Chapter 6 Landscape and Visual Impact Assessment

Contents

6 Landscape and Visual Impact Assessment

6.1 Introduction

6.1.1 This chapter presents a Landscape and Visual Impact Assessment (LVIA) of the proposed Torfichen Wind Farm (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).

6.1.2 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.

6.1.3 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)[i].

6.1.4 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.

6.1.5 The main objectives of the visual assessment are similar and can be summarised as follows:

- 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.

6.1.6 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.

6.1.7 The main LVIA presented in this chapter is supported by figures in EIA Report Volume 2, visualisations in Volume 3 and **Technical Appendices 6.1 - 6.7** in Volume 4.

6.1.8 The location of the Proposed Development and the study area for the LVIA is illustrated on **Figure 6.1** and **Figure 6.2**. For reference, other operational, consented and proposed wind farms within 35 km which are referred to throughout this chapter are illustrated on **Figure 6.27** and **Figure 6.28** shows other wind farms within 25 km.

6.2 Legislation, Policy and Guidance

European Landscape Convention, Adopted 2000

6.2.1 The European Landscape Convention (ELC)[ii], 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.

6.2.2 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.

6.2.3 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."

6.2.4 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.

6.2.5 The ELC highlights the importance of developing landscape policies dedicated to the protection, management and planning of landscapes. In this regard, NatureScot and Midlothian Council have a suite of landscape character assessment and landscape capacity (sensitivity) studies which enables decisions to be made with due regard to landscape character as promoted by the ELC.

Planning Policy

6.2.6 The following currently adopted planning policy documents were reviewed as part of the desk study for the LVIA:

- National Planning Framework 4 (NPF4) iii
- The Midlothian Local Development Plan 2017iv
- The Scottish Borders Local Development Plan 2016v
- Edinburgh Local Development Plan 2016vi
- East Lothian Local Development Plan 2018vii

6.2.7 The following supplementary guidance and technical reports which provide the evidence base for current planning policy were also reviewed:

- Midlothian Local Development Plan, Special Landscape Areas Supplementary Planning, October 2018viii
- Midlothian Landscape Wind Energy Capacity Study, September 2014ix

- Scottish Borders Council. Wind Energy Consultancy, Landscape Capacity and Cumulative Impact Final Report, July 2013x
- Scottish Borders Council. Local Landscape Designations, August 2012xi
- East Lothian Council Local Development Plan, Special Landscape Areas Supplementary Planning Guidance, October 2018xii

6.2.8 A full and detailed consideration of national and local planning policy is contained in **Chapter 5: Planning & Energy Policy Context** of this EIA Report and in the accompanying Planning Statement.

6.3 Consultation

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

Table 6.1 Consultation

Consultee	Details	Response	Where Addressed in the EIA Report
Scottish Government Energy Consents Unit	The EIA Scoping Report identified viewpoints at Table 4.1 to be assessed within the landscape and visual impact assessment. Midlothian Council have requested additional viewpoints at chapter 4 of their response. Scottish Borders Council and Heriot Community Council have also requested additional viewpoints in their response.	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 to 22 viewpoints. In addition, three wireline visualisations have also been included as part of the LVIA. The additional locations suggested by the consultees were all considered as part of this exercise and viewpoints added accordingly where it was considered that there was the potential for more than very limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	**Section 6.6**
	As the maximum blade tip height of turbines exceeds 150m the LVIA as detailed in section 4.5.15 of the Scoping Report must include a robust Night Time Assessment with agreed viewpoints to consider the effects of aviation lighting and how the chosen lighting mitigates the effects.	The LVIA considers the effect 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" (September 2020), Annex 2, the assessment of the effects of night-time lighting on visual amenity has been considered throughout the main LVIA chapter.	**Section 6.6**

Consultee	Details	Response	Where Addressed in the EIA Report
Midlothian Council	Viewpoints We request that in addition to those proposed, the following are also included in the LVIA: - B6372 Lady Brae/ Mossend, Gorebridge (NT 35367 61670) - Chapel Loan, Roslin (NT 27288 63191) - Andy Kelly View, Bonnyrigg – Core Path (NT 29765 64390) - Fala Moor – Core Path (NT 42341 58197)	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 to 22 viewpoints. In addition, a series of three wireline visualisations have also been included as part of 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 very limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	**Section 6.6**
	Cumulative Effects … recommend that the following wind farm proposals (currently at application stage) are included in the cumulative assessment: - Wull Muir, northwest of Heriot, Scottish Borders (8no. turbines, 150m height) Application stage, Scottish Borders Council reference 22/01960/FUL - Scawd Law, north of Walkerburn, Scottish Borders (8no. turbines, 180m height) Application stage, Energy Consents Unit reference ECU00002111 Although not at application stage, consideration should also be given to the following wind farm proposals: - Leithenwater, northeast of Peebles, Scottish Borders (13no. turbines, 200m height) EIA Scoping stage, Energy Consents Unit reference ECU00004619 - Ditcher Law, north of Oxton, Scottish Borders (15no. turbines, 220m height) Pre-application stage, Energy Consents Unit reference ECU00002173.	Following the EIA Scoping exercise, the additional application stage schemes have been considered as part of the Cumulative Assessment. Scoping stage schemes have not been considered as part of the assessment of cumulative effects given the level of uncertainty regarding these schemes and whether or not they will come forward to the application stage.	**Section 6.9**

Consultee	Details	Response	Where Addressed in the EIA Report
	Without pre-empting the findings of the LVIA, Midlothian Council have concerns about the scale, location and extent of the proposed wind farm – which appear inconsistent with the findings of the Landscape Capacity Study for Wind Turbine Development in Midlothian (2007). The proposed development is likely to give rise to significant effects on the character and key qualities of the Gladhouse Reservoir and Moorfoot Scarp Special Landscape Area (SLA).	In line with current NatureScot guidance available at: https://www.nature.scot/professional-advice/landscape/landscape-tools-and-techniques/landscape-sensitivity-studies such studies should no longer be referred to as 'capacity studies'. Nonetheless, the 2007 study provides a useful reference to inform judgements about the relative sensitivity of the landscape to the type of development proposed.	**Section 6.6**
	It also has the potential to affect some of the key panoramic views across Midlothian, notably those from the B7007 and Gladhouse Reservoir; and others within the Pentland Hills and across the county, in which the site forms an uncluttered foreground to views of the distinctive northern scarp of the Moorfoot Hills.	Effects on these assets have been considered as part of the assessment of visual effects.	**Section 6.6**
	… cumulative effects of the development in combination with the existing Bowbeat and Carcant wind farms are further grounds for concern.	Cumulative effects on landscape character and visual amenity have been considered.	**Section 6.9**
Scottish Borders Council	Request that an additional viewpoint is provided from the Lauder Common at the B6362 from the stretch of road identified in the ZTV.	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 to 22 viewpoints. In addition, three wireline visualisations have also been included as part of 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 very limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	**Section 6.6**

Consultee	Details	Response	Where Addressed in the EIA Report
	We would request that a viewpoint within the Scottish Borders is used to also assess the impact of aviation lighting. Viewpoint 7 would appear to the most appropriate for this given that it is a well- travelled public road.	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 to 22 viewpoints. In addition, three wireline visualisations have also been included as part of 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 very limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	**Section 6.6**
Heriot Community Council	Additional Viewpoints: Nettlingflat: Viewpoint 6 in the Wull Muir 3 application and Viewpoint 5 in the Greystone Knowe Application. This part of Heriot Community is on high ground to the east of A7 and potentially will have views of all the Torfichen turbines. Corsehope Rings: Viewpoint 4 in the Wull Muir 3 application. The Greystone Knowe application Viewpoint 2 Core Path 33 Heriot whilst similar, is not appropriate for the Torfichen application. This site will be representative of views of the Torfichen turbines from various high ground areas in Heriot Community. Lauder Common. We are aware SBC have already asked for this Viewpoint to be included. It had been used for many wind farm applications, including Scawd Law, Greystone Knowe, and Wull Muir. Further suggested for consideration: B6372 at Fountainside/Roseberry area where there are clear views towards the escarpment. Soutra Aisle might also be	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 to 22 viewpoints. In addition, three wireline visualisations have also been included as part of the LVIA. The locations suggested by the Community 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 very limited visibility to arise whilst ensuring that the overall number of viewpoints remained proportionate.	**Section 6.6**

Consultee	Details	Response	Where Addressed in the EIA Report
	appropriate as there are views from there of the Carcant turbines. There should be sequential Views of the A7, B7007/709, B6372 RAA.		
	SBC has agreed with applicants for recent s36 applications that the RAA should be set at 2.5km due to the much higher turbines now being employed by the industry. Whilst there are not properties in Heriot that will be included in the RAA, it should be considered for this application for properties in neighbouring areas.	The study area for the Residential Visual Amenity Assessment has been extended to 2.5 km as requested.	**Technical Appendix 6.6**
	8. It will be essential for the EIA of the Torfichen scheme to consider the LCS in detail and to set out rationale as to why it no longer carries weight for this scheme. The above prescription that "turbine developments should not adversely encroach on the prominent escarpment and skyline facing Edinburgh" could hardly be more shamelessly ignored. Planners went to great lengths to ensure that earlier schemes such as Carcant, Bowbeat and Dun Law were set well back from the escarpment – and those turbines were from the earlier generation and are only 70m to 100m in height.	In line with current NatureScot guidance available at: https://www.nature.scot/professional-advice/landscape/landscape-tools-and-techniques/landscape-sensitivity-studies such studies should no longer be referred to as 'capacity studies'. Nonetheless, the 2014 Midlothian Landscape Capacity Study and the 2013 Scottish Borders Council study provide a useful reference to inform judgements about the relative sensitivity of the landscape to the type of development proposed.	**Section 6.6**
Moorfoot Community Council	Moorfoot Community Council are concerned of the impacts that the proposed wind farms in the area would create, and that all fail to meet the criteria set out in the LCS. It will be essential for the EIA of the Torfichen scheme to consider the LCS in detail and to set out why it feels this no longer applies for this scheme.	In line with current NatureScot guidance available at: https://www.nature.scot/professional-advice/landscape/landscape-tools-and-techniques/landscape-sensitivity-studies such studies should no longer be referred to as 'capacity studies'. Nonetheless, the 2014 Midlothian Landscape Capacity Study and the 2013 Scottish Borders Council study provide a useful reference to inform judgements about the relative sensitivity of the	**Section 6.6**

Consultee	Details	Response	Where Addressed in the EIA Report
		landscape to the type of development proposed.	
	We consider that the setting of the escarpment is fundamental as to whether the Torfichen proposal should advance further in the planning system.	The effects of the Proposed Development on landscape character and visual will be weighed in the overall planning balance.	**Section 6.6**
	The current Midlothian Local Plan policy for Special Landscape Areas ENV6 would not support a scheme of this scale (and probably any scale) in this area. We understand there is to be a new national policy which gives greater weight to the importance of adding to Scotland's renewable energy capacity.	Effects on Special Landscape Areas have been considered as part of the assessment in **Technical Appendix 6.3** and those with the potential to experience significant effects have been considered in detail in the chapter.	**Technical Appendix 6.3** and **Section 6.6** of this chapter.
	Our understanding is that if any environmental problem resulting from a wind farm' is only localised then it will be outweighed by the national importance of increasing the capacity of sustainable electricity.	The effects of the Proposed Development on landscape character and visual will be weighed in the overall planning balance.	**Section 6.6**
	The visual impact of this wind farm will not be local but widespread across Midlothian and further because of the size of the turbines.	The effects of the Proposed Development on landscape character and visual will be weighed in the overall planning balance.	**Section 6.6**
NatureScot	Our key advice at this stage is that our siting and design guidance should be followed to minimise the following potential impacts which should be assessed as part of the Landscape and Visual Impact Assessment: • Impacts on the Moorfoot Hills when seen from the north, north-west and west • Impacts on key viewpoints from Edinburgh and the Lothians	The layout of the proposed wind farm has been carefully considered as part of an iterative design process. Impacts on key viewpoints within the surrounding area have been assessed in **Technical Appendix 6.5**.	**Technical Appendix 6.5**
	Assessment of impacts on National Scenic Areas (NSAs) within the vicinity of the development. These include Upper Tweeddale NSA which	Effects on landscape designations have been considered as part of the assessment in **Technical Appendix 6.3** and those with the potential to experience significant	**Technical Appendix 6.3** and **Section 6.6** of this chapter.

Consultee	Details	Response	Where Addressed in the EIA Report
	lies approximately 13km south- west of the site and Eildon and Leaderfoot NSA which lies approximately 26km south-east of the site. Information on the special qualities of each NSA can be found on our website.	effects have been considered in detail in the chapter.	
	Cumulative impacts with existing windfarms. We disagree that using a 20 km study area for assessing cumulative impacts is sufficient and recommend that a 60 km radius is used as per NatureScot guidance, however we do recommend that you focus on the developments most likely to result in significant effects	Consideration was given to an initial 60 km radius. However, it was considered that significant effects have the potential to arise within 20 km. Following the scoping exercise and based on the feedback received and subsequent correspondence, it was agreed to extend the detailed cumulative study area from 20 km to 25 km.	**Section 6.9**
	The Moorfoot hills are an important landmark in the region with a prominent escarpment when seen from the north-west. The proposed development should not diminish the apparent scale of the Moorfoot hills by competing with it in terms of size and scale. The design iteration process should seek to find a turbine layout which is sympathetic to this landscape.	The layout of the proposed wind farm has been carefully considered as part of an iterative design process in order to avoid diminishing the apparent scale of the prominent escarpment.	**Section 6.6**
	Due to the height of the turbines a full lighting assessment should be provided as described in Annex 1 of our guidance document. The lighting assessment should include lowlight photomontages.	The LVIA considers the effect 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" (September 2020), Annex 2, the assessment of the effects of night-time lighting on visual amenity has been considered throughout the main LVIA chapter. Visualisations during dark sky hours have been provided from three viewpoint locations in order to illustrate the nature of the effects.	**Section 6.6**
ScotWays	The enclosed map shows that rights of way LM173 and BE1 as recorded in the National Catalogue of Rights of Way (CROW) cross or are close to	Effects on these routes have been considered as part of the assessment of effects on core paths.	**Section 6.6**

Consultee	Details	Response	Where Addressed in the EIA Report
	the application site as shown on Figure 2.1 Site Location. The enclosed map shows that our book Scottish Hill Tracks describes a route number 39 Leadburn to Heriot [HT43] which crosses or is close to the application site as shown on Figure 2.1 Site Location.		
	It is our understanding that there is very little guidance regarding the siting of turbines in relation to established paths and rights of way, so we use the following starting principle in considering what could be reasonable: "a minimum distance, equivalent to the height of the blade tip, from the edge of any public highway (road or other public right of way) or railway line."	All of the proposed turbines are located over 180 m (blade tip height) from any right of way.	**Figure 6.17** and **6.18**
	Recreational Amenity As well as direct impacts of development upon public access, ScotWays has an interest in impacts on recreational amenity, so this includes the impact of wind farm development on the wider landscape. We anticipate that the applicant will take into account both recreational amenity and landscape impacts in developing their proposals for this site. We will consider these issues further should this scoping stage lead to a planning application.	Potential effects on a range of receptors within the surrounding landscape have been considered as part of the assessment.	**Section 6.6**
	As ScotWays is aware of a number of wind turbine proposed in this general area, we are particularly concerned that the cumulative impact of these proposed developments is taken into account.	Cumulative effects on landscape character and visual amenity have been considered.	**Section 6.9**

6.4 Methodology

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

6.4.2 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."*

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

6.4.4 Consideration has also been given to the following documents:

- Landscape Sensitivity Assessment Guidance (Methodology), (2022), NatureScot;
- Assessing the Cumulative Impact of Onshore Wind Energy Developments (March 2021) NatureScot;
- Siting and Design of Wind farms in the Landscape, Version 3 (February 2017) SNH;
- Visual Representation of Wind farms – Version 2.2 (February 2017), SNH;
- General pre-application and scoping advice for onshore wind farms. Guidance. (September 2020) NatureScot;
- LI Technical Guidance Note 2/19. Residential Visual Amenity Assessment (RVAA) (March 2019) Landscape Institute;
- LI Advice Note 02/17 Visual representation of development proposals (March 2017) Landscape Institute; and
- LI Technical Guidance Note 02/21 Assessing landscape value outside of national designations.

Scope of Assessment

6.4.5 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.

6.4.6 Where appropriate, the LVIA also considers any residual effects once the proposed wind turbines have been decommissioned and removed (assumed to be 50 years from the date of completed construction).

6.4.7 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.

6.4.8 Consideration has been given to the movement of the turbine blades, along with seasonal variations when assessing the visibility of the Proposed Development.

6.4.9 The LVIA also considers any cumulative effects arising in conjunction with other wind farm schemes 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 sites 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.

6.4.10 The guidelines state that 'combined visibility' may either be 'in combination' (where two or more sites are visible from a fixed viewpoint in the same arc of view) or 'in succession' (where two or more sites 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.

6.4.11 In relation to both the effects of the Proposed Development alone and the cumulative effects with other wind farm schemes 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 wind 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. 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 proposal will 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

6.4.12 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 wind farm at the end of its operational life as effects would be very similar in nature to those experienced during the construction, except in reverse; and
- 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 carry out a meaningful landscape character assessment. This precedent was established in the Reporter's decision for Crystal Rig IV (WIN-140-8)[xiii].

Study Area

6.4.13 The initial study area for the landscape and visual impact assessment is 35 km radius from the turbines in all directions, as set out in the Scoping Report. 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 20 km of the site. The intention is that the detail of the LVIA remains proportional to the likely significance of effects, as advocated in GLVIA3.

6.4.14 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 or the subject of a full planning application within 25 km radius from the turbines in all directions as agreed with NatureScot following receipt of the Scoping Opinion and which have the potential to give rise to

significant cumulative effects when considered in combination with the Proposed Development (refer to **Technical Appendix 4.4**). The approach has been to focus the assessment on those sites which have the potential to given rise to significant cumulative effects. Further details of this approach are set out in the cumulative impact assessment at **Section 6.9**.

Landscape Assessment Methodology

6.4.15 A baseline landscape assessment was carried out to determine the current features and character of the landscape within and surrounding the site.

6.4.16 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 & 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.

6.4.17 Field visits have been conducted in a variety of weather conditions and at different times of the year during the pre-application stage.

6.4.18 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 impacts of the scheme on landscape features and character.

6.4.19 The LVIA firstly assesses how the Proposed Development would impact directly on any existing landscape features or elements (e.g. removal of trees etc.).

6.4.20 The LVIA then considers impacts on landscape character with reference to landscape character areas/types identified in published landscape character documents.

Visual Assessment Methodology

6.4.21 Potential visual receptors of the Proposed Development were identified by interpretation of digitally generated ZTVs (see **Technical Appendix 6.2** for an explanation of how the ZTVs were produced).

6.4.22 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.

6.4.23 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.

6.4.24 Visualisations were produced for each of the viewpoints; these are presented in **Volume 3** of this EIA Report. An explanation of how they were produced and information to be read in conjunction with the visualisations is provided in **Technical Appendix 6.2.**

6.4.25 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 development as receptors move throughout the landscape.

6.4.26 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 will 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

6.4.27 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 scheme under consideration.

6.4.28 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.

6.4.29 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 so 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.

6.4.30 The detailed assessment criteria used to determine landscape and visual sensitivity, magnitude of change and significance of effect are set out in **Technical Appendix 6.1**.

Assessment Limitations

6.4.31 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 single 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.

6.4.32 Limitations to the use of ZTVs and in relation to photography, wireframes and photomontages are set out in **Technical Appendix 6.2**.

6.5 Baseline

6.5.1 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

6.5.2 The Proposed Development is located in Midlothian, Scotland and is located at Torfichen Hill. The site is centred on Ordnance Survey British National Grid 333932, 654430.

6.5.3 The closest settlements are North Middleton approximately 2.9 km to the north-east, Temple located approximately 3.7 km to the north-west, Gorebridge located approximately 4.3 km to the north, Mayfield, Bonnyrigg, Rosewell and Pathhead located between 7 and 9 km to the north.

6.5.4 The B7007 runs to the south of the Proposed Development along the edge of the Moorfoot Hills. The A7 passes approximately 3.7 km to the north-east of the Proposed Development.

6.5.5 The location of the Proposed Development site is illustrated at **Figure 6.1** and the layout of the site is shown on **Figure 1.3.**

Landscape Designations

6.5.6 A review of all landscape designations within the initial 35 km LVIA study area has been undertaken. Landscape designations within 35 km are illustrated on **Figure 6.9** and landscape designations within the detailed 20 km LVIA study area are illustrated on **Figure 6.10**.

International/National Landscape Designations

6.5.7 There are no national landscape designations covering the site.

National Scenic Areas

6.5.8 Upper Tweeddale National Scenic Area (NSA) is situated approximately 14.8 km to the south-west of the Proposed Development. Eildon and Leaderfoot NSA is situated approximately 26.6 km to the south-east of the Proposed Development. Effects on NSAs are considered within the preliminary assessment of LCTs and Designated Sites in **Technical Appendix 6.3**.

Local Landscape Designations

Special Landscape Areas

6.5.9 In total seven Special Landscape Areas (SLAs) have been identified in Midlothian as set out in Policy ENV6 Special Landscape Areas within Midlothian Local Development Plan[xiv]. The statement of importance of each of the SLA are set out in Appendix 1 of the Special Landscape Areas

Supplementary Guidance[xv]. These SLAs are illustrated on **Figure 6.9** and **Figure 6.10**.

6.5.10 The Proposed Development is situated within Gladhouse Reservoir and Moorfoot Scarp SLA. The SLA extends west and south from the Proposed Development.

6.5.11 In addition, the following SLAs within the detailed 20 km LVIA study area are located within Midlothian:

- South Esk Valley and Carrington Farmland SLA located approximately 2.1 km to the north;
- Tyne Valley SLA located approximately 2.2 km to the north-east;
- Fala Moor SLA located approximately 5.4 km to the north-east;
- The Pentland Hills SLA located approximately 8.7 km to the north-west;
- North Esk Valley SLA located approximately 9.3 km to the north-west; and
- Fala Rolling Farmland and Policies SLA located approximately 9.3 km to the north-east.

6.5.12 In East Lothian, there are ten SLAs as set out in Policy DC9 Special Landscape Areas in the East Lothian Local Development Plan[xvi]. The statement of importance of each of the SLAs is set out in Appendix 2 of the Special Landscape Areas Supplementary Guidance[xvii]. SLAs are illustrated on **Figure 6.9** and **Figure 6.10**. The following SLA within the detailed 20 km LVIA study area are located within East Lothian:

- Humbie Headwaters (9) SLA located approximately 10.4 km to the north-east;
- Ormiston Yew and Fountainhall (18) SLA located approximately 12.5 km to the north-east;
- Elphinstone Ridge (14) SLA located approximately 13.1 km to the north;
- The River Esk (10) SLA located approximately 13.2 km to the north;
- Fisherrow Sands (31) SLA located approximately 15.9 km to the north;
- Samuelston (22) SLA located approximately 19.2 km to the north-east;
- Lammer Law/Hopes to Yester (3) SLA located approximately 15.6 km to the north-east;
- Winton Walks (23) SLA located approximately 16.6 km to the north-east; and
- Lammermuir Moorland (1) SLA is located approximately 16.8 km to the east;

6.5.13 In the Scottish Borders there are nine SLAs set out in Policy EP5 Special Landscape Areas in the Scottish Borders Council Local Development Plan[xviii]. The statement of importance of each of the SLA are set out in Local Landscape Designations, Scottish Borders Council Supplementary Guidance[xix]. These SLAs are illustrated on **Figure 6.9** and **Figure 6.10**. The following SLAs within the detailed 20 km LVIA study area are located within Scottish Borders:

- Tweed Valley SLA is located approximately 9.5 km to the south-west;
- Lammermuir Hills SLA is located approximately 11.8 km to the east;
- Tweedsmuir Uplands located approximately 15.7 km to the south;
- Pentland Hills SLA is located approximately 16 km to the west;
- Tweed Ettrick and Yarrow Confluences SLA located approximately 18.2 km to the south-east.

6.5.14 As each of these SLAs overlaps with the 20 km detailed LVIA study area effects on these designations are considered further within the within the preliminary assessment of LCTs and Designated Sites in **Technical Appendix 6.3** to determine which have the potential to experience significant effects and require detailed assessment.

Wild Land

6.5.15 The Proposed Development is not located within a Wild Land Area (WLA) and there are no WLAs within the detailed 20 km LVIA study area. As such they are not considered further within the assessment.

Gardens and Designed Landscapes

6.5.16 There are 30 Gardens and Designed Landscapes (GDLs) located within the detailed 20 km LVIA study area. These comprise:

- Arniston GDL located approximately 3.6 km to the north;
- Portmore GDL located approximately 6.5 km to the south-west;
- Newbattle Abbey GDL located approximately 8.8 km to the north;
- Oxenfoord Castle GDL located approximately 9.5 km to the north-east;
- Roslin Glen and Hawthornden GDL located approximately 9.7 km to the north-west;
- Penicuik GDL located approximately 9.8 km to the north-west;
- Prestonhall GDL located approximately 10 km to the north-east;
- Melville Castle GDL located approximately 11.1 km to the north-west;
- Mavisbank GDL located approximately 11.4 km to the north-west;

- Dalkeith House (Palace) GDL located approximately 11.6 km to the north;
- Carberry Tower GDL located approximately 13 km to the north;
- The Drum GDL located approximately 13.3 km to the north-west;
- Newhall GDL located approximately 13.3 km to the west;
- Kailzie GDL located approximately 14.4 km to the south;
- Winton Castle GDL located approximately 14.9 km to the north-east;
- Saltoun Hall GDL located approximately 15.1 km to the north-east;
- Craigmillar Castle GDL located approximately 15.6 km to the north-west;
- Newhailes GDL located approximately 16.3 km to the north;
- Pinkie House GDL located approximately 16.4 km to the north;
- Duddingston House GDL located approximately 16.9 km to the north-west;
- Traquair House GDL located approximately 16.9 km to the south;
- Bowland GDL located approximately 17 km to the south-east;
- Prestonfield House (Priestfield) GDL located approximately 17.1 km to the north-west;
- Thirlestane Castle GDL located approximately 17.3 km to the south-east;
- Palace of Holyroodhouse GDL located approximately 17.4 km to the north-west;
- Pilmuir GDL located approximately 18.8 km to the north-east;
- The Glen GDL located approximately 19 km to the south;
- The New Town Gardens GDL located approximately 19.7 km to the north-west;
- Malleny GDL located approximately 19.8 km to the north-west;
- Yesterhouse GDL located approximately 19.9 km to the north-east;

6.5.17 Where relevant, potential effects on these assets are considered further within the Cultural Heritage Assessment in **Chapter 7** of this EIA Report.

Published Landscape Character Descriptions

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

- SNH (now NatureScot) National Landscape Character Assessment (2019); and
- Midlothian Landscape Wind Energy Capacity Study, September 2014 (MLWECS)xx.

6.5.19 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 Assessment' (Countryside Agency and NatureScot, 2002):-

- 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

6.5.20 With reference to **Figures 6.12 and 6.13**, the proposed turbines, the wind farm access tracks and associated infrastructure are located partly within LCT 266 Plateau Moorland – Lothians and partly within LCT 269 Upland Fringes - Lothians as defined in the NatureScot National Landscape Character Types.

6.5.21 The key characteristics of LCT 266 Plateau Moorland – Lothians are:

- Modest hills and moors forming broad plateaux with rounded;
- Smooth convex hill slopes dissected by a complex tracery of valley landforms which vary in scale and appearance, from minor burn narrow incised gullies to occasional wider flat-bottomed valleys of larger rivers;
- Medium to large scale landscape;
- Open upland character with sparse tree cover;
- Expanses of heather moorland, with rough grasses on upper slopes, with poor rough grassland and occasional improved pasture on lower slopes;
- Generally unenclosed, with some post and wire fences along roads and access tracks, and occasional stone sheep stells and walls around farmsteads;
- Sparsely inhabited, with scattered farmsteads in valleys;
- Reservoirs creating local focal points;
- Historic human influences evident in the many enclosures, cairns, hill forts and stone circles;

- Steep north-facing scarps with spectacular panoramic views overlooking the coastal plain of Lothian to the north with views across the Firth of Forth; and
- Forms the skyline when viewed from the lower land to the north.

6.5.22 The MLWECS identifies this LCT as LCA 11 Moorfoot Hills and summarises it as:

"The distinctive north-west facing scarp of the Moorfoot Hills lies within Midlothian with the hills forming an extensive rolling dissected plateau to the south-east within neighbouring Scottish Borders."

6.5.23 The MLWECS goes on to identify LCA 11 as having a **high sensitivity** stating:

"This is because of the dramatic juxtaposition that exists between the scarp of the Moorfoots and lower-lying moorland in Midlothian where all wind turbines located on steep slopes or perched on the top of the scarp would be a major detractive element. Larger turbines >50m would additionally diminish the apparent vertical scale of the scarp which is of relatively low relief."

6.5.24 The key characteristics LCT 269 Upland Fringes – Lothians are:

- Broadly undulating, landforms forming a series of smooth rounded hills and slopes, some steep-sided and some gently sloping, shelving gradually from the Uplands northward to merge with rolling farmlands;
- Occasional hills where underlying geology incorporates harder strata;
- Varied scale, openness and land use reflecting transitional nature between upland and lowland;
- Incised watercourses have etched v-shaped valleys into the slopes, often forming deep cleughs;
- Occasional larger rivers flow through similar, but larger-scale, v-shaped channels;
- Remnant heather moorland and rough grassland on high ground gives way to improved grassland and then to arable land on the lowest elevations, with a parallel transition from post and wire fence and walls to beech and hawthorn hedges;
- Some areas of extensive coniferous forest, but tree cover is more frequent in the form of shelterbelts;
- Deciduous woodland is restricted to steeper land in river channels, though this includes some important ancient woodlands;
- Dispersed settlement pattern of farmsteads and clusters of cottages, with occasional small villages;

- Distinctive character of rural road network, dense in places, including local features such as fords and bridges;
- Quarries, overhead lines and busy A roads which have localised influence in some parts of the landscape;
- Clearly transitional landscape between lowland and upland characters; and
- Views across the lowland, and to the coast in the east, backed by the ridge lines of the hills to the south.

6.5.25 This LCT comprises three LCA in the MLWECS, namely LCA 7 North Lammermuir Platform, LCA 8 Moorland Fringes and LCA 9 Lowland Moorland.

6.5.26 Regarding LCA 7 North Lammermuir Platform, the MLWECS describes it as *'This landscape forms a band of undulating farmland and hill slopes along the foot of the Lammermuir and Moorfoot Hills and extends east into East Lothian.'* going on to identify it as having a **high sensitivity**.

6.5.27 The MLWECS describes LCA 8 Moorland Fringes as *'This area of undulating farmland and fragmented moorland lies between the Pentland and Moorfoot Hills and borders the Lowland Moorland landscape character area. It extends south-west into Scottish Borders where coniferous forestry increasingly features'* going on to also identify it as having a **high sensitivity** to turbines over 80 m in height.

6.5.28 In regard to LCA 9 Lowland Moorland, the MLWECS describes it as *'This character area comprises two distinct broad swathes of open and expansive moorland lying at the foot of the Pentland Hills at Auchencorth and at the foot of the Moorfoot Hills to the east of Gladhouse Reservoir.'* going on to identify it as also having a **high sensitivity**.

6.5.29 However, since the MLWECS was published in 2014, NatureScot has prepared revised guidance[xxi] 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"*.

6.5.30 It is also important to acknowledge that landscape and visual effects arising from a proposed development 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

6.5.31 In order to consider the indirect effects of the Proposed Development on landscape character, landscape character types within 35 km of the Proposed Development have been illustrated on **Figure 6.12**, and those located within the detailed 20 km LVIA study area are illustrated on **Figure 6.13**. The LCTs within 20 km have also been overlaid with the ZTV at **Figure 6.14**.

6.5.32 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 character type is proportionate to the likelihood of significant effects arising. The discussion below summarises the process followed in deciding which character types have the potential to experience significant effects and hence to scope out various character types from further consideration.

6.5.33 With reference to **Figure 6.14** and the blade tip ZTV at **Figure 6.3**, all LCTs located between 20 km and 35 km have been scoped out of further assessment, on account of the distance from the Proposed Development, the influence of other closer wind farm developments 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.

6.5.34 All LCTs present within the detailed 20 km LVIA study area have been subject to an initial sieving exercise. The findings of this exercise are presented at **Table 6.3.1** of **Technical Appendix 6.3**.

6.5.35 The other LCTs beyond the site assessed in detail in this chapter are:

- LCT 90 Dissected Plateau Moorland located approximately 0.3 km to the south-east;
- LCT 91 Plateau Grassland – Borders located approximately 1.1 km to the north-west;
- LCT 270 Lowland River Valleys - Lothians located approximately 2.8 km to the north;
- LCT 272 Lowland Hills and Ridges – Lothian located approximately 3.5 km to the north;
- LCT 104 Upland Fringe Rough Grassland located approximately 4.5 km to the west;
- LCT 272 Lowland Hills and Ridges – Lothians located approximately 5.1 km to the north-west; and

- LCT 267 Plateau Grassland – Lothians located approximately 5.5 km to the east.

Local Landscape Description and Character Appraisal

6.5.36 A plan illustrating the landscape features/elements within the site and its immediate context (5 km radius of the turbines) is provided in **Figure 6.16**. The following discussion provides an overview of the physical and perceptual characteristics of the site and immediately surrounding landscape without particular reference to published landscape character types.

Topography

6.5.37 Topography within 35 km of the Proposed Development is illustrated at **Figure 6.15**.

6.5.38 The topography of the site comprises part of the smooth, convex hillslopes of the Moorfoot Ridge that borders the south-eastern edge of the site. These slopes fall in a broadly north-westerly direction from high points of approximately 492 m Above Ordnance Datum (AOD) at the southern tip of the site near to Mauldslie Hill (513 m AOD), Torfichen Hill (460 m AOD) and Broad Law (approximately 450 m AOD) to the north-western edge of the site where elevations range from between approximately 300 m AOD at the north-western corner of the site and 268 m AOD at the northern corner of the site.

6.5.39 Beyond the site, the Moorfoot Ridge to the immediate south gently falls in elevation in a north-easterly direction towards the north-eastern corner of the site at an elevation of approximately 376 m AOD at Whitelaw Cleugh.

6.5.40 To the south-east of the topography is characterised as dissected upland plateau moorland comprising a series of level-topped hills and ridges with elevations rising to 651 m AOD at Blackhope Scar and Rough Moss (601 m AOD) situated approximately 5 km to the south of the Proposed Development.

6.5.41 To the north of the site, the topography is characterised as upland fringe forming a series of smooth, rounded hills that flank the upland plateau to the south, becoming more varied further north.

Watercourses and Drainage

6.5.42 Several small burns cross through the site. Wesley Cleugh Burn passes along the southern edge of the site, while Black Burn flows through the

southern part of the site in a broadly north-westerly direction towards Gladhouse Reservoir and River South Esk.

6.5.43 In the central part of the site, the Latch and Middleton North burns flow in a broadly northerly direction. Middleton South Burn flows along the northern edge of the site and collectively these three watercourses continue in a north-easterly direction towards Gore Water.

6.5.44 In the wider surrounding landscape to the south of the site, numerous small burns in deeply incised, narrow valleys flow from the upland plateau towards Heriot and Gala waters.

Vegetation

6.5.45 The site of the Proposed Development comprises an area of open, upland grassland with occasional, small shelterbelts, flanked by moorland vegetation along the south-eastern edge of the site.

6.5.46 Within the wider study area, managed grassland fields on the lower-lying slopes are dotted with occasional shelterbelts and small plantation woodlands dotted across the landscape.

Built Infrastructure

6.5.47 The majority of the site does not feature any built infrastructure. However, the B7007 crosses through the southern part of the site. Part way along the southern edge of the site, close to the bend of the B7007 a small access track leads from the B7007 to a former disused quarry which is located within the southern part of the site.

6.5.48 Within the wider landscape surrounding the site, there are numerous individual farmsteads and small groups of properties, villages and occasional small towns, situated mainly within the more settled lower-lying landscapes to the north of the site.

6.5.49 Within the wider landscape within the detailed 20 km LVIA study area there are several main transport routes. To the east of the Proposed Development these comprise: the A7 crossing through the north-eastern part of the study area approximately 2.9 km to the north-east of the Proposed Development passing between Galashiels and Edinburgh; the A68 approximately 11.9 km to the east of the Proposed Development passing between Lauder and the A720 at Edinburgh and the A697 approximately 15.3 km to the south-east of the Proposed Development.

6.5.50 To the west of the Proposed Development the main transport routes comprise: the A72 located approximately 14 km to the south-west; the

A703 approximately 7.7 km to the west; the A701 and the A6094 approximately 8.6 km to the west and the A702 approximately 12.7 km to the north-west.

6.5.51 As these routes converge on Edinburgh there is a plethora of A roads passing through the urban areas around the southern periphery of the city.

6.5.52 In addition to these primary routes, there is an extensive network of B roads and minor roads passing through the study area. Within 5 km of the Proposed Development these comprise the B7007 that passes through the north-eastern part of the site, the B709 passing through the Moorfoot Hills approximately 3.4 km to the south-east of the Proposed Development, the B6367 approximately 4.1 km to the north-east and the B6372 approximately 3.3 km to the north-west of the Proposed Development.

6.5.53 Within the detailed 25 km Cumulative study area there are several operational, consented or in planning wind farms. These are generally located on the higher ground to the south-east and east of the site and comprise operational schemes at: Carcant, located approximately 2 km to the south-east; Bowbeat, located approximately 6 km to the south-west; Toddleburn, located approximately 9 km to the east; Dun Law, located approximately 11 km to the east; Dun Law Extension, located approximately 11 km to the east; Pogbie I and II, located approximately 12 km east; Keith Hill, located approximately 12 km to the east; Longpark, located approximately 17 km to the south-east and Fallago Rig located approximately 22 km to the east.

6.5.54 In addition to the operational schemes within the immediate surrounding landscape, the consented Cloich Forest scheme is located approximately 12 km to the south-west. In addition, there are in planning schemes in the surrounding landscape that comprise: Wull Muir, located approximately 3 km to the south-east; Greystone Knowe located approximately 6 km to the south-east; Cloich Forest, located approximately 12 km to the south-west; Scawd Law located approximately 13 km to the south and Dunside, located approximately 24 km to the east. Cloich Forest is subject to a revised application which would supersede the consented scheme.

6.5.55 Other wind farms within 25 km are illustrated in **Figure 6.28**.

Sensory and Perceptual Characteristics

6.5.56 The site comprises upper hillslopes and open moorland ridge that form a notable landscape feature seen in many views from the lower-lying landscapes to the north. The site's elevation allows broad sweeping views

in all directions across the lower-lying areas to the north but the Moorfoot ridge to the immediate south-east partially restricts visibility in that direction. and more contained settled valley landscapes.

6.5.57 The site exhibits a strong sense of openness that together with the large, sweeping panoramic views across the landscapes to the north lead to a sense of the large scale and vastness of the landscape.

6.5.58 In addition to the more settled, farmed landscapes to the north, the moorland landscape reflects the cultural importance of the landscape that has been shaped by human influences through its management and use recreation and for upland grazing. The disused quarry in the southern part of the site further evidences the human influences on the immediate landscape.

6.5.59 Although the site exhibits some perception of remoteness it is strongly influenced by its proximity to the moderating influences of the B road passing through it and its proximity of other nearby wind farms.

Forces for Future Change in the Landscape

6.5.60 The main foreseeable forces for change in the landscape surrounding the site relate to changes to traditional forms of moorland management, which may over time lead to changes to vegetation resulting from re-wetting or rewilding to encourage greater habitat diversity.

6.5.61 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 in the Cumulative Assessment at **Section 6.9**.

6.5.62 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.

Visual Receptors

6.5.63 With reference to the blade tip ZTV at **Figure 6.3** and **Figure 6.4**, the principal areas of theoretical visibility extends approximately 8 km to the south, 10 km to the east and west and approximately 15 km to the north. Although it is acknowledged 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.

6.5.64 It was determined that there was no potential for the Proposed Development to result in any significant visual effects at distances over 20 km from the site, and furthermore, that with 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 35 km and the various figures which accompany this report illustrate an initial 35 km study area, the assessment has focused on visual receptors within the detailed 20 km LVIA study area.

6.5.65 Interpretation of the ZTVs (**Figures 6.3** through to **6.6** and the ZTV quadrants at **Figures 6.19** through to **6.26**) assisted identifying potentially sensitive visual receptors of the Proposed Development. Principal visual receptors within the surrounding landscape are illustrated at **Figures 6.17** and **6.18** and are identified below.

Residential Receptors and Settlements

6.5.66 Residential visual receptors have been identified in bands of distance from the nearest turbine with a greater level of detail provided in relation to those properties nearest to the Proposed Development, although it is recognised that there may be views from individual properties and clusters of properties throughout the wider study area.

6.5.67 With reference to the blade tip ZTVs at **Figures 6.3** and **6.4** and **Figures 6.17** through to **6.22**, only those properties or settlements with theoretical visibility of the Proposed Development have been identified below. Those settlements with no theoretical visibility have not been considered further within this chapter.

Residential Properties within 2.5 km

6.5.68 There are 36 residential properties within 2.5 km of the Proposed Development. Effects on these properties are considered further in the Residential Visual Amenity Assessment (RVAA) at **Technical Appendix 6.6**. The location of these properties is illustrated on **Figure 1** of **Technical Appendix 6.6**.

Settlements

6.5.69 Settlements have been identified with reference to the National Records of Scotland[xxii]. In addition, smaller settlements within 5 km of the Proposed Development identified in the Midlothian Local Development Plan 2017[xxiii] have also been considered.

Settlements within 5 km

6.5.70 Within 5 km of the Proposed Development the nearest settlements, experiencing theoretical visibility of the Proposed Development are:

- North Middleton – located approximately 2.9 km to the north-east;
- Temple – located approximately 3.7 km to the north-west; and
- Gorebridge – located approximately 4.3 km to the north.

Settlements within 5 to 10 km

6.5.71 Settlements within 5 to 10 km of the Proposed Development experiencing theoretical visibility of the Proposed Development comprise:

- Mayfield – located approximately 7.8 km to the north;
- Bonnyrigg – located approximately 8.6 km to the north;
- Rosewell – located approximately 8.6 km to the north-west; and
- Pathhead – located approximately 9 km to the north-east.

Settlements within 10 to 15 km

6.5.72 Settlements within 10 to 15 km of the Proposed Development experiencing theoretical visibility of the Proposed Development comprise:

- Penicuik – located approximately 10 km to the north-west;
- Roslin – located approximately 10.4 km to the north-west;
- Dalkeith – located approximately 10.6 km to the north;
- Loanhead and Bilston – located approximately 11.3 km to the north-west;
- Edinburgh – located approximately 13.1 km to the north;
- Whitecraig – located approximately 13.6 km to the north;
- Danderhall – located approximately 13.6 km to the north;
- Ormiston – located approximately 13.9 km to the north-east;
- Stow – located approximately 14.2 km to the south-east; and
- Elphinstone – located approximately 14.8 km to the north.

Settlements within 15 to 20 km

6.5.73 Settlements within 15 to 20 km of the Proposed Development experiencing theoretical visibility of the Proposed Development comprise:

- West Linton – located approximately 16.4 km to the west;
- Tranent – located approximately 16.5 km to the north-east;
- Prestonpans – located approximately 17.2 km to the north; and
- Macmerry – located approximately 18.2 km to the north-east.

6.5.74 An initial filtering exercise has been undertaken of settlements within the detailed 20 km LVIA study area to determine which have the potential to

experience significant effects and would 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 **Technical Appendix 6.4**.

6.5.75 This filtering exercise identified that people within Gorebridge, Bonnyrigg, Rosewell and Roslin have the potential to experience significant visual effects. The effects on these settlements are considered further at **Section 6.6**.

Scotland's Great Trails

6.5.76 With reference to **Figure 6.17** and **6.18** there are several long distance walking routes that pass through detailed 20 km LVIA study area. These comprise:

- Cross Borders Drove Road – located approximately 12.3 km to the south-west;
- John Muir Way – located approximately 16.9 km to the north;
- Southern Upland Way – located approximately 18.3 km to the south; and
- Forth Clyde and Union Canal Towpath – located approximately 19.2 km to the north-west.

6.5.77 Referring to **Figure 6.18**, theoretical visibility from these routes is very limited. Coupled with the distance from the Proposed Development, any effects would be very limited and would not be considered significant. As such they are not considered further within the assessment.

Core Paths

6.5.78 There are numerous core paths located within the detailed 20 km study area. These are illustrated at **Figure 6.18**.

6.5.79 Beyond 10 km theoretical visibility from the core paths is more limited. Therefore, the assessment has focussed on core paths within 10 km from the Proposed Development and has grouped them based on their direction and distance from the Proposed Development. Those core paths with no theoretical visibility have not been considered further within this chapter.

6.5.80 An initial filtering exercise has been undertaken to determine which groups of core paths have the potential to experience significant effects and would therefore require detailed consideration in this chapter. The intention has been to ensure that the level of attention given to each

group of core paths is proportionate to the likelihood of significant effects arising. The findings of the initial sieving exercise are presented at **Table 6.4.2** of **Technical Appendix 6.4**.

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

- Core paths within 5 km located to the south-west (including Scottish Hill Track LM/HT43/5 and Recorded Right of Way LM/LM173/1), west, north-west, north and north-east; and
- Core paths between 5 and 10 km located to the north-west, north, north-east and east.

Cycle Routes

6.5.82 There are numerous cycle routes located within the detailed 20 km study area. These are illustrated at **Figure 6.18**.

6.5.83 Beyond 10 km theoretical visibility from the routes is more limited and intermittent or the routes pass through the urban areas surrounding Edinburgh to the north. Therefore, the assessment has focussed on those routes within 10 km from the Proposed Development.

6.5.84 An initial filtering exercise has been undertaken to determine which 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 core path is proportionate to the likelihood of significant effects arising. The findings of the initial filtering exercise are presented at **Table 6.4.3** of **Technical Appendix 6.4**.

6.5.85 This filtering exercise identified that cyclists using National Cycle Network Route 1 have the potential to be significantly affected by the Proposed Development.

Roads & Railways

6.5.86 There are numerous roads located within the detailed 20 km study area. These are illustrated at **Figure 6.18**.

6.5.87 Beyond approximately 10 km theoretical visibility is more limited and intermittent. Therefore, the assessment has focussed on routes within 10 km from the Proposed Development. Roads with no theoretical visibility have not been considered further within this chapter.

6.5.88 An initial filtering exercise has been undertaken to determine which 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 route is proportionate to the likelihood of significant effects arising. The findings of the initial filtering exercise are presented at **Table 6.4.4** of **Technical Appendix 6.4**.

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

- A7;
- B7007;
- B6458;
- B6367;
- B6372; and
- B704

6.5.90 The route of the Borders Railway passes through the detailed 20 km LVIA study area. It follows a course through the eastern part of the study area and passes within 5 km of the Proposed Development. However, there are extensive cuttings along the route and as such it is considered there is limited potential for rail travellers to experience effects. As such effects of users of this railway are not considered further.

Recreation and Tourism

6.5.91 The City of Edinburgh is the main tourist destination within the detailed 20 km LVIA study area. A viewpoint has been included from Arthur's Seat which is a very popular vantage point in the city.

Assessment Viewpoints

6.5.92 The following table sets out the viewpoints considered as part of this assessment. These viewpoints have been derived through desk-based, 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 scoping and amended following feedback received.

6.5.93 The viewpoints are representative of the 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) and 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.

6.5.94 Error! Reference source not found.**Table 6.2** identifies the 22 assessment viewpoints. The locations of these viewpoints are illustrated on **Figures 6.3** and **6.4**.

Table 6.2 Assessment Viewpoints

Viewpoint	OS Grid Reference	Approximate Distance to Nearest Turbine	Receptor Type
Viewpoint 1 - A7, Middleton Mains (N)	338584, 657695	3,679 m (T18)	Road users
Viewpoint 2 - B7007, Broad Law corner	334870, 654307	575 m (T2)	Road users Gladhouse Reservoir & Moorfoot Scarp SLA
Viewpoint 3 - B6372, Mount Lothian area	327273, 656958	5626 m (T3)	Road users
Viewpoint 4 - A702, Hillend area	325144, 666433	14,294 m (T16)	Road users Pentland Hills SLA
Viewpoint 5 - A702, Junction with A766	318423, 658182	14,220 m (T3)	Road users Pentland Hills SLA
Viewpoint 6 - A702, Lawhead Farm	321972, 661471	12,565 m (T3)	Road users Pentland Hills SLA
Viewpoint 7 - A703, Layby south of Craigburn	324042, 654078	7,391 m (T3)	Road users
Viewpoint 8 - A7, North Middleton	335698, 658882	2,996 m (T16)	Residents Road users
Viewpoint 9 - Gladhouse Reservoir	330084, 654410	1,964 m (T3)	Recreation users Road users
Viewpoint 10 - Arniston House	332575, 659446	4,167 m (T16)	Recreation users Road users South Esk & Carrington Farmland SLA
Viewpoint 11 - Scald Law, Pentlands	319225, 661062	14,639 m (T3)	Walkers
Viewpoint 12 - Minor road near Yorkston Farm (N)	331474, 656567	2,629 m (T7)	Residents Road users
Viewpoint 13 - Whiteside Law	331472, 656568	2,631 m (T7)	Walkers

Viewpoint	OS Grid Reference	Approximate Distance to Nearest Turbine	Receptor Type
Viewpoint 14 - Blackhope Scar	335800, 650990	3,355 m (T10)	Walkers Gladhouse Reservoir & Moorfoot Scarp SLA
Viewpoint 15 - Arthur's Seat, Edinburgh *	331535, 648351	4,643 m (T1)	Walkers
Viewpoint 16 - Gorebridge *	327536, 672945	18,486 m (T16)	Residents Road users
Viewpoint 17 - Roslin *	335337, 661629	5,653 m (T16)	Residents Road users
Viewpoint 18 - Bonnyrigg *	327522, 663108	10,255 m (T16)	Residents Road users
Viewpoint 19 - Fala Common *	329769, 664376	9,833 m (T16)	Walkers Fala Moor SLA
Viewpoint 20 - Lauder Common *	342565, 658676	7,613 m (T18)	Recreation users Road users
Viewpoint 21 - B6372, Fountainside *	348098, 645588	15,869 m (T18)	Residents Road users
Viewpoint 22 - Caerketton Hill * (N)	329976, 656905	3,640 m (T3)	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.

6.5.95 **Technical Appendix 6.5** provides a baseline description of the view from each assessment viewpoint, followed by a detailed analysis and assessment of the effects.

6.6 Assessment of Potential Effects

6.6.1 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 operation of the Proposed Development:

6.6.2 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

6.6.3 A detailed description of the Proposed Development is set out in **Chapter 3: Project Description**. The description below summarises those details of the Proposed Development that have particular relevance to this LVIA.

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

- 18 wind turbines with a blade tip height of 180 m. 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 seven of the 16 turbines. There would be no intermediate tower lights;
- internal site access tracks (approximately 17 km);
- eleven watercourse crossings;
- crane hardstanding areas adjacent to each turbine;
- a substation compound including a telecommunications mast and control building;
- battery energy storage system (BESS);
- on-site underground cabling;
- up to two temporary borrow workings with the potential to locate a concrete batching plant if required;
- temporary construction compound within the centre of the site and one temporary enabling works compound close to the entrance to the site of the B7007.

6.6.5 The assessment of effects on landscape character and visual amenity is based on a blade tip height of 180 m and a hub height of 105 m as set out in the candidate turbine dimensions detailed in **Chapter 3: Project Description**. The rotor diameter and hub height of the final selected turbine may differ from these values, however the turbine tip height will not exceed 180 m. Given this committed maximum tip height, and the range of turbine models likely to be available and suitable for the local wind conditions, there is considered to be negligible potential for the significance of environmental effects to be different than as assessed based on the candidate turbine model. It is anticipated that confirmation of the final selected turbine dimensions will be required by a suitably worded planning condition.

Effects during Construction on Existing Landscape Features

6.6.6 As identified in the baseline section, the existing landscape features present on the site are:

- Grassland and moorland vegetation;
- Existing shelterbelts;
- Watercourse/drainage channels; and
- B7007.

6.6.7 The construction phase would result in the removal of small parts of the grassland and moorland vegetation and other such ground-level vegetation, through the construction of on-site access tracks, hardstanding areas, a substation and battery energy storage compound, on-site underground cabling, temporary borrow workings, construction compounds and turbine foundations. Underground electricity cables would generally follow access tracks.

6.6.8 The existing 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.

6.6.9 Referring to the Project Description found at **Chapter 3** of the EIA Report, up to two borrow working 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 have been completed. Their excavation would be short-term and would result in the removal of moorland and grassland vegetation, soils and subsurface rock. Borrow workings would be restored following construction to encourage re-vegetation although it is accepted that some regrading of the land profile would be expected.

6.6.10 The existing vegetation is frequently encountered feature of the wider surrounding open upland landscape. It does not form part of the fabric of a site designated for its scenic value although it is a characteristic feature of the upland landscape. The existing grassland and moorland vegetation has evolved over time through land management practices, lowering its susceptibility. Combining its value and susceptibility results in the sensitivity of the moorland and grassland vegetation being low.

6.6.11 The existing vegetation would experience a medium magnitude of change resulting from the construction of new access tracks, laydown areas, crane

pads and turbine foundations, affecting a small part of the existing vegetation within the site. The overall level of effect on the existing vegetation resulting from the Proposed Development is considered to be **moderate/minor**, which is not considered to be significant.

6.6.12 The existing shelterbelts within the site are a common feature of the wider surrounding landscape. They do not form part of a site designated for its scenic value and have been introduced as part of the management of the landscape for agricultural purposes. Combining their value and susceptibility results in their sensitivity being low.

6.6.13 The shelterbelts would experience a very low magnitude of change as there would be no loss or alteration to them. The overall level of effect to them resulting from the Proposed Development is considered to be **minor/no effect**, which is not considered to be significant.

6.6.14 The site is incised by numerous channels created as water flows off the high ground to the south-east, requiring ten watercourse crossings across the site. 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 having a medium level of sensitivity.

6.6.15 The proposed turbines and associated infrastructure have been located away from any watercourses/channels on the site wherever possible. Therefore, it is only in the location of the proposed watercourse crossings and a limited number of other locations where there is potential for construction effects to occur. Effects would be limited and controlled through best-practice construction and environmental practices, such that there would be no greater than a low magnitude change and a **moderate/minor** level of effect which would not be significant.

6.6.16 The B7007 crosses through the north-eastern part of the site. The proposed turbines and associated infrastructure have been located away from the road and as such this landscape feature would experience no change.

Summary of effects on existing landscape features

6.6.17 The Proposed Development would result in a **moderate/minor** effects to the existing grassland and moorland vegetation, **minor/no effects**, no greater than a **moderate/minor** effect to watercourses and drainage channels and the B7007 would experience no change. All these effects are considered to be not significant.

Assessment of Effects on Landscape Character

6.6.18 The LCTs covering the initial 35 km LVIA study area are shown on **Figure 6.12** and within the detailed 20 km LVIA study Area at **Figure 6.13**. LCTs within 20 km of the Proposed Development overlaid with the blade tip ZTV are illustrated at **Figure 6.14**.

6.6.19 As explained in the baseline section at paragraph 6.5.34, an initial filtering process has been carried of all LCTs within the detailed 20 km 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 90 Dissected Plateau Moorland located approximately 0.3 km to the south-east;
- LCT 91 Plateau Grassland – Borders located approximately 1.1 km to the north-west;
- LCT 270 Lowland River Valleys - Lothians Approximately 2.8 km to the north;
- LCT 272 Lowland Hills and Ridges – Lothian located approximately 3.5 km to the north;
- LCT 104 Upland Fringe Rough Grassland located approximately 4.5 km to the west;
- LCT 272 Lowland Hills and Ridges – Lothians located approximately 5.1 km to the north-west; and
- LCT 267 Plateau Grassland – Lothians located approximately 5.5 km to the east.

Sensitivity of Landscape Character to Wind Energy Development

6.6.20 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.

6.6.21 The discussion below analyses the susceptibility and value of each of the LCTs taken forward into detailed assessment and then combines these separate judgements to provide an overall judgement of the sensitivity of the LCT. This analysis takes account of the Midlothian Landscape Wind Energy Capacity Study (2014) and the Scottish Borders Council Update of

Wind Energy Landscape Capacity and Cumulative Impact Study 2016 and was also informed by further desk and field study.

Table 6.3 Landscape Character Sensitivity

Landscape Character Type	Value	Susceptibility	Sensitivity
LCT 266 Plateau Moorland – Lothians The Proposed Development is partly located in this LCT	**High** - Prominent north-west facing, relatively low height scarp slopes. The Gladhouse Reservoir & Moorfoot Scarp SLA covers the LCT and the area is crossed by several core paths	**Medium high** – Proximity to Carcant and Bowbeat wind farms moderates the LCT's susceptibility slightly. However, the slopes are susceptible to development as they form the backdrop to views from lower-lying areas to the north.	**High**
LCT 269 Upland Fringes – Lothians The Proposed Development is partly located in this LCT	**High** – The Pentland Hills SLA, the Gladhouse Reservoir & Moorfoot Scarp SLA and Fala Moor SLA cover parts of the LCT that also forms a prominent open foreground to the hills to the south.	**Medium high** – Proximity to Carcant Wind Farm moderates the LCT's susceptibility slightly. However, the LCT is susceptible to development as it provides the transition to the Moorfoot Hills to the south.	**High**
LCT 90 Dissected Plateau Moorland	**High**- Large-scale open upland landscape. Not designated for its scenic value but forming a prominent skyline.	**Medium high**- The scale of the landscape reduces the susceptibility of the LCT as does the existing Carcant and Bowbeat wind farms. The LCT is susceptible to development that could conflict with the prominence of the skyline.	**High**
LCT 91 Plateau Grassland – Borders	**Low medium** – Not designated for its scenic value. Large-scale landscape situated at a lower elevation.	**Medium** -Significant operational wind farm development in the northern part of the LCT at Toddleburn, Dun Law, Pogbie and Keith Hill lowers its susceptibility to development in an adjacent LCT.	**Medium**
LCT 104 Upland Fringe Rough Grassland	**Medium** - Not designated for its scenic value. Medium to large-scale landscape with views to nearby Pentland	**Medium high** – LCT is susceptible to development that could influence views towards the nearby Moorfoot Hills that are	**Medium high**

Landscape Character Type	Value	Susceptibility	Sensitivity
	and Moorfoot Hills available from more open and elevated locations.	available.	
LCT 267 Plateau Grassland – Lothians	**High** – Fala Moor SLA covers the western part of the LCT and the elevated, open moor allows a perception of remoteness from nearby settled areas.	**Medium** – Roads, transmission lines and Pogbie I and II wind farms reduce the susceptibility of the LCT.	**Medium high**
LCT 270 Lowland River Valleys – Lothians	**High** – South Esk & Carrington Farmland SLA, North Esk SLA and River Esk SLA cover large part of the LCT.	**Low** – Extensive built development along the river corridors in the northern part of the LCT. Limited views south-east due to the extensive woodland cover and rolling landform.	**Medium**
LCT 272 Lowland Hills and Ridges located approximately 3.5 km to the north-west	**High** - South Esk & Carrington Farmland SLA covers a large part of the LCT.	**Medium** – Undulating and rolling landform. Extensive views from the more elevated parts of the LCT but tending to focus on the Pentlands to the west and north towards Edinburgh.	**Medium high**
LCT 272 Lowland Hills and Ridges – Lothians located approximately 5.1 km to the north-west; and	**High** – Tyne Valley SLA and Elphinstone Ridge SLA cover parts of the LCT and the low, relatively open ridge allows some views towards the Moorfoot Hills.	**Medium**– LCT is susceptible to development that could influence views towards the Moorfoot Hills that provide the backdrop to views to the south	**Medium high**

Effects on Landscape Character During Construction

6.6.22 Seven of the 18 proposed turbines and their associated crane pads and access tracks and one of the borrow pit search areas would be located in LCT 266 Plateau Moorland – Lothians. The remaining eleven turbines and their associated infrastructure, temporary construction compound, substation and control building, battery storage compound and the second borrow pit search area would be located within LCT 269 Upland Fringes – Lothians. This would result in direct effects on landscape character during construction on these LCTs.

6.6.23 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.

6.6.24 Effects during construction on landscape character will 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.

6.6.25 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.

6.6.26 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 these two LCTs, resulting in a **major/moderate** temporary additional effect on the parts of the LCTs where the Proposed Development is located, which would be significant.

6.6.27 In terms of indirect effects on the other landscape character types brought forward into detailed assessment, LCT 90 Dissected Plateau Moorland would experience a low magnitude of change. Some limited additional effects would be experienced as construction takes place on the north-west scarp slopes that provide the transition to this LCT. However, views of activity would be largely restricted by the landform, mainly limiting views to cranes resulting in no greater than a low magnitude of change and a **moderate/minor** temporary additional effect that would not be significant.

6.6.28 Both occurrences of LCT 272 Lowland Hills and Ridges and the southern part of LCT 270 Lowland River Valleys - Lothians located to the north of the Proposed Development would experience a low magnitude of change with views of construction activity partially restricted by intervening landform and vegetation, resulting in no greater than a **moderate/minor** temporary additional effect that would not be significant.

6.6.29 The levels of temporary, indirect additional effects to the character of the remaining LCTs brought forward into detailed assessment would be very limited and would result in no greater than a very low magnitude of change and **minor** effects that would not be significant.

Table 6.4 Assessment of Effects on Landscape Character During Construction

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 266 Plateau Moorland – Lothians The Proposed Development is partly located in this LCT	High	Medium	Major/moderate	**Yes**
LCT 269 Upland Fringes – Lothians The Proposed Development is partly located in this LCT	High	Medium	Major/moderate	**Yes**
LCT 90 Dissected Plateau Moorland	High	Very low	Minor	No
LCT 91 Plateau Grassland – Borders	Medium	Very low	Minor	No
LCT 104 Upland Fringe Rough Grassland	Medium high	Very low	Minor	No
LCT 267 Plateau Grassland – Lothians	Medium high	Very low	Minor	No
LCT 270 Lowland River Valleys – Lothians	Medium	Low	Moderate/minor	No
LCT 272 Lowland Hills and Ridges located approximately 3.5 km to the north-west	Medium high	Low	Moderate/minor	No
LCT 272 Lowland Hills and Ridges – Lothians located approximately 5.1 km to the north-west; and	Medium high	Low	Moderate/minor	No

Bold text indicates a significant effect.

Effects on Landscape Character During Operation

6.6.30 The effects on landscape character are discussed below in relation to each landscape character types brought forward into detailed (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.

6.6.31 To aid the consideration of the operational effects on landscape character, the landscape character types within the detailed 20 km LVIA study area have been overlaid with the blade tip ZTV in **Figure 6.14**.

6.6.32 Beyond the immediate environs of the site, the ground-level components of the Proposed Development would not be discernible from more elevated areas to the south-east on the moorland plateau but the associated infrastructure may be visible from some lower-lying areas to the north and these are considered in the assessment where relevant. Overall, effects on landscape character, as experienced in the wider landscape, for most locations would arise largely in relation to the introduction of the 18 proposed turbines into the landscape and the resultant changes to the experience of landscape character.

6.6.33 It is noted that in general, the magnitude of change in landscape character will incrementally decrease with distance from the turbines as they become gradually less prominent.

6.6.34 A summary of the effects on landscape character during operation is presented in **Table 6.5**. 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 266 Plateau Moorland - Lothians

6.6.35 Seven of the 18 proposed turbines and their associated crane pads and access tracks and one borrow pit search area would be located in this LCT which occupies a narrow band of north-west facing scarp slope and a

broader area of narrow, steep-sided valley sides around the River South Esk in the southern part of the LCT. Views from this LCT are represented by Viewpoint 2 (see **Volume 3**).

6.6.36 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, there is extensive theoretical visibility from the majority of the LCT apart from the eastern valley side of the River South Esk in the southern part of the LCT where topographical screening prevents views of the proposed turbines and their associated ground-level components. From the remainder of the LCT, intermittent shelterbelts on the north slopes of Hog Hill, Huntly Cot Hills and Mauldslie Hill would provide some screening of ground-level components and the lower parts of some turbine towers in north-easterly views from the south-western parts of the LCT.

6.6.37 The proposed turbines would introduce direct effects on the LCT in the immediate vicinity of where they would be located and indirect effects on the remaining parts of the LCT. The 18 turbines would introduce tall vertical structures that would extend up to 180 m to blade tip and collectively they would have a pronounced characterising effect on the north-eastern part of the LCT, introducing a 'Plateau Moorland with Turbines' landscape character type.

6.6.38 From the southern part of the LCT, this effect would be less strong from the south-western part of the LCT around Hog Hill and the western valley side of the River South Esk, while the south-eastern part to the east of the river would be unaffected.

6.6.39 Overall, it is considered that the Proposed Development would introduce a substantial change that would be experienced across the majority of the LCT given its limited extent, resulting in a high magnitude of change and a **major significant effect**.

LCT 269 Upland Fringes - Lothians

6.6.40 Eleven of the 18 proposed turbines and their associated crane pads, access tracks, one borrow pit search area, the substation and control building and the BESS facility would be located in within the south-eastern edge of this LCT that extends to cover a broad area to the north-west of the Proposed Development. Views from this LCT are represented by Viewpoint 9 (see **Volume 3**).

6.6.41 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, there is extensive theoretical

visibility from across the LCT within approximately 7.5 km to the north-west and north-east, beyond which theoretical visibility becomes more intermittent. However, within approximately 5 km there are some narrow valleys north of Gladhouse Reservoir and at Middleton North Burn where there would be no views available.

6.6.42 The proposed turbines would introduce direct effects on a very limited part of the south-eastern edge of the LCT in the immediate vicinity of where they would be located and indirect effects on the remaining parts of the LCT. The turbines would introduce tall vertical structures that would extend up to 180 m to blade tip introducing a 'Upland Fringes with Turbines' landscape character type. This would introduce a high magnitude of change and result in a **major significant effect**.

6.6.43 With reference to **Viewpoint 1**, these effects would extend north-eastwards for approximately 3.7 km to the A7. From this direction the Proposed Development would occupy a narrower lateral extent of the view with the ridge of the Moorfoot Hills to its south. These effects would extend north from the Proposed Development to the boundary of the LCT and north-west over a distance of approximately 7.5 km in the direction of Howgate. From this direction the Proposed Development would extend across a greater lateral extent of the view and would be seen against the Moorfoot ridge that backcloths south-easterly views from this part of the LCT.

6.6.44 Between approximately 3.7 km and 7.5 km to the north-east the magnitude of change would reduce to medium, with effects reducing to no greater than **moderate non-significant**. This is due to the scale of this part of the landscape, the small lateral extent of views occupied by the Proposed Development and the amount of intervening shelterbelt plantations that would partially screen many views.

6.6.45 Beyond 7.5 km to the north-east, there would be no greater than a low magnitude of change to the character of this part of the LCT with effects assessed as **moderate/minor non-significant**.

6.6.46 Between approximately 7.5 km and 14.4 km to the north-west, theoretical visibility is limited to a band at Hare Moss and a band at the north-western end of the LCT between River North Esk and the A702. With reference to Viewpoint 5, the increased distance from the Proposed Development and the reduced scale of the turbines against the Moorfoot ridge means that the magnitude of change views from this part of the LCT would be low,

resulting in no greater than a **moderate/minor non-significant effect** to the character of the LCT.

LCT 90 Dissected Plateau Moorland

6.6.47 This LCT borders the south-eastern boundary of the site and extends to over 15 km to the south-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 viewpoints 13 and 14 (see **Volume 3**).

6.6.48 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, despite the close proximity of this LCT to the Proposed Development, predicted visibility is limited with many areas within 5 km where no views would be available. Beyond 5 km is even more restricted and limited to elevated, remote north-west facing slopes.

6.6.49 Views north-west from the LCT extend across the large scale, undulating, open and deeply incised, moorland landscape. Existing views are influenced by the wind turbines at Carcant Wind Farm that peak over the undulating moorland and extend above the horizon in some views and to a much lesser degree by the more distant existing Keith Hill, Pogbie and Dun Law schemes.

6.6.50 Referring to viewpoints 13 and 14, within approximately 5 km, where views are available, the turbines would extend above the Moorfoot ridge and would generally be backclothed against the lower-lying landscapes that extend north towards the Firth of Forth. This would introduce a medium magnitude of change and a **moderate non-significant** effect to the character of available views north from the LCT.

6.6.51 Beyond approximately 5 km, theoretical visibility is much more intermittent and limited to the north-west facing slopes at Ladyside Height and Mount Main. This limited visibility, coupled with the increased distance from the Proposed Development would mean that there would be no greater than a low magnitude of change and a **moderate/minor non-significant** effect to the character of available views north from the LCT.

LCT 91 Plateau Grassland – Borders

6.6.52 This LCT borders the south-eastern corner of the site with its north-western corner adjoining LCT 90 Dissected Plateau Moorland. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect.

6.6.53 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, despite the close proximity of this LCT to the Proposed Development, predicted visibility is limited with some areas within 5 km where no views would be available due to the valley of Gala Water. On the high ground to the west of the valley there is theoretical visibility of mostly a limited number of turbines and the proximity of this part of the LCT to Carcant Wind Farm in the adjoining Dissected Plateau Moorland LCT (LCT 90) influences the character of available views. In this part of the LCT, the Proposed Development would introduce a medium magnitude of change and lead to a **moderate non-significant effect** extending from approximately 1 km to 2.4 km to the south-east of the Proposed Development.

6.6.54 As the terrain rises towards the southern edge of this part of the LCT, there would be greater theoretical visibility with some hubs becoming visible. Between approximately 2.4 km and 3.4 km, this would introduce a medium magnitude of change and a **moderate significant effect**.

6.6.55 To the east of the A7 road corridor there would be theoretical visibility of up to all 18 turbines in a part of the landscape in which wind turbines are a component of existing views out from the LCT. These views would be experienced between approximately 4.1 km to the north-east near Cowbraehill and up to approximately 6.5 km to the east at Hangingshaw Hill and Crookston Mains Hill. The proposed turbines would be partly screened by the landform of the Moorfoot Hills and would extend above the ridge. Due to the orientation of this part of the LCT to the Proposed Development it would occupy a relatively narrow lateral extent of the view. This would introduce a medium magnitude of change and a **moderate significant** effect to the character of available views west from the LCT.

6.6.56 Beyond these distances, theoretical visibility is much more patchy and intermittent and the closer proximity to the operational Dun Law Wind Farm to the east and Toddleburn Wind Farm to the south-east, together with the reduced scale of the proposed turbines due to the increased distance from the Proposed Development, means that at a distance of between approximately 6.5 km and 10 km the Proposed Development would introduce no greater that a medium magnitude of change and a **moderate non-significant effect** to the character of available views west from the LCT.

6.6.57 Beyond 10 km, theoretical visibility is very intermittent and limited to very small, isolated areas on north-west facing slopes and in this part of the LCT where Toddleburn and Dun Law wind farms have much stronger influence on the character available views. The Proposed Development would result in no greater than a very low magnitude of change and **minor non-significant effect** on this part of the LCT.

LCT 104 Upland Fringe Rough Grassland

6.6.58 This LCT is situated approximately 4.5 km to the west of the Proposed Development. As such none of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from this LCT are represented by Viewpoint 7.

6.6.59 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, there is theoretical visibility of up to all 18 turbines from the eastern half of this relatively compact LCT before the low ridge at Spurlens Rig and Scarce Rig screens views from lower ground to the west of the ridge through which the A702 road corridor passes before ground further west allows views over the ridge towards the Proposed Development.

6.6.60 Within approximately 7 km to the west, where views are available, intervening, scattered woodland blocks around Toxside Moss, Tweeddaleburn and Gladhouse Reservoir would partially screen the lower parts of the turbine towers. However, the turbines would be seen against the convex form of the Moorfoot Hills scarp slope. The Proposed Development would occupy a medium to large lateral extent of the view and would be seen side on. This would introduce a medium to high magnitude of change with effects judged to be **major/moderate significant**.

6.6.61 Beyond approximately 7 km to the western edge of the LCT at approximately 9 km, the increased distance from the Proposed Development means that the apparent scale of the proposed turbines against the ridge is reduced and, referring to Viewpoint 7, there is a greater degree of intervening screening which would screen a greater proportion of the Proposed Development in many views. The Proposed Development would introduce a medium magnitude of change with effects assessed as **moderate non-significant** to the character of available views from the LCT.

LCT 267 Plateau Grassland – Lothians

6.6.62 This LCT situated approximately 5.5 km 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 western part this LCT are represented by Viewpoint 19.

6.6.63 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, there is theoretical visibility around Fala Moor within approximately 10 km. However, referring to **Figure 6.6** showing the hub height ZTV to 20 km, views are mostly limited to blade tips apart from the north-western corner of the LCT near Blackcastle and near Soutra Aisle where there is theoretical visibility of up to all 18 turbines. Where views are available, the Proposed Development would occupy a small lateral extent of the view as it is seen from narrowest extent. This would introduce no greater than a low medium magnitude of change and a **moderate non-significant effect**.

6.6.64 At distances beyond 10 km, there is very limited theoretical visibility at distances of in excess of 12 km in the part of the LCT where the operational Dun Law Wind Farm is located. This would influence the character of this part of the LCT and as such the Proposed Development would introduce no greater than a very low magnitude of change and no effects to the character of available views from this part of the LCT.

LCT 270 Lowland River Valleys – Lothians

6.6.65 This LCT is situated approximately 2.8 km to the north of the Proposed Development at its closest point. The LCT encompasses a broad and relatively narrow area around the River South Esk and River North Esk valleys. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the south-eastern part this LCT are represented by Viewpoint 10 and 21 and from the north-western part of the LCT by viewpoints 4, 6, 17 and 18.

6.6.66 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, there is extensive theoretical visibility across the majority of the LCT except for along the river channels. However, actual visibility would be reduced by significant intervening tree cover in the south-eastern part of the LCT and around the river corridors.

6.6.67 From the south-eastern part of the LCT within approximately 5 km, where views are available, the Proposed Development would occupy a large lateral extent as views would be towards the widest extent of the wind farm, with the turbines appearing largely backclothed against the terrain of the Moorfoot Hills. This would introduce a high magnitude of change to the character of available views and result in a **major/moderate significant effect**.

6.6.68 Between approximately 5 and 8.5 km, the increased distance from the Proposed Development would reduce the apparent scale of the turbines against the background landform which, together with intervening trees providing partial screening would lead to the magnitude of change reducing to medium, with effects considered to be **moderate significant**.

6.6.69 Beyond approximately 8.5 km, effects to the character of available views would reduce to low medium, with effects considered to be **moderate/minor non-significant**. This is due to the additional screening provided by the built form within Lasswade, Bonnyrigg and Loanhead.

LCT 272 Lowland Hills and Ridges

6.6.70 This LCT is located approximately 3.5 km to the north-east extending to over 18 km to the north-east of Gorebridge and covering a relatively narrow extent of low ridges. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect. Views from the southern part of the LCT are represented by **Viewpoint 16**.

6.6.71 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, the main area of theoretical visibility from the LCT extends to approximately 10 km from the Proposed Development. Beyond this theoretical visibility is much more intermittent and mainly limited to the eastern fringes of the LCT.

6.6.72 Within approximately 6 km, the south-western hillslopes are relatively open allowing views towards the Proposed Development which would be seen backgrounded against the Moorfoot ridge with the turbine hubs broadly at the level of the ridge. The Proposed Development would extend across a medium to large lateral extent and would introduce a medium high magnitude of change resulting in a **major/moderate significant effect**.

6.6.73 Between approximately 6 km and 10 km, there is a greater degree of intervening screening provided by shelterbelts and hedgerows around

fields that, together with the increased distance from the Proposed Development, reduces the scale of the turbines and the proportion of the view occupied by it. This reduces its influence on the character of available views leading to the magnitude of change reducing to medium and effects reducing to **moderate non-significant**.

6.6.74 Beyond 10 km, the influence of the Proposed Development on the character of available views is greatly reduced by the limited theoretical visibility resulting in the magnitude of change reducing to low with effects assessed as no greater than **moderate/minor non-significant**.

LCT 272 Lowland Hills and Ridges - Lothians

6.6.75 This LCT is located approximately 5.1 km and extends to approximately 9.4 km to the north-west of the Proposed Development. It is a relatively small LCT covering an area of low ridges to the south-east of the River North Esk. None of the proposed turbines or associated infrastructure would be sited within this LCT. Therefore, any effects discussed below are indirect.

6.6.76 With reference to **Figure 6.14**, showing landscape character types within 20 km overlaid with the blade tip ZTV, there is extensive theoretical visibility of up to all 18 turbines across the LCT apart from small portions where landform prevents visibility such as along watercourses and from the north-western tip of the LCT where no views are predicted.

6.6.77 Where views are available and are not restricted by intervening woodland blocks, the Proposed Development would extend across a medium to large lateral extent of the view, with the turbines appearing backclothed against the ridge beyond, with the turbine hubs appearing at a similar height to the ridgeline. This would introduce a medium high magnitude of change and result in a major/moderate significant effect. These effects would extend to a distance of approximately 8 km.

6.6.78 Beyond 8 km, the increased distance from the Proposed Development together with the intervening woodland blocks around Rosewell would mean that the magnitude of change of would be no greater than medium with effects judged to be **moderate non-significant.**

6.6.79 A summary table of the effects on landscape character types during operation is provided below at **Table 6.5**.

Table 6.5 Assessment of Effects on Landscape Character During Operation

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 266 Plateau Moorland – Lothians The Proposed Development is partly located in this LCT	High	High	Major	**Yes**
LCT 269 Upland Fringes – Lothians The Proposed Development is partly located in this LCT Within approximately 3.7 km to the north-east and 7.5 km to the north-west	High	High	Major	**Yes**
LCT 269 Upland Fringes – Lothians Between approximately 3.7 km and 7.5 km to the north-east	High	Medium	Moderate	No
LCT 269 Upland Fringes – Lothians Between approximately 7.5 km to the north-east	High	Low	Moderate/minor	No
LCT 269 Upland Fringes – Lothians Between approximately 7.5 km and 14.4 km to the north-west	High	Low	Moderate/minor	No
LCT 90 Dissected Plateau Moorland Within approximately 5 km to the south	High	Medium	Moderate	No
LCT 90 Dissected Plateau Moorland Beyond approximately 5 km to the south	High	Low	Moderate/minor	No

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 91 Plateau Grassland – Borders West of the A7 between 1 km and 2.4 km	Medium	Medium	Moderate	No
LCT 91 Plateau Grassland – Borders West of the A7 between 2.4 km and 3.4 km	Medium	Medium	Moderate	**Yes**
LCT 91 Plateau Grassland – Borders Between approximately 4.1 km to the north-east and 6.5 km to the south-east	Medium	Medium	Moderate	**Yes**
LCT 91 Plateau Grassland – Borders Within approximately 6.5 km and 10 km to the east and south-east	Medium	Medium	Moderate	No
LCT 91 Plateau Grassland – Borders Beyond 10 km to south-east	Medium	Very low	Minor	No
LCT 104 Upland Fringe Rough Grassland Within approximately 7 km	Medium high	Medium high	Major/moderate	**Yes**
LCT 104 Upland Fringe Rough Grassland Between approximately 7 and 9 km	Medium high	Medium	Moderate	No
LCT 267 Plateau Grassland – Lothians Within approximately 10 km	Medium high	Low medium	Moderate	No

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 267 Plateau Grassland – Lothians Beyond 12 km	Medium high	Very low	No change	No
LCT 270 Lowland River Valleys – Lothians Within approximately 5 km	Medium	High	Major/moderate	**Yes**
LCT 270 Lowland River Valleys – Lothians Between approximately 5 and 8.5 km	Medium	Medium	Moderate	**Yes**
LCT 270 Lowland River Valleys – Lothians Beyond approximately 8.5 km	Medium	Low medium	Moderate/minor	No.
LCT 272 Lowland Hills and Ridges to the north-east Within approximately 6 km	Medium high	Medium high	Major/moderate	**Yes**
LCT 272 Lowland Hills and Ridges to the north-east Between approximately 6 km and 10 km	Medium high	Medium	Moderate	No
LCT 272 Lowland Hills and Ridges to the north-east Beyond 10 km	Medium high	Low	Moderate/minor	No
LCT 272 Lowland Hills and Ridges – Lothians to the north-west Between approximately 5.1 and 8 km	Medium high	Medium high	Major/moderate	**Yes**

Landscape Character Type	Sensitivity	Magnitude of Change	Effect	Significant
LCT 272 Lowland Hills and Ridges – Lothians to the north-west Between approximately 8 km and 9.4 km	Medium high	Medium	Moderate	**Yes**

Bold text indicates a significant effect.

Assessment of Visual Effects

6.6.80 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 core paths brought forward into detailed assessment.

6.6.81 The assessment has been carried out through a combination of site visits and desk study using the ZTVs, wirelines and photomontages.

6.6.82 In accordance with Civil Aviation Authority (CAA) CAP 764[xxiv] turbines taller than 150 m require visible aviation lighting. An adjusted visible aviation lighting scheme has been agreed with the CAA. In total seven of the 18 turbines (T01, T03, T09, T10, T13, T16 and T18) would be fitted with visible red 2000/200 cd lights on the nacelle of each turbine. These will operate in the reduced 200 cd intensity where meteorological visibility is greater than 5 km and where visibility is less than 5 km the lights will operate at 2000 cd. The lights are also required to be able to shine a beam that reduces in intensity above and below the horizontal. It is important to highlight that when not obscured by cloud, the visibility in the area of the turbines can be expected to exceed 5 km for the majority of the time and as such, the lights will be dimmed to 200 cd. Meteorological observations also suggest that the turbine hubs will be obscured on several hundred occasions a month by cloud.

6.6.83 It has also been agreed with the CAA that there will be no requirement for intermediate lighting to be installed halfway between the nacelle and the ground-level.

6.6.84 Should the relevant regulatory actions concerning the mandatory carriage of a compatible Electronic Conspicuity system on aircraft have been completed and signed into law the project could consider the installation of an Electronic Conspicuity (i.e. transponder) based Aircraft Detection Lighting System. The installation of a suitable Aircraft Detection Lighting System would significantly reduce the occasions when the lighting would be visible.

6.6.85 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 seven turbines agreed with the CAA;
- No intermediate lighting is illustrated halfway between the nacelle and the ground-level in line with the agreement from the CAA;
- As the photography was taken in clear weather conditions when visibility was greater than 5 km the visualisations illustrate the reduced 200 cd intensity to reflect the lighting that would arise in those conditions as a result of the mitigation proposed. Nonetheless, these images represent the worst-case as should visibility be less than 5 km such that the 2000 cd 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 200 candela lighting seen in clear conditions[xxv];
- The reduction in the intensity of lights above and below the horizon has been illustrated on **Figure 6.8**- Turbine Lighting Intensity to 20 km with Viewpoints. 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;
- 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 a 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.
- Whilst the implementation of a suitable Aircraft Detection Lighting System would significantly 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 fully in a 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 receptors in practice; and
- 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. However, it should be noted 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 will be a few individuals such as landscape photographers who may visit hilltops to take photographs at sunset or sunrise.

6.6.86 Further details about the approach and the methodology to the assessment of visible aviation lighting are set out in **Technical Appendix 6.7**.

Construction Effects

6.6.87 Construction activities associated with the Proposed Development would be screened from parts of the study area, while activities would be visible from some locations that allow views across the uplands where the Proposed Development is located.

6.6.88 From lower-lying locations to the north-west, such as from viewpoints 9, 12 and 21 and from locations such as from Viewpoint 2 in the immediate

vicinity of the site, there would be the potential for views of ground-level activities during construction. There would be the potential for 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 to high magnitude of additional change which would result in **major/moderate** significant temporary effects during the construction phase.

6.6.89 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.

6.6.90 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 low magnitude of additional change and no greater than a **minor**, temporary effect which would be not significant.

Operational Effects

6.6.91 A detailed viewpoint assessment of the operational effects is presented at **Technical Appendix 6.5** and this considers the long-term visual effects during the operational phase of the Proposed Development for each of the 22 viewpoints.

6.6.92 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.

6.6.93 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 the actual visibility of the turbines.

6.6.94 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 and a statement provided to clarify whether the additional effect resulting from the Proposed Development is significant or not.

6.6.95 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** below. Where a viewpoint is representative of more than one type of visual receptor, the judgement carried forward into the table represents the most sensitive receptor group represented by the viewpoint.

6.6.96 With reference to the Viewpoint Assessment at **Technical Appendix 6.5**, when considered against the existing baseline it has been assessed that there would be a significant visual effect at nine of the 22 representative viewpoints during daylight hours. These are as follows:

- Viewpoint 2 – B7007, Broad Law Corner;
- Viewpoint 3 – B6372, Mount Lothian area;
- Viewpoint 8 – A7, North Middleton;
- Viewpoint 9 – Gladhouse Reservoir;
- Viewpoint 12 – Minor road, near Yorkston Farm;
- Viewpoint 13 – Whiteside Law;
- Viewpoint 14 – Blackhope Scar;
- Viewpoint 16 – Gorebridge; and
- Viewpoint 21 – B6372, Fountainside.

6.6.97 It was further assessed that during the hours of darkness there would be a significant visual effect at eight of the 22 representative viewpoints. These are as follows:

- Viewpoint 2 – B7007, Broad Law Corner;
- Viewpoint 3 – B6372, Mount Lothian area;
- Viewpoint 9 – Gladhouse Reservoir;
- Viewpoint 12 – Minor road, near Yorkston Farm;
- Viewpoint 13 – Whiteside Law;
- Viewpoint 14 – Blackhope Scar;
- Viewpoint 16 – Gorebridge; and
- Viewpoint 21 – B6372, Fountainside.

Table 6.6 Assessment of Effects on Viewpoints During Operation

		Daylight Hours			Hours of Darkness		
Viewpoint	**Sensitivity**	**Magnitude of Change**	**Effect**	**Significant**	**Magnitude of Change**	**Effect**	**Significant**
Viewpoint 1 – A7, Middleton Mains	Low	Medium high	Moderate/minor	No	Medium	Moderate/minor	No
Viewpoint 2 – B7007, Broad Law Corner	Medium	Very high	Major	**Yes**	High	Major	**Yes**
Viewpoint 3 – B6372, Mount Lothian area	Medium	High	Major/moderate	**Yes**	Medium	Moderate	**Yes**
Viewpoint 4 – A702, Hillend area	Medium	Medium	Moderate	No	Low medium	Moderate/minor	No
Viewpoint 5 – Junction with A766	Medium	Low medium	Moderate/minor	No	Low	Moderate/minor	No
Viewpoint 6 – A702, Lawhead Farm	Medium	Low medium	Moderate/minor	No	Low	Moderate/minor	No
Viewpoint 7 – A703, Layby south of Craigburn	Medium	Low to very low	Minor	No	Low to very low	Minor	No
Viewpoint 8 – A7, North Middleton	High	Medium	Moderate	**Yes**	Medium	Moderate	No
Viewpoint 9 – Gladhouse Reservoir	High	High	Major	**Yes**	Medium high	Major/moderate	**Yes**
Viewpoint 10 – Arniston House	High	Low	Moderate/minor	No	Low to very low	Minor	No
Viewpoint 11 – Scald Law, Pentlands	High	Medium	Moderate	No	Low	Moderate/minor	No
Viewpoint 12 – Minor road, near Yorkston Farm	High	High	Major	**Yes**	Medium high	Major/moderate	**Yes**
Viewpoint 13 – Whiteside Law	High	Medium high	Major/moderate	**Yes**	Medium	Moderate	**Yes**
Viewpoint 14 – Blackhope Scar	High	Medium high	Major/moderate	**Yes**	Medium	Moderate	**Yes**
Viewpoint 15 – Arthur's Seat, Edinburgh	Very high	Low	Moderate	No	Very low	Minor/no effects	No
Viewpoint 16 - Gorebridge	High	Medium high	Major/moderate	**Yes**	Medium	Moderate	**Yes**
Viewpoint 17 - Roslin	High	Very low	Minor	No	Very low	Minor	No
Viewpoint 18 - Bonnyrigg	High	Medium	Moderate	No	Low medium	Moderate/minor	No
Viewpoint 19 – Fala Common	High	Low	Moderate/minor	No	Low to very low	Minor	No
Viewpoint 20 – Lauder Common	High	Very low	Minor	No	Very low	Minor	No
Viewpoint 21 – B6372, Fountainside	High	High	Major	**Yes**	Medium	Major/moderate	**Yes**
Viewpoint 22 – Caerketton Hill	High	Medium	Moderate	No	Low medium	Moderate/minor	No

Bold text indicates a significant effect.

Assessment of Effects on Visual Receptor Groups

6.6.98 This section considers the effects of the Proposed Development on the visual receptor groups brought forward into detailed assessment. Visual receptors are illustrated on **Figure 6.17** and **6.18**.

Construction Effects on Visual Receptor Groups

6.6.99 It is recognised that there would be some additional temporary visual effects during the construction of the Proposed Development over and above those assessed under the operational phase.

6.6.100 The vast majority of effects, of note, when considering the construction phase will be experienced within the local environs of the site, with views contained by topography.

6.6.101 The construction works will be visible from a number of properties within the local landscape. However, views of the construction phase will be restricted to views of cranes appearing above intervening landform and vegetation with all ground-level components generally screened from view. These views would only be experienced for a relatively short duration during the construction and they would be experienced within the context of the turbines being constructed.

6.6.102 Overall, it is assessed that there would be a low magnitude of additional effect during construction over and above the operational phase effects assessed below. This would result in a temporary **moderate** additional effect which would not be significant, and these effects need to be considered in conjunction with the operational effects identified below.

Operational Effects on Visual Receptor Groups

6.6.103 Views of the ground level components of the Proposed Development would be limited to a relatively short radius generally located to the north-west and north. Except where indicated, the discussion below therefore relates primarily to views of the proposed turbines of the Proposed Development.

Residential Receptors

6.6.104 All properties located within 2.5 km of a proposed turbine have been assessed in detail within the Residential Visual Amenity Study at **Technical Appendix 6.6** and illustrated at **Figure 1** of **Technical Appendix 6.6**.

6.6.105 In summary, of the 32 properties or property groups assessed in detail, twelve would experience a significant visual effect from either a part of their house, garden or principal access route.

6.6.106 It is concluded that when the experience from each property is considered in the round, none of the residents of any occupied 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 Settlements within 5 km

North Middleton

6.6.107 North Middleton is situated approximately 2.9 km to the north-east of the Proposed Development and sits at the junction between the A7 and Borthwick Castle Road with the majority of properties situated to the east of A7 although there are a few properties to the west of the A7. It is a nucleated settlement with a mix of traditional cottages and more modern properties set out along residential streets. Properties are generally orientated north-west to south-east. There are substantial belts of existing trees along the A7 road corridor and around the southern edge of the settlement screening views from the majority of the settlement, although more open views are available to the west of the A7.

6.6.108 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement. Referring to the wireline accompanying Viewpoint 8, the Proposed Development would be seen by its narrowest lateral extent with the hubs of up to approximately 10 turbines visible above the rolling landform to the west of the A7, with views of the remaining turbines would be limited to blade tips.

6.6.109 During daylight hours, the Proposed Development would introduce a medium size and scale of change with the proposed turbines occupying a moderate proportion of the view. The turbines would appear above the landform but are partially screened by landform. While the majority of receptors would experience no views due to intervening properties or vegetation screening views, receptors to the west of the A7 would experience views towards the Proposed Development. Due to the location of the settlement relative to the Proposed Development, ground-level components would be screened from view by intervening topography.

6.6.110 Overall, the Proposed Development would introduce a medium magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **moderate significant effect**.

6.6.111 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, parts of the settlement to the east of the A7 would experience theoretical visibility of up to all seven proposed lit turbines, while those parts of the settlement to the west of the road would experience theoretical visibility of up to five of the seven lit turbines. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present. However, light sources are present within the settlement comprising streetlights, lighting at properties and the lights of vehicles travelling through the settlement and along the A7. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, where views are not screened by intervening vegetation and surrounding buildings, due to the difference in elevation between the aviation light and the settlement their intensity would be perceived to be much lower than the stated 2000/200 cd.

6.6.112 This would result in a medium magnitude of change and a **moderate non-significant** effect.

Temple

6.6.113 Temple is located approximately 3.7 km to the north-west of the Proposed Development along a minor road leading south-east from the B6372. The settlement has a linear form with properties orientated south-west to north-east with properties facing the road.

6.6.114 Referring to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement. Actual visibility would be reduced by tree cover at the southern edge of the settlement and a belt of trees at the south-eastern edge of the settlement. Ground-level components would be screened from view by a combination of landform and intervening tree cover between the settlement and the Proposed Development.

6.6.115 During daylight hours, the Proposed Development would introduce a very small size and scale of change. The orientation of the settlement means that there would be very limited potential for very oblique views which would be mostly screened by either intervening trees or adjacent properties. Overall, the Proposed Development would introduce no greater than a very low magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **minor non-significant effect**.

6.6.116 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to all seven of the proposed lit turbines towards the southern end of the settlement and up to five of the seven lit turbines from the northern part of the settlement. However, due to intervening screening there would be very limited potential for views of any of the lit turbines, resulting in no greater than a very low magnitude of change and a **minor non-significant effect** during the hours of darkness.

Gorebridge

6.6.117 The settlement is located approximately 4.3 km to the north of the Proposed Development at the junction between the B9119 and the B977. It is a nucleated settlement with a mix of traditional cottages and modern properties set out along residential streets. There is a substantial tree cover along the rail corridor that around the settlement to the south, with more open views towards the Proposed Development available from the southern part of the settlement and along its south-eastern edge.

6.6.118 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement. Referring to the wireline at Viewpoint 16, from the limited parts of the settlement where views would be available, the Proposed Development would be seen by its widest lateral extent with the turbines backclothed against the landform of the Moorfoot Hills.

6.6.119 During daylight hours, the Proposed Development would introduce a medium size and scale of change with the proposed turbines occupying a medium to large proportion of the view. While many receptors would experience no views, receptors towards the southern part of the settlement and along its south-eastern edge would experience views towards the Proposed Development. Due to the elevation of the settlement relative to the Proposed Development, ground-level components would be screened from view by the intervening rolling landform and tree cover. Overall, the Proposed Development would introduce a medium high magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **major/moderate significant effect**.

6.6.120 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to all seven of the proposed lit turbines. The lights would appear as small,

noticeable red dots, introduced in a part of the view where there are no other lights are currently present. However, light sources are present within the settlement comprising streetlights, lighting at properties and the lights of vehicles travelling through the settlement. There would also be occasional lights visible in the intervening landscape around the intermittent properties and farms. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the settlement, their intensity would be perceived at a lower intensity than the stated 2000/200 cd.

6.6.121 This would result in a medium magnitude of change and a **moderate significant** effect during the hours of darkness.

Effects on Settlements within 5 to 10 km

Bonnyrigg

6.6.122 Bonnyrigg is located approximately 8.6 km to the north of the Proposed Development. The settlement is a medium-sized nucleated settlement comprising a mix of house types, with existing tree cover in parts of the settlement and along its south-eastern edge. Where views are available, they extend across agricultural land towards the Moorfoot Hills to the south.

6.6.123 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement. Referring to the wireline at **Figure 6.54** Viewpoint 18, the full lateral extent of the wind farm would be seen backgrounded against the rising landform to the south.

6.6.124 During daylight hours, the Proposed Development would introduce a medium size and scale of change with the proposed turbines occupying a moderate proportion of southerly views. Due to the elevation of the settlement relative to the Proposed Development, ground-level components would be screened from view. Overall, the Proposed Development would introduce a medium magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **moderate non-significant** effect. However, these effects would only be experienced where views are available from the south-western and south-eastern edges of the settlement.

6.6.125 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to all seven proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present. However, light sources are present within the settlement comprising streetlights, lighting at properties and the lights of vehicles travelling through the settlement. There would also be occasional lights visible in the intervening landscape around the intermittent properties and farms. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the settlement, their intensity would be perceived at a lower intensity than the stated 2000/200 cd.

6.6.126 This would result in a low medium magnitude of change and a **moderate/minor non-significant** effect.

Rosewell

6.6.127 Rosewell is located approximately 8.6 km to the north-west of the Proposed Development to the south-east of the A6094. The settlement is a small, nucleated settlement comprising a mix of house types, with existing tree cover in parts of the settlement and along parts of its eastern edge and to the south-east of the settlement. Where views are available, they extend across agricultural land towards the Moorfoot Hills to the south-east.

6.6.128 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement.

6.6.129 During daylight hours, the Proposed Development would introduce a medium size and scale of change with the proposed turbines occupying a moderate proportion of southerly views where available. Due to the elevation of the settlement relative to the Proposed Development, ground-level components would be screened from view. Overall, the Proposed Development would introduce no greater than a very low magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **minor non-significant** effect.

6.6.130 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to all seven proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no

other lights are currently present. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the settlement, their intensity would be perceived at a lower intensity than the stated 2000/200 cd.

6.6.131 However, due to the substantial tree cover to the south-east of the settlement the magnitude of change would be no greater than very low, resulting in a **minor non-significant** effect.

Pathhead

6.6.132 This settlement is located approximately 9 km to the north-east of the Proposed Development at the junction between the A68 and the B6367. Views extend across fields to the south-west of the settlement with large areas of trees providing a degree of screening of longer-range views.

6.6.133 Referring to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement. However, due to the orientation of most properties the majority of receptor views would be screened by adjacent buildings, although some partially screened views would be available from the southern end of the settlement.

6.6.134 During daylight hours, the Proposed Development would introduce a small size and scale of change with the proposed turbines occupying a small proportion of southerly views where available. Due to the elevation of the settlement relative to the Proposed Development and the level of intervening screening, ground-level components would be screened from view. Overall, the Proposed Development would introduce no greater than a low magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **moderate/minor non-significant** effect.

6.6.135 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to all seven proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the settlement, their intensity would be perceived at a lower intensity than the stated 2000/200 cd.

6.6.136 However, due to the substantial tree cover to the south-west of the settlement the magnitude of change would be no greater than low to very low, resulting in a **minor non-significant** effect.

Roslin

6.6.137 Roslin is situated approximately 10.4 km to the north-west of the Proposed Development to the south-east of the A701. It is a relatively small, nucleated settlement with extensive tree cover to the immediate south-east of it along the River North Esk corridor.

6.6.138 Referring to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the settlement. Actual visibility would be reduced by the tree cover to the immediate south-east and by surrounding properties within the settlement. Ground-level components would be screened from view by a combination of landform and intervening tree cover between the settlement and the Proposed Development.

6.6.139 During daylight hours, the Proposed Development would introduce a very small size and scale of change. There would be very limited potential for views which would be mostly screened by either intervening trees or adjacent properties. Overall, the Proposed Development would introduce no greater than a very low magnitude of change. Combined with the high sensitivity of the residential receptors, this would result in a **minor non-significant effect**.

6.6.140 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to all seven proposed lit turbines. However, due to the intervening screening there would be very limited potential for views of any of the lit turbines, resulting in no greater than a very low magnitude of change and a **minor non-significant** effect during the hours of darkness.

Table 6.7 Assessment of Effects on Settlements

		Daylight Hours			Hours of Darkness		
Settlement	**Sensitivity**	**Magnitude of Change**	**Effect**	**Significant**	**Magnitude of Change**	**Effect**	**Significant**
Settlements within 5 km							
North Middleton	High	Medium	Moderate	**Yes**	Medium	Moderate	No

		Daylight Hours			Hours of Darkness		
Settlement	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
Temple	High	Very low	Minor	No	Very low	Minor	No
Gorebridge	High	Medium high	Major/ moderate	**Yes**	Medium	Moderate	**Yes**
Settlements within 5 to 10 km							
Bonnyrigg	High	Medium	Moderate	No	Low medium	Moderate/ minor	No
Rosewell	High	Very low	Minor	No	Very low	Minor	No
Pathhead	High	Low	Moderate/ minor	No	Low to very low	Minor	No
Settlements within 5 to 10 km							
Roslin	High	Very low	Minor	No	Very low	Minor	No

Bold text indicates a significant effect.

Core Paths

6.6.141 The following assessment focuses on those groups of core paths identified in the filtering exercise at **Technical Appendix 6.4** as having the potential to experience significant effects.

6.6.142 In accordance with the methodology set out in **Technical Appendix 6.1** 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 6.8** below.

Groups of Core Paths within 5 km located to the south-west (including Scottish Hill Track LM/HT43/5 and Recorded Right of Way LM/LM173/1), west, north-west, north and north-east

6.6.143 There is an extensive network of core paths within 5 km of the Proposed Development located to the to the south-west, west, north-west, north and north-east. Views from this group of core paths are broadly represented by Viewpoint 8 **Figure 6.44**, Viewpoint 9 **Figure 6.45**, Viewpoint 10 **Figure 6.46**, Viewpoint 12 **Figure 6.48** and Viewpoint 21 **Figure 6.57**.

6.6.144 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from most of the paths within this group apart from paths approximately 4.5 km to the north-west that pass through wooded

areas along Redside Burn, along the River South Esk and Gore Water to the north-east.

6.6.145 Referring to the wirelines at Viewpoint 9 **Figure 6.**45, Viewpoint 12 **Figure 6.48** and Viewpoint 21 **Figure 6.57** the Proposed Development would be seen by its widest lateral extent in views south-west, with the proposed turbines seen against the slopes of the Moorfoot Hills.

6.6.146 During daylight hours, where there are clear, open views, the Proposed Development would introduce a worst-case high size and scale of change with the proposed turbines occupying a large proportion of the view. Views of ground-level components would be available from some sections of the paths in addition to the proposed turbines. Overall, during daylight hours, walkers would experience a high magnitude of change. Combined with their high sensitivity, walkers using these routes would experience a worst-case **major significant** effect. These effects would be experienced by walkers using these routes located to the west of the A7.

6.6.147 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, walkers would experience theoretical visibility of up to all seven of the proposed lit turbines. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, where views are not screened by intervening vegetation, due to the difference in elevation between the aviation light and the path their intensity would be perceived to be much lower than the stated 2000/200 cd.

6.6.148 This would result in a medium magnitude of change and a **moderate significant** effect. These effects would be experienced by walkers using these routes located to the west of the A7.

6.6.149 To the north of the A7 at distances of over 3 km, during daylight hours the magnitude of change would reduce to medium as the Proposed Development would be seen by its narrower extent and because of the amount of intervening screening. This would result in effects reducing to **moderate significant**. During the hours of darkness the magnitude of change would reduce to low due to the very limited number of lit turbines that would be visible with effects judged to be **minor non-significant**.

Groups of Core Paths within 5 to 10 km located to the north-west

6.6.150 Views from core paths within 5 to 10 km to the north-west of the Proposed Development are broadly represented by Viewpoint 3 **Figure 6.39**.

6.6.151 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the paths within this group to approximately 7.5 km from the Proposed Development. Beyond 7.5 km, theoretical visibility is much more intermittent, with many routes not experiencing any theoretical visibility.

6.6.152 Referring to Viewpoint 3 **Figure 6.39**, the Proposed Development would be seen by its widest lateral extent in south-easterly views, with the proposed turbines seen against the slopes of the Moorfoot Hills.

6.6.153 During daylight hours, where there are clear, open views, the Proposed Development would introduce a worst-case medium high size and scale of change with the proposed turbines occupying a large proportion of the view. Views of ground-level components would be largely screened. Overall, during daylight hours, walkers would experience a medium high magnitude of change. Combined with their high sensitivity, walkers using these routes would experience a worst-case **major/moderate significant** effect. These effects would be experienced by walkers up to approximately 7.5 km from the Proposed Development.

6.6.154 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, walkers would experience theoretical visibility of up to all seven of the proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, where views are not screened by intervening vegetation, due to the difference in elevation between the aviation light and the path their intensity would be perceived to be much lower than the stated 2000/200 cd. This would result in a medium magnitude of change and a **moderate significant** effect.

6.6.155 Between approximately 7.5 and 10 km, the very limited theoretical visibility, together with the increased distance from the Proposed Development would mean that during daylight hours and the hours of darkness, the magnitude of change experienced by walkers would be no greater than very low with effects assessed as **minor non-significant**.

Groups of Core Paths within 5 to 10 km located to the north

6.6.156 Views from core paths within 5 to 10 km to the north of the Proposed Development are broadly represented by Viewpoint 16 **Figure 6.52** and Viewpoint 18 **Figure 6.54**.

6.6.157 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the paths within this group with the exception of paths in the vicinity of Mayfield and paths that follow the Tyne Water.

6.6.158 Referring to the wirelines at Viewpoint 16 **Figure 6.52** and Viewpoint 18 **Figure 6.54** the Proposed Development would be seen by its widest lateral extent in views south, with the proposed turbines seen against the slopes of the Moorfoot Hills.

6.6.159 During daylight hours, where there are clear, open views, the Proposed Development would introduce a medium size and scale of change with the proposed turbines occupying a moderate proportion of the view. Overall, during daylight hours, walkers would experience a medium magnitude of change. Combined with their high sensitivity, walkers using these routes would experience a worst-case **moderate significant** effect. These effects would be experienced by walkers up to approximately between 5 and 7.5 km from the Proposed Development.

6.6.160 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, walkers would experience theoretical visibility of up to all seven of the proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, where views are not screened by intervening vegetation, due to the difference in elevation between the aviation light and the path their intensity would be perceived to be lower than the stated 2000/200 cd. This would result in a low magnitude of change and a **moderate/minor non-significant** effect.

6.6.161 Between approximately 7.5 and 10 km, the extent of built development, together with the increased distance from the Proposed Development would mean that during daylight hours, the magnitude of change experienced by walkers would be no greater than low with effects assessed as **moderate/minor non-significant**. During the hours of darkness the magnitude of change would reduce to very low with effects assessed as no greater than **minor non-significant**.

Groups of Core Paths within 5 to 10 km located to the north-east

6.6.162 Views from this group of core paths within 5 to 10 km to the north-east of the Proposed Development are broadly represented by Viewpoint 19 **Figure 6.55**.

6.6.163 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility from core paths between 5 and 10 km is very limited, with predicted visibility mainly concentrated in the vicinity of Fala Moor.

6.6.164 Referring to Viewpoint 19 **Figure 6.55** there would be very limited visibility of the Proposed Development with views south-west towards the Proposed Development mostly screened by landform and by a large intervening forestry block at Cowbraehill, limiting views to predominantly blade tips.

6.6.165 During daylight hours, the Proposed Development would introduce a very small size and scale of change with the proposed turbines occupying a very small proportion of the view resulting in very low magnitude of change. Combined with their high sensitivity, walkers would experience a worst-case **minor non-significant** effect.

6.6.166 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, walkers would experience theoretical visibility of one of the seven proposed lit turbines. The light would appear as a very small, noticeable red dot, introduced in a part of the view where there are no other lights are currently present. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, where views are not screened by intervening vegetation, due to the difference in elevation between the aviation light and the path their intensity would be perceived to be lower than the stated 2000/200 cd. This would result in a no greater than a very low magnitude of change and a **minor non-significant** effect.

Table 6.8 Assessment of Effects on Core Paths

		Daylight Hours			Hours of Darkness		
Route	**Sensitivity**	**Magnitude of Change**	**Effect**	**Significant**	**Magnitude of Change**	**Effect**	**Significant**
Core Paths within 5 km							
Core Paths to the south-west, west, north-west, north and north-east Located to the south of the A7	High	High	Major	**Yes**	Medium	Moderate	**Yes**
Core Paths to the south-west, west, north-west, north and north-east Located to the north of the A7	High	Medium	Moderate	**Yes**	Low	Minor	No
Core Paths between 5 km and 10 km							
Core Paths to the north-west Between 5 and 7.5 km	High	Medium high	Major/ moderate	**Yes**	Medium	Moderate	**Yes**
Core Paths to the north-west Between 7.5 and 10 km	High	Very low	Minor	No	Very low	Minor	No
Core Paths to the north Between 5 and 7.5 km	High	Medium	Moderate	**Yes**	Low	Moderate/ minor	No
Core Paths to the north	High	Low	Moderate/ minor	No	Very low	Minor	No

		Daylight Hours			Hours of Darkness		
Route	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
Between 7.5 and 10 km							
Core Paths to the north-east Between 5 and 10 km	High	Very low	Minor	No	Very low	Minor	No

Bold text indicates a significant effect.

Cycle Routes

6.6.167 The following assessment focuses on those cycle routes identified in the filtering exercise at **Technical Appendix 6.4** as having the potential to experience significant effects.

6.6.168 In accordance with the methodology set out in **Technical Appendix 6.1** the sensitivity of users of cycle routes is considered to be high. A summary of the effects is presented at **Table 6.9** below.

National Cycle Network Route 1 – Northbound

6.6.169 This cycle route follows the B7007 from Scottish Borders into Midlothian and passes through the north-eastern corner of the site as it continues north through Midlothian into Edinburgh.

6.6.170 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the majority of the route within 10 km to the north. However, to the immediate south of the site, theoretical visibility is mostly restricted by surrounding landform although some limited views would be available within 4 km and between approximately 5 and 8.3 km to the south.

6.6.171 Within 10 km, northbound cyclists would first experience theoretical visibility in the vicinity of Dewar Hill at approximately 5 to 8.3 km to the south of the Proposed Development. During daylight hours, the proposed turbines would introduce a very small size and scale of change, occupying a small proportion of the view, introducing a very low magnitude of change. Combined with the high sensitivity of the receptors, this would result in no greater than a **minor non-significant** effect and no effects

during the hours of darkness as the aviation lights would be screened by the landform.

6.6.172 Cyclists would not experience further effects until the junction between the B7007 and the B709, approximately 4.2 km to the south of the Proposed Development. Between the junction with the B709 and Broad Law Corner theoretical visibility would continue as the route heads north, with a limited number of turbines and hubs visible. During daylight hours, this would introduce a small size and scale of change, occupying a small proportion of the view, introducing a low magnitude of change. Combined with the high sensitivity of the receptors, this would result in no greater than a **moderate/minor non-significant** effect.

6.6.173 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to three of the seven proposed lit turbines for limited parts of this section of the route. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in a very low magnitude of change and a **minor non-significant** effect.

6.6.174 As the route continues north towards the site, during daylight hours, effects would increase with the magnitude of change rising to very high and effects becoming **major significant** as the route reaches Broad Law Corner, turns and continues through the north-eastern part of the site. During the hours of darkness, the magnitude of change would increase to high with effects becoming **major significant**. These effects would continue over a distance of approximately 2 km as the route passes through the north-eastern part of the site.

6.6.175 As the road continues beyond the site, the magnitude of change would reduce to high but effects would remain major significant effect during daylight hours and the magnitude of change would be medium high, with effects becoming **major/moderate significant** during the hours of darkness as the road continues for approximately 3.2 km towards Middleton.

6.6.176 To the west of Middleton, intervening landform and vegetative screening would limit visibility over a distance of approximately 2.4 km towards Middleton North Burn, reducing the magnitude of change during daylight

hours to medium and effects to **moderate significant**. During the hours of darkness, the magnitude of change would reduce to low with effects reducing to no greater than **moderate/minor non-significant**. As cyclists continue north-westwards the Proposed Development would be located to their rear and they would not experience further effects as they continue in a north-westerly direction.

National Cycle Network Route 1 – Southbound

6.6.177 Beyond approximately 7.5 km to the north of the Proposed Development, during daylight hours, cyclists would experience views south towards the Proposed Development that would be seen against the background landform of the Moorfoot Hills. The Proposed Development would occupy a medium lateral extent of the view and introduce a medium magnitude of change and a **moderate non-significant effect**.

6.6.178 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to all seven proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road and occasional lights around properties. With reference to the lit turbine lighting intensity ZTV at **Figure 6.8**, due to the difference in elevation between the aviation light and the route their intensity would be perceived to be lower than the stated 2000/200 cd. This would result in a no greater than a low medium magnitude of change and a **moderate/minor non-significant** effect.

6.6.179 Within approximately 7.5 km, the magnitude of change would remain medium but effects would become significant during daylight hours due to the closer proximity and greater prominence of the Proposed Development. During the hours of darkness the magnitude of change would increase to medium with effects considered to be moderate non-significant. These effects would continue over a distance of approximately 3.6 km to near Carrington Mill.

6.6.180 From Carrington Mill, cyclists would experience no further views for a distance of approximately 2.7 km to near Castleton.

6.6.181 From Castleton, views would become available as the route climbs up over a low ridge. The Proposed Development would be seen in close proximity with the turbines set against the background landform. This would introduce a high magnitude of change a **major significant effect** during daylight hours. During the hours of darkness, the magnitude of change

would increase to medium high with effects becoming **major/moderate significant**. These effects would continue over a distance of approximately 1.6 km to near Middleton North Burn.

6.6.182 From Middleton North Burn, effects would be the same as those experienced by northbound cyclists between Middleton North Burn and Broad Law Corner, beyond which southbound cyclists would experience no further effects as the Proposed Development would appear to their rear.

Table 6.9 Assessment of Effects on Cycle Routes

		Daylight Hours			Hours of Darkness		
Route	**Sensitivity**	**Magnitude of Change**	**Effect**	**Significant**	**Magnitude of Change**	**Effect**	**Significant**
National Cycle Network Route 1 – Northbound							
NCNR 1 Between approximately 5 and 8.3 km to the south	High	Very low	Minor	No	No change	No effect	No
NCNR 1 Between Broad Law Corner and approximately 4 km to the south	High	Low	Moderate / minor	No	Very low	Minor	No
NCNR 1 2 km section from Broad Law Corner through north-eastern part of the site	High	Very	Major	**Yes**	Medium high	Major/ moderate	**Yes**
NCNR 1 3.2 km section beyond the site to Middleton	High	High	Major	**Yes**	Medium high	Major/ moderate	**Yes**
NCNR 1 2.4 km section west of Middleton to Middleton North Burn	High	Medium	Moderate	**Yes**	Low	Moderate/ minor	No

		Daylight Hours			Hours of Darkness		
Route	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
National Cycle Network Route 1 – Southbound							
NCNR1 Beyond approximately 7.5 km to the north	High	Medium	Moderate	No	Low medium	Moderate/ minor	No
NCNR1 3.6 km section north of Carrington Mill	High	Medium	Moderate	**Yes**	Medium	Moderate	No
NCNR1 1.6 km section Castleton to Middleton North Burn	High	High	Major	**Yes**	Medium high	Major/ moderate	**Yes**
NCNR 1 2.4 km section west of Middleton to Middleton North Burn	High	Medium	Moderate	**Yes**	Low	Moderate/ minor	No
NCNR 1 3.2 km section beyond the site to Middleton	High	High	Major	**Yes**	Medium high	Major/ moderate	**Yes**
NCNR 1 2 km section from Broad Law Corner through north-eastern part of the site	High	Very	Major	**Yes**	Medium high	Major/ moderate	**Yes**

Bold text indicates a significant effect.

Roads

A7

6.6.183 The A7 passes approximately 3 km to the east of the Proposed Development. With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted as the road exits from the Gala Water Valley and continues north except for a short section at North Middleton where views are partially screened by landform.

6.6.184 The road does not cross through any landscapes designated for their particular scenic value, although it borders the eastern edge of the South Esk & Carrington Farmland SLA near Gorebridge and the western edge of the Tyne Valley SLA near North Middleton. Users of main A roads are typically considered to have lower susceptibility to changes in visual amenity and in this instance road users are considered to have low sensitivity to changes in their visual amenity.

A7 - Northbound

6.6.185 Theoretical visibility commences at Middleton Moor as the road exits the Gala Water Valley and continues for approximately 4.4 km to North Middleton.

6.6.186 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from this section of road. Referring to the wireline at **Figure 6.37** Viewpoint 1, the Proposed Development would be seen by its narrowest extent with intervening forestry plantations providing some screening of the lower parts of the turbine towers and ground-level components.

6.6.187 During daylight hours, over this section of the road, the Proposed Development would introduce a medium high size and scale of change to views that would be broadly perpendicular to the road. This would lead to a medium high magnitude of change and result in a **moderate/minor non-significant** effect.

6.6.188 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience theoretical visibility of up to seven proposed lit turbines. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present, except for the lights of vehicles travelling along the road and properties near North Middleton. With reference to the lit

turbine lighting intensity ZTV at **Figure 6.8**, although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the road, their intensity would be perceived at a lower level than the stated 2000/200 cd.

6.6.189 This would result in a low medium magnitude of change and a **moderate/minor** effect during the hours of darkness that would not be significant.

6.6.190 As the road continues northwards from North Middleton, road users would experience no further effects as the Proposed Development would appear to their rear.

A7 - Southbound

6.6.191 Approximately 7.5 km to the north of the Proposed Development as the road leaves the more built-up areas to the north there is intervening roadside vegetation and adjacent woodland as the road continues south over a distance of approximately 3.4 km to Eastwood to the north-west of North Middleton.

6.6.192 Over this section of the road during daylight hours, the Proposed Development would introduce a worst-case medium magnitude of change and a **moderate/minor non-significant** effect and a low magnitude of change and a **minor non-significant** effect.

6.6.193 Between Eastwood and North Middleton over a distance of approximately 1.6 km, views would be largely screened by a combination of topography and vegetation. However, there would be the potential for occasional glimpsed views. The Proposed Development would introduce a worst-case low magnitude of change and a **minor non-significant** effect during daylight hours and the hours of darkness.

6.6.194 From North Middleton to Middleton Moor over approximately 4.4 km, the Proposed Development would introduce a medium high magnitude of change and a **moderate/minor non-significant** effect during daylight hours and a low medium magnitude of change and a **moderate/minor non-significant** effect during the hours of darkness.

B7007

6.6.195 The B7007 connects the B709 to the south with the A7 to the north-east of the Proposed Development.

6.6.196 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18

turbines is predicted from the north-eastern section of the road from Broad Law Corner to the junction with the A7. To the south of Broad Law Corner theoretical visibility is restricted by topography.

6.6.197 Referring to **Technical Appendix 6.1**, users of minor roads are judged to have a medium sensitivity to changes in their visual amenity.

B7007 - Northbound

6.6.198 Over a distance of approximately 4.2 km north from the junction between the B7007 and the B709 and Broad Law Corner, road users would experience views of a limited number of turbines and hubs due to the topography of the valley through which the road passes. During daylight hours, this would introduce a small size and scale of change, occupying a small proportion of the view, introducing a low magnitude of change. Combined with the sensitivity of the receptors, this would result in no greater than a **moderate/minor non-significant** effect.

6.6.199 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to three of the seven proposed lit turbines for limited parts of this section of the route. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in a very low magnitude of change and a **minor non-significant** effect.

6.6.200 As the road continues north towards the site, during daylight hours, the magnitude of change would rise to very high with effects becoming **major significant** as the road reaches Broad Law Corner, turns and continues through the north-eastern part of the site. During the hours of darkness, the magnitude of change would increase to high with effects becoming **major significant**. These effects would continue over a distance of approximately 2 km as the road passes through the north-eastern corner of the site.

6.6.201 As the road continues north-eastwards beyond the site for approximately 2.6 km towards the A7, the magnitude of change would reduce to high with effects becoming **major/moderate significant** during daylight hours with a medium high magnitude of change and a **moderate significant** effect during the hours of darkness.

6.6.202 Beyond this, northbound road users would not experience any further effects as the Proposed Development would appear to their rear as they approach the A7.

B7007 – Southbound

6.6.203 During daylight hours, southbound users would experience a high magnitude of change and a **major/moderate significant** effect and a medium high magnitude of change and a **moderate significant** effect during the hours of darkness over a distance of approximately 3.2 km. As the road passes through the north-eastern part of the site, road users would experience a very magnitude of change and a **major significant** effect during daylight hours and a high magnitude of change and a **major significant** effect during the hours of darkness. Road users would experience these effects over a distance of approximately 2.2 km to Broad Law Corner.

6.6.204 As road users continue south from Broad Law Corner, road users would experience no further effects as the Proposed Development would appear to their rear.

B6458

6.6.205 The B6458 is located to the north-east of the Proposed Development and connects the B6367 and the A68.

6.6.206 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the road at distances of between 5.4 and 8.6 km.

6.6.207 Referring to **Technical Appendix 6.1**, users of minor roads are judged to have a medium sensitivity to changes in their visual amenity.

B6458 – Southbound

6.6.208 Road users would experience direct to slightly oblique views over a distance of approximately 3.3 km to the north-east of the junction with the B6357. Adjacent shelterbelts would provide some partial screening of views. During daylight hours, this would introduce a medium size and scale of change, occupying a small proportion of the view, introducing a medium magnitude of change. Combined with the sensitivity of the receptors, this would result in no greater than a **moderate non-significant** effect.

6.6.209 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to all seven proposed lit turbines. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in no greater than a low magnitude of change and a **moderate/minor non-significant** effect.

B6458 – Northbound

6.6.210 Road users travelling north along the route would not experience any effects as the Proposed Development would be to their rear as they head away from it.

B6367

6.6.211 The B6367 connects Pathhead in the north with the A7 to the north-east of the Proposed Development. From Pathhead the road continues north beyond 10 km to the A6093.

6.6.212 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the road which some small areas where the Proposed Development would be screened by landform.

6.6.213 Referring to **Technical Appendix 6.1**, users of minor roads are judged to have a medium sensitivity to changes in their visual amenity. The road also passe through the Tyne Valley SLA.

B6367 – Southbound

6.6.214 To the north of Crichton at distances of between approximately 7.5 km and 10 km, road users would experience open, slightly oblique views towards the Proposed Development. During daylight hours, this would introduce a medium size and scale of change, occupying a small proportion of the view, introducing a medium magnitude of change. Combined with the sensitivity of the receptors, this would result in no greater than a **moderate non-significant** effect.

6.6.215 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to all seven proposed lit turbines. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no

other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in no greater than a low magnitude of change and a **moderate/minor non-significant** effect.

6.6.216 These effects could continue for a further 2.3 km to the south of Crichton until tree belts close the road provide further screening of views.

6.6.217 For the remaining approximately 2.7 km section between Tynehead and the A7, there would be intermittent screening provided by adjacent shelterbelts. During daylight hours, the magnitude of change would remain medium but effects would become **moderate significant** due to the closer proximity to the Proposed Development and the greater prominence of the proposed turbines. During the hours of darkness, the magnitude of change would increase to medium with effects assessed as **moderate non-significant**.

B6367 – Northbound

6.6.218 Road users travelling north along the route would not experience any effects as the Proposed Development would be to their rear as they head away from it.

B6372

6.6.219 The B6372 links Penicuik to the west with the A7 to the east and passes approximately 3.2 km to the north-west of the Proposed Development at its closest point. It then continues north-east to Gorebridge, meeting the A68 approximately 10 km to the north-east of the Proposed Development.

6.6.220 With reference to **Figure 6.18** illustrating principal visual receptors within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the road commencing approximately 7.5 km to the north-west near the junction with the A6094 at Howgate and continuing through to the A68. However, there are sections to the east of Temple and to the north-east of Gorebridge where no visibility is predicted.

6.6.221 Referring to **Technical Appendix 6.1**, users of minor roads are judged to have a medium sensitivity to changes in their visual amenity.

B6372 – Eastbound

6.6.222 From the junction of the A6094 near Howgate to the north-west and over a distance of approximately 4.4 km, road users would experience intermittent direct views towards the Proposed Development that would be seen backclothed against the Moorfoot ridge, with occasional shelterbelts providing some limited screening.

6.6.223 During daylight hours, the Proposed Development would introduce a high size and scale of change and would occupy a medium proportion of the view. This would lead to a medium high magnitude of change. Combined with the sensitivity of the receptors, this would result in a worst-case **moderate significant** effect.

6.6.224 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to all seven proposed lit turbines. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in no greater than a medium magnitude of change and a **moderate significant** effect.

6.6.225 At Upper Side the road turns and continues in a north-easterly direction towards Temple over a further distance of approximately 4.4 km. Over this section of the road, users would experience perpendicular views from the road towards the Proposed Development which would appear against the background landform of the ridge. Views would be intermittently screened by roadside vegetation and would generally be experienced as brief, glimpsed views.

6.6.226 During daylight hours, the Proposed Development would a high magnitude of change and a worst-case **moderate significant** effect and a medium magnitude of change and a **moderate non-significant** effect during the hours of darkness.

6.6.227 From Temple, road users would experience very limited effects for approximately 2 km to the entrance to Arniston House as views would be predominantly screened by landform and belts of woodland. Over this section of the road, users would experience no greater than a very low magnitude of change and a **minor non-significant** effect during daylight

hours and a **no effects** during the hours of darkness as the lit turbines would not be visible from this part of the road.

6.6.228 Beyond this point, eastbound road users would not experience any further effects as the Proposed Development would be to their rear.

B6372 – Westbound

6.6.229 From Oxenfoord to the north-east of the Proposed Development over a distance of approximately 2.1 km between Oxenfoord and Vogrie Burn, road users would experience intermittent direct views towards the Proposed Development that would be seen backclothed against the Moorfoot ridge, with occasional shelterbelts providing some limited screening.

6.6.230 During daylight hours, the Proposed Development would introduce a medium size and scale of change and would occupy a medium proportion of the view. This would lead to a low medium magnitude of change. Combined with the sensitivity of the receptors, this would result in a worst-case **moderate/minor non-significant** effect.

6.6.231 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to all seven proposed lit turbines near Oxenfoord and up to five lit turbines from the majority of this section. The lights would appear as small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in no greater than a low magnitude of change and a **moderate/minor non-significant** effect.

6.6.232 Between Vogrie Burn and Newlandrig over a distance of approximately 1.5 km, extensive roadside vegetation would restrict the majority of views. Road users would experience no greater than a very low magnitude of change and minor to no effects during daylight hours and no effects during the hours of darkness as the lit turbines would be screened.

6.6.233 To the west of Newlandrig, road users would not experience any effects as views would be screened to topography.

6.6.234 To the north-east of Gorebridge where theoretical visibility commences again, road users would experience oblique views towards the Proposed Development that would be seen backclothed against the Moorfoot ridge,

leading to a medium high magnitude of change and a **moderate significant** effect during daylight hours and a medium magnitude of change and a moderate non-significant effect during the hours of darkness. These effects would continue for approximately 2.2 km as the road enters Gorebridge and continues to the A7.

6.6.235 To the west of the A7, between the A7 and Arniston House, views from the road would largely be screened by extensive woodland blocks to the south of the road. During daylight hours, road users would experience a medium magnitude of change and a worst-case **moderate non-significant** effect and a low magnitude of change and a **moderate/minor non-significant** effect during the hours of darkness. However, these effects would only be experienced intermittently where open views are available and from many parts of this section road users would not experience any effects due to the intervening screening.

6.6.236 To the west of the entrance to Arniston House, road users travelling west would experience the same effects as reported for eastbound users. However, from Upper Side as the road turns and heads north westbound road users would not experience any further effects as the Proposed Development would be to their rear.

B704

6.6.237 The B704 passes between Bonnyrigg in the north and Gorebridge in the south. However, the road passes through built areas in both settlements. As such there is a limited central section of the route, extending between the junction with the B6392 and the A7, over a distance of approximately 2.1 km, where this is the potential for road users to oblique views towards the Proposed Development.

6.6.238 During daylight hours, the Proposed Development would introduce a medium size and scale of change and would occupy a medium proportion of the view. This would lead to a low medium magnitude of change. Combined with the sensitivity of the receptors, this would result in a worst-case **moderate/minor non-significant** effect.

6.6.239 During the hours of darkness, with reference to the lit turbine ZTV at **Figure 6.7**, receptors would experience intermittent theoretical visibility of up to all seven proposed lit turbines. The lights would appear as very small, noticeable red dots, introduced in a part of the view where there are no other lights are currently present apart from the lights of other vehicles travelling along the road. Although the lit turbines would be visible in theory, due to the difference in elevation between the aviation

lights and the route, their intensity would be perceived at a lower intensity as illustrated by **Figure 6.8**, resulting in no greater than a low magnitude of change and a **moderate/minor non-significant** effect.

6.6.240 These effects would only be experienced by road users travelling south-eastwards. User travelling north-westwards who be travelling away from the Proposed Development and it would appear to their rear.

Table 6.10 Assessment of Effects on Roads

		Daylight Hours			Hours of Darkness		
Road	**Sensitivity**	**Magnitude of Change**	**Effect**	**Significant**	**Magnitude of Change**	**Effect**	**Significant**
A7 Northbound							
4.4 km section between Gala Water Valley and North Middleton	Low	Medium high	Moderate/ minor	No	Low medium	Moderate/ minor	No
A7 Southbound							
3.4 km section north of Eastwood	Low	Medium	Moderate/ minor	No	Low	Minor	No
1.6 km section Eastwood to North Middleton	Low	Low	Minor	No	Low	Minor	No
4.4 km section between North Middleton and Gala Water Valley	Low	Medium high	Moderate/ minor	No	Low medium	Moderate/ minor	No
B7007 -Northbound							
4.2 km section between B709 and Broad Law Corner	Medium	Low	Moderate/ minor	No	Very low	Minor	No
2 km section from Broad	Medium	Very high	Major	**Yes**	High	Major	**Yes**

		Daylight Hours			Hours of Darkness		
Road	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
Law Corner							
2.6 km section beyond the site towards Middleton	Medium	High	Major/moderate	**Yes**	Medium high	Moderate	**Yes**
B7007 -Southbound							
3.2 km section from A7 towards Broad Law Corner	Medium	High	Major/moderate	**Yes**	Medium high	Moderate	**Yes**
2.2 km section north-eastern part of the site	Medium	Very high	Major	**Yes**	High	Major	**Yes**
B6458 - Southbound							
3.3 km section north-east of B6357 junction	Medium	Medium	Moderate	No	Low	Moderate/ minor	No
B6357 - Southbound							
2.5 km section to Chrichton and 2.3 km to south	Medium	Medium	Moderate	No	Low	Moderate/ minor	No
2.7 km section north of the A7	Medium	Medium	Moderate	**Yes**	Medium	Moderate	No
B6372 - Eastbound							
4.4 km section between Howgate and Upper Side	Medium	Medium high	Moderate	**Yes**	Medium	Moderate	**Yes**
4.4 km section	Medium	High	Moderate	**Yes**	Medium	Moderate	No

		Daylight Hours			Hours of Darkness		
Road	Sensitivity	Magnitude of Change	Effect	Significant	Magnitude of Change	Effect	Significant
between Upper Side and Temple							
2 km section between Temple and Arniston House	Medium	Very low	Minor	No	Very low	No effects	No
B6372 - Westbound							
2.1 km section between Oxenfoord and Vogrie Burn	Medium	Low medium	Moderate/ minor	No	Low	Moderate/ minor	No
1.5 km section Vogrie Burn and Newlandrig	Medium	Very low	Minor/no effect	No	Very low	No effects	No
2.2 km section Gorebridge	Medium	Medium high	Moderate	**Yes**	Medium	Moderate	No
1.6 km section from A7 to Arniston House	Medium	Medium	Moderate	No	Low	Moderate/ minor	No
2 km section between Arniston House and Temple	Medium	Very low	Minor	No	Very low	No effects	No
4.4 km section between Temple and Upper Side	Medium	High	Moderate	**Yes**	Medium	Moderate	No
B704 - South-eastbound							
2.1 km central section	Medium	Low	Moderate/ minor	No	Low	Moderate/ minor	No

Assessment of Effects on Special Landscape Areas

6.6.241 As set out in **Technical Appendix 6.3**, five Special Landscape Areas located within Midlothian were identified in the initial filtering exercise as having the potential to experience significant effects.

6.6.242 These comprise:

- Gladhouse Reservoir and Moorfoot Scarp SLA;
- South Esk Valley and Carrington Farmland SLA;
- Tyne Valley SLA;
- Fala Moor SLA; and
- The Pentland Hills SLA.

6.6.243 The justification for their designation as SLA is set out in MLDP 2017 Supplementary Guidance - Special Landscape Areas (October 2018)[xxvi]. The assessment below considers their Statements of Importance.

Gladhouse Reservoir and Moorfoot Scarp SLA

6.6.244 This SLA covers an area encompassing the South Esk Valley, Gladhouse Reservoir and part of the Moorfoot Hills scarp slopes and comprises the following landscape character types:

- LCT 266 Plateau Moorland – Lothians; and
- LCT 269 Upland Fringes – Lothians.

6.6.245 Its Statement of Importance included within the MLDP 2017 Supplementary Guidance lists the key reasons for its designation as:

- The open and naturalistic character of Gladhouse Reservoir and its scenic juxtaposition with the dramatic scarp of the Moorfoot Hills and the deeply incised South Esk valley;
- The mix of trees and woodland, and well-managed farmland, moss and moorland surrounding Gladhouse Reservoir; and
- Important panoramic views from the B7007 across Midlothian and the Forth Valley.

6.6.246 The statement also identifies the key landscape components of the SLA as:

- The irregularly shaped Gladhouse Reservoir and the fringing wetlands, mixed woodlands and small wooded islands which contribute to its naturalistic qualities;
- The dramatic steep scarp of the higher northern Moorfoot Hills and the deeply incised glen of the South Esk which cuts through these hills;
- Open and natural areas of moss and heather moorland;
- Well-managed farmland which is often enclosed by stone walls;

- The intimately scaled Rosebery Reservoir which is strongly contained by woodland and gently folded hills;
- The sense of seclusion that can be experienced in this sparsely settled landscape;
- Open and expansive views from this landscape to both the Moorfoot Hills and the Pentland Hills and also across the Lothians to the Firth of Forth; and
- Revelatory views from the B7007 across the open moorland and farmland of this landscape to the distant Pentland Hills.

6.6.247 With reference to **Figure 6.11** illustrating landscape designations within 20 km overlaid with the blade tip ZTV, theoretical visibility of up to all 18 turbines is predicted from the majority of the SLA except where the north-west facing valley sides at Fullarton Water restrict visibility towards the north-western edge of the SLA and from parts of the South Esk Valley in the southern part of the SLA.

6.6.248 Based on the findings of the likely effects on landscape character set out above, the Proposed Development would have a direct, localised and **significant** effect on a very small part of the moorland landscape fabric where the Proposed Development and its associated infrastructure would be located. Indirect **significant** effects would extend across those parts of the SLA to the north of the Moorfoot Hills and areas to the north of the South Esk Valley. However, the South Esk Valley would experience fewer effects as views of the Proposed Development would only be experienced from the upper western valley side in the south-western part of the SLA.

6.6.249 In terms of the visual qualities of the SLA, the Proposed Development would have a **significant** effect on the visual setting of the man-made reservoir and its juxtaposition with the Moorfoot scarp as illustrated at **Figure 6.45** Viewpoint 9 and on the panoramic views from the B7007 as illustrated at **Figure 6.38** Viewpoint 2.

6.6.250 It is acknowledged that there would be both significant effects on landscape character and visual amenity across the majority of the SLA as a result of the Proposed Development. However, the effects would be focussed in one particular part of the SLA and there would be large areas within the western part of the SLA where views in other directions would be unaffected and 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 of the SLA or its special qualities.

South Esk Valley and Carrington Farmland SLA;

6.6.251 This SLA covers an area of farmland around Carrington and comprises parts of the following landscape character types:

- LCT 270 Lowland River Valleys – Lothians; and
- LCT 272 Lowland Hills and Ridges – Lothians.

6.6.252 Its Statement of Importance included within the MLDP 2017 Supplementary Guidance lists the key reasons for its designation as:

- The densely wooded South Esk Valley which accommodates a number of designed landscapes and is of high nature conservation interest; and
- The surrounding farmland is largely open, gently rolling and sparsely settled, patterned with extensive policy woodlands and field trees.

6.6.253 The statement also identifies the key landscape components of the SLA as:

- The intimately scaled, densely wooded and deeply incised valleys of the South Esk and its tributary Redside Burn;
- The nationally important designed landscapes of Arniston and Dalhousie Castle but also the wooded policies of other notable estates which contribute to the character of this SLA;
- The small, tightly clustered historic settlements of Temple and Carrington;
- The secluded Edgelaw Reservoir, contained by dense woodland;
- Broadleaved woodlands and mature oak and ash trees aligning field and roadside boundaries, and stone walls within well-managed surrounding farmland; and
- The largely open, gently rolling, sparsely settled and strongly rural character of the farmlands.

6.6.254 None of the proposed turbines or associated infrastructure would be sited within this SLA. Therefore, any effects experienced would relate to the character of available views from the SLA to the south-east towards the Moorfoot Hills.

6.6.255 Based on the findings of the likely effects on landscape character set out above, the Proposed Development would have an indirect and **significant** effect on the character of available southerly views towards the Moorfoot Hills that provide the backdrop to views.

6.6.256 In terms of the visual qualities of the SLA, there would be significant visual effects experienced from some parts of the SLA, mostly within 5 km of the Proposed Development that would affect views south-east towards the Moorfoot Hills, as illustrated by **Figure 6.48** Viewpoint 12 and **Figure 6.57**

Viewpoint 21. Nonetheless, such views are not specifically identified as a key quality of the SLA. In other locations within 5 km, such as from Viewpoint 10, substantial intervening tree cover provides a high degree of screening of south-easterly views.

6.6.257 It is acknowledged that there would be both significant effects on landscape character and visual amenity experienced across some limited parts of the SLA as a result of the Proposed Development. However, the effects would be focussed in one direction and the key characteristic qualities of this SLA would not be undermined. Therefore, 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 of the SLA or its special qualities.

Tyne Valley SLA

6.6.258 This SLA is located 2.2 km to the north-east of the Proposed Development at its closest point at Middleton Hall but mainly extends north-eastwards from the A7 through the Tyne Valley.

6.6.259 This SLA covers an area of farmland around Carrington and comprises parts of the following landscape character types:

- LCT 269 Upland Fringes – Lothians;
- LCT 270 Lowland River Valleys – Lothians;
- LCT 272 Lowland Hills and Ridges – Lothians;
- LCT 275 Lowland Farmed Plain – Lothians.

6.6.260 Its Statement of Importance included within the MLDP 2017 Supplementary Guidance lists the key reasons for its designation as:

- The rich diversity of the Tyne Water Valley which is characterised by extensive designed landscapes and farmland patterned with woodlands and field trees; and
- The more naturalistic upper valleys of the Tyne and Gore Waters which provide the setting for a number of landmark historic features.

6.6.261 The statement also identifies its key landscape components as:

- The intimately scaled upper valleys of the Tyne and Gore Waters which are strongly contained and secluded and which feature richly diverse rough grassland, scrub and broadleaved woodlands;
- Extensive policy woodlands, parkland and ornamental plantings which provide the setting to Oxenfoord Castle, Preston Hall, Vogrie and Middleton Hall;

- Strongly patterned farmland which form the wider setting to the more richly patterned lower Tyne valley but which also feature mature field trees and distinctive mixed woodlands on the ridges framing the valley;
- Historic buildings and structures, including Crichton and Borthwick Castles and the Lothian Bridge, which form landmark features within this landscape; and
- The small and often tightly knit historic settlements which further enrich the cultural heritage of this landscape.

6.6.262 None of the proposed turbines or associated infrastructure would be sited within this SLA. Therefore, any effects experienced would relate to the character of available views from the SLA to the south-west towards the Proposed Development.

6.6.263 Based on the findings of the likely effects on landscape character set out above, the Proposed Development would have an indirect and **significant** effect on the character of available south-westerly views extending to approximately 6 km from the Proposed Development and across the southern part of the SLA. Beyond this, effects on the character of available views would not be considered significant.

6.6.264 In terms of the visual qualities of the SLA, there would be significant visual effects experienced from some limited parts of the SLA, mostly within approximately 6 km of the Proposed Development and the effects would be moderated to a degree by the significant intervening screening to the west of the A7. The effects would be experienced from the higher, more open valley sides to the west and east of the valley. Beyond this distance effects would not be considered significant.

6.6.265 It is acknowledged that there would be some limited significant indirect effects on the southernmost part of the SLA. However, the effects would primarily be experienced from the higher farmed valley slopes to the east and west that frame the more intimate-scaled valley core. As such they do not undermine the key characteristic qualities of this SLA and 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 of the SLA or its special qualities.

Fala Moor SLA

6.6.266 This SLA covers Fala Moor and is located within LCT 267 Plateau Grassland – Lothians and is located over 5.5 km to the north-east of the Proposed Development.

6.6.267 Its Statement of Importance included within the MLDP 2017 Supplementary Guidance lists the key reasons for its designation as:

- The rarity of this secluded and natural upland moorland in Midlothian.; and
- Extensive open views from the moor across the Lothians.

6.6.268 The statement also identifies its key landscape components as:

- The simple composition, openness and expansiveness of the Fala Moor plateau which is covered with heather moorland and wetter areas of blanket bog;
- Gently rolling hill slopes fringing the plateau and patterned by linear coniferous shelterbelts and some mixed streamside woodland associated with the grounds of Cakemuir Castle; and
- Fields of improved or rough pasture on the slopes divided by post-and-wire fences or occasional stone walls and fragmented thorn hedges.

6.6.269 None of the proposed turbines or associated infrastructure would be sited within this SLA. Therefore, any effects experienced would relate to the character of available views from the SLA to the south-west towards the Proposed Development.

6.6.270 Based on the findings of the likely effects on landscape character set out above, the Proposed Development would have a worst-case indirect and **non-significant** effect on the character of available south-westerly views across the SLA.

6.6.271 In terms of the visual qualities of the SLA, there would be **non-significant** visual effects on south-westerly views, experienced mostly from the northern and eastern parts of the SLA, with intervening landform and woodland plantation at Cowbraehill providing some screening as illustrated by **Figure 6.55** Viewpoint 19.

6.6.272 It is acknowledged that there would some limited non-significant effects on the character of available south-westerly views and on visual amenity experienced across some limited parts of the SLA as a result of the Proposed Development. However, the effects would be focussed in one direction and there would still be extensive open views across the Lothians experienced from the SLA. Therefore, 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 of the SLA or its special qualities.

The Pentland Hills SLA

6.6.273 This SLA covers part of the Pentland Hills and is located over 8.4 km from the Proposed Development.

6.6.274 Its Statement of Importance included within the MLDP 2017 Supplementary Guidance lists the key reasons for its designation as:

- The highly scenic shapely peaks of the Pentland Hills which are seen widely across the Lothians, form key components of the landscape setting to Edinburgh and Midlothian and are also well-used for recreation;
- The rich diversity of the upper North Esk Valley, lying at the foot of the Pentland Hills, which forms the focus for the well-wooded designed landscapes of Penicuik House and Newhall;
- The open and expansive low-lying Auchencorth Moss which strongly contrasts with the hills and contributes to the richness of this SLA; and
- The simple, open and expansive low-lying Auchencorth Moss which strongly contrasts with the hills and their fringes, contributing significantly to the overall scenic diversity of this SLA.

6.6.275 The statement also identifies its key landscape components as:

- The rugged and little modified character of the Pentland Hills which contributes to the distinct sense of wildness that can be experienced and contrasts with nearby urban areas;
- The rolling and strongly enclosed farmland on south-eastern hill slopes at the foot of the Pentland Hills;
- The designed landscapes of Pencuik House and Newhall which are centred on the River North Esk and are strongly contained by wooded policies;
- The deeply incised open section of the River North Esk which adds to the diversity of views to the Pentland Hills seen from the unclassified Moor Road; and
- The open and largely uncluttered expanse of the low-lying Auchencorth Moss which provides a simple open foreground and strong contrast with the Pentland Hills, accentuating their apparent height and drama in key views from the east.

6.6.276 None of the proposed turbines or associated infrastructure would be sited within this SLA. Therefore, any effects experienced would relate to the character of available views from the SLA to the south-east towards the Proposed Development.

6.6.277 Based on the findings of the likely effects on landscape character set out above, the Proposed Development would have a worst-case indirect and **non-significant** effect on the character of available south-easterly views experienced from the SLA.

6.6.278 With reference **Figure 6.40** Viewpoint 4, **Figure 6.41** Viewpoint 5, **Figure 6.42** Viewpoint 6, **Figure 6.47** Viewpoint 11 and **Figure 6.58** Viewpoint 22, there would be mostly non-significant visual effects on south-easterly views from the SLA and limited locations, such as at Viewpoint 11 where significant visual effects would occur.

6.6.279 It is acknowledged that there would some very limited significant effects on the character of available south-easterly views experienced across some limited parts of the SLA as a result of the Proposed Development. However, the effects would be focussed in one direction and wider extensive views across Midlothian and towards Edinburgh would be unaffected. Therefore, 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 of the SLA or its special qualities.

6.7 Mitigation

6.7.1 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).

6.7.2 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 3** of this EIA Report. Design evolution is summarised below, in so far as landscape and visual matters have influenced the Proposed Development.

6.7.3 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.

6.7.4 A design rationale has been adopted to avoid inconsistent turbine spacing, outliers or excessive overlapping turbines to minimise visual confusion and ensure a balanced / compact array from key views in the local landscape.

6.7.5 Appropriate offsets from all properties and settlements, have been maintained to ensure that no property would experience an overbearing visual impact such that it became an unattractive place to live.

6.7.6 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 on site was specifically designed to achieve a balanced array of turbines when viewed from the surrounding landscape.

6.7.7 In considering the layout of other structures and ancillary features of the Proposed Development, the position of the substation, construction compound, battery array and borrow pits are located so as to minimise their influence on the surrounding area.

6.7.8 The turbines themselves will be painted an off-white colour with a low reflectivity semi-matt finish (or similar as agreed with Midlothian 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.

6.7.9 Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit (T01, T03, T09, T10, T13, T16 and T18). Visibility sensors will 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 5 km 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 2000 cd steady state lights would operate at 200 cd. However, if visibility is restricted to 5 km or less, the lights would operate at 2,000 cd.

6.7.10 Additionally, the inherent directional intensity of 2,000 cd 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 1,125 cd and at -10 degrees should only be 75cd, when visibility is greater 5 km.

6.7.11 These measures are proposed as embedded mitigation. They are likely to reduce the magnitude of visual effects particularly for distant receptors, however this feature will not remove visibility of aviation lighting completely for any nearby receptors.

6.7.12 In the long term, when the Proposed Development is decommissioned, the turbines would be removed from site, and the hardstandings would be restored in accordance with a restoration plan to be approved by Midlothian Council.

6.8 Assessment of Residual Effects

6.8.1 Best practice for EIA in general terms requires that the significance of potential effects be assessed, mitigation proposals identified, and the residual effect (with mitigation in place) then re-assessed to demonstrate the effectiveness of the mitigation proposed.

6.8.2 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 principally focus on the refinement of the site layout ('primary mitigation' or 'mitigation by design').

6.8.3 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.

6.9 Assessment of Cumulative Effects

6.9.1 For the cumulative assessment, consideration was initially given to a 60 km 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 35 km 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 10th of August 2023 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 LVIA reflects the status of each wind farm at the time of this date.

6.9.2 In order that the assessment remains focused on those other schemes which have the greatest potential to give rise to significant cumulative effects, it was deemed appropriate to focus the assessment on a detailed 25 km area from the Proposed Development. It was also deemed appropriate to scope out any turbines under 50 m, or any turbines between 50 m and 80 m which lie over 10 km from the nearest proposed turbine. Schemes that are at the pre-scoping stage have not been considered due to the uncertainty that these schemes will come forward and the lack of adequate information about project details. This is in accordance with the approach advocated in GLVIA3.

6.9.3 The cumulative sites within 35 km are illustrated on **Figure 6.27** and cumulative sites within the 25 km detailed study area are illustrated on **Figure 6.28**. At the time of preparing this LVIA, there were 13 other wind farms within the detailed 25 km cumulative study area which were either operational, under construction, or in planning (**Table 6.11**).

Table 6.11 Other Wind Farms within 25 km of the Proposed Development

Site	Blade Tip Height (m)	Number of Turbines	Distance and Direction
Operational			
Carcant	150 m	3	2 km south-east
Bowbeat	80 m	24	6 km south-west
Toddleburn	125 m	12	9 km east
Dun Law	75 m	26	11 km east
Dun Law Extension	75 m	35	11 km east
Pogbie I and II	76 m	12	12 km east
Keith Hill	76 m	5	12 km east
Longpark	110 m	19	17 km south-east
Fallago Rig	125 m	48	22 km east
Consented or Under Construction			
Cloich Forest*	115m	18	12 km south-west

Site	Blade Tip Height (m)	Number of Turbines	Distance and Direction
In Planning			
Wull Muir	130 m	8	3 km south-east
Greystone Knowe	180 m	14	6 km south-east
Cloich Forest*	149.9 m	12	12 km south-west
Scawd Law	180 m	8	13 km south
Dunside	220m	15	24 km east

* Note - Cloich Forest is subject to a revised application which would supersede the consented scheme. As the revised application is for taller turbines than the consented scheme, this cumulative assessment focuses on the revised application only as a 'worst-case' scenario.

6.9.4 For the avoidance of doubt and to reiterate the methodology adopted in **Technical Appendix 6.1**, 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.

6.9.5 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, in planning (awaiting determination) and scoping stage schemes 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 schemes across the study area.

6.9.6 The baseline in the cumulative impact assessment is therefore extended to consider other schemes 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 schemes will be constructed:

- Scenario 1 assumes that other consented (but as yet unbuilt) wind farms are operational;
- Scenario 2 extends this further to assume that all schemes in planning are also operational. In reality, it is possible that all other schemes that are in planning may not be approved and constructed but this scenario assumes all planning schemes are operational as this presents the 'worst case'.

6.9.7 As noted above however, in this instance the Cloich Forest scheme is subject to a revised application which would supersede the consented

scheme. As the revised application is for taller turbines than the consented scheme, this cumulative assessment focuses on the revised application only. The assessment therefore only considers Scenario 2.

Cumulative ZTVs and Wireframes

6.9.8 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.

6.9.9 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.

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

Operational

- Carcant and Bowbeat (**Figure 6.29**)
- Toddleburn, Dun Law, Dun Law Extension, Pogbie and Keith Hill (**Figure 6.30**)
- Longpark (**Figure 6.31**)
- Fallago Rig (**Figure 6.32**)

In Planning

- Wull Muir and Greystone Knowe (**Figure 6.33**)
- Cloich Forest (**Figure 6.34a**)
- Scawd Law (**Figure 6.35**)
- Dunside (**Figure 6.36**)

Cumulative Effects on Landscape Character

6.9.11 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.

6.9.12 However, it is also noted 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.

6.9.13 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.

6.9.14 Generally speaking, such additional cumulative effects will 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.

6.9.15 The assessment focuses on the scenario where the in-planning schemes are also considered to be operational.

Cumulative Scenario – Other in-planning schemes are also considered to be operational

6.9.16 In this cumulative scenario (where other schemes in planning are also considered to be consented and operational) there would be four additional schemes (Wull Muir, Greystone Knowe, Scawd Law and Cloich Forest) located between 4 km and 13 km to the south of the site, plus the Dunside scheme located 24 km to the east.

6.9.17 Wull Muir is the closest of the other proposed schemes and lies around 3 km to the south-east of the site, in the more elevated landscape of the Moorfoot Hills. Greystone Knowe also lies to the south-east, beyond Wull Muir, at a distance of around 6 km. The cumulative ZTV prepared for the schemes (**Figure 6.33**) illustrates the potential for visibility of Torfichen with one or other of the schemes from large parts of the landscape, which more often would apply primarily to the Wull Muir scheme. The cumulative wirelines included with the visualisations illustrate the relationship between the sites and show that in reality much of the theoretical visibility shown on the CZTV for Wull Muir would be no more than blade tips (e.g. Viewpoints 3, 10, 12 and 16). There would nonetheless be potential for cumulative effects to arise within LCT 90 in that part of the landscape which lies between Torfichen and the two sites. There would also be increased visibility of turbines within that part of LCT 269 Upland Fringes – Lothians which lies immediately to the north-east of

the Proposed Development, as illustrated with reference to the cumulative wireline included with the visualisation for Viewpoint 1 at **Figure 6.37**. In these areas the main assessment has identified that there would already be a significant effect on landscape character as a result of the Proposed Development and so there would be no additional significant cumulative effects. It is not therefore considered that there would be any change to the findings of the assessment of effects on character set out earlier in the chapter were the proposed Wull Muir and Greystone Knowe schemes also to be included in the baseline landscape.

6.9.18 The proposed Cloich Forest scheme lies to the southwest, at a distance of 12 km. It lies within an area where there would be very little potential for visibility of the Proposed Development and there is therefore relatively limited potential for cumulative effects to arise between the two schemes. This is illustrated with reference to the cumulative ZTV prepared for the scheme (**Figure 6.34a-b).** Some visibility of the two schemes in different directions may be available within LCT 92 Plateau Outliers, in which the Cloich Forest scheme is located, and LCT 104 Upland Fringe Rough Grassland which lies part way between the two schemes. However, noting the 12 km distance between the two schemes it is not considered that there would be any change to the findings of the main assessment of effects on character set out earlier in the chapter were the Cloich Forest scheme also to be included in the baseline landscape.

6.9.19 The proposed Scawd Law scheme lies further to the south, at a distance of 13 km. It lies within an area where there would be very little potential for visibility of the Proposed Development and there is therefore very little potential for cumulative effects to arise between the two schemes, with any combined visibility generally in areas where the Scawd Law scheme would be over 20 km away. This is illustrated with reference to the cumulative ZTV prepared for the scheme (**Figure 6.35**). It is not therefore considered that there would be any change to the findings of the assessment of effects on character set out earlier in the chapter were the proposed Scawd Law scheme also to be included in the baseline landscape.

6.9.20 The proposed Dunside scheme lies 24 km east, beyond the operational Fallago Rig scheme. It also lies beyond the cluster of other operational schemes at Toddleburn, Dun Law, Dun Law Extension, Pogbie and Keith Hill. This limits the potential for any cumulative effects to arise between Dunside and the Proposed Development and there would be no greater effects than those already set out in the main assessment.

Totality of the Combined Effect of All Schemes, including the other operational schemes

6.9.21 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 schemes with regard to the Proposed Development and the other already operational schemes,

6.9.22 The closest operational scheme to the Proposed Development is the Carcant scheme of three turbines around 2 km to the south-east. The Bowbeat scheme of 24 turbines lies slightly further from the site at a distance of 6 km to the south-west. The cumulative ZTV prepared for the schemes (**Figure 6.29**) illustrates the potential for visibility of the Proposed Development with one or other of the schemes from large parts of the landscape, generally to the north of the site. The cumulative wirelines included with the visualisations illustrate the relationship between the sites and show that in reality much of the theoretical visibility shown on the CZTV would however be no more than blade tips (e.g. Viewpoints 1, 3, 10, 12, 16). Nonetheless the two schemes do serve to add wind energy to the existing characteristics of the landscape within the northern part of LCT 90 Dissected Plateau Moorland.

6.9.23 The Toddleburn, Dun Law, Dun Law Extension, Pogbie and Keith Hill schemes are all located in the same tract of the landscape to the east of the site, at a distance of between 9 km and 12 km. Collectively they have a notable effect on the character of the landscape in that area, but due to its distance from the Proposed Development would not result in any change to the assessment of landscape character set out in the main assessment, with no additional significant effects arising.

6.9.24 The Longpark scheme lies 17 km to the south-east of the Proposed Development within an area where there would be very little potential for visibility of the Proposed Development and there is therefore very little potential for cumulative effects to arise between the two schemes and there would be no greater effects than those already set out in the main assessment. This is illustrated with reference to the cumulative ZTV prepared for the scheme (**Figure 6.31**).

6.9.25 The Fallago Rig scheme lies 22 km to the east of the Proposed Development. It is located beyond the cluster of other operational schemes at Toddleburn, Dun Law, Dun Law Extension, Pogbie and Keith Hill. This limits the potential for any cumulative effects to arise between

Fallago Rig and the Proposed Development and there would be no greater effects than those already set out in the main assessment.

6.9.26 Overall, collectively the operational and proposed schemes would serve to result in wind energy being seen as a periodic feature across the wider landscape in all directions surrounding the site. The addition of the Proposed Development would serve to reinforce this pattern, without resulting in significant additional cumulative effects as a result of its relationship with the other schemes.

Cumulative Effects on Views and Visual Amenity

6.9.27 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.

6.9.28 However, it is also noted that in any given view where turbines are already present, the additional effect on visual amenity of introducing further turbines may not have as greater 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. Again, generally speaking, such additional cumulative effects will 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

6.9.29 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.

6.9.30 As set out in the main assessment, there are many locations where the other existing wind turbines at Carcant and Bowbeat are seen in views

from the landscape in and around the Proposed Development. Views of the turbines at Toddleburn, Dun Law, Dun Law Extension, Pogbie and Keith Hill are also available from some more elevated locations.

Cumulative Scenario – Other in-planning schemes are also considered to be operational

6.9.31 In this cumulative scenario (where other schemes in planning are also considered to be consented and operational) there would be four additional schemes (Wull Muir, Greystone Knowe, Scawd Law and Cloich Forest) located between 4 km and 13 km to the south of the site, plus the Dunside scheme located 24 km to the east.

6.9.32 Wull Muir is the closest of the other proposed schemes and lies around 3 km to the south-east of the site, in the more elevated landscape of the Moorfoot Hills. Greystone Knowe also lies to the south-east, beyond Wull Muir, at a distance of around 6 km. The cumulative wirelines included with the visualisations illustrate the relationship between the sites and show that in reality much of the theoretical visibility shown on the CZTV for Wull Muir would be no more than blade tips (e.g. Viewpoints 3, 10, 12, 16). It is not therefore considered that the inclusion of these schemes within the baseline would result in any change to the effects on visual amenity in relation to the proposed wind farm which are already set out in the main assessment.

6.9.33 The proposed Cloich Forest scheme lies to the southwest, at a distance of 12 km. It lies within an area where there would be very little potential for visibility of the Proposed Development and there is therefore relatively limited potential for cumulative effects to arise between the two schemes. it is not therefore considered that there would be any change to the findings of the main assessment of effects on visual amenity set out earlier in the chapter were the Cloich Forest scheme also to be included in the baseline landscape.

6.9.34 The proposed Scawd Law scheme lies further to the south, at a distance of 13 km. It lies within an area where there would be very little potential for visibility of the Proposed Development and there is therefore very little potential for cumulative effects to arise between the two schemes, with any combined visibility generally in areas where the Scawd Law scheme would be over 20km away.

6.9.35 The proposed Dunside scheme lies 24 km east, beyond the operational Fallago Rig scheme. It also lies beyond the cluster of other operational schemes at Toddleburn, Dun Law, Dun Law Extension, Pogbie and Keith

Hill. This limits the potential for any cumulative effects to arise between Dunside and the Proposed Development and there would be no greater effects than those already set out in the main assessment.

Cumulative 'sequential' effects

6.9.36 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 it was identified had the potential to experience significant effects as a result of the proposed scheme and these are also used as the basis for the cumulative assessment:

- Core Paths within 10 km
- National Cycle Network Route 1
- A7
- B7007
- B6458
- B6367
- B6372
- B704

6.9.37 In the cumulative scenario where other schemes in planning are also considered to be consented and operational, it is not considered that there would be any substantive change to the assessment of the above routes when compared with that set out in the main assessment with no additional significant cumulative effects identified.

Totality of the Combined Effects of all schemes

6.9.38 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 schemes. Again, it is not considered that there would be any substantive change to the assessment of the identified routes when compared with that set out in the main assessment with no additional significant cumulative effects identified.

Summary of Cumulative Effects

6.9.39 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.

6.9.40 There are four in-planning schemes (Wull Muir, Greystone Knowe, Scawd Law and Cloich Forest) located between 4 km and 13 km to the south of the site, plus the Dunside scheme located 24 km to the east. Wull Muir is the closest of the other proposed schemes and lies around 3 km to the south-east of the site, in the more elevated landscape of the Moorfoot Hills.

6.9.41 There would be potential for cumulative effects to arise within LCT 90 Dissected Plateau Moorland in that part of the landscape which lies between the Proposed Development and Wull Muir. There would also be increased visibility of turbines within that part of LCT 269 Upland Fringes - Lothians which lies immediately to the north-east of the Proposed Development. In these areas the main assessment has however already identified that there would be a significant effect on landscape character as a result of the Proposed Development and so there would be no additional significant cumulative effects. No other additional significant cumulative landscape or visual effects are considered to arise in relation to other in-planning schemes.

6.10 Summary

6.10.1 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 carried out on separate occasions at different times of the year and by consultation undertaken with statutory consultees including Midlothian Council and NatureScot.

6.10.2 The existing landscape and visual baseline has been documented and is presented at **Section 6.5** and the assessment has been supported by figures (presented in EIA Report **Volume 2**) and 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 22 LVIA viewpoints and views during dark sky hours from a select number of viewpoint locations (presented in EIA Report **Volume 3**).

6.10.3 The Proposed Development is located in Midlothian, Scotland and is located at Torfichen Hill. The site is centred on Ordnance Survey British National Grid 333932, 654430. The closest settlements are Gorebridge,

located approximately 4.3 km to the north, Mayfield, Bonnyrigg, Rosewell and Pathhead located between 7 and 9 km to the north.

6.10.4 There are no national landscape designations covering the site. The nearest national landscape designation is Upper Tweeddale NSA located approximately 14.8 km to the south-west. The Proposed Development is located within the Gladhouse Reservoir & Moorfoot Scarp SLA.

6.10.5 The Proposed Development would be sited on the scarp slopes of the Moorfoot Hills that form a notable topographical feature experienced in many views from the wider surrounding landscape. The proposed turbines and associated infrastructure are partly located within LCT 266 Plateau Moorland – Lothians and partly within LCT 269 Upland Fringes - Lothians

6.10.6 Appropriate offsets from all properties have been maintained to ensure that no property would experience an overbearing visual impact. Mitigation has been designed into the proposed aviation lighting to reduce the intensity of the 2000 cd steady state lights in certain atmospheric conditions by reducing their intensity and attenuating the amount of vertical downwards lighting in order to reduce the visual impact experienced by receptors below the lights.

6.10.7 As with almost any onshore wind farm development it is recognised that the Proposed Development would give rise to some localised significant effects on landscape character and visual amenity.

6.10.8 The Proposed Development would result in direct and significant effects on the part of the landscape character types within which it is located. Indirect and significant effects would extend to approximately 3.7 km to the north-east and 7.5 km to the north-west within LCT 269 Upland Fringes – Lothians.

6.10.9 Indirect and significant effects would extend to approximately 4.1 km to the north-east and 6.5 km to the south-east within LCT 91 Plateau Grassland – Borders, to approximately 7 km within LCT 104 Upland Fringe Rough Grassland, to approximately 8.5 km within LCT 270 Lowland River Valleys – Lothians, to approximately 6 km to the north-east within LCT 272 Lowland Hills and Ridges and 9.4 km to the north-west.

6.10.10 In relation to visual effects, it is accepted that the Proposed Development would be visible from various nearby properties, settlements as well as parts of the surrounding road, footpath and cycle networks.

6.10.11 It has been assessed that there would be significant visual effects experienced at nine of the 22 representative viewpoints, as summarised

above in **Table 6.6** during daylight hours and at eight viewpoints during the hours of darkness.

6.10.12 In terms of the effects on residential properties within 2.5 km, twelve of the 32 properties or property groups would experience a significant visual effect from either a part of their house, garden or principal access route.

6.10.13 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.

6.10.14 In relation to settlements, the assessment found that of the settlement brought forward into detailed assessment North Middleton and Gorebridge would experience a significant visual effect during daylight hours and Gorebridge would also experience a significant visual effect during dark sky hours.

6.10.15 The assessment of routes found that receptors would experience significant visual effects from core paths located within 5 km, from core paths located between 5 and 7.5 km to the north-west of the Proposed Development and from parts of NCNR1.

6.10.16 The assessment of roads found that receptors would experience significant effects from parts of the B7007, the B6357 and the B6372.

6.10.17 In terms of effects on Special Landscape Areas, the assessment found that the Gladhouse Reservoir & Moorfoot Scarp SLA, the South Esk & Carrington Farmlands SLA, a limited part of the Tyne Valley SLA and a very limited part of The Pentland Hills SLA would experience significant effects but that the effects would not undermine the key characteristics of the SLA to such an extent that they would be compromised.

6.10.18 Regarding cumulative effects, the assessment found that there would be the potential for cumulative landscape character effects to arise within part of LCT 90 Dissected Plateau Moorland and that although there would be increased visibility of turbines within part of LCT 269 Upland Fringes – Lothians, there would be no additional significant cumulative effects as significant effects were already identified in that part of the landscape in the main assessment.

6.10.19 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, particularly when the consented but as yet unbuilt wind farms are taken into account.

6.10.20 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.

6.10.21 However, in considering the effects of the Proposed Development, a precautionary approach has been adopted and it is therefore assumed that the effects identified will be adverse in nature even though it is recognised that for some people the impacts could be perceived to be beneficial.

6.10.22 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 6.12 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 existing vegetation, watercourses and drainage channels
Effects on LCTs within which the Proposed Development is partly 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 LCT 266 Plateau Moorland – Lothians and LCT 269 Upland Fringes – Lothians
Indirect effects to other LCTs	No additional mitigation – consideration of landscape and visual	By design	Worst case **Moderate/minor non-significant** effect to

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
	matters was inherent in the design process		parts of LCT 270 Lowland River Valleys - Lothians and LCT 272 Lowland Hills and Ridges
Visual effects	No additional mitigation - consideration of landscape and visual matters was inherent in the design process	By design	Worst case Major/moderate significant temporary effect from lower-lying areas to the north-west
During Operation			
Effects on LCTs within which the Proposed Development is partly located	No additional mitigation - consideration of landscape and visual matters was inherent in the design process	By design	Worst case **Major significant** effect to LCT 266 Plateau Moorland - Lothians and LCT 269 Upland Fringes - Lothians
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 LCT 104 Upland Fringe Rough Grassland, LCT 270 Lowland River Valleys - Lothians and LCT 272 Lowland Hills and Ridges
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 9 of the 22 LVIA Viewpoints
LVIA Viewpoints during dark sky hours	Reduced aviation lighting scheme agreed with the CAA	By design	Worst case **Significant effects** from 8 of the 22 LVIA Viewpoints
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 **Major/moderate significant** effect from Gorebridge
Effects on settlements during dark sky hours	Reduced aviation lighting scheme agreed with the CAA	By design	Worst case **Moderate significant** effect from Gorebridge
Effects on users of Core Paths during daylight hours	No additional mitigation - consideration of	By design	Worst case **Major significant** effect from Core Paths

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
	landscape and visual matters was inherent in the design process		located within 5 km Worst cast **Major/moderate significant** effect from Core Paths between 5 and 7.5 km
Effects on users of Core Paths dark sky hours	Reduced aviation lighting scheme agreed with the CAA	By design	Worst case **Moderate significant** effect from Core Paths located within 5 km Worst cast **Moderate significant** effect from Core Paths between 5 and 7.5 km
Effects on users of Cycle Routes during daylight hours	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case **Major significant** effect from NCNR1
Effects on users of Cycle Routes during dark sky hours	Reduced aviation lighting scheme agreed with the CAA	By design	Worst case **Major/moderate significant** effect from NCNR1
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 **Major/moderate significant** effect from B7007
Effects on road users during dark sky hours	Reduced aviation lighting scheme agreed with the CAA	By design	Worst case **Moderate significant** effect from B7007
Effects on Special Landscape Areas	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	By design	Worst case **Significant effects** to parts of Gladhouse Reservoir & Moorfoot Scarp SLA, South Esk Valley and Carrington Farmland SLA, Tyne Valley SLA and a very limited part of The Pentland Hills SLA

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