enclosed in medium-large fields by stone walls. Grazed by sheep and cattle. Some rough pastures and heath on higher ground.*
 - *Trees in sheltered pockets with some copses on top of hills.*
 - *Many scattered farmsteads and small settlements.*
 - *Network of minor roads.*
 - *Numerous archaeological sites particularly Bronze Age funerary and ritual sites and Iron Age settlements and forts.”*

The character assessment notes that LCT175 around Annandale is “influenced by wind energy development, both directly in the Landscape Character Type itself and indirectly in the adjacent Foothills with Forest - Dumfries and Galloway [LCT176] and Southern Uplands with Forest - Dumfries and Galloway [LCT178].” LCT175 encompasses the operational wind farms of Solwaybank, Minsca and part of Ewe Hill which lies predominantly within LCT178. To the north of LCT175, in LCTs 178 and 176 are the operational wind farms of Craig and Crossdykes. Little Hartfell Wind Farm (consented) will be constructed within LCT176 adjacent to the border of LCT175 (refer to Figures 5.3 and 5.8).

- 5.6.15 DGWLCS (2017) includes LCT 175 under its former title of LCT18 - Annandale Foothills and identified the potential for “*larger typologies*” of wind turbines which “*could relate to the broad scale and less complex form of some hill tops and more expansive hill slopes at the transition with the Southern Uplands with Forest (19a) [LCT178] and Foothills with Forest (18a) [LCT176] character types to the east.*” However, it goes on to note that the settled nature and presence of existing wind farm development would limit the scope for additional wind farms. The study concludes that “*capacity has largely been reached for the Large and Medium development typologies (turbines >50m) due to the constraints listed [in the*

DGWLCS document] *and dominance of operational and consented wind farms in the southern part of this landscape.*”

- 5.6.16 The DGWLCS identifies the landscape sensitivity as High-Medium for large and medium typology wind turbines (>50m) which, in terms of this assessment, is considered to be High-Medium susceptibility to the proposed development. A very small part of this LCT lies within the Langholm Hills RSA however not enough to increase the value beyond Community level. The LCT is judged to be of Medium sensitivity.
- 5.6.17 As set out above, effects on the site and open areas east of Solwaybank will be of Large to Medium-Large scale within the character area. To the west of Solwaybank Wind Farm, effects will quickly reduce to Negligible due to the presence of the existing wind farms which have a strong influence on the character of this area. These effects will be Localised, of **High-Medium Magnitude, Major-Moderate significance (significant) and Adverse** due to the scale and extent of the wind turbines within the eastern area of the character type.

LCT172 Upland Fringe - Dumfries and Galloway (includes site)

- 5.6.18 As illustrated by Figure 5.3 LCT172 encompasses the transitional landscape of gently rolling pastures that occurs between the uplands and the lowlands. Whilst a narrow fringe of this LCT lies within and to the south of the site (see Viewpoint 1, Figure 5.14), the majority of this LCT lies to the west of the site (see Viewpoint 10, Figure 5.23). The key characteristics are defined in NatureScot’s 2019 Landscape Character Assessment as:

- *“Elevated rolling pastures.*
- *Improved and rough grassland in close proximity.*
- *Hedgerow banks and treelines along roads in some lower areas.*
- *Dry stone dykes.*
- *Squared areas of forestry.*
- *Contrast between wide open areas and more intimate landform.*
- *Panoramic views over valley and coastal lowlands.*
- *Small bridges over incised burns.*
- *Notable landmark features, including Iron Age fortifications, designed landscapes and grand houses.”*

- 5.6.19 The assessment notes that some areas of this LCT are *“strongly influenced by the presence of highly visible development in the adjacent ... Foothills - Dumfries and Galloway Landscape Character Types, extending their influence into more settled and diverse lowland landscapes.”*

- 5.6.20 In the DGWLCS this character type was previously included under its former title of LCT16 - Upland Fringe ‘Hill Fringes’ (Annandale). There has been a minor reduction to the extent of the LCT since the study was published, with a small area of this having been removed beyond the A74(M) near Ecclefechan. The DGWLCS states that there are *“no opportunities to accommodate turbines >50m high in this landscape character type without significant effects occurring on key sensitivities”* within this LCT.

- 5.6.21 The DGWLCS identifies the landscape sensitivity as High for large and medium typology wind turbines (>50m) which, in terms of this assessment, is considered to be High susceptibility. A very small part of this LCT lies within the Langholm Hills RSA however not enough to increase the value beyond Community level. Sensitivity is judged to be Medium.

- 5.6.22 As with LCT175, effects on the area to the south of the site will be of Large-Medium-Scale, quickly reducing to Negligible beyond Solwaybank in the south-west. Effects on this LCT lie outwith the main body of the LCT, adjacent to an existing wind farm and in area with a more simpler vegetation pattern at the transition to the larger foothill landscapes, which are described as an *“opportunity”* within the DGWLCS. These effects will occur across a Localised extent of the LCT and be of **High-Medium Magnitude, Major-Moderate (significant) and Adverse**.

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

- 5.6.23 As illustrated by Figure 5.3 LCT177 covers a small area of upland located to the north of the site. NatureScot’s 2019 Landscape Character Assessment defines the key characteristics of this LCT as:

- *“Large, smooth dome/conical shaped hills, predominantly grass-covered.*
- *Open and exposed character except within incised valleys.*
- *Dramatically sculpted landforms and awe-inspiring scale.*
- *Distinctive dark brown/purple colour of heather on some of the higher areas.*
- *Pockets of woodland in incised valleys.*
- *Stone dykes occasionally define the lower limit.*
- *Wind farms locally characteristic, away from the more dramatic, scenic and sculptural slopes and skylines.”*

- 5.6.24 The assessment notes that *“Large-scale wind farms are locally characteristic of the open Southern Uplands - Dumfries and Galloway in upper Nithsdale and around Carsphairn and Langholm, away from the more dramatic, scenic and sculptural slopes and skylines. The defining strong areas of sculptural and dramatic landform, and landmark hills remain the dominant presence. Wind turbines are at times key defining characteristics of adjacent Landscape Character Types (such as Foothills*

with Forest - Dumfries & Galloway and Southern Uplands with Forest - Dumfries & Galloway) which can be felt strongly as nearby backdrops in the Southern Uplands - Dumfries and Galloway.” The study further notes that “This landscape is sensitive to indirect effects from wind farm developments sited in nearby landscapes.” Craig Wind Farm lies on the western boundary of this LCT. At a greater distance Solwaybank and Ewe Hill Wind Farms exert some additional influence.

- 5.6.25 The DGWLCs previously listed this LCT as LCT19 Southern Uplands (Ewe Hill) and classified this area as having a High sensitivity to the large and medium typology wind turbines (>50m). Much of this LCT lies within Langholm Hills RSA to which the DGWLCs accords High to Medium sensitivity for “landscape values”. Dumfries and Galloway Council’s Regional Scenic Areas Technical Paper (2018)²⁷ states that main pressures for landscape change on this RSA are “windfarms and forestry, plus the expansion of Langholm.”
- 5.6.26 On the basis of the information within the DGWLCs and the RSAs Technical Paper, this LCT is judged to be of High susceptibility and Local / District value. Combined together this LCT is judged to be of High-Medium sensitivity.
- 5.6.27 As set out above, effects on this LCT will be of Large-Medium scale at the southern end of the character type, gradually reducing to Medium around Craig Wind Farm. In this area the proposed development will reduce the open and exposed character of the hill tops and the drama of the steep valleys, with the proposed development occupying views down the valleys to the south. To the north of Craig Wind Farm, visibility is predominantly limited and effects will be Negligible. These effects relate to an Intermediate extent of the LCT and will be of **High-Medium magnitude, Major-Moderate significance (significant) and Adverse.**

LCT171 Flow Plateau (1.1km, south)

- 5.6.28 Figure 5.3 shows the extent of this LCT, which occupies a broad area of flat or gently rolling farmland to the south of the site between the A74(M) and the A7. Viewpoint 1 (Figure 5.14) lies on the northern edge of this LCT, with VP4 (Figure 5.17) in the centre and VP15 (Figure 5.28) located just outside the south-western boundary of the area. The key characteristics are defined in NatureScot’s 2019 Landscape Character Assessment as:
- “Mostly flat and gently rolling topography with an incline towards the Solway.
 - Occasional long views over the Solway.
 - Waterlogged rush infested pastures, ochre green and brown.

- Large fields with hedgerows in poor condition and fences.
- Cattle grazing.
- Shelterbelts and small informally shaped forests.
- Riparian woodlands.
- Scattered farmsteads.”

- 5.6.29 The assessment notes that this LCT has “few strong features and visual interest is focussed on long views and the relationship of this Landscape Character Type with the sea and intervening landscapes.” At present, influence from wind turbines arises from the distant wind farms of Minsca, Solwaybank and Beck Burn.
- 5.6.30 This LCT was listed within the DGWLCs as LCT15 Annandale Flow Plateau. It has since reduced in extent, with a small area between Gretna and the River Sark being removed. The DGWLCs notes that this LCT is “sensitive to extended or multiple wind farms located in the adjacent Foothills (18) [LCT175].” The LCT is described as being High-medium sensitivity to larger wind turbine typologies (>50m), which is deemed to be High-Medium susceptibility in this assessment. A small area of this LCT lies within a RSA, however the extent is not enough to increase the value beyond Community level. This LCT is judged to be of Medium sensitivity.
- 5.6.31 As set out above, effects on this LCT will reduce from Medium (see Viewpoint 1, Figure 5.14) in areas close to the border of LCT 172 south of the site, to Small (see Viewpoint 4, Figure 5.17) and then Negligible (see Viewpoint 15, Figure 5.28) scale by approximately 7.5km from the site where the local pattern of vegetation and built form will break up the potential visual influence of the proposed development.
- 5.6.32 On balance, these effects will occur across a Wide extent of the LCT and are assessed to be of Medium magnitude, Moderate significance (not significant) and Adverse.
- #### **LCT161 Pastoral Valley - Dumfries and Galloway (1.4km, east)**
- 5.6.33 Figure 5.3 identifies the extent of this LCT, which follows the well-vegetated valley that runs along the River Esk and A7 corridor between Canonbie and Langholm. This LCT is generally well-vegetated with areas of primarily broadleaf woodland, interspersed with small pastoral enclosures. Viewpoints 6 and 7 (Figures 5.19 and 5.20) lie within this character type. The key characteristics are described within NatureScot’s 2019 assessment as:
- “Medium scale flat bottomed valley with steep slopes.

²⁷ Dumfries and Galloway Council. (January 2018). Regional Scenic Areas Technical Paper. Available at: <https://www.dumgal.gov.uk/article/15343/Technical-Papers-Land-Use-Audits-and-Supporting-Documents>

- *Diverse landscape and settlement pattern*
 - *Distinct, eye-catching pattern of regular, small pastoral enclosures extending up the valley sides, usually defined by dry stone dykes.*
 - *Extensive pattern of broadleaf woodland (Shelterbelts, riparian woodlands and policy woodlands) separating the pastures into small and medium scale open spaces.*
 - *Isolated houses set within woodland frameworks on the valley sides.*
 - *Small settlements at river bridging points.*
 - *Minor roads following the sides of the valley floor.”*
- 5.6.34 This LCT was listed in DGWLCs as LCT5 Intimate Pastoral Valley ‘Pastoral Eskdale’. The study notes that the LCT is “*largely unaffected by wind farm development sited in other landscapes,*” however it notes a sensitivity to wind farm development, especially on the upper edge of the valleys, stating that “*care should also be taken if siting large turbines and wind farms on immediately adjacent upland character types (within the Foothills (18) or Upland Fringe (16) for example) as poorly sited these could ‘perch above’ and easily dominate these small scale valleys.*”
- 5.6.35 LCT161 was listed as having High sensitivity to large and medium typology wind turbines (>50m) within the DGWLCs. For the purpose of this assessment this is considered to be High susceptibility. The majority of the LCT lies within Langholm Hills RSA and as such, the LCT is deemed to be of Local/District value. Sensitivity is deemed to be High-Medium.
- 5.6.36 As described above, effects within LCT161 will be of Medium scale. Effects will primarily occur along the edges of the valley and in flatter areas to the south (see Viewpoint 7, Figure 5.20). Intervening structures, topography vegetation will greatly reduce or negate the extent of effects within the primary settlements (see Viewpoint 7, Figure 5.20). Middleholm Hill, located adjacent to the eastern boundary of the site, reduces the sense of the proposed development ‘overhanging’ this character type. Effects on LCT161 will occur across an Intermediate extent of the character type, where they will be of **Medium magnitude, Major-Moderate significance (significant) and Adverse.**
- LCT176 Foothills with Forest - Dumfries and Galloway (3.2km, east)***
- 5.6.37 As shown on Figure 5.3 this LCT encompasses a small area of land to the east of the site, that is predominantly covered by forestry. The key characteristics are defined within NatureScot’s Landscape Character Assessment as:
- *“Dark green blanket of forest covering undulating foothills.*
 - *Changing landscape with areas with large and medium scale forestry operations and wind farm development.*
- *Forested areas dominated by Sitka Spruce, interspersed with mixed conifers and broadleaf planting, undergoing felling and replanting in large coupes.*
 - *Tall mature conifers at roadside.*
 - *Areas of more complex, locally distinctive and smaller-scale landscapes, with semi-improved pasture with walled enclosures on open ground, occasional lochs and estate policies, distinctive ridges and landmark summits.*
 - *Areas of relict landscape with remains of pre-improvement settlement and agriculture clustered in burn valleys.*
 - *Wind farms, locally defining the character in some areas of central Dumfries and Galloway.”*
- 5.6.38 This LCT was included within the DGWLCs as LCT18a Foothills with Forest ‘Tinnisburn’. The study notes that “*the predominantly expansive, gently undulating landform and simple extensive coniferous forest cover of these areas of the Foothills with Forest (18a) reduces sensitivity to larger typologies of wind farm development,*” although it notes that this varies between different areas of this LCT. The Tinnisburn area is described as “*more visually sensitive than the Oer and Eskdale areas due to its wider landscape context of the open Langholm Hills and more settled valley of the Liddel Water.*”
- 5.6.39 The DGWLCs describes LCT176 as having High-Medium sensitivity to very large typology wind turbines (150m+). For the purpose of this assessment this is considered to be High-Medium susceptibility. Approximately half of this LCT within Langholm Hills RSA and as such the LCT is judged to be of Local/District value. Sensitivity is judged to be High-Medium.
- 5.6.40 As described at the start of this section, effects within this LCT will decrease from Medium to Negligible from west to east. The presence of forestry within this LCT greatly reduces the extent of effect, such that they will only occur across a Limited extent of the LCT. Effects are judged to be of Medium-Low magnitude, Moderate significance (not significance) and Adverse.
- LCT177 Southern Uplands - Dumfries and Galloway (3.2km, north-east)***
- 5.6.41 LCT177 is shown on Figure 5.3 and encompasses an area of large upland hills to the east of the A7 between Langholm and Glenreiff Rig. Viewpoint 8 (Figure 5.21) lies at Malcolm Monument within this LCT.
- 5.6.42 The key characteristics of this LCT remain as described above. There are no existing wind farms within this LCT, although wind farms within the wider landscape exert an influence on this character type, especially from the higher peaks (see Viewpoint 8, Figure 5.21).

- 5.6.43 The DGWLCS also lists this area of LCT177 as having a High susceptibility. The value of this LCT is judged to be Local / District as this area of LCT177 lies wholly within the Langholm Hills RSA. Landscape sensitivity is assessed to be High-Medium.
- 5.6.44 As described above, Medium scale effects will occur at the southern end of this character type, around Malcolm Monument (Viewpoint 8, Figure 5.21). Small scale effects will occur within the rest of this character type where the increased distance and intervening hills will reduce the perceived scale of the proposed development. These effects will occur across an Intermediate extent of the character type and will give rise to effects of Medium-Low magnitude, Moderate significance (not significant) and Adverse.
- LCT166 Upland Glens - Dumfries and Galloway (3.5km, north-east)*
- 5.6.45 As illustrated on Figure 5.3 this LCT follows the A7 road corridor between Langholm and Glenreiff Rig. It follows the upper reaches of local rivers and contains the steep valley sides adjacent to the valley floor. Viewpoint 11 (Figure 5.24) is located around two-thirds of the way up the valley and affords linear views along the valley towards the site. The key characteristics are described within NatureScot's Landscape Character Assessment (2019) as:
- *“Deep u-shaped (and partially v-shaped) valleys with steep sides and narrow flat valley floors.*
 - *Enclosed and often narrow, contained by steep sides which rise to form irregular ridgelines*
 - *Features of traditional upland farming, with isolated farmsteads surrounded by trees, small to medium sized fields and enclosures with drystone dykes, fanks, stells and shelterbelts.*
 - *Rough grassland and moor above improved pastures.*
 - *Medium scale conifer forests (or parts of larger forests) on the glen sides.*
 - *Single track road access.”*
- 5.6.46 The assessment notes that *“large scale wind farms are occasional features on the upland backdrops and skylines of some of the glens, although set back in a neighbouring Landscape Character Type.”* At present there is no visibility of existing wind farms from the valley floor, although some views may be possible from higher up the valley sides.
- 5.6.47 LCT166 was previously listed within the DGWLCS as LCT10 Upland Glens ‘Ewes’. The study notes the lack of operational and consented wind farms within this LCT, and notes that some areas experience views of existing wind farms. It is stated that *“the small scale and narrowness of these glens make them particularly sensitive to*

extended and multiple developments sited in surrounding uplands and seen on prominent skylines.” The DGWLCS does not provide an assessment for the sensitivity of this LCT, instead stating that there is *“no scope”* for large typology wind turbines without significant adverse effects. Due to the comments above, this LCT is assessed to have a High susceptibility to development within this assessment. This LCT lies wholly within the Langholm Hills RSA and is assessed to be of Local / District value. Combined, this LCT is deemed to have a High-Medium landscape sensitivity.

- 5.6.48 As described at the start of this section, effects on this LCT will be Small scale and will occur across an Intermediate extent of the area. The proposed development will be visible intermittently throughout the glen, where it will feature in a key view towards the head of the glen. Effects will be lower within this area of LCT166 than other areas due to the A7, which gives a more developed and trafficked character to this glen. Effects will be of Low magnitude, Moderate significance (not significant) and Adverse.

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

- 5.6.49 As illustrated on Figure 5.3, this area of LCT172 lies to the east of the site and the A7 across an area of gently rolling pasture interspersed with area of mixed woodland.
- 5.6.50 The key characteristics of this LCT remain as described above. There are no wind farms present within this area of LCT172.
- 5.6.51 The DGWLCS previously identified this area as LCT16 Upland Fringe ‘Liddesdale Fringe’, and also lists this area as having High susceptibility to large and medium typology wind turbines (>50m). Within this assessment this is considered to be High susceptibility. A small part of Langholm Hills RSA extends into this character type although not enough to raise the value above Community level. Sensitivity is judged to be Medium.
- 5.6.52 As described above, effects within this LCT will be Small in scale due to the distance between the site, the localised vegetation and the valley along the A7 corridor (LCT161), which creates a strong sense of separation between this character type and the proposed development. Effects will occur across a Wide extent of this area of LCT172 and will be of Medium-Low magnitude, Moderate (not significant) and Neutral.

LCT177 Southern Uplands - Dumfries and Galloway (3.6km, north)

- 5.6.53 As shown on Figure 5.3 this area of LCT177 is located to the north of the site and covers a large area of land to the west of the A7 from Langholm to Glenreiff Rig. This LCT encompasses an area of large, rugged, grass covered dome/conical shaped hills that extend into the folds of Eskdalemuir Forest.
- 5.6.54 The key characteristics of this LCT remain as described above. There are no wind farms within this area of LCT177 although Craig, Ewe Hill and Crossdykes wind farms lie between this area of LCT177 and the site.
- 5.6.55 The DGWLCS also lists this area of LCT177 as having a High susceptibility. The value of this LCT is judged to be Local / District as approximately half of this area of LCT177 lies within the Langholm Hills RSA. Landscape sensitivity is assessed to be High-Medium.
- 5.6.56 As described above, effects on this area will be Small-Negligible in scale due to the distance from the proposed development and the intervening wind farms, which will reduce the effects on this character type. Effects will occur across a Localised extent of the area and will be of Low-Negligible magnitude, Slight significance (not significant) and Neutral.

Operational Visual Effects**Visual Aids**

- 5.6.57 Wirelines and photomontage visualisations have been used to aid the assessment. These were generated from a 3-dimensional model of the proposed wind turbines, site and surrounding topography. Key landmarks and compass bearings were used to match the modelled views to the photographs.
- 5.6.58 The proposed borrow pits are not modelled due to their temporary nature. Other elements of low-level infrastructure, such as the substation compound, BESS and access tracks are not modelled due to the general lack of visibility of these features when compared to the proposed wind turbines.
- 5.6.59 The photographs, wirelines and photomontages are shown on Figures 5.14 - 5.30 supporting this LVIA. A detailed description of the methods by which the wirelines and photomontages are prepared is included in Technical Appendix 5.1. The visualisations are numbered according to the viewpoint that they show (e.g. VP_01 for Viewpoint 1), with a suffix indicating the type of visualisation (BP - baseline panorama and wireline (including cumulative schemes), WL - wireline, PM - photomontage, NP - night photomontage).

- 5.6.60 The viewpoint description, description of effects and scale of effect for each viewpoint (refer to Figure 5.6 and 5.7 for locations) is set out within Technical Appendix 5.2. The scale of effect for each viewpoint is summarised in Table 5.10:

Table 5.10: Representative Viewpoints

Viewpoint Reference & Location	Distance, Direction	Scale of Effect	Positive / Neutral / Adverse
VP1: High Stenries	2.4km, south	Large-Medium	Adverse
VP2: Minor road near Barnglieshead	0.6km, south	Large	Adverse
VP3: Collin Burn	0.0km, North	Large	Adverse
VP4: Milltown	3.7km, south	Medium	Adverse
VP5: Calfield	0.9km, north	Large	Adverse
VP6: B6318 north-west of Claygate	3.7km, east	Medium	Adverse
VP7: Langholm Bridge	2.9km, north-east	Negligible	Neutral
VP8: Malcolm Monument, Langholm	4.0km, north-east	Medium-Small	Adverse
VP9: Longtown	10.0km, south	Small	Neutral
VP10: Burnswark Hill Fort	10.6km, west	Small	Neutral
VP11: A7 near Unthank	13.1km, north-east	Small	Adverse
VP12: Bowness-on-Solway	18.6km, south-west	Small-Negligible	Neutral
VP13: Caerlaverock Castle	30.2km, south-west	Small-Negligible	Neutral
VP14: Banks, Hadrian's Wall	26.6km, south-east	Small-Negligible	Neutral
VP15: Gretna Green / Springfield	10.5km, south	Small-Negligible	Neutral
VP16: Kirkpatrick-Fleming	9.1km, south	Small	Adverse
VP17: Repentance Tower, Hoddum	15.8km, south-west	Small-Negligible	Neutral

- 5.6.61 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.

- 5.6.62 From these viewpoints it can be seen that:

- The extent of **Large** and **Large-Medium** scale effects, where the proposed development will form a major or semi-major alteration to key elements, features, qualities and characteristics of the view such that the baseline will be fundamentally changed, will generally be limited to locations in close proximity to the site, where there is view is looking directly at the site and there is little intervening vegetation or topography to reduce the scale of effects.
- The extent of **Medium** or **Medium-Small** scale effects is generally limited to areas in close to proximity to the site, but where local vegetation and changes in landform create a sense of separation sufficient to reduce the scale of effects.

- Beyond approximately 7.5km from the site boundary, the scale of effects will reduce to **Small** or **Small-Negligible** due to the wider presence of other wind farms within the view and/or a great sense of screening and separation by the landform and vegetation. In more distant views the size of the wind turbines mean that they often remain visible; Small scale effects will persist in longer views where there is a lack of screening between the viewer and the proposed development.
- Where the proposed development will either be screened from visual receptors by changes in landform or vegetation within the landscape, or the proposed development will form a very limited change in views, the scale of effect will be **Negligible**.

Visual Receptor Groups

- 5.6.63 This assessment focuses primarily on effects on groups of visual receptors, incorporating effects on views from public spaces and streets within settlements (or around the houses in areas with isolated dwellings), and the routes and accessible landscape in the surrounding countryside. Residents and visitors within these communities are assessed to be of High-Medium sensitivity.
- 5.6.64 The assessment of effects on settlements focuses on the visual amenity of public spaces, though views from groups of dwellings will also be noted in the descriptions where appropriate. Effects on private residential amenity are a separate matter, and only require assessment when a development is likely to have effects over the Residential Visual Amenity Threshold referred to in LI TGN 02/2019. These effects are included within the RVAA in Technical Appendix 5.3.
- 5.6.65 This section should be read in conjunction with the viewpoint descriptions in Technical Appendix 5.2 which provide a detailed description of views across the study area.
- Local roads, residents and core paths between the A7, A6071 and A74(M) (up to 1.8km east, 9.0km south and 8.0km south-west)*
- 5.6.66 This triangle of land between three major roads and includes the site as well as small settlements, individual homes and farmsteads, core paths (including the path between Outer Hill and Old Irvine directly south of the site, parts of the path around Warb Law and the path to the north of the site between Cassel's Moss and Calfield Rig) (see Figure 5.1), walking routes and multiple minor connecting roads. Viewpoints 1, 2, 3, 4, 5 and 10 (Figures 5.14-5.18 and 5.23) lie within this area.
- 5.6.67 As set out in Table 5.10 and within the viewpoint descriptions in Technical Appendix 5.2, effects will be Large or Large-Medium scale close to the site, reducing to Small scale towards the south and west of the receptor group, where viewers are further away from the site and the proposed development will be increasingly screened and/or seen in the context of other wind farm development within the area. Effects will arise across a Wide extent of this High-Medium sensitivity receptor group and will be of Medium magnitude, Major-Moderate (significant) and Adverse.
- Langholm, local core paths and hills (2.3km, north-east)*
- 5.6.68 This receptor group includes the town of Langholm including its public spaces. It also includes local hills and core paths (including the path between Calfield Rig and New Langholm, Old Irvine to Langholm and those east of Langholm around Whita Hill) (see Figure 5.1) within easy walking distance, primarily those separated from the site such as Whita Hill, Mid Hill and Black Knowe. It does not include Warb Law which is covered by the previous receptor group. Viewpoint 7 (Figure 5.20) represents the effects with the town, these are predominantly Negligible due to the local screening from buildings and vegetation. Viewpoint 8 represents views from local hills that residents of Langholm may use frequently as part of the immediate recreational offer.
- 5.6.69 Visibility will primarily be limited to large open spaces within the town and on elevated ground on local hills. Effects will range from Negligible within the more enclosed areas of Langholm and will increase to Medium-Small on elevated ground. Effects will arise across an Intermediate extent of this receptor group and will be of Medium-Low magnitude, Moderate significance (not significant) and Adverse.
- A7 and local hills north of Langholm (2.5km - 4.5km north-east)*
- 5.6.70 This receptor group includes the u-shaped valley and adjacent hills that run between Langholm and Glenreif Rig. The primary visual receptors will be users of the A7 at the base of the valley, however this group also includes residents of the individual properties and farmsteads within the valley and recreational users of the local hills. Viewpoint 11 (Figure 5.24) is located adjacent to the A7 and represents the view when travelling along the valley towards the site where wind turbine blades will be visible just above the end of the valley as described in Technical Appendix 5.2.
- 5.6.71 The scale of effects will be Medium-Small on the hill tops to Small within the majority of the valley. As shown on the ZTV study (Figure 5.7) these effects will occur across an Intermediate extent of the receptor group and will be of Medium-Low magnitude, Moderate significance (not significant) and Adverse.

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

- 5.6.72 This receptor group includes the land and settlements immediately adjacent to the main road corridors. This includes: Gretna to the southern edge of Langholm via the A7; Gretna to around Ecclefechan via the A74(M); and Gretna to Annan via the A75. Viewpoints 6, 9, 15 and 16 (Figures 5.19, 5.22, 5.28 and 5.29) represent effects from across this area.
- 5.6.73 Effects will be experienced across a Wide extent of the receptor group where the proposed development will be seen at a distance, often partially screened by local features and in the context of other wind farm development. As described in Technical Appendix 5.2 effects will range in scale from Medium (Viewpoint 6, Figure 5.19) to Small (Viewpoints 15 & 16, Figures 5.28-29) to Negligible (Viewpoint 9, Figure 5.22). These effects will be highest in the area immediately to the east of the site, between Langholm and Canonbie, due to the proximity between the receptor group and the proposed development. On balance, effects within this receptor group will be of Medium-Low magnitude, Moderate (not significant) and Adverse.

Distant roads, residents and recreational landscapes between 8.7km and 29.1km west

- 5.6.74 This receptor group encompasses an area to the west of Annan that extends no further west than Caerlaverock Castle (VP13) and no further north than the southern border of the Forest of Ae. Lockerbie is the biggest settlement within the group and the area primarily consists of individual or small groups of properties and agricultural landscape interspersed with areas of woodland beyond this. Minsca Wind Farm lies within this receptor group. Viewpoints 10 and 17 (Figures 5.23 and 5.30) represent some of the more open views from elevated locations within this receptor group, whilst Viewpoint 13 (Figure 5.26) represents the most distant view from a recreational landscape.
- 5.6.75 As set out within Technical Appendix 5.2, the scale of effects will be Small to Small-Negligible and Neutral across the majority of this receptor group. Effects will arise across a Localised extent of the receptor group and will be of Low magnitude, Slight (not significant) and Neutral.

Distant roads and residents in the low-land of Carlisle (11.4km - 28.2km, south-east)

- 5.6.76 This receptor group covers the low-land to the south of the A6071 and A7, to the east of the M6 and Carlisle, to the north of the railway line between Carlisle and Gilsland, and runs west to the borders of Kershope and the Spadeadam Forests. Viewpoint 14 (Figure 5.27) lies close to the edge of this receptor group on the route

of Hadrian's Wall and multiple wind farms are already visible in the view towards the site.

- 5.6.77 The ZTV study (Figure 5.6) indicates visibility across a Wide extent of the receptor group, however local vegetation is likely to partially screen views across the area. Effects within this area will be Small-Negligible scale and of Low magnitude, Slight significance (not significant) and Neutral.

Distant roads and residents along the estuarine landscape west of Carlisle (16.8km - 25.1km, south)

- 5.6.78 This receptor group includes the area of land to the west of Carlisle and south of the Solway Firth. The area includes minor roads with small settlements/groups of properties, recreational space in the form of nature reserves and open access land, NCR72 and the start of the Hadrian's Wall trail. Viewpoint 14 (Figure 5.27) lies within this receptor group, directly to the west of Bowness-on-Solway overlooking the Firth.
- 5.6.79 There will be Small-Negligible scale of effects across a Wide extent of this receptor group and effects will be of Low-Negligible magnitude, Slight-Minimal significance (not significant) and neutral.

Road and Rail

A7 (2.1km, east)

- 5.6.80 This road lies to the east of this site and within the ZVI it runs north to south from Glenreif Rig (near Teviothead) to the northern edge of Carlisle. The closest views of the proposed development from this route will be from in and around Langholm. When driving northwards views of the proposed development will be occasional and intermittent, in England the foreground views will often include Hallburn and Beck Burn with the proposed development seen in the background of the view. North of the border this route is primarily lined with hedges and trees and views become more infrequent. When driving south towards Langholm there will be occasional views of wind turbine blades at the end of the Glen, as shown by Viewpoint 11 (Figure 5.24). Viewpoint 9 (Figure 5.22) represents the limited views when driving north.
- 5.6.81 To the north of Scotsdike, the road is promoted as the 'Borders Historic Route' Scenic Driving Route and drivers using the A7 are judged to be of Medium sensitivity. Effects will range from Medium-Small for users travelling south towards Langholm and Negligible for users travelling northwards. These effects will occur across a Localised extent of the route and on balance will give rise to effects of Negligible magnitude that are of Minimal significance (not significant) and Neutral.

A74(M)/M6 (8.7km, south-west)

- 5.6.82 Within the ZVI this road runs north-west from Carlisle towards Lockerbie, before turning northwards towards Johnstonebridge. Visibility will most likely occur along the northbound section of road between Carlisle and Gretna where the road faces more towards the site. Along this stretch of road, the proposed development will be glimpsed in the distance behind Beck Burn Wind Farm. Visibility is unlikely to occur north of Gretna due to the vegetation along the edges of route.
- 5.6.83 Drivers using this route will be of Low sensitivity and effects will occur across a Limited extent of the route. Effects will be of Negligible magnitude, Minimal significance (not significant) and Neutral.

A75 (11.3km, south)

- 5.6.84 This route runs between Gretna and Dumfries and users are only likely to experience views of the proposed development when travelling eastbound towards Gretna. Visibility is likely to be limited to infrequent open views between Carrutherstown and Annan, and semi-frequent, open, lateral views between Annan and Gretna. Due to the open scale of the view, the proposed development will be visible in the context of other wind farms and will be a mid-to-distant feature of the view.
- 5.6.85 The A75 is promoted as part of the 'Galloway Tourist Route' Scenic Driving Route and drivers using the A75 are judged to be of Medium sensitivity. Small scale effects will occur across a Localised extent of the route. This will result in Low magnitude, Slight significance (not significant) and Neutral effects.

West Coast Mainline (8.9km, south-west)

- 5.6.86 The West Coast Mainline is a key railway corridor within the UK and links London to Glasgow. Within the ZVI the route runs broadly parallel to the A74(M)/M6 road corridor; the visibility and scale of effects are likely to be similar to that along the road corridor, albeit it is acknowledged that the West Coast Mainline follows a slightly more sinuous route which may provide clearer views towards the site. The rail corridor is lined by trees along a large proportion of its length which will screen some views towards site.
- 5.6.87 Rail passengers are more likely to be taking in the view than road users along the A74(M)/M6 and as such they are assessed to be of Medium sensitivity. Small scale effects will be experienced across a Localised extent of the route and are judged to be of Low magnitude, Slight significance (not significant) and Neutral.

Glasgow South Western Line (11.1km, south)

- 5.6.88 This branch of the Glasgow South Western Line connects Carlisle to Glasgow via Dumfries and runs north from Carlisle to Gretna, before turning west where it passes below Annan to Cummertrees, before turning north-west to Dumfries. Visibility will be most prominent when travelling north from Carlisle to Gretna, and when travelling east from Cummertrees to Gretna. As with the West Coast Mainline, there is often line-side vegetation that provides a degree of screening along the route.
- 5.6.89 Rail passengers are assessed to be of Medium sensitivity and will experience Small scale effects across a Localised extent of this route. Effects will be of Low magnitude, Slight significance (not significant) and Neutral.

Long Distance Routes

Hadrian's Wall Path (18.2km, south)

- 5.6.90 This 135km long National Trail runs alongside the line of Hadrian's Wall from Bowness-on Solway to Wallsend, Newcastle upon Tyne. Within the ZVI, Viewpoint 14 (Figure 5.27) provides a representative view from along the trail. Viewpoint 12 (Figure 5.25) is located close to the start of the route in Bowness-on-Solway and provides similar views to those found on the route in this area. The ZTV (Figure 5.7) indicates theoretical visibility across a Wide extent of the route, however vegetation and buildings will provide local screening and reduce the extent of visibility to an Intermediate extent. As set out above and in Technical Appendix 5.2, the scale of effect will range from Small to Small-Negligible due to the distance between viewers and the site, and the presence of multiple existing wind farms within the view.
- 5.6.91 Users of the Hadrian's Wall Trail are assessed to be High-Medium sensitivity. Effects on this route will be of Low-Negligible magnitude, Slight-Minimal significance (not significant) and Neutral.

National, Regional and Local Cycle Routes

NCR7 (7.4km, south)

- 5.6.92 NCR7 is an 860.6km long route that travels from Sunderland to Inverness. Within the ZVI NCR7 runs north from Carlisle to Gretna, either directly or via Longtown. The route then turns west where it loosely follows the coastline to Dumfries. Viewpoints 9 and 15 (Figures 5.22 and 5.28) are located on the route at some of the closest points to site, whilst viewpoint 13 (Figure 5.26) is located just off route and provides representative views of distant effects. As set out within Technical Appendix 5.2, the scale of effects will range from Small to Negligible.

5.6.93 Cyclists along this route, and those listed below, will be of Medium sensitivity. Effects will be experienced across a Localised extent of the route, giving rise to effects of Negligible magnitude that are of Minimal significance (not significant) and Neutral.

NCR74 (8.8.km, south-west)

5.6.94 NCR74 follows the main road corridor (A74(M)) between Gretna and Glasgow and provides a common route choice for those attempting to cycle Land's End to John O'Groats. Views towards the proposed development are screened for the majority of the route due to localised vegetation and will consist of infrequent glimpsed views.

5.6.95 Small-Negligible scale effects will arise, at worst, along a Localised section of the route giving rise to effects of a Negligible magnitude that are of Minimal significance (not significant) and Neutral.

NCR10 (15.4km, east)

5.6.96 NCR10 connects Tynemouth to Whitehaven, often sharing other routes as it passes through the ZVI. This assessment focuses on the section of route between Westlinton and Kershope Forest. Where the route shares NCR7 to enter Carlisle the assessment of effects is described under NCR7. There will be occasional open views along the route where the proposed development will be seen on distant hills in the context of other wind farms. Towards Carlisle, Hallburn Wind Farm will be visible in the foreground of the view.

5.6.97 Small-Negligible scale effects will arise across Localised section of the route, leading to effects of Low-Negligible magnitude, Slight-Minimal significance (not significant) and Neutral.

NCR72 (18.0km, south)

5.6.98 NCR72 runs east to west within the ZVI between Angerton and Gilsand, listed as 'Hadrian's Cycleway' the route ultimately connects Ravenglass in Cumbria to South Shields in Tyne and Wear. Viewpoint 12 (Figure 5.25) lies close to the route in Bowness-on-Solway and there will be open views across a Wide extent of the route along the Solway coast, similar in character to those from Viewpoint 12. Occasional, open views will occur across a Limited extent of the route to the east of Carlisle.

5.6.99 Small to Negligible scale effects will give rise to effects of Negligible magnitude that are of Minimal significance (not significant) and Neutral.

RCR11 (9.7km, south-west)

5.6.100 This short, circular route runs between Kirtlebridge, Annan and Ecclefechan. There will be open views of the proposed development between Kirtlebridge and Brydekirk, and infrequent glimpsed views between local vegetation and landform along the rest of the route. In open views the proposed development will be seen in the context of other wind farms.

5.6.101 On balance, Small-Negligible scale effects will occur across an Intermediate extent of the route. These effects will be of Low-Negligible magnitude, Slight (not significant) and Neutral.

Operational effects on Designated Landscapes

Areas of Outstanding Natural Beauty (AONB)

Solway Coast AONB (13.2km, south)

5.6.102 This High sensitivity landscape receptor extends along the southern coast of Solway Firth, as shown on Figure 5.2. The Solway Coast Management Plan (2020)²⁸ includes a statement of significance which notes, inter alia, that:

- *"The Solway Coast AONB is a place of wide-open estuary views across into Scotland and south to the Lakeland Fells.*
- *These estuarine landscapes can have a profound sense of wildness, remoteness and tranquillity, heavily influenced by the changing sky, and by the sights and sounds of the sea.*
- *The experience of being in the whole of the Solway Coast AONB is strongly influenced by views out to the surrounding landscapes of the Lake District fells and across the Solway Firth to the hills of Dumfries and Galloway. This is enhanced by long interior views of across a landscape which has few vertical features beyond tree top height."*

5.6.103 The plan further notes the importance of *"preserving long views across and out of the AONB landscape."*

5.6.104 The proposed development lies outside the AONB boundary and effects will primarily arise if the proposed development impacts open views or alters the sense of wilderness, remoteness or tranquillity. Viewpoint 12 (Figure 5.25) lies within the AONB near Bowness-on-Solway and a description of the view is included within Technical Appendix 5.2.

²⁸ Solway Coast Area of Outstanding Natural Beauty. (2020). Solway Coast Area of Outstanding Natural Beauty Management Plan 2020-25. Available at: <https://www.solwaycoastaonb.org.uk/2019/publications/>

5.6.105 Due to the distance between the proposed development and the existing wind farms within the views, effects arising from the proposed development will be Small-Negligible in scale. Localised screening from vegetation and landform will result in effects occurring, at worst, across an Intermediate extent of the AONB.

5.6.106 Effects will be of Low-Negligible magnitude, Slight significance (not significant) and Neutral.

National Scenic Areas (NSA)

Nith Estuary NSA (23.4km, south-west)

5.6.107 NSAs are described by NatureScot²⁹ as “broadly equivalent to the Areas of Outstanding Natural beauty found in England” and are defined as “an area of outstanding scenic value in a national context”. The proposed development lies outwith the Nith Estuary NSA and NatureScot’s report on the special qualities of NSAs (2010)³⁰ described the relevant special qualities as:

- “Criffel, a Border landmark rising above the coastal flatlands;
- Landmarks, contributing to the identity of the area; and
- The view out to the Cumbrian Fells.”

5.6.108 Viewpoint 13 (Figure 5.26) is located within the NSA at Caerlaverock Castle and visual effects are listed within Technical Appendix 5.2 as Small and Neutral. The proposed development will have no impact on the special qualities of this High sensitivity landscape. Small-Negligible scale visual effects will occur across an Intermediate extent of the NSA and will give rise to effects of Negligible magnitude that are of Minimal significance (not significant) and Neutral.

Regional Scenic Areas (RSA)

Langholm Hills RSA (0.1km, north-east)

5.6.109 this designated area is located directly to the north-east of the site and Dumfries and Galloway Council’s Regional Scenic Areas Technical Paper (2018) describes the character of this area and states that “Interest in windfarms and forestry, plus expansion of Langholm itself, are the main pressures for landscape change.”

5.6.110 Effects on this RSA have been previously described in the LCTs that it covers, primarily LCT166, 177, 161 and 176, and by the viewpoints that lie within the RSA (Viewpoints 5, 6, 7, 8, 11, shown on Figures 5.18-5.21 and 5.24) as described in Technical Appendix 5.2. The scale of effects will range from Large-Medium scale in areas close to the site to Small scale at the northern end of the RSA.

5.6.111 RSAs within this report are assessed to be of High-Medium sensitivity. On balance, Medium scale effects on this RSA will occur across an Intermediate extent of the area and will give rise to **Medium magnitude, Major-Moderate significance (significant) and Adverse effects**. However, there will be no direct effects on the RSA and the proposed development would not compromise the key qualities and overall integrity of this RSA.

Torthorwald Ridge RSA (19.0km, west)

5.6.112 This regional scenic area is located along a prominent hill to the west of Lochmaben and Dalton. Dumfries and Galloway Council’s Regional Scenic Areas Technical Paper (2018) describes the character of this area and notes the open feel of the RSA, “particularly towards the north and west” (away from the site). Visibility of the proposed development is primarily limited to the eastern edge of this RSA.

5.6.113 Effects on LCTs within this RSA were not considered as they were deemed to be Negligible due to the presence of existing wind farms between the RSA and the site which creates a sense of separation sufficient to limit effects.

5.6.114 Effects on this RSA will be Negligible and are not assessed further.

Solway Coast RSA (20.5km, south-west)

5.6.115 This area of RSA extends west from Cummertrees/Powfoot along the coast to Fleet Bay. Within the study area the RSA covers an area broadly similar to the Nith Estuary NSA where effects were found to be Negligible.

5.6.116 As with Torthorwald Ridge, effects on LCTs within this RSA were not considered as they were deemed to be Negligible due to the presence of existing wind farms between the RSA and the site which create a sense of separation sufficient to limit effects.

5.6.117 For the reasons listed above, effects on this RSA are also judged to be Negligible and are not assessed further.

²⁹ NatureScot. (2020). National Scenic Areas. Available at: <https://www.nature.scot/professional-advice/protected-areas-and-species/protected-areas/national-designations/national-scenic-areas>

³⁰ NatureScot. (2010). The special qualities of the national Scenic Areas. Scottish Natural Heritage Commissioned Report No. 374 (iBids and Project n° 648). Available at: <https://www.nature.scot/doc/naturescot-commissioned-report-374-special-qualities-national-scenic-areas>

World Heritage Sites

Frontiers of the Roman Empire (Hadrian's Wall) (Core Area - 18.0km, south, Buffer Area - 12.1km, south)

5.6.118 Hadrian's Wall World Heritage Site runs 130km east to west, from the mouth of the River Tyne to Solway Firth. The site is comprised of a core area and a buffer zone (as shown on Figure 5.2), the latter is used to describe an area particularly sensitive to change that could affect the Outstanding Universal Value of the site. Unesco's Statement of Outstanding Universal Value (1987)³¹ is distilled within the Hadrian's Wall Management Plan (4th Edition)³² into attributes which, whilst they are not officially adopted, provide guidance for development that may affect the WHS. The key attribute of relevance to this assessment is stated as:

- *"The setting of the WHS offers the opportunity to understand and appreciate Roman military planning and operations."*

5.6.119 Viewpoints 12 and 14 (Figures 5.25 and 5.27) are located close to, or on the route of Hadrian's Wall and a description of the view from these locations is provided in Technical Appendix 5.2. The proposed development is located far enough away that there will be little to no effect on the setting of the Wall. There will be limited change in the character of the existing views due to the presence of existing wind farms within the landscape. Views from the Wall will retain a sense of *"being on the edge of an empire,"* as described within the management plan.

5.6.120 The proposed development is located at a sufficient distance such that it will not detract from the scale of the Wall, it won't impact on physical archaeological material that is frequently found in the immediate surroundings of the wall, and it won't impact on the relationship between the Wall and local settlements.

5.6.121 Hadrian's Wall is assessed to be of High sensitivity and will experience Small-Negligible scale effects across an intermediate extent of the route within the ZVI. Effects will be of Low-negligible magnitude, Slight-Minimal significance (not significant) and Neutral.

Potential Operational Night time Effects and Lighting

5.6.122 Onshore wind turbines of over 150m in height require mandatory visible spectrum aviation lighting. A proposed lighting scheme has been discussed with the Civil Aviation Authority (CAA) and the agreed scheme will comprise:

- 1 no. medium intensity steady red (2000 candela) light mounted on the nacelles of wind turbines T1, T2, T5, T6, T7, T8, T10, T13, T14, T15, T17, T18, T20 and

T21 - automatically dimmed to 10% of peak intensity (200 candela) when visibility is in excess of 5km;

- a second 2000 candela light on the nacelles of the above wind turbines to act as alternates in the event of a failure of the main light - these are shown lit at the same time as the primary light as is the case on Crossdykes Wind Farm;
- no requirement for intermediate 32 candela steady red lights mounted around the tower.

5.6.123 The lights must be on *"by night"*, which is defined in UK air legislation as 30 minutes after sunset until 30 minutes before sunrise. The switching of the lights on and off will be controlled by a timer, and not by photocells or similar that respond to light levels, thereby not giving rise to effects in the daytime. During periods of greater ambient light (e.g. twilight, dusk, dawn), there will be a reduced effect as the contrast of the aviation lighting against the background will be less. The hours of darkness vary considerably in Dumfries and Galloway throughout the year meaning that in summer, experience of the lighting whilst people are typically more active and likely to be outside is considerably reduced. In winter, however, the lighting will be in use for greater periods of time and potentially active during peak activity times, i.e. morning and evening rush hours.

5.6.124 Due to the location of the lighting on the wind turbines relative to the rotating blades, this can result in a flashing or flickering 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 wind turbines are present in the view, such flashing is likely to be un-coordinated.

Night time Lighting Environment of the Study Area

5.6.125 The existing intensity of artificial lighting across the study area is illustrated on Figure 5.12 using the latest satellite data (2021) from VIIRS. The figure illustrates that there are low levels of artificial light within 5km of the site, with the exception of the settlement of Langholm. Between 5-10km from the site the level of artificial light increases to the south, where minor settlements and clusters of houses can be seen to be emitting light. Between 10-15km there are higher levels of artificial light to the south and south-west, where larger settlements and the A74(M) corridor are seen as clear sources of light.

³¹ Unesco. (1987). Frontiers of the Roman Empire Outstanding Universal Value. Available at: <https://whc.unesco.org/en/list/430/>

³² Hadrian's Wall Country. (No Date). Hadrian's Wall Management Plan (4th Edition). Available at: <https://hadrianswallcountry.co.uk/hadrians-wall-management-plan>

5.6.126 Lighting from beyond the study area is also experienced from many areas within it for example, elevated locations may see the lights and skyglow from larger settlements such as Dumfries and Carlisle.

5.6.127 There are other light sources beyond those generally associated with settlements and transport corridors, both within and beyond the study area, that can be seen from within the study area and vary in prominence depending on the context of the view. These include the MOD base at Longtown and Chapelcross power station. There are also 13no. 227m tall radio masts at Anthorn Radio Station, a 337m tall mast at Caldbeck Transmitting Station and one 365m tall mast at Skelton Transmitting Station. These masts have red aviation lighting that is the same colour and are assumed to be of the same intensity as required on the proposed wind turbines. Unlike the proposed wind turbines, masts have lights mounted at regular intervals and this vertical linear arrangement is noticeable from the surrounding landscape.

5.6.128 Crossdykes Wind Farm is the only existing wind farm with red nacelle and tower lights within the study area. However, Little Hartfell Wind Farm (consented) will also include wind turbine lighting once construction is complete.

ZTV Studies

5.6.129 A ZTV study has been prepared to inform this assessment based on the 14 wind turbines listed above being lit and at the highest nacelle height within the development parameters. This is shown on Figure 5.13 and illustrates the number of wind turbines visible at hub height (to indicate the number of nacelle lights visible).

5.6.130 The ZTV study includes the screening effect of woodland and settlements to provide a more realistic illustration of potential visibility of proposed lighting compared to that of a bare earth model. It is however acknowledged that lights may, in limited instances, be visible through areas of woodland where they are not particularly dense or when leaves are not present on trees. Where this may be the case for a particular receptor this is noted in the text. However, it will have little bearing on the overall pattern of visibility within the study area.

5.6.131 As can be seen from the two ZTV studies, the wind turbine lights will be most visible from the following areas:

- The lowlands to the south-east and south of the site;
- Hilltops to the east and north-east of the site; and
- Intermittently along the hill tops and sides to the south-west and west.

Effects on Landscape Character

5.6.132 Local LCTs within the 15km study area are illustrated on Figure 5.12. The character types most likely to experience significant effects are those which are less closely associated with lighting (i.e. not those with larger settled settlements or main road corridors) and are sufficiently close to the site that the introduction of aviation lighting nearby would be fundamentally different to other remote sources of artificial lighting.

5.6.133 The main source of effects will occur as a result of the nacelle lighting which will be both brighter and more widely visible than the lights on the wind turbine towers. As detailed above, Figure 5.13 indicates that the primary areas of visibility of the nacelle lights outside of the areas associated with existing lighting occur across:

- LCT175 Foothills - Dumfries and Galloway (includes site);
- LCT172 Upland Fringe - Dumfries and Galloway (includes site);
- LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north);
- LCT171 Flow Plateau (1.1km, south);
- LCT177 Southern Uplands - Dumfries and Galloway (3.2km, east);
- LCT172 Upland Fringe - Dumfries and Galloway (3.6km, east);
- LCT5b Low Farmland (5.2km, south);
- LCT8b Broad Valleys (6.7km, south); and
- LCT6 Intermediate Farmland (10.7km, south-east).

5.6.134 The character types to the south of A74(M) corridor and those around Longtown and the A7 corridor are not assessed due to the strong presence of existing lights sources within the night time environment.

LCT175 Foothills - Dumfries and Galloway (includes site)

5.6.135 The key characteristics of this LCT are set out within the assessment of effects above. The night time character is not discussed within NatureScot's character assessment, however the area generally has very few sources of light within the night time environment, and these mainly originate from the scattered farmsteads and small settlements within the area. The north-eastern corner of this LCT will experience some skyglow and light sources from Langholm which lies adjacent to the area as illustrated by Figure 5.12.

- 5.6.136 Whilst there are limited light sources within the character area, visibility of lighting on Crossdykes Wind Farm and Little Hartfell Wind Farm in the adjacent character types will be possible across some of this LCT. The undulating nature of this character type means that views vary between the low and the higher ground. From higher points within the character area, distant views of the masts to the south may be visible. There are no specific indicators of night time landscape value and the area is judged to be the same as in the day - i.e. of Community value and Medium sensitivity.
- 5.6.137 The proposed development will introduce a cluster of red aviation lighting into a dark area. This will result in Large scale effects in the area immediately around the site in the eastern end of the character type. There will be more fragmented visibility to the west between the site and Minsca Wind Farm. Beyond this, in the north-western arm of the site there will be limited, infrequent visibility of the lights.
- 5.6.138 The effects will be Large-Medium scale and will occur across an Intermediate extent of the LCT. These will be of High-Medium magnitude, Major-Moderate significance (significant) and Adverse.
LCT172 Upland Fringe - Dumfries and Galloway (includes site)
- 5.6.139 The key characteristics of this LCT are set out within the assessment of effects above. The night time character is not discussed within the NatureScot's assessment. Light sources vary across the character type, to the east of this LCT there are few sources of light and these will originate from small settlements and farmsteads or from vehicles on the minor roads. To the west of the LCT, these sources of light will continue to be present. However, the A74(M), which runs through this LCT, and the larger settlements along its route, will be notable sources of light.
- 5.6.140 From within the western end of this landscape character type there will be visibility of lighting in other character types, including the wind turbine lights at Crossdykes and Little Hartfell Wind Farms in the north and the distant lights on the masts to the south. Lockerbie lies outside the western boundary of this character type and will be clearly visible from adjacent areas.
- 5.6.141 Three of the proposed wind turbines lie in the eastern end of this character type and the proposed development will introduce a cluster of red aviation lighting into a dark area. The nacelle lights will be visible intermittently throughout the character area towards Ecclefechan. In the west of the LCT visibility will noticeably reduce due to the hilly nature of the terrain. There are no specific indicators of night time landscape value and the area is judged to be the same as in the day - i.e. of Community value and Medium sensitivity.
- 5.6.142 Large scale effects will occur in the eastern end of this LCT, reducing to Small-Negligible near Ecclefechan. These effects will occur across an Intermediate extent of this LCT and on balance, will be of Medium-Low magnitude, Moderate significance (not significant) and Adverse.
LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north)
- 5.6.143 The key characteristics are set out within the assessment of effects above. The night time character is not discussed within NatureScot's character assessment however this area is mostly composed of hills and has very few sources of light. There are scattered settlements to the edges of this LCT and a short section of the B709 passes through the eastern edge of the area.
- 5.6.144 Langholm is located outside the eastern corner of this LCT and there will be some skyglow and lighting visible from within the LCT. Views of lighting on Crossdykes and Little Hartfell Wind Farms are unlikely to be visible from this LCT due to the intervening woodland. However, there are likely to be distant views of lighting on the masts from hill tops looking south.
- 5.6.145 There are no specific indicators of night time landscape value, however this area does lie partly within the Langholm Hills RSA. The area is judged to be the same as in the day - i.e. of Local / District value and High-Medium sensitivity.
- 5.6.146 The proposed development will introduce a cluster of red aviation lights into a relatively dark area and the majority of the wind turbine lights will be visible within the southern half of this LCT. Effects on the northern half of the LCT are unlikely to occur due to the screening provided by the landform and vegetation.
- 5.6.147 Large-Medium scale effects will occur across a Localised extent of this LCT. These will be of High-Medium magnitude, Major-Moderate (significant) and Adverse.
LCT171 Flow Plateau (1.1km, south)
- 5.6.148 The key characteristics are set out within the assessment of effects above. The night time character is not discussed within NatureScot's character assessment. Small settlements and farmsteads are spread evenly throughout the area and introduce minor sources of light. The A74(M) corridor runs along the south-western edge of this LCT and is a noticeable source of light within this area of the LCT due to the moving nature of the lights.

- 5.6.149 NatureScot's 2019 landscape character assessment notes that visual interest within the LCT is "*focussed on long views and the relationship of this Landscape Character Type with the sea and intervening landscapes.*" Within this LCT there will be views out over settlements, such as Gretna and Longtown towards the distant lights on the masts to the south. Wind turbine lighting on Crossdykes and Little Hartfell Wind Farms may be visible from some areas within this LCT. The area is judged to be the same as in the day - i.e. of Community value and Medium sensitivity.
- 5.6.150 The proposed development will introduce a cluster of red aviation lights into this mostly dark landscape. These will be visible at a slight distance across the majority of the LCT. Small areas of woodland and local vegetation, not picked up on the ZTV, may provide localised screening. Effects will range from Large-Medium scale in the north, reducing to Medium-Small in the south-east and Small-Negligible in the south-west.
- 5.6.151 On balance, Large-Medium scale effects will occur across a Localised extent of this LCT giving rise to effects that will be of High-Medium magnitude, Moderate significance (not significant) and Adverse.
- LCT177 Southern Uplands - Dumfries and Galloway (3.2km, east)*
- 5.6.152 The key characteristics are set out within the assessment of effects above. The night time character is not discussed within NatureScot's character assessment. However, like the other area of LCT177, this area is mostly comprised of hills with very few sources of light. There are a small number of settlements and farmsteads within this area.
- 5.6.153 Langholm is located close to the southern end of this LCT and lights and skyglow will be visible when looking out from this LCT towards the site. Red aviation lights at Crossdykes Wind Farm, Little Hartfell Wind Farm and the masts to the south will be visible from some of the elevated hill tops. Vehicular lights along the A7 will exert an influence on this character area. There are no specific indicators of night time landscape value, however, this area lies wholly within the Langholm Hills RSA. The area is judged to be the same as in the day - i.e. of Local / District value and High-Medium sensitivity.
- 5.6.154 The proposed development will introduce a cluster of red aviation lights that will be visible primarily from the edges of this dark landscape. Whilst there is a degree of separation between this LCT and the proposed development the wind turbine lights will still exert some influence on this LCT.
- 5.6.155 Effects will be of Medium-Small scale in the southern end of this LCT, reducing to Negligible scale at the northern end. These Medium-Small effects will occur across a Localised extent of the LCT and will be of Medium-Low magnitude, Moderate significance (not significant) and Adverse.
- LCT172 Upland Fringe - Dumfries and Galloway (3.6km, east)*
- 5.6.156 The key characteristics of this LCT are set out within the assessment of effects above. The night time character is not discussed within NatureScot's character assessment, however the area generally has very few sources of light within the night time environment, and these mainly originate from the scattered farmsteads, small settlements such as Rowanburn and minor roads within the area. A night time photomontage have been produced for Viewpoint 6 (Figure 5.19) which lies just outside of the western edge of this LCT.
- 5.6.157 To the west of the LCT the minor settlement of Canonbie and the A7 will be notable sources of light and will exert an influence on this LCT. NatureScot's 2019 character assessment notes that "*panoramic views over valley and coastal lowlands*" are a key characteristic of this area and there may be some views of the wind turbine lights at Crossdykes and Little Hartfell Wind Farms in a similar direction to the proposed development and of the distant lights on the masts to the south.
- 5.6.158 The proposed development will introduce a cluster of red aviation lights into this mostly dark landscape. These will be visible in a similar direction to lights on existing wind farms. There are no specific indicators of night time landscape value and the area is judged to be the same as in the day - i.e. of Community value and Medium sensitivity.
- 5.6.159 Small scale effects will occur an Intermediate extent of this LCT. These will be of Medium-Low magnitude, Moderate significance (not significant) and Adverse.
- LCT5b Low Farmland (5.2km, south)*
- 5.6.160 This is a Cumbrian LCT and the key characteristics are described within the Cumbrian Landscape Character Guidance and Toolkit (2011) as:
- "*Undulating and rolling topography*
 - *Intensely farmed agricultural pasture dominates*
 - *Patchy areas of woodland provide contrast to the pasture*
 - *Woodland is uncommon west towards the coast*
 - *Fields are large and rectangular*
 - *Hedges, hedgerow trees and fences bound fields and criss cross up and over the rolling landscape*"

- 5.6.161 No comments are made on lighting or the night time environment, however the character guidance notes that views “*can be wide and long distance to the Fells and sea and have an expansive feeling, or small and contained giving a more intimate feel.*” The guidance further comments on the sensitivity of views towards the Solway Firth and Lakeland Fells to tall infrastructure development and expresses a need to prevent this character type from being heavily changed by wind energy development.
- 5.6.162 This small area of LCT5b is generally unlit and includes some minor roads and evenly distributed individual settlements and farmsteads.
- 5.6.163 Despite the generally unlit nature of the landscape, this LCT lies close to some developed areas and the lighting and skyglow from Gretna, Longtown and MOD Longtown are likely to have an effect on this LCT. The sensitive views to the south, listed in the LCT description, will include the lit masts at Anthorn Radio Station and Caldbeck Transmitting Station. Views to the north may include the lit wind turbines at Crossdykes and Little Hartfell Wind Farms. Taking these factors into account, this landscape character type is considered to have High-Medium susceptibility to the proposed wind turbine lighting. There are no specific indicators of night time landscape value and the area is judged to be of Community value, and sensitivity is judged to be Medium-Low.
- 5.6.164 The proposed development will be visible as a cluster of red aviation lights across a Wide extent of this LCT. These will be visible in the less sensitive views to the north in the context of existing wind turbine aviation lighting.
- 5.6.165 The effects will be of Small-Negligible scale and will be of Low-Negligible magnitude, Minimal significance (not significance) and Neutral.
- LCT8b Broad Valleys (6.7km, south)*
- 5.6.166 The key characteristics of this Cumbrian LCT are described in the Cumbrian Landscape Character Guidance and Toolkit (2011) as:
- “Wide and deep valleys with open floodplains
 - Rural farmland comprising significant areas of improved pasture
 - Pockets of scrub, woodland and coniferous plantations
 - Hedges and stone walls form a matrix of field boundaries
 - Roads and railway lines often follow the linear valley contours”
- 5.6.167 No comments are made on lighting or the night time environment. This linear LCT follows the route of Liddel Water and is generally unlit in the east, except for lighting from individual settlements or farmsteads and minor roads within the area.
- The A7 runs through the western end of the LCT and will provide a notable source of light.
- 5.6.168 The eastern end of this LCT is very much in a rural setting, however the western end lies close to Longtown, MoD Longtown and Gretna; lighting and skyglow from these sources will have an impact on this end of the LCT. Existing wind turbine lighting at Crossdykes and Little Hartfell Wind Farms is likely to have an influence on this LCT, especially towards the eastern end where the landscape is more open and interacts more with the Scottish hills. Taking these factors into account, this landscape character type is considered to have a High-Medium susceptibility to the proposed wind turbine lighting. There are no specific indicators of night time landscape value and the area is judged to be of Community value, and sensitivity is judged to be Medium.
- 5.6.169 The proposed development will be visible from the higher areas of this LCT, away from the lower lying land around Liddel Water. The proposed development will be seen as a cluster of red aviation lights and the number of wind turbines visible will vary across the LCT. The wind turbines will be seen across an Intermediate extent of this LCT, in the context of existing wind turbine lighting. These effects will be of Medium-Small scale in the east and Small-Negligible scale in the west.
- 5.6.170 On balance, effects on this LCT will be of Low magnitude, Slight (not significant) and Neutral.
- LCT6 Intermediate Farmland (10.7km, south-east)*
- 5.6.171 A small area of this Cumbrian LCT lies within the south-east of the study area, the key characteristics are described in the Cumbrian Landscape Character Guidance and Toolkit (2011) as:
- “Transitional farmland between the lowland and upland landscapes
 - Extensive areas of improved pasture with some arable farming
 - Planned villages with greens displaying topographical and archaeological evidence of their medieval origins
 - In parts the landscape is dissected by the deeply incised or open river valleys
 - Wooded valleys and ghylls
 - Sandstone and limestone vernacular”
- 5.6.172 Whilst no comments are made on lighting or the night time environment, the guidance notes that wind turbines have the potential to change the character of this area as “*vertical elements are currently mainly associated with the radio masts around Skelton.*” To prevent this the guidance recommends avoiding siting wind turbines in open and prominent areas where they could “*degrade the rural character of the area.*”

5.6.173 Within the study area this LCT is generally unlit, light sources within the environment include vehicles along minor roads and the individual properties and farmsteads dispersed throughout the LCT.

5.6.174 Part of the LCT will include open views to wind turbine lights outside the LCT at Crossdykes and Little Hartfell Wind Farms. The wider LCT outwith the study area will also include views of the lighting at masts to the south.

5.6.175 The proposed development is relatively far away from this LCT and the red aviation lights will be visible as a cluster of lights on the horizon in the same direction as lighting on existing operational wind farms. This LCT is considered to have High-Medium susceptibility to the proposed wind turbine lighting. There are no specific indicators of night time landscape value and the area is judged to be of Community value, and sensitivity is judged to be Medium-Low.

5.6.176 Small-Negligible scale effects will arise across a Wide extent of the LCT present within the study area. These effects will diminish to Negligible at the southern end of this LCT. On balance these Small-Negligible scale effects will affect an Intermediate extent of the whole LCT and will be of Negligible magnitude, Minimal significance (not significant) and Neutral.

Effects on Visual Receptors

Visual Aids

5.6.177 Viewpoints 1, 4 and 6 (Figures 5.14, 5.17 and 5.19) at High Stenries, Milltown and the B6318 north-west of Claygate include night wirelines and night photomontages to help illustrate the effects at night. These viewpoints have been selected as locations where visual receptors are most likely to be significantly affected by lighting.

5.6.178 Within the 15km study Viewpoint 7 was discounted due a lack of visibility (see Figure 5.13), Viewpoints 5 and 8 were discounted as the majority of receptors are unlikely to visit these locations outside of daylight hours, Viewpoint 16 was discounted due to the presence of vehicles along the A74(M) in the foreground of the view which will form the dominant element at night, and Viewpoints 2 and 3 were discounted due to their immediate proximity to the site.

5.6.179 For each of the selected viewpoints, the photographs were taken when the landform can still be seen half an hour after sunset, rather than in full darkness, in accordance with the guidance provided by NatureScot in 'Visual Representation of Wind Farms'. Photomontages are calibrated with reference to photography of the built wind turbine at Methil, Fife which has a 2000 candela nacelle light. Further

detail in respect of the production of night time photomontages is included in Technical Appendix 5.1.

5.6.180 The viewpoint description, description of effects and scale of effects for each viewpoint (see Figure 5.13 for viewpoint locations) is set out in Technical Appendix 5.2. The scale of effect at each viewpoint within the 15km study area for the night time assessment is summarised in Table 5.11.

Table 5.11: Summary of Scale of Night Time Effects on Viewpoints

Viewpoint Reference & Location	Distance, Direction	Scale of Effect	Positive / Neutral / Adverse
VP1: High Stenries	2.4km, south	Large-Medium	Adverse
VP2: Minor road near Barnglieshead	0.6km, south	Large	Adverse
VP3: Collin Burn	0.0km, North	Large	Adverse
VP4: Milltown	3.7km, south	Medium-Small	Adverse
VP5: Calfield	0.9km, north	Large	Adverse
VP6: B6318 north-west of Claygate	3.7km, east	Medium-Small	Adverse
VP7: Langholm Bridge	2.9km, north-east	Negligible	Neutral
VP8: Malcolm Monument, Langholm	4.0km, north-east	Medium-Small	Adverse
VP9: Longtown	10.0km, south	Small-Negligible	Neutral
VP10: Burnswark Hill Fort	10.6km, west	Small-Negligible	Neutral
VP11: A7 near Unthank	13.1km, north-east	Negligible	Neutral
VP15: Gretna Green / Springfield	10.5km, south	Negligible	Neutral
VP16: Kirkpatrick-Fleming	9.1km, south	Small-Negligible	Neutral

5.6.181 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.

5.6.182 From these viewpoints it can be seen that:

- The extent of Large and Large-Medium scale visual effects, where the proposed aviation lights will form a major new element in the view will predominantly be limited to area immediately around the site up to approximately 2.5-3km from the proposed development
- Beyond this area effects will generally be Medium to Medium-Small due to a combination of the distance and other light sources within the night time environment; this will reduce to Small-Negligible by beyond approximately 9km.
- Effects of greater than Negligible scale are unlikely to occur beyond approximately 11km.

Visual Receptor Groups

5.6.183 As indicated within Technical Appendix 5.1, residents and visitors within settlements with lighting are assessed to be of Medium sensitivity; users of local roads at night are assumed to be driving and of Medium-Low sensitivity and main road users are considered to be of Low sensitivity. Effects on private residential visual amenity are considered in Technical Appendix 5.3.

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

5.6.184 Viewpoints 1, 2, 3, 4, 5 and 10 (Figures 5.14-18 and 5.23) lie within this area and provide a mixture of local and more distant views. Night photomontages are provided for Viewpoints 1 and 4 (Figures 5.14 and 5.17).

5.6.185 As set out above and within Technical Appendix 5.2, effects will be Large for views closest to the site, reducing to Medium and then Small-Negligible with distance. Receptors within this group will mainly be travelling on minor roads, where the focus will be on driving, or local residents in unlit locations as they enter or exit their properties. Effects will arise across a Wide extent of this Medium sensitivity receptor group. These effects will be of High-Medium magnitude, Moderate significance (not significant) and Adverse.

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

5.6.186 Viewpoints 7 and 8 (Figures 5.20-5.21) lie within this receptor group and provide representative views from within the town and the local hills behind.

5.6.187 Due to a general lack of visibility within Langholm, effects within the town will be of Negligible scale. Whilst a small number of people are likely to visit the hills after dark, due to presence of other lights within the wider view, such as lights in Langholm closer to the viewpoint, effects from higher ground will be of Medium-Small scale, as set out above and described in Technical Appendix 5.2.

5.6.188 Effects will occur for an Intermediate extent of this Medium sensitivity receptor group, giving rise to effects that will be of Low magnitude, Slight significance (not significant) and Adverse.

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

5.6.189 Viewpoint 11 (Figure 5.24) lies within this receptor group and a description of effects from this viewpoint are provided in Technical Appendix 5.2. The main receptors within this group will be users of the A7, whose primary focus will be on the road. However, there are also residents within the receptor group and a small number of people may be using the local hills after dark.

5.6.190 Effects on this Medium-Low sensitivity receptor group will be of Small-Negligible scale at most, and the proposed development will be seen in channelled views above the end of the valley. These effects will be experienced across a Localised extent of the receptor group and will be of Negligible magnitude, Minimal significance (not significant) and Neutral.

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

5.6.191 Viewpoints 6, 9, 15 and 16 (Figures 5.19, 5.22, 5.28 and 5.29) lie within this receptor group and a night photomontage is provided for Viewpoint 6 (Figure 5.19).

5.6.192 The primary characteristics of this receptor group are the main road corridors, and traffic along these routes will be the dominant feature within the night time environment, alongside lit junctions on the routes. As described above, and within the viewpoint descriptions at Technical Appendix 5.2, effects will range from Medium-Small scale in areas directly to the east of the site, to Small-Negligible and Negligible scale within the wider area.

5.6.193 Whilst there are residential areas within this receptor group, the existing light sources along the main road corridors will reduce the overall sensitivity to Low. Effects will occur across an Intermediate-Localised extent of the receptor group and will be of a Negligible magnitude, Minimal significance (not significant) and Neutral.

5.6.194 The remaining receptor groups lie predominantly outwith the study area for the night time assessment and will view the proposed development in the context of other aviation lighting, lighting along major road networks and lighting from larger settlements. Night time effects on these groups will be Negligible and they are not considered further.

Road and Rail

5.6.195 Night time effects on main road and rail corridors will be Negligible due to the limited visibility of the proposed development and the proximity of other lighting within the night time environment, combined with the focus on driving for users of road routes.

Long Distance Routes

5.6.196 No long distance routes lie within the 15km night study area.

National, Regional and Local Cycle Routes

5.6.197 NCR7, NCR74 and RCR11 lie within the night time study area. These routes are predominantly along roads and are all located either along or to the south west of the A74(M) corridor, which is a source of lighting in its own right. Due to the nature of cycling at night, the focus of these receptors will primarily be on the road and other road users. Effects on these routes are judged to be Negligible and are not considered further.

Designated Landscapes

5.6.198 There are no Dark Sky Parks or Discovery sites (locally popular star gazing sites nominated by local groups) within the study area. The Northumberland Dark Sky Park is located approximately 22km to the east of the site at its closest point and beyond the area likely to experience anything more than Negligible effects.

5.6.199 The following designations lie within the study area:

Langholm Hills RSA (0.1km, north east)

5.6.200 Effects on this High-Medium sensitivity designation will be as described across the LCTs that it covers, these are primarily LCT166, 177, 161 and 176. Viewpoints 5, 6, 7, 8 and 11 (Figures 5.18-5.21 and 5.24) lie within the RSA and a photomontage is provided from viewpoint 6 (Figure 5.19).

5.6.201 Effects will occur across an Intermediate extent of this RSA and on balance will be of Small scale for the area as a whole. Effects will be of Low magnitude, Slight (not significant) and Adverse.

Solway Coast AONB (13.2km, south)

5.6.202 A very small area of this designation lies with southern edge of the study area. The AONB contains the 13no. 227m tall radio masts at Anthorn Radio Station which are lit at night. Multiple major light sources lie between the designation and the site, including the A74(M) and A6071 road corridors and the settlements of Gretna and Longtown. Night time effects on the AONB will therefore be Negligible.

5.7 Mitigation

5.7.1 Mitigation measures relevant to this chapter are embedded within the design of the proposed development. Landscape and visual impact have been considered at each stage of the design process to create a layout that minimises effects.

5.7.2 Further detail of the design evolution can be found within **Chapter 3** of this EIA Report.

5.8 Assessment of Residual Effects

5.8.1 Embedded (primary) mitigation has been considered in the assessment of effects above. As there are no secondary or tertiary mitigation measures relevant to this assessment, residual effects will be the same as those identified above.

5.9 Assessment of Cumulative Effects

Introduction

5.9.1 Cumulative effects are assessed on the same groups of landscape and visual receptors as the assessment for the proposed development. Landscape and visual receptors that are considered to receive effects of Low-Negligible or Negligible magnitude (both localised and overall) from the proposed development are not included in this assessment, as an effect of such low magnitude manifestly adds nothing or very little regardless of the effects of other developments. If significant cumulative effects arise on those receptors, they would be as a result of other developments and as such are not relevant for consideration as part of this application.

5.9.2 As indicated in the methodology section, the study area and scope for potential cumulative effects of the Development includes proposed wind turbine developments located within the same 35km as the main LVIA. The scope for potential cumulative effects of the proposed development could arise from the wind farms identified in Table 5.12.

Table 5.12: Cumulative Sites

Wind farm	Number of wind turbines	Maximum tip height (m)	Status
Within 5km			
Solwaybank	15	126.5m	Operational
Craig	4	100m	Operational
Craig Extension	1	100m	Operational
Craig Extension 2	1	100m	Operational
Callisterhall	7	200m	Application
Within 5-15km			
Ewe Hill	22	111.5m	Operational
Crossdykes	10	176.5m	Operational
Minsca	16	122.5m	Operational
Beck Burn	9	126.5m	Operational

Wind farm	Number of wind turbines	Maximum tip height (m)	Status
Hall Burn	6	126.5m	Operational
Little Hartfell	9	160m	Consented
Loganhead	9	200m	Application
Hopsrig	13	200m	Application
Faw Side	45	200m	Application
Crossbankhead	1	135m	Scoping
Georgefield Farm	2	150m	Scoping
Westerkirk	20	220m	Scoping
Within 15-25km			
Todhills	1	67.5m	Operational
Tempest Tower	1	54.7m	Operational
Spital Sykes Farm	1	67m	Operational
Scoop Hill	75	250m	Application
Teviot	62	240m	Application
Millriggs Farm	1	127m	Scoping
Windy Edge	12	200m	Scoping
Wauchope / Newcastleton	90	132m	Scoping
Within 25-35km			
Midtown Farm	1	74m	Operational
Great Orton	6	68.5m	Operational
Orton Park	2	86.5m	Operational
Orton Grange Farm	1	67m	Operational
Minnygap	10	125m	Operational
Harestanes	68	115m	Operational
Hellrigg	4	121m	Operational
Pines Burn	11	149.9m	Consented
Harestanes South	8	200m	Application

5.9.3 The locations and numbers of wind turbines within these proposed developments are illustrated on Figure 5.9 and the baseline panorama visualisations for each viewpoint. This additional information is provided for context only.

Assessment Scenarios and Approach

5.9.4 As set out within the methodology, operational and consented wind farms are included as part of the baseline for the assessment and are considered within the main assessment of effects above. Potential cumulative effects with other applications in planning are considered below.

5.9.5 Applications in planning that are relevant to consider within this assessment are:

- Callisterhall - a proposal for 7no. 200m tall wind turbines located just over 1km to the north of the site;
- Loganhead - a proposal for 9no. 200m tall wind turbines located approximately 3.5km north of the site;
- Hopsrig - a proposal for 13no. 200m tall located approximately 6.0km north;
- Faw Side - a proposal for 40no. 200m tall wind turbines and 5no. 179.5m tall wind turbines located approximately 8.5km north;
- Scoop Hill - a proposal for 75no. 250m tall wind turbines located approximately 17.5km north-west;
- Teviot - a proposal for 62no. 240m tall wind turbines located approximately 18.6km north-east; and
- Harestanes South - a proposal for 8no. 200m tall wind turbines located approximately 30.5km north-west.

5.9.6 Whilst schemes in Scoping have been shown on Figure 5.9 and the baseline panorama visualisations for viewpoints, they have not been considered as part of the cumulative assessment due to the level of uncertainty associated with the proposals and the lack of reliable information available with respect to the scheme design. Wauchope Wind Farm contains three development areas which appear as discrete units, whilst these areas are all part of the same scoping application they are labelled on Figure 5.9 by their unique names (Newcastleton, Wauchope West and Wauchope East) due to the distance between areas.

5.9.7 Figure 5.10 illustrates the theoretical visibility of operational and consented schemes, with the theoretical visibility of the proposed development shown in blue, theoretical visibility of the operational and consented schemes shown in yellow and locations with theoretical visibility of the proposed development with other operational or consented schemes shown in a combined blue/green colour. This demonstrates the scenario considered in Section 5.6, with the existing and consented wind farms forming part of the assessment baseline. It demonstrates very limited areas, predominantly along the A7 corridor, where the proposed development will be seen without any existing wind farms being visible; large areas in the west and north of the study area where existing schemes are visible but the proposed development will not be visible; and large areas in the flatter southern half of the study area where visibility of the proposed development will theoretically be combined with views of existing wind turbine development.

- 5.9.8 Figure 5.11 illustrates the theoretical visibility of schemes in planning. These have been grouped into clusters that are likely to result in similar landscape and visual effects. due to similarities in their distance and orientation from the site. The groupings are:
- Proposed wind farms within 15km to the north: Callisterhall, Hopsrig, Loganhead, and Faw Side;
 - Proposed wind farms beyond 15km to the north-west: Harestanes South and Scoop Hill; and
 - Proposed wind farms beyond 15km to the north-east: Teviot.
- 5.9.9 Figure 5.11 illustrates that as with the pattern of theoretical visibility for the proposed development and the existing/consented schemes, large areas in the west of the study area will have visibility of the proposed wind farms at Harestanes South and Scoop Hill, with some additional visibility of the proposed wind farms at Callisterhall, Hopsrig, Loganhead, and Faw Side. Only areas with east or south-east facing slopes have any potential for combined visibility of the proposed development with these proposed wind farms.
- 5.9.10 To the north, the majority of the theoretical visibility will arise from visibility of the proposed wind farms at Callisterhall, Hopsrig, Loganhead, and Faw Side, occasionally combined with Teviot and intermittently with Harestanes South and Scoop Hill. Combined visibility with the proposed development will be restricted to locations along the A7 corridor and some of the highest peaks.
- 5.9.11 To the immediate south, there will be theoretical visibility of the proposed development and the proposed wind farms at Callisterhall, Hopsrig, Loganhead, and Faw Side, with some visibility of Teviot as well. Further south, the pattern of theoretical visibility of multiple wind farms will continue, with potential visibility of all of the cumulative schemes with the proposed development.

Cumulative Effects on Landscape Character

- 5.9.12 The following landscape character areas are judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposed development, and are therefore assessed for cumulative effects, which are shown on Figure 5.3:
- LCT175 Foothills - Dumfries and Galloway;
 - LCT172 Upland Fringe - Dumfries and Galloway;
 - LCT177 Southern Uplands - Dumfries and Galloway;
 - LCT171 Flow Plateau;
 - LCT161 Pastoral Valley - Dumfries and Galloway;
 - LCT176 Foothills with Forest - Dumfries and Galloway;

- LCT177 Southern Uplands - Dumfries and Galloway;
- LCT166 Upland Glens - Dumfries and Galloway; and
- LCT172 Upland Fringe Dumfries and Galloway.

- 5.9.13 **LCT175 Foothills - Dumfries and Galloway** (includes site) -Viewpoints 3 and 5 (Figures 5.16 and 5.18) lie within this character type. The LCT is judged to be of Medium sensitivity.
- 5.9.14 As indicated by Figure 5.11, within the north-west of this LCT effects will predominantly be as a result of visibility of the proposed wind farms at Harestanes South and Scoop Hill, with Scoop Hill being located in the north of the LCT. Cumulative effects as a result of those two schemes in combination with visibility of the proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side will occur through much of the centre of the LCT. In both of these cases, the cumulative effects will not include cumulative effects with the proposed development. Within the eastern part of the LCT, beyond the direct effects of the proposed development in combination with the existing wind turbines at Solwaybank, Callisterhall will be located within the LCT to the north of the site and in areas to the north and south of the site there will be combined visibility of the proposed development with proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side. A small area within the site will also experience theoretical visibility of Teviot Wind Farm, but this area already experiences direct effects from the proposed development.
- 5.9.15 Cumulative effects of Large to Medium-Large scale within the character area will extend to cover an Intermediate extent of this LCT if all of the cumulative schemes were constructed. These effects will remain of High-Medium Magnitude, Major-Moderate significance (significant) and Adverse.
- LCT172 Upland Fringe - Dumfries and Galloway (includes site)*
- 5.9.16 Viewpoints 1 and 10 (Figure 5.14 and Figure 5.23) lie within this LCT, which is judged to be of Medium sensitivity.
- 5.9.17 As with LCT175, as indicated by Figure 5.11 within the north of this LCT, effects will predominantly be as a result of visibility of the proposed wind farms at Harestanes South and Scoop Hill. Through the centre and east of this LCT, cumulative effects are likely to be experienced as a result of views of the proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side beyond the proposed development and the existing Solwaybank Wind Farm. This will not increase effects on the LCT beyond those assessed for the proposed development alone, namely High-Medium Magnitude, Major-Moderate (significant) and Adverse.

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

- 5.9.18 As illustrated by Figure 5.3 LCT177 covers a small area of upland located to the north of the site. This LCT is judged to be of High-Medium sensitivity.
- 5.9.19 Craig Wind Farm is located along the boundary of this LCT, and Loganhead and Hopsrig will be located close to the western edge of the LCT. Large-Medium scale effects on this LCT will increase to cover a Wide extent if these proposed wind farms are consented. Effects on the LCT will be of High magnitude, Major-Moderate significance (significant) and Adverse.

LCT171 Flow Plateau (1.1km, south)

- 5.9.20 Viewpoint 1 (Figure 5.14) lies on the northern edge of this LCT, with VP4 (Figure 5.17) in the centre and VP16 (Figure 5.29) located just outside the south-western boundary of the area. This LCT is judged to be of Medium sensitivity.
- 5.9.21 As indicated by Figure 5.11, there will be potentially visibility of proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side in combination with the proposed development from much of this LCT, as well as visibility of the proposed Teviot Wind Farm in combination from parts of the LCT. However, given the relative proximity of the proposed development, the potential visual influence of the proposed development will continue to be the main influence on landscape character within this LCT. Effects will remain as assessed for the proposed development on its own: Medium magnitude, Moderate significance (not significant) and Adverse.

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

- 5.9.22 Viewpoints 6 and 7 (Figures 5.19 and 5.20) lie within this character type. Sensitivity is deemed to be High-Medium.
- 5.9.23 Whilst Figure 5.11 indicates theoretical visibility of the proposed development with the proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side across much of the LCT, in reality the representative viewpoints indicate that in much of the LCT these proposed wind farm will not be visible. Cumulative effects on this LCT will not change from those assessed for the proposed development on its own: Medium magnitude, Major-Moderate significance (significant) and Adverse.

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

- 5.9.24 As shown on Figure 5.3 this LCT encompasses a small area of land to the east of the site, that is predominantly covered by forestry. The sensitivity is judged to be High-Medium.

- 5.9.25 Figure 5.11 indicates theoretical visibility of the proposed development in combination with the proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side in the west of this LCT, and given that the proposed development will remain the closest proposed development to the LCT effects will remain as assessed for the proposed development: Medium-Low magnitude, Moderate significance (not significant) and Adverse.

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

- 5.9.26 Viewpoint 8 (Figure 5.21) lies at Malcolm Monument within this LCT. Landscape sensitivity is assessed to be High-Medium.
- 5.9.27 Figure 5.11 indicates that much of the theoretical visibility in the north of this LCT, and therefore the effects on characteristic views, will be as a result of the proposed wind farms at of the proposed development in combination with the proposed wind farms at Callisterhall, Hopsrig, Loganhead and Faw Side, with Faw Side Wind Farm exerting the greatest influence due to its proximity. Teviot Wind Farm will also be located immediately to the north of the LCT and will influence character in northern areas of the LCT. From some of the higher areas across the LCT, there will be theoretical distant views of all of the proposed wind farms. Medium scale effects will occur across a greater proportion of the LCT if all of the proposed schemes are consented than if the proposed development is consented on its own. These effects will occur across a Localised extent of the character type and will give rise to effects of Medium magnitude, Moderate significance (not significant) and Adverse.

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

- 5.9.28 Viewpoint 11 (Figure 5.24) is located around two-thirds of the way up the valley and affords linear views along the valley towards the site. This LCT is deemed to have a High-Medium landscape sensitivity.
- 5.9.29 Faw Side Wind Farm will be located immediately to the west of this LCT and Teviot Wind Farm close to the northern boundary of the LCT. Whilst the u-shaped valley creates enclosure and limits the influence of the proposed development and other existing wind farms on the LCT, Faw Side and Teviot will be visible on the skyline from some of the glen. The proposed development will be a minor element of views and have a much more limited effect on landscape character. These effects will be Large-Medium scale and will occur across an Intermediate extent of the area. Effects will be of High-Medium magnitude, Major-Moderate significance (significant) and Adverse, as a result of the presence of either Faw Side and Teviot wind farms.

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

- 5.9.30 As illustrated on Figure 5.3, this area of LCT172 lies to the east of the site and the A7 across an area of gently rolling pasture interspersed with area of mixed woodland. Sensitivity is judged to be Medium.
- 5.9.31 Similarly to LCT176 Foothills with Forest - Dumfries and Galloway, given that the proposed development will remain the closest proposed development to the LCT effects will remain as assessed for the proposed development: Medium-Low magnitude, Moderate (not significant) and Neutral.

Cumulative Visual Effects

- 5.9.32 The assessment considers two types of cumulative visual effect, namely effects arising from combined and sequential views. This is in accordance with the NatureScot Guidance 'Assessing the Cumulative Impact of Onshore Wind Energy Developments' (March 2021)³³. These comprise:
- Combined views which 'occur where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be in combination (where several wind farms are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various wind farms)'; and
 - Sequential views which 'occur when the observer has to move to another viewpoint to see different developments.'
- 5.9.33 This section assesses the anticipated cumulative visual effects arising from the proposal in combination with the existing and approved wind developments, and the proposed wind developments. The main linear routes that share combined intervisibility in the study area are then summarised to anticipate the likely sequential views.

Visual Aids

- 5.9.34 The baseline panoramas and wirelines shown on Figures 5.14-5.30 supporting this LVIA include cumulative schemes. A detailed description of the methods by which the wirelines and photomontages are prepared is included in Technical Appendix 5.1. The visualisations are numbered according to the viewpoint that they show (e.g. VP_01 for Viewpoint 1), with a suffix indicating the type of visualisation (BP - baseline panorama and wireline (including cumulative schemes), WL - wireline, PM - photomontage, NP - night photomontage).

- 5.9.35 The viewpoint description, description of effects and scale of effect for each viewpoint, including cumulatively (refer to Figure 5.6 and 5.7 for locations) is set out within Technical Appendix 5.2.
- 5.9.36 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.
- 5.9.37 From these viewpoints it can be seen that the proposed development will generally be seen as a group with Solwaybank Wind Farm in views from the north. In views from the south, the proposed development will often be seen with other existing and proposed wind farms located behind it, forming a group of wind turbines across the view. The proposed development will extend this group eastwards in some of the closest views, but will more frequently be seen as a more central part of the group with distance from the site. In addition, intervening vegetation will generally filter views of the group of wind turbines from these more distant views to the south.
- 5.9.38 In both close and more distant views from the east and west, the proposed development will often be seen as part of a group with Solwaybank Wind Farm, with other existing and proposed wind farms creating a much larger group to the north. In more distant views from these directions, as well as to the south-east and south-west, Beck Burn Wind Farm is often closer to the viewpoint.
- 5.9.39 From most of the viewpoints, the combined effects of the proposed development and other proposed wind farms will remain unchanged from the effects of the proposed wind farm alone in combination with existing wind farms. This is in part due to the selection of viewpoints, which focus on the site, but also because the other proposed schemes will generally be more distant or will be screened from view at the particular viewpoint. It will only be from elevated viewpoints to the east and west, and more open long distance views from the south, where there will be an increase in effects as a result of the in combination cumulative effects.

Visual Receptor Groups

- 5.9.40 The following settlements are judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposal, and are therefore assessed for cumulative effects:
- Local roads, residents and core paths between the A7, A6071 and A74(M)
 - Langholm, local core paths and hills
 - A7 and local hills north of Langholm

³³ (2021). Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments. NatureScot.

- Settlements along key road corridors, including the A7, A74(M) and A75
- Distant roads, residents and recreational landscapes between 8.7km and 29.1km west
- Distant roads and residents in the low-land of Carlisle
- Distant roads and residents along the estuarine landscape west of Carlisle

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

5.9.41 Viewpoints 1, 2, 3, 4, 5 and 10 (Figures 5.14-5.18 and 5.23) lie within this area.

5.9.42 As set out in the viewpoint descriptions in Technical Appendix 5.2, effects across much of this receptor group will remain unchanged from the assessment of the proposed development alone and will remain of Large or Large-Medium scale close to the site, reducing to Small scale towards the south and west of the receptor group. Only in more elevated views to the west, such as Viewpoint 10 (Figure 5.23) will there be an increase in the scale of visual effects as a result of the proposed development in combination with other proposed wind farms. This is as a result of the wider extent of overall visibility and the ability to see the proposed wind farms at Callisterhall, Loganhead and Hopsrig clustered with existing wind turbines at Craig, Ewe Hill and Crossdykes to the north of the site, and the proposed wind farm at Scoop Hill as a separate large group of wind turbines. Overall cumulative effects will arise across a Wide extent of this High-Medium sensitivity receptor group and will remain of Medium magnitude, Major-Moderate (significant) and Adverse.

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

5.9.43 Viewpoint 7 (Figure 5.20) represents the effects within the town, these are predominantly Negligible due to the local screening from buildings and vegetation. Viewpoint 8 (Figure 5.21) represents views from local hills that residents of Langholm may use frequently as part of the immediate recreational offer.

5.9.44 Only in more elevated views to the east, such as Viewpoint 8 (Figure 5.21) will there be an increase in the scale of effects as a result of the proposed development in combination with other proposed wind farms. This is as a result of the wider extent of overall visibility and the ability to see the proposed wind farms at Callisterhall, Loganhead and Hopsrig clustered with existing wind turbines at Craig, Ewe Hill and Crossdykes to the north of the site, and the proposed wind farms at Scoop Hill, Faw Side and Teviot as further large groups of wind turbines. Effects will range from Negligible within the more enclosed areas of Langholm and will increase to Large-Medium on elevated ground. Effects will arise across an Intermediate extent of this High-Medium sensitivity receptor group and will be of High-Medium magnitude, Major-Moderate significance (significant) and Adverse.

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

5.9.45 Viewpoint 11 (Figure 5.24) is located within this area. As described in Technical Appendix 5.2, although the blades of a small number of the proposed wind turbines at Teviot Wind Farm will be visible to the east of the A7, the extent of visibility will be too limited to contribute to cumulative effects.

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

5.9.46 Viewpoints 6, 9, 15 and 16 (Figures 5.19, 5.22, 5.28 and 5.29) represent effects from across this area.

5.9.47 As set out in the viewpoint descriptions in Technical Appendix 5.2, effects across much of this receptor group will remain unchanged from the assessment of the proposed development alone and will remain of Medium scale closer to the site, reducing to Negligible scale towards the south-east where intervening vegetation will screen much of the proposed development and cumulative schemes from view. Only in views from the northern edge of the settlements to the south-west of the site, including Gretna and Kirkpatrick Fleming, such as Viewpoints 15 and 16, will there be an increase in the scale of effects as a result of the proposed development in combination with other proposed wind farms. This is as a result of a greater number of wind turbines being visible within localised views from these settlements, but at a distance.

5.9.48 Overall cumulative effects will arise across a Wide extent of this High-Medium sensitivity receptor group and will remain of Medium-Low magnitude, Moderate (not significant) and Adverse.

Distant roads, residents and recreational landscapes between 8.7km and 29.1km west

5.9.49 Viewpoints 10 and 17 (Figures 5.23 and 5.30) represent some of the more open views from elevated locations within this receptor group, whilst Viewpoint 13 (Figure 5.26) represents the most distant view from a recreational landscape.

5.9.50 As set out within Technical Appendix 5.2, will there be an increase in the scale of visual effects from elevated locations with panoramic views, as a result of the proposed development in combination with other proposed wind farms. This is as a result of the wider extent of overall visibility and the ability to see the proposed wind farms at Callisterhall, Loganhead and Hopsrig clustered with existing wind turbines at Craig, Ewe Hill and Crossdykes to the north of the site, and the proposed wind farm at Scoop Hill as a separate large group of wind turbines. Overall cumulative effects on this High-Medium sensitivity receptor group will arise across a

Localised extent of the receptor group and will be of Medium magnitude, Moderate (not significant) and Adverse.

Distant roads and residents in the low-land of Carlisle (11.4km - 28.2km, south-east)

5.9.51 Viewpoint 14 (Figure 5.27) lies close to the edge of this receptor group on the route of Hadrian's Wall.

5.9.52 As set out within Technical Appendix 5.2, will there be an increase in the scale of visual effects from elevated locations with panoramic views, as a result of the proposed development in combination with other proposed wind farms. This is as a result of the wider extent of overall visibility and the ability to see the proposed wind farms at Callisterhall, Hopsrig and Loganhead (planning), with Faw Side and Teviot located as a separate group further to the north-east. Overall cumulative effects on this High-Medium sensitivity receptor group will arise across a Localised extent of the receptor group and will increase to Medium-Low magnitude, Moderate (not significant) and Adverse.

Distant roads and residents along the estuarine landscape west of Carlisle (16.8km - 25.1km, south)

5.9.53 Viewpoint 12 (Figure 5.25) lies within this receptor group, directly to the west of Bowness-on-Solway overlooking the Firth.

5.9.54 As set out within Technical Appendix 5.2, will there be an increase in the scale of visual effects from locations within this receptor group that have panoramic views, as a result of the proposed development in combination with other proposed wind farms. This relates to the group of proposed wind farms that will be clustered together in the view, including Hopsrig, Loganhead, Callisterhall, Faw Side and Teviot wind farms, which will connect the clusters of wind turbines at Crossdykes and Ewe Hill to those at Solwaybank, Craig and the proposed development.

5.9.55 Overall cumulative effects will be of Medium-Small scale across a Wide extent of this receptor group and will be of Medium magnitude, Moderate (not significant) and Adverse.

Road and Rail

A75 (11.3km, south)

5.9.56 The A75 is promoted as part of the 'Galloway Tourist Route' Scenic Driving Route and drivers using the A75 are judged to be of Medium sensitivity. There will be intermittent locations along the route where a number of cumulative schemes may

be visible in combination with the proposed development. These visual effects will be at most Medium-Small scale and will occur across a Localised extent of the route.

5.9.57 This will result in Medium-Low magnitude, Slight significance (not significant) and Adverse effects.

West Coast Mainline (8.9km, south-west)

5.9.58 The West Coast Mainline is a key railway corridor within the UK and links London to Glasgow. Users of the route are assessed to be of Medium sensitivity. Similarly to views from the A75, there will be intermittent locations along the route where a number of cumulative schemes may be visible in combination with the proposed development. These visual effects will be at most Medium-Small scale and will occur across a Localised extent of the route. This will result in Medium-Low magnitude, Slight significance (not significant) and Adverse effects.

Glasgow South Western Line (11.1km, south)

5.9.59 This branch of the Glasgow South Western line connects Carlisle to Glasgow via Dumfries and runs north from Carlisle to Gretna, before turning west where it passes below Annan to Cummertrees, before turning north-west to Dumfries. Users of the route are assessed to be of Medium sensitivity. Similarly to views from the A75 and the West Coast Mainline, there will be intermittent locations along the route where a number of cumulative schemes may be visible in combination with the proposed development. These visual effects will be at most Medium-Small scale and will occur across a Localised extent of the route. This will result in Medium-Low magnitude, Slight significance (not significant) and Adverse effects.

Long Distance Routes

5.9.60 No long distance routes were assessed to experience greater than Low-Negligible magnitude visual effects as a result of the proposed development. Any significant cumulative effects along these routes from wind farms in planning will be as a result of wind farms other than the proposed development and as such are not relevant for consideration as part of this application.

National, Regional and Local Cycle Routes

5.9.61 No cycle routes were assessed to experience greater than Low-Negligible magnitude visual effects as a result of the proposed development. Any significant cumulative effects along these routes from wind farms in planning will be as a result of wind farms other than the proposed development and as such are not relevant for consideration as part of this application.

Cumulative Effects on Designated Landscapes

5.9.62 Only the Langholm Hills RSA is judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposal and therefore assessed for cumulative effects.

Regional Scenic Areas (RSA)

Langholm Hills RSA (0.1km, north-east)

5.9.63 This designated area is located directly to the north-east of the site and is assessed to be of High-Medium sensitivity.

5.9.64 Effects on this RSA have been previously described in the LCTs that it covers, primarily LCT166, 177, 161 and 176 (which was excluded from the cumulative assessment as effects of greater than Low-Negligible Magnitude were not identified in the main assessment), and by the viewpoints that lie within the RSA (Viewpoints 5, 6, 7, 8, 11, shown on Figures 5.18-5.21 and 5.24) as described in Technical Appendix 5.2. From most of the Viewpoints within the RSA, there will be no cumulative effects in combination with other proposed wind farms as the Viewpoints were selected to focus on the proposed development. However, the proposed Faw Side Wind Farm will be located within the RSA and Teviot Wind Farm will be located immediately to the north. The scale of effects will range from Large-Medium scale in areas close to the proposed Faw Side and Teviot Wind Farms, as well as the site, to Small scale in the more enclosed areas of the RSA.

5.9.65 On balance, Large-Medium scale effects on this RSA will occur across an Intermediate extent of the area and will give rise to **High-Medium magnitude, Major-Moderate significance (significant) and Adverse effects.**

Cumulative Night Time Effects

5.9.66 As set out at in the assessment of night-time effects above, medium intensity steady red (2000 candela) lights will be mounted on the nacelles of wind turbines T01, T02, T05, T06, T07, T08, T10, T13, T14, T15, T17, T18, T20 and T21. At present, Crossdykes Wind Farm is the only existing wind farm with red nacelle lights within the study area. The consented turbines at Little Hartfell Wind Farm will also have aviation lighting and both of these structures have been considered in the previous consideration of night-time effects.

5.9.67 All of the cumulative schemes that are in planning are over 150m high and will therefore require aviation lighting. The study area for the assessment of effects at night-time remains 15km.

Cumulative Night-time Effects on Landscape Character

5.9.68 As detailed in the assessment of cumulative landscape effects above, the greatest cumulative effects on landscape character will occur on LCTs to the north and north-east of the site, given that this is the direction in which the proposed cumulative schemes will be located. The LCTs that will experience increased landscape effects as a result of the proposed development in combination with cumulative schemes are:

- LCT177 Southern Uplands - Dumfries and Galloway (0.8km, N);
- LCT177 Southern Uplands - Dumfries and Galloway (3.2km, NE); and
- LCT166 Upland Glens - Dumfries and Galloway (3.5km, NE).

5.9.69 Of these three LCTs, LCT 166 was excluded from detailed assessment as part of the night-time assessment given that the LCT already experiences lighting effects from vehicles travelling along the A7 through the centre of the LCT.

5.9.70 The two remaining areas of LCT 177, to the north and to the north-east of the site, would experience increased landscape effects at night, in a similar way to how they would at night, as a result of the in combination effects of the proposed development with proposed wind farms and associated lighting either within or very close to the two LCTs.

5.9.71 For LCT177 Southern Uplands - Dumfries and Galloway (0.8km, N), night-time effects on the and High-Medium sensitivity LCT would increase to Large scale effects across a Localised extent of this LCT, as a result of lighting on Loganhead Wind Farm and Hopsrig Wind Farm located close to the western edge of the LCT. These will be of **High magnitude, Major-Moderate (significant) and Adverse.**

5.9.72 For LCT177 Southern Uplands - Dumfries and Galloway (3.2km, NE), night-time effects on the and High-Medium sensitivity LCT would increase to Medium scale effects across a Localised extent of this LCT, as a result of lighting on Faw Side Wind Farm to the west and Teviot Wind Farm located immediately to the north of the LCT. These effects will be of **Medium magnitude, Major-Moderate (significant) and Adverse.**

Cumulative Night-time Effects on Visual Receptors

Visual Receptor Groups

5.9.73 As detailed in the assessment of cumulative visual effects above, the greatest cumulative visual effects will be on visual receptor groups to the north and those with open views towards the site from the south and south-west where the spread of turbines in views will increase as a result of the addition of cumulative schemes in combination with the proposed development. Combined with the description of cumulative night-time effects provided in Technical Appendix 5.2, the visual receptor groups within the 15km study area that will experience increased visual effects at night as a result of the proposed development in combination with cumulative schemes are:

- Local roads, residents and core paths between the A7, A6071 and A74(M)
- Langholm, local core paths and hills

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

5.9.74 Viewpoints 1, 2, 3, 4, 5 and 10 (Figures 5.14-5.18 and 5.23) lie within this area.

5.9.75 As set out in the viewpoint descriptions in Technical Appendix 5.2, effects across much of this receptor group will remain unchanged from the assessment of the proposed development alone and will remain of Large or Large-Medium scale close to the site, reducing to Small scale towards the south and west of the receptor group. Only in views looking directly north in close proximity to the site, such as Viewpoint 1 (Figure 5.14) and more elevated views to the west, such as Viewpoint 10 (Figure 5.23) will there be an increase in the scale of visual effects as a result of the proposed development in combination with other proposed wind farms. This is as a result of the wider extent of overall visibility and the ability to see the lighting on the proposed wind farms at Callisterhall, Loganhead and from the east Hopsrig clustered with the lighting on the proposed development.

5.9.76 Overall cumulative night-time effects will arise across a Wide extent of this Medium sensitivity receptor group and will increase to **High-Medium magnitude, Major-Moderate (significant) and Adverse**.

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

5.9.77 Viewpoint 7 (Figure 5.20) represents the effects within the town, these are predominantly Negligible due to the local screening from buildings and vegetation. Viewpoint 8 (Figure 5.21) represents views from local hills that residents of Langholm may use frequently as part of the immediate recreational offer.

5.9.78 Only in more elevated views to the east, such as Viewpoint 8 (Figure 5.21) will there be an increase in the scale of effects as a result of the proposed development in combination with other proposed wind farms. This is as a result of the wider extent of overall visibility and the ability to see the proposed wind farms at Callisterhall, Loganhead and Hopsrig clustered with existing turbines at Crossdykes to the north of the site, and the proposed wind farms at Scoop Hill, Faw Side and Teviot as further large groups of turbines. Effects will range from Negligible within the more enclosed areas of Langholm and will increase to Large on elevated ground. Large-scale effects will arise across an Intermediate extent of this Medium sensitivity receptor group and will increase to **High magnitude, Major-Moderate significance (significant) and Adverse**.

Cumulative Night-time Effects on Designated Landscapes

5.9.79 Of the designated landscapes within the study area for the night-time assessment, only the Langholm Hills RSA is judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposed development and therefore assessed for cumulative effects. As described in the daytime cumulative assessment, the proposed Faw Side Wind Farm will be located within the RSA and Teviot Wind Farm will be located immediately to the north. The scale of effects on the character of the RSA at night will range from Large scale in areas close to the proposed Faw Side and Teviot wind farms, Small scale in the more enclosed areas of the RSA.

5.9.80 The RSA is assessed to be of High-Medium sensitivity at night. On balance, Large scale effects on this RSA will occur across an Intermediate extent of the area and will give rise to **High magnitude, Major significance (significant) and Adverse effects**.

5.10 Summary of Landscape and Visual Effects

Methodology

5.10.1 The assessment method for this LVIA draws upon the established GLVIA3; An Approach to Landscape Character Assessment (Natural England, 2014), Landscape Institute Technical Information Note 05/2017 regarding townscape character; LI Technical Guidance Note 02/2019 Residential Visual amenity assessment (RVAA); Landscape Institute's Technical Guidance Note 02/21: Assessing landscape value outside national designations; LI Technical Guidance Note 06/19 Visual Representation of development proposals and other recognised guidelines.

Baseline

- 5.10.2 33 landscape character types and areas are located within 15km of the proposed development, within the Zone of Theoretical Visibility (ZTV) study and Zone of Visual Influence (ZVI). Of these character areas 16 have been identified in Scotland and nine in Cumbria that require detailed assessment, with the remainder excluded because the Zone of Theoretical Visibility (ZTV) study and site work indicates limited or no visibility.
- 5.10.3 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 and Core Paths; or people visiting key viewpoints. In dealing with areas of settlement, Public Rights of Way and local roads, receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common.
- 5.10.4 17 representative viewpoints have been selected to inform the assessment of effects on visual receptors.

Effects on Landscape Character

- 5.10.5 The findings of the assessment indicate that landscape sensitivity within the study area is variable, ranging from Medium-Low to High-Medium. This is in part due to the presence of landscape designations including Hadrian's Wall World Heritage Site core area and buffer zone, Nith Estuary National Scenic Area and Solway Coast Area of Outstanding Natural Beauty, and Regional Scenic Areas.
- 5.10.6 The proposed development is likely to become the dominant characteristic of the landscape within and to the east of the site approximately 1-1.5km, giving rise to the sense of being next to or at a wind farm. Due to the proximity of the existing Solwaybank Wind Farm to the west and Craig Wind Farm to the north, which already influence landscape character between these wind farms and the proposed development, effects from the proposed development will be reduced in these directions. Beyond these areas and up to approximately 5km from the proposed development, it will become one of the key characteristics, giving the sense of being near a wind farm. As a result there will be localised significant effects on the following Landscape Character Types:
- LCT175 Foothills - Dumfries and Galloway (includes site)
 - LCT172 Upland Fringe - Dumfries and Galloway (includes site)
 - LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north)
 - LCT161 Pastoral Valley - Dumfries and Galloway (1.4km, east)

- 5.10.7 Overall effects on other character areas within the study area will range be of Medium to Negligible magnitude and Moderate to Minimal significance.

Visual Effects

- 5.10.8 Effects on views will be generally of Large scale within close proximity to the site and Medium scale up to around 4.5-5km from the proposed wind farm, and will decrease to Small and Negligible scale beyond approximately 7.5km from the site boundary.

Effects on Visual Receptor Groups

- 5.10.9 The proposed development will be prominently visible from parts of the visual receptor group covering the site: Local roads, residents and core paths between the A7, A6071 and A74(M). This will give rise to significant visual effects. Other visual receptor groups within the study area will tend to have fewer and more distant views resulting in effects of no greater than Moderate significance.

Effects on Roads and Rail

- 5.10.10 Views of the proposed development from key road and rail routes through the study area will generally be intermittent views whilst travelling through the area and not looking directly towards the proposed development. Effects will be of Low Magnitude and Slight Significance for uses of the A75, the West Coast Mainline and Glasgow South Western Line, with Negligible effects for users of other main road routes through the study area.

Effects on Long Distance Routes

- 5.10.11 All of the long distance routes within the study area are beyond 9km from the proposed development. Effects on long distance walking and cycling routes will be no greater than Low Negligible Magnitude and Slight to Slight-Minimal Significance.

Effects on Designated Landscapes

- 5.10.12 There will be no effects on the Solway Coast AONB or the Frontiers of the Roman Empire (Hadrian's Wall) that will be incompatible with the designations in landscape and visual terms. Effects on these designations will be Slight to Slight-Minimal and will not be significant.
- 5.10.13 There will be localised significant effects on the Langholm Hills RSA to the north-east of the site, due to its close proximity to the proposed development and its visibility from the southern part of the designated area. However, there will be no direct effects on the RSA and the proposed development would not compromise the key qualities and overall integrity of this RSA.

Night-time Effects

- 5.10.14 The night-time effects of the proposed development are assessed within a study area of 15km.
- 5.10.15 Crossdykes Wind Farm is the only existing wind farm with red nacelle and tower lights within the study area. However, Little Hartfell Wind Farm (consented) will also include wind turbine lighting once construction is complete. Other lighting sources within and outside the study area include settlements and transport corridors, the MOD base at Longtown and Chapelcross power station. There are also 13no. 227m tall radio masts at Anthorn Radio Station, a 337m tall mast at Caldbeck Transmitting Station and one 365m tall mast at Skelton Transmitting Station. These masts have red aviation lighting that is the same colour and are assumed to be of the same intensity as required on the proposed wind turbines.

Effects on Landscape Character

- 5.10.16 Of the LCTs within the 15km study area for night-time effects, those to the south of A74(M) corridor and those around Longtown and the A7 corridor are not assessed due to the strong presence of existing lights sources within the night time environment. Of the nine LCTs located within the study area, localised significant effects on landscape character at night would be experienced within LCT175 Foothills - Dumfries and Galloway (includes site) and LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north) due to introduction of new light sources.

Visual Effects

- 5.10.17 Of the visual receptors within the 15km study area for night-time effects, many already experience some level of lighting at night due to the presence of roads, settlement and individual residential properties. As a result, significant visual effects at night are not assessed for any of the visual receptors.

Designated Landscapes

- 5.10.18 Night-time effects on the Langholm Hills RSA to the north-east of the site will be Effects will be of Low magnitude, Slight (not significant), due to the existing lighting sources along the A7, and the proposed development would not compromise the key qualities and overall integrity of this RSA.

Effects on Residential Properties

- 5.10.19 The baseline assessment identified a total of 48 residential properties within the 2.5km study area for the residential visual amenity assessment (RVAA). Of these

properties, all but three have potential visibility of the proposed development and have been assessed in detail in the RVAA.

- 5.10.20 Operational effects will vary notably between residential properties due to the number and range of properties within the study area. The two properties with the highest magnitude of change are P4 (1 Bigholms Cottages) and P11 (Bloch Farm). Both properties lie within the site boundary and are financially involved with the proposed development. P4 and P11 will both experience clear views of the majority of the turbines due to their proximity to the proposed development and the aspect of the properties.
- 5.10.21 The property with the second highest magnitude of change, at High-medium, is P2 (Collin Cottage) which was taken forward for further detailed assessment. Effects on P2 are deemed not to meet the Residential Visual Amenity Threshold.
- 5.10.22 The assessment concludes that for the properties that are not financially involved with the project the Residential Visual Amenity threshold will not be reached and the effects will not be sufficiently “oppressive” or “overbearing” that any property will be rendered an unattractive place in which to live.

Cumulative Effects

- 5.10.23 Greater effects than for the proposed wind farm alone would arise on the following receptors if any of the cumulative schemes and the proposed wind farm were consented, generally due to closer proximity to a number of the cumulative schemes:
- LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north);
 - LCT177 Southern Uplands - Dumfries and Galloway (3.2km, east);
 - LCT166 Upland Glens - Dumfries and Galloway (3.5km, north-east);
 - Langholm, local core paths and hills visual receptor group;
 - Distant roads, residents and recreational landscapes between 8.7km and 29.1km west visual receptor group;
 - Distant roads and residents in the low-land of Carlisle visual receptor group;
 - Distant roads and residents along the estuarine landscape west of Carlisle visual receptor group;
 - A75;
 - West Coast Mainline;
 - Glasgow South Western Line; and
 - Glasgow South Western Line.

Cumulative Night-time Effects

5.10.24 Greater effects than for the proposed wind farm alone would arise at night on the following receptors if any of the cumulative schemes and the proposed wind farm were consented, generally due to closer proximity to a number of the cumulative schemes:

- LCT177 Southern Uplands - Dumfries and Galloway (0.8km, north);
- LCT177 Southern Uplands - Dumfries and Galloway (3.2km, north-east);
- Local roads, residents and core paths between the A7, A6071 and A74(M) visual receptor group;
- Langholm, local core paths and hills visual receptor group; and
- Langholm Hills RSA.

Summary of Effects

5.10.25 Effects on the receptors assessed above are summarised in Table 5.13 over page. For receptors where the significance of effects varies, the distribution of effects is summarised.

Table 5.13: Summary of Effects

Only effects of greater than Negligible magnitude and/or Minimal significance are included in the summary table.

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Positive / Neutral / Adverse
Landscape Character						
LCT175 Foothills - Dumfries and Galloway	Day	Includes site	Medium	High-Medium	Major-Moderate	Adverse
	Night			High-Medium	Major-Moderate	Adverse
	Cumulative			High-Medium	Major-moderate	Adverse
LCT172 Upland Fringe - Dumfries and Galloway	Day	Includes site	Medium	High-Medium	Major-Moderate	Adverse
	Night			Medium-Low	Moderate	Adverse
	Cumulative			High-Medium	Major-Moderate	Adverse
LCT177 Southern Uplands - Dumfries and Galloway	Day	0.8km, north	High-Medium	High-Medium	Major-Moderate	Adverse
	Night			High-Medium	Major-Moderate	Adverse
	Cumulative			High	Major-Moderate	Adverse

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Positive / Neutral / Adverse
LCT171 Flow Plateau	Day	1.1km, south	Medium	Medium	Moderate	Adverse
	Night			High-Medium	Moderate	Adverse
	Cumulative			Medium	Moderate	Adverse
LCT161 Pastoral Valley - Dumfries and Galloway	Day	1.4km, east	High-Medium	Medium	Major-Moderate	Adverse
	Cumulative			Medium	Major-Moderate	Adverse
LCT176 Foothills with Forest - Dumfries and Galloway	Day	3.2km, east	High-Medium	Medium-Low	Moderate	Adverse
	Cumulative			Medium-Low	Moderate	Adverse
LCT177 Southern Uplands - Dumfries and Galloway	Day	3.2km, east	High-Medium	Medium-Low	Moderate	Adverse
	Night			Medium-Low	Moderate	Adverse
	Cumulative			Medium	Moderate	Adverse
LCT166 Upland Glens - Dumfries and Galloway	Day	3.5km, north-east	High-Medium	Low	Moderate	Adverse
	Cumulative			High-Medium	Major-Moderate	Adverse
LCT172 Upland Fringe Dumfries and Galloway	Day	3.6km, east	Medium	Medium-Low	Moderate	Neutral
	Night			Medium-Low	Moderate	Adverse
	Cumulative			Medium-Low	Moderate	Adverse
LCT177 Southern Uplands - Dumfries and Galloway	Day	3.6km, north	High-medium	Low-Negligible	Slight	Neutral
LCT5b Low Farmland	Night	5.2km, south	Medium-Low	Low-Negligible	Minimal	Neutral
LCT8b Broad Valleys	Night	6.7km, south	Medium	Low	Slight	Neutral
Visual Receptor Groups						
Local roads, residents and core paths between the	Day	Up to 1.8km east, 9.0km south and 8.0km south-west	High-Medium	Medium	Major-Moderate	Adverse
	Night			Medium	High-Medium	Moderate

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Positive / Neutral / Adverse
A7, A6071 and A74(M)	Cumulative		High-Medium	Medium	Major-Moderate	Adverse
Langholm, local core paths and hills	Day	2.3km, north-east	High-Medium	Medium-Low	Moderate	Adverse
	Night		Medium	Low	Slight	Adverse
	Cumulative		High-Medium	High-Medium	Major-Moderate	Adverse
A7 and local hills north of Langholm	Day	2.5km - 4.5km north-east	High-Medium	Medium-Low	Moderate	Adverse
Settlements along key road corridors, including the A7, A74(M) and A75	Day	Up to 5.0km east, 13.5km south, 18.1km south-west and 13.6km west	High-medium	Medium-Low	Moderate	Adverse
	Cumulative		Medium-Low	Moderate	Adverse	
Distant roads, residents and recreational landscapes between 8.7km and 29.1km west	Day	8.7km and 29.1km west	High-Medium	Low	Slight	Neutral
	Cumulative		Medium	Moderate	Adverse	
Distant roads and residents in the low-land of Carlisle	Day	11.4km - 28.2km, south-east	High-Medium	Low	Slight	Neutral
	Cumulative		Medium	Moderate	Adverse	
Distant roads and residents along the estuarine landscape west of Carlisle	Day	16.8km - 25.1km, south	High-Medium	Low-Negligible	Slight-Minimal	Neutral
	Cumulative		Medium	Moderate	Adverse	
Road and Rail						
A75	Day	11.3km, south	Medium	Low	Slight	Neutral
	Cumulative		Medium-Low	Slight	Adverse	
West Coast Mainline	Day	8.9km, south-west	Medium	Low	Slight	Neutral
	Cumulative		Medium-Low	Slight	Adverse	
	Day	11.1km, south	Medium	Low	Slight	Neutral

Receptor	Comments	Distance, Direction	Sensitivity	Magnitude	Significance	Positive / Neutral / Adverse
Glasgow South Western Line	Cumulative			Medium-Low	Slight	Adverse
Long Distance Routes						
Hadrian's Wall Path	Day	18.2km, south	High-Medium	Low-Negligible	Slight-Minimal	Neutral
National and Regional Cycle Routes						
National Cycle Route (NCR) 10	Day	15.4km, east	Medium	Low-Negligible	Slight-Minimal	Neutral
Regional Cycle Route (RCR) 11	Day	9.7km, south-west	Medium	Low-Negligible	Slight	Neutral
Designated Landscapes						
Solway Coast AONB	Day	13.2km, south	High	Low-Negligible	Slight	Neutral
Glasgow South Western Line	Day	0.1km, north-east	High-Medium	Medium	Major-Moderate	Adverse
	Night			Low	Slight	Adverse
	Cumulative			High-Medium	Major-Moderate	Adverse
Frontiers of the Roman Empire (Hadrian's Wall)	Day	Core Area - 18.0km, south, Buffer Area - 12.1km, south	High	Low-Negligible	Slight-Minimal	Neutral