

Glenvernoch Wind Farm

Environmental Impact Assessment Report Volume I Chapter 6: Landscape and Visual

October 2024

CONTENTS

6 LANDSCAPE AND VISUAL	6-1
Introduction	6-1
The Proposed Development.....	6-2
Legislation, Policy, and Guidance.....	6-3
Consultation.....	6-5
Methodology.....	6-11
Baseline	6-16
Assessment of Potential Effects	6-30
Mitigation	6-70
Assessment of Residual Effects	6-72
Assessment of Cumulative Effects	6-72
Summary	6-81

TABLES

Table 6.1:	Consultation Responses
Table 6.2:	Assessment Viewpoints
Table 6.3:	Landscape Character Sensitivity
Table 6.4:	Assessment of Effects on Landscape Character during Construction
Table 6.5:	Assessment of Effects on Landscape Character during Operation
Table 6.6:	Assessment of Effects on Viewpoints during Operation
Table 6.7:	Assessment of Effects on Core Paths during Operation
Table 6.8:	Assessment of Effects on Recreational Routes during Operation
Table 6.9:	Assessment of Effects on Roads during Operation
Table 6.10:	Other Wind Farms within 20km of the Proposed Development
Table 6.11:	Summary of Residual Effects

FIGURES

Figure 6.1:	Location and 35km Study Area
Figure 6.2:	Landscape Designations within 35km Study Area
Figure 6.3:	Landscape Designations within 20km Study Area
Figure 6.4:	Landscape Character Types within 35km Study Area
Figure 6.5:	Landscape Character Types within 20km Study Area
Figure 6.6:	Principal Visual Receptors within 35km Study Area
Figure 6.7:	Local Landscape Context within 2km
Figure 6.8:	Topography
Figure 6.9:	Other wind farms within 35km Study Area
Figure 6.10:	Other wind farms within 20km Study Area
Figure 6.11:	Blade tip ZTV up to 35km
Figure 6.12:	Blade tip ZTV up to 35km – North-East Quadrant
Figure 6.13:	Blade tip ZTV up to 35km – South-East Quadrant

- Figure 6.14: Blade tip ZTV up to 35km – South-West Quadrant
- Figure 6.15: Blade tip ZTV up to 35km – North-West Quadrant
- Figure 6.16: Blade tip ZTV up to 20km
- Figure 6.17: Hub height ZTV up to 35km
- Figure 6.18: Hub height ZTV up to 35km – North-East Quadrant
- Figure 6.19: Hub height ZTV up to 35km – South-East Quadrant
- Figure 6.20: Hub height ZTV up to 35km – South-West Quadrant
- Figure 6.21: Hub height ZTV up to 35km – North-West Quadrant
- Figure 6.22: Hub height ZTV up to 20km
- Figure 6.23: Blade tip ZTV up to 35km with Viewpoints
- Figure 6.24: Blade tip ZTV up to 20km with Principal Visual Receptors
- Figure 6.25: Blade tip ZTV up to 35km with Landscape Designations
- Figure 6.26: Blade tip ZTV up to 20km with Landscape Designations
- Figure 6.27: Blade tip ZTV up to 20km with Landscape Character Types
- Figure 6.28: Cumulative ZTV within 20km – Glenvernoch with Operational
- Figure 6.29: Cumulative ZTV within 20km – Glenvernoch with Consented
- Figure 6.30: Cumulative ZTV within 20km – Glenvernoch with Knockodhar
- Figure 6.31: Cumulative ZTV within 20km – Glenvernoch with Garvilland
- Figure 6.32: Cumulative ZTV within 20km – Glenvernoch with Blair Hill

VISUALISATIONS

- Viewpoint 1: Southern Upland Way (Hill of Ochiltree)
- Viewpoint 2: A714, north of Bargrennan (N)
- Viewpoint 3: A714, junction with minor road to Glentrool (N)
- Viewpoint 4: Southern Upland Way (Bargrennan)
- Viewpoint 5: Eldrig Fell
- Viewpoint 6: Minor road near Bennylow (Culvennan Fell)
- Viewpoint 7: B7027/Southern Upland Way near Knowe (N)
- Viewpoint 8: Southern Upland Way (Knockniehourie)
- Viewpoint 9: Bruce's Stone, Glentrool
- Viewpoint 10: All Saints Church, Challoch
- Viewpoint 11: Minor road, north of Mochrum Fell
- Viewpoint 12: Merrick
- Viewpoint 13: Lamachan Hill
- Viewpoint 14: Garlick Hill
- Viewpoint 15: A75, parking area south of Creetown
- Viewpoint 16: Road Junction between B7005 and A714 at Culquhirk*
- Viewpoint 17: B733 west of Kirkcowan*
- Viewpoint 18: Moor of Barclay Archaeological Sensitive Area*
- Viewpoint 19: The minor road outside Borgan Cottage*
- Viewpoint 20: A75 at Knockbex Toll Junction*

TECHNICAL APPENDICES

- Appendix 6.1: Landscape and Visual Impact Assessment Criteria
- Appendix 6.2: ZTV and Visualisation Information
- Appendix 6.3: Preliminary Assessment of Landscape Character Types and Designations
- Appendix 6.4: Preliminary Assessment of Visual Receptors
- Appendix 6.5: Viewpoint Assessment
- Appendix 6.6: Residential Visual Amenity Assessment (RVAA)
- Appendix 6.7: Assessment of Night-time Lighting: Assessment Criteria and Methodology

Version Control Sheet

Date:	October 2024	Job reference:	P23-1150
Issue:	Draft v03	File name:	Glenvernoch_Chapter 6 – LVIA_draft - [October 2024].docx
Description:	LVIA chapter		
Prepared by:	SCS	Checked by:	DT
Edited/checked:	SCS/DT	Date:	11/10/2024
Client review:	GO	Date:	07/10/2024
Legal review:		Date:	

6 LANDSCAPE AND VISUAL

Introduction

- 6.1 This chapter of the Environmental Impact Assessment Report (EIAR) presents a Landscape and Visual Impact Assessment (LVIA) of the Proposed Development. The purpose of an LVIA, when undertaken in the context of an Environmental Impact Assessment (EIA), is to identify any likely significant landscape and visual effects arising as a result of the Proposed Development. An LVIA must consider both:
- Effects on the landscape as a resource in its own right (the landscape effects); and
 - Effects on specific views and visual amenity more generally (the visual effects).
- 6.2 Therefore, this LVIA considers the potential effects of the Proposed Development upon:
- Individual landscape features and elements.
 - Landscape character.
 - Specific views; and
 - People who view the landscape.
- 6.3 In this chapter, landscape and visual effects are assessed separately; although, the procedure for assessing each of these is closely linked and follows 'The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition' (GLVIA3)¹.
- 6.4 The main objectives of the landscape assessment can be summarised as follows:
- To identify, evaluate and describe the baseline landscape character of the Site and its surroundings and also any notable individual landscape features within the Site.
 - To determine the nature of the landscape receptor (i.e. the sensitivity of the landscape) through a consideration of its susceptibility to the type of development proposed and any values associated with it.
 - To identify and describe any impacts of the Proposed Development in so far as they affect the landscape resource.
 - To evaluate the nature of the landscape effects (i.e. the magnitude, duration, and reversibility of the effect).
 - To identify and describe mitigation measures that have been adopted to avoid, reduce, and compensate for landscape effects.
 - To evaluate the relative significance of residual landscape effects; and
 - To determine which landscapes effects, if any, are significant.
- 6.5 The main objectives of the visual assessment are similar and can be summarised as follows:

¹ Landscape Institute and the Institute for Environmental Management and Assessment (2013). The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3).

- To identify, evaluate and describe the baseline visual context of the Site and its surroundings with a focus on both specific views and the more general visual amenity experienced by people who have views of the Site.
- To determine the nature of the visual receptor (i.e. the sensitivity of the viewpoint or person whose visual amenity is affected) through a consideration of the susceptibility of the viewpoint/person to the type of development proposed and any values associated with either the viewpoint or visual amenity experienced.
- To identify and describe any impacts of the development in so far as they affect a viewpoint, or views experienced.
- To evaluate the nature of the visual effects (i.e. the magnitude, duration, and reversibility of the effect).
- To identify and describe mitigation measures that have been adopted to avoid, reduce, and compensate for visual effects.
- To evaluate the relative significance of residual visual effects; and
- To determine which visual effects, if any, are significant.

6.6 The LVIA also considers any cumulative landscape and visual effects which may arise as a result of the Proposed Development in conjunction with other wind farm developments.

6.7 The main LVIA presented in this chapter is supported by figures and visualisations in **EIAR Volume 2**, and technical appendices in **Volume 3**.

6.8 The location of the Proposed Development and the study area for the LVIA is illustrated on **Figure 6.1**. For reference, other operational, consented, proposed, and scoping wind farms within 35km which are referred to throughout this chapter are illustrated on **Figure 6.9**. **Figure 6.10** shows other wind farms within 20km of the proposed wind farm.

6.9 This chapter is structured as follows:

- Legislation, Policy, and Guidance.
- Proposed Development.
- Consultation.
- Methodology.
- Baseline.
- Assessment of Potential Effects.
- Mitigation.
- Assessment of Residual Effects.
- Assessment of Cumulative Effects.
- Summary.

The Proposed Development

6.10 The Proposed Development is described in full in **Chapter 3 of the EIAR**, but the elements that have the potential to create landscape and visual effects include:

- 13 wind turbines of up to 200m to tip height (hub height 115m, rotor diameter 170m is used for modelling).

- External transformer housing.
- Crane pads.
- Access tracks.
- A new access onto the A714.
- Off-site highway works.
- Substation.
- Energy storage compound.
- Up to two borrow pit search areas.
- Drainage attenuation measures, as necessary.
- Temporary construction and storage compounds and ancillary infrastructure; and
- Aviation lighting.

6.11 The Proposed Development will have construction, operation, and decommissioning phases, with an operational lifetime of 35 years.

Legislation, Policy, and Guidance

European Landscape Convention, Adopted 2000

- 6.12 'The European Landscape Convention' (ELC)², is the first international convention to focus specifically on the landscape as a resource in its own right. The convention promotes landscape protection, management, and planning, as well as European co-operation on landscape issues. Signed by the UK Government in February 2006, the ELC became binding from March 2007. It applies to all landscapes, towns, and villages, as well as open countryside; the coast and inland areas; and ordinary or even degraded landscapes, as well as those that are afforded protection.
- 6.13 The UK Government has stated that it considers the UK to be compliant with the ELC's requirements and in effect the principal requirements of the ELC are already enshrined in the existing suite of national policies and guidance on the assessment of landscape and visual effects.
- 6.14 The ELC defines landscape as:
- "An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."*
- 6.15 It is important to recognise that the ELC does not require the preservation of all landscapes; although, landscape protection is one of the core themes of the convention. Equally important though is the requirement to manage and plan future landscape change.
- 6.16 The ELC highlights the importance of developing landscape policies dedicated to the protection, management, and planning of landscapes. In this regard, NatureScot and Dumfries & Galloway Council have a suite of landscape character assessments and landscape capacity studies which enables decisions to be made with due regard to landscape character, as promoted by the ELC.

² Council of Europe. Council of Europe Landscape Convention (ETS No.176) (2000). Available at: <https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treaty-num=176>

Planning Policy

- 6.17 The following currently adopted planning policy documents were reviewed as part of the desk study for the LVIA:
- National Planning Framework 4 (NPF4)³.
 - Dumfries and Galloway Local Development Plan 2⁴.
- 6.18 The following supplementary guidance and technical reports which provide the evidence base for current planning policy were also reviewed:
- Dumfries and Galloway Landscape Assessment⁵.
 - Dumfries and Galloway Council - Wind Energy Development: Development Management Considerations⁶.
 - Dumfries and Galloway Council - Wind Energy Development: Development Management Considerations - Appendix 'C' Wind Farm Landscape Capacity Study⁷.
 - Dumfries and Galloway Regional Scenic Areas Technical Paper⁸.
 - Dumfries and Galloway Dark Skies Friendly Lighting Supplementary Guidance⁹.
 - NatureScot Merrick Wild Land Area description¹⁰.
- 6.19 A full and detailed consideration of national and local planning policy is contained in **Chapter 5: Renewable Energy and Planning Policy of this EIAR** and assessed in the accompanying **Planning Statement**.

³ Scottish Government. National Planning Framework 4 (2023). Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

⁴ Dumfries and Galloway Council. Local Development Plan 2 (2019). Available at: <https://www.dumgal.gov.uk/ldp2>

⁵ Land Use Consultants. Dumfries and Galloway Landscape Character Assessment (1998) – since republished by NatureScot of a national programme of Landscape Character Assessment republished in 2019. Available at: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>

⁶ Dumfries and Galloway Council. Local Development Plan 2: Wind Energy Development: Development Management Considerations Supplementary Guidance (2020). Available at: <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

⁷ Dumfries and Galloway Council. Local Development Plan 2: Wind Energy Development: Development Management Considerations - Appendix 'C' Wind Farm Landscape Capacity Study Supplementary Guidance (2020). Available at: <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

⁸ Dumfries and Galloway Council. Local Development Plan 2: Regional Scenic Areas Technical Paper (2018). Available at: <https://www.dumgal.gov.uk/article/15343/Technical-Papers-Land-Use-Audits-and-Supporting-Documents>

⁹ Dumfries and Galloway Council. Local Development Plan 2: Dark Skies Friendly Lighting Supplementary Guidance (2020). Available at: <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

¹⁰ NatureScot. Description of Wild Land Area: 01 Merrick (2017). Available at: <https://www.nature.scot/doc/wild-land-areas-map-and-descriptions-2014>

Consultation

- 6.20 Throughout the EIA scoping process, and subsequently during the ongoing EIA process, relevant organisations were contacted with regards to the Proposed Development. **Table 6.1: Consultation Responses** below outlines the consultation responses received in relation to landscape and visual issues.

Table 6.1: Consultation Responses

Consultee	Details	Response	Where Addressed in the EIA Report
Dumfries and Galloway Council	A 1:60000 hard copy of a ZTV reflecting hubs and tips of the proposed turbines has been received by the case officer at Dumfries and Galloway Council. This has been scrutinised and, as a result, the following list of additional, or alternative Representative Viewpoints (landscape and visual only – not residential or heritage/detail) is recommended for consideration: (i) A714 @ NGR 241935 559027 – visibility for users heading north from Wigtown (relates to implication by Wigtown and District CC); (ii) B733 west of Kirkcowan @ NGR 231967 560987 – opportunity to improve coverage from 10km range in southern quadrant; (iii) A75 near Shennanton @ NGR 234613 563157 – further opportunity within area with less coverage & on major road route; (iv) Suitable location TBC within Moor of Barclay Archaeological Sensitive Area @ approx. 239975 570017 – visibility from area host to various monuments and archaeological zones – suggest Core Path within locale leading across from Smithy Hill area – this location also within Regional Scenic Area; (v) Suitable location in vicinity of Loch Ochiltree, west of Southern Upland Way – possibly Kircalla locality or	Following the EIA Scoping exercise, a series of additional viewpoints were added in response to the feedback from consultees. This increased the list from 15 viewpoints to 20 viewpoints for the LVIA. The locations suggested by the Council were all considered as part of this exercise and viewpoints added accordingly where it was considered that there was the potential for more than extremely limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	LVIA section Assessment of Potential Effects

Consultee	Details	Response	Where Addressed in the EIA Report
	other location to include Loch in visual context; (vi) Location TBC at Glentool car park/cycle trail approximately NGR 237194 578537; and (vii) Possible additional location @ approx. NGR 230509 590290 close to Polmaddie Hill/Pinbreck Hill/Cairn Hill/Craigengreoch NNW of the site representing longer range views from within the Dark Sky Park buffer zone looking towards Regional Scenic Area.		
	The EIA should consider and assess impacts on the local public/core path resource, which includes a number of paths that are adjacent to the proposed development. It should identify mitigation in relation to impacts on this resource.	All local public roads/core paths within 10km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.4: Preliminary Assessment of Visual Receptors and those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects.	Appendix 6.4: Preliminary Assessment of Visual Receptors and LVIA section Assessment of Potential Effects
	Any application should be supported by a sequential visual appraisal relating to the Southern Upland Way, preferably invoking wireline locations at 1km intervals, at a minimum. This section of the EIA should assess potential impacts on the SUW and its users and propose mitigation/compensatory measures. This will be a key issue in terms of the planning consideration.	All recreational routes within 10km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.4: Preliminary Assessment of Visual Receptors and those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects. Wirelines and photomontages have been provided from LVIA viewpoints on the SUW, namely: Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 4: Southern Upland Way (Bargrennan), Viewpoint 7: B7027/Southern Upland Way near Knowe, and Viewpoint 8: Southern Upland Way (Knockniehourie).	Appendix 6.4: Preliminary Assessment of Visual Receptors, LVIA section Assessment of Potential Effects, and Volume 2 LVIA & Cultural Heritage Visualisations

Consultee	Details	Response	Where Addressed in the EIA Report
	Any application should be supported by an appraisal of potential effects on the Dark Sky Park, in particular from aviation lighting, in the light of NPF4 (for example, page 33) and Local Development Plan 2 (LDP2) Policy ED11. The Park is approximately 5km from the site; however, the Dark Sky Park Buffer Zone is within 300-400m and the site is well within the Dark Sky Park Transition Zone – at this location there are no immediate precedents outwith the Kilgallioch/Airies clusters/within this Buffer Zone.	Without being able to fully appreciate landscape features and components that contribute to landscape character during darkness hours it is not possible to conduct a meaningful landscape character assessment. This precedent was established in the Reporter's decision for Crystal Rig IV (WIN-140-8).	LVIA Paragraph 6.33
	The Dark Sky Park Buffer Zone tends to align approximately with the edge of the Galloway and Southern Ayrshire Biosphere Reserve where it is near to the A714. Potential impacts on the Biosphere Reserve should also be appraised within the Landscape and Visual assessment in the light of LDP2 Policy ED10 and NPF4 (see pages 33, 138 for example).	Potential effects on the Galloway and Southern Ayrshire Biosphere Reserve are considered in the landscape character assessment component of this LVIA. All Landscape Character Types (LCTs) within 20km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.3 Preliminary Assessment of LCTs Landscape Character Types and Designations and those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects .	Appendix 6.3 Preliminary Assessment of LCTs Landscape Character Types and Designations, LVIA section Assessment of Potential Effects, and The Biodiversity Restoration and Enhancement Plan included as an Appendix to Chapter 9: Ecology.
	It is not agreed that assessment of impacts on Wild Land can be scoped out in respect of the EIA. Policy 4 of the NPF4 is noted; however, the Development Plan is still formed by NPF4 and the Local Development Plan (LDP2), therefore LDP2 Policy NE3 is still applicable and relevant to consideration of any scheme proposed.	Consideration has been made in relation to potential effects on Wild Land. Please refer to the LVIA section Baseline for further detail. All designated landscapes within 35km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.3 Preliminary Assessment of LCTs Landscape Character Types and Designations and those where significant effects may be experienced have been considered in detail in LVIA section	Appendix 6.3 Preliminary Assessment of LCTs Landscape Character Types and Designations and LVIA sections: Baseline, and Assessment of Potential Effects

Consultee	Details	Response	Where Addressed in the EIA Report
		Assessment of Potential Effects.	
	The scheme at present proposes 18 x 200m base-to-tip with no height variation; the EIA must include explanation regarding the evolution of the scheme and identify what consideration was given to working with varying tip-heights to ensure most appropriate 'fit' and appearance from representative viewpoints, having particular regard to the form and scale of the landscape at this locality, which does not contain any topography above 184m AOD; whereas, the turbines are all proposed at 200m.	A detailed discussion of the design evolution and the iterative process underpinning it is provided in Chapter 4: Design Evolution.	Chapter 4: Design Evolution of EIAR
	Attention is drawn to the National Cycle Network, in particular Route 7, which is situated in close proximity to the site. The Landscape and Visual Assessment within the EIA should include coverage of potential impacts on the designated routes, and its users.	All recreational routes within 10km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.4: Preliminary Assessment of Visual Receptors and those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects.	Appendix 6.4: Preliminary Assessment of Visual Receptors and LVIA section Assessment of Potential Effects
NatureScot	Landscape and visual impacts of the proposed development are a key concern, including cumulative impacts with other wind farms in the wider area, and impacts from the visible aviation lighting that will be required due to turbine height. The site of the proposal is immediately adjacent to the Galloway Forest Park which, since 2009, has been designated as the Galloway International Dark Sky Park. These are places where people have committed to keeping the skies dark, primarily by controlling light pollution. An assessment of the impacts of turbine lighting on the Dark Skies Park, particularly its core area, should be carried out, and include night	The main LVIA chapter includes an assessment of cumulative effects (see LVIA section Assessment of Cumulative Effects. The LVIA also considers the effects of the aviation lighting during dark sky hours on all visual receptors. In line with current NatureScot guidance, "General pre-application advice for onshore wind farms" (February 2024), Annex 1, the assessment of the effects of night-time lighting on visual amenity has been considered throughout the main LVIA chapter. Night-time visualisations have been provided from Viewpoint 2: A714, north of	LVIA section Assessment of Cumulative Effects , Appendix 6.4: Preliminary Assessment of Visual Receptors , Appendix 6.7: Assessment of Night-time Lighting: Assessment Criteria and Methodology , and Volume 2 LVIA & Cultural Heritage Visualisations

Consultee	Details	Response	Where Addressed in the EIA Report
	time photomontages from key locations.	Bargrennan; Viewpoint 3: A714, junction with minor road to Glentool; and Viewpoint 7: B7027/Southern Upland Way near Knowe.	
Cree Valley Community Council	Cree Valley Community Council do not agree that an assessment of effects on wild land can be scoped out of the LVIA.	Potential effects on Wild Land Areas are considered in the landscape character assessment component of this LVIA. All designated landscapes within 35km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.3 Preliminary Assessment of LCTs Landscape Character Types and Designations and those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects .	Appendix 6.3 Preliminary Assessment of LCTs Landscape Character Types and Designations and LVIA section Assessment of Potential Effects
	The list of Viewpoints selected by Energiekontor for the Glenvernoch LVIA does not conform to official guidance on the requirement for all their selected Viewpoints to be relevant in the assessment of the visual impact of the Development on the surrounding landscape and the people who visit it.	Following the EIA Scoping exercise, a series of additional viewpoints were added in response to the feedback from consultees. This increased the list from 15 viewpoints to 20 viewpoints for the LVIA. The locations suggested by the Council were all considered as part of this exercise and viewpoints added accordingly where it was considered that there was the potential for more than extremely limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	LVIA section Assessment of Potential Effects
	With regard to RVAA we do not accept that a 2km study area is sufficient. The turbines planned for Glenvernoch are described as being 200m tall. Significantly taller than any of the 300 turbines which currently stand between 10km and 25 km west from Glenvernoch. It is proportionate to suggest that, in order to respect the	In the case of the Proposed Development, it was considered disproportionate to assess every residential property beyond 2km in the Residential Visual Amenity Assessment (RVAA), as in no instance was it considered that the Residential Visual Amenity Threshold would be breached at any residential	Appendix 6.4: Preliminary Assessment of Visual Receptors and LVIA section Assessment of Potential Effects

Consultee	Details	Response	Where Addressed in the EIA Report
	principle of proportionality inherent in EIA, that the 2km RVAA study area should be significantly increased in size to reflect the size of the turbines proposed.	property beyond these extents. Potential visual effects from the proposed wind farm at settlements and scattered communities, within 20km of the Proposed Development, have however been subject to a preliminary assessment in Appendix 6.4: Preliminary Assessment of Visual Receptors . Those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects .	
	With regard to cumulative impacts. The pre-Application Blair Hill Wind Farm Development lies 4km east of the Glenvernoch Development. It requires to be included in the cumulative assessment.	The methodology for the cumulative assessment has been updated. All wind turbines at the EIA scoping stage within the agreed study areas have been included within the list of cumulative sites and have been assessed.	LVIA section Assessment of Cumulative Effects
Mountaineering Scotland	Mountaineering Scotland suggests that the viewpoints could be improved to provide better assessment of impact on hillwalkers as a key receptor. The scoping for Glenvernoch proposes viewpoints at The Merrick (12) and Lamachan Hill (13), which Mountaineering Scotland endorses. Garlick Hill (14) is proposed, presumably because it is within the Forest Park, though Millfore (also in the Forest Park but c.4km more distant) would be preferred for a mountaineering assessment of visual impact. We suggest viewpoints at Cairnsmore of Fleet (c.15km) and Corserine (c.20km) to assess the impact on hillwalking assets; and at Craginaw (c.15km) to assess the impact on the perceptually wild and remote interior of the Galloway hills. Inclusion of Craginaw and Corserine alongside the Bruce Stone (proposed viewpoint 9) would give a very useful	Following the EIA Scoping exercise, a series of additional viewpoints were added in response to the feedback from consultees. This increased the list from 15 viewpoints to 20 viewpoints for the LVIA. The locations suggested by the Council were all considered as part of this exercise and viewpoints added accordingly, where it was considered that there was the potential for more than extremely limited visibility to arise, whilst ensuring that the overall number of viewpoints remained proportionate.	LVIA section Assessment of Potential Effects

Consultee	Details	Response	Where Addressed in the EIA Report
	indication of the impact at different distances and altitudes along the same alignment.		
Transport Scotland	We would also state that potential trunk road related environmental impacts such as driver delay, pedestrian amenity, severance, safety etc will require to be considered and assessed where appropriate (i.e. where IEMA Guidelines for further assessment are breached).	To appraise pedestrian amenity, all roads within 10km of the Proposed Development have been subject to a preliminary assessment in Appendix 6.4: Preliminary Assessment of Visual Receptors and those where significant effects may be experienced have been considered in detail in LVIA section Assessment of Potential Effects .	Appendix 6.4: Preliminary Assessment of Visual Receptors and LVIA section Assessment of Potential Effects

Methodology

6.21 The primary source of best practice for LVIA in the UK is the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3).

6.22 The LVIA presented in this chapter has been undertaken in accordance with the principles established in this document. It must however be acknowledged that GLVIA3 establishes guidelines not a specific methodology. The preface to GLVIA3 recognises that:

"This edition concentrates on principles and processes. It does not provide a detailed or formulaic 'recipe' that can be followed in every situation – it remains the responsibility of the professional to ensure that the approach and methodology adopted are appropriate to the task in hand."

6.23 The methodology for this assessment has therefore been developed specifically for this LVIA to ensure that it is appropriate and fit for purpose.

6.24 Consideration has also been given to the following documents:

- Landscape Institute Technical Guidance Note 2/19 Residential Visual Amenity Assessment (RVAA)¹¹.
- Landscape Institute Technical Guidance Note 06/19 Visual Representation of Development Proposals¹².

¹¹ Landscape Institute. Technical Guidance Note 2/19 Residential Visual Amenity Assessment (RVAA). Available at: <https://www.landscapeinstitute.org/technical-resource/li-technical-notes/>

¹² Landscape Institute. Technical Guidance Note 06/19 Visual Representation of Development Proposals (2019). Available at: <https://www.landscapeinstitute.org/technical-resource/li-technical-notes/>

- Landscape Institute Technical Guidance Note 02/21 Assessing landscape value outside of national designations¹³.
- Landscape Institute Technical Guidance Note LITGN-2024-01 Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3)¹⁴.
- NatureScot Landscape Sensitivity Assessment Guidance (Methodology)¹⁵.
- NatureScot Guidance Assessing the cumulative landscape and visual impact of onshore wind energy developments¹⁶.
- NatureScot pre-application guidance for onshore wind farms¹⁷.
- Scottish Natural Heritage Guidance Siting and Design of Wind farms in the Landscape, Version 3a¹⁸.
- Scottish Natural Heritage Guidance Visual Representation of Wind Farms, Version 2.2¹⁹.

Scope of Assessment

- 6.25 The LVIA assesses both the long-term effects relating to the operational lifetime of the Proposed Development and the short-term temporary effects associated with the construction of the Proposed Development.
- 6.26 Where appropriate, the LVIA also considers any residual effects once the proposed turbines have been decommissioned and removed (assumed to be 35 years from the commencement of operation).
- 6.27 The LVIA considers both direct and indirect landscape and visual effects. It not only assesses the impacts associated with the turbines but also any related impacts resulting from the construction compound, borrow pits, underground cabling, site tracks, substation, energy storage facility, and access roads.
- 6.28 Consideration has been given to the movement of the turbine blades, along with seasonal variations when assessing the visibility of the Proposed Development.

¹³ Landscape Institute. Technical Guidance Note 02/21 Assessing landscape value outside of national designations (2021). Available at: <https://www.landscapeinstitute.org/technical-resource/>

¹⁴ Landscape Institute. Institute Technical Guidance Note LITGN-2024-01 Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3) (August 2024). Available at: <https://www.landscapeinstitute.org/technical/glvia3-panel/>

¹⁵ NatureScot. Landscape Sensitivity Assessment Guidance (Methodology) (2022). Available at: <https://www.nature.scot/doc/landscape-sensitivity-assessment-guidance-methodology>

¹⁶ NatureScot. Guidance Assessing the cumulative landscape and visual impact of onshore wind energy developments (2021). Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments>

¹⁷ NatureScot. NatureScot pre-application guidance for onshore wind farms (February 2024). Available at: <https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms>

¹⁸ SNH. Guidance Siting and Design of Wind farms in the Landscape, Version 3a (2017). Available at: <https://www.nature.scot/doc/siting-and-designing-wind-farms-landscape-version-3a>

¹⁹ SNH. Guidance Visual Representation of Wind Farms, Version 2.2 (2017). Available at: <https://www.nature.scot/doc/visual-representation-wind-farms-guidance>

- 6.29 The LVIA also considers any cumulative effects arising in conjunction with other wind farm developments in the study area, as defined below. Best practice guidelines identify two principal types of cumulative visual impact:
- Combined visibility – where the observer is able to see two or more developments from one viewpoint; and
 - Sequential visibility – where two or more developments are not visible at one location but would be seen as the observer moves along a linear route, for example, a road or public right of way.
- 6.30 The guidelines state that 'combined visibility' may either be 'in combination' (where two or more developments are visible from a fixed viewpoint in the same arc of view) or 'in succession' (where two or more developments are visible from a fixed viewpoint, but the observer is required to turn to see the different sites). Both types are discussed in this LVIA. The published GLVIA3 also indicates a difference in emphasis between sequential effects that are frequent and those which are occasional.
- 6.31 In relation to both the effects of the Proposed Development alone and the cumulative effects with other wind farm developments in the study area, both beneficial (positive) and adverse (negative) effects are considered. Wind farms give rise to a wide spectrum of opinions, ranging from strongly negative to strongly positive, with a wide range of opinions lying somewhere between these two positions. Some people view turbines as incongruous or industrial structures whilst others view them as aesthetically pleasing, elegant structures, and a positive response to climate change. This spectrum of opinion has come to be referred to in relation to wind farms as the concept of valency.
- 6.32 **For the avoidance of doubt, in considering the effects of the Proposed Development, a precautionary approach to the assessment has been adopted and it is assumed that, unless specifically stated otherwise, the effects of the Proposed Development would be adverse in nature even though it is acknowledged that, for some people, the impacts could be considered to be beneficial.**

Effects Scoped Out of the Assessment

- 6.33 Based on the desk study, field work, the professional judgement of the LVIA team and experience of delivering other onshore wind energy projects, the following elements have been scoped out of detailed assessment:
- Effects on receptors located outside of the zone of theoretical visibility (ZTV).
 - Effects of decommissioning the Proposed Development at the end of its operational life as effects would be very similar in nature to those experienced during the construction, except in reverse.
 - Effects on landscape character during dark sky hours when aviation lighting is operating. Without being able to fully appreciate landscape features and components that contribute to landscape character it is not possible to conduct a meaningful landscape character assessment. This precedent was established in the Reporter's decision for Crystal Rig IV (WIN-140-8)²⁰.

²⁰ The Scottish Government. Crystal Rig IV Wind Farm (WIND-140-8). Reporter's Decision. 22 January 2021. Available at: <https://www.dpea.scotland.gov.uk/Document.aspx?id=732056>

Study Area

- 6.34 The initial study area for the LVIA is 35km radius from the turbines in all directions, as set out in the EIA Scoping Report (see **Appendix 1.1**). The extent of this study area is illustrated in **Figure 6.1**. Initial site work informed by analysis of preliminary ZTVs indicated that any significant landscape and visual effects are likely to occur within a much narrower radius from the Site; therefore, the level of assessment work in this LVIA incrementally decreases with distance from the Site, with the greatest focus of assessment being within broadly 20km of the Site. The intention is that the detail of the LVIA remains proportional to the likely significance of effects, as advocated in GLVIA3.
- 6.35 In terms of cumulative effects, the intention has again been that assessment work is proportional to the likelihood of significant effects arising. The approach adopted in the cumulative LVIA has been to focus on other wind farms which are either operational, under construction, consented, subject to a full planning application, or that have received a scoping opinion response. Furthermore, the approach has been to focus the assessment on other wind farm developments which have the potential to given rise to significant cumulative effects. Further details of this approach are set out in the **Assessment of Cumulative Effects**.

Landscape Assessment Methodology

- 6.36 A baseline landscape assessment was conducted to determine the current features and character of the landscape within and surrounding the Site.
- 6.37 The baseline landscape assessment involved firstly a review of desk material including:
- Ordnance Survey maps at 1:250,000; 1:50,000; 1:25,000 and 1:10,000 scales.
 - Aerial photographs of the Site and surrounding area.
 - Topography.
 - Current and historical land use.
 - Geology and soil maps.
 - Historic Parks and Designated Landscapes.
 - Relevant planning policy.
 - Relevant landscape sensitivity/capacity studies.
 - Relevant landscape character assessments; and
 - Relevant Historic Landscape Character Assessments.
- 6.38 Field visits have been conducted in a variety of weather conditions and at various times of the year during the pre-application stage.
- 6.39 The baseline assessment identified the existing landscape features on the Site, and in the immediate vicinity, and how these elements combine to give the area a sense of landscape character. Plans and construction details of the Proposed Development were used to determine the potential impacts of the development on landscape features and character.
- 6.40 The LVIA firstly assesses how the Proposed Development would impact directly on any existing landscape features or elements (e.g. removal of trees etc.). The LVIA then considers impacts on landscape character with reference to landscape character areas/types identified in published landscape character documents.

Visual Assessment Methodology

- 6.41 Potential visual receptors of the Proposed Development were identified by interpretation of digitally generated ZTVs (see **Appendix 6.2: ZTV and Visualisation Information** for an explanation of how the ZTVs were produced).
- 6.42 A selection of viewpoints was identified and agreed with statutory consultees to represent a range of views and viewer types as discussed in Visual Representation of Wind farms – Version 2.2 (NatureScot) and in Paragraphs 6.16-6.20 of GLVIA3.
- 6.43 The viewpoints cover a variety of different character areas, are in different directions from the Site, and are at varying elevations. Some of the viewpoints are intended to be representative of the visual experience in a general location whereas other viewpoints illustrate the view from a specific or important vantage point. The viewpoints are located at a range of distances from the Proposed Development to illustrate the varying magnitude of visual impacts.
- 6.44 Visualisations were produced for each of the viewpoints; these are presented in **Volume 2** of this EIAR. An explanation of how they were produced and information to be read in conjunction with the visualisations is provided in **Appendix 6.2: ZTV and Visualisation Information**.
- 6.45 Each of the representative viewpoints was visited to gain an understanding of the sensitivity of the viewpoint receptors and to make professional judgements on the likely visual effects arising from the Proposed Development. Furthermore, the entire extent of the study area was visited to appreciate visibility of the Proposed Development as receptors move throughout the landscape.
- 6.46 The viewpoints were used as the starting point for considering the effects on visual receptors within the entire study area. The visual assessment does not rely solely on the viewpoint assessments to determine the significance of effects on different visual receptor groups throughout the study area. It should be recognised that the viewpoints illustrated in the LVIA simply represent a series of snapshots from a small selection of the locations within the study area from where the Proposed Development would be visible. Following the viewpoint assessment, the LVIA considers the effect on visual amenity throughout the study area with reference to different visual receptor groups at varying distances from the Site.

Assessment Criteria

- 6.47 The purpose of an LVIA when produced in the context of an EIA is to identify any significant landscape and visual effects within the study area to assist the determining authority in deciding the acceptability of the development under consideration.
- 6.48 In accordance with the GLVIA3, the level (relative significance) of an effect is ascertained by considering in tandem the nature (sensitivity) of the baseline landscape or visual receptor and the nature (magnitude) of change as a result of the Proposed Development. These two judgements are described as very high, high, medium, low, or very low.
- 6.49 The relative significance of landscape or visual effects is described as major, major/moderate, moderate, moderate/minor, minor or minor/no effect. No effect may also be recorded where the effect is negligible. Professional judgement is then employed to determine whether the effect is significant or not. Those effects described as major, major/moderate and in some cases, moderate may be regarded as significant.

- 6.50 The detailed assessment criteria used to determine landscape and visual sensitivity, magnitude of change and significance of effect are set out in **Appendix 6.1: Landscape and Visual Impact Assessment Criteria**.

Assessment Limitations

- 6.51 The assessment of effects within this LVIA has been derived through the use of publicly available information only. Within such a large study area it is unfeasible to visit every individual location from which the Proposed Development might be visible as illustrated on the ZTVs. The authors of the LVIA have, however, spent a considerable length of time 'in the field' and visited all important viewpoints and locations within the study area.
- 6.52 Limitations to the use of ZTVs and in relation to photography, wireframes and photomontages are set out in **Appendix 6.2: ZTV and Visualisation Information**.

Baseline

- 6.53 For the avoidance of doubt all distances are approximate and have been measured from the asset to the nearest proposed turbine unless otherwise stated.

Current Baseline

Site Location

- 6.54 The Site covers open moorland near the Cree Valley area of Dumfries and Galloway, Scotland. The Site is centred at approximately OS Grid Reference 35136, 73226.
- 6.55 The closest settlements to the proposed wind farm are the village of Glentroll, located approximately 2.8km north of the Site, and the town of Newton Stewart, which is located approximately 7km southeast of the Site at its nearest point. The nearest main highway is the A714 which runs adjacent to the eastern boundary of the Site.
- 6.56 The Proposed Development is located immediately north of Penninghame Forest and 260m east of Loch Ochiltree. The Hill of Ochiltree lies to the immediate west. The topography of the Site is undulating, with the lowest points being located adjacent to the A714 at approximately 50m Above Ordnance Datum (AOD). There are pockets of small hills within the central and western areas of the Site rising to 90m AOD, 100m AOD and 105m AOD, before the land rises northwest at Butter Cairn (164m AOD), and the Top of the Fell (184m AOD). The Site covers an area of approximately 780 ha incorporating grassland and modified bog. The Site is principally used for grazing.
- 6.57 The location of the Site is illustrated on **Figure 1.1** and the layout of the Site with the proposed turbine locations is shown on **Figure 3.1**.

Landscape Designations

- 6.58 A review of all landscape designations within the initial 35km LVIA study area has been undertaken. Landscape designations within 35km are illustrated on **Figure 6.2**, with those within 20km additionally shown on **Figure 6.3**.

International/National Landscape Designations

- 6.59 There are no national landscape designations covering the Site. The nearest National Scenic Area (NSA) is the Fleet Valley, which lies around 22km to the southeast. As illustrated on the ZTV overlaid on to the Landscape Designations within 35km of the site at **Figure 6.25**, there would be no potential for views of the Proposed Development from the NSA. Effects on the NSA are therefore not considered further in the assessment.

Local Landscape Designations

Regional Scenic Areas

- 6.60 There are 10no. Regional Scenic Areas (RSAs) in Dumfries and Galloway. The nearest RSA is the Galloway Hills, which lies adjacent to the eastern boundary of the Site. Four other RSAs also lie within the 35km study area, the Rhins Coast, Mochrum Lochs, Machars Coast, and the Solway Coast.
- 6.61 Effects on the RSAs are considered within the preliminary assessment of LCTs and Designated Sites in **Appendix 6.3: Preliminary Assessment of LCTs Landscape Character Types and Designations** to determine which have the potential to experience significant effects and require detailed assessment.

Local Landscape Areas – South Ayrshire

- 6.62 There are 11no. Local Landscape Areas (LLAs) in South Ayrshire. Five of these lie within the 35km study area, the Glen App Coast and Hills, the Stinchar Valley, the Givan to Ballantree Coast and Hills, the High Carrick Hills, and the Water of Girvan Valley.
- 6.63 Effects on the LLAs are considered within **Appendix 6.3: Preliminary Assessment of LCTs Landscape Character Types and Designations** to determine which have the potential to experience significant effects and require detailed assessment.

Local Landscape Areas – East Ayrshire

- 6.64 There are three Local Landscape Areas (LLAs) in East Ayrshire. One of these lies within the 35km study area, the Doon Valley. As illustrated on the ZTV overlaid on to the Landscape Designations within 35km of the site at **Figure 6.25**, there would be no potential for views of the Proposed Development from the Doon Valley LLA. Effects on the Doon Valley LLA are therefore not considered further in the assessment.

Gardens and Designed Landscapes

- 6.65 There are no Gardens and Designed Landscapes (GDLs) within 20km of the Site. Between 20km and 35km there are a number of GDLs, which are illustrated on **Figure 6.2**.
- 6.66 Where relevant, potential effects on these assets are considered further within the **Cultural Heritage Assessment in Chapter 7 of this EIAR**.

Wild Land

- 6.67 Wild Land Areas (WLAs) are mapped and described by NatureScot²¹. The nearest WLA to the Proposed Development is Merrick (WLA 01), which is located approximately 10km northeast of the Site.
- 6.68 The matter of wind energy and Wild Land is addressed in Policy 4 of the National Planning Framework 4 which states that:
- 'Buffer zones around wild land will not be applied, and effects of development outwith wild land areas will not be a significant consideration'.*
- 6.69 Given the distance between the Proposed Development and the WLA, it is considered that the Proposed Development would have limited potential to result in notable effects on the key attributes and qualities of the WLA. As such, effects on the Merrick WLA are therefore not considered further in the assessment.

Galloway and Southern Ayrshire Biosphere Reserve

- 6.70 It is noted that the Site is located within the Galloway and Southern Ayrshire Biosphere Reserve. The Biosphere Reserve is not a landscape protection designation, nor does it have any statutory status in this regard. The Biosphere is a designation awarded by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). It recognises the landscapes, wildlife, cultural heritage and learning opportunities that South West Scotland offers for communities, businesses and visitors, to experience and celebrate in a sustainable way. The Biosphere designation brings no new rules or regulations but rather encourages people to work together to create a better future for people and nature.
- 6.71 It relates to an extensive area from Ayr in the north to Kirkcudbright in the south and from the Ayrshire coast in the west to Thornhill in the east, encompassing much of Ayrshire and Dumfries and Galloway. The goals of the Biosphere are to promote the preservation of wildlife, habitats, and landscape and seeks to do this through education and learning and the fostering of a sustainable economy and society. The Biosphere is not therefore a designation that changes the landscape baseline relating to the development of the Proposed Development nor the assessment of its potential effects.

Emerging Galloway National Park

- 6.72 The Scottish Ministers have decided to propose the designation of Scotland's third National Park in Galloway, subject to relevant legal conditions and other requirements being met.
- 6.73 A map showing the approximate boundary line proposed in the nomination for the Galloway National Park that was submitted to the Scottish Government by the Galloway National Park Association and the Galloway and Southern Ayrshire UNESCO biosphere illustrates that the Proposed Development would be located within the National Park, along with several operational wind farms.
- 6.74 The proposal will now be sent to NatureScot to carry out the next stage of the process ("the reporter stage"). This involves NatureScot considering the national park proposal, consulting on this and producing a report for Scottish Ministers on the desirability of the

²¹ NatureScot. Landscape Sensitivity Assessment Guidance (Methodology) (2022). Available at: <https://www.nature.scot/doc/landscape-sensitivity-assessment-guidance-methodology>

proposed area being designated as a National Park. Scottish Ministers will then consider NatureScot's report and determine whether to designate the proposed area as a National Park with or without modifications. If the Scottish Ministers decide to proceed, they must then consult on the draft designation order.

- 6.75 The emerging National Park has no planning status at the current time. As a result, it is not considered further in this assessment.

Published Landscape Character Descriptions

- 6.76 A review was undertaken of the following published sources of information regarding regional and local landscape character:

- SNH (now NatureScot) National Landscape Character Assessment²².
- Dumfries and Galloway Wind Farm Landscape Capacity Study [DGWLCS]²³.
- South Ayrshire Landscape Wind Capacity Study [SALWCS]²⁴.

- 6.77 At this point, for clarity, it is necessary to distinguish between two terms that are frequently used in published guidance and this chapter. They originate from the Guidelines for Landscape Character Assessment²⁵:

- Landscape Character Types (LCTs) are defined as tracts of landscape, which have a generic unity of character due to the particular combinations of landform, land cover, pattern and elements. The same landscape character type can occur at several different locations throughout a study area; and
- Landscape Character Areas (LCAs) are defined as discrete geographical areas of a particular landscape character type and can only occur at a single location.

Landscape Character Types Covering the Site

- 6.78 With reference to **Figures 6.4 and 6.5**, the proposed turbines and the majority of the wind farm access tracks and associated infrastructure are located within LCT 174: Plateau Moorland with Forest as defined by NatureScot and LCT 17a: Plateau Moorland with Forest as defined in the DGWLCS. The DGWLCS summarises key characteristics of the area as:

“a gently undulating landform and extensive scale, a generally simple land-cover of large scale coniferous forestry interspersed with areas of open moorland and farmland and sparse settlement. While these key characteristics present opportunities for potential development, areas of open moorland, small pronounced hills, loch basins and pockets of settled farmland, pre-improvement and prehistoric sites and landscapes are important in contributing diversity to this landscape and are of increased sensitivity. The proximity of

²² NatureScot. National Landscape Character Assessment (2019). Available at: <https://www.arcgis.com/apps/webappviewer/index.html?id=e3b4fbb9fc504cc4abd04e1ebc891d4e&extent=-2030551.0017%2C6851563.2052%2C1100309.6769%2C8923312.4198%2C102100>

²³ Dumfries and Galloway Council. Local Development Plan 2. Wind Energy Development: Development Management Considerations. Supplementary Guidance (2020). Available at: <https://www.dumgal.gov.uk/article/17034/LDP2-Supplementary-Guidance>

²⁴ South Ayrshire Council. South Ayrshire Landscape Wind Capacity Study (2018). Available at: <https://www.south-ayrshire.gov.uk/article/28780/Supplementary-planning-guidance>

²⁵ The Countryside Agency and Scottish Natural Heritage. Landscape Character Assessment. Guidance For England and Scotland (2002).

the Merrick WLA is also a key constraint. Wind farms are a key characteristic of this landscape and the variety of operational and under-construction wind farm developments (in terms of the height, number and layout of turbines) and their differing relationship to landform features (whether sited in shallow basins, extensive plateaux or on small hills) further constrains opportunities for additional wind turbines to be accommodated."

6.79 The DGWLCS goes on to identify the area as having a high sensitivity to the 'Very Large typology (turbines >150m high)', 'principally due to cumulative effects that would be likely to occur with some operational wind farms which comprise substantially smaller turbines and on the Galloway Hills, Merrick WLA and smaller scale diverse landscape features'.

6.80 The Site entrance and a short section of the access track are located within the western fringe of NatureScot LCT 160: Narrow Wooded Valley (LCT 4: Narrow Wooded River Valleys as defined in the DGWLCS). The DGWLCS describes this area as:

"These valleys are generally sinuous and nearly all long enough to individually wind through a range of different landscape character types, from enclosing and forested uplands to more open plateau and lowland character types. They include shallow valleys contained by well-defined terraces or barely enclosed by low profiled moorland to narrow incised valleys further enclosed by broadleaved woodland and medium scaled valleys, surrounded by the steep slopes of rounded hills or undulating ridgelines. They are further varied in land cover and settlement pattern, embracing extensive conifer woodlands and arable fields, sparsely populated and secluded upper reaches or well settled landscapes, narrow single track roads or even motorways."

6.81 The DGWLCS identifies this area as having high sensitivity to wind energy development.

6.82 Since the DGWLCS was published in 2020, NatureScot has prepared revised guidance on sensitivity assessment and advises that updating of existing studies may be required as development patterns and technology change and that reference to 'capacity' should be removed. The guidance also notes that "a finding of 'high sensitivity' does not necessarily mean that there is no ability to accommodate development and 'low' sensitivity does not necessarily mean there is definitely potential for development".

6.83 It is also important to acknowledge that landscape and visual effects arising from a proposed wind farm are one factor weighed in the overall planning balance, set against the current renewable energy and planning policy context applicable at the time.

Other Landscape Character Types to be assessed

6.84 In order to consider the indirect effects of the Proposed Development on landscape character, LCTs within 35km of the Proposed Development have been illustrated on **Figure 6.4**, with those located within the detailed 20km LVIA Study Area illustrated on **Figure 6.5**. The LCTs within 20km have also been overlaid with the ZTV on **Figure 6.27**.

6.85 An initial filtering exercise has been undertaken to determine which LCTs would have the potential for significant effects to arise and would therefore require detailed consideration in this chapter. The intention has been to ensure that the level of attention given to each LCT is proportionate to the likelihood of significant effects arising. The discussion below summarises the process followed in deciding which LCTs have the potential to experience significant effects as well as those LCTs that do not require any further consideration.

6.86 With reference to **Figure 6.4** and the blade tip ZTV at **Figure 6.11**, all LCTs located between 20km and 35km have been scoped out of further assessment, on account of the distance

from the Proposed Development, the influence of other closer wind farm development and the relatively limited theoretical visibility. It is acknowledged that there may be very limited potential for effects on the character of available views from these LCTs but there would be no potential for significant effects to arise.

6.87 All LCTs present within the detailed 20km LVIA Study Area have been subject to an initial sieving exercise. The findings of this exercise are presented at **Table 6.3.1 of Appendix 6.3: Preliminary Assessment of LCTs Landscape Character Types and Designations**.

6.88 The LCTs assessed in detail in this chapter are:

- LCT 174: Plateau Moorland with Forest – Proposed Development (including all turbines) is primarily located within this LCT.
- LCT 160: Narrow Wooded Valley – Proposed Development (Site entrance and part of an access track) is partly located within this LCT.
- LCT 181: Rugged Uplands with Forest - located approximately 3km to the east.
- LCT 172: Upland Fringe - located approximately 4km to the southeast.
- LCT 168: Drumlin Pasture in Moss and Moor Lowland - located approximately 4km to the south.
- LCT 78: Plateau Moorland - located approximately 4km to the northwest.
- LCT 158: Coastal Flats - located approximately 8km to the southeast.
- LCT 167: Moss and Forest Lowland - located approximately 12km to the south.
- LCT 179: Coastal Uplands - located approximately 13km to the southeast.

Local Landscape Description and Character Appraisal

6.89 A plan illustrating the landscape features/elements within the Site and its immediate context (within a 2km radius of the proposed turbines) is presented on **Figure 6.7**. The following discussion provides an overview of the physical and perceptual characteristics of the Site and the immediately surrounding landscape without particular reference to published landscape character types.

Topography

6.90 Topography within 35km of the Proposed Development is illustrated on **Figure 6.8**.

6.91 The topography of the Site is characterised as an extensive upland plateau flanked by hillslopes and extensive forest plantation; forming a notable topographical feature experienced in many views from the surrounding lower-lying landscape.

6.92 The topography of the Site is undulating, with the lowest points being located adjacent to the A714 at approximately 50m AOD. There are pockets of small hills within the central and western areas of the Site rising to 90m AOD, 100m AOD and 105m AOD, before the land rises northwest at Butter Cairn (164m AOD), and the Top of the Fell (184m AOD).

6.93 Beyond the immediate environs of the Site, the land is fairly undulating to the west with occasional hilltops and areas of higher ground as the land rises towards the Wigtownshire Moors. To the north, east, and south, the rugged, upland landscapes of the Galloway Hills and the Southern Uplands provide the backdrop. The mountainous topography of the Galloway Hills and the Southern Uplands is regularly interspersed by river valleys at lower elevations, including the Cree valley that lies to the immediate east of the Site.

Watercourses and Drainage

- 6.94 A couple of small burns cross through the Site. In the northern portion of the Site, Boughty Burn flows in a broadly northeasterly direction from Glenvernoch Fell into the small lochs near Glenvernoch. In the southern portion of the Site, Castle Stewart Burn flows beyond the site extents through Penninghame Forest into Penninghame Pond, before continuing into the River Cree. A number of small tributaries also flow across the Site towards the River Cree, which courses past the eastern extents of the Site.
- 6.95 In the wider surrounding landscape, a number of rivers, burns, and tributaries drain the surrounding Galloway Hills and Southern Upland landscapes to the east, with watercourses similarly draining the upland Wigtownshire Moor landscapes to the west.

Vegetation

- 6.96 The Site comprises an area of predominantly open moorland.
- 6.97 In the northeastern portion of the Site, there are pockets of coniferous woodland, including around the property at Glenvernoch. Similarly, deciduous woodland partly encloses the Knockville property, which is located towards the southeastern extents of the Site. Scattered trees and tree copses are present across the Site, which also features riparian vegetation along the course of the Boughty Burn.
- 6.98 The Site is located immediately north of the coniferous plantation at Penninghame Forest and in proximity of the extensive Galloway Forest, which is located beyond the wooded valley of the River Cree to the immediate east. The Knockville and Crungie Woodland also borders the Site along its eastern extents, whilst Garchew Wood lies adjacent to the northwestern extents of the Site.
- 6.99 Within the wider Study Area, there are further extensive coniferous plantations and woodlands. Managed grazed fields are frequently bound by hedgerows, and dotted with trees and riparian vegetation along watercourses, whilst occasional shelterbelts and small plantation woodlands appear across the agricultural landscape, often in the proximity of scattered residential properties or dispersed communities.

Built Infrastructure

- 6.100 The majority of the Site does not feature any built infrastructure, except for the minor road that routes through the Site that permits access to the surrounding properties, and the access roads to the properties at Glenvernoch and Knockville, which are located in the Site. A farm access track from Glenvernoch also crosses the upland plateau.
- 6.101 Within the wider landscape, there are numerous individual farmsteads and small groups of properties, villages, and occasional small towns, situated mainly within the more settled valley landscapes, with some properties located at slightly higher elevations along the main routes that pass through the area.
- 6.102 Within the detailed 20km LVIA study area, there are several main transport routes that include: the A714, which routes past the eastern extents of the Site; the A75 that passes through the southern portion of the study area over 7km south of the Site between Glenluce and Creetown; and the A712 which routes between Newton Stewart to Clatteringshaws Loch over 9km east-southeast of the Site. The Glasgow South Western Line is a mainline railway line that routes through the western portion of the study area over 13km west of the Site.

- 6.103 In addition to the primary routes, there is an extensive network of B-class roads and minor roads passing through the 20km study area. These include the B702 which extends between Barrhill and Challoch, passing the Site over 2km to the west.
- 6.104 There are also several operational wind farms on the Wigtownshire Moors which lie within 20km of the Site. These include the Mark Hill, Arecleoch, Kilgallioch, Airies, Balmurrie Fell, Artfield Fell, Glenchamber, Carscreugh, and Barlockhart Moor developments. Other wind farms within 20km are illustrated on **Figure 6.10**.

Sensory and Perceptual Characteristics

- 6.105 The Site comprises a relatively broad, open, upland moorland plateau that forms a notable landscape feature when seen in many views from the agricultural landscapes that surround it. Elevated pockets of the Site allow for broad sweeping views in all directions, with views east extending across the lower-lying and more contained settled Cree valley landscape. Views extend to upland areas, with the Galloway Hills and Southern uplands providing the visual backdrop in views north, east, and south; whilst the Wigtownshire Moors provide the backdrop in views west.
- 6.106 In addition to the more settled, farmed landscapes surrounding the Site, the moorland landscape reflects the cultural importance of the landscape that has been shaped by human influences through its management and use for sport and recreation, as well as for upland grazing. The adjacent trunk roads, forestry plantations, and nearby operational wind farms are further evidence of man's influence on the landscape.
- 6.107 Whilst aspects of the Site exhibit some perception of remoteness and tranquillity, it is strongly influenced by its proximity to these other moderating influences.

Forces for Future Change in the Landscape

- 6.108 If the Site were not to be developed to accommodate the Proposed Development, the land would largely remain in its present condition over the short-term.
- 6.109 Over the medium and longer term, the main foreseeable forces for change in the landscape surrounding the Site relate to changes to the forest plantations, with areas of felling and replanting in line with forest management plans. Further changes may also occur due to changes in agricultural land use and changes to traditional forms of moorland management, which may change over time, such as by introducing longer rotations between burning, or changes to vegetation resulting from re-wetting or rewilding to encourage greater habitat diversity.
- 6.110 Within the wider landscape, there are several commercial wind energy developments and several consented schemes which, if built, would also influence the existing nature of the wider landscape surrounding the Proposed Development as set out in the Cumulative Assessment (see **Assessment of Cumulative Effects**). In relation to operational wind energy developments, it is recognised that some may be subject to applications for repowering, but that decommissioning would be the default.
- 6.111 In addition to the consented or proposed developments within the vicinity of the Site, it is widely recognised that climate change will have an impact on the future character of the Scottish landscape through changes to weather conditions that will in turn result in changes to vegetation that will affect the intrinsic character of the landscape.

- 6.112 Other pressures that may cause change in the baseline landscape and visual context in the future may include built development along infrastructure corridors and trunk roads, and potential settlement expansion.

Visual Receptors

- 6.113 With reference to the blade tip ZTV (see **Figure 6.11**), theoretical visibility is restricted to a principal area that extends to approximately 20km to the north and south, and to approximately 15km to the east and south. Whilst it is recognised that theoretical visibility is predicted at greater distances, it does become patchier and more intermittent and limited to the more elevated parts of the wider surrounding landscape.
- 6.114 As a result, it was determined that there was no potential for the Proposed Development to result in any significant visual effects at distances over 20km from the Site. Furthermore, with increasing distance from the Site, the likelihood of significant visual effects occurring incrementally decreases. Therefore, whilst the primary study area for this LVIA extends out to 35km and the various figures which accompany this report illustrate an initial 35km study area, the assessment has focused on visual receptors within the detailed 20km LVIA study area.
- 6.115 Interpretation of the ZTVs (see **Figures 6.11 – 6.23**) assisted in identifying potentially sensitive visual receptors of the Proposed Development. Principal visual receptors within the surrounding landscape are illustrated on **Figure 6.6**. The blade tip ZTV has been overlaid over those located within the detailed 20km LVIA study area on **Figure 6.24**. The principal visual receptors have been identified as follows:

Residential Receptors and Settlements

- 6.116 For the LVIA, consideration has been made to the settlements within the study area as listed in the Dumfries and Galloway Local Development Plan 2²⁶, the East Ayrshire Local Development Plan²⁷, and the South Ayrshire Local Development Plan 2²⁸.
- 6.117 Residential visual receptors have been identified in bands of distance from the nearest turbine. Whilst a greater level of detail has been provided in relation to those properties located nearest to the Proposed Development, it is recognised that there may be views from individual properties and clusters of properties throughout the wider study area.
- 6.118 With reference to the ZTVs (see **Figures 6.11 – 6.24**) only those properties or settlements with theoretical visibility of the Proposed Development have been identified. Those settlements with no theoretical visibility have not been considered further within this chapter.
- 6.119 It is worth stating that this assessment considers the outlook/visual amenity at residential properties as a way of assessing if the effect would be significant or not on the settlement as a whole, with consideration given in relation to public views and public visual amenity.

²⁶ Dumfries and Galloway Council. Local Development Plan 2 (2019). Available at: <https://www.dumgal.gov.uk/ldp2>

²⁷ East Ayrshire Council. East Ayrshire Local Development Plan (2017).

²⁸ South Ayrshire Council. South Ayrshire Council Local Development Plan (2022).

Residential Properties within 2km

- 6.120 A total of 16no. residential properties were identified as being located within 2km of the Proposed Development from a combination of Ordnance Survey (OS) Address base data, OS 25,000 raster data, and aerial photography. Effects on these properties are considered further in the Residential Visual Amenity Assessment at **Appendix 6.6: Residential Visual Amenity Assessment (RVAA)**. Residential receptors within 2km of the Proposed Development are shown on **Figure 6.6.1: Residential Visual Amenity Study Properties** which accompanies **Appendix 6.6: Residential Visual Amenity Assessment (RVAA)**.

Residential Properties within 2km to 5km

- 6.121 Between 2km and 5km of the proposed turbines, there are numerous residential properties scattered throughout the surrounding landscape comprised of individual farmsteads and small clusters of properties. Many of the properties are located along various A-class roads, B-class roads, or minor roads in the local landscape, such as Beoch, Creebank, Brigend, Lutra Holt, and Penninghame Home Farm. There are however no primary towns within 5km of the proposed turbines, with the only listed Dumfries and Galloway Local Development Plan 2 settlement being Glentool.
- 6.122 Given the number of properties, it was considered disproportionate to provide a detailed assessment from every individual or group of properties located between 2km-5km of the nearest proposed turbine. Instead, potential views of the Proposed Development have been combined from residential properties located between these distances, with the experience from each property considered in the round.
- 6.123 With reference to the ZTVs (see **Figures 6.11 – 6.24**), and the concentration of theoretical visibility of the proposed wind farm shown at distances between 2km and 5km, it is judged that the majority of individual or groups of properties have the potential for views of the proposed turbines. Whilst intervening landform and vegetation, including forestry and woodland, and property boundary walls, gardens with associated vegetation, and surrounding agricultural buildings, trees, and woodland, may obscure or limit actual visibility of the proposed turbines, the default expectation is that multiples of proposed turbine numbers would be visible.
- 6.124 Due to the proximity of the Proposed Development to the properties, the magnitude of change is assessed as medium at most, resulting in a **moderate** level of effect on the visual amenity experienced, which is not considered to be significant.

Settlements within 5km

- 6.125 Within 5km of the Proposed Development, the settlements displaying theoretical visibility of the Proposed Development are:
- Glentool.

Settlements within 5km to 10km

- 6.126 Settlements within 5km to 10km from the Proposed Development experiencing theoretical visibility of the Proposed Development are:
- Newton Stewart.

Settlements within 10km to 15km

6.127 Settlements within 10km to 15km from the Proposed Development experiencing theoretical visibility of the Proposed Development are:

- Kirkcowan.

Settlements within 15km to 20km

6.128 Settlements within 15km to 20km from the Proposed Development experiencing theoretical visibility of the Proposed Development are:

- Creetown; and
- Wigtown.

6.129 An initial filtering exercise has been undertaken of settlements within the detailed 20km LVIA study area to determine which have the potential to experience significant effects and therefore require detailed consideration in this chapter. The intention has been to ensure that the level of attention given is proportionate to the likelihood of significant effects arising. The findings of the initial filtering exercise are presented at **Table 6.4.1** of **Appendix 6.4: Preliminary Assessment of Visual Receptors**.

6.130 This filtering exercise identified that no settlements have the potential to experience significant effects as a result of the Proposed Development.

Core Paths

6.131 There is numerous core paths located within the detailed 20km study area, as illustrated on **Figure 6.6**, with those located within 2km of the Proposed Development also shown on **Figure 6.7**.

6.132 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, theoretical visibility from the core paths is more limited beyond 10km. As a result, the assessment has focussed on core paths within 10km from the Proposed Development.

6.133 An initial filtering exercise has been undertaken to determine which of the core paths have the potential for significant effects to arise and would therefore require detailed consideration. The intention has been to ensure that the level of attention given to each core path is proportionate to the likelihood of significant effects arising. The findings of the initial sieving exercise are presented at **Table 6.4.2** of **Appendix 6.4: Preliminary Assessment of Visual Receptors**. Core paths with no theoretical visibility have not been considered further within this chapter.

6.134 This filtering exercise identified that users of the following routes have the potential to be significantly affected by the Proposed Development:

Core Paths within 5km

6.135 Core paths within 5km from the Proposed Development experiencing theoretical visibility of the Proposed Development are:

- Core Path UNNO/504/5-10; and

- Core Path CREE/416/1-2 - Barclay Bird Reserve Walk.

Recreational Routes

- 6.136 There are a number of long-distance recreational routes located within the detailed 20km study area, which are illustrated on **Figure 6.6**, with those located within 2km of the Proposed Development also shown on **Figure 6.7**.
- 6.137 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, theoretical visibility from the recreational routes is more limited beyond 10km. As a result, the assessment has focussed on recreational routes within 10km from the Proposed Development.
- 6.138 An initial filtering exercise has been undertaken to determine which of the recreational routes have the potential for significant effects to arise and would therefore require detailed consideration. The intention has been to ensure that the level of attention given to each route is proportionate to the likelihood of significant effects arising. The findings of the initial sieving exercise are presented at **Table 6.4.3: Preliminary Assessment of Recreational Routes** of **Appendix 6.4: Preliminary Assessment of Visual Receptors**. Recreational routes with no theoretical visibility have not been considered further within this chapter.
- 6.139 This filtering exercise identified that users of the following routes have the potential to be significantly affected by the Proposed Development:
- Southern Upland Way (SUW); and
 - National Cycle Network Route 7.

Roads and Railways

- 6.140 There are numerous roads located within the detailed 20km study area, as shown on **Figure 6.6**.
- 6.141 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, theoretical visibility on primary, A-class, and B-class roads is more limited beyond 10km. As a result, the assessment has focussed on those roads within 10km from the Proposed Development.
- 6.142 An initial filtering exercise has been undertaken to determine which of the recreational routes have the potential for significant effects to arise and would therefore require detailed consideration. The intention has been to ensure that the level of attention given to each route is proportionate to the likelihood of significant effects arising. The findings of the initial sieving exercise are presented at **Table 6.4.4: Preliminary Assessment of Roads** of **Appendix 6.4: Preliminary Assessment of Visual Receptors**. Roads with no theoretical visibility have not been considered further within this chapter.
- 6.143 This filtering exercise identified that users of the following routes have the potential to be significantly affected by the Proposed Development:
- A714; and
 - B7027.
- 6.144 There are no railway lines crossing land within 10km of the Proposed Development and as such effects on rail users are not considered further within the assessment.

Recreation and Tourism

- 6.145 Outside of the main settlements within the 35km study area, with Newton Stewart being the closest to the Proposed Development, the Galloway Forest Park is one of the main tourism destinations attracting thousands of visitors each year who visit to appreciate its dramatic scenery, participate in a range of outdoor activities, and appreciate its dark sky qualities at the Galloway Forest Dark Sky Park.

Assessment Viewpoints

- 6.146 The following table sets out the viewpoints considered as part of this assessment. These viewpoints have been derived through desk-based and on-site analysis, interpretation of ZTVs, and through consideration of the viewpoints used in the assessment of other nearby wind farms. The assessment viewpoints have also been consulted on as part of the EIA scoping process and amended following feedback received.
- 6.147 The viewpoints are representative of a range of views towards the Proposed Development. They are not intended to cover every single view but are representative of a range of distances from the Site and receptor types (e.g. residents, walkers, road users). They have been used to inform the assessment of effects on landscape character, the visual assessment, the cumulative assessment, and the assessment of visual receptor groups.
- 6.148 **Table 6.2: Assessment Viewpoints** below identifies the 20 assessment viewpoints. The locations of these viewpoints are illustrated on **Figure 6.23**.

Table 6.2: Assessment Viewpoints

Viewpoint	OS Grid Reference	Approximate Distance to Nearest Turbine	Receptor Type
Viewpoint 1: Southern Upland Way (Hill of Ochiltree)	E232712, N574097	1200m (T13)	Recreational
Viewpoint 2: A714, north of Bargrennan (N)	E233843, N578647	4805m (T12)	Road users
Viewpoint 3: A714, junction with minor road to Glentool (N)	E235461, N575106	1432m (T10)	Recreational, Road users
Viewpoint 4: Southern Upland Way (Bargrennan)	E234849, N576327	2479m (T12)	Recreational
Viewpoint 5: Eldrig Fell	E225249, N568714	9935m (T13)	Recreational
Viewpoint 6: Minor road near Bennylow (Culvennan Fell)	E229957, N564225	8898m (T2)	Road users

Viewpoint 7: B7027/Southern Upland Way near Knowe (N)	E230740, N571939	3567m (T13)	Recreational, Road users
Viewpoint 8: Southern Upland Way (Knockniehourie)	E221294, N568281	13668m (T13)	Recreational
Viewpoint 9: Bruce's Stone, Glentrool	E241587, N580336	9347m (T10)	Recreational
Viewpoint 10: All Saints Church, Challoch	E238569, N567500	4769m (T1)	Recreational, Road users
Viewpoint 11: Minor road, north of Mochrum Fell	E230623, N554863	17037m (T2)	Recreational, Road users
Viewpoint 12: Merrick	E242749, N585524	14139m (T10)	Recreational
Viewpoint 13: Lamachan Hill	E243498, N577069	9135m (T1)	Recreational
Viewpoint 14: Garlick Hill	E243135, N572897	7087m (T1)	Recreational
Viewpoint 15: A75, parking area south of Creetown	E247191, N557692	17767m (T1)	Recreational, Road users
Viewpoint 16: Road Junction between B7005 and A714 at Culquhirk*	E242695, N556811	16077m (T2)	Residents, Road users
Viewpoint 17: B733 west of Kirkcowan*	E231762, N560984	10866m (T2)	Road users
Viewpoint 18: Moor of Barclye Archaeological Sensitive Area*	E239814, N570013	3990m (T1)	Recreational
Viewpoint 19: The minor road outside Borgan Cottage*	E236435, N574601	1718m (T10)	Recreational, Residents, Road users
Viewpoint 20: A75 at Knockbrex Toll Junction*	E239606, N564299	8020m (T2)	Residents, Road users

* Additional LVIA Viewpoint added following feedback received at scoping.

(N) – Night-time visualisation produced from this viewpoint in addition to day-time visualisation.

Appendix 6.5: Viewpoint Assessment provides a baseline description of the view from each assessment viewpoint, followed by a detailed analysis and assessment of the effects.

Assessment of Potential Effects

6.150 Following a brief summary of the Proposed Development, this section of the LVIA considers the effects of the Proposed Development on the physical features of the Site (landscape fabric), landscape character, and visual amenity. It considers the effects during the construction and operational phases of the Proposed Development.

6.151 Effects during the construction phase are considered to be temporary and would have a short duration. Effects associated with the operational phase of the Proposed Development are considered to be long-term, reversible effects.

Project Description

6.152 A detailed description of the Proposed Development is set out in **Chapter 4: Design Evolution of the EIAR**. The description below summarises those details of the Proposed Development that have particular relevance to this LVIA.

6.153 The Proposed Development would comprise the following visible features which may have an impact on landscape character or visual amenity:

- 13 turbines with a blade tip height of 200m (hub height 115m, rotor diameter 170m is used for modelling). The proposed turbines would be three-bladed horizontal axis machines; the finish and colour of the turbines would be semi-matt and pale grey in colour).
- Visible, medium intensity (minimum 2000 candela (cd) at horizontal and slightly above) steady red aviation warning lights on the nacelles of six of the 13 turbines. There would be no intermediate tower lights.
- Internal site access tracks (approximately 9.5km of new tracks).
- A new access onto the A714.
- Off-site highway works.
- Crane hardstanding areas adjacent to each turbine.
- A substation, and energy storage compound.
- On-site underground cabling.
- Up to two borrow pit workings; and
- Temporary construction and storage compounds and ancillary infrastructure.

Effects during Construction on Existing Landscape Features

6.154 As identified in the baseline section, the existing landscape features present on the Site are:

- Moorland vegetation; and

- Watercourse/drainage channels.
- 6.155 The construction phase would result in the removal of moorland vegetation and other such ground-level vegetation, through the construction of on-site access tracks, hardstanding areas, a substation and energy storage compound, on-site underground cabling, temporary borrow pit workings, construction compounds, and turbine foundations. Underground electricity cables would generally follow access tracks.
- 6.156 The existing moorland vegetation would be removed to allow construction of foundations for the various elements. Soils stripped as part of the establishment works would be stored in accordance with established soil handling best-practice for use during reinstatement works on completion of construction activities.
- 6.157 According to **Chapter 3: Project Description**, up to two borrow pit search areas would be required. The final location, number, and estimate of material won from each search area would be determined once full ground investigation works, and testing has been completed. The borrow pits would be located within LCT 174: Plateau Moorland with Forest as defined by NatureScot and LCT 17a: Plateau Moorland with Forest as defined in the DGWLCS. Their excavation would be short-term and would result in the removal of moorland vegetation, soils, and subsurface rock. Borrow pit workings would be restored following construction to encourage re-vegetation; although, it is accepted that some regrading of the land profile would be expected.
- 6.158 Moorland vegetation is a frequently encountered feature of the wider surrounding upland landscape. Whilst it does not form part of the fabric of a site designated for its scenic value, it is a characteristic feature of the upland moorland landscape. The moorland vegetation is a human influenced landscape element that has evolved over time through land management practices and management of the moorland for sport. The ongoing change and modification resulting from moorland management practices, lowers its susceptibility. Combining its value and susceptibility results in the sensitivity of the moorland vegetation found on the Site being judged as low.
- 6.159 The moorland vegetation would experience a medium magnitude of change resulting from the construction of new access tracks, laydown areas, crane pads, and turbine foundations, which would affect a small portion of the overall moorland contained within the Site boundary extents. Large areas of moorland would subsequently remain unaffected, particularly parcels of land in the northern and eastern parts of the Site. The overall level of effect on the moorland vegetation found on Site as a result of the Proposed Development is **Moderate/minor**, which is not considered to be significant.
- 6.160 Eight watercourse crossings would be required as part of the Proposed Development. The Site is presently crossed by Boughty Burn, Castle Stewart Burn, and incised by numerous channels, created as water flows off the high ground. These features are considered to be of low value in landscape terms but highly susceptible to changes which affect their course or their quality. Combining their value and susceptibility results in the watercourse and drainage features found on Site as having a medium level of sensitivity.
- 6.161 The proposed turbines and associated infrastructure have been located away from any watercourses/channels on the Site. It is therefore only in the location of the proposed watercourse crossings where there is potential for construction effects to occur. As effects would be limited and controlled through best-practice construction and environmental practices, the predicted change would result in no greater than a low magnitude change. As a result, effects are judged as being **Moderate/minor**, which is not considered to be significant.

Summary of Effects on Existing Landscape Features

- 6.162 The Proposed Development would result in a **Moderate/minor** effect to the moorland vegetation found on Site, and no greater than a **Moderate/minor** effect to watercourses and drainage channels. These effects are both considered to be not significant.

Assessment of Effects on Landscape Character

- 6.163 The LCTs covering the initial 35km LVIA study area are shown on **Figure 6.4**, and within the detailed 20km LVIA study Area at **Figure 6.5**. LCTs within 20km of the Proposed Development overlaid with the blade tip ZTV are illustrated at **Figure 6.27**.
- 6.164 As explained in the baseline section, an initial filtering process has been carried out on all LCTs within the detailed 20km LVIA study area which identified that, in addition to the two LCTs in which the Proposed Development is sited, a further seven LCTs have the potential to be significantly affected by the Proposed Development. The LCTs assessed in detail in this chapter are:
- LCT 174: Plateau Moorland with Forest [DGWLCS LCT 17a] – Proposed Development (including all turbines) is primarily located within this LCT.
 - LCT 160: Narrow Wooded Valley [DGWLCS LCT 4] – Proposed Development (Site entrance and part of an access track) is partly located within this LCT.
 - LCT 181: Rugged Uplands with Forest [DGWLCS LCT 21a] - located approximately 3km to the east.
 - LCT 172: Upland Fringe [DGWLCS LCT 16] - located approximately 4km to the southeast.
 - LCT 168: Drumlin Pasture in Moss and Moor Lowland [DGWLCS LCT 12] - located approximately 4km to the south.
 - LCT 78: Plateau Moorland - Ayrshire [SALWCS LCT 18c] - located approximately 4km to the northwest.
 - LCT 158: Coastal Flats [DGWLCS LCT 2] - located approximately 8km to the southeast.
 - LCT 167: Moss and Forest Lowland [DGWLCS LCT 11] - located approximately 12km to the south-southwest.
 - LCT 179: Coastal Uplands [DGWLCS LCT 20] - located approximately 13km to the southeast.

Sensitivity of Landscape Character to Wind Energy Development

- 6.165 The first stage in assessing the effects of the Proposed Development on landscape character is to evaluate the sensitivity of the LCTs brought forward into detailed assessment, to the type of change proposed. As indicated within GLVIA3, sensitivity of landscape character should be determined through a consideration of both susceptibility to change and any values associated with the landscape.
- 6.166 The DGWLCS and SALWCS provide some guidance in assessing the sensitivity of those LCTs brought forward into detailed assessment. These documents should however be read with caution as they do not necessarily just consider landscape sensitivity (value and susceptibility). NatureScot advise that such studies should not be referred to as 'capacity studies' as no local or regional targets are available on which to determine the 'capacity' for development. They advise that these studies "should reflect their purpose, which is to

provide a strategic assessment of relative landscape and visual sensitivity to certain defined forms of development”²⁹.

- 6.167 Furthermore, the DGWLCS and SALWCS are four and six years old and are outdated to some extent as a result of wind farm developments which have been either consented or constructed in the intervening period and changes to the onshore wind energy planning policy context. It is therefore necessary to evaluate whether changes to the baseline (including in terms of recently consented or constructed wind farms) have altered sensitivity as reported in these studies.
- 6.168 It is also important to note that the judgements in the DGWLCS and SALWCS concern how sensitive each character type is to wind energy development being deployed within that specific unit. This is not necessarily the same as being of a particular sensitivity to wind farm development in an adjacent or distant character unit, which may only result in indirect effects on landscape character. The sensitivity of the character unit to wind energy development in an adjoining or distant character unit would typically be lower. This is because at any given location in a landscape, whilst features of the wider landscape do help to characterise that area, even where views out of a character area are not specifically mentioned as an important characteristic, the physical features and perceptual characteristics of the landscape in the immediate vicinity have a far greater influence on character and one's sense of landscape character than distant features, no matter how tall they may be.
- 6.169 Therefore, whilst the DGWLCS and SALWCS are useful tools to help inform the consideration of the value and susceptibility of the LCTs brought forward into detailed assessment, it should be noted that the findings have not necessarily been adopted verbatim. Rather the approach taken has been to seek to provide a sensitivity rating for each area in line with the approach advocated in GLVIA3, whilst taking the findings of these assessments into consideration.

Table 6.3: Landscape Character Sensitivity

Landscape Character Type	Value	Susceptibility	Sensitivity
LCT 174: Plateau Moorland with Forest	High	High	High
LCT 160: Narrow Wooded Valley	High	High	High
LCT 181: Rugged Uplands with Forest	High	High	High
LCT 172: Upland Fringe	High	High	High

²⁹ NatureScot Website. Landscape sensitivity studies. Available at:
<https://www.nature.scot/professional-advice/landscape/landscape-tools-and-techniques/landscape-sensitivity-studies>

LCT 168: Drumlin Pasture in Moss and Moor Lowland	High	High	High
LCT 158: Coastal Flats	High	High	High
LCT 167: Moss and Forest Lowland	High	High	High
LCT 179: Coastal Uplands	High	High	High
LCT 78: Plateau Moorland - Ayrshire	High-medium	High-medium	High-medium

Effects on Landscape Character during Construction

- 6.170 The proposed turbines and the majority of the wind farm access tracks and associated infrastructure are located within LCT 174: Plateau Moorland with Forest. The Site entrance and a short section of the access track are located within the western fringe of LCT 160: Narrow Wooded Valley. This would result in direct effects on landscape character during construction on these LCT.
- 6.171 During the construction phase, there would be the temporary presence of cranes on the Site and the movement of other construction traffic, consistent with the formation of access tracks, hardstandings, turbine foundations, other associated infrastructure, and the installation of the turbines.
- 6.172 Effects during construction on landscape character would increase incrementally through the construction phase as more turbines, foundations, hardstandings, and ancillary elements are constructed. Construction activities would move from turbine location to turbine location and, as activities increased in one location, they would be decreasing at locations where construction had finished.
- 6.173 Cranes would be involved in the erection of the turbines, but these would be onsite for a relatively short period during the overall construction phase. The cranes would form noticeable vertical features in the landscape for a short period of time but would be a relatively diminutive visual component given their slender form compared with the turbines being erected.
- 6.174 As previously discussed, there would be no significant effects on any existing landscape features. Whilst there would be localised areas of high magnitude of change directly, there would be an overall medium magnitude of change upon part of the LCT 174: Plateau Moorland with Forest during the construction phase. This would result in a **major/moderate** temporary additional effect on part of the LCT where the Proposed Development is located, which would be significant.
- 6.175 Construction activity would occur in an elevated, upland part of the LCT that is surrounded to the east and south by wooded hillslopes which would serve to limit its influence on the surrounding slopes and lower-lying parts of the LCT. Overall, there would be no greater

than a low magnitude of change and a **moderate/minor** temporary additional effect on the LCT as a whole, which would not be significant.

- 6.176 In terms of effects on the landscape character of LCT 160: Narrow Wooded Valley during the construction, activity would be limited to a very small section of the LCT where the site entrance and a small section of access track would be located. This would introduce a low magnitude of change and result in a **moderate/minor** temporary additional effect on a very small part of the western edge of the LCT, which would not be significant.
- 6.177 Given the extensive size of the wider LCT and the very small part of it that would be affected, overall, there would be a very low magnitude of change, with temporary additional effects considered to be no greater than **minor to no effect** which would not be significant.
- 6.178 In terms of indirect effects on the other landscape character types brought forward into detailed assessment, there would be no greater than a low magnitude of change. Some limited additional effects would be experienced as construction takes place on the Site. Views of activity taking place on the Site would however be largely restricted by the landform and the wooded slopes, mainly limiting views to the cranes, rather than the ground level works, resulting in a **moderate/minor** temporary additional effect that would not be significant.
- 6.179 A summary of the effects on landscape character during construction is presented in **Table 6.4: Assessment of Effects on Landscape Character during Construction**. Note that for all character types stated within this table, the duration of the Proposed Development is considered to be temporary.

Table 6.4: Assessment of Effects on Landscape Character during Construction

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 174: Plateau Moorland with Forest	High	Medium (part where the Proposed Development is located)	Major/moderate	Yes
		Low (parts surrounding the Proposed Development)	Moderate/minor	No
LCT 160: Narrow Wooded Valley	High	Low (part where the Proposed Development is located)	Moderate/minor	No
		Very low (parts surrounding the Proposed Development)	Minor to no effect	No

LCT 181: Rugged Uplands with Forest	High	Low	Moderate/ minor	No
LCT 172: Upland Fringe	High	Low	Moderate/ minor	No
LCT 168: Drumlin Pasture in Moss and Moor Lowland	High	Low	Moderate/ minor	No
LCT 158: Coastal Flats	High	Low	Moderate/ minor	No
LCT 167: Moss and Forest Lowland	High	Low	Moderate/ minor	No
LCT 179: Coastal Uplands	High	Low	Moderate/ minor	No
LCT 78: Plateau Moorland - Ayrshire	High-medium	Low	Moderate/ minor	No

Bold text indicates a significant effect.

Effects on Landscape Character during Operation

6.180 The effects on landscape character are discussed below in relation to each of the landscape character types brought forward into detailed assessment (see **Technical Appendix 6.3**). The magnitude of change on landscape character as a result of the Proposed Development has been determined using professional judgement based on the following factors:

- The percentage of the character type from where the Site would theoretically and actually be visible;
- The distance between the character type and the Site;
- The likely prominence of the turbines from the character type taking account of existing locally dominant characteristics in the character type; and
- The degree to which the physical and perceptual characteristics of the landscape would change as a result of the Proposed Development.

6.181 To aid the consideration of the operational effects on landscape character, the landscape character types within the detailed 20km LVIA study area have been overlaid with the blade tip ZTV in **Figure 6.27**.

- 6.182 Beyond the immediate environs of the Site, the ground level components of the Proposed Development would not be discernible from lower-lying areas due to the elevated landform upon which the Proposed Development would be located. Therefore, effects on landscape character, as experienced in the wider landscape, for most locations arise largely in relation to the introduction of the proposed turbines into the landscape and the resultant changes to the experience of landscape character.
- 6.183 It is acknowledged that there may be more elevated areas where ground-level elements may be visible, and these are considered within the assessment where relevant.
- 6.184 It is noted that in general, the magnitude of change in landscape character would incrementally decrease with distance from the turbines as they become gradually less prominent.
- 6.185 A summary of the effects on landscape character during operation is presented in **Table 6.5: Assessment of Effects on Landscape Character during Operation**. Note that for all character types stated within this table, the duration of the Proposed Development is considered to be long-term and reversible.

LCT 174: Plateau Moorland with Forest

- 6.186 The proposed turbines and the majority of the associated infrastructure are located within this LCT. Views from this LCT are broadly represented by Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 2: A714, north of Bargrennan, Viewpoint 5: Eldrig Fell, and Viewpoint 7: B7027/Southern Upland Way near Knowe (see **Volume 2**).
- 6.187 With reference to **Figure 6.27**, which shows landscape character types within 20km overlaid with the blade tip ZTV, there is extensive theoretical visibility of up to all 13no. turbines across the majority of the upland where the Proposed Development would be located. Actual visibility would however be reduced due to the woodland on parts of the slopes bounding the Site.
- 6.188 The proposed turbines would introduce direct effects on the LCT in the immediate vicinity of the Site and indirect effects on the remaining parts of the LCT. The 13no. turbines would introduce tall vertical structures that would extend up to 200m to blade tip. The turbines would however be introduced into a large-scale, open upland landscape, the characteristics of which, such as its smooth, gently rounded profile and simple land cover, are often considered suitable for wind farm development.
- 6.189 Referring to the representative viewpoints (Viewpoints 1, 2, 5, and 7) it is inevitable that the turbines have a characterising effect, in particular in the immediate environs of the Site, but the effect is not so great that the turbines become the single-most dominant characteristic and the distinctive underlying moorland upland remains as the most important defining characteristic element.
- 6.190 The Proposed Development would introduce a notable change to the character of the Site and its immediate surroundings up to 4km, resulting in a high magnitude of change and a **major**, therefore, **significant effect**. Beyond 4km, and up to around 6km, the influence of the turbines would decrease, and the magnitude of change would reduce to medium and result in a **major/moderate**, therefore, **significant effect**. Beyond 6km, the influence would further reduce, down to no more than a medium to low magnitude, resulting in no more than a **moderate**, but non-significant effect.

LCT 160: Narrow Wooded Valley

- 6.191 This LCT is situated to the immediate east of LCT 174: Plateau Moorland with Forest, where the Proposed Development is located. The Site entrance and a short section of the access track are located within the western fringe of the LCT. Views from this LCT are represented by Viewpoint 3: A714, junction with minor road to Glentool, Viewpoint 4: Southern Upland Way (Bargrennan), Viewpoint 10: All Saints Church, Challoch, and Viewpoint 19: The minor road outside Borgan Cottage (see **Volume 2**).
- 6.192 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, the LCT would experience theoretical visibility of up to all 13no. turbines.
- 6.193 The Proposed Development would introduce direct effects to a very small part of the western edge of the LCT in the vicinity of the Site entrance. It is assumed that the Site access off the A714 would require some minor modification in order to create an appropriate access off the highway. These elements would however be diminutive in comparison to the introduction of the proposed turbines in the adjacent LCT, which would have a much greater influence on its character. The Proposed Development would introduce a large scale of change, with up to all 13no. turbines visible on the hillside that forms the visual backdrop to many views from the LCT. This would introduce a high magnitude of change and a **major**, therefore, **significant effect** extending to approximately 4km from the Proposed Development. Beyond 4km, and up to around 6km, this would reduce to a medium magnitude of change and a **major/moderate significant effect**, with effects more limited beyond this distance to the south as the LCT becomes characterised by the built form of Newton Stewart.

LCT 181: Rugged Uplands with Forest

- 6.194 This LCT is located approximately 3km to the east of the Proposed Development. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the LCT are represented by Viewpoint 9: Bruce's Stone, Glentool, and Viewpoint 14: Garlick Hill (see **Volume 2**).
- 6.195 Much of the LCT is characterised by its forestry cover, with only limited locations where views outwards towards the wider landscape can be obtained. For much of the LCT there would therefore be no potential for views of the Proposed Development and no effect on character, notwithstanding the theoretical visibility shown on the ZTV. In those views from the LCT which are available towards the Site, the Proposed Development would introduce new elements in the middle-distance of the view. Overall, there would be a medium-low magnitude of change and a **moderate** non-significant effect on the character of the LCT.

LCT 172: Upland Fringe

- 6.196 This LCT is located approximately 4km to the southeast of the Proposed Development. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the LCT are represented by Viewpoint 18: Moor of Barclay Archaeological Sensitive Area (see **Volume 3**).
- 6.197 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, only the westernmost section of the LCT would experience theoretical visibility of the turbines. The remaining eastern section of the LCT would therefore experience no effect from the Proposed Development.

- 6.198 Where visible, the proposed turbines would introduce large, noticeable new elements seen in the middle-distance in north-westerly views. As illustrated in the visualisations for Viewpoint 18, there is however a degree of vegetation in the landscape of this part of the LCT which serves to restrict longer distance views.
- 6.199 Nonetheless, given the relative prominence of the turbines in the landscape, there would be a medium magnitude of change and a **major/moderate**, therefore, **significant effect** on the character of the westernmost part of LCT.

LCT 168: Drumlin Pasture in Moss and Moor Lowland

- 6.200 This LCT is located approximately 4km to the southeast of the Proposed Development at its closest point, extending to beyond 15km away at its furthest point. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the LCT are represented by Viewpoint 6: Minor road near Bennylow (Culvennan Fell), and Viewpoint 20: A75 at Knockbrenn Toll Junction (see **Volume 2**).
- 6.201 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, the majority of the LCT would experience some theoretical visibility of the turbines, albeit this becomes more sporadic with increased distance from the Site.
- 6.202 In the closer parts of the LCT to the Site, between 4km and around 6km, where visible, the proposed turbines would introduce noticeable new elements seen in the middle-distance in northerly views. This would introduce a medium magnitude of change and result in a **major/moderate**, therefore, **significant effect**. Beyond 6km however, the development would clearly form part of a separate more distant part of the landscape, as illustrated in the visualisations for Viewpoints 6 and 20. The magnitude would therefore reduce to a medium to low magnitude, resulting in no more than a **moderate**, but non-significant effect.
- 6.203 In more distant parts of the LCT, beyond 10km from the Site, the turbines would be less perceptible, with the impact to landscape character no greater than low, resulting in a **minor** non-significant effect.

LCT 158: Coastal Flats

- 6.204 This LCT is located approximately 8km to the southeast of the Proposed Development at its closest point, extending to beyond 20km away at its furthest point. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the LCT are represented by Viewpoint 15: A75, parking area south of Creetown, and Viewpoint 16: Road Junction between B7005 and A714 at Culquhirk (see **Volume 2**).
- 6.205 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, part of the LCT would experience some theoretical visibility of the turbines, albeit this becomes more sporadic with increased distance from the Site.
- 6.206 Where visible, the proposed turbines would be seen as no more than a minor new element, seen in the distance in north-westerly views. As illustrated in the visualisations for Viewpoint 16, in many instances the theoretical visibility of the development would not actually be apparent in reality due to intervening vegetation in the landscape. There would therefore be no more than a low magnitude of change which would lead to a **moderate/minor** non-significant effect.

LCT 167: Moss and Forest Lowland

- 6.207 This LCT is located approximately 12km to the south of the Proposed Development at its closest point, extending to beyond 20km away at its furthest point. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the LCT are represented by Viewpoint 11: Minor road, north of Mochrum Fell (see **Volume 3**).
- 6.208 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, part of the LCT would experience some theoretical visibility of the turbines, albeit this becomes more sporadic with increased distance from the Site.
- 6.209 Where visible, the proposed turbines would be seen as no more than a minor new element, seen in the distance in northerly views. As illustrated in the visualisations for Viewpoint 11, in many instances the theoretical visibility of the development would not actually be apparent in reality due to intervening vegetation in the landscape. This includes the plantation forestry which covers much of the LCT. There would therefore be no more than a very low magnitude of change which would lead to a **minor** non-significant effect.

LCT 179: Coastal Uplands

- 6.210 This relatively small LCT is located approximately 13km to the southeast of the Proposed Development at its closest point, extending to just beyond 20km away at its furthest point. It covers the upland landscape around the summit at Cairnsmore of Fleet. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect.
- 6.211 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, only the closest part of the LCT to the Site would experience some theoretical visibility of the turbines, with the remainder of the LCT having no view.
- 6.212 Where visible, the proposed turbines would be seen as no more than a minor new element, seen in the distance in north-westerly views. There would be no more than a low magnitude of change which would lead to a **minor/moderate** non-significant effect.

LCT 78: Plateau Moorland – Ayrshire

- 6.213 This LCT is located approximately 3km to the northwest of the Proposed Development at its closest point, extending to over 20km. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect.
- 6.214 With reference to **Figure 6.27**, which illustrates landscape character types within 20km overlaid with the blade tip ZTV, part of the LCT would experience some theoretical visibility of the turbines, albeit this becomes more sporadic with increased distance from the Site.
- 6.215 Much of the LCT is characterised by its forestry cover, with only limited locations where views outwards towards the wider landscape can be obtained. For much of the LCT there would therefore be no potential for views of the Proposed Development and no effect on character, notwithstanding the theoretical visibility shown on the ZTV. In those views from the LCT which are available towards the Site, the Proposed Development would introduce new elements in the middle-distance of the view. Overall, there would be a medium-low magnitude of change and a **moderate/minor** non-significant effect on the character of the LCT up to 10km.

6.216 In more distant parts of the LCT, beyond 10km from the Site, the turbines would be less perceptible, with the impact to landscape character no greater than low, resulting in a **minor** non-significant effect.

6.217 A summary table of the effects on landscape character types during operation is provided below at **Table 6.5: Assessment of Effects on Landscape Character during Operation**.

Table 6.5: Assessment of Effects on Landscape Character during Operation

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 174: Plateau Moorland with Forest	High	High – Up to 4km	Major – Up to 4km	Yes
		Medium – between 4km and 6km	Major/ moderate – between 4km and 6km	Yes
		Medium-low – Beyond 6km	Moderate – beyond 6km	No
LCT 160: Narrow Wooded Valley	High	High – Up to 4km	Major – Up to 4km	Yes
		Medium – between 4km and 6km	Major/ moderate – between 4km and 6km	Yes
		Low – Beyond 6km	Moderate/ minor – beyond 6km	No
LCT 181: Rugged Uplands with Forest	High	Medium-low	Moderate	No
LCT 172: Upland Fringe	High	Medium – westernmost section of the LCT	Major/ moderate – westernmost section of the LCT	Yes

		None – easternmost section of the LCT	No effect	No
LCT 168: Drumlin Pasture in Moss and Moor Lowland	High	Medium – between 4km and 6km	Major/moderate – between 4km and 6km	Yes
		Medium-low – between 6km and 10km	Moderate – between 6km and 10km	No
		Low – Beyond 10km	Minor – beyond 10km	No
LCT 158: Coastal Flats	High	Low	Moderate/minor	No
LCT 167: Moss and Forest Lowland	High	Very low	Minor	No
LCT 179: Coastal Uplands	High	Low - westernmost section of the LCT	Moderate/minor	No
		None – easternmost section of the LCT	No effect	No
LCT 78: Plateau Moorland - Ayrshire	High-medium	Medium-low – up to 10km	Moderate/minor – up to 10km	No
		Low – beyond 10km	Minor – beyond 10km	No

Bold text indicates a significant effect.

Assessment of Visual Effects

- 6.218 Effects on visual amenity arise from changes to views resulting from the introduction of the Proposed Development. It comprises:
- An assessment of visual effects from the representative viewpoints brought forward into detailed assessment; and
 - An assessment of visual effects on receptor groups such as settlements, roads and railways, recreational routes, core paths, and recreational and tourism locations brought forward into detailed assessment.
- 6.219 The assessment of visual effects has been carried out through a combination of site visits and desk study using the ZTVs, wirelines, and photomontages.
- 6.220 In accordance with Civil Aviation Authority (CAA) CAP 764³⁰, turbines taller than 150m require visible aviation lighting. A visible aviation lighting design has been prepared for the Proposed Development. In total, it is proposed that six of the 13 turbines (T1, T2, T6, T7, T10, T13) would be fitted with visible red 2000/200cd lights on the nacelle of each turbine. These would operate in the reduced 200cd intensity where meteorological visibility is greater than 5km, and where visibility is less than 5km, the lights would operate at 2000cd. It is important to highlight that, when not obscured by cloud, the visibility in the area of the turbines can be expected to exceed 5km for the majority of the time and as such, the lights would be dimmed to 200cd. It is also proposed that there would be no requirement for intermediate lighting to be installed halfway between the nacelle and the ground-level.
- 6.221 In order to carry out an assessment of the effects of visible aviation lighting the following assumptions have been made and applied in the figures and visualisations that have informed the assessment:
- Lighting is only shown on the six turbines that would be fitted with steady state visible aviation lighting.
 - No intermediate lighting is illustrated halfway between the nacelle and the ground-level.
 - As the photography was taken in clear weather conditions, when visibility was greater than 5km, the visualisations illustrate the reduced 200cd intensity to reflect the lighting that would arise in those conditions as a result of the mitigation proposed. It is understood that these images nonetheless represent the worst-case situation as should visibility be less than 5km such that the 2000cd lighting was active, then these poor conditions would of themselves be such as to restrict the visibility of the lighting to no more than that of the 200candela lighting seen in clear conditions.
 - The reduction in the intensity of lights above and below the horizon has been illustrated on **Figure 6.7.3**. This ZTV shows the theoretical reduction in the candela intensity of the lights at vertical angles above and below the horizon to illustrate the reduction in the intensity of the lights at elevations below the level of the turbine lights.

³⁰ Civil Aviation Authority. Civil Aviation Publication (CAP) 764 Policy and Guidance on Wind Turbines Version 6 (2016). Available at:
<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&catid=1&id=5609&mode=detail&pagetype=65>

- Whilst the lighting would reduce in intensity above and below the horizontal, this reduction has not been illustrated in the night-time visualisations. As such the visualisations are worst-case. This matter has however been considered within the assessment judgements.
- The visualisations illustrate the period after the commencement of Evening Civil Twilight, when sufficient ambient light remains for the landform of the landscape on which the wind farm is proposed, to remain partially visible. The assessment also focuses on this period, which represents a 'worst-case'.
- Whilst the implementation of a suitable Aircraft Detection Lighting System would considerably reduce the occasions when the lighting would be visible, this has not been factored into the judgements of lighting effects which focus on the 'worst-case' scenario of the period when the lighting would be visible. The benefits of a reduction in the lighting associated with the Aircraft Detection Lighting System are nonetheless a matter for the wider planning balance exercise, addressed separately in the application submission.
- It is noted that the matter of darkness adaption is also a relevant consideration, with some receptors, in particular car drivers, not perceiving the lighting in the same manner as if they were in a fully dark environment, due to their vision being influenced by lighting sources in their proximity (i.e. car headlights). The same would apply to residents of residential properties who were viewing the aviation lighting from a location with existing lighting present (i.e. it is unlikely that residents would themselves be in a fully dark environment and their eyes therefore adapted to take in the full extent of the light from the turbines). This serves to further reduce the effects compared to how they are set out in the assessment, which again can be considered to represent a 'worst-case' position compared to what would be experienced by many of the receptors in practice.
- The frequency in which a viewpoint is likely to be visited during the hours of darkness is not a factor which is considered within the assessment of magnitude or sensitivity. It should be noted however that viewpoints at hills summits and on long-distance footpaths would be unlikely to be visited after daylight hours. Any assessment of these receptors should therefore be considered a 'worst-case' scenario as in many cases the actual numbers of individuals who would be likely to experience the view would be very limited; although, it is recognised that there would be a few individuals such as landscape photographers who may visit hilltops to take photographs at sunset or sunrise or people star gazing.

6.222 Further details about the approach and the methodology to the assessment of visible aviation lighting are set out in **Appendix 6.7: Assessment of Night-time Lighting: Assessment Criteria and Methodology**.

Construction Effects

- 6.223 Construction activities associated with the Proposed Development would be screened from large portions of the study area. Activities would however be visible from elevated locations that allow views towards where the Proposed Development is located.
- 6.224 From lower-lying locations in the Cree valley, such as from Viewpoint 3: A714, junction with minor road to Glentool, and Viewpoint 4: Southern Upland Way (Bargrennan), as well as from locations in Galloway Forest Park and from those at similar elevations in the

surrounding plateaued uplands, such as Viewpoint 7: B7027/Southern Upland Way, near Knowe, Viewpoint 18: Moor of Barclay Archaeological Sensitive Area, and Viewpoint 19: The minor road outside Borgan Cottage, ground-level activities would most likely be screened by intervening landform or vegetation including plantation woodland or forestry. In these locations, the additional visual effects, over and above those addressed under the heading of Operational Effects, would therefore principally arise in relation to views of the cranes erecting the turbines.

- 6.225 The cranes would be visible for a relatively short period and would be incidental when considered in the context of the turbines being erected. Any views of these works are assessed as resulting in a low magnitude of additional change at most and no greater than a **Moderate**, temporary effect which would be not significant.
- 6.226 From elevated locations within relative proximity of the Proposed Development, such as from Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 13: Lamachan Hill, and Viewpoint 14: Garlick Hill, views extend across the Site permitting views of construction activities and vehicular movements, in addition to the views of the cranes used to install the turbines. In these locations, there would be a medium magnitude of additional change which would similarly result in a **Moderate**, temporary effect during the construction phase which would be not significant.
- 6.227 From all other remaining viewpoints, ground-level activities would be screened through a combination of landform and vegetation. In these locations, the additional visual effects, over and above those addressed under the heading of Operational Effects, would arise in relation to views of the cranes erecting the turbines.
- 6.228 The cranes would be visible for a relatively short period and would be incidental when considered in the context of the turbines being erected. It is assessed that any views of these works would result in a very low magnitude of additional change and no greater than a **Moderate/ minor**, temporary effect which would be not significant.

Operational Effects

- 6.229 A detailed viewpoint assessment of the operational effects is presented at **Appendix 6.5: Viewpoint Assessment**, and this considers the long-term visual effects during the operational phase of the Proposed Development for each of the 20no. agreed viewpoint locations.
- 6.230 For each of the assessment viewpoints, a short description is given of the baseline view, and a judgement is provided regarding the sensitivity of the key receptors likely to experience the view.
- 6.231 This is followed by a description of the features of the Proposed Development that would be visible from that viewpoint. This includes a description of how many turbine hubs and blades would be visible and also, where relevant, whether any ground-level components of the Proposed Development would be visible. For each viewpoint, there is a comment on how vegetation or topography would affect actual visibility of the proposed turbines.
- 6.232 A judgement is then provided of the magnitude of change that would be experienced at each viewpoint, the level of the effect on the view, with a statement provided to clarify whether the additional effect resulting from the Proposed Development would be significant or not.

- 6.233 A summary of the sensitivity of the view, magnitude of change in the view, the level of effect and its significance is given in **Table 6.6: Assessment of Effects on Viewpoints during Operation**. A copy of the table is also included in **Appendix 6.5: Viewpoint Assessment**.
- 6.234 Where a viewpoint is representative of more than one type of visual receptor, the assessment carried forward into the table represents the most sensitive receptor group represented by the viewpoint.
- 6.235 With reference to the Viewpoint Assessment at **Appendix 6.5**, when considered against the existing baseline, it has been assessed that there would be a significant visual effect at 8no. of the 20no. representative viewpoints during daylight hours. These are as follows:
- Viewpoint 1: Southern Upland Way (Hill of Ochiltree).
 - Viewpoint 3: A714, junction with minor road to Glentool.
 - Viewpoint 4: Southern Upland Way (Bargrennan).
 - Viewpoint 7: B7027/Southern Upland Way near Knowe.
 - Viewpoint 13: Lamachan Hill.
 - Viewpoint 14: Garlick Hill.
 - Viewpoint 18: Moor of Barclye Archaeological Sensitive Area; and
 - Viewpoint 19: The minor road outside Borgan Cottage.
- 6.236 It was further assessed that during the hours of darkness there would be a significant visual effect at three of the 20no. representative viewpoints. These are as follows:
- Viewpoint 1: Southern Upland Way (Hill of Ochiltree).
 - Viewpoint 4: Southern Upland Way (Bargrennan); and
 - Viewpoint 19: The minor road outside Borgan Cottage.

Table 6.6: Assessment of Effects on Viewpoints during Operation

Viewpoints	Sensitivity	Daylight Hours			Darkness Hours		
		Magnitude of Change	Level of Effect	Significant	Magnitude of Change	Level of Effect	Significant
1: Southern Upland Way (Hill of Ochiltree)	High	High	Major	Yes	Medium	Moderate	Yes
2: A714, north of Bargrennan (N)	Medium	High-medium	Moderate	No	Medium-low	Moderate/ minor	No
3: A714, junction with minor road to Glentool (N)	Medium	High	Major/ moderate	Yes	Medium	Moderate	No
4: Southern Upland Way (Bargrennan)	High	High	Major	Yes	Medium	Moderate	Yes
5: Eldrig Fell	High	Medium	Moderate	No	Very low	Minor	No
6: Minor road near Bennylow (Culvennan Fell)	Medium	Medium	Moderate	No	Very low	Minor	No
7: B7027/Southern Upland Way near Knowe (N)	High	Medium	Moderate	Yes	Medium-low	Moderate/ minor	No
8: Southern Upland Way (Knockniehourie)	High	Low	Moderate/ minor	No	Very low	Minor/ negligible	No
9: Bruce's Stone, Glentool	High	Medium	Moderate	No	Very low	Minor	No
10: All Saints Church, Challoch	High	Medium	Moderate	No	Low	Moderate/ minor	No
11: Minor road, north of Mochrum Fell	High	Very low	Minor/ negligible	No	Very low	Minor/ negligible	No
12: Merrick	High	Medium	Moderate	No	Very low	Minor	No
13: Lamachan Hill	High	Medium	Moderate	Yes	Very low	Minor	No
14: Garlick Hill	High	Medium	Moderate	Yes	Low	Moderate/ minor	No
15: A75, parking area south of Creetown	High	Low	Moderate/ minor	No	Very low	Minor/ negligible	No

Viewpoints	Sensitivity	Daylight Hours			Darkness Hours		
		Magnitude of Change	Level of Effect	Significant	Magnitude of Change	Level of Effect	Significant
16: Road Junction between B7005 and A714 at Culquhirk*	Medium	Very low	Minor/negligible	No	Very low	Minor/negligible	No
17: B733 west of Kirkcowan*	Medium	Low	Moderate/minor	No	Very low	Minor/negligible	No
18: Moor of Barclye Archaeological Sensitive Area*	High	Medium	Moderate	Yes	Low	Moderate/minor	No
19: The minor road outside Borgan Cottage*	High	High	Major	Yes	Medium	Moderate	Yes
20: A75 at Knockbren Toll Junction*	Medium	Medium-low	Moderate/minor	No	Very low	Minor	No

Bold text indicates a significant effect.

* Additional LVIA Viewpoint added following feedback received at scoping.

(N) Night-time visualisation produced from this viewpoint in addition to day-time visualisation.

Assessment of Effects on Principal Visual Receptor Groups

- 6.237 This section considers the effects of the Proposed Development on the visual receptor groups brought forward into detailed assessment (see **Appendix 6.4: Preliminary Assessment of Visual Receptors** for details). Principal visual receptors are illustrated on **Figure 6.6**, with **Figure 6.24** illustrating the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area.

Construction Effects on Visual Receptor Groups

- 6.238 It is recognised that there would be some additional temporary visual effects during the construction phase of the Proposed Development over and above those assessed under the operational phase.
- 6.239 The vast majority of noteworthy visual effects would be experienced within the local environs of the Site, with views from wider distances being commonly constrained by intervening landform and vegetation including plantation forestry and woodland.
- 6.240 The construction works would be visible from a number of properties within the local landscape; however, views of the construction phase would largely be restricted to views of cranes appearing above intervening landform and vegetation. Ground-level components and activities would primarily be screened from view. These views would only be experienced for a relatively short duration during the construction phase, and within the context of the proposed turbines being constructed.
- 6.241 The cranes would be visible for a relatively short period and would be incidental when considered in the context of the turbines being erected. Overall, it is assessed that there would be a low magnitude of additional effect at most during construction over and above the operational phase effects assessed below. This would result in a **Moderate**, temporary effect which would be not significant, and these effects need to be considered in conjunction with the operational effects identified below.

Operational Effects on Visual Receptor Groups

- 6.242 Views of ground-level components and activities associated with the Proposed Development would be limited to a relatively short radius around the Site and/or experienced from receptors at elevated locations which allow views onto the upland plateaux where the Proposed Development is located. Except where indicated, the discussion below therefore relates primarily to views of the proposed turbines.

Residential Receptors

- 6.243 All properties located within a 2km distance of a proposed turbine have been assessed in detail within the Residential Visual Amenity Study at **Appendix 6.6: Residential Visual Amenity Assessment (RVAA)** and illustrated on **Figure 6.6.1: Residential Visual Amenity Study Properties**.
- 6.244 In summary, of the 16no. properties assessed in detail, 12no. would experience a significant visual effect from either a part of their house, garden, or principal access route. Significant effects are also predicted from the Knockville and Crungie Woodland Log Cabins, which are non-permanent residences.
- 6.245 It is concluded that when the experience from each property is considered in the round, none of the residents of any occupied (and not financially involved) private property

would experience such an overbearing or overwhelming effect on their visual amenity that their properties would become unattractive places in which to live.

Effects on Core Paths

- 6.246 The following assessment focuses on those core paths and routes identified in the filtering exercise at **Appendix 6.4: Preliminary Assessment of Visual Receptors** as having the potential to experience significant effects.
- 6.247 In accordance with the methodology set out in **Appendix 6.1: Landscape and Visual Impact Assessment Criteria**, the sensitivity of users of public rights of way can vary between medium and very high depending on the reason for which they are using the route. A summary of the effects is presented at **Table 6.7: Assessment of Effects on Core Paths during Operation**.

Core Path UNNO/504/5-10

- 6.248 Core Path UNNO/504/5-10 is located approximately 900m to the northwest of the nearest proposed turbine.
- 6.249 Within the context of the 20km detailed LVIA study area, the core path follows the route of the SUW, extending between Airyolland Fell (west-southwest of the Proposed Development) and Drumbuie Hill (east-northeast of the Proposed Development). As a result, receptors are judged as experiencing the same effects as reported for the SUW, which is addressed subsequently in this section. Significant effects are judged to occur across an approximately 8.8km long section between Millgrain Hill, which lies approximately 4.5km west of the nearest proposed turbine, and Bargrennan, which is located approximately 2.5km north of the nearest proposed turbine.

Core Path CREE/416/1-2 - Barclye Bird Reserve Walk

- 6.250 Core Path CREE/416/1-2 - Barclye Bird Reserve Walk covers land in the Barclye Bird Reserve, which acts as an extension to the neighbouring RSPB Wood of Cree Reserve. The closest point of the route lies approximately 3.0km southeast of the nearest proposed turbine.
- 6.251 The overall length of the route covers approximately 3.7km, which is entirely contained within the extents of the 20km detailed LVIA study area. The core path is wholly located in the Galloway Hills RSA.
- 6.252 The following viewpoints are located on the core path: Viewpoint 18: Moor of Barclye Archaeological Sensitive Area, with significant daylight visual effects predicted from the viewpoint.
- 6.253 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, there is concentrated theoretical visibility of up to 13no. turbines from the full extents of the route.
- 6.254 Whilst all 13no. turbines, including hubs are theoretically visible, intervening vegetation, including coniferous forestry in the Boreland Plantation, and woodland at Cree Wood and along the Cree valley, would limit the number of visible turbines and hubs, with visibility of certain turbines largely restricted to their upper blade sweep.
- 6.255 The visible turbines would be experienced above the horizon and against the skyline, occupying a medium lateral extent of the view, and be easily identifiable in views. Whilst views would be intermittently obscured by intervening coniferous forestry plantations and

woodlands, the level of effects predicted are considered similar along the extents of the approximately 3.7km long route due to the frequent occurrence and regularity in appearance of the proposed wind farm in views. When considering these factors, the proposed wind farm is judged to result in no greater than a medium magnitude of change. Combined with the sensitivity of the receptors, this would result in a **moderate**, significant effect at most during daylight hours. During darkness hours, the magnitude of change would be no greater than low, resulting in **moderate/minor** effects at most, which would not be significant.

Table 6.7: Assessment of Effects on Core Paths during Operation

		Daylight Hours			Hours of Darkness		
Core Path	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
Core Path UNNO/504/5-10							
Airyolland Fell to Blair Hill – 19.7km section	High	Very low	Minor/negligible	No	Very low	Minor/negligible	No
Blair Hill to Millgrain Hill – 4.5km section	High	Medium-low	Moderate	No	Low	Moderate/minor	No
Millgrain Hill to Glenruther Lodge – 3km section	High	Medium	Moderate	Yes	Low	Moderate/minor	No
Glenruther Lodge to Bargrennan – 5.8km section	High	High	Major	Yes	Medium	Moderate	Yes
Bargrennan to Loch Trool – 12km section	High	Low	Moderate/minor	No	Very low	Minor	No
Loch Trool to Drumbuie Hill – 18km	High	Very low to none	No effect	No	Very low to none	No effect	No

Core Path CREE/416/1-2 - Barclye Bird Reserve Walk							
Barclye Bird Reserve Walk – 3.7km	High	Medium	Moderate	Yes	Low	Moderate/ minor	No

Bold text indicates a significant effect.

Effects on Recreational Routes

- 6.256 The following assessment focuses on those recreational routes identified in the filtering exercise at **Appendix 6.4: Preliminary Assessment of Visual Receptors** as having the potential to experience significant effects.
- 6.257 In accordance with the methodology set out in **Appendix 6.1: Landscape and Visual Impact Assessment Criteria**, the sensitivity of users of long distance or recreational trails is considered to be high. A summary of the effects is presented at **Table 6.8: Assessment of Effects on Recreational Routes during Operation**.

Southern Upland Way

- 6.258 The SUW is one of the primary long-distance recreational routes covering Scotland. Sections of the coast-to-coast route lie in proximity to the Proposed Development, with the closest point of the route lying approximately 900m northwest of the nearest proposed turbine.
- 6.259 The SUW, which is one of Scotland's Great Trails, forms links with several other Scotland Great Trail's. The overall length of the route covers approximately 344km, of which an approximately 63km long section is covered by the 20km detailed LVIA study area. This 63km section extends between Airyolland Fell (west-southwest of the Proposed Development) and Drumbuie Hill (east-northeast of the Proposed Development). To the east of the Proposed Development, the SUW routes through the Galloway Forest Park, and the Galloway Hills RSA.
- 6.260 The following viewpoints are located on the SUW: Viewpoint 1: Southern Upland Way (Hill of Ochiltree); Viewpoint 4: Southern Upland Way (Bargrennan); Viewpoint 7: B7027/Southern Upland Way near Knowe; and Viewpoint 8: Southern Upland Way (Knockniehourie), with significant effects predicted from Viewpoints 1, 4, and 7.
- 6.261 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, there is concentrated theoretical visibility of up to 13no. turbines within approximately 10km of the nearest proposed turbine, with theoretical visibility becoming extremely limited and patchy west of the Proposed Development beyond 10km. The ZTV shows no theoretical visibility from the SUW at distances exceeding 10km to the east of the proposed wind farm.
- 6.262 Between Airyolland Fell and Blair Hill, which are located at distances over 7.5km west-southwest of the Proposed Development, the proposed wind farm would primarily be screened from view by landform and intervening vegetation, including coniferous forestry plantations and woodlands. Where actual views are permissible, the proposed turbines would be barely distinguishable, introducing a very low magnitude of change at most from this section of the route with extends to approximately 19.6km. Combined with the

sensitivity of the receptors, this would result in no greater than a **minor/negligible** effect that would not be considered significant during daylight and darkness hours.

- 6.263 Receptors would theoretically experience concentrated visibility of all 13no. turbines between Blair Hill and Millgrain Hill, which lies approximately 4.5km from the nearest proposed turbine; however, actual visibility would be limited by foreground coniferous forestry plantations and woodlands. As a result, receptors are predicted to only experience intermittent visibility of the proposed turbines from this section of the route, which extends to approximately 4.5km, with views largely limited to the upper blade sweep of a limited number of turbines. Across this section of the route, the Proposed Development is predicted to introduce varying magnitude of changes, with a medium-low magnitude of change at most during daylight hours, which would result in no greater than **moderate** effects, which are not considered to be significant. During darkness hours, the magnitude of change would be no greater than low, resulting in **moderate/minor** effects at most, which would not be significant.
- 6.264 Between Millgrain Hill and Glenruther Lodge (which is located approximately 2km west of the nearest proposed turbine), the magnitude of change would range from very low to medium during daylight hours depending on the openness of the views available from the route. Where visible, the proposed wind farm would introduce large-scale new elements across a moderate portion of the view. Whilst views would be intermittently obscured across this section by intervening coniferous forestry plantations and roadside woodlands, the level of effects are predicted to remain broadly similar across this approximately 3km long section of the route due to the frequent occurrence and regularity in appearance of the proposed wind farm in views. As a result, during daylight hours, the associative effects would be no greater than **moderate**, significant. During the hours of darkness, the magnitude of change would be no greater than low with effects judged as **moderate/minor** and not significant at most.
- 6.265 From Glenruther Lodge to Bargrennan, which is located approximately 2.5km north of the nearest proposed turbine, receptors would experience close range views of the proposed turbines. Over this section of the route, which extends to approximately 5.8km, the proposed turbines would frequently be witnessed above the horizon and against the skyline. Occupying a large lateral extent of the view, the proposed turbines would appear prominent and exert a strong influence in views owing to proximity. As a result, a high magnitude of change is predicted from this section of the route during daylight hours. A high magnitude of change combined with the high sensitivity of the receptors would result in a **major**, significant effect during daylight hours.
- 6.266 With reference to the lit turbine ZTV at **Figure 6.7.1 and Figure 6.7.2**, receptors would theoretically experience visibility of all six proposed lit turbines from a small section of the route only, with smaller incidences of theoretical visibility and notable visibility voids occurring due to intervening landform. Where visible, the lights would appear as small, red dots, introduced in a part of the view where there are no other lights currently present, apart from occasional headlights from vehicles on the A714, and from lighting of nearby properties. According to the lit turbine lighting intensity ZTV at **Figure 6.7.3**, the lit turbines would be visible in theory; however, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived much lower, resulting in a medium to very low magnitude of change at most, which is judged to result in no greater than a **moderate**, significant effect.
- 6.267 Between Bargrennan and Loch Trool, which lies approximately 7km northeast of the nearest proposed turbine, the wind farm would largely be obscured from view by a combination of foreground landform and vegetation including coniferous forestry in the Galloway Forest Park, and the mixed woodland in Knockville and Crungie Wood, and

Brigton Wood. From this section of the route, which extends to approximately 12km, there would be no greater than a low magnitude of change during daylight hours, which is judged to result in **moderate/minor**, and not significant effects at most. During darkness hours, the magnitude of change is considered to be very low, which is judged to result in no greater than a **minor** effect that would not be considered significant.

- 6.268 Between Loch Trool and Drumbuie Hill, which lies approximately 20km east-northeast of the Proposed Development, receptors would experience no further effects as a result of the proposed wind farm owing to the visual screening influence provided by intervening landform.
- 6.269 It should be noted that visual effects from the SUW are assessed based on current forestry conditions; although, it is recognised that plantations would provide considerable screening from the SUW across the lifetime of the proposed wind farm, often screening more of the proposed turbines than is currently shown in the visualisations from Viewpoint 1: Southern Upland Way (Hill of Ochiltree); Viewpoint 4: Southern Upland Way (Bargrennan); Viewpoint 7: B7027/Southern Upland Way near Knowe; and Viewpoint 8: Southern Upland Way (Knockniehourie).

NCN Route 7

- 6.270 NCN Route 7 is one of the primary long-distance recreational cycling routes in the UK, extending in sections between Sunderland and Inverness. Sections of the sea-to-sea route lie in proximity to the Proposed Development, with the closest point of the route lying approximately 1.2km east of the nearest proposed turbine.
- 6.271 NCN Route 7 forms links with several other national cycling routes, including NCN Route 73. The overall length of the route covers approximately 880km, of which an approximately 90km section is covered by the 20km detailed LVIA study area. This 90km section extends between Nick of the Balloch and Glentool (to the north of the Proposed Development), where the route splits into two sections. One section continues southwards towards Newton Stewart before deviating in a southeasterly direction towards Gatehouse of Fleet, whilst the other section routes eastwards past several lochs before deviating southwards to merge with the other route towards Gatehouse of Fleet. A large portion of the cycle route passes through the Galloway Forest Park, and the Galloway Hills RSA.
- 6.272 Viewpoint 19: The minor road outside Borgan Cottage, is located on NCN Route 7, with significant effects predicted from the viewpoint. Viewpoint 9: Bruce's Stone, Glentool, lies near the cycle route, and no significant effects are predicted at this viewpoint.
- 6.273 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, there is concentrated theoretical visibility of up to 13no. turbines within approximately 10km of the nearest proposed turbine, with theoretical visibility becoming extremely limited and patchy beyond this distance to the southeast. The ZTV shows no theoretical visibility from the route beyond 10km to the east of the proposed wind farm.
- 6.274 Between Nick of the Balloch and Glentool, which is located approximately 4.5km north-northeast of the nearest proposed turbine, the Proposed Development would primarily be screened from view by landform and intervening vegetation including coniferous forestry plantations and woodlands. Where actual views are permissible, the proposed turbines would be barely distinguishable, thereby introducing a very low magnitude of change at most from this section of the route which extends to approximately 18.3km. Combined with the high sensitivity of the receptors, this would result in no greater than a **minor** effect that would not be considered significant during daylight and darkness hours.

- 6.275 For the first section of the route that broadly covers the eastern portion of the study area, receptors would theoretically experience concentrated visibility of all 13no. of the proposed turbines between Glentool and Loch Trool, which lies approximately 7km northeast of the nearest proposed turbine; however, actual visibility would be limited by foreground coniferous forestry plantations and woodlands. As a result, receptors are predicted to only experience intermittent visibility of the proposed turbines from this section of the route, which extends to approximately 5.7km, with views largely limited to the upper blade sweep of a limited number of turbines. Across this section of the route, the Proposed Development is predicted to introduce a medium-low magnitude of change at most during daylight hours, which would result in no greater than **moderate** effects, which are not considered to be significant. During darkness hours, the magnitude of change is judged as being very low, resulting in **minor/negligible** effects, which would not be significant.
- 6.276 Between Loch Trool and Craighlowrie, which is located approximately 20km east-southeast of the Proposed Development, receptors would experience no further effects as a result of the proposed wind farm owing to the visual screening influence provided by intervening landform.
- 6.277 For the second section of the route that broadly covers the southeastern portion of the study area, receptors would experience intermittent visibility of the proposed wind farm between Glentool and Borgan, which lies approximately 2km east of the nearest proposed turbine. As a result, the magnitude of change is predicted to vary from very low to medium-low during daylight hours depending on the openness of the views available. Where visible, the proposed wind farm would introduce large-scale new elements across a moderate portion of the wider view. Whilst views would be intermittently obscured across this section by intervening coniferous forestry plantations and roadside woodlands, the level of effects are predicted to be broadly similar along this approximately 4.5km long section of the route due to the frequent occurrence and regularity in appearance of the proposed wind farm in views. As a result, the associative effects would be no greater than **moderate**, and not significant during daylight hours. During the hours of darkness, the magnitude of change would be no greater than low, with effects judged as **moderate/minor** and not significant at most.
- 6.278 From Borgan to Cordorcan, receptors would experience close range views of the proposed turbines. Over this section of the route, which extends to approximately 2.5km, the proposed turbines would frequently be witnessed above the horizon and against the skyline. Occupying a large lateral extent of the view, the proposed turbines would appear prominent and exert a strong influence in views owing to proximity. As a result, a high magnitude of change is predicted from this section during daylight hours. A high magnitude of change combined with the high sensitivity of the receptors would result in a **major**, significant effect during daylight hours.
- 6.279 With reference to the lit turbine ZTV at **Figure 6.7.1 and Figure 6.7.2**, receptors would theoretically experience visibility of all six proposed lit turbines from this section. The lights would appear as small, red dots, in a part of the view where there are no other lights currently present, apart from occasional headlights from vehicles on the A714, and from lighting of nearby properties. According to the lit turbine lighting intensity ZTV at **Figure 6.7.3**, the lit turbines would be visible in theory; however, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived much lower, resulting in a medium magnitude of change at most, which is judged to result in no greater than a **moderate**, significant effect.
- 6.280 Between Cordorcan and Daltamie Hill (which lies southeast of Newton Stewart), the proposed turbines would largely be obscured from view by a combination of foreground

forestry and woodlands, intervening landform, and when in proximity of Newton Stewart, built form in the settlement. From this section of the route, which extends to approximately 11.2km, effects would range from very low to medium during daylight hours depending on the openness of the views available from the route. Combined with the sensitivity of the receptors, this would result in no greater than a **moderate**, not significant effect during daylight hours for the majority of the route.

- 6.281 With reference to the lit turbine ZTV at **Figure 6.7.1 and Figure 6.7.2**, receptors would theoretically experience visibility of all six proposed lit turbines from a section of the route only, with smaller incidences of theoretical visibility and notable visibility voids occurring due to intervening landform. Where visible, the lights would appear as very small, red dots, introduced in a part of the view where there are no other lights currently present, apart from occasional headlights from vehicles on the A714 and the minor road, and from lighting of nearby properties; although, when in proximity of Newton Stewart, there is much more lighting from built form and properties in the settlement. According to the lit turbine lighting intensity ZTV at **Figure 6.7.3**, the lit turbines would be visible in theory; however, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived much lower, resulting in a very low magnitude of change at most, which is judged to result in no greater than a **minor** effect that would not be considered significant.
- 6.282 Between Daltamie Hill and Craig Hill, which lies approximately 20km southeast of the Proposed Development, receptors would experience no further effects as a result of the proposed wind farm owing to the visual screening influence provided by intervening landform, forestry, and woodland.

Table 6.8: Assessment of Effects on Recreational Routes during Operation

		Daylight Hours			Hours of Darkness		
Recreational Route	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
Southern Upland Way							
Airyolland Fell to Blair Hill – 19.7km section	High	Very low	Minor/negligible	No	Very low	Minor/negligible	No
Blair Hill to Millgrain Hill – 4.5km section	High	Medium-low	Moderate	No	Low	Moderate/minor	No
Millgrain Hill to Glenruther Lodge – 3km section	High	Medium	Moderate	Yes	Low	Moderate/minor	No
Glenruther Lodge to Bargrennan – 5.8km section	High	High	Major	Yes	Medium	Moderate	Yes

Bargrennan to Loch Trool – 12km section	High	Low	Moderate/minor	No	Very low	Minor	No
Loch Trool to Drumbuie Hill – 18km	High	Very low to none	No effect	No	Very low to none	No effect	No
NCN Route 7							
Nick of the Balloch to Glentrool – 18.3km section	High	Very low to none	No effect	No	Very low to none	No effect	No
Glentrool to Loch Trool – 5.7km section	High	Medium-low	Moderate	No	Very low	Minor/negligible	No
Loch Trool to Craiglowrie – 27.4km section	High	Very low to none	No effect	No	Very low to none	No effect	No
Glentrool to Borgan – 4.5km section	High	Medium-low	Moderate	No	Low	Moderate/minor	No
Borgan to Cordorcan – 2.5km section	High	High	Major	Yes	Medium	Moderate	Yes
Cordorcan to Daltamie Hill – 11.2km section	High	Medium	Moderate	No	Very low	Minor/negligible	No
Daltamie Hill to Craig Hill – 15km section	High	Very low to none	No effect	No	Very low to none	No effect	No

Bold text indicates a significant effect.

Effects on Roads

- 6.283 A summary of the sensitivity of the view, magnitude of change in the view, the level of effect and its significance is given in **Table 6.9: Assessment of Effects on Roads during Operation**.

A714

- 6.284 The A714 is a moderately long coast-to-coast road that extends from Girvan, South Ayrshire to Braehead in Dumfries and Galloway. Sections of the road lie in proximity to the Proposed Development, with the closest point lying approximately 900m east of the nearest proposed turbine. The road would be utilised to provide access to the Site.
- 6.285 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, there is concentrated theoretical visibility of up to 13no. turbines within approximately 10km of the nearest proposed turbine, with theoretical visibility becoming extremely limited and patchy to the northwest and southeast of the Proposed Development beyond this distance.
- 6.286 Within approximately 5km of the Proposed Development, the road passes along the extents of the Galloway Forest Park, whilst within approximately 10km, the road passes through the Galloway Hills RSA. Users of main A-class roads are considered to have a lower susceptibility to changes in visual amenity. As a result, the road users are considered to have a medium sensitivity to changes in their visual amenity.
- 6.287 The following viewpoints are located on the A714: Viewpoint 2: A714, north of Bargrennan; Viewpoint 3: A714, junction with minor road to Glentool; Viewpoint 10: All Saints Church, Challoch, and Viewpoint 16: Road Junction between B7005 and A714 at Culquhirk, with no significant effects predicted at any of these viewpoints.

A714 – northbound

- 6.288 Between Braehead (that lies south of Wigtown approximately 20km south-southeast) and Newton Stewart, which is located approximately 7.5km southeast of the Proposed Development, the proposed wind farm would primarily be screened from view by landform and intervening vegetation, including coniferous forestry plantations and woodlands. Where actual views are permissible, the proposed turbines would be barely distinguishable in oblique and/or perpendicular views to the primary direction of travel, thereby introducing a very low/negligible magnitude of change at most. Combined with the sensitivity of the receptors, this would result in no greater than a **minor** effect that would not be considered significant during daylight hours. During darkness hours, the magnitude of change would be very low to none, which results in **no effect**.
- 6.289 Road users would begin to theoretically experience concentrated visibility of all 13no. of the proposed turbines as they leave the northern settlement extents of Newton Stewart. From here, northbound travellers would intermittently experience the proposed turbines in views from their primary direction of travel for a distance of approximately 2.7km until they approach Challoch, with visual screening provided by intervening coniferous forestry plantations and woodland.
- 6.290 Across this section of the route, the Proposed Development is predicted to introduce a low magnitude of change at most during daylight hours, which would result in no greater than **minor/moderate** effects, which would not be significant. During darkness hours, the magnitude of change would be no greater than very low, resulting in **minor** effects at most, which would not be significant.

- 6.291 Effects would gradually increase as more unobstructed views from the road start to appear, and as the road starts to turn in a broadly northerly direction after Challoch; thereby offering the potential for views of the Proposed Development in the primary direction of travel. Between Challoch and the southern extents of Glenhapple Wood, which lies approximately 1.5km southeast of the nearest proposed turbine, the magnitude of change is judged to be medium during daylight hours which would result in **moderate** effects that are not considered to be significant. During the hours of darkness, the magnitude of change would be no greater than low, with the resulting effects judged as **moderate/minor** and not significant. Whilst views would be intermittently obscured between Challoch and Glenhapple Wood by intervening coniferous forestry plantations and roadside woodlands, the level of effects are predicted to continue for this approximately 5km long section of the road due to the frequent occurrence and regularity in appearance of the proposed wind farm in views.
- 6.292 Upon reaching Glenhapple Wood and until Clachaneasy (which lies approximately 1.2km northeast of the nearest proposed turbine), the proposed wind farm would lie oblique or perpendicular to the direction of travel. The turbines would be obscured from view from the road by a combination of foreground landform and the mixed woodland in Knockville and Crungie Wood, and Glenhapple Wood. From this section of the road, there would therefore be no greater than a very low magnitude of change during daylight hours, which is judged to result in **minor**, not significant effects at most.
- 6.293 With reference to the lit turbine ZTVs at **Figure 6.7.1 and Figure 6.7.2**, receptors would experience intermittent theoretical visibility of all six of the proposed lit turbines. According to the lit turbine lighting intensity ZTV at **Figure 6.7.3**, the lit turbines would be visible in theory; however, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived much lower, resulting in a very low magnitude of change at most, which is judged to result in no greater than a **minor/negligible** effect that would not be considered significant.
- 6.294 Beyond Clachaneasy, northbound road users would experience no further effects as the Proposed Development would be to the rear of the direction of travel.

A714 - southbound

- 6.295 Between Pinwherry (that lies approximately 20km northwest of the nearest proposed turbine) and Knockcroon Plantation, which is located approximately 10km northwest of the Proposed Development, the proposed wind farm would primarily be screened from view by landform and intervening coniferous forestry plantations and woodlands. Where actual views are permissible, the proposed turbines would be barely distinguishable in oblique and/or perpendicular views to the primary direction of travel, thereby introducing a very low magnitude of change at most. Combined with the sensitivity of the receptors, this would result in no greater than a **minor/negligible** effect that would not be considered significant during daylight hours. During darkness hours, the magnitude of change would be very low to none, which results in **no effect**.
- 6.296 From the north, road users would begin to theoretically experience concentrated visibility of all 13no. turbines from Knockcroon Plantation; however, for approximately 8.3km, actual visibility would be limited by intervening coniferous forestry plantation and roadside woodlands near properties until the road approaches Bargrennan Hill, which lies approximately 4km north of the closest proposed turbine. Between Knockcroon Plantation and Bargrennan Hill, the orientation of the road would also largely negate direct views from the primary direction of travel, with any visibility experienced obliquely as a result. As a consequence, the proposed wind farm is predicted to introduce a low magnitude of change at most during daylight hours, which would result in no greater than a

moderate/minor effect. During darkness hours, the magnitude of change would be no more than very low, with associative effects **minor** and not significant.

- 6.297 Effects would gradually increase as more unobstructed views from the road start to appear, and as the road starts to turn in a broadly southerly direction; thereby offering the potential to experience the Proposed Development obliquely in the primary direction of travel. Between Bargrennan Hill and Glenvernoch Wood, which is located at distances over 2km northeast of the nearest proposed turbine, the magnitude of change is judged to be high-medium during daylight hours which would result in **moderate** effects, that are not considered to be significant. During the hours of darkness, the magnitude of change would decrease to medium-low with resulting effects judged as **moderate/minor** and not significant.
- 6.298 Whilst views would be intermittently obscured between Bargrennan Hill and Glenvernoch Wood by intervening coniferous forestry plantations and roadside woodlands, the level of effects are predicted to be broadly similar over this approximately 3.5km long section of the road due to the frequent occurrence and regularity in appearance of the proposed wind farm in views.
- 6.299 As the road continues south from Glenvernoch Wood towards Clachaneasy, receptors would have the ability to experience the proposed turbines as foreground elements at close distances over a distance of approximately 500m. Whilst landform would limit the number of turbines visible, the visible turbines would occupy a medium lateral extent of the view and exert a strong influence in views owing to proximity. This would result in a high magnitude of change and a **major/moderate** significant effect during daylight hours.
- 6.300 According to the lit turbine ZTVs at **Figure 6.7.1 and Figure 6.7.2**, there is potential to see all six lit turbines during the hours of darkness from this section; although, intervening woodland would likely restrict visibility to two turbines: T10 and T13. The limited number of visible lights would appear as small, noticeable red lights above the horizon and against skyline in a part of the view where no other lights are currently present, apart from occasional headlights from vehicles on the A714, and from lighting of nearby properties. With reference to **Figure 6.7.3**, which shows the turbine lighting intensity, the intensity of the lights would be greatly reduced due to proximity and the difference in elevation between the turbine lights and the viewpoint. As a result, the magnitude of change is judged to be medium, with receptors predicted to experience a **moderate** non-significant effect.
- 6.301 Upon reaching Clachaneasy and until Glenhapple Wood, the proposed wind farm would lie oblique or perpendicular to the direction of travel. The turbines would be obscured from view from the road by a combination of foreground landform and the mixed woodland in Knockville and Crungie Wood, and Glenhapple Wood. From this section of the road, there would therefore be no greater than a very low magnitude of change during daylight hours, which is judged to result in **minor**, not significant effects at most.
- 6.302 With reference to the lit turbine ZTVs at **Figure 6.7.1 and Figure 6.7.2**, receptors would experience intermittent theoretical visibility of all six of the proposed lit turbines. According to the lit turbine lighting intensity ZTV at **Figure 6.7.3**, the lit turbines would be visible in theory; however, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived much lower, resulting in a very low magnitude of change at most, which is judged to result in no greater than a **minor/negligible** effect that would not be considered significant.
- 6.303 Beyond Glenhapple Wood, southbound road users would experience no further effects as the Proposed Development would be to the rear of the direction of travel.

B7027

- 6.304 The B7027 is a moderately long road that extends between Barrhill, South Ayrshire and Challoch in Dumfries and Galloway. Sections of the road lie in proximity to the Proposed Development, with the closest point lying approximately 2.1km to the southwest of the nearest proposed turbine.
- 6.305 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, there is concentrated theoretical visibility of up to 13no. turbines within approximately 11km of the nearest proposed turbine to the northwest, with theoretical visibility limited in proximity of Barrhill. The ZTV illustrates concentrated theoretical visibility of up to 13no. turbines within a 5km distance of the nearest proposed turbine to the south-southeast.
- 6.306 Between approximately 5km and 15km of the Proposed Development, the road passes through a South Ayrshire Local Landscape Area. When referring to **Appendix 6.1: Landscape and Visual Impact Assessment Criteria**, users of minor roads are judged to have a medium sensitivity to changes in their visual amenity.
- 6.307 Viewpoint 7: B7027/Southern Upland Way near Knowe is located on the B7027, with significant effects predicted.

B7027 - northbound

- 6.308 From the south and as road users join the B7027 from the A714 at Challoch, approximately 4.7km south-southeast from the Proposed Development, road users would experience intermittent theoretical visibility of all 13no. turbines until Hannah Hill – a section of the road that extends to approximately 11km.
- 6.309 From this section of the road, the proposed turbines, which would lie oblique or perpendicular to the direction of travel, would largely be obscured from view by a combination of foreground landform and intervening vegetation, including coniferous forestry plantations and woodland at Penninghame, which would largely limit visibility to the upper blade sweeps of a limited number of turbines. As a result, it is considered that there would be no greater than a medium magnitude of change during daylight hours, which is judged to result in momentary **moderate**, significant effects, but principally **moderate**, not significant effects.
- 6.310 According to the lit turbine ZTVs at **Figure 6.7.1 and Figure 6.7.2**, there is potential to intermittently see all six lit turbines during the hours of darkness; however, coniferous forestry plantation would likely restrict visibility. With reference to **Figure 6.7.3**, which shows the turbine lighting intensity, the intensity of the lights would be reduced due to proximity and the difference in elevation between the turbine lights and the viewpoint. On balance, the magnitude of change is judged to be medium-low, which would result in receptors experiencing a **moderate/minor** non-significant effect.
- 6.311 Upon passing Hannah Hill, northbound road users would experience no further effects as the Proposed Development would be to the rear of the direction of travel.

B7027 – southbound

- 6.312 From Barrhill to Loch Dornal, which covers an approximately 9.2km long section of the road, the proposed wind farm would primarily be screened from view by landform and intervening coniferous forestry plantations and woodlands. Where actual views are permissible, it is predicted that the proposed turbines would be barely distinguishable

above tree cover in oblique views to the primary direction of travel. Whilst there would be momentary instances where the proposed wind farm may appear in the direction of travel, it is considered that the Proposed Development would introduce a very low magnitude of change at most. Combined with the sensitivity of the receptors, this would result in no greater than a **minor** effect that would not be considered significant during daylight hours. During the hours of darkness, the resulting effects are judged as **minor/negligible** and not significant.

- 6.313 From Loch Dornal, effects would gradually increase as more unobstructed views from the road start to appear; although, intervening coniferous forestry plantation and roadside woodlands would continue to impair visibility of the proposed turbines, largely limiting visibility to the upper blade sweeps of a limited number of turbines. As the road passes Loch Ochiltree, the road runs almost perpendicular with the northern extents of the Site, with the proposed turbines experienced oblique or perpendicular to the direction of travel as a result. From this section of the road, there would be no greater than a medium magnitude of change during daylight hours, which is judged to result in a **moderate**, significant effect. During the hours of darkness, the magnitude of change is considered to be no greater than low with effects judged as **moderate/minor** and not significant.
- 6.314 Whilst views would be intermittently obscured between Loch Dornal and Glassoch Wood (which runs parallel with the southern extents of the Site) by intervening coniferous forestry plantations and roadside woodlands, the level of effects are predicted to continue for this approximately 8.3km long section of the road due to the frequent occurrence and regularity in appearance of the proposed wind farm in views.
- 6.315 Beyond Glassoch Wood, and the southern extents of the Site), southbound road users would experience no further effects as the Proposed Development would be to the rear of the direction of travel.

Table 6.9: Assessment of Effects on Roads during Operation

		Daylight Hours			Hours of Darkness		
Road	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
A714 - northbound							
Braehead to Newton Stewart – 16km section	Medium	Very low to none	No effect	No	Very low to none	No effect	No
Newton Stewart to Challoch – 2.7km section	Medium	Low	Moderate/minor	No	Very low	Minor	No
Challoch to Glenhapple Wood - 5km section	Medium	Medium	Moderate	No	Low	Moderate/minor	No

Glenhapple Wood to Clachaneasy – 3.4km section	Medium	Very low	Minor	No	Very low	Minor/negligible	No
Clachaneasy to Pinwherry – 23km section	Medium	None	No effect	No	None	No effect	No
A714 - southbound							
Pinwherry to Knockcroon Plantation – 10.1km section	Medium	Very low	Minor	No	Very low to none	No effect	No
Knockcroon Plantation to Bargrennan Hill – 8.3km section	Medium	Low	Moderate/minor	No	Very low	Minor	No
Bargrennan Hill to Glenvernoch Wood – 3.5km section	Medium	High-medium	Moderate	Yes	Low	Moderate/minor	No
Glenvernoch Wood to Clachaneasy – 0.5km section	Medium	High	Major/moderate	Yes	Medium	Moderate	No
Clachaneasy to Glenhapple Wood – 3.4km section	Medium	Very low	Minor	No	Very low	Minor/negligible	No
Glenhapple Wood to Braehead – 24km section	Medium	None	No effect	No	None	No effect	No

B7027 - northbound							
Challoch to Hannah Hill – 11km section	Medium	Medium	Moderate	Yes (for momentary incidences but primarily no)	Medium-low	Moderate/minor	No
Hannah Hill to Barrhill – 11km section	Medium	None	No effect	No	None	No effect	No
B7027 - southbound							
Barrhill to Loch Dornal – 9.2km section	Medium	Very low	Minor	No	Very low	Minor/negligible	No
Loch Dornal to Glassoch Wood – 8.3km section	Medium	Medium	Moderate	Yes	Low	Moderate/minor	No
Glassoch Wood to Challoch – 6.3km section	Medium	None	No effect	No	None	No effect	No

Bold text indicates a significant effect.

Effects on Recreation and Tourism

Galloway Forest Park

6.316 The Galloway Forest Park is situated approximately 1km east of the nearest proposed turbine and covers an extensive swathe of the northern and eastern portion of the detailed 20km LVIA study area.

6.317 According to the Forestry and Land Scotland website listing³¹, visitors to the park can:

"Explore the rolling Galloway glens and hills to discover picturesque forest trails, two friendly cafés with visitor information, wonderful wildlife and a long and colourful history. Here you

³¹ Forestry and Land Scotland. Galloway Forest Park. Available at: <https://forestryandland.gov.scot/visit/forest-parks/galloway-forest-park> (Accessed September 2024)

can enjoy great walking, easy family cycling, exhilarating mountain biking or just sit back and soak up breathtaking loch and mountain views and starry night skies."

- 6.318 The susceptibility of the park to a wind farm development beyond its boundaries is assessed as high. The park forms a large portion of the Galloway RSA and is therefore located within a landscape designated for its scenic qualities. As a result, its value is assessed as high. Overall, the park is judged to have a high sensitivity.
- 6.319 According to **Figure 6.24**, which illustrates the blade tip ZTV overlaid over the visual receptors located within the detailed 20km LVIA study area, there is extensive theoretical visibility up to approximately 20km to the north and northeast of the Proposed Development. To the east of the Proposed Development, theoretical visibility is largely contained within 10km of the nearest proposed turbine, whilst theoretical visibility is extremely limited and patchy to the southeast across the study area.
- 6.320 In views from the park, in the direction of the Site, views commonly look across undulating moorland, forestry, or mountainous terrain in the foreground, over the Cree valley, towards the Hill of Ochiltree, Glasloch Fell, Glenvernoch Fell, the Top of the Fell, and Balunton Hill in the middle-distance. The Wigtownshire Moors provides a consistent prominent focal point on the horizon, whilst often providing the backdrop alongside the Irish Sea in views from more elevated locations. The baseline turbines on the Wigtownshire Moors are often visible in existing views.
- 6.321 The Proposed Development would introduce new elements, primarily in the middle-distance of views. Intervening landform and surrounding forestry plantation would commonly screen views of ground-level components, with unobstructed views of the Site principally only achievable from higher elevations.
- 6.322 Where visible, the proposed wind farm is judged to introduce a medium to high magnitude of change depending on foreground obstructions, elevation, and the openness of available views, which would result in **major**, significant visual effects at most during daylight hours up to approximately 6km from the Proposed Development.
- 6.323 According to the lit turbine lighting intensity ZTV at **Figure 6.7.3**, the lit turbines would be visible in theory; however, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived much lower, resulting in a medium magnitude of change at most, which is judged to result in no greater than a **moderate**, significant effect.
- 6.324 Beyond approximately 6km, where theoretical visibility is more intermittent, the scale of the proposed turbines would be reduced due to the increased distance and the form of landform on the Site becoming less distinctive in the middle-distance. Actual visibility would also be less than predicted at distances exceeding 6km due to the extensive coniferous forestry and woodlands in the park, with unobstructed views largely restricted to upland hilltops and summits. Where views are available between approximately 6km and 10km, the Proposed Development is predicted to introduce no greater than a medium magnitude of change during daylight hours, resulting in a **moderate**, significant effect at specific locations only.
- 6.325 According to the lit turbine ZTVs at **Figure 6.7.1** and **Figure 6.7.2**, there is potential to see up to six lit turbines during the hours of darkness from the park at distances between 6km and 10km. With reference to **Figure 6.7.3**, which shows the turbine lighting intensity, the intensity of the lights would commonly be at its strongest due to the higher elevation. Owing to distance, the lights would however appear as very small, barely distinguishable red lights against the backdrop of lower-lying landscapes, where they would be viewed in the

context of occasional lighting of properties in the lower-lying landscapes below. As a result, the magnitude of change is judged to be no greater than low, which results in **moderate/minor** effects at most, which would not be significant.

- 6.326 At distances beyond approximately 10km in all directions, there is little potential for theoretical visibility from the park, other than from the highest parts of the landscape, which includes from the summit of the Merrick. The magnitude of change is judged to be no greater than low during daylight hours, with effects considered to be no greater than **moderate/minor** and non-significant. During darkness hours, the corresponding magnitude of change is considered to be no greater than very low, resulting in **minor**, not significant visual effects.
- 6.327 The following viewpoints are located in the Galloway Forest Park: Viewpoint 3: A714, junction with minor road to Glentrool; Viewpoint 4: Southern Upland Way (Bargrennan); Viewpoint 9: Bruce's Stone, Glentrool; Viewpoint 12: Merrick; Viewpoint 13: Lamachan Hill; Viewpoint 14: Garlick Hill; Viewpoint 18: Moor of Barclye Archaeological Sensitive Area; and Viewpoint 19: The minor road outside Borgan Cottage, with significant effects predicted from Viewpoints 3, 4, 13, 14, 18, and 19.
- 6.328 Overall, while it is acknowledged there would be significant effects on views from parts of the Forest Park, it is not considered that the addition of the Proposed Development would be such as to prevent an understanding or appreciation of the underlying landscape or be detrimental to the recreational and tourist activities available.

Galloway Forest Dark Sky Park

- 6.329 The Galloway Forest Dark Sky Park comprises a 'Core Area' (where the darkest sky is to be found), a 'Buffer Zone', and a 'Transition Area'. The Dark Sky Park includes land mostly within the Galloway Forest Park, as well as Craigengillan Estate which housed the Scottish Dark Sky Park Observatory before it was destroyed by a fire in 2021. The area extends to approximately 75,743 hectares (around 300 square miles) and has few properties or businesses within its boundaries. It is recognised that any light within the area, depending on the topography, can be particularly conspicuous even from several miles away.
- 6.330 It is acknowledged that the Site is located within the 'Transitional Area' for the Galloway Forest Dark Sky Park, as illustrated on **Figures 6.7.1 – 6.7.3**. The start of the 'Buffer Zone' lies approximately 1km east of the nearest proposed turbine at its closest point, with the 'Core Area' beginning at a distance of approximately 5km to the east. All of the 'Core Area' lies within 25km of the Proposed Development, with the full extents of the 'Buffer Zone' located within 35km of the nearest proposed turbine.
- 6.331 The adopted Dumfries and Galloway Local Development Plan 2 includes a policy: Policy ED11: Dark Skies, which states the following in relation to the Dark Sky Park and dark skies more generally:

"a) Galloway Forest Dark Sky Park

The Council supports the designation of the Galloway Forest Dark Sky Park, and will assess proposals for development on their merits, securing levels of lighting that are appropriate to the nature of the development, contribute to sustainable development, and do not adversely affect the objectives of the Dark Sky Park designation.

b) Dark Skies

Supplementary guidance provides guidance on the adoption of good lighting principles and practice for Dumfries and Galloway, including those relating particularly to the Galloway Forest Dark Sky Park."

- 6.332 The matter of impact to the 'Core Area', 'Buffer Zone' and 'Transitional Area' of the Dark Sky Park is considered further below.

'Core Area'

- 6.333 The 'Core Area' of the Dark Sky Park lies at distances exceeding 5km east of the nearest proposed turbine.
- 6.334 According to **Figure 6.7.1** and **Figure 6.7.2**, there is little potential for theoretical visibility from this area as a result of the Proposed Development, other than from the highest parts of the landscape. These include from the summit of the Merrick, Lamachan Hill, and Garlick Hill, which are all proposed viewpoint locations.
- 6.335 When considering the potential effects of aviation lighting in views from elevated locations, the proposed turbine lighting would appear within the broad panorama of the view either backclothed by the landscape beneath the horizon, or only very slightly above it.
- 6.336 Notwithstanding the very high sensitivity of receptors seeking to take in the dark sky views, the magnitude of change is judged to be no greater than low at distances up to 10km from the nearest proposed turbine, which results in no more than a **moderate**, non-significant visual effect. It is also of note that the former site of the Dark Sky Park Observatory lies approximately 35km to the northeast of the Site where there would be no theoretical visibility of the aviation lighting.
- 6.337 At distances exceeding 10km from the nearest proposed turbine, and on occasions where atmospheric conditions allow for clear visibility, the aviation lighting may be noticeable, but to no more than a very low magnitude of change, which would result in **moderate/minor** non-significant visual effects at most.
- 6.338 The following viewpoints are located in the 'Core Area': Viewpoint 12: Merrick; Viewpoint 13: Lamachan Hill; and Viewpoint 14: Garlick Hill.

'Buffer Zone'

- 6.339 The 'Buffer Zone' lies approximately 1km east of the nearest proposed turbine, at its closest point, and is generally located to the north and east of the Proposed Development.
- 6.340 According to **Figure 6.7.1** and **Figure 6.7.2**, which illustrates the nacelle lighting ZTV overlaid over the 35km and the detailed 20km LVIA study area, there is extensive theoretical visibility up to approximately 20km to the north and northeast of the Proposed Development. To the east of the Proposed Development, theoretical visibility is largely contained within 10km of the nearest proposed turbine, with theoretical visibility becoming extremely limited and patchy across the study area to the southeast.
- 6.341 When considering the aviation lighting design, the Proposed Development would introduce new elements, primarily in the middle-distance of views. Intervening landform and vegetation, including surrounding forestry plantation would however commonly screen views of the lights.

- 6.342 It is expected that the very high sensitivity receptors visiting the Dark Sky Park would be located within the 'Core Area', and near the site of the former Dark Sky Park Observatory, rather than within the 'Buffer Zone'. The proposed wind farm is therefore judged to introduce a medium magnitude of change at most, which would result in no greater than a **moderate** significant effect in views extending to approximately 6km from the Proposed Development.
- 6.343 According to the lit turbine ZTVs at **Figure 6.7.1** and **Figure 6.7.2**, there is potential to see up to six lit turbines during the hours of darkness from the park at distances between 6km and 10km. With reference to **Figure 6.7.3**, which shows the turbine lighting intensity, the intensity of the lights would commonly be at its strongest due to the higher elevation. Owing to distance, the lights would however appear as very small, barely distinguishable red lights against the backdrop of lower-lying landscapes, where they would be viewed in the context of occasional lighting of properties in the lower-lying landscapes below. As a result, the magnitude of change is judged to be no greater than low, which results in **moderate/minor** effects at most, which would not be significant.
- 6.344 At distances beyond approximately 10km in all directions, there is little potential for theoretical visibility from the park, other than from the highest parts of the landscape. During darkness hours, the corresponding magnitude of change is considered to be no greater than very low, resulting in **minor**, not significant visual effects.
- 6.345 The following viewpoints are located in the 'Buffer Zone': Viewpoint 3: A714, junction with minor road to Glentroot; Viewpoint 4: Southern Upland Way (Bargrennan); Viewpoint 9: Bruce's Stone, Glentroot; and Viewpoint 19: The minor road outside Borgan Cottage, with significant effects during darkness hours predicted from Viewpoints 4, and 19.

'Transitional Area'

- 6.346 The Site lies within the 'Transitional Area' of the Dark Sky Park.
- 6.347 It is acknowledged that within this area, there would be the potential for some significant visual effects during the low-light and night-time period, as a result of the visible aviation lighting. It is understood that it is intended that any new external lighting within the 'Transitional Area' should seek to be Dark Sky friendly where possible; however, the proposed aviation lighting would be required first and foremost to meet the necessary requirements of its function as aviation warning lighting.
- 6.348 When considering the effects of aviation lighting, the Proposed Development would introduce new elements into views; although, intervening landform and vegetation, including surrounding forestry plantation would commonly screen views of the lights.
- 6.349 The proposed wind farm is judged to introduce a medium magnitude of change at most and result in a **moderate** significant effect in views extending to approximately 6km from the Proposed Development. Beyond approximately 6km, where theoretical visibility is more intermittent, the aviation lighting would be less distinctive in the middle-distance. Actual visibility would also be less than predicted at distances exceeding 6km due to the extensive coniferous forestry and woodlands in the surrounding landscape, with unobstructed views largely restricted to upland hilltops and summits. At distances beyond approximately 6km in all directions, the magnitude of change is judged to be no greater than low, with effects considered to be no greater than **minor** and non-significant.
- 6.350 All remaining viewpoints are located in the 'Transitional Area', with significant effects during darkness hours predicted from Viewpoint 1.

Effects on Designated Landscapes

Local Landscape Designations

Regional Scenic Areas

- 6.351 There are 10no. RSAs in Dumfries and Galloway. The nearest RSA is the Galloway Hills, which lies adjacent to the eastern boundary of the Site. Four other RSAs also lie within the 35km study area, the Rhins Coast, Mochrum Lochs, Machars Coast, and the Solway Coast. Effects on the RSAs are considered within the preliminary assessment of LCTs and Designated Sites in **Appendix 6.3: Preliminary Assessment of LCTs Landscape Character Types and Designations** which determined those RSAs which have the potential to experience significant effects and require detailed assessment. This identified that this would apply only to the Galloway Hills RSA.

Galloway Hills RSA

- 6.352 The Galloway Hills RSA is situated adjacent to the Proposed Development to the east and covers an extensive swathe of the eastern part of the detailed 20km LVIA study area. With reference to **Figure 6.25**, which shows landscape designations within 35km of the Proposed Development overlaid with the blade tip ZTV, there is extensive theoretical visibility from the RSA within approximately 5km to the east of the Proposed Development. Beyond this distance, theoretical visibility becomes patchier, with no views of the development from the RSA beyond approximately 15km.
- 6.353 In order to consider the likely effects of the Proposed Development upon the RSA, an understanding of adopted policy context in relation to the designated landscape is necessary. Dumfries and Galloway Local Development Plan 2 Policy NE2: Regional Scenic Areas states:

"The siting and design of development within a Regional Scenic Area should respect the special qualities of the area. Development within, or which affects Regional Scenic Areas, may be supported where the Council is satisfied that:

- *the factors taken into account in designating the area would not be significantly adversely affected; or*
- *there is a specific need for the development at that location".*

- 6.354 The matter of RSAs is considered within the adopted Local Development Plan 2 Regional Scenic Areas Technical Paper (2018). Policy NE2 sets out that development should respect the special qualities of the RSA; however, the RSA Technical Paper does not set out a definitive list of special qualities in relation to any of the RSAs within Dumfries and Galloway, and further research has also proven unsuccessful in determining both the reasoning behind the original designation of the Galloway Hills, and the special qualities that the landscape affords.
- 6.355 It has therefore been necessary to look to the description of the Galloway Hills as set out within the Regional Scenic Area Technical Paper and derive the special qualities and reason for designation from the prose stated on page 20.
- 6.356 It is understood that the following factors form the relevant considerations for the purposes of this LVIA in relation to the Proposed Development and its location:
- *"Sweeping and dramatic views of hills".*

- *“Dramatic and sculptural peaks”.*
- *“Narrow wooded valleys” and their “scenic juxtaposition with the uplands”.*

- 6.357 The LVIA has already considered effects upon landscape character and visual amenity within the Galloway Hills RSA and a brief summary of the effects is provided below.
- 6.358 With regard to visual amenity, there are several LVIA viewpoints located in the RSA, including Viewpoint 3: A714, junction with minor road to Glentrool; Viewpoint 4: Southern Upland Way (Bargrennan); Viewpoint 9: Bruce's Stone, Glentrool; Viewpoint 12: Merrick; Viewpoint 13: Lamachan Hill; Viewpoint 14: Garlick Hill; Viewpoint 18: Moor of Barclye Archaeological Sensitive Area; and Viewpoint 19: The minor road outside Borgan Cottage. A significant daytime visual effect was identified for those viewpoints in closest proximity of the Site (Viewpoints 3, 4, 13, 14, 18 and 19), but no significant effects were identified for viewpoints beyond 10km.
- 6.359 With regards to landscape character, the RSA is covered by parts of the following LCTs: LCT 174: Plateau Moorland with Forest; LCT 160: Narrow Wooded Valley; LCT 181: Rugged Uplands with Forest; and LCT 172: Upland Fringe. Much of the landscape of these LCTs within the RSA is covered with forestry and would experience no effect on its character. Some localised significant effects were identified on parts of these LCTs, extending to no more than 6km from the Site.
- 6.360 Whilst it is acknowledged that there would be some localised significant effects upon landscape character and visual amenity experienced from a small part of the RSA overall, and in views towards the RSA from the landscape beyond its boundary, there would not be significant effects upon the special qualities of the Galloway Hills, nor its reason for designation. There would continue to be *“Sweeping and dramatic views of hills”* and *“Dramatic and sculptural peaks”*. The *“scenic juxtaposition with the uplands”* from LCT 160: Narrow Wooded Valley would also be retained, noting that views from LCT 160: Narrow Wooded Valley adjacent to the Site towards the RSA would be in the opposite direction to that of the Proposed Development.

Mitigation

- 6.361 As discussed in best practice guidance for EIA, mitigation measures may include:
- Avoidance of effects.
 - Reduction in magnitude of effects; and
 - Compensation for effects (which may include enhancements to offset any adverse effects).
- 6.362 The primary mitigation adopted in relation to the Proposed Development is embedded within the design of the Proposed Development and relates to the consideration that was given to avoiding and minimising landscape and visual effects during the evolution of the Proposed Development layout. This is sometimes referred to as ‘mitigation by design.’ A detailed discussion of the design evolution and the iterative process underpinning it is provided in **Chapter 4: Design Evolution**. Design evolution is summarised below, in so far, as landscape and visual matters have influenced the Proposed Development.
- 6.363 The EIA Scoping layout was based on 18no. turbines with blade tip heights up to 200m. The layout then progressed through a series of smaller iterations based upon ground conditions and landscape and visual considerations. Visual considerations were a key consideration with turbines removed to reduce the lateral extents of the wind farm from key viewpoints.

- 6.364 Consideration was also given to the Proposed Development in this location, its relationship with other constructed and consented wind farms in the locality, and the capacity of the receiving landscape to accommodate further wind farm development.
- 6.365 Based on general good practice design principles (as set out in NatureScot guidelines) and an analysis of site-specific opportunities and constraints, the wind farm layout has evolved to take into consideration a number of landscape and visual constraints whilst maintaining an optimal development, resulting in the 13-turbine layout which has been taken forward to the EIA phase.
- 6.366 A design rationale has been adopted to avoid inconsistent turbine spacing, turbine outliers, or excessive overlapping of turbines, to minimise visual confusion and ensure a balanced/compact array from key views in the local landscape.
- 6.367 The above principles have been applied as a number of iterations to the design were made. Taking all other engineering and environmental constraints into account, the final layout of the turbines was specifically designed to achieve a balanced array of turbines when viewed from the surrounding landscape.
- 6.368 In considering the layout of other structures and ancillary features of the Proposed Development, the position of the substation, construction compound, battery storage area, and borrow pits are located so as to minimise their influence on the surrounding area.
- 6.369 The turbines themselves will be painted an off-white colour with a low reflectivity semi-matt finish (or similar as agreed with Dumfries and Galloway Council). Such a finish is widely regarded to be the least intrusive in the landscape when seen against the sky in a host of weather conditions typically experienced within the UK.
- 6.370 In addition, the potential for woodland to be retained on a permanent basis where close to property curtilages is to be explored in more detail, to ensure that the maximum screening/filtering benefit of the woodland is maintained where there is potential visibility of the Proposed Development.
- 6.371 Mitigation of visible turbine aviation lighting has been designed into the Proposed Development by adopting a cardinal lighting design where only six of the outermost turbines are lit (T1, T2, T6, T7, T10, and T13). Visibility sensors would be installed on relevant turbines to measure the prevailing atmospheric conditions and visibility range. Should atmospheric conditions mean that visibility from the turbines within the Site is greater than 5km from the Proposed Development, CAA policy permits lights to operate in a lower intensity mode, being a minimum of 10% of their capable illumination. Therefore, the 2000cd steady state lights would operate at 200cd. If visibility is however restricted to 5km or less, the lights would operate at 2,000cd.
- 6.372 Additionally, the inherent directional intensity of 2,000cd lights can be used to reduce vertical downwards lighting impacts at elevations less than -1° degree vertical angle from the horizontal plane from the aviation light. By ensuring the lights installed comply with the ICAO recommendations, it is possible to attenuate the vertical downwards light to a level that reduces the visual impact from receptors at ground levels below the lights. Implementing the ICAO recommendations, at -1 degrees the aviation lights should only be 1,125cd and at -10 degrees should only be 75cd, when visibility is greater than 5km.
- 6.373 These measures are proposed as embedded mitigation. They are likely to reduce the magnitude of visual effects particularly for distant receptors; however, this feature would not remove visibility of aviation lighting completely for any nearby receptors.

- 6.374 In the long term, when the Proposed Development is decommissioned, the turbines would be removed from the Site, and the hardstanding would be restored in accordance with a restoration plan to be approved by Dumfries and Galloway Council.

Assessment of Residual Effects

- 6.375 In general terms, best practice for EIA, requires that the significance of potential effects be assessed, with mitigation proposals identified, and the residual effect (with mitigation in place) then re-assessed to demonstrate the effectiveness of the mitigation proposed.
- 6.376 In the case of LVIA for wind farms this presents two interrelated problems:
- Potential effects cannot be meaningfully assessed in the absence of an assumed layout; and
 - Landscape and visual mitigation is principally focussed on the refinement of the Site layout ('mitigation by design').
- 6.377 The residual landscape and visual effects have been assessed as a result of the primary mitigation embedded within the design of the Proposed Development, relating to avoiding and minimising landscape and visual effects during the evolution of the Proposed Development layout. Therefore, the residual landscape and visual effects are considered the same as those assessed in the main part of the LVIA.

Assessment of Cumulative Effects

- 6.378 For the cumulative assessment, consideration was initially given to a 60km radius from the Site, as recommended by NatureScot best practice guidance. Following this, all other wind energy developments that are operational, under construction, consented, subject to a valid full planning application, or a valid Scoping Request within 35km of the Proposed Development were identified and reviewed as part of the cumulative baseline. It is acknowledged that this list is constantly evolving and therefore, the 1st of August 2024 was used as an effective 'cut-off' date after which no further research was undertaken on the evolving status of wind energy development in the study area, and the cumulative Landscape and visual Assessment (CLVIA) reflects the status of each wind farm at the time of this date.
- 6.379 In order that the assessment remains focused on those developments which have the greatest potential to give rise to significant cumulative effects with the Proposed Development, it was deemed appropriate to focus the assessment on a detailed 20km area from the Proposed Development. It was also deemed appropriate to scope out any turbines under 50m to tip, or any turbines between 50m and 80m to tip which lie over 10km from the nearest proposed turbine. Developments that are at the scoping or pre-scoping stage are considered separately due to the uncertainty that these developments will come forward and the lack of adequate information about project details. This is in accordance with the approach advocated in GLVIA3.
- 6.380 The cumulative sites within the 20km detailed study area are illustrated on **Figure 6.10: Other Wind Farms within 20km Study Area**. For reference, those within 35km of the Proposed Development are shown on **Figure 6.9: Other Wind Farms within 35km Study Area**.
- 6.381 At the time of preparing this LVIA, there were 18no. other wind farms within the detailed 20km cumulative study area which were either operational, under construction, or in planning (see **Table 6.10: Other Wind Farms within 20km of the Proposed Development**),

plus the Blair Hill development, which is at Scoping stage, but understood to be close to submission.

Table 6.10 Other Wind Farms within 20km of the Proposed Development

Site	Blade Tip Height (m)	Number of Turbines	Distance and Direction
Operational			
Airies	131.5	14	8km southwest
Kilgallioch	2 @ 123, 94 @ 145	96	8km west
Artfield Fell	74	15	13km southwest
Balmurrie Fell	80	7	14km southwest
Glenchamber	126.5	11	14km southwest
Mark Hill	110.5	28	14km northwest
Arecleoch	118	60	16km northwest
Carscreugh	70	18	16km southwest
Barlockhart	116	4	19km southwest
Consented or Under Construction			
Kilgallioch Extension	180	9	9km west
Gass	126.5	9	11km southwest
Artfield Forest	180	12	12km southwest
Chirmorie	146.5	21	14km northwest
Arecleoch Extension	200	13	15km northwest

Stranoch 2	2 @ 140, 2 @ 142.5, 7 @ 149.9, 9 @ 175	20	16km west
Barlockhart Moor Extension	115	4	19km southwest
In Planning			
Garvilland	149.5	5	17km southwest
Knockodhar	2 @ 149.9, 10 @ 180, 4 @ 200	16	17km northwest

- 6.387 For the avoidance of doubt, and to reiterate the methodology adopted in **Appendix 6.1: Landscape and Visual Impact Assessment Criteria**, the baseline against which the solus effects of the Proposed Development has been assessed includes all operational wind farms. An assessment of the Proposed Development with consideration of other operational wind farms has already therefore been presented in the main section of this LVIA.
- 6.388 The primary purpose of the cumulative impact assessment is therefore to consider the additional effects that might arise as a result of the Proposed Development if the other consented and in planning (awaiting determination) developments were also operational. In addition, this cumulative assessment also includes a further consideration of the overall totality of the effect, when the Proposed Development is considered alongside the other operational or proposed developments across the study area.
- 6.389 The baseline in the cumulative impact assessment is therefore extended to consider other developments that are not yet present in the landscape but are at various stages in the planning process. Two scenarios are generally considered which reflect the different degrees of certainty that these developments will be constructed:
- Scenario 1 assumes that other consented (but as yet unbuilt) wind farms are operational; and
 - Scenario 2 extends this further to assume that all developments in planning are also operational. In reality, it is possible that other developments that are in planning may not be approved and constructed but this scenario assumes planning developments are operational as this presents the 'worst case'.

Cumulative ZTVs and Wireframes

- 6.390 Cumulative ZTVs (CZTVs) have been produced to illustrate the theoretical visibility of various other wind farms and combinations of wind farms with the Proposed Development.
- 6.391 It should be reiterated that ZTVs imply a much greater geographical extent of influence on the landscape and views of it than would actually be the case. It therefore follows that the cumulative ZTVs also exaggerate the actual impacts of the turbines on landscape character and visual amenity as they do not take account of vegetation or buildings in the landscape, which may restrict the nature and extent of views.

6.392 Cumulative ZTVs have been produced for the following combinations of existing, consented, and other wind farm sites in planning:

- Operational: Airies, Arecleoch, Artfield Fell, Balmurrie Fell, Barlockhart, Carscreugh, Glenchamber, Kilgallioch and Mark Hill (see **Figure 6.28: Cumulative ZTV within 20km – Glenvernoch with Operational**).
- Consented: Arecleoch Extension, Artfield Forest, Barlockhart Moor Extension, Chirmorie, Gass, Kilgallioch Extension, Stranoch 2 (see **Figure 6.29: Cumulative ZTV within 20km – Glenvernoch with Consented**).
- In Planning: Knockodhar (see **Figure 6.30: Cumulative ZTV within 20km – Glenvernoch with Knockodhar**), and Garvilland (see **Figure 6.31: Cumulative ZTV within 20km – Glenvernoch with Garvilland**).

Cumulative Effects on Landscape Character

- 6.393 It is acknowledged that wherever more than one wind farm is visible at any given location in the landscape, there will be a greater overall or cumulative effect on landscape character than if just one wind farm was visible in the landscape.
- 6.394 It is also noted however that in any given landscape where turbines are already present, the additional effect on landscape character of introducing further turbines may not be as significant as the initial introduction of turbines. Furthermore, in general, the greater the number of turbines in the baseline landscape the less significant the addition of further turbines may be in landscape character terms as the landscape will be more heavily characterised by turbines in the baseline situation.
- 6.395 It has been assessed in the assessment of the solus effects of the Proposed Development set out earlier in this chapter that there would be some limited significant effects on landscape character as a result of the Proposed Development. The purpose of this section of the cumulative assessment is therefore to identify whether there would be any change to the assessments of significance previously set out in relation to the Proposed Development, once the other wind turbines which are not already operational, are considered to form part of the baseline landscape.
- 6.396 Generally speaking, such additional cumulative effects would arise when the addition of the Proposed Development to the baseline results in an increase in effects, when viewed in combination with the other wind turbines forming part of the baseline landscape.

Cumulative Scenario One – Other Consented Developments are also considered to be Operational

- 6.397 In this cumulative scenario (where other consented developments are also considered to be operational) there would be seven additional developments: Arecleoch Extension, Artfield Forest, Barlockhart Moor Extension, Chirmorie, Gass, Kilgallioch Extension and Stranoch 2. Each of the developments are located to the west of the Site between 9km and 19km.
- 6.398 Kilgallioch Extension is the closest of the other consented developments and lies around 9km to the west of the Site, but in the same Plateau Moorland with Forest landscape. The Artfield Forest development lies adjacent to Kilgallioch Extension, slightly further to the south at around 12km southwest of the Proposed Development, with the Gass development adjacent to the south of Artfield Forest at around 11km to the southwest.

The three developments would themselves lie in close proximity to the existing operational Kilgallioch, Airies, Artfield Fell, and Balmurrie Fell developments in a large single cluster.

- 6.399 Arecleoch Extension, Chirmorie, and Stranoch 2 then lie close to each other further to the west at a distance of between around 14km and 19km. They also lie alongside the existing development at Arecleoch. Barlockhart Moor Extension is located around 19km to the southwest, adjacent to the existing Barlockhart wind farm.
- 6.400 The cumulative ZTV prepared for the consented developments (see **Figure 6.29**) illustrates the potential for visibility of the Proposed Development with one or other of the developments from much of the landscape, primarily to the west of the Site and largely from more elevated areas. Combined visibility would also arise from the higher ground to the east of the Site. The cumulative wirelines included with the visualisations (see **Volume 2**) illustrate the relationship between the sites and show that in reality much of the theoretical visibility shown on the CZTV would be no more than blade tips, with greater visibility seen in only a small number of viewpoints (e.g. Viewpoints 8, 9, 12, 13 and 14).
- 6.401 There would nonetheless be potential for cumulative effects to arise within LCT 174: Plateau Moorland with Forest in that part of the landscape which lies between the Proposed Development and the various consented sites. Due to the proximity of the consented sites to the existing operational wind energy development, which has already been considered in the main assessment, there would however be no additional significant cumulative effects as a result of the Proposed Development and the various consented sites, noting each of the consented turbines lie at least 9km away from the Proposed Development.

Cumulative Scenario Two – Other In-Planning Developments are also considered to be Operational

- 6.402 In this cumulative scenario (where other developments in planning are also considered to be consented and operational) there would be two further additional developments, Garvilland, which would be located around 17km to the southwest, and Knockodhar, which would be located around 17km to the northwest of the Proposed Development.
- 6.403 The cumulative ZTVs prepared for the two developments (see **Figures 6.30 and 6.31**) illustrate the potential for visibility of the Proposed Development with Garvilland or Knockodhar from large parts of the landscape. In the context of the existing wind energy developments already located close to the three developments at Carscreugh, Glenchamber, and Mark Hill, as well as the various other existing wind developments which lie between the two sites and the Proposed Development, there would be no potential for these two developments to result in any cumulative effects on landscape character beyond those already set out in the main assessment.

Totality of the Combined Effect of All Developments, including the other Operational Developments

- 6.404 Consideration has also been given to the overall totality of the effect, when the Proposed Development is considered alongside the other operational, consented, and proposed developments.
- 6.405 The closest operational developments to the Proposed Development are the Airies development that comprises 14no. turbines and the Kilgallioch development that comprises 96no. turbines, that both lie around 8km to the west of the Proposed Development. The other operational developments are also located to the west between around 10km and 20km. The cumulative ZTV prepared for the operational developments (see **Figure 6.28**) illustrates the potential for visibility of the Proposed Development with one

or other of the developments from much of the landscape, in particular from higher ground.

- 6.406 Overall, collectively the operational developments serve to result in wind energy being seen as a notable feature in the landscape of the wider study area to the west of the Site. In particular, within the western extent of LCT 174: Plateau Moorland with Forest and the adjacent LCT 173: Plateau Moorland, where a significant effect on landscape character would arise across a notable area from the existing developments. The addition of the Proposed Development would serve to reinforce this pattern of wind energy within LCT 174: Plateau Moorland with Forest, albeit extending the significant effects into a separate area further to the east within the character type.

Cumulative Effects on Views and Visual Amenity

- 6.407 As with cumulative landscape character effects, it is acknowledged that the addition of the Proposed Development to the baseline has the potential to result in an increase in effects, when viewed in combination with other wind turbines forming part of the visual baseline.
- 6.408 It is also noted however that in any given view where turbines are already present, the additional effect on visual amenity of introducing further turbines may not have as great an effect as the initial introduction of turbines. Furthermore, in general the greater the number of turbines in the baseline view, the less significant the addition of further turbines may be. It is also recognised however that a slight additional effect on top of an existing effect, which at present is not quite significant, could in theory tip the balance such that the overall effect is deemed to be significant.
- 6.409 Again, generally speaking, such additional cumulative effects would arise where a visual receptor would now lie between a cumulative wind farm in one direction and the Proposed Development in a different direction, such that the visibility of turbines as a result of the addition of the Proposed Development would become notable in multiple, usually directly opposite, directions.

Cumulative 'in combination' Visual Effects

- 6.410 An 'in combination' cumulative visual effect is the term used to refer to the situation where a viewer is able to see one or more further wind farms, in addition to the Proposed Development, whilst standing in the one location. These effects are either 'simultaneous', where the viewer can see the additional turbines in the same angle of view, or 'successive', where the view can see the additional turbines in a different angle of view by turning their head.
- 6.411 As set out in the main assessment, there are many locations where other existing wind turbines are seen in views from the landscape in and around the Proposed Development. In particular, the more elevated viewpoints such as Viewpoints 12-14 have views of several existing developments at various more distant locations across the extent of the Plateau Moorland landscape.

Cumulative Scenario One – Other In Planning Developments are also considered to be Operational

- 6.412 In this cumulative scenario (where other consented developments are also considered to be consented and operational) there would be seven additional developments: Arecleoch Extension, Artfield Forest, Barlockhart Moor Extension, Chirmorie, Gass,

Kilgallioch Extension and Stranoch 2. Each of the developments are located to the west of the Site between 9km and 19km.

- 6.413 The cumulative ZTV prepared for the consented developments (see **Figure 6.29**) illustrates the potential for visibility of the Proposed Development with one or other of the developments from much of the landscape, primarily to the west of the Site and largely from more elevated areas. Combined visibility would also arise from the higher ground to the east of the Site. The cumulative wirelines included with the visualisations (see **Volume 2**) illustrate the relationship between the sites and show that in reality much of the theoretical visibility shown on the CZTV would be no more than blade tips, with greater visibility seen in only a small number of viewpoints (e.g. Viewpoints 8, 9, 12, 13, and 14).
- 6.414 There would nonetheless be potential for some limited cumulative visual effects to arise. Due to the proximity of the consented sites to the existing operational wind energy development which has already been considered in the main assessment, there would however be no additional significant cumulative effects as a result of the Proposed Development and the various consented sites, noting each of the consented turbines lie at least 9km away from the Proposed Development. Indeed, for Viewpoint 8, on the Southern Upland Way at Knockniehourie, the presence of the consented Kilgallioch Extension and Ardfield Forest developments in the foreground of the view, would serve to reduce the potential for visual effects as a result of the Proposed Development.

Cumulative Scenario Two – Other In Planning Developments are also considered to be Operational

- 6.415 In this cumulative scenario (where other developments in planning are also considered to be consented and operational) there would be two further additional developments, Garvilland, that would be located around 17km to the southwest, and Knockodhar, that would be located around 17km to the northwest of the Proposed Development.
- 6.416 The cumulative ZTVs prepared for the two developments (see **Figures 6.30 and 6.31**) illustrate the potential for visibility of the Proposed Development with Garvilland or Knockodhar from large parts of the landscape. In the context of the existing wind energy developments already located close to the three developments at Carscreugh, Glenchamber, and Mark Hill, as well as the various other existing wind developments which lie between the two sites and the Proposed Development, there would be no potential for these two developments to result in any cumulative visual effects beyond those already set out in the main assessment.

Cumulative 'Sequential' Effects

- 6.417 A 'sequential' cumulative visual effect is the term used to refer to the situation where a viewer is able to see one or more further wind farms in addition to the Proposed Development, whilst travelling along a linear route. This could be either on foot, whilst walking on a footpath, or by bicycle or car along the public highway. The main assessment focussed on the following routes which were identified as having the greatest potential to experience significant effects as a result of the Proposed Development and these were also used as the basis for the cumulative assessment:
- Southern Upland Way.
 - NCN Route 7.
 - Core Path UNNO/504/5-10.
 - Core Path CREE/416/1-2 - Barclay Bird Reserve Walk.

- A714.
- B7027.

- 6.418 The SUW is one of the primary long-distance recreational routes covering Scotland. Sections of the coast-to-coast route lie in proximity to the Proposed Development, with the closest point of the route lying approximately 900m northwest of the nearest proposed turbine.
- 6.419 Along various points of its length there are views of existing turbines, with both the consented and proposed developments also being visible from the route to varying degrees as it passes through the western part of the study area. The main assessment identified a significant effect on the route from the sections in closest proximity to the Site and this would serve to reinforce the visibility of wind energy along the route as a whole. There would be no further significant cumulative effects in addition to those identified for the Proposed Development in its own right.
- 6.420 NCN Route 7 is one of the primary long-distance recreational cycling routes in the UK, extending in sections between Sunderland and Inverness. Sections of the sea-to-sea route lie in proximity to the Proposed Development, with the closest point of the route lying approximately 1.2km to the east of the nearest proposed turbine. The route does not pass close to the other operational or consented developments within the study area so there would be no further significant cumulative effects in addition to those identified for the Proposed Development in its own right.
- 6.421 The Core Paths considered in the main assessment lie to the southeast and northeast of the Site, and do not run close to the other operational or consented developments within the study area. There would be no further significant cumulative effects in addition to those identified for the Proposed Development in its own right.
- 6.422 The A714 is a moderately long coast-to-coast road that extends from Girvan, South Ayrshire to Braehead in Dumfries and Galloway. Sections of the road lie in proximity to the Proposed Development, with the closest point of the road lying approximately 900m to the east of the nearest proposed turbine. Along various points of its length there are views of existing turbines, primarily towards the northwest of the study area in the vicinity of the Mark Hill development. The main assessment identified a significant effect on the route from the sections in closest proximity to the Site and this would serve to reinforce the visibility of wind energy along the route as a whole. There would be no further significant cumulative effects in addition to those identified for the Proposed Development in its own right.
- 6.423 The B7027 is a moderately long transport road that extends between Barrhill, South Ayrshire and Challoch in Dumfries and Galloway. Sections of the road lie in proximity to the Proposed Development, with the closest point of the road lying approximately 2.1km to the southwest of the nearest proposed turbine. Along various points of its length there are views of existing turbines, primarily towards the northwest of the study area in the vicinity of the Kilgallioch development. The main assessment identified a significant effect on the road from the sections in closest proximity to the Site and this would serve to reinforce the visibility of wind energy along the road as a whole. There would be no further significant cumulative effects in addition to those identified for the Proposed Development in its own right.

Totality of the Combined Effects of all Developments

- 6.424 Consideration has also been given to the overall totality of the cumulative visual effect when the Proposed Development is considered alongside the other operational and proposed developments.

- 6.425 The closest operational developments to the Proposed Development are the Airies development that comprises 14no. turbines and the Kilgallioch development that comprises 96no. turbines, both are located around 8km to the west of the Proposed Development. The other operational developments are also located to the west between around 10km and 20km. The cumulative ZTV prepared for the operational developments (see **Figure 6.28**) illustrates the potential for visibility of the Proposed Development with one or other of the developments from much of the landscape, in particular from higher ground.
- 6.426 Overall, collectively the operational developments serve to result in wind energy being seen as a notable feature in many views in the landscape of the wider study area to the west of the Site. The addition of the Proposed Development would serve to reinforce this pattern of wind energy in views within the study area, albeit extending the significant visual effects into a separate area further to the east within the landscape.

Scoping Stage Developments

- 6.427 The Blair Hill wind farm development, which is at Scoping stage, but understood to be close to submission, lies just over 5km to the southeast of the Proposed Development. As noted previously, due to the relative uncertainty and detail about Scoping stage developments, the project is not included in the main cumulative assessment. This is in accordance with the approach advocated in GLVIA3. It is acknowledged however that were the development to become operational, then the overall totality of the landscape character and visual effects of wind turbines in the study area in the vicinity of the two sites would increase.
- 6.428 The cumulative ZTV prepared for the development (see **Figure 6.32: Cumulative ZTV within 20km – Glenvernoch with Blair Hill**) illustrates the potential for visibility of the Proposed Development with the Blair Hill development from much of the landscape, primarily to the west and south of the Site and largely from more elevated areas.
- 6.429 In particular, the Blair Hill development would be seen simultaneously with the Proposed Development in Viewpoints 1, 2, 7, 8, 11, 13, 14, 15, 16, and 17. Indeed in Viewpoint 14, the Blair Hill development would be seen in the very foreground of the view. In that instance, the presence of the Blair Hill development would serve to reduce the potential for visual effects from the Proposed Development.
- 6.430 The Blair Hill development would be located across LCTs 172 and 181, serving to establish the presence of wind energy as a characteristic of those LCTs which would reduce the potential impact of the Proposed Development on the character of those areas.
- 6.431 For both landscape character and visual receptors in the landscape between the two sites there would however be an increase in effects as a result of the Proposed Development being seen in views in the opposite direction to the Blair Hill development. This would relate primarily to LCT 160: Narrow Wooded River Valley, users of the A714, and those residential properties which lie between the two developments. Some additional localised significant cumulative effects would likely arise to both landscape character and visual amenity.

Summary of Cumulative Effects

- 6.432 It is acknowledged that wherever more than one wind farm is visible at any given location in the landscape, there will be a greater overall or cumulative effect on landscape character and visual amenity than if just one wind farm was visible in the landscape. Likewise, it is acknowledged that the more wind turbines that are constructed in any given

landscape, the greater the magnitude of overall (or combined) change to the landscape character or views.

- 6.433 At the time of preparing this LVIA, there were 18no. other wind farms within the detailed 20km cumulative study area which were either operational, under construction, or in planning, plus the Blair Hill development, which is at Scoping stage, but understood to be close to submission.
- 6.434 Of these, the only development which the Proposed Development would have the potential to give rise to significant cumulative effects in combination with is the Blair Hill development. The cumulative wirelines included with the visualisations illustrate the relationship between the sites and show that in many views, both developments would be seen simultaneously.
- 6.435 Were Blair Hill included in the baseline landscape, alongside the Proposed Development, there would be the potential for additional localised significant cumulative effects on the landscape character of LCT 160: Narrow Wooded River Valley, users of the A714, and those residential properties which lie between the two developments. The Blair Hill turbines would also reinforce the other localised significant effects identified on landscape character and on visual receptors in close proximity to the Site.
- 6.436 Consideration has also been given to the overall totality of the cumulative landscape and visual effects when the Proposed Development is considered alongside the other operational and proposed developments. Collectively, the operational and proposed developments would serve to result in wind energy being seen as a notable feature in many views in the landscape of the wider study area to the west of the Site. The addition of the Proposed Development would serve to reinforce this pattern, particularly in combination with the proposed Blair Hill development, albeit extending the significant visual and character effects into a separate area further to the east within the landscape.

Summary

- 6.437 This chapter presents the findings of the Landscape and Visual Impact Assessment (LVIA) and identifies the likely significant effects arising from the Proposed Development on landscape character and visual amenity. It has been informed by field visits and by consultation undertaken with statutory consultees including Dumfries & Galloway Council and NatureScot.
- 6.438 The existing landscape and visual baseline has been documented, and the assessment has been supported by figures (see **Volume 2**) as well as visualisations produced to NatureScot Visualisation Standards that show representative views from locations consulted on at Scoping that illustrate existing and proposed views during daylight hours from all 20no. LVIA viewpoints and views during darkness hours from a select number of viewpoint locations (presented in **Volume 2**).
- 6.439 The Site covers open moorland near the Cree Valley area of Dumfries and Galloway, Scotland. The Site is centred at approximately OS Grid Reference 35136, 73226.
- 6.440 The closest settlements to the proposed wind farm are the village of Glentool, located approximately 2.8km north of the Site, and the town of Newton Stewart, which is located approximately 7km southeast of the Site at its nearest point. The nearest main highway is the A714 which runs adjacent to the eastern boundary of the Site.
- 6.441 There are no national landscape designations covering the Site. The nearest National Scenic Area (NSA) is the Fleet Valley, which lies around 22km to the southeast. The

Proposed Development is also not located within a locally designated landscape. The nearest is the Galloway Hills Regional Scenic Area (RSA) that lies adjacent to the eastern boundary of the Site.

- 6.442 The Proposed Development would be located on an upland plateau, west of the Galloway Hills, with the hills and the forestry in the Galloway Forest Park forming notable visual features experienced in many views from the wider surrounding lower-lying landscape. The proposed turbines and associated infrastructure are located within NatureScot LCT 174: Plateau Moorland with Forest, with the Site entrance and a short section of the access track located within the western fringe of NatureScot LCT 160: Narrow Wooded Valley.
- 6.443 Appropriate offsets from properties not financially involved with the Proposed Development have been maintained to ensure that no uninvolved property would experience an overbearing visual impact. Mitigation has been designed into the proposed aviation lighting design to reduce the intensity of the 2000cd steady state lights in certain atmospheric conditions by reducing their intensity and attenuating the amount of vertical downward lighting in order to reduce the visual impact experienced by receptors below the lights.
- 6.444 As with almost any onshore wind farm development, it is recognised that the Proposed Development would give rise to some additional localised significant effects on landscape character and visual amenity.
- 6.445 The Proposed Development would result in direct and significant effects on the parts of the 'host' landscape character types within which the Proposed Development is located. Indirect and significant effects would extend to approximately 6km from the Proposed Development on LCT 172: Upland Fringe, and LCT 168: Drumlin Pasture in Moss and Moor Lowland.
- 6.446 In relation to visual effects, it is accepted that the Proposed Development would be visible from various nearby properties, as well as parts of the surrounding road, footpath, and cycle networks.
- 6.447 It has been assessed that there would be significant visual effects experienced at 8no. of the 20. representative viewpoints during daylight hours, as summarised in **Table 6.6: Assessment of Operational Effects on Viewpoints**. During darkness hours, significant effects are predicted at only 3no. of the 20no. LVIA viewpoints - Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 4: Southern Upland Way (Bargrennan), and Viewpoint 19: The minor road outside Borgan Cottage.
- 6.448 In terms of the effects on residential properties within 2km, 12no. of the 16no. properties assessed would experience a significant visual effect from either a part of their house, garden, or principal access route. Significant effects are also predicted from the Knockville and Crungie Woodland Log Cabins, which are non-permanent residences.
- 6.449 It is concluded that when the experience from each property is considered in the round, none of the residents of any of the properties would experience such an overbearing or overwhelming effect on their visual amenity that their properties would become unattractive places in which to live.
- 6.450 In relation to settlements, the assessment found that no settlement in the study area would experience significant visual effects during daylight and/or darkness hours.

- 6.451 The assessment of Core Paths and Recreational Routes found that receptors would experience significant effects from parts of: Core Path UNNO/504/5-10, Core Path CREE/416/1-2 - Barclay Bird Reserve Walk, the Southern Upland Way, and NCN Route 7.
- 6.452 The assessment of roads found that receptors would experience significant effects from sections of the A714 (southbound only), and B7027 (both directions).
- 6.453 With regards to Recreation and Tourism locations in the study area, indirect significant effects were predicted up to approximately 6km from the Proposed Development at the Galloway Forest Park during daylight hours, and to approximately 6km from the Proposed Development in the 'Buffer Zone' and 'Transitional Area' of the Galloway Forest Dark Sky Park during darkness hours.
- 6.454 In terms of effects on the Galloway Hills RSA, the assessment found that indirect significant effects on views from the RSA would extend to approximately 6km but that the addition of the Proposed Development would not undermine the understanding or appreciation of the underlying landscape of the RSA or its special qualities. Notably, no significant effects are predicted to occur in the Merrick WLA as a result of the Proposed Development.
- 6.455 Regarding cumulative effects, it is acknowledged that wherever more than one wind farm is visible at any given location in the landscape, there will be a greater overall or cumulative effect on landscape character than if just one wind farm was visible in the landscape. Likewise, it is acknowledged that the more wind turbines that are constructed in any given landscape, the greater the magnitude of overall (or combined) change to the landscape character.
- 6.456 At the time of preparing this LVIA, there were 18no. other wind farms within the detailed 20km cumulative study area which were either operational, under construction, or in planning, plus the Blair Hill development, which is at Scoping stage, but understood to be close to submission.
- 6.457 In the first cumulative scenario considered (where other consented wind farms are also considered to be operational), there would be seven additional developments: Arecleoch Extension, Artfield Forest, Barlockhart Moor Extension, Chirmorie, Gass, Kilgallioch Extension, and Stranoch 2. Each of the developments are located to the west of the Site between 9km and 19km. It is not considered that the inclusion of these developments within the baseline would result in any cumulative landscape or visual effects that would lead to a change to the effects in relation to the Proposed Development which are already set out in the main assessment.
- 6.458 In the second cumulative scenario (where other developments in planning are also considered to be consented and operational) there would be two further additional developments, Garvilland, that would be located around 17km to the southwest, and Knockodhar, that would be located around 17km to the northwest of the Proposed Development. In the context of the existing wind energy developments already located close to the three developments at Carscreugh, Glenchamber, and Mark Hill, as well as the various other existing wind developments which lie between the two sites and the Proposed Development, there would be no potential for these two developments to result in any cumulative visual effects beyond those already set out in the main assessment.
- 6.459 Were Blair Hill included in the baseline landscape, alongside the Proposed Development, there would be the potential for additional localised significant cumulative effects on the landscape character of LCT 160: Narrow Wooded River Valley, users of the A714, and those residential properties which lie between the two developments. The Blair Hill turbines would

also reinforce the other localised significant effects identified on landscape character and on visual receptors in close proximity to the Site.

- 6.460 With regards to the Totality of the Combined Effects of all developments, the closest operational developments to the Proposed Development are the Airies development that comprises 14no. turbines and the Kilgallioch development that comprises 96no. turbines. Both are located around 8km to the west of the Proposed Development. The other operational developments are also located to the west between around 10km and 20km.
- 6.461 Overall, collectively the operational developments serve to result in wind energy being seen as a notable feature in many views in the landscape of the wider study area to the west of the Site. The addition of the Proposed Development would serve to reinforce this pattern of wind energy in views within the study area, albeit extending the significant visual effects into a separate area further to the east within the landscape.
- 6.462 It is important to acknowledge that localised significant effects on landscape character and visual amenity are inevitable as a result of commercial wind energy development anywhere in the UK. Whilst the LVIA identified some significant landscape and visual effects, it is considered that the landscape has the capacity to accommodate the effects identified.
- 6.463 Wind turbines give rise to a wide spectrum of opinions, ranging from strongly adverse to strongly positive, with a wide range of opinions lying somewhere between these two positions. Some people view wind turbines as incongruous or industrial structures whilst others view them as aesthetically pleasing, elegant structures, and a positive response to climate change. In the case of the Proposed Development, the turbines and associated ancillary development may be viewed by some as a symbol of continued progress by society towards a low carbon future.
- 6.464 In considering the effects of the Proposed Development, a precautionary approach has however been adopted, and it is therefore assumed that the effects identified would be adverse in nature even though it is recognised that for some people the impacts could be perceived to be beneficial.
- 6.465 There are no definitive quantifiable thresholds of acceptability in landscape and visual impact assessment. The identified effects on landscape character and visual amenity therefore need to be balanced against the other benefits of the Proposed Development in the overall planning balance.

Table 6.11: Summary of Residual Effects

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
During Construction			
Effects on Existing Landscape Features	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Moderate/ minor non-significant effect to moorland vegetation, as well as watercourses and drainage channels

Effects on LCTs within which the Proposed Development is located	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Major/ moderate significant effect to the part of LCT 174: Plateau Moorland with Forest where the Proposed Development would be located in
Indirect effects to other LCTs	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Moderate/ minor non-significant effect to parts of surrounding LCTs, including LCT 181: Rugged Uplands with Forest, LCT 172: Upland Fringe, and LCT 168: Drumlin Pasture in Moss and Moor Lowland
Visual effects	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Moderate non-significant temporary effect from several locations, including Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 4: Southern Upland Way (Bargrennan), and Viewpoint 19: The minor road outside Borgan Cottage
During Operation			
Effects on LCTs within which the Proposed Development is located	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Major significant effects extending to approximately 4km at LCT 174: Plateau Moorland with Forest, and LCT 160: Narrow Wooded Valley
Indirect effects to other LCTs	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Major/ moderate significant effects extending to approximately 6km from the Proposed Development on LCT 172: Upland Fringe, and LCT 168: Drumlin Pasture in Moss and Moor Lowland

LVIA Viewpoints during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Significant effects from 8no. of the 20no. LVIA Viewpoints Major significant effects at three viewpoints - Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 4: Southern Upland Way (Bargrennan), and Viewpoint 19: The minor road outside Borgan Cottage
LVIA Viewpoints during darkness hours	Reduced aviation lighting design proposed	By design	Worst case Significant effects from 3no. of the 20no. LVIA Viewpoints Moderate significant effects at Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 4: Southern Upland Way (Bargrennan), and Viewpoint 19: The minor road outside Borgan Cottage
Effects on Settlements during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Non-significant effects predicted from settlements in the study area
Effects on Settlements during darkness hours	Reduced aviation lighting design proposed	By design	Worst case Non-significant effects predicted from settlements in the study area
Effects on users of Core Paths during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Significant effects from two Core Paths - Core Path UNNO/504/5-10, and Core Path CREE/416/1-2 - Barclaye Bird Reserve Walk Major significant effects from Core Path UNNO/504/5-10 between Glenruther Lodge and Bargrennan

Effects on users of Core Paths during darkness hours	Reduced aviation lighting design proposed	By design	Worst case Significant effects from one Core Path - Core Path UNNO/504/5-10 Moderate significant effects from Core Path UNNO/504/5-10 between Glenruther Lodge and Bargrennan
Effects on users of Recreational Routes during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Significant effects from two Recreational Routes - Southern Upland Way, and NCN Route 7 Major significant effects from Southern Upland Way between Glenruther Lodge and Bargrennan, and from NCN Route 7 between Borgan and Cordorcan
Effects on users of Recreational Routes during darkness hours	Reduced aviation lighting design proposed	By design	Worst case Significant effects from two Recreational Routes - Southern Upland Way, and NCN Route 7 Moderate significant effects from Southern Upland Way between Glenruther Lodge and Bargrennan, and from NCN Route 7 between Borgan and Cordorcan
Effects on Road Users during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Significant effects from two Roads – A714 (southbound only), and B7027 (both directions) Major/ moderate significant effects from A714 between Glenvernoch Wood to Clachaneasy

Effects on Road Users during darkness hours	Reduced aviation lighting design proposed	By design	Worst case Non-significant effects predicted from roads in the study area
Effects on Recreation and Tourism locations during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Significant effects extending to approximately 6km from the Proposed Development at the Galloway Forest Park
Effects on Recreation and Tourism locations during darkness hours	Reduced aviation lighting design proposed	By design	Worst case Significant effects extending to approximately 6km from the Proposed Development in the 'Buffer Zone' and 'Transitional Area' of the Galloway Forest Dark Sky Park
Effects on Designated Landscapes	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case Significant effects extending to approximately 6km from the Proposed Development on Galloway Hills RSA

Bold text indicates a significant effect.