OnPathEnergy

Together to a greener future

BODINGLEE WIND FARM

FURTHER ENVIROMENTAL INFORMATION

CONTENTS

1. INTRODUCTION

1.1 In June 2023, OnPath Energy (Bodinglee Wind Farm) Limited (formerly Banks Renewables (Bodinglee Wind Farm) Limited) (the Applicant)) submitted an application to the Scottish Government for consent under Section 36 of the Electricity Act 1989 to construct and operate Bodinglee Wind Farm (the 2023 Proposed Development). The 2023 Proposed Development comprised up to 37 turbines with an anticipated generation capacity of approximately 259MW and a Battery Energy Storage System (BESS) of approximately 100 MW.

1.2 The Environmental Impact Assessment Report (the '2023 EIA Report') which accompanied the application concluded that the 2023 Proposed Development would result in a limited number of significant effects, as may be expected for the scale of development proposed. Representations were received during post-submission consultation on the application that have identified opportunities for additional mitigation to address the potential impacts of the 2023 Proposed Development. This included proposals to remove certain turbines, or in some cases reduce the maximum height to blade tip of certain turbines.

1.3 The Applicant has carefully considered all of the consultation responses that have been received and is now proposing design changes to further mitigate the potential impacts of its proposals (the proposed 'Design Changes'). Details of the Design Changes are outlined in Chapter 2. As a consequence of the Design Changes, this report comprising further environmental information (the 'FEI Report') has been prepared to assess the effects of the 'Revised Proposed Development'.

PURPOSE AND STRUCTURE OF THE FEI REPORT

1.4 To update the 2023 EIA Report submitted with the application to:

a) Reflect the proposed Design Changes set out in FEI Chapter 2;

b) Provide further information/clarification information as requested during post-submission consultation.

RELATIONSHIP WITH 2023 EIA REPORT

1.5 The information presented in this FEI Report acts as supplementary information to the original application and should therefore be read in conjunction with the 2023 EIA Report.

1.6 The FEI Report is not intended to be a standalone assessment of all impacts associated with the Revised Proposed Development. It must be read with knowledge of, and cross-reference to, the 2023 EIA Report text and accompanying drawings.

1.7 Given there is no statutory guidance on the content of Further or Supplementary Environmental Information, guidance within the Environmental Impact Assessment handbook (NatureScot, 5th Edition, 2018) under sections D7 and D8 is relevant. Paragraph D8.3 of the Handbook suggests that the supplementary EIA may include a revision of the whole or part of the original document or additions that are needed to cover the additional information, and that a supplementary EIA Report should make clear which parts of the original EIA Report are being supplemented or revised.

1.8 Therefore, the FEI Report considers and assesses potential changes to the 2023 EIA Report, with a focus on potential changes to likely significant effects as a consequence of the proposed Design Changes incorporated within the Revised Proposed Development, as required by the EIA Regulations. Given the nature of the Design Changes and the extent of their impact on the conclusions in the 2023 EIA Report, the FEI Report only contains the information which has required new or revised assessment. Where there may appear to be gaps within the FEI Report, it can be taken that conclusions of the assessment in the 2023 EIA Report remain current and relevant.

STRUCTURE

1.9 The Applicant has assessed the amendments to the Revised Proposed Development against the conclusions of the 2023 EIA Report. For each topic area covered in the 2023 EIA Report , the FEI Report sets out the impact of the Design Changes on the 2023 EIA Report conclusions. It is not the purpose of the FEI chapters to repeat information that was provided in the 2023 EIA Report. The purpose is to review the impact of the amendments and set out whether the conclusions of the assessments presented in the 2023 EIA Report remain valid. As such, reference should also be made to the 2023 EIA Report.

1.10 Updated drawings, figures and technical appendices (TA) have been provided where required. These are titled with the prefix ‘FEI’ e.g. FEI Figure 2.1. Where there is no replacement drawing, figure, or TA, those submitted with the 2023 EIA Report remain valid.

2. THE REVISED PROPOSED DEVELOPMENT

This chapter outlines the key aspects of the Design Changes from which the resulting layout and design form the Revised Proposed Development. The Revised Proposed Development now consists of up to 35 turbines; 9 with tip heights of up 210m, 11 with tip heights of up to 230m and 15 with tip heights of up to 250m.

A number of infrastructure layout changes have also been made to reduce environmental effects.

To ensure sufficient flexibility is retained in turbine selection and to maximise efficiency and output from the 2023 Proposed Development, the application seeks the flexibility to use a range of tip heights but each one will remain within maximum (as set out below) and minimum values (200 m).

INTRODUCTION

2.1 This chapter describes the components of the Revised Proposed Development for which consent under Section 36 of the Electricity Act 1989 is being sought and which has been assessed through the EIA process. It includes details about the construction and operation of the Revised Proposed Development where these have changed from the 2023 EIA Report Chapter 2. Unless otherwise stated or revised in this chapter, the details provided in the 2023 EIA Report Chapter 2 remain relevant.

2.2 The following definitions have been provided throughout each of the FEI Chapters:

a) '2023 Proposed Development' describes the 'Proposed Development' as was the term used for describing the proposal in the 2023 EIA Report.

b) 'Revised Proposed Development' refers to the development as presented in the 2023 EIAR as amended by the proposed Design Changes. The entirety of the scheme as now being proposed.

c) 'Design Changes' refers to the design modifications. These are the changes which are now being proposed.

2.3 This chapter is supported by updated drawings and figures, presented in FEI Volume 3a. FEI Figures 2.1 to 2.5 supersede the 2023 EIA Report Volume 3a Figures 2.1 to 2.5. The updated figures are as follows

- FEI Figure 2.1 Revised Proposed Development Layout
- FEI Figure 2.2 Proposed Detailed Development Layout – (Sheets 1 to 2)
- FEI Figure 2.3 Indicative Turbine Elevation 210 m Tip Height
- FEI Figure 2.4 Indicative Turbine Elevation 230 m Tip Height
- FEI Figure 2.5 Indicative Turbine Elevation 250 m Tip Height

2.4 2023 EIA Report Volume 3a Figures 2.5 to 2.17 have not been updated or revised since the original submission and remain relevant to the details provided within this chapter.

2.5 The chapter is supported by updated and new technical appendices, which are presented in FEI Volume 4: Technical Appendices:

- FEI TA 2.3 Aviation Lighting Strategy
- FEI TA 2.3.1 CAA response to Aviation Lighting Strategy
- FEI TA 2.5 Shadow Flicker Assessment
- FEI TA 2.7 Carbon Balance Study

2.6 The following TA's from the 2023 EIA Report Volume 4 remain relevant and have not been re-provided as part of the FEI submission:

- TA 2.1 Outline Environmental Management Plan
- TA 2.2 Aviation Impact Assessment
- TA 2.4 Telecommunications Mitigation Strategy
- TA 2.6 Forestry Report; and
- TA 2.8 Eskdalemuir Seismic Budget Report.

SITE LOCATION

2.7 No changes are proposed to the Site Location or to the planning application boundary.

REVISED PROPOSED DEVELOPMENT

2.8 Section 2.9 of Chapter 2: The Proposed Development of the 2023 EIA Report provided an overview description of the 2023 Proposed Development. For the purposes of this FEI Report, this chapter is now updated to detail the Revised Proposed Development (the FEI Layout, as shown on FEI Figure 2.1).

2.9 The Revised Proposed Development comprises a wind powered electricity generating station known as Bodinglee Wind Farm with a generation capacity exceeding 50MW, including associated infrastructure, and an approximately 100 MW capacity battery energy storage facility. It will involve the construction and operation of the wind farm, BESS and associated infrastructure.

2.10 The Revised Proposed Development comprises:

- 35 Wind turbines with a micrositing allowance of up to 50m;
- Foundations supporting each wind turbine;
- Associated crane hardstanding and up to three auxiliary crane hardstands adjacent to each wind turbine location;
- New and upgraded site access points from the A70 at Uddington and the B7078 at Kennoxhead and at Maidengill;

- A network of onsite access tracks and associated watercourse crossings;
- A network of underground cables electrically linking wind turbines, and battery storage facility to the onsite 132 kV substation;
- Onsite control building(s) and associated electrical substation compound;
- Two permanent lattice anemometer masts;
- Re-purpose and retrofitting of existing building at Maidengill for site management and welfare facilities;
- Battery storage facility; and
- A network of new onsite gravel footpaths linking to offsite pedestrian routes.

2.11 Temporary construction elements include:

- Maximum 0.9ha felling to accommodate infrastructure with 1:1 compensatory planting;
- Temporary construction compound(s), laydown area(s) including car parking;
- Concrete batching plants;
- Up to 9 borrow pits.

SUMMARY OF DESIGN CHANGES

2.12 The rationale behind the proposed Design Changes can be found in Chapter 3 of this Statement.

2.13 Post application consultation with NatureScot and Historic Environment Scotland (HES) raised concerns with the effect of turbines from some sensitive locations, such as Auchensaugh Hill Cairn, and the Upper Clyde Valley and Tinto Special Landscape Area (SLA). SEPA and the RSPB highlighted peat and ornithological receptors around Flow Moss that could benefit from further design refinement. This FEI seeks to address those concerns where feasible through an iterative design process. The Revised Proposed Development includes the removal of, and reduction in the maximum tip height of turbines, as well as a number of infrastructure layout amendments.

2.14 The revised site layout is illustrated on FEI Figure 2.1 Revised Proposed Development Layout.

2.15 The Revised Proposed Development includes:

- Changes to turbine design and layout:
- The number of turbines has been reduced from 37 to 35 turbines (with turbines T9 and T10 removed from the layout).
- The maximum tip height of turbines T5, T6, T7, T13, T14, T15, T18, T22 and T32 have been reduced to from 230-250m to 210m.

b) Infrastructure changes from the 2023 Proposed Development include:

- Additional areas of floated track between T1 and T5 and west of T19;
- Removal of track travelling through areas of peatland habitat towards T35 and T36 and provision of an alternate route between T27 and T35;
- Additional watercourse crossing NWC14;
- Removal of Borrow Pit 09 (BP09);
- Relocation of Construction Compound 4 (CC4); and Removal of spur road to T9.

Turbine numbers

2.16 The number of turbines proposed at Bodinglee has been reduced to 35 turbines. The turbine numbering used for the 2023 EIA Report and supporting figures has been kept the same on figures and reports submitted as part of this FEI for clarity.

2.17 As illustrated in Figure FEI 2.1 Revised Proposed Development Layout:

a) Turbines T9 and T10 have been removed from the layout; and

- All other turbines remain in the positions set out in 2023 EIA Report Chapter 2 Table 2.1 (repeated in Table 2.1 below).
- A 50m micrositing allowance is still being sought for turbines, access tracks and all other wind farm infrastructure (FEI Figure 2.2).

Turbine specification

2.18 The maximum tip height of turbines T5, T6, T7, T13, T14, T15, T18, T22 and T32 has been reduced to 210m. Typical wind turbine structures are shown on FEI Figures 2.3 - 2.5 for the respective tip heights proposed here.

2.19 Table 2.2 illustrates the turbine dimensions for which permission is being sought.

2.20 Paragraphs 2.12 to 2.16 in the Chapter 2 of the 2023 EIA Report otherwise remain relevant.

Table 2.1: Turbine locations and tip heights

Turbine	Easting	Northing	Tip height (m)
1	282905	628032	230
2	283617	628345	250
3	284441	628782	230

4	285076	629297	230
5	283107	627541	210
6	283809	627837	210
7	284505	628136	210
8	285005	628711	230
9	Removed		
10	Removed		
11	284161	626841	250
12	287328	631909	230
13	288016	632326	210
14	288601	632300	210
15	289274	632526	210
16	287450	631369	230
17	288123	631620	250
18	288921	631876	210
19	287758	630945	250
20	288459	631253	250
21	289281	631562	250
22	289961	631723	210
23	287386	630308	230
24	288061	630399	250
25	288754	630822	250
26	289334	630821	250
27	287431	629697	250
28	288093	629807	250
29	288765	630198	250
30	289377	630211	250
31	287861	629119	250
32	288634	629541	210
33	289239	629524	230
34	290201	630121	230
35	287984	628572	250
36	288640	628938	230
37	290061	629476	230

Table 2.2: Turbine dimensions

Maximum Tip height (m)	Maximum Hub height (m)	Maximum Rotor diameter (m)
210	125	170
230	145	170
250	165	170

Onsite Access Tracks

2.21 The track layout has been revised to reflect the comments raised by stakeholders. Please see FEI Figure 2.2 for detailed drawing of the Design Changes. The Revised Proposed Development now proposes:

a) Founded access track length of approximately 30.9 km;

b) Floated access track length of approximately 3.0 km;

c) Upgrade of existing track length of approximately 4.5 km

2.22 Additional areas of floated track between T1 and T5 and west of T19 have been incorporated into the Revised Proposed Development following comments from Scottish Environmental Protection Agency (SEPA).

2.23 The Revised Proposed Development has removed track travelling through areas of peatland habitat (montane blanket bog) towards T35 and T36 and instead proposes a route between T27 and T35 which reduces the effect on this habitat type.

Temporary Construction Compound

2.24 The location of one temporary construction compound has been revised as part of our iterative design process. Please see FEI Figure 2.2.

2.25 The changes include:

a) Relocation of construction compound CC4.

2.26 CC4 was previously located in an area of montane blanket bog and has been relocated approx. 150 m eastwards to reduce the effects on this habitat type.

Borrow Pits

2.27 The number of borrow pits proposed has been reduced from 10 to 9 as part of our iterative design process.

2.28 As illustrated in FEI Figure 2.2:

a) Borrow Pit 09 area has now been removed.

2.29 BP09 was previously located in an area of montane blanket bog and has been removed to reduce effects on this habitat type.

Watercourse Crossings

2.30 The internal track layout has been designed to minimise the number of new and upgraded watercourse crossings required as far as is practical to do so. Thirteen new watercourse crossings are required and one existing watercourse crossing needs to be upgraded. One of these watercourse crossings will be a spanned bridge crossing. There is an additional watercourse crossing than previously proposed as part of the 2023 Proposed Development, which is required as a result of the changes to the access track to T35.

Aviation Lighting

2.31 As stated in the 2023 EIA Report, consultation was undertaken with the Civil Aviation Authority (CAA) following submission. CAA regulations (Article 222 of the Air Navigation Order 2016 (as amended by the Air Navigation (Amendment) Order 2019)) (ANO) require all structures, including wind turbines, greater than 150m are to be lit with visible aviation lighting during nighttime hours. The 2023 EIA Report (TA 2.3 Aviation Lighting Strategy) proposed a reduced lighting scheme of 16 lit turbines at the appropriate specification (nacelle mounted 2000 candela omnidirectional LED lighting with suitability to reduce lighting intensity to 200 candela pending weather conditions) for the purposes of the 2023 EIA Report and Aviation Lighting Assessment (2023 EIA Report TA 4.3).

2.32 The ANO specification also requires that three dimmer lights (32 candela) providing 360 degrees coverage approximately halfway up the tower to provide vertical reference when fitted to a single vertical structure. However for a group of structures, such as multiple wind turbines, this requirement is much diminished and proposals have been made to the CAA, during 2023 EIA Report submission, to request the requirement for mid tower lights to be removed. As per CAA letter, dated April 2025 (see FEI TA 2.3.1), these lights are no longer required and will not be installed for the Revised Proposed Development.

2.33 Turbine 9 was one of the turbines proposed to be lit and was assessed as such in the 2023 EIA Report TA 4.3. Given the Design Changes to remove this turbine, FEI Chapter 4: LVIA notes that the previous assessment, while still valid, over-assesses the likely nighttime lighting effects. 2023 EIA Report TA 4.3 was therefore not updated.

2.34 However, since then, the Applicant has received confirmation from the CAA that a further reduced lighting scheme of ten lit turbines (nacelle mounted 2000/200 candela omnidirectional LED lighting) would be sufficient and acceptable (correspondence received April 2025 – see FEI TA 2.3.1). Given the date of this confirmation, the nighttime Aviation Lighting Assessment does not reflect this further reduced lighting scheme and therefore over-estimates the nighttime lighting effects that are likely to arise.

2.35 The Ministry of Defence (MOD) requires all perimeter turbine to be lit, as well as any dominant turbine either by virtue of height or location with infra-red (IR) lighting. As a site classified by the MOD as a ‘large turbine site’ the central turbines also need to be lit by infra-red lighting. The 2023 EIA Report (TA 2.3 Aviation Lighting Strategy) proposed 28 turbines to be lit with IR hub mounted obstruction lights. Following removal of T9 and T10 this has now been reduced to 26 turbines.

2.36 For clarity, the revised proposed Aviation Lighting Strategy (FEI TA 2.3) proposes the following:

a) Visible red lights (nacelle mounted 2000/200 candela omnidirectional LED lighting with no requirement for mid-tower lighting) at 10 turbines: T1, T4, T7, T11, T12, T15, T22, T27, T35 and T37.

b) Infra-red lighting at 26 turbines: T1, T2, T3, T4, T5, T7, T8, T11, T12, T13, T14, T15 T16, T19, T20, T22, T23, T26, T27, T29, T31, T33, T34, T35, T36 and T37.

Carbon Balance

2.37 When drafting the 2023 EIA Report the latest Scottish Government Carbon Calculator for windfarms on Scottish Peatlands (Carbon Calculator Tool v1.7.0) was used to estimate the carbon losses (emissions) and gains from the 2023 Proposed Development. The calculator is accessed via the Scottish Government Website and the Carbon Calculator of the 2023 Proposed Development can be viewed using the reference: **YXOL-61H8-WCLU**.

2.38 The Scottish Government Carbon Calculator is currently unavailable and could not be accessed for the FEI Revised Proposed Development. Therefore, this assessment has been updated using the historic Carbon Calculator for windfarms on Peatlands version 2.14.1 which was provided by the Energy Consents Unit (ECU). As this carbon calculator is different from the Carbon Calculator Tool used for the 2023 EIAR TA 2.7: CBS, the analysis for the 2023 Proposed Development has been re-run using the historic tool so that a comparison can be made to the Revised Proposed Development.

2.39 The amendments to the design have resulted in a reduction in carbon losses by approximately 40,000 tCO_2. However, due to the removal of two turbines (T9 and T10) the carbon payback potential is also reduced. Therefore, the overall carbon payback is assessed as 1.3 years for both the 2023 Proposed Development and Revised Proposed Development.

2.40 The wind farm is predicted to save approximately 14,092,800 tonnes of carbon dioxide emissions over its 40 years' operating period which is equivalent to the emissions from supplying fossil-fuel source electricity to over 200,000 average homes.

2.41 A revised Carbon Balance Study and supporting calculation is appended to this chapter (FEI TA 2.7).

Outline HMP

2.42 The outline HMP (FEI TA 6.4) has been revised and addresses recent changes to guidance and provides additional detail as recommended by NatureScot and RSPB. Further information relating to the balance between peatland habitat enhancement and compensation measures has been provided and considers the Design Changes which have had a positive effect on peatland habitats, such as the removal of T9 and BP09, and the rerouting of access tracks south of T31, will reduce the likely impacts on peatlands.

2.43 Taking the combined direct and indirect impacts on both blanket bog and heathland, the compensation ratio will be 1:14. Gains for peatlands are also expected to be achieved via a ditch blocking exercise in rush pastures. Given the hectarage involved, it is considered likely that the OHMP will provide the biodiversity positive outcomes required by NPF4.

3. DESIGN EVOLUTION

This chapter outlines the evolution of Bodinglee Wind Farm design and layout, highlighting how consultation feedback has directly informed and influenced modifications to the project. The development progressed through several iterative layouts since 2023—Turbine Layouts 4, 5, and 6—each reflecting a progressive refinement in response to statutory and non-statutory consultation responses.

INTRODUCTION

3.1 This chapter of the FEI provides detail on the design process which has taken place since the submission of the 2023 EIA Report. It should be read in conjunction with Chapter 3 of the 2023 EIA Report. This Chapter describes the design strategy to the 2023 Proposed Development and components of the proposed development which forms the basis of this FEI (the Revised Proposed Development). It includes details about the construction, operation and decommissioning of the Revised Proposed Development.

3.2 The following figures (FEI Volume 3a) accompany this chapter:

a) FEI Figure 3.1 Infrastructure Layout

3.3 The following technical appendices (FEI Volume 4) accompany this chapter:

a) FEI TA 3.1 Consultation Response Log

SITE SELECTION AND THE SITE

3.4 No changes have been made to the Application Boundary or the Site since the 2023 EIA Report submission, and these are shown in 2023 EIA Report Volume 3a Figure 1.1 and FEI Volume 3a Figure 2.1.

3.5 The site selection process is detailed in the 2023 EIA Report Chapter 3 and is not repeated here.

CURRENT LAND USE AND SITE CONTEXT

3.6 No changes to the site context or land use have occurred since the 2023 EIA Report was submitted.

3.7 Please refer to Chapter 3 of the 2023 EIA Report for further detail.

OVERARCHING DESIGN STRATEGY

3.8 The design strategy sets out the overall approach to design that has been followed throughout the design process since the Scoping Layout, through to the FEI Layout. It describes the objectives for the design and subsequent alterations. During each design iteration, careful consideration was given to minimising effects on environmental features, whilst maximising renewable energy generation potential from the Site and maintaining the objectives of the design strategy.

3.9 The objectives of the 2023 EIA Proposed Development and the Revised Proposed Development design strategy were to develop a design and layout:

a) which would maintain legibility of key views as experienced from the surrounding landscape;

b) that responded to the landform and takes advantage of topographical screening, where possible;

c) based on a selection of turbines that seek to respond to the scale of the landscape;

d) that related to other wind farms in the local area, as well as being coherent in its own right;

e) that included an access track designed in such a way that it avoids steep terrain, maximises screening through existing landform and vegetation, and to utilise existing access roads and tracks wherever possible, to minimise visibility of these project components; and

f) to develop a layout that fulfils the above objectives whilst respecting other environmental constraints including archaeological, ecological, hydrological and ground conditions (including peat) related constraints identified during the post-submission consultation process.

3.10 The principles of the design strategy were to arrange turbines and other infrastructure to maximise energy yield whilst minimising environmental effects. This was achieved through assessments of the environmental effects, including a viewpoint assessment to take into account visual effects and effects on the landscape, as well as effects on onsite environmental features and through further consultation with statutory consultees.

2023 Proposed Development: Design Strategy

3.11 Chapter 3: Site Selection and Design of the 2023 EIA Report sets out the design strategy for the 2023 Proposed Development. The various economic, technical and environmental factors were all considered in the iterative design process, which resulted in the layout presented in the 2023 EIA Report The final design was considered to meet the balance of maximising the renewable energy generation capacity of the Site, whilst minimising the introduction of environmental effects.

3.12 Section Chapter 3 of the 2023 EIA Report outlines in detail the various iterations that led to the 2023 Proposed Development and layout assessed in the 2023 EIA Report.

FEI Revised Proposed Development: Design Strategy

3.13 As noted in Chapter 1: Introduction and Chapter 3: Design Evolution of the FEI Report, stakeholders were given an opportunity to provide comment on the S36 application and 2023 EIA Report. Consultation responses were received from statutory and non-statutory bodies, and members of the public further detail on this is provided below and within each of the topic chapters that deals with the specific matters raised. A summary Consultation Response Log is provided as a technical appendix to this chapter (FEI TA 3.1).

3.14 In addition to the design strategy, and the key design considerations taken into account during the design of the 2023 Proposed Development (as outlined in para 3.25 of the 2023 EIA Report), consultation comments received during the consultation period have also been taken into account.

3.15 Following extensive consultation with consultees the specific design aims for the Revised Proposed Development were as follows:

a) Reduce effects on Auchensaugh Hill cairn, so as to reduce magnitude of effect on setting of the asset;

b) Reduce landscape and visual effects at Tinto and Dungavel hills and effects relating to the Upper Clyde Valley and Tinto Special Landscape Area;

c) Reduce likely effects on deep peat;

d) Agree a suitable aviation lighting scheme with the CAA, minimising requirements for lit turbines and reducing nighttime visual effects.

e) Optimise design proposals and seek opportunities to improve infrastructure effects on priority habitats and protected species; and

f) Refine the outline Habitat Management Plan to demonstrate a nature positive Revised Proposed Development.

REVISED PROPOSED DEVELOPMENT: CONSULTATION AND DESIGN CHANGES

3.16 In response to the 2023 Proposed Development, the Applicant received one objection (HES) and two holding objections (NatureScot and SEPA) from statutory consultees. No written feedback was received from the Local Planning Authority (South Lanarkshire Council (SLC)). However, the Applicant and SLC continued to communicate following the submission of the 2023 EIA Report and application, and SLC were kept informed of design evolution in the intervening period. A number of non-statutory consultee responses were also made to the 2023 EIA Report and responses to these can be found in FEI TA 3.1.

Reduction in number of turbines

3.17 Historic Environment Scotland (HES) objected (03 November 2023) in relation to the siting of turbines adjacent to Auchensaugh Hill Cairn, in particular T6, 7, 9 and 10. T9 and T10 were similarly noted as being of concern for ornithological features by RSPB (02 October 2023) and by NatureScot (Annex 2, 17 October 2023) in their response to the 2023 Proposed Development. SEPA submitted a holding objection (07 December 2023) and NatureScot noted concerns (Annex 4, 17 October 2023) primarily in relation to the positioning of T9 within an area of deep peat (over 1.0m). Therefore, the Revised Proposed Development has sought to reduce the environmental effects at this location through the removal of:

a) 2 turbines (T9 and T10) from the south-western part of the Site in Bodinglee West.

3.18 The removal of T9 and T10 is considered to result in a number of improvements on the 2023 Proposed Development relating to cultural heritage, ornithology and peat.

Decrease in tip heights

3.19 In addition to the removal of two turbines, to reduce the level of potential adverse effects highlgihted by Historic Environment Scotland (HES) and NatureScot, the maximum tip heights of a further 9 turbines have been reduced to 210m.

3.20 NatureScot (17 October 2023) provided no objection on LVIA grounds to the 2023 Proposed Development, however advisory notes were provided on the scale and siting of proposed turbines. The key points raised relate to a perceived detraction from appreciation of and from Tinto Hill and of the relationship between Tinto and Dungavel Hills from the Garf Valley which is considered a representative viewpoint of the Upper Clyde Valley and Tinto Special Landscape Area (SLA). The following changes were made to reduce potential effects and aid mitigation of the LVIA effects experienced from Tinto Hill and the Garf Valley:

a) 5 turbines (T13-15, T18 and T22) have been reduced in tip height from 250m to 210 to reduce LVIA effects experienced at these receptors.

3.21 These changes have also resulted in a reduction in LVIA effects at Uddington (settlement).

3.22 HES noted that turbines T6 and 7 had adverse effects on the setting of Auchensaugh Hill cairn in key views towards the cairn. T32 was similarly noted as having an adverse effect on reciprocal views with Tinto Hill cairn.

a) T5 has also been reduced from 250 m to 210 m tip height. Whilst not requested by HES, following a wireline review during the design evolution process, it was considered that the reduction of T5 would result in a more meaningful reduction of effects at Auchensaugh Hill cairn than T6. T7 was reduced from 230 m tip height to 210 m tip height. When updated wirelines were reviewed, it was considered that tip height lowering of T5 and T7 would result in a meaningful reduction of effects at the Scheduled Monument, whilst continuing to maximise renewable energy generation.

b) T32 has been reduced in height from 250 m to 210 m. This will mitigate concerns relating to a key view from Auchensaugh Hill cairn towards Tinto Hill Cairn.

3.23 Following further consultation with HES and a review of the updated wirelines and layouts, HES provided additional consultation feedback (03 May 2024), confirming that whilst satisfied with the proposed amendments, a further reduction in T6 would *"significantly aid in reducing the remaining adverse impacts on the setting of the scheduled monument".*

c) T6 was subsequently reduced in from 250 m to a 210 m tip height.

Amendments to infrastructure layout

3.24 To reflect the changes to the turbine layout, the track layout has been amended to ensure that the turbines can be accessed with the least impact. Following a design review and in response to specific comments received from SEPA and NatureScot, opportunities to reduce effects on peatland habitats were considered. Therefore, additional floating of track is now proposed between T1 and T5. A section of the track west of T19 towards junction with T23 has been floated to reduce the likely effects on montane blanket bog habitat. This change has been applied following SEPA consultation response (07 December 2023) where section of access track crossing

deep peat (referred by SEPA as ‘south west of T24’) was identified as being suitable for floating.

3.25 Further infrastructure changes were made to avoid peatland habitat loss. The track between T31 and T35 has been removed in order to avoid areas of montane blanket bog habitat and rerouted instead between T27 and T35. Following the removal of T9, the spur to T9 has also been removed with a positive effect on deep peat.

3.26 BP09 was removed and CC4 relocated to improve likely effects on peatland habitats following the design review.

DESIGN EVOLUTION

Design Evolution and Turbine Layouts

3.27 The development of the turbine layout has evolved through a number of design iterations (Turbine Layouts 1-6). The design iterations (Turbine Layouts 1-4) prior to the 2023 EIA Report were detailed in the 2023 EIA Report and therefore are not repeated here. Following the submission of the 2023 EIA Report, consultees provided comment on the application layout and two subsequent design iterations took place as a result of these comments and further informal consultation with stakeholders. These Design Changes are detailed below. The process has been summarised into three key layout iterations. The layouts are as follows:

a) Turbine Layout 4 - 2023 Proposed Development (2023 EIA Report Volume 3a Figure 3.1d)

b) Turbine Layout 5 - Post Submission Layout (no figure provided)

c) Turbine Layout 6 - FEI Layout (FEI Volume 3a Figure 2.1)

Turbine Layout 4 - 2023 Proposed Development

3.28 This design formed the basis of the 2023 EIA Report. It comprised of 16 turbines to 230 m, whilst the remaining 21 turbines remained at 250 m.

Turbine Layout 5 - Post Submission Layout

3.29 Following a design review in 2024, this layout addresses key remaining concerns relating to cultural heritage, landscape and visual constraints:

a) The removal of T9 in order to help reduce the significant adverse effects on the setting of Auchensaugh Hill Cairn and to reduce the effect on deep peat at Flow Moss. The removal of T9 also has beneficial effects on ornithological receptors.

b) The removal of T10 in order to help reduce the significant adverse effects on the setting of Auchensaugh Hill Cairn. The removal of T10 also has beneficial effects on ornithological receptors.

c) Lowering of tip heights of T5 from 250m to 210m, and of T7 from 230m to 210m in order to help reduce the significant adverse effects on the setting of Auchensaugh Hill cairn.

d) Lowering in tip height of T32 from 250 m to 210 m to allow reciprocal view between the two prehistoric monuments of Auchensaugh Hill cairn and Tinto Hill cairn. This would reduce the potential impact of the design of the Bodinglee East cluster on this important view which contributes to the cultural significance of Auchensaugh Hill cairn.

e) Lowering of tip height of T13-15 to reduce landscape and visual effects from Tinto Hill.

f) Altered access to instead utilise floating track between T19 and T23 to reduce effect on Montane Blanket Bog.

g) Altered access to T35 to reduce length of track in montane blanket bog habitat. Revised access now comes southwards from T27 to T35.

h) Track between T1 and T5 altered to floated track solution to reduce impact on peatland habitat (Montane Blanket Bog).

i) BP09 removed from area of Montane Blanket Bog.

j) Relocated Construction Compound 4 (CC4) from north of the spur road at T27 to the access between T28 and T31 at to reduce effects on peatland habitat.

Turbine Layout 6 - FEI Layout ('Revised Proposed Development')

3.30 Following further consultation with HES, this is the FEI Layout includes the following additional change to Turbine Layout 5: It addresses key remaining concerns relating to cultural heritage considerations:

a) Lowering of T6 from 250m to 210m to address remaining concerns from HES regarding effect on the setting of Auchensaugh Hill Cairn.

3.31 Table 3.1 provides a summary of modifications to the turbine design for each of the layouts presented above, on a turbine-by-turbine basis.

Table 3.1 Turbine, Design and Layout

Layout	**Details**	**Changes to Previous Layout and Outcome**
Turbine Layout 4 (Design Freeze Layout)	Turbines: 37 Tip Height: 230 - 250 m Hub Height: 145 - 165 m Rotor Diameter: 170 m Approx Capacity: 259 MW	See 2023 EIA Report.
Turbine Layout 5 - Post Submission Layout	Turbines: 35 Tip Height: 210 - 250 m Hub Height: 125 - 165 m	Turbine 1: No change. Confirmed that where feasible micrositing of the

	Rotor Diameter: 170 m Approx Capacity: 245 MW	turbine will be used to reduce effects on deep peat.- Turbines 2-4: No change Turbine 5: Tip height lowered from 250m to 210m, following a design review, as a suggested alternative to lowering T6. Turbine 6: No change Turbine 7: Tip height lowered from 230m to 210m, in line with comments from HES. Turbine 8: No change Turbine 9: Removed due to effect on Auchensaugh Hill Cairn as raised by HES, deep peat as raised by SEPA and NatureScot, and ornithological receptors as raised by NatureScot and RSPB. Turbine 10: Removed due to effect on Auchensaugh Hill Cairn as raised by HES, deep peat as raised by SEPA, and ornithological receptors as raised by NatureScot and RSPB. Turbines 11-12: No change Turbine 13: Tip height lowered from 230m to 210m due to LVIA effects at Tinto Hill as raised by NatureScot with additional benefits in views from Uddington. Turbine 14: Tip height lowered from 230m to 210m due to LVIA effects at Tinto Hill as raised by NatureScot with additional benefits in views from Uddington. Turbine 15: Tip height lowered from 230m to 210m

		due to LVIA effects at Tinto Hill as raised by NatureScot with additional benefits in views from Uddington. Turbines 16-17: No change Turbine 18: Tip height lowered from 250m to 210m due to LVIA effects at A702 (representative of Garf Valley) as raised by NatureScot. Turbines 19-21: No change Turbine 22: Tip height lowered from 250m to 210m due to LVIA effects at A702 (representative of Garf Valley) as raised by NatureScot. Turbines 23-31: No change Turbine 32: Tip height lowered to 210m to allow reciprocal view between the two prehistoric monuments of Auchensaugh Hill cairn and Tinto Hill cairn, as raised by HES. Turbines 33-34: No change <u>Other Infrastructure:</u> BP09 removed from area of Montane Blanket Bog CC4: Moved CC4 from north of the spur road at T27 to the access between T28 and T31 at to reduce effects on Montane Blanket Bog. Track between T27 to T35 /T36: Altered access to T35 to reduce length of track in peat habitats. Revised access now comes southwards from T27 to T35.

		Floating track between T19 and T23: to reduce effect on Montane Blanket Bog following SEPA comments. Floating track between T1 and T5: to reduce effect on Montane Blanket Bog.
Layout 6: FEI Layout FEI Layout ('Revised Proposed Development'	Turbines: 35 Tip Height: 210 - 250 m Hub Height: 125 - 165 m Rotor Diameter: 170 m Approx Capacity: 245 MW	Turbines 1- 5: No change Turbine 6: Tip height lowered from 250m to 210m, to address comments received from HES. Turbines 7-35: No change

3.32 The technical assessments which demonstrate the outcomes of the above design strategy and subsequent Design Changes are set out in the following locations within this FEI submission:

- FEI Volume 2 – Chapter 4 – Landscape and Visual
- FEI Volume 2 – Chapter 5 – Ornithology
- FEI Volume 2 – Chapter 6 – Ecology
- FEI Volume 2 – Chapter 8 – Cultural Heritage

3.33 Similarly, detailed consultation comments and how these comments have been addressed within the assessment or supporting additional information are contained at the beginning of each chapter or technical appendix as relevant.

SUMMARY

3.34 The overarching design strategy (from Scoping through to the Revised Proposed Development) has sought to balance the maximisation of renewable energy generation with the minimisation of environmental effects. Key design objectives included maintaining important landscape views, responding sensitively to topography, minimising effects on environmental features, and cultural heritage whilst ensuring coherence with nearby developments.

3.35 During the iterative design process that led to the layout of the 2023 Proposed Development presented in the EIA Report many factors were considered including the original design strategy and consultee comments. These ranged across technical disciplines including ecology, hydrogeology, landscape and visual, ornithology and cultural heritage.

3.36 The design process that has been undertaken since the submission of the 2023 EIA Report has been informed through post-submission consultation with a range of stakeholders, including statutory consultees and non-statutory consultees.

3.37 Following the submission of the 2023 EIA Report (Turbine Layout 4), feedback was received from HES, NatureScot, SEPA, and RSPB, among others. These responses informed the development of Turbine Layout 5 (Post-Submission Layout) and Turbine Layout 6 (FEI Layout – Revised Proposed Development).

3.38 The culmination of design iterations and consultation feedback is reflected in Turbine Layout 6. This layout incorporates all previous adjustments and the final reduction in tip height for T6 to address remaining HES concerns. It represents a refined, nature-positive proposal that continues to align with renewable energy objectives while reducing environmental effects.

3.39 The design evolution of the Proposed Development was fundamentally shaped by stakeholder consultation. By addressing specific concerns through measurable design changes, the Revised Proposed Development demonstrates a responsive and environmentally considerate approach.

4. LANDSCAPE AND VISUAL IMPACT

SUMMARY

This chapter considers the potential effects of the Revised Proposed Development on the landscape and visual resource, as a result of the Design Changes set out in Chapter 2 (The Revised Proposed Development) with the analysis of the iterative design process that has led to the Revised Proposed Development in Chapter 3 (Design Evolution). These design changes include the removal of two turbines (T9 and T10) in Bodinglee West and a reduction in the maximum tip height of turbines T5, T6 and T7 in Bodinglee West and T13, T14, T15, T18, T22 and T32 in Bodinglee East from 250m to 210m (FEI Figure 2.1). The Design Changes were primarily made to respond to concerns raised by Historic Environment Scotland (HES), SEPA and NatureScot. NatureScot did not raise an objection to the 2023 Proposed Development on LVIA grounds but did provide an advisory note in relation to effects on some landscape and visual receptors. This advisory note has informed the Design Changes set out in Chapter 3 (Design Evolution), in particular the changes to T13-15 and T18 and T22 were made directly in response to NatureScot's advisory note.

The Design Changes would slightly reduce the prominence of turbines from certain viewpoints, which serves to partially mitigate the landscape and visual effects relative to those identified in the 2023 Environmental Impact Assessment (EIA) Report (2023 EIA Report). There is however no overall change to the number of significant landscape and visual effects identified in Chapter 4 of the 2023 EIA Report.

This chapter also provides an updated cumulative assessment, taking into account changes in the cumulative baseline since the 2023 EIA Report. There have been some changes to the significance of cumulative landscape and visual effects in relation to the Revised Proposed Development, due to changes in the cumulative baseline. Significant cumulative effects have been identified for the 'host' LCT and three neighbouring LCTs. Significant cumulative visual effects have also been identified for some visual receptors. Significant cumulative visual effects would increase at a small number of viewpoints as the Glentaggart Wind Farm is no longer considered in the assessment (it was at scoping stage) and the M74 West Renewable Energy Park Wind Farm has been introduced (at application).

4.1 The Landscape and Visual Impact Assessment (LVIA) update was undertaken by Chartered Members of the Landscape Institute (CMLI) at LUC.

4.2 **Paul Macrae MA (Hons) CMLI** is a landscape planner and a Director in LUC's Landscape Planning and Management team. Paul has over twenty years' experience as a landscape architect, working across a range of planning and assessment projects. He has led many LVIAs for major infrastructure projects and renewable energy developments, from initial feasibility through to evidence at Examination. Working at a range of scales, Paul has also been involved in strategic studies looking at landscape sensitivity to wind farm development across the UK. Paul was Project Director for the LVIA for the 2023 EIA Report.

4.3 **Laura Cargill BSc MLA CMLI** is an Associate Landscape Planner at LUC with over 15 years of experience in undertaking LVIAs. Laura has a range of experience that includes: landscape and visual impact assessment; strategic landscape studies; feasibility studies; residential visual amenity assessments; support for landscape and visual expert witness services at Public Inquiries; masterplanning and detailed design; public realm and environmental improvement schemes; and landscape planning advice. Her LVIA work has included wind farms, solar farms, electricity transmission and infrastructure projects, major residential developments, schools and sports arenas. This has given Laura a sound knowledge and understanding of the assessment process, from screening and scoping through to post-planning advice. Laura was Project Manager for the LVIA for the 2023 EIA Report.

4.4 The preparation of visualisations was led by **Tricia Hardie BSc (Hons) MSC (GIS)**, an Associate of GIS & Visualisation at LUC with over 15 years of experience in GIS and visualisations for wind farm projects. Tricia is in a unique position with the ability to support and deliver on both the GIS and the 3D visualisation elements of the project. She has contributed to GIS analysis and mapping alongside full visualisation content for numerous EIA reports, public exhibitions, consultations, and public enquiries. Her work includes vast experience and knowledge in data management, manipulation and analysis, the 3D visualisation of renewable projects, from single turbines to national infrastructure developments.

INTRODUCTION

4.5 Chapter 4: Landscape and Visual Impact Assessment of the 2023 EIA Report (**2023 LVIA**) presents the findings of the landscape and visual assessment for the 2023 Proposed Development. This was supported by the following technical appendices (2023 EIA Report Volume 4):

- Technical Appendix 4.1: LVIA and Visualisation Methodology;
- Technical Appendix 4.2: Residential Visual Amenity Assessment (RVAA); and
- Technical Appendix 4.3: Aviation Lighting Assessment.

4.6 This Further Environmental Information (FEI) chapter should be read in conjunction with the 2023 EIA Report technical appendices noted above.

4.7 The updated lighting strategy is presented in FEI Technical Appendix 2.2: Aviation Lighting Strategy. This states that there would be two medium intensity ‘steady’ red (2000 candela) lights on the nacelles of 10 of the 35 turbines (T01, T04, T07, T11, T12, T15, T22, T27, T35 and T37), and has been approved by the Civil Aviation Authority (CAA). The 2023 Proposed Development considered a lighting strategy with two lights on the nacelles of 17 turbines. Given the reduction in the number of lights, effects on landscape and visual receptors at night are anticipated to be reduced. Further detail is provided in **Table 3**.

4.8 This purpose of this chapter of the FEI is to:

- Evaluate the effects of the Revised Proposed Development on the landscape and visual resource, due to the Design Changes set out in FEI Chapter 2 (The Revised Proposed Development); and

- Update the cumulative landscape and visual assessment in relation to changes to the cumulative baseline since the 2023 LVIA was undertaken.

- This chapter is accompanied by the following figures, which replace and supersede those of the same figure number in the 2023 EIA Report:

- FEI Figure 4.1.1 Landscape and Visual Impact Assessment Study Area;

- FEI Figure 4.1.2a Blade Tip Height (210 m - 250 m) Zone of Theoretical Visibility (ZTV) and Viewpoint Locations (A3);

- FEI Figure 4.1.2b Blade Tip Height ZTV (210 m - 250 m) and Viewpoint Locations (A1);

- FEI Figure 4.1.3a Hub Height ZTV (125 m – 165 m) and Viewpoint Locations (A3);

- FEI Figure 4.1.3b Hub Height ZTV and Viewpoint Locations (A1);

- FEI Figure 4.1.5b Landscape Character Types with Blade Tip Height ZTV;

- FEI Figure 4.1.7b Designated Landscapes & Wild Land Areas with Blade Tip Height ZTV;

- FEI Figure 4.1.9 Other Wind Farm Developments within 20 km;

- FEI Figure 4.1.10 Cumulative ZTV - Operational Wind Farms and Bodinglee (20 km);

- FEI Figure 4.1.11 Cumulative ZTV - Operational and Consented Wind Farms and Bodinglee (20 km);

- FEI Figure 4.1.12 Cumulative ZTV - Operational, Consented and Proposed Wind Farms and Bodinglee (20 km);

- FEI Figure TA4.2.1 Residential Properties with Blade Tip Height ZTV;

- FEI Figure 4.1.18 Comparative ZTV – Revised Proposed Development compared with 2023 Proposed Development (tip height);

- FEI Figures 4.2.1, 4.2.4, 4.2.5, 4.2.8, 4.2.9, 4.2.10 and 4.2.15: Photomontages from 2023 LVIA viewpoints 1, 4, 5, 8, 9, 10 and 15;

- FEI Figures 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.11 to 4.2.14 and 4.2.16 to 4.2.23: Wirelines from 2023 LVIA viewpoints 2, 3, 6, 7, 11 to 14, and 16 to 23; and

- FEI Figures P1 to P15, G1 to G6 and S1 to S10: Wirelines from Residential Properties.

4.9 The photomontages in **FEI Figures 4.2.1, 4.2.4, 4.2.5, 4.2.8, 4.2.9, 4.2.10 and 4.2.15** have been prepared in accordance with the methodology set out in Technical Appendix 4.1 of the 2023 EIA Report. Wirelines from the remaining viewpoints and residential properties are presented in 90 degree sections.

4.10 This Chapter should be read in conjunction with the 2023 LVIA for the 2023 Proposed Development which is set out in Volume 2, Chapter 4 of the 2023 EIA Report, with supporting figures in Volume 3a and supporting visualisations in Volume 3b. This Chapter does not repeat the information set out in the 2023 EIA Report including the 2023 LVIA where that information remains valid in the context of the Revised Proposed Development, as set out in FEI Chapter 2 (The Revised Proposed Development).

4.11 A summary of predicted landscape and visual effects is provided in Table 4.59 of the 2023 LVIA. This is superseded by the assessment contained within this FEI Report.

SCOPE OF ASSESSMENT

STUDY AREA

4.12 The 2023 LVIA study area was defined as 45 km from the outermost turbines of the 2023 Proposed Development in all directions, as recommended in current guidance for turbines above 150 m to blade tip[1], and in agreement with statutory consultees NatureScot and South Lanarkshire Council (SLC). The study area is the same for the purposes of this Chapter (**the Study Area**) and shown on **FEI Figures 4.1.2a and b and 4.1.3a and b**. As with the 2023 LVIA, the updated cumulative assessment contained within this Chapter focuses on other wind farms within 20 km of the Revised Proposed Development, as this is where significant interactions would be most likely to occur.

CONSULTATION RESPONSES

4.13 The following table sets out the responses provided by consultees on the 2023 Proposed Development, and where these are addressed in the FEI report.

Table 1: Post-application Consultation Responses

Consultee	Summary of Response	Where & How Addressed in FEI Report
NatureScot (letter dated 17 October 2023)	NatureScot did not object to the 2023 Proposed Development on landscape and visual grounds. An advisory note was issued in relation to:The scale and siting of the proposed turbines, which would reduce the perceived prominence, scale and focal nature of Tinto and Dungavel Hills, reducing the contrast between the settled surrounding landscapes and these elevated, open hills and detracting from the underlying strongly rural character of the Upper Clyde Valley. • Significant visual effects from the summits of Dungavel and Tinto Hills, where the proposal would significantly detract from the current sense of separation	Modifications to the design of the 2023 Proposed Development are set out in Chapter 3 (Design Iteration) of this FEI Report. These design changes include the removal of two turbines (T9 and T10) in Bodinglee West and a reduction in the maximum tip height of turbines T5, T6 and T7 in Bodinglee West and T13, T14, T15, T18, T22 and T32 in Bodinglee East from 250 m to 210 m. Whilst this does not go as far as full removal, it does help to reduce the prominence of these turbines in certain views, including views from the Upper Clyde Valley and Tinto SLA. Further detail is provided in the updated landscape assessment in **Table 2** and visual assessment in

[1] SNH (February 2017) Visual Representation of Wind Farms Guidance. Version 2.2

Consultee	Summary of Response	Where & How Addressed in FEI Report
	and elevation experienced from the surrounding settled landscape, as experienced along the higher hill tops and facing slopes, reducing enjoyment of this regionally important landscape. NatureScot considered that the 2023 Proposed Development would have significant effects on the integrity of the Upper Clyde Valley and Tinto SLA. NatureScot also considered that effects on visual receptors at Viewpoint 20: A702 near Overburns would be significant due to attributing moderate-high receptor sensitivity on users of the A702 and a magnitude of change of greater than "low". NatureScot recommended the removal or relocation of Turbines 12-15, 18 and 22, in order to reduce effects on Tinto and Dungavel Hills. With T12-T15 determined by NatureScot as having an outlying nature, particularly as appreciated from Tinto, and T18 and T22 considered to be particularly prominent, with almost their entire tower visible when appreciated from the Garf and Upper Clyde Valleys.	**Table 3**. An updated assessment of effects on the special qualities of the Upper Clyde Valley and Tinto SLA is provided in paragraphs **4.40 to 4.46**. Although significant landscape and visual effects would be experienced within the SLA, this would not result in a significant effect on its integrity or the special qualities for which it has been identified.

METHODOLOGY

4.14 The 2023 LVIA methodology was developed primarily in accordance with the principles contained within the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)[2]. **Moderate and Major** effects are considered to be **Significant** in the context of the EIA Regulations. There are no changes to the methodology as presented in Technical Appendix 4.1 of the 2023 EIA Report.

[2] The Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, 3rd Edition.

POLICY, LEGISLATION AND GUIDANCE

4.15 Policy and legislation that was considered in carrying out this assessment and the 2023 LVIA is listed in Chapter 4 of the 2023 EIA Report and remains current.

4.16 There have been some updates to guidance referred to in the 2023 EIA Report, as summarised below:

- NatureScot (2024) Pre-application guidance for onshore wind farms – presents 'standing' pre-application advice to those preparing applications and EIA Reports for onshore wind farms. References other NatureScot guidance on landscape in relation to siting and design, visual representation, cumulative assessment and lighting;

- NatureScot (2025) Special Landscape Qualities - Guidance on assessing effects – draft guidance on the Assessment of Effects on Special Landscape Qualities (AESLQ) which applies to National Parks and National Scenic Areas in Scotland, although the principles can also be applied to assessing effects on locally designated landscapes; and

- NatureScot (2024) Guidance on Aviation Lighting Impact Assessment – guidance in relation to the assessment and illustration of effects on the landscape and visual resource from visible aviation lighting.

4.17 None of the above updates would result in a material change to the assessment or visualisations which formed part of the 2023 EIA Report.

BASELINE CONDITIONS

4.18 The landscape and visual baseline for the 2023 Proposed Development is set out in Volume 2, Chapter 4 of the 2023 EIA Report. Since the 2023 EIA, Hagshaw Hill Wind Farm (26 turbines, 55.5 m height to tip) was decommissioned and Hagshaw Hill Repowering Wind Farm is now under construction, forming part of a larger cluster of wind farms on the north side of the Douglas Valley. Broken Cross Wind Farm was consented at the time of the 2023 EIA and is now under construction. Cumulative wind farms are shown on **FEI Figure 4.1.9**. There have been no other substantive changes to the baseline since the 2023 EIA.

LANDSCAPE CHARACTER

4.19 LCTs are described in the Scottish Landscape Character Assessment published by NatureScot in 2019. LCTs within 20 km are shown on **FEI Figure 4.1.5b**. The following LCTs are within approximately 20 km of the Site and significant effects were identified in the 2023 EIA Report. For receptors that are not detailed below, please refer to the 2023 LVIA for assessment of effects. The following LCTs have been re-assessed as part of this FEI report.:

- LCT 213 Plateau Moorlands - Glasgow & Clyde Valley;

- LCT 207 Upland River Valley - Glasgow & Clyde Valley;

- LCT 208 Broad Valley Upland;

- LCT 210 Undulating Farmland and Hills; and

- LCT 218 Rounded Landmark Hills.

DESIGNATED LANDSCAPES

4.20 There are a number of locally designated landscapes within the Study Area, as shown on **FEI Figure 4.1.7b**. The following locally designated landscapes are within approximately 20 km of the Site and significant effects were identified in the 2023 EIA Report. They have therefore been re-assessed as part of this FEI report:

- Douglas Valley SLA; and
- Upper Clyde Valley and Tinto SLA.

DESK STUDY AND FIELD SURVEY

4.21 The desk-based research and field work undertaken to inform the 2023 LVIA remain current and are used to inform this FEI Report.

MODIFYING INFLUENCES

4.22 Forces for change are described in 2023 LVIA paragraphs 4.109 to 4.113. No additional modifying influences were identified.

INFORMATION GAPS

4.23 No material information gaps were identified during the preparation of baseline information or undertaking of the assessment. It is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on landscape and views and visual amenity, and for a reasoned conclusion to be reached on these matters.

ASSUMPTIONS AND LIMITATIONS

4.24 The updated assessment of cumulative effects is reliant on the availability of information on other developments.

PREDICTING AND ASSESSING IMPACTS & POTENTIAL EFFECTS

4.25 The assessment of landscape and visual effects follows the methodology set out in detail in Technical Appendix 4.1 of the 2023 EIA Report and is based on the project description outlined in **FEI Chapter 2 (The Revised Proposed Development)** of this FEI Report. Design Changes are set out in **Chapter 3 (Design Iteration)** and were primarily made to respond to concerns raised by HES and NatureScot. All design changes were reviewed against landscape and visual design objectives to ensure that they would not result in any new significant effects over and above those identified in the 2023 EIA Report. This included consideration of the layout from key design viewpoints.

4.26 Only landscape and visual receptors identified as experiencing a significant effect in the 2023 LVIA have been re-assessed in this FEI Chapter. This is because the Design Changes comprise turbine removal and tip height reductions, which would not be anticipated to result in any additional significant effects. Where receptors and their corresponding effects are not detailed within this FEI submission, the findings of the

2023 LVIA remain validAlso detailed are receptors identified through the consultation process.

CONSTRUCTION PHASE

4.27 The Design Changes, including the removal of Turbines 9 and 10, reduction in maximum blade tip height of Turbines 5, 6, 7, 13, 14, 15, 18, 22 and 32 and adjustments to site infrastructure as set out in FEI Chapter 2 (The Revised Proposed Development) and **FEI Figure 2.1: Revised Proposed Development Layout**, are not anticipated to result in any change to the assessment of landscape and visual effects during construction. Effects would therefore remain as reported in the 2023 LVIA.

OPERATIONAL PERIOD

Effects on the Site

4.28 The removal of Turbines 9 and 10 and reduction in the maximum blade tip height of Turbines 5, 6, 7, 13, 14, 15, 18, 22 and 32 is not expected to change the assessment of operational effects on the Site. Effects would remain as reported in the 2023 LVIA (**Major and Significant**).

Effects on Landscape Character

4.29 An updated assessment of effects on landscape character is provided in **Table 2** below, for LCTs where significant effects were identified in the 2023 EIA Report. An updated cumulative assessment is provided in **reassessed**

4.30 *Table 6*.

4.31 A comparative ZTV is provided in **FEI Figure 4.1.18**; this illustrates the areas from which the Revised Proposed Development would reduce visibility, as compared with the ZTV for the 2023 Proposed Development. The comparative ZTV illustrates that the geographical extent of the area with theoretical visibility of the Revised Proposed Development would be largely similar to that with theoretical visibility of the 2023 Proposed Development across each of the LCTs.

Table 2: Updated assessment of effects on landscape character during operation

Landscape Character Type & Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
LCT 213 Plateau Moorlands - Glasgow & Clyde Valley Sensitivity: Low-medium	Major and Significant within Site, Moderate and Significant elsewhere in host unit	The Site is located within the Plateau Moorlands LCT. The removal of Turbines 9 and 10 in the western site area (including associated hardstanding and access track) would slightly reduce direct effects on this LCT. The ZTV in **FEI Figure 4.1.5b** indicates that there would be theoretical visibility of up to 35 turbines from large parts of the LCT, particularly within approximately 10 km. The magnitude of change would remain **high** within the Site and **Medium** from adjacent moorland that extends from Bodinglee East approximately 3 km to the LCT boundary. The effect would remain **Major and Significant** within the Site, reducing to **Moderate and Significant** between the Site and edge of the LCT approximately 3 km to the

		east. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 207 Upland River Valley - Glasgow & Clyde Valley Sensitivity: Medium-high	Moderate and Significant	The proposed access track is located within the Upland River Valley LCT. The ZTV in **FEI Figure 4.1.5b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the LCT, particularly the south-east facing slopes along the northern edge of the Douglas Valley. Although the design changes would be perceptible from the LCT, the closest and most prominent turbines along the moorland ridge which encloses the Douglas Valley unit of this LCT would remain. The magnitude of change would remain **Medium** in the Douglas Valley unit, within approximately 5 km of the Revised Proposed Development. The effect would remain **Moderate and Significant** within the Douglas Valley unit, within approximately 5 km. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 208 Broad Valley Upland Sensitivity: Medium-high	Moderate and Significant	The ZTV in **FEI Figure 4.1.5b** indicates that there would be theoretical visibility of up to 35 turbines from much of the LCT, particularly within approximately 10 km, from parts of the Douglas Valley and Upper Clyde Valley. Although the design changes would be perceptible from the LCT, the closest and most prominent turbines in Bodinglee East would remain. The magnitude of change would remain **Medium**, within approximately 5 km of the nearest turbines in Bodinglee East, in the vicinity of Rigside and Wiston. The effect would remain **Moderate and Significant** within approximately 5 km. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 210 Undulating Farmland and Hills Sensitivity: Medium-high	Moderate and Significant	The ZTV in **FEI Figure 4.1.5b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the LCT, including from hill summits and along the valley of the Garf Water. Although the design changes would be perceptible from the LCT, the closest and most prominent turbines in Bodinglee East would remain. The magnitude of change would remain **Medium**, in the south-western extents of the LCT unit, within approximately 5 km. The effect would remain **Moderate and Significant** within approximately 5 km. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 218 Rounded Landmark Hills Sensitivity: High	Moderate and Significant	The ZTV in **FEI Figure 4.1.5b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the LCT, including Tinto and Dungavel Hills. Although the design changes would be perceptible from the LCT, the closest and most prominent turbines in Bodinglee East would remain. The magnitude of change would remain **Medium**, extending approximately 6 km to the east of the Site to the summits of Lochlyoch Hill, Tinto Hill and Dungavel Hill. The effect would remain **Moderate and Significant** within approximately 6 km. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Effect on Views and Visual Amenity

4.32 An updated assessment of effects on visual amenity at viewpoints, settlements and routes is provided in **Table 3** below, where significant effects were identified in the 2023 EIA Report. An updated assessment is also provided from Viewpoint 20 (A702 near Overburns), where NatureScot identified the potential for significant effects in its consultation response (see **Table 1**). Visualisations (photomontages and wirelines) are provided in **FEI Figures 4.2.1 to 4.2.23**. An updated cumulative assessment is provided in **reassessed**

4.33 *Table 6*.

Table 3: Updated assessment of effects on views and visual amenity during operation

Viewpoint No, Name and Sensitivity	**Effect (2023 Proposed Development)**	**Assessment of Effects (Revised Proposed Development)**
Viewpoints		
1: Core path near M74 Sensitivity: Medium for recreational receptors, Low for road users	Major and Significant (recreational receptors) Moderate and Significant (road users)	As shown in **FEI Figures 4.2.1a-n**, the Design Changes would remove the theoretical visibility of two hubs and three blades. The removal of Turbines 9 and 10 behind Auchensaugh Hill would introduce a gap in the layout of Bodinglee West, in views to the south-west. Tip height reductions in Bodinglee East and West would be visible. The horizontal spread of turbines would remain the same. The closest and most prominent turbines to the viewer would remain, with the closest turbine (Turbine 27) at a distance of approximately 0.8 km. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect for recreational receptors on the core path and a **Moderate and Significant** effect for road users on the M74. This is the same as reported in Chapter 4 of the 2023 EIA Report.
2: Minor Road, Andershaw Farm Sensitivity: High for residents, Low-medium for road users	Major and Significant (residents) Moderate and Significant (road users) [Reducing to Minor and Not Significant if forestry retained]	As shown in **FEI Figures 4.2.2a-b**, the Design Changes would remove the theoretical visibility of two hubs and two blades. The removal of Turbines 9 and 10 would remove two of the closest and most prominent turbines in the view. Turbines 1 and 5 would remain visible with the forestry in situ, however the reduction in tip height of Turbine 5 would slightly reduce its prominence. The closest turbine to the viewer (Turbine 11) would remain, at approximately 1.6 km, albeit would only be visible if forestry is felled. There would be a

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect for residents and a **Moderate and Significant** effect for road users. This judgement assumes the forestry immediately to the north of the viewpoint would be felled. With the forestry remaining in-situ, the effect would be **Minor and Not Significant** for all receptors. This is the same as reported in Chapter 4 of the 2023 EIA Report.
3: B7055, access road to Little Gala Sensitivity: High for residents, Medium for road users	Major and Significant (residents) Moderate and Significant (road users)	As shown in **FEI Figures 4.2.3a-b**, the Design Changes would remove the theoretical visibility of one hub (Turbine 32). Design changes in Bodinglee West would not be visible from this viewpoint. The reduction in tip height of Turbines 13, 14, 15, 18, 22 and 32 in Bodinglee East would be visible, and would slightly reduce the prominence of some of the closest turbines to the viewer. The closest turbine would be Turbine 22 at approximately 1.6 km. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect for residents and a **Moderate and Significant** effect for road users. This is the same as reported in Chapter 4 of the 2023 EIA Report.
4: B7078, Red Moss Hotel Sensitivity: Medium for road users and Medium-high for recreational receptors	Major and Significant (recreational receptors) Moderate and Significant (road users)	As shown in **FEI Figures 4.2.4a-h**, the Design Changes would remove the theoretical visibility of two hubs and three blades. The removal of Turbines 9 and 10 in Bodinglee West would be visible in views to the west and would introduce a gap in the layout between T6 and T11. No turbines would be visible beyond the summit of Auchensaugh Hill. Tip height reductions in Bodinglee West would be visible. The reduction in tip height of T32 in Bodinglee East would also be visible. The horizontal spread of turbines would remain the same. The closest and most prominent turbines to the viewer would remain, with the closest turbine (Turbine 35) at a distance of approximately 1.6 km. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect for users of NCN Route 74 and a

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		Moderate and Significant effect for road users. This is the same as reported in Chapter 4 of the 2023 EIA Report.
5: Glespin, Hillview Crescent Sensitivity: High	Major and Significant	As shown in **FEI Figures 4.2.5a-h**, the Design Changes would remove the theoretical visibility of three hubs and three blades. The removal of Turbines 9 and 10 and reduction in tip height of Turbines 5, 6 and 7 in Bodinglee West would be visible. This would slightly reduce the horizontal spread of turbines along the moorland hills which enclose the Douglas Valley and slightly reduce the prominence of some of the closest turbines to the viewer. Tip height reductions in Bodinglee East would be visible, but less noticeable due to distance. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
6: Rigside Sensitivity: High	Major and Significant	As shown in **FEI Figures 4.2.6a**, the Design Changes would remove the theoretical visibility of two blades. Design changes in Bodinglee West would not be visible due to screening by the intervening landform and buildings in Rigside. The reduction in tip height of Turbines 13, 14, 15, 18, 22 and 32 in Bodinglee East would be visible, and would reduce the prominence of some of the closest turbines to the viewer, on the moorland slopes above the Douglas Valley. The horizontal spread of turbines would remain the same. The closest and most prominent turbines to the viewer would remain, with the closest turbine (Turbine 13) at a distance of approximately 2.7 km. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
7: Uddington Sensitivity: High for residents, Medium for road users	Major and Significant (residents) Moderate and Significant (road users)	As shown in **FEI Figures 4.2.7a-b**, the Design Changes would remove the theoretical visibility of two hubs and two blades. Design changes in Bodinglee West would not be perceptible due to filtering and screening of views by intervening vegetation. Tip height reductions of Turbines 13, 14, 15, 18 in Bodinglee East would be visible, and would slightly reduce the prominence of these turbines beyond the

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		ridge which encloses the Douglas Valley. The horizontal spread of turbines would remain the same. The closest and most prominent turbines to the viewer would remain, with the closest turbine (Turbine 12) at a distance of approximately 1.8 km. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
8: Douglas Playpark Sensitivity: High for residents and Medium-high for recreational receptors	Major and Significant	As shown in **FEI Figures 4.2.8a-j**, the Design Changes would remove the theoretical visibility of two hubs and two blades. The removal of Turbines 9 and 10 and reduction in tip height of Turbines 5, 6 and 7 in Bodinglee West would be visible, although partially screened by existing buildings in Douglas. This would slightly reduce the prominence of some of the closest turbines to the viewer, in views towards the moorland and forested hills which enclose the Douglas Valley. Tip height reductions in Bodinglee East would be visible, but less noticeable due to filtering by mature trees in the foreground of the view. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **High**, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
9: Douglas, Station Road/Cairn Houses Sensitivity: High for residents, Medium for road users	Major and Significant (residents) Moderate and Significant (road users)	As shown in **FEI Figures 4.2.9a-h**, the Design Changes would remove the theoretical visibility of three hubs and two blades. The removal of Turbine 9 would introduce a gap in the layout between Turbine 5 and 11. The removal of Turbine 10 would slightly reduce stacking between turbines 2, 6 and 11. Tip height reductions of Turbines 5, 6 and 7 would slightly reduce their prominence, although the closest and most prominent turbines would remain. The closest turbine would be Turbine 2 at a distance of approximately 2.6 km. Tip height reductions in Bodinglee East would also be visible on the moorland and forested ridge which encloses the Douglas Valley, but less noticeable than changes in Bodinglee West which is closer to the viewpoint. There would be a reduction in the number of nacelle lights visible.

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		The magnitude of change would remain **High**, resulting in a **Major and Significant** effect for residents and a **Moderate and Significant** effect for road users. This is the same as reported in Chapter 4 of the 2023 EIA Report.
10: Dungavel Hill Sensitivity: High	Moderate and Significant	As shown in **FEI Figures 4.2.10a-f**, the Design Changes would remove the theoretical visibility of two hubs and two blades. The removal of Turbines 9 and 10 and tip height reductions in Bodinglee West would be visible but not noticeable as turbines in Bodinglee East would be visible in the foreground. Tip height reductions in Bodinglee East would slightly reduce the prominence of Turbines 13, 14, 15, 18, 22 and 32. There would be no change to the horizontal spread of turbines and the closest turbine would remain at a distance of approximately 4.1 km (turbine 34). There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
14: Wiston, west of Primary School Sensitivity: High	Moderate and Significant	As shown in **FEI Figure 4.2.14b**, there would be no reduction in theoretical visibility of the number of turbine hubs or blades as a result of the Design Changes. Design changes in Bodinglee West would not be visible due to screening of views by the intervening landform. Tip height reductions of turbines 13, 14, 15, 18, 22 and 32 in Bodinglee East would be visible, and would slightly reduce the prominence of these turbines in views along the Garf Water Valley. The horizontal spread of turbines would remain the same. The closest and most prominent turbines to the viewer would remain, with the closest turbine (Turbine 22) at a distance of approximately 5.2 km. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
15: Tinto Hill Sensitivity: High	Moderate and Significant	As shown in **FEI Figure 4.2.15a-f**, the Design Changes would remove the theoretical visibility of two hubs and two blades. The removal of Turbines 9 and 10

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		and tip height reductions in Bodinglee West would be visible but not noticeable as turbines in Bodinglee East would be visible in the foreground. Tip height reductions in Bodinglee East would slightly reduce the prominence of Turbines 13, 14, 15, 18, 22 and 32. There would be no change to the horizontal spread of turbines and the closest turbine would remain at a distance of approximately 6 km (Turbine 22). There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
17: Eastertown Road Sensitivity: Medium	Moderate and Significant	As shown in **FEI Figure 4.2.17a**, the Design Changes would remove the theoretical visibility of three hubs and two blades. The removal of Turbines 9 and 10 in Bodinglee West and tip height reductions in Bodinglee East and West would be visible and would slightly reduce the prominence of turbines on the skyline, in views across the Douglas Valley. There would be no change to the horizontal spread of turbines and the closest turbine would remain at a distance of approximately 6.9 km (Turbine 15). There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
20: A702 near Overburns Sensitivity: Medium	Minor and Not Significant	As shown in **FEI Figure 4.2.20a**, there would be no reduction in theoretical visibility of the number of turbine hubs or blades as a result of the Design Changes. The Design Changes in Bodinglee West would not be visible due to screening of views by the intervening landform. Tip height reductions in Bodinglee East would be visible, and would slightly reduce the prominence of Turbines 13, 14, 15, 18 and 22 in this view. The height of the visible turbines would be more even in appearance. There would be no change to the horizontal spread of turbines. Views of road users on the A702 would be oblique, available from a short section of the road and at a distance of approximately 9.7 km to the nearest turbine

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		(turbine 34). There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **Low**, resulting in a **Minor and Not Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
21: Cairn Table Sensitivity: High	Moderate and Significant	The Design Changes would remove the theoretical visibility of two hubs and two blades. The removal of Turbines 9 and 10 would be visible and would introduce a gap between Turbine 11 and the remaining turbines. However, this would be seen behind Kennoxhead Wind Farm in the foreground of the view. Tip height reductions would be visible but at a distance of approximately 11 km, not noticeable. There would be no change to the horizontal spread of turbines. There would be a reduction in the number of nacelle lights visible. The magnitude of change would remain **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Settlements		
Uddington Sensitivity: High	High magnitude of change (as reported in Technical Appendix 4.2: RVAA)	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 29 turbines from parts of the settlement. As represented by Viewpoint 7 (Uddington), some residential receptors would experience a **High** magnitude of change, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Douglas Sensitivity: High	High magnitude of change (as reported in Technical Appendix 4.2: RVAA)	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 29 turbines from parts of the settlement. As represented by Viewpoints 8 (Douglas Playpark) and 9 (Douglas, Station Road/Cairn Houses), some residential receptors would experience a **High** magnitude of change, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Glespin Sensitivity: High	Medium magnitude of change (as reported in Technical Appendix 4.2: RVAA)	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the settlement. As represented by Viewpoint 5 (Glespin, Hillview Crescent), some residential receptors would experience a

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
		High magnitude of change, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Routes		
A70 Sensitivity: Medium	Moderate and Significant	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the route. Views from the route are represented by Viewpoints 5 (Glespin, Hillview Crescent), 6 (Rigside), 8 (Douglas Playpark) and 18 (A70 Millmoor). From some locations along the route design changes would slightly reduce the horizontal spread of turbines along the moorland hills which enclose the Douglas Valley and / or slightly reduce the prominence of some of the closest turbines to the viewer. Overall, road users would experience a **Medium** magnitude of change, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
B7078 Sensitivity: Medium	Moderate and Significant	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the route. Views from the route are represented by Viewpoints 4 (B7078, Red Moss Hotel) and 12 (M74 minor road bridge near Nether Fauldhouse). Design changes would be visible from parts of the route, however the closest and most prominent turbines would remain. Overall, road users would experience a **Medium** magnitude of change, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
B7055 Sensitivity: Medium	Moderate and Significant	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the route. Views from the route are represented by Viewpoints 3 (B7055, access road to Little Galla) and 14 (Wiston, west of Primary School). Design changes in Bodinglee East would be visible from parts of the route and would slightly reduce the prominence of some of the closest turbines to the viewer. Overall, road users would experience a **High** magnitude of change, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Viewpoint No, Name and Sensitivity	Effect (2023 Proposed Development)	Assessment of Effects (Revised Proposed Development)
Core Paths within 5 km Sensitivity: Medium-high	Moderate and Significant	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the routes. Core Paths are largely concentrated in and around the settlement of Douglas, providing access through the Douglas Valley, and to the moorland plateau to the north and south. Views from Core Paths within 5 km are represented by Viewpoints 1 (Core path near M74), 4 (B7078, Red Moss Hotel), 5 (Glespin, Hillview Crescent), 6 (Rigside), 8 (Douglas Playpark) and 9 (Douglas, Station Road). From some locations along the route design changes would slightly reduce the horizontal spread of turbines and / or slightly reduce the prominence of some of the closest turbines to the viewer. Overall, users of Core Paths would experience a **Medium** magnitude of change, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
National Cycle Network Route 74 Sensitivity: Medium-high	Moderate and Significant	The ZTV in **FEI Figures 4.1.2a and b** indicates that there would be theoretical visibility of up to 35 turbines from parts of the route. Views from the route are represented by Viewpoints 4 (B7078, Red Moss Hotel) and 12 (M74 minor road bridge near Nether Fauldhouse). Design changes would be visible from parts of the route, however the closest and most prominent turbines would remain. Overall, users of NCN Route 74 would experience a **Medium** magnitude of change, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Effect on Designated Landscapes

4.34 An updated assessment of effects on designated landscapes is provided below. The assessment focusses on the Douglas Valley SLA and Upper Clyde Valley and Tinto SLA. Significant effects on landscape and visual receptors within these designated landscapes were identified in the 2023 EIA Report, however no significant effect on special qualities were identified. NatureScot considered that there would be a significant effect on the integrity of the Upper Clyde Valley and Tinto SLA in relation to the 2023 EIA Report layout by virtue of the impact on three special qualities identified in the South Lanarkshire: Validating Local Landscape Designations report (November 2010).

<u>Douglas Valley Special Landscape Area</u>

4.35 Eight turbines in Bodinglee West and three turbines in Bodinglee East are located in the SLA, as well as ancillary infrastructure including tracks. The ZTV in **FEI Figure 4.1.7b** indicates that there would be widespread theoretical visibility from the SLA. There would be theoretical visibility of up to 35 turbines from the upper valley sides and rolling hills which contain the valley. Theoretical visibility would be reduced from the valley floor, due to topography and vegetation including mature policy woodlands and shelterbelts, and some conifer plantations.

4.36 The Design Changes at both Bodinglee East and West would be visible from parts of the SLA. Tip height reductions would slightly reduce the prominence of turbines along the moorland ridge which encloses the valley. The SLA would be directly affected by turbines and ancillary infrastructure within its boundary, and indirectly affected by the introduction of turbines into views from other parts of the SLA. As noted in **Table 2**, there would be a significant effect on landscape character within the SLA, within the Upland River Valley - Glasgow & Clyde Valley LCT, Broad Valley Upland LCT and Plateau Moorlands - Glasgow & Clyde Valley LCT. As noted in **Table 3**, there would be a significant effect on visual receptors within the SLA, including at Viewpoint 5 (Glespin, Hillview Crescent), Viewpoint 7 (Uddington), Viewpoint 8 (Douglas Playpark) and Viewpoint 9 (Douglas, Station Road/Cairn Houses). Despite these significant landscape and visual effects, it is not considered that any of the special qualities of the SLA would be significantly affected. Further detail is provided below.

4.37 The Revised Proposed Development would affect the "*scenic compositional qualities of a meandering upland river passing through a sheltered, mature pastoral landscape enclosed by moorland hills*"[3] which is identified as a special quality, by introducing turbines into the moorland hills which provide the backdrop and setting to the valley. However, the effect is not considered to be significant. This is due in part to the existing influence of wind farms within and adjacent to the SLA, both to the north-west (Hagshaw cluster) and south (Andershaw and Middle Muir cluster). Although the Revised Proposed Development would be noticeable, it would be associated with the open moorland hills which enclose the Douglas Valley, reflecting current landscape patterns.

4.38 The Revised Proposed Development would not directly affect "*cultural features* [which] *include the designed landscape of Douglas Castle and the historic village of Douglas together and their historic associations with the Douglas family, the Cameronians regiment and literary associations with Sir Walter Scott*"[3] which is identified as a special quality. As reported in Chapter 8 of the 2023 EIA Report, no significant effects were identified for cultural features within the Douglas Valley, including Douglas Castle Listed Building and Douglas Conservation Area. The Revised Proposed Development would not affect the cultural values attached to the valley. No significant effects are therefore identified for this special quality. Whilst not included as part of this LVIA, enhancements to the cultural features of the Douglas Castle and Douglas Valley are proposed through the masterplan (refer to the 2023 Planning Statement Appendix C for further detail).

4.39 The Revised Proposed Development would not affect physical characteristics including the "*network of mature policy woodlands and shelterbelts and a high-quality water environment*"[3] which is identified as a special quality. No significant effects have therefore been identified for this special quality.

[3] Ironside Farrar (November 2010) South Lanarkshire Validating Local Landscape Designations

4.40 The Revised Proposed Development would be visible from parts of the valley which is "*frequently visited, as the M74 passes through the eastern end of the designated area and intersects with the main east-west route of the A70 which passes along the valley. The village and castle are visitor destinations with well-maintained footpaths through the designed landscape*."[3] Although there would be significant visual effects from within the Douglas Valley, including from the A70 (see **Table 3**), this would not equate to a significant effect on the frequency of visitor use. Furthermore, the Revised Proposed Development would not affect the recreational values attached to the valley, including Douglas Castle. As noted in paragraph 4.37, the Douglas Valley masterplan that is proposed as part of the Revised Proposed Development offers enhancement opportunities around the designed landscape.

4.41 In summary, the Revised Proposed Development would result in direct and indirect changes to the landscape character of the SLA, and views from the SLA. The extent of direct changes would be localised and would not affect the landscape features which are referenced in the special qualities. Landscape enhancement measures would help to offset direct effects. The Revised Proposed Development would influence the setting of the valley. The experience of the valley (which has been altered by existing wind farms) would remain similar. There would be no significant effects on the special qualities of the SLA, and no effect on the overall integrity of the Douglas Valley SLA. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Upper Clyde Valley and Tinto Special Landscape Area

4.42 The SLA is located approximately 1.5 km to the north-east of the Site, at its closest point. The ZTV in **FEI Figure 4.1.7b** indicates that there would be theoretical visibility of up to 35 turbines from parts the SLA, including from Tinto and Dungavel Hills. There would also be theoretical visibility from parts of the Garf Water Valley and Upper Clyde Valley.

4.43 The Design Changes at both Bodinglee East and West would be visible from parts of the SLA, particularly tip height reductions in Bodinglee East which is closer to the SLA. In some views, for example views along the Garf Water Valley, tip height reductions would slightly reduce the prominence of turbines seen alongside the distinctive landforms of Tinto and Dungavel Hills. As noted in **Table 2**, there would be a significant effect on landscape character within the SLA, within the Undulating Farmland and Hills LCT, Broad Valley Upland LCT and Rounded Landmark Hills LCT. As noted in **Table 3**, there would be a significant effect on visual receptors within the SLA, including at Viewpoint 3 (B7055, access road to Little Gala), Viewpoint 10 (Dungavel Hill), Viewpoint 14 (Wiston, west of Primary School) and Viewpoint 15 (Tinto Hill).

4.44 Despite these significant landscape and visual effects, it is not considered that any of the special qualities of the SLA would be significantly affected. NatureScot considered that there would be a significant effect on the integrity of the Upper Clyde Valley and Tinto SLA in relation to the 2023 EIA Report layout by virtue of the impact on three special qualities identified in the South Lanarkshire: Validating Local Landscape Designations report (November 2010). Further clarification is provided below.

4.45 The Revised Proposed Development would affect the "*Scenic qualities of a meandering river in a broad semi-upland valley setting that contrasts with the enclosing hills of the Southern Uplands and the prominent Tinto Hill*"[3] which is identified as a special quality. NatureScot note that "*This quality can be appreciated from within the broad upland valley containing the Upper Clyde…and from the northerly edge of the*

Southern Uplands containing Lamington and Turkey Hills."[4] Views from the Upper Clyde Valley are represented by Viewpoint 20 (A702 near Overburns). As set out in **Table 3**, effects are not considered to be significant from Viewpoint 20, in part due to the transient nature of receptors (road users) and oblique nature of views. Design Changes would slightly reduce the prominence of turbines in Bodinglee East. It is acknowledged that effects on recreational receptors (such as walkers and cyclists) in this part of the Upper Clyde Valley, who are of medium-high sensitivity, are likely to be significant. However, this is not considered to equate to a significant effect on the special quality, because of the localised nature of the effect.

4.46 The Revised Proposed Development would not affect physical characteristics including the "*network of mature policy woodlands and shelterbelts…*"[3] which is identified as a special quality. NatureScot considered that the scale of woodlands and shelterbelts would be "*diminished by the large scale of the turbines*"[4]. Although it is acknowledged that the scale of the turbines would contrast with landscape features including woodland, this would not equate to a significant effect on the special quality.

4.47 The Revised Proposed Development would be visible from parts of the SLA which are "*Frequently visited, as it is traversed by major transport routes to the south and includes popular hillwalking destinations such as Tinto and Culter Fell.*"[3] Although there would be significant visual effects from parts of the SLA, including from Tinto and Dungavel Hills (see **Table 3**), this would not equate to a significant effect on the recreational value of the SLA. Viewpoint 15 (Tinto Hill), Viewpoint 10 (Dungavel Hill), and Viewpoint 22 (Culter Fell) highlight the nature of upland views, looking out of and to the west of the SLA. In these views the Revised Proposed Development would be seen in the context of large-scale upland views, which have been altered by wind farm development to the west. In these views the Revised Proposed Development would bring wind turbines closer to the SLA. It would not be possible to read the distinction between the two turbine groups of the Revised Proposed Development. From Dungavel Hill and Culter Fell, turbines would be seen partially above the distant horizon. From Tinto Hill, turbines would be contained below the horizon. Whilst significant visual effects have been identified from Tinto Hill and Dungavel, this is not judged to equate to significantly altering any of the special qualities of the SLA. Views from popular hills in the SLA have been altered by wind farm development, and whilst the Revised Proposed Development would bring wind farm development closer, the experience of climbing these hills and viewing the outward landscape context (which has been altered by wind farms) would remain. For those receptors accessing Tinto Hill, views of the Revised Proposed Development would only be available once gaining the summit, if accessed by the standard approach from the north.

4.48 In summary, there would be no direct effects on the SLA. Significant visual effects are identified in certain views from the western part of the SLA, affecting panoramic views from popular summits such as Tinto Hill and Dungavel Hill. However, due to the existing influence of wind farm development on these views, this is not judged to equate to significant effects on the special qualities of the SLA. Views of the Revised Proposed Development from the valleys through the SLA would generally be longer distance and fleeting in nature and would not significantly affect the "*symbiotic relationship between the landscape of the valley and the hills which provide its setting*"[3]. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Effects on Residential Visual Amenity

[4] NatureScot Consultation Response, dated 17th October 2023

4.49 An updated assessment of effects on residential visual amenity is provided below. Baseline information, including a description of existing views, is provided in Table 4.2.5 of Technical Appendix 4.2 of the 2023 EIA Report.

4.50 Property locations with the ZTV are shown on **FEI Figure TA4.2.1**. Updated wirelines are provided from all residential properties and are included in **FEI Figures P1 to P15, G1 to G6 and S1 to S10**.

Table 4: Updated assessment of effects on residential visual amenity during operation

Residential Property/ Group / Settlement	**Description of likely effect on views and visual amenity as a result of the Revised Proposed Development:**	**Conclusion with respect to the Revised Proposed Development:**
Individual Properties		
Property P1: Weston Farm	The hubs of 11 turbines and blades of 18 turbines would be visible to the south-east and north-east. The Design Changes would result in three less hubs and two less blades being visible. There would be no change to the distance to the nearest turbine (1.0 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P2: Parkhead	The hubs of 25 turbines and blades of 27 turbines would be visible in views to the east from the primary outlook of the caravan (no change when compared with the 2023 Proposed Development). Turbines within Bodinglee East would be clearly visible along the horizon at a distance of approximately 1.0 km and over, seen as large scale and prominent features against the undulating hills below. The turbines would be seen across the M74 motorway and in the context of an existing overhead line which breaks the undulating skyline. Tip height reductions for Turbines 13, 14, 15, 18, 22 and 32 would be visible, but there would be no change to the closest and most prominent turbines. The horizontal field of view occupied by turbines (approximately 100 degrees) would not change. Similar views would be obtained from the surrounding curtilage of the property. Aviation lighting would also be visible at night. All the turbines in Bodinglee West would be screened by the intervening landform of Parkhead	The Revised Proposed Development would be visible in close proximity views from the primary outlook of the property and the turbines would form large scale prominent features that occupy a large extent (approximately 100 degrees) of eastern views. The Revised Proposed Development would be visible at distances of 1 km and over and the turbines would not surround the property in all directions or create views that are inescapable of turbines. As such the Revised Proposed Development would not appear overwhelming or oppressive and would not breach the residential visual amenity threshold. This is the same as reported in Chapter 4 of the 2023 EIA Report.

	Hill, with the exception of the blade tip of turbine 4. The magnitude of visual change would remain **high**.	
Property P3: Redshaw	The hubs of 31 turbines and blades of 34 turbines would be visible from this property to the east, north-east, west and south-west. The Design Changes would result in two less hubs and two less blades being visible. The Revised Proposed Development would surround the property in most directions and would occupy most of the horizontal extent of views from the property and its curtilage (approximately 160 degrees in total). In views to the east and north-east from the front of the property, including from the primary outlook and access track when travelling away from the property, the turbines would be seen at distances of over 1.5 km and would occupy a large extent of the horizon (approximately 75 degrees). These turbines would also be visible in oblique views from the garden on the north side of the property. They would appear as large scale and prominent features in relation to the surrounding landscape. Tip height reductions in Bodinglee East would be visible, but there would be no change to the closest and most prominent turbines, and the horizontal field of view occupied by turbines. From the rear of the property, and from the access track on approach to the property, turbines to the west and south-west would be seen at close proximity (1.0 km) and would also extend across a large extent of the horizon (approximately 85 degrees). The removal of Turbines 9 and 10 and tip height reductions in Bodinglee West would be noticeable, but there would be no change to the closest and most prominent turbines (turbines 4 and 8) or horizontal field of view. The Revised Proposed Development would be a notable	The Revised Proposed Development would be visible in close views from the front and rear of the property, including from the primary outlook, as well as from the garden on the north side of the property and from the access track. Turbines would be visible from the property in most directions and would form a notable feature in these views. As such it is considered that the Revised Proposed Development would have an unavoidable presence in views and thus **would breach the residential visual amenity threshold**. This is the same as reported in Chapter 4 of the 2023 EIA Report.

	feature in most of the views from this property. Aviation lighting would also be visible at night. The magnitude of visual change would remain **high**.	
Property P4: Mount Stewart	The hubs of 12 turbines and blades of 20 turbines would be visible to the south and south-west. The Design Changes would result in one less hub and two less blades being visible. There would be no change to the distance to the nearest turbine (1.0 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P5: Fallside Farm	The hubs of 13 turbines and blades of 18 turbines would be visible to the west. The Design Changes would result in one less hub and four less blades being visible. There would be no change to the distance to the nearest turbine (1.1 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P7: Midtown Farm	The hubs of eight turbines and blades of nine turbines would be visible to the east, south-east and south. The Design Changes would result in two less hubs and four less blades being visible. There would be no change to the distance to the nearest turbine (1.3 km). The magnitude of visual change would remain **medium**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P8: Little Gala Farm	The hubs of two turbines and blades of six turbines would be visible to the west and south-west (no change when compared with the 2023 Proposed Development). There would be no change to the distance to the nearest turbine (1.3 km). The magnitude of visual change would remain **medium**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P9: Hazelside Lodge	The hubs of 16 turbines and blades of 25 turbines would be visible to the east, north-east and south-east. The Design Changes would result in two less hubs and three less blades being visible. There would be no change to the distance to the nearest turbine (1.4 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.

Property P10: Glentaggart Cottage	The hubs of three turbines and blades of five turbines would be visible to the north-east. The Design Changes would result in two less hubs and three less blades being visible. There would be no change to the distance to the nearest turbine (1.4 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P11: Parkhall	The hubs of 20 turbines and blades of 28 turbines would be visible to the south-east and south-west. The Design Changes would result in three less blades being visible. There would be no change to the distance to the nearest turbine (1.5 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P12: Mill Bank	The hubs of eight turbines and blades of 16 turbines would be visible to the south-east and south-west. The Design Changes would result in one less hub and one less blade being visible. There would be no change to the distance to the nearest turbine (1.6 km). The magnitude of visual change would remain **medium**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P13: West Glespin	The hubs of 17 turbines and blades of 26 turbines would be visible to the east, north-east and south-east. The Design Changes would result in one less hub and three less blades being visible. There would be no change to the distance to the nearest turbine (1.7 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P14: East Glespin	The hubs of nine turbines and blades of 16 turbines would be visible to the east and north-east. The Design Changes would result in two less hubs and two less blades being visible. There would be no change to the distance to the nearest turbine (1.7 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Property P15: Windrow Cottage	The hubs of 16 turbines and blades of 26 turbines would be visible to the east, north-east and south-east. The Design Changes would result in two less hubs and two less blades being visible.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.

	There would be no change to the distance to the nearest turbine (1.9 km). The magnitude of visual change would remain **high**.	
Property Groups		
Group 3: Hazelside Farm	The hubs of 18 turbines and blades of 28 turbines would be visible to the east, north-east and south-east. The Design Changes would result in two less hubs and two less blades being visible. There would be no change to the distance to the nearest turbine (1.5 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Group 4: Flush Cottages	The hubs of 12 turbines and blades of 19 turbines would be visible to the east, north-east and south-east. The Design Changes would result in two less hubs and two less blades being visible. There would be no change to the distance to the nearest turbine (1.7 km). The magnitude of visual change would remain **high**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
Group 6: Newmains Home Farm	The hubs of 11 turbines and blades of 20 turbines would be visible to the south and south-west. The Design Changes would result in three less hubs and two less blades being visible. There would be no change to the distance to the nearest turbine (2.0 km). The magnitude of visual change would remain **medium**.	The Revised Proposed Development would not breach the residential visual amenity threshold. This is the same as reported in Technical Appendix 4.2 of the 2023 EIA Report.
For settlements see **Table 3**.		

DECOMMISSIONING PHASE

4.51 As in the 2023 EIA Report, an assessment of landscape and visual effects during the decommissioning phase was not undertaken as the baseline against which to assess likely significant decommissioning effects is not yet known.

CUMULATIVE EFFECTS

4.52 The following sections provide an updated cumulative assessment. The methodology for the assessment of cumulative effects is set out in Technical Appendix 4.1 of the 2023 EIA Report. Significant effects are highlighted in **bold**.

4.53 The Design Changes would have a barely perceptible impact on the cumulative relationship with other wind farms. The updated assessment therefore focuses on the changes to the cumulative baseline as described below.

Changes to Cumulative Baseline

4.54 Since submission of the Section 36 application for the 2023 Proposed Development there have been some changes to the cumulative baseline described in Chapter 4 of the 2023 EIA Report. The changes to the cumulative baseline are summarised in Table 5 below and cumulative wind farms within 20 km are shown on FEI Figure 4.1.9. The cumulative cut-off date for this FEI was January 2025, to allow visualisations to be produced in advance of submitting the planning application. This assessment focuses on schemes within approximately 20 km of the Revised Proposed Development, where most cumulative interactions are likely to occur. Changes are highlighted in bold / orange.

Table 5: Changes to Other Wind Farm Developments (within 20 km)

Name	Status (2023 EIA Report)	Status (January 2025)	Number of Wind Turbines	Blade Tip Height (m)	Distance (km)[5]
Operational					
Andershaw	Operational	Operational	11	140	0.6
Middle Muir	Operational	Operational	15	149.9	1.4
Hazelside Farm	Operational	Operational	1	74	3.4
Hagshaw Hill Extension	Operational	Operational	20	80	3.5
Douglas West	Operational	Operational	13	149.9	3.7
~~Hagshaw Hill~~	~~Operational~~	**Decommissioned**	~~26~~	~~55.5~~	~~4.3~~
Galawhistle (Section 36)	Operational	Operational	22	121	4.7
Nether Fauldhouse Farm	Operational	Operational	1	78	5.0
Birkhill Commercial Park	Operational	Operational	1	99.5	5.3
JJ's Farm	Operational	Operational	1	102	5.7
Dalquhandy	Under Construction	**Operational**	10	149.9	5.7
Eastertown Wind Cluster	Operational	Operational	1	67	6.1
Nutberry	Operational	Operational	6	115	6.7
Kennoxhead	Operational	Operational	19	180	7.0
Auchren Farm, Annfield	Operational	Operational	1	67	7.1
Clyde	Operational	Operational	152	125	7.7

[5] Approximate distance between the outermost turbines of the Revised Proposed Development and other wind farms

Name	Status (2023 EIA Report)	Status (January 2025)	Number of Wind Turbines	Blade Tip Height (m)	Distance (km)[5]
Yonderton Farm	N/A	**Operational**	1	79	9.3
Low Whiteside Farm	Operational	Operational	1	54	10.6
Clyde Extension	Operational	Operational	54	142	10.7
Cleughhead Farm	Consented	**Operational**	1	79	10.8
Woodlands Farm	Operational	Operational	1	70	10.9
Woodlands Farm Extension	Operational	Operational	1	69.9	11.1
High Waterhead Farm	Operational	Operational	1	67	11.5
Ladehead Farm	Operational	Operational	3	74	12.4
Garrelwood	Operational	Operational	1	77	12.5
Auchrobert	Operational	Operational	12	132	12.6
Auchnotroch Farm	Operational	Operational	1	53.7	12.7
North Brackenridge Farm	Operational	Operational	1	77	12.9
Linburn Farm	Operational	Operational	2	67	13.6
Southfield Farm	Operational	Operational	1	74	14.3
Kype Muir	Operational	Operational	26	132	14.4
Burnhouse - Carnwath	Operational	Operational	2	64	15.0
Dungavel	Operational	Operational	13	120	15.8
Sunnyside Wind Cluster	Operational	Operational	2	62	16.1
Glenkerie	Operational	Operational	11	120	17.4
Lochhead	Operational	Operational	3	100	17.6
Bankend Rig	Operational	Operational	11	76	17.7
Black Law	Operational	Operational	54	115.1	20.2
Sandy Knowe	Under Construction	**Operational**	24	125	20.9

Name	Status (2023 EIA Report)	Status (January 2025)	Number of Wind Turbines	Blade Tip Height (m)	Distance (km)[5]
Under construction					
Hagshaw Hill Repowering	Consented	**Under construction**	14	200	3.5
Broken Cross	Consented	**Under construction**	10	149.9	5.1
Cumberhead	Under Construction	Under Construction	14	180	5.6
Kype Muir Extension	Under Construction	Under Construction	15	220	14.2
Whitelaw Brae	Consented	**Under construction**	14	133.5	18.9
Consented					
Douglas West Extension	Consented	Consented	13	200	4.2
~~Broken Cross surface mine~~	~~Consented~~	**Consent expired**	~~2~~	~~55.7~~	~~4.7~~
Birkhill	Consented	Consented	2	99.5	5.6
Kennoxhead Extension	Consented	Consented	8	180	5.8
Priestgill	Consented	Consented	7	200	6.4
~~Auldtonheights~~	~~Consented~~	**Consent expired**	~~1~~	~~67~~	~~6.8~~
~~Corra Farm~~	~~Consented~~	**Consent expired**	~~1~~	~~77~~	~~7.0~~
Cumberhead West	Consented	Consented	21	200	8.5
Auldton Farm	Consented	Consented	1	76	8.6
Hare Craig	Consented	Consented	8	230	9.0
Kennoxhead Extension II	Application Submitted	**Consented**	8	220	9.6
~~Penbreck (SL)~~	~~Consented~~	**Withdrawn[6]**	~~6~~	~~145~~	~~9.9~~
~~Penbreck (EA)~~	~~Consented~~	**Withdrawn[6]**	~~3~~	~~145~~	~~11.8~~
Muirhouse Farm, Lesmahagow	Consented	Consented	1	51	12.9
South Priorhill	Consented	Consented	1	111	13.5

[6] Replaced by Kennoxhead Ext II

Name	Status (2023 EIA Report)	Status (January 2025)	Number of Wind Turbines	Blade Tip Height (m)	Distance (km)[5]
Lethans Extension	Application Submitted	**Consented**	10	251	13.7
~~State Hospital~~	~~Consented~~	**Refused**	~~1~~	~~67~~	~~14.7~~
Lampits Farm	Consented	Consented	1	64	14.7
Redlands Poultry Farm	Consented	Consented	1	77	14.9
Lethans	Consented	Consented	22	220	15.3
~~Glenmuckloch~~	~~Consented~~	**Design/Scoping**	~~8~~	~~149.9~~	~~15.7~~
Crookedstane	Consented	Consented	4	126.5	16.4
Glenkerie Extension	Consented	Consented	6	100	16.6
Kittymuir	Consented	Consented	2	77	19.8
Mill Rig	Consented	Consented	6	250	20.0
Lion Hill	Consented	Consented	4	126.5	20.1
At application / at appeal					
Little Gala	Application Submitted	**At appeal**	6	149.9	0.3
M74 West Renewable Energy Park	N/A	**Application Submitted**	22	200	0.8
Grayside	Application Submitted	Application Submitted	**15**[7]	200	7.9
Oliver Forest	N/A	**Application Submitted**	7	200	17.8
Hallsburn Farm	Application Submitted	Application Submitted	3	149.9	18.4
Bankend Rig Extension	Application Submitted	Application Submitted	3	250	19.4
Sandy Knowe Extension	Application Submitted	Application Submitted	6	149.9	20.7
Scoping					
~~Glentaggart~~	~~Design/Scoping~~	**Not considered in assessment**	~~7~~	~~250~~	~~0.4~~
West Andershaw	Design/Scoping	Design/Scoping	11	250	2.3

[7] Number of turbines reduced from 21

Name	Status (2023 EIA Report)	Status (January 2025)	Number of Wind Turbines	Blade Tip Height (m)	Distance (km)[5]
Hagshaw Energy Cluster Western Expansion	Design/Scoping	Design/Scoping	72	230	10.6

4.55 The changes to the cumulative context set out in **Table 5** above which are most likely to result in cumulative interactions with the Revised Proposed Development are:

- An application has been submitted for M74 West Renewable Energy Park (22 turbines, 200 m height to tip), located either side of the M74 to the south of Bodinglee East;
- Glentaggart (was at scoping), located to the immediate south of Bodinglee West, is no longer considered in the assessment as it has not progressed to application stage since scoping in 2023;
- Hagshaw Hill (was operational) was decommissioned and Hagshaw Hill Repowering (14 turbines, 200 m height to tip) is under construction, forming part of the larger Hagshaw cluster on the north side of the Douglas Valley;
- Broken Cross (was consented, 10 turbines, 149.9 m height to tip) is now under construction, on the east side of the M74 to the north of the Douglas Valley;
- Whitelaw Brae (was consented, 14 turbines, 133.5 m height to tip) is now under construction, east of Clyde Wind Farm and the Upper Clyde Valley; and
- Lethans Extension (was at application, 10 turbines, 251 m height to tip) is now consented, forming a group with the consented Lethans Wind Farm. Glenmuckloch, which was consented, is now at design/scoping stage.

4.56 Wind farms which are operational or under construction, including Hagshaw Hill Repowering, Broken Cross and Whitelaw Brae, are considered as part of the baseline in the landscape assessment (see **Table 2**) and visual assessment (see **Table 3**).

4.57 The 2023 LVIA identified significant cumulative effects on a number of landscape and visual receptors under both Scenario 1 and 2. The main change under Scenario 1 (Revised Proposed Development and operational, under construction and consented wind farms) is the consent of Lethans Extension and change in status of Glenmuckloch from consented to design/scoping. Given the distance of the Lethans / Glenmuckloch group at approximately 15 km from the Site, cumulative interactions with the Revised Proposed Development would be limited. Effects are therefore as reported in the 2023 EIA Report during Scenario 1.

4.58 The assessment focuses on effects under Scenario 2 (Revised Proposed Development and operational, under construction, consented and undetermined valid planning applications, and schemes at scoping in proximity). The most notable changes are the removal of Glentaggart (not considered in the assessment as it has not progressed to application stage since scoping in 2023) and the introduction of M74 West Renewable Energy Park (at application), both in proximity to the Revised

Proposed Development. The introduction of Oliver Forest (at application) is also considered where relevant.

Cumulative Effects during Operation

4.59 Landscape and visual receptors which were predicted to experience significant cumulative effects, or would be subject to change under Scenario 2 (now being the Revised Proposed Development and operational, under construction, consented and undetermined valid planning applications, and schemes at scoping in proximity), are reassessed

Table 6: Updated assessment of cumulative landscape and visual effects

Receptor / Sensitivity	Effect (2023 EIA Report)	Updated Assessment of Cumulative Effects (Scenario 2)
Cumulative effects on Landscape Character Types		
LCT 213: Plateau Moorlands – Glasgow and Clyde Valley	Major and Significant within Site, Moderate and Significant elsewhere in host unit under Scenarios 1 and 2.	Under Scenario 2 Glentaggart would no longer be located within the LCT. Bodinglee West would continue to form a cluster with Andershaw (operational), Middle Muir (operational) and West Andershaw (Design/Scoping). M74 West Renewable Energy Park (at application) would be located within the LCT, immediately south of Bodinglee East, and extending the influence of wind farms to the southern edge of the LCT unit. The addition of the Revised Proposed Development would continue to extend the influence of wind farms within the host unit and form larger clusters with other wind farms. The effect would remain **Major and Significant** effect within approximately 3 km of the Site. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 207: Upland River Valley – Glasgow and Clyde Valley	Moderate and Significant under Scenarios 1 and 2.	Under Scenario 2 there would be no direct changes to the LCT, however changes to wind farms on the moorland and forested hills above the valley LCT would be perceptible. This would include the introduction of the M74 Renewable Energy Park (at application) to the north of the Duneaton Valley unit. The addition of the Revised Proposed Development would be less perceptible from the Duneaton Valley as the M74 Renewable Energy Park would be present in the foreground. However, the effect would remain **Minor and Not Significant** from the Duneaton Valley unit, and **Moderate and Significant** from the Douglas Valley unit. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 208: Broad Valley Upland	Moderate and Significant under Scenarios 1 and 2.	Under Scenario 2 there would be no direct changes to the LCT, however the introduction of the M74 Renewable Energy Park (at application) would be perceptible from part of the Upper Clyde Valley in the vicinity of Forside Hill. Bodinglee East would form a group with the M74 Renewable Energy Park as perceived from the Broad Valley Upland LCT. The effect would remain **Moderate and**

		Significant. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 210: Undulating Farmland and Hills	Moderate and Significant under Scenario 1. Minor and Not Significant under Scenario 2.	Under Scenario 2 there would be no direct changes to the LCT, and no noticeable changes in proximity. The effect would remain **Minor and Not Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
LCT 218: Rounded Landmark Hills	Moderate and Significant under Scenario 1. Major and Significant under Scenario 2.	Under Scenario 2 there would be no direct changes to the LCT. The introduction of M74 Renewable Energy Park (at application) would be perceptible from the LCT. Oliver Forest (at application) would also be perceptible, but beyond the much larger Clyde Wind Farm. Bodinglee East would be perceived as part of a larger group with the M74 Renewable Energy Park. The effect would remain **Major and Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Cumulative effects on visual receptors at viewpoints		
Viewpoint 1: Core path near M74	Major and Significant under Scenarios 1 and 2.	Under Scenario 2, Glentaggart would no longer be visible on the skyline beyond Bodinglee West. M74 West Renewable Energy Park (at application) would be visible across the moorland slopes beyond and to the south of Bodinglee East, either side of the M74. The Revised Proposed Development would partially fill a gap between existing wind farms in views to the west, and would extend the influence of wind farms across the open moorland to the north-east. The magnitude of change would be **High**, resulting in a **Major and Significant** cumulative effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 2: Minor Road, Andershaw Farm	Moderate and Significant under Scenario 1. Minor and Not Significant under Scenario 2.	Under Scenario 2, Glentaggart would no longer be visible in the foreground of views towards the Revised Proposed Development. The Revised Proposed Development would introduce wind turbines into a gap between the Hagshaw Group and Andershaw / West Andershaw Group. The magnitude of change would increase to **Medium**, resulting in a **Moderate and Significant** effect. **This is an increase in effect when compared with Chapter 4 of the 2023 EIA Report but would be no greater than the effect identified in Scenario 1**.
Viewpoint 3: B7055, access road to Little Galla	Major and Significant (residents) and Moderate and Significant (road users) under Scenario 1. Moderate and Significant under Scenario 2.	Under Scenario 2, the blades of M74 West Renewable Energy Park (at application) would be theoretically visible on the skyline, with intervening forestry and other vegetation screening and filtering views. As this change would be barely perceptible, the magnitude of change would remain **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Viewpoint 4: B7078, Red Moss Hotel	Major and Significant (recreational receptors) and Moderate and Significant (road users) under Scenarios 1 and 2.	Under Scenario 2, Glentaggart would no longer be visible on the skyline to the south-west of Bodinglee West. M74 West Renewable Energy Park (at application) would be visible across the moorland slopes beyond and to the south of Bodinglee East, either side of the M74 and in proximity to the viewpoint. The Revised Proposed Development would extend the influence of wind farms in views to the north-east and west. The magnitude of change would be **High**, resulting in a **Major and Significant** for recreational receptors and a **Moderate and Significant** effect for road users. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 5: Glespin, Hillview Crescent	Major and Significant under Scenarios 1 and 2.	Under Scenario 2, Glentaggart would no longer be visible on the skyline to the south-west of Bodinglee West. M74 West Renewable Energy Park (at application) would largely be screened by the intervening landform. The Revised Proposed Development would extend the visibility of wind farms across the horizon in views to the east, occupying most of the available view in this direction. The magnitude of change would be **high**, resulting in a **Major and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 6: Rigside	Major and Significant under Scenario 1. Moderate and Significant under Scenario 2.	Under Scenario 2, there would be no notable changes to the cumulative baseline. The effect would remain **Moderate and Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 7: Uddington	Major and Significant (residents) and Moderate and Significant (road users) under Scenarios 1 and 2.	Under Scenario 2, there would be no notable changes to the cumulative baseline due to screening by buildings and vegetation. The effect would remain **Major and Significant** for residents and **Moderate and Significant** for road users. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 8: Douglas Playpark	Major and Significant under Scenarios 1 and 2	Under Scenario 2, there would be no notable changes to the cumulative baseline due to screening by buildings. The effect would remain **Major and Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 9: Douglas, Station Road/Cairn Houses	Major and Significant (residents) and Moderate and Significant (road users) under Scenario 1. Moderate and Significant under Scenario 2.	Under Scenario 2, Glentaggart would no longer be visible on the skyline to the south-west of Bodinglee West. M74 West Renewable Energy Park (at application) would largely be screened by the intervening landform. The Revised Proposed Development would be seen in front of the Andershaw / West Andershaw turbines and would be closer and more prominent. The Revised Proposed Development would extend the visibility of wind farms across the horizon in views to the south and east, occupying most of the available view in this direction. The magnitude of change

		would be **High**, resulting in a **Major and Significant** effect for residents and a Moderate and Significant effect for road users. **This is an increase in effect when compared with Chapter 4 of the 2023 EIA Report but would be no greater than the effect identified in Scenario 1**.
Viewpoint 10: Dungavel Hill	Moderate and Significant under Scenarios 1 and 2.	Under Scenario 2, Glentaggart would no longer be visible beyond the Revised Proposed Development. M74 West Renewable Energy Park (at application) would be visible to the south-west, mainly backclothed by landform and partially in front of the Andershaw / Middle Muir Group. The Revised Proposed Development would reduce the separation between wind farm groups, and would be seen in views towards multiple wind farms in both close and distant views. The magnitude of change would be **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 11: Roberton, Eastern Edge	Minor and Not Significant under Scenarios 1 and 2.	Under Scenario 2, M74 West Renewable Energy Park (at application) would be visible alongside and to the south of the Bodinglee East turbines, partially filtered by vegetation. The Revised Proposed Development would extend the influence of wind farms across the horizon, but would be filtered by vegetation. The magnitude of change would be **Low**, resulting in a **Minor and Not Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 12: M74 minor road bridge near Nether Fauldhouse	Moderate and Significant under Scenarios 1 and 2	Under Scenario 2, Glentaggart would no longer be visible on the skyline to the south. M74 West Renewable Energy Park (at application) would be visible on the skyline to the south, partially behind the Site. The Revised Proposed Development would fill the gap between Little Gala (at application) and the M74 West Renewable Energy Park, and would also be seen in front of West Andershaw (at scoping). The magnitude of change would be **Medium** and the effect would be **Moderate and Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 13: Crawfordjohn, Picnic Site	Minor and Not Significant under Scenarios 1 and 2	Under Scenario 2, the M74 West Renewable Energy Park (at application) would be visible on the skyline to the north-east in close views. The Revised Proposed Development would be visible behind M74 West Renewable Energy Park and the two schemes would appear as a group. The magnitude of change would be **Low**, resulting in a **Minor and Not Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 14: Wiston, west of Primary School	Moderate and Significant under Scenarios 1 and 2	Under Scenario 2, there would be no notable changes to the cumulative baseline. The effect would remain **Moderate and Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.

Viewpoint 15: Tinto Hill	Moderate and Significant under Scenarios 1 and 2	Under Scenario 2, Glentaggart would no longer be visible beyond the Revised Proposed Development. M74 West Renewable Energy Park (at application) would be visible to the south-west, backclothed by landform and partially in front of the Andershaw / Middle Muir Group and other wind farms on the more distant skyline. The Revised Proposed Development would reduce the separation between wind farm groups, and would be seen in views towards multiple wind farms in both close and distant views. The magnitude of change would be **Medium**, resulting in a **Moderate and Significant** effect. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 16: Coalburn	Minor and Not Significant under Scenarios 1 and 2	Under Scenario 2, there would be no notable changes to the cumulative baseline. The effect would remain **Minor and Not Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 17: Eastertown Road	Moderate and Significant under Scenario 1. Minor and Not Significant under Scenario 2.	Under Scenario 2, Glentaggart would no longer be visible beyond the Revised Proposed Development. The Revised Proposed Development would extend the influence of wind farms across the horizon in views to the south-west. The magnitude of change would be **Medium**, resulting in a **Moderate and Significant** effect. **This is an increase in effect when compared with Chapter 4 of the 2023 EIA Report but would be no greater than the effect identified in Scenario 1**.
Viewpoint 18: A70 Millmoor	Negligible and Not Significant under Scenarios 1 and 2	Under Scenario 2, there would be no notable changes to the cumulative baseline. The effect would remain **Negligible and Not Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 19: B740 near Nether Whitecleuch	Minor and Not Significant under Scenarios 1 and 2	Under Scenario 2, there would be no notable changes to the cumulative baseline. The effect would remain **Minor and Not Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 20: A702 near Overburns	Minor and Not Significant under Scenarios 1 and 2	Under Scenario 2, the M74 West Renewable Energy Park (at application) would be visible on the skyline to the south-west, adjacent to the lower slopes of Dungavel Hill. Woodland would partially screen and filter views towards the M74 West Renewable Energy Park. As there would be no notable change to the baseline, the effect would remain **Minor and Not Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 21: Cairn Table	Minor and Not Significant under Scenarios 1 and 2	Under Scenario 2, Glentaggart would no longer be visible and the M74 West Renewable Energy Park (at application) would be visible, as part of multiple wind farms / groups in close and distant views. As there would be no notable change to the baseline, the effect would remain **Minor and Not**

		Significant. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 22: Culter Fell	Moderate and Significant under Scenarios 1 and 2	Under Scenario 2, Glentaggart would no longer be visible and the M74 West Renewable Energy Park (at application) would be visible, as part of multiple wind farms / groups in close and distant views. As there would be no notable change to the baseline, the effect would remain **Moderate and Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.
Viewpoint 23: Lowther Hill	Minor and Not Significant under Scenarios 1 and 2	Under Scenario 2, Glentaggart would no longer be visible and the M74 West Renewable Energy Park (at application) would be visible, as part of multiple wind farms / groups in close and distant views. As there would be no notable change to the baseline, the effect would remain **Minor and Not Significant**. This is the same as reported in Chapter 4 of the 2023 EIA Report.

MITIGATION

MITIGATION AND MONITORING

4.60 Mitigation measures and monitoring are as set out in paragraphs 4.1.3.6 to 4.1.3.8 of Chapter 4 of the 2023 EIA Report. No changes are proposed.

ENHANCEMENT

4.61 Landscape and ecological enhancement proposals are illustrated on Bodinglee Masterplan and the Douglas Valley Masterplan (see 2023 Planning Statement Appendix B and Appendix C). No changes are proposed.

RESIDUAL EFFECTS

4.62 Measures to reduce landscape and visual effects are embedded into the design of the Revised Proposed Development. The residual effects would not change from those predicted in the assessment sections above following the application of additional mitigation as set out in Technical Appendix 2.1 of the 2023 EIA Report.

SUMMARY AND CONCLUSION

4.63 This chapter considers the potential effects of the Revised Proposed Development on the landscape and visual resource as a result of the Design Changes set out in Chapter 2 (The Revised Proposed Development) with the analysis of the iterative design process that has led to the Revised Proposed Development in Chapter 3 (Design Evolution). These design changes include the removal of two turbines (T9 and T10) in Bodinglee West and a reduction in the maximum tip height of turbines T5, T6 and T7 in Bodinglee West and T13, T14, T15, T18, T22 and T32 in Bodinglee East from 250m to 210m (**FEI Figure 2.1**). The Design Changes were primarily made to respond to concerns raised by HES and NatureScot. NatureScot did not raise an objection to the 2023 Proposed Development but did provide an advisory note in relation to effects on some landscape and visual receptors. This advisory note has informed the Design Changes set out in Chapter 3 (Design Evolution).

4.64 The Design Changes would slightly reduce the prominence of turbines from certain viewpoints, which serves to partially mitigate the landscape and visual effects relative to those identified in the 2023 EIA Report. There would be no change to the number of significant landscape and visual effects identified in Chapter 4 of the 2023 EIA Report.

4.65 There would be no change to the identified significant residual effects on landscape character set out in the 2023 EIA Report which were predicted to extend across the Site and the surrounding landscapes concentrated to a distance within approximately 6 km of the nearest turbine. This includes significant effects on the 'host' Landscape Character Type (LCT 213: Plateau Moorlands – Glasgow and Clyde Valley) as well as four neighbouring LCTs. There would be no significant effects on any other LCTs that have been assessed.

4.66 There would be no change to the identified significant residual effects on visual amenity set out in the 2023 EIA Report which were identified at 15 of the 23 representative viewpoints, up to a distance of around 11 km from the Site. As set out in the 2023 EIA Report, significant effects would also be experienced by road users on the A70, B7078 and B7055, as well as users of NCN Route 74 and the core path network within 5 km of the Site. The number of aviation lights on the turbine nacelles has reduced from 17 in the 2023 EIA Report to ten, resulting in a reduction in landscape and visual effects at night.

4.67 This chapter considers the implications of the Design Changes for designated landscapes, focusing on those closest to the Site; the Douglas Valley SLA and Upper Clyde Valley and Tinto SLA. Although significant landscape and visual effects would be experienced within these locally designated landscapes, this would not result in a significant effect on their integrity or qualities for which it has been identified.

4.68 This chapter also provides an updated cumulative assessment, taking into account changes in the cumulative baseline since the 2023 EIA Report. There have been some changes to the significance of cumulative landscape and visual effects in relation to the Revised Proposed Development, due to changes in the cumulative baseline. Significant cumulative effects have been identified for the 'host' LCT and three neighbouring LCTs. Significant cumulative visual effects have also been identified for some visual receptors. Significant cumulative visual effects would increase at a small number of viewpoints as the Glentaggart Wind Farm is no longer considered in the assessment (was at scoping) and the M74 West Renewable Energy Park Wind Farm has been introduced (at application).

5. ORNITHOLOGY

SUMMARY

This chapter considers the potential effects of the Revised Proposed Development on ornithological interests present at the Site, including Important Ornithological Features (IOFs). Consultation points were made by NatureScot and RSPB regarding specific higher risk turbines within the 2023 Proposed Development assessed in the 2023 EIA Report. Design Changes have since been implemented which directly address these consultation points. As such, the Revised Proposed Development presented in this FEI Report is assessed to have a more positive outcome for IOFs.

The CRM was amended to reflect the re-design of the Revised Proposed Development and to address the consultation response received from NatureScot which requested changes to the CRM approach and methodology. Results were that predicted annual collision rates were slightly lower than those predicted in the original CRM carried out for the Proposed Development, with the exception of snipe, red kite and peregrine which were marginally higher. The ornithological feature black grouse is now evaluated as being Regionally Important which means this species has now been identified as an IOF. The Bird Protection Plan (BPP) for the Revised Proposed Development now includes additional targeted measures to reduce the potential construction-related disturbance to lekking black grouse and breeding curlew.

Operational collision risk was re-assessed for SPA qualifying interests of the Muirkirk and North Lowther Uplands SPA in view of the SPA's conservation objective relating to population viability. For all qualifying interests there were no implications for the SPA in terms of population viability. The effect of operational collision risk on the SPA was of negligible magnitude for hen harrier, short-eared owl, merlin and peregrine, and low magnitude for golden plover, which is not significant in EIA terms. Operational collision risk was re-assessed in terms of regional population viability for all IOFs. For all SPA qualifying interests there were no implications for regional population viability. The effect of operational collision risk on SPA qualifying interests was of negligible magnitude which is not significant in EIA terms. For non-SPA species, specifically curlew, goshawk and red kite, there were also no implications for regional population viability. The effect of operational collision risk on non-SPA species was of negligible magnitude which is not significant in EIA terms.

Cumulative operational collision risk was re-assessed for non-breeding hen harrier in view of the SPA's conservation objective relating to population viability. There would be no significant effect on non-breeding hen harrier from the SPA population due to the contribution from the Revised Proposed Development to cumulative collision risk. There are no implications for the SPA in terms of its conservation objective relating to population viability for non-breeding hen harrier. Predicted collision from the Revised Proposed Development for other SPA qualifying interest populations was considered too low to result in a significant cumulative effect, these species were therefore scoped out of the cumulative collision risk assessment.

Cumulative operational collision risk was also considered for other IOFs, specifically curlew, goshawk and red kite. However, predicted collision impacts from the Revised Proposed Development on regional populations were considered too low to make a

Cumulative operational collision risk was also considered for other IOFs, specifically curlew, goshawk and red kite. However, predicted collision impacts from the Revised Proposed Development on regional populations were considered too low to make a material contribution to a significant cumulative effect; these species were therefore scoped out of the cumulative assessment.

STATEMENT OF COMPETENCE

5.1 This chapter has been prepared by Joanna Carter of RPS. All RPS ornithologists are professionally trained and comply with best practice guidance produced by the Chartered Institute of Ecology and Environmental Management (CIEEM). Joanna has more than 11 years' experience of working in consultancy in Scotland. She specialises in onshore renewable energy, and has worked on many projects across the wind, solar, infrastructure and grid connection sectors. Joanna has expertise in managing projects that are ornithologically sensitive, or have complex survey requirements. She is capable in all aspects of the project life cycle, from proposal to survey design and execution, to constraint management, technical reporting and impact assessment. Joanna is experienced in working with stakeholders to manage ornithological risk and provide design solutions and mitigation to developments. She is also practiced in post-construction monitoring and discharging planning conditions for ornithology.

INTRODUCTION

5.2 This Further Environmental Information (FEI) Report chapter considers the potential effects of the Revised Proposed Development on ornithological interests present at the Site, including IOFs, during construction, operation and decommissioning.

5.3 This FEI Report chapter supplements the 2023 Environmental Impact Assessment (EIA) Report Chapter 5 (Ornithology), and the two chapters should be read in conjunction. This FEI Report chapter updates the impact assessment of IOFs following design of the Revised Proposed Development layout which includes the removal of two turbines. All relevant ornithological legislation, policy, guidance, assessment methodology and survey methodologies are provided in the 2023 EIA Report Chapter 5 (Ornithology) (it is not considered necessary to repeat this information in this FEI Report).

5.4 This chapter is supported by the following technical appendices:

a) FEI Report Volume 4: Technical Appendices:

- Technical Appendix 5.1 Amended Collision Risk Model; and
- Technical Appendix 5.2 Confidential Annex.

5.5 Following stakeholder feedback on the 2023 Proposed Development, the scheme infrastructure was re-designed to produce the Revised Proposed Development. The Revised Proposed Development comprises the removal of Turbines 9 and 10 from Bodinglee West, reducing the overall number of turbines to 35, as well as a suite of other changes including tip height reductions, additional areas of floating track and relocating of ancillary site infrastructure such as construction compound 4 (CC4) and the removal of Borrow Pit 9 (BP09). Full information on the re-design process and the Revised Proposed Development itself is provided in FEI Report Chapter 1 (Introduction), Chapter 2 (The Proposed Development), and Chapter 3 (Design Evolution).

5.6 As a result of re-design of the Proposed Development, and consultation responses received from NatureScot and the Royal Society for the Protection of Birds (RSPB) following submission of the 2023 EIA Report, this FEI Report chapter has four objectives.

a) To re-assess collision risk to relevant IOFs based on both the re-design process and the amended Collision Risk Model (CRM) results provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).

b) To re-assess cumulative collision risk to relevant IOFs based on the amended CRM results provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).

c) To re-assess cumulative collision risk in terms of both the population viability of the relevant qualifying interests of the Muirkirk and North Lowther Uplands Special Protection Area (SPA), and the integrity of the North Lowther Uplands Site of Special Scientific Interest (SSSI).

d) To provide the further information requested by NatureScot and the RSPB to address concerns of these stakeholders relating to ornithology.

SCOPE OF ASSESSMENT

STUDY AREA

5.7 The extent of the area(s) used in the assessment are provided in 2023 EIA Report Chapter 5 (Ornithology).

CONSULTATION

5.8 Following submission of the EIA Report in June 2023, consultation responses were received from NatureScot and RSPB in relation to ornithology. These responses are provided in Table 7.

Table 7: Consultation Responses

Consultee	Summary of Response	Where & How Addressed
NatureScot 17 October 2023	**Overview and Appropriate Assessment** NatureScot **objects** to the Proposed Development on ornithological grounds, until further information, as detailed below, is provided. It intends to carry out an appraisal of effects on the Muirkirk and North Lowther Uplands SPA and requires further information to enable this. NatureScot advises that the Proposed Development is likely to have a significant effect on the SPA. Therefore, the competent authority (Scottish Ministers) is required to	For information only.

Consultee	Summary of Response	Where & How Addressed
	undertake an Appropriate Assessment in view of the SPA's conservation objective 'Population of the species as a viable component of the site' for the SPA qualifying interests. NatureScot's appraisal will inform the Appropriate Assessment. NatureScot requires the following further information to carry out its appraisal.	
	Re-assessment of collision risk, and its implications for the conservation objectives for the SPA's qualifying interests relating to population viability.	An amended CRM for the Revised Proposed Development is provided below in Baseline Conditions, with further details provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model). Re-assessment of collision risk impacts on the conservation objective for the SPA's qualifying interests in terms of population viability is provided below in Predicting and Assessing Impacts and Potential Effects: Potential Effects: Operational Period.
	Re-assessment of cumulative collision risk and its implications for the conservation objectives for the SPA's qualifying interests relating to population viability.	An amended CRM for the Revised Proposed Development is provided below in Baseline Conditions, with further details provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model). Re-assessment of cumulative collision risk impacts on the conservation objective for the SPA's qualifying interests in terms of population viability is provided below in Predicting and Assessing Impacts and Potential Effects: Cumulative Effects: Operational Period: Collision Risk.

Consultee	Summary of Response	Where & How Addressed
	The North Lowther SSSI is designated for a range of interests, including its breeding hen harrier and breeding bird assemblage. Provision of the further information listed above is required to also determine if the Proposed Development will affect the integrity of the SSSI. The SPA is designated for its breeding hen harrier, peregrine, short-eared owl, golden plover and merlin, and for its non-breeding (wintering) hen harrier. NatureScot notes that the Proposed Development lies inside the core foraging range of the SPA's breeding golden plover (3km) and merlin (5km) interests, but that it lies outside the core foraging range of the SPA's breeding hen harrier, peregrine and short-eared owl interests (2km). NatureScot notes that a number of hen harrier flights have been recorded during the non-breeding season over the Proposed Development.	For information only.
	The further information listed above should be provided for the wider bird interests considered in the 2023 EIA Report, and not restricted to SPA qualifying interests only.	An amended CRM for the Revised Proposed Development is provided below in Baseline Conditions, with further details provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model). Re-assessment of collision risk impacts on wider bird interests (curlew, goshawk and red kite) in terms of regional population viability is provided below in Predicting and Assessing Impacts and Potential Effects: Operational Period and Cumulative Effects.
	Collision Risk Modelling NatureScot's response is provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).	Further information requested by NatureScot is provided in FEI Report Technical Appendix 5.1

Consultee	Summary of Response	Where & How Addressed
		(Amended Collision Risk Model).
	Analysis and Interpretation of CRM Results Following amendment of the CRM, significance of impacts should be re-evaluated where necessary. This should include consideration of the following:	For information only.
	1. For species considered part of SPA populations, collision risk should be considered in the context of the SPA rather than NHZ population (both for the Proposed Development alone and cumulatively with other developments). Additionally, collision risk should be considered in terms of how the Proposed Development could influence *current* SPA populations, and the *recovery* of current populations to numbers present at the time of designation.	Re-evaluation of collision risk impacts for species considered part of SPA populations was completed in the context of the SPA (rather than NHZ) populations and is presented below in Predicting and Assessing Impacts and Potential Effects: Operational Period. As far as possible, consideration was given to the status of populations and how collision risk associated with the Revised Proposed Development could influence recovery of populations with an unfavourable and/or declining status. Note, however, that current SPA population estimates are not publicly available for the Muirkirk and North Lowther Uplands SPA.
	2. Section 4 of 2023 EIA Report Confidential Technical Appendix A5.6 (Ornithology Confidential Annex) should be revised to cover all qualifying interests of the SPA. Clearly state for each whether it is considered that there is a likely significant effect from the Proposed Development. Where it is concluded that there is, an assessment of the implications against the site's conservation objectives should be provided for each qualifying interest concerned for the Proposed	Information to inform an HRA is revised in FEI Report Technical Appendix 5.3 (Confidential Annex).

Consultee	Summary of Response	Where & How Addressed
	Development alone and in combination, accounting for the current condition of the qualifying interests.	
	3. For species not considered part of SPA populations, the consideration of the significance of impacts should be set in the context of the NHZ population, or other relevant population where appropriate.	Re-evaluation of collision risk impacts for species not considered part of SPA populations is considered in the context of the NHZ population below in Predicting and Assessing Impacts and Potential Effects: Operational Period and Cumulative Effects.
	Cumulative Assessment This should be revised following re-assessment of collision risk. Information for (at least) the Auchrobert, Douglas West and Glenmuckloch schemes should be sought from the appropriate planning portals.	An amended CRM for the Revised Proposed Development is provided below in Baseline Conditions, and re-assessment of cumulative collision risk impacts on the conservation objective for the SPA's qualifying interests in terms of population viability is provided below in Predicting and Assessing Impacts and Potential Effects: Cumulative Effects. Information from the three aforementioned schemes was sought as part of the re-assessment of cumulative collision risk impacts.
	Mitigation and Enhancement The Bird Protection Plan (BPP) should be submitted to and approved by the Planning Authority prior to any development commencing, should the Proposed Development be consented.	The BPP provided in Technical Appendix 6.1 (Non-Avian Ecology (Excluding Bats)) will be submitted to and approved by the Planning Authority prior to any development commencing, should the Revised Proposed Development be consented.
	Habitat Management Plan (HMP) NatureScot's response is provided in FEI Report Chapter 6 (Ecology).	Further information requested by NatureScot is provided in FEI Report Chapter 6 (Ecology) and FEI Report Technical

Consultee	Summary of Response	Where & How Addressed
		Appendix 6.4 Outline Habitat Management Plan).
	Turbine Layout Relocation or deletion of turbines to consider hen harrier, short-eared owl and black grouse.	Changes to turbine layout for the Revised Proposed Development are discussed for hen harrier, short-eared owl and black grouse in FEI Report Technical Appendix 5.3 (Confidential Annex).
	NatureScot supports the use of predator control and suggests the development of a plan for this, in consultation with relevant organisations.	Predator control will be discussed in the event of approval of the application; consideration is also given in FEI Report Technical Appendix 6.4 (Outline Habitat Management Plan).
RSPB 2 October 2023	**Overview and Appropriate Assessment** RSPB **objects** to the Proposed Development. RSPB does not consider that the 2023 EIA Report provides sufficient information to conclude that the Proposed Development will not have adverse effects on the site integrity of the Muirkirk and North Lowther Uplands SPA. RSPB predicts the following adverse effects on SPA qualifying features: • Breeding and non-breeding hen harrier through displacement and collision risk. • Short-eared owl through displacement. RSPB advises that an Appropriate Assessment should be carried out by the competent authority, and that the following further information should be provided to enable the competent authority to carry out this appraisal.	For information only.
	Hen Harrier, Short-eared Owl and Black Grouse Turbines should be relocated or deleted to reduce potential effects	Further information on the impacts, mitigation and redesign of the Proposed Development relating to hen harrier, short-eared owl and black grouse is provided

Consultee	Summary of Response	Where & How Addressed
	on hen harrier, short-eared owl and black grouse.	in FEI Report Technical Appendix 5.2 (Confidential Annex).
	The Proposed Development may impact breeding hen harrier through displacement of birds that might otherwise re-establish historic nest sites.	Displacement impacts on breeding hen harrier are assessed in FEI Report Technical Appendix 5.2 (Confidential Annex).
	The HMP should include an objective to manage habitat in the vicinity of historic nest sites to maximise suitability for breeding hen harrier.	Habitat management for breeding hen harriers is provided in FEI Report Technical Appendix 6.4 Outline Habitat Management Plan).
	Full details and mapping of all hen harrier flightlines should be provided.	Details of all hen harrier flights recorded during the 2020-22 baseline flight activity surveys for the Proposed Development, including maps of the flightlines, were included in Confidential Technical Appendices 5.2 and 5.4 of the 2023 EIA Report and associated Figures.
	Population viability analysis (PVA) should be carried out to assess cumulative collision risk impacts to SPA qualifying non-breeding hen harrier.	Collision risk impacts to non-breeding hen harrier are assessed in FEI Report Technical Appendix 5.2 (Confidential Annex).
	The BPP should include mitigation to reduce construction-related disturbance impacts on hen harrier and short-eared owl.	Mitigation to reduce construction-related disturbance impacts on hen harrier and short-eared owl is provided in FEI Report Technical Appendix 5.3 (Confidential Annex). A site specific BPP will be produced following consent, should it be granted.
	Operational disturbance impacts on hen harrier and short-eared owl should be assessed to ensure mitigation is secured, and to inform design iteration to reduce impacts on these species.	Operational disturbance impacts on hen harrier and short-eared owl are assessed in FEI Report Technical Appendix 5.3 (Confidential Annex), mitigation is provided, and specific turbines are targeted within the

Consultee	Summary of Response	Where & How Addressed
		redesign of the Proposed Development.
	Turbines should be removed and relocated to avoid displacement impacts to black grouse leks.	Operational displacement impacts on black grouse are assessed in FEI Report Technical Appendix 5.3 (Confidential Annex), mitigation is provided, and specific turbines are targeted within the redesign of the Proposed Development.
	Black Grouse Black grouse should be considered as Regionally Important.	The ornithological feature black grouse is now considered to be Regionally Important in Predicting and Assessing Impacts and Potential Effects.
	For black grouse, mitigation within the BPP should include restricted access comprising two hours before dawn and after dusk, to mitigate construction-related disturbance.	Mitigation to reduce construction-related disturbance impacts on black grouse will be agreed with NatureScot once construction conditions and implications are understood in the event of scheme approval..
	Curlew For breeding curlew, mitigation within the BPP should include 300m buffer exclusion zones, to mitigate construction-related disturbance.	Mitigation to reduce construction-related disturbance impacts on curlew is provided below in Embedded Mitigation.
	For breeding curlew, operational displacement should be assessed to ensure mitigation is secured and to inform design iteration to reduce impacts on this species.	Operational displacement impacts on breeding curlew are assessed below in Predicting and Assessing Impacts and Potential Effects: Potential Effects: Operational Period: Displacement, mitigation is provided, and impacts are addressed as part of the redesign of the Proposed Development.
	For breeding curlew, cumulative operational displacement impacts should be assessed to ensure	Cumulative operational displacement impacts on breeding curlew are

Consultee	Summary of Response	Where & How Addressed
	mitigation is secured, which may include removal/relocation of turbines.	assessed below in Predicting and Assessing Impacts and Potential Effects: Cumulative Effects: Operational Period: Displacement, mitigation is provided, and impacts are addressed as part of the redesign of the Proposed Development.
	HMP RSPB's response is provided in FEI Report Technical Appendix 6.4 (Outline Habitat Management Plan).	Further information requested by RSPB is provided in FEI Report Technical Appendix 6.4 (Outline Habitat Management Plan).

METHODOLOGY

5.9 Policy and guidance, desk study, field survey and impact assessment methodology are provided in the 2023 EIA Report Chapter 5 (Ornithology). These have not changed for the Revised Proposed Development.

5.10 Methodology for the amended CRM is provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).

BASELINE CONDITIONS

5.11 The information acquired through desk-studies, field surveys/walkovers and consultation responses is provided in the 2023 EIA Report Chapter 5 (Ornithology). There has been no change for the Revised Proposed Development.

PREDICTED COLLISION RISK

5.12 The CRM was amended to take into account the design of the Revised Proposed Development and to address the consultation response received from NatureScot (Table 7), which requested some changes to the CRM approach and methodology. Full details of NatureScot's consultation response to the 2023 EIA Report CRM are provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).

The amended CRM followed NatureScot (2000) guidance[8] and methods provided in the Band (2007)[9] model. The amended CRM was based on the same two-year flight activity dataset as the 2023 EIA Report CRM, i.e. the baseline flight activity surveys were not repeated. The amended CRM was carried out for the same ten species as the 2023 EIA Report CRM, and presented as breeding and non-breeding season collisions, together with annual collisions, for two downtime scenarios: 0% downtime and 40% downtime. The results are provided in Table 8. Full details of the CRM including all methods, parameters, inputs and results are provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).

[8] NatureScot. 2000. Windfarms and Birds: Calculating a Theoretical Collision Risk Assuming no Avoidance Action. SNH Guidance Note. SNH.

[9] Band, W., Madders, M. and Whitfield, D.P. 2007. Developing field and analytical methods to assess avian collision risk at wind farms. In: de Lucas, M., Janss, G.F.E. & Ferrer, M. (Eds.) Birds and Wind Farms: Risk Assessment and Mitigation, pp 259-275. Quercus, Madrid.

5.13 The amended CRM followed NatureScot (2000) guidance[10] and methods provided in the Band (2007)[11] model. The amended CRM was based on the same two-year flight activity dataset as the 2023 EIA Report CRM, i.e. the baseline flight activity surveys were not repeated. The amended CRM was carried out for the same ten species as the 2023 EIA Report CRM, and presented as breeding and non-breeding season collisions, together with annual collisions, for two downtime scenarios: 0% downtime and 40% downtime. The results are provided in Table 8. Full details of the CRM including all methods, parameters, inputs and results are provided in FEI Report Technical Appendix 5.1 (Amended Collision Risk Model).

Table 8: CRM results

Species	Downtime 0%			Downtime 40%		
	Collisions per breeding season	**Collisions per non-breeding season**	**Collisions per year**	**Collisions per breeding season**	**Collisions per non-breeding season**	**Collisions per year**
Lapwing	0.00	0.16	**0.16**	0.00	0.10	**0.10**
Golden plover	1.47	19.54	**21.00**	0.88	11.72	**12.60**
Curlew	0.29	0.04	**0.33**	0.17	0.02	**0.20**
Snipe	0.31	0.02	**0.32**	0.18	0.01	**0.20**
Goshawk	0.02	0.02	**0.04**	0.01	0.01	**0.02**
Hen Harrier	0.00	0.01	**0.01**	0.00	0.01	**0.01**
Red Kite	0.04	0.05	**0.09**	0.02	0.03	**0.06**
Short-eared owl	0.00	0.01	**0.01**	0.00	0.01	**0.01**
Merlin	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Peregrine	0.03	0.00	**0.03**	0.02	0.00	**0.02**

5.14 Predicted annual collision rates were generally slightly lower (even at 0 % downtime) than those predicted in the original CRM carried out for the 2023 EIA Report, with the exception of snipe, red kite and peregrine which are marginally higher.

IDENTIFICATION OF IOFS

5.15 The ornithological feature black grouse has been re-evaluated as Regionally Important and this species is now considered to be an IOF.

5.16 The evaluation of the importance of all other ornithological features identified during the desk study or recorded during baseline ornithology surveys remain the same as provided in the 2023 EIA Report Chapter 5 (Ornithology).

EMBEDDED MITIGATION

5.17 There are two key types of embedded mitigation with relevance to ornithological features. One is the HMP and the other is the BPP, the implementation of which aims to protect breeding and roosting birds in accordance with relevant legislation.

[10] NatureScot. 2000. Windfarms and Birds: Calculating a Theoretical Collision Risk Assuming no Avoidance Action. SNH Guidance Note. SNH.

[11] Band, W., Madders, M. and Whitfield, D.P. 2007. Developing field and analytical methods to assess avian collision risk at wind farms. In: de Lucas, M., Janss, G.F.E. & Ferrer, M. (Eds.) Birds and Wind Farms: Risk Assessment and Mitigation, pp 259-275. Quercus, Madrid.

Subsequent sections of this chapter assume that the embedded mitigation will be fully implemented.

5.18 The BPP measures provided in the 2023 EIA Report Chapter 5 (Ornithology) remain the same, with the following additions to address the consultation response received from RSPB (Table 7).

- For black grouse, during construction of the Revised Proposed Development, potential access restrictions around dawn and dusk during the peak lekking months of April and May will be agreed with NatureScot once construction conditions and implications are understood in the event of scheme approval.

- For breeding curlew, during construction of the Revised Proposed Development, 300m buffer exclusion zones will be set up around breeding locations to mitigate construction-related disturbance. A suitably experience Ornithologist or Ecological Clerk of Works (ECoW) will provide guidance on when works can resume in consultation with NatureScot.

POTENTIAL EFFECTS

5.19 The potential effects assessed in the 2023 EIA Report Chapter 5 (Ornithology) relating to habitat loss, displacement, disturbance and collision risk during the construction, operational and decommissioning phases remain the same. However the further information below presents some effects of the Revised Proposed Development on IOFs where these have been re-assessed due to the re-design and to address the consultation responses received from NatureScot and RSPB (Table 7).

OPERATIONAL PERIOD

Displacement

5.20 The further information below is provided to satisfy RSPB's consultation feedback requesting that operational displacement should be assessed for breeding curlew to ensure mitigation is in place and to inform design iteration to reduce impacts on this species.

5.21 Operational displacement for all IOFs, including breeding curlew, was assessed in the 2023 EIA Report to be of low magnitude and not significant under EIA Regulations. This was also assessed to be the outcome for breeding curlew for construction related displacement, which is generally considered to be of longer total duration and greater extent than operational displacement. The 2023 EIA Report assessment for construction related displacement adds that a worst-case scenario would see the loss of up to 12 curlew territories (equating to 0.28% of the NHZ 19 curlew population). Acknowledging a study by Pearce-Higgins *et al*. (2012)[12], curlew numbers may not have recovered by the first year after construction, therefore it is possible that birds displaced during construction may not return, and there would be fewer breeding curlew present during the operational period. Therefore for the purposes of this FEI Report and to address RSPB's consultation feedback, operational displacement for

[12] Pearce-Higgins, J. W., Stephen, L., Douse, A. and Langston, R. H. W. (2012). Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology*, 49: 386–394.

breeding curlew is still assessed to be of low magnitude and not significant under EIA Regulations.

5.22 Any degree of operational displacement will be offset by the habitat enhancements outlined in FEI Report Technical Appendix 6.4 (Outline Habitat Management Plan). Further, if any significant maintenance works are required during the operational of the Revised Proposed Development, good practice measures outlined in the embedded mitigation of the BPP would be applied.

5.23 The re-design of the Proposed Development to produce the Revised Proposed Development involved the removal of Turbines 9 and 10 from Bodinglee West. Although these two turbines are not within the NatureScot recommended disturbance distance[13] for curlew of 200-300m based on the breeding territories recorded during the baseline surveys, Bodinglee West comprises an area of high suitability for breeding curlew with six territories recorded in Year 1 and eight territories recorded in Year 2. Therefore the Revised Proposed Development will deliver a more positive outcome for breeding curlew in terms of operational displacement.

Collision Risk

5.24 The further information provided below will allow NatureScot to carry out an appraisal of effects on the Muirkirk and North Lowther Uplands SPA. This appraisal will inform an Appropriate Assessment to be carried out by the competent authority in view of the SPA's conservation objective to maintain, in the long-term, the 'populations of qualifying interest species as viable components of the (golden plover, hen harrier, merlin, peregrine and short-eared owl).

5.25 The amended CRM results (Table 8) indicate a very low collision risk impact for all SPA qualifying interests with the exception of golden plover. Considering the 0% downtime scenario (which is more precautionary than the 40% downtime scenario) and the implication of collision risk impact on SPA population viability, the effect is very low for all SPA qualifying interests (except for golden plover). For hen harrier, predicted mortality is 0% of the SPA breeding population and 0.08% of the SPA non-breeding population and for short-eared owl and merlin predicted mortality is 0% of the SPA breeding population[14]. Thus for all qualifying interests (except for golden plover), there are no implications for the SPA's conservation objective relating to population viability. This would result in an effect on the SPA of negligible magnitude which is not significant in EIA terms.

5.26 For golden plover, the amended CRM results indicate a higher collision risk impact: 21.00 birds per year with 0% downtime, and 12.60 birds per year with 40% downtime. This would potentially be a significant effect at a Regional level. However the assessment of collision risk to golden plover in the 2023 EIA Report Chapter 5 (Ornithology) highlights limitations of the CRM and a likely overestimation of golden plover mortality, combined with evidence that golden plover is not susceptible to colliding with turbines.

5.27 Moreover, golden plover breeding season collisions were predicted to be low, and non-breeding season collisions, although high, can be considered against the large size of the Scottish non-breeding population. Looking closely at the 0% downtime scenario (which is more precautionary than the 40% downtime scenario), golden plover annual

[13] NatureScot. 2022. Disturbance Distances in Selected Scottish Bird Species – NatureScot Guidance.

[14] SiteLink - Home

predicted collision mortality comprises 1.47 collisions during the breeding season and 19.54 collisions during the non-breeding season. This represents a predicted collision risk impact of 0.48% of the SPA breeding population (estimated minimum of 154 breeding pairs in 1999[14]), and 0.08% of the Scottish non-breeding population (precautionary lower estimate of 25,000 individuals[15]; no estimates were available for the non-breeding NHZ populations). Therefore the effect of collision risk on golden plover would be of low magnitude which is not significant in EIA terms.

5.28 As detailed in Table 1, NatureScot requested that following amendment of the CRM, significance of impacts should be re-evaluated including consideration of species considered part of SPA populations, in addition to species not considered part of SPA populations.

5.29 For species not considered part of SPA populations, specifically curlew, goshawk and red kite, the amended CRM results (Table 8) indicate a very low collision risk impact for these three species. Looking closely at the 0% downtime scenario (which is more precautionary than the 40% downtime scenario) and to examine regional (NHZ 19) population viability, the predicted collision mortality represents 0% of the regional breeding population for curlew, 0.03% of the regional breeding population for goshawk, and 0.02% of the regional breeding population for red kite[16]. Therefore for curlew, goshawk and red kite, there are no implications for regional population viability. This would result in an effect on these three species of negligible magnitude which is not significant in EIA terms.

CUMULATIVE EFFECTS

OPERATIONAL PERIOD

Displacement

5.30 As operational displacement for all IOFs, including breeding curlew, was assessed in the 2023 EIA Report to be of low magnitude and not significant under EIA Regulations, breeding curlew is therefore scoped out of the cumulative assessment.

Collision Risk

5.31 The further information provided below will allow NatureScot to carry out an appraisal of effects on the Muirkirk and North Lowther Uplands SPA. This appraisal will inform an Appropriate Assessment to be carried out by the competent authority in view of the SPA's conservation objective to maintain, in the long-term, the 'population of the species as a viable component of the site' for its qualifying interests (golden plover, hen harrier, merlin, peregrine and short-eared owl).

5.32 The predicted collision impact on non-breeding hen harrier from the Revised Proposed Development was 0.01 birds per season for both 0% and 40% downtime (a very small difference in birds per season existed between the two downtime scenarios, but this was masked by the effects of rounding to two decimal places) (Table 8). This represents 0.08% of the SPA non-breeding hen harrier population[14]. Given the sensitivity (International importance), small size and 'unfavourable declining' status[14]

[15] Forrester, R.W., Andrews, I.J., McInerny, C.J., Murray, R.D, McGowan, R.Y, Zonfrillo, B., Betts, M.W., Jardine, D.C., and Grundy, D.S. (eds). (2007).The Birds of Scotland. The Scottish Ornithologists Club, Aberlady.

[16] Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504. pp72.

of the SPA non-breeding hen harrier population, an assessment of cumulative collision risk was carried out in the 2023 EIA Report Chapter 5 (Ornithology). This was based on a summary of collision rates from schemes within 2 km of the SPA provided by NatureScot during consultation.

5.33 Predicted collision rates from the Revised Proposed Development for other SPA qualifying interest populations were considered too low to result in a significant cumulative effect. These species were therefore scoped out of the cumulative assessment.

5.34 For this FEI Report chapter, the below information was included for Douglas West Wind Farm and Glenmuckloch Wind farm for hen harrier:

a) Douglas West Wind Farm: annual collision rate for hen harrier of 0.12517. As a non-breeding season collision rate was not provided this annual collision rate was used instead, however it is acknowledged that this is a precautionary figure as some breeding season collisions may be included; and

b) Glenmuckloch Wind Farm[18]: non-breeding season collision rate of 0.0075.

5.35 Collision risk was not calculated for hen harrier for Auchrobert Wind Farm[19], the M74 Renewable Energy Park[20] or Kennoxhead Extension II[21].

5.36 Combining the cumulative collision risk to SPA non-breeding hen harrier (excluding the Proposed Development) of 0.1676 provided in the 2023 EIA Report Chapter 5 (Ornithology), with 0.01 calculated for the Revised Proposed Development, 0.125 provided in the Douglas West EIA Report, and 0.0075 provided in the Glenmuckloch EIA Report, gives a cumulative collision risk of 0.3101.

5.37 Based on this, the total cumulative collision risk to the Muirkirk and North Lowther Uplands SPA non-breeding hen harrier population is 0.3101 birds, which represents 2.58% of the SPA non-breeding population[14].

5.38 The amended CRM carried out for the Revised Proposed Development adopted a precautionary approach. The lowest and highest rotor-swept heights of the Development's three turbine models were assumed to create the potential collision height (PCH) range for birds, whereas in reality PCH would be smaller for the many smaller turbine models. This would both mean that some hen harrier flights would not in reality be at PCH, and the collision risk volume would be reduced. Moreover, the height bands in which birds were recorded flying were wider than PCH, thus flights at the lower and upper extremities of these bands were included as being at PCH on a precautionary basis. As such, predicted rates of collision are likely to be overestimates.

5.39 It is considered unlikely that there would be a significant impact in EIA terms on non-breeding hen harrier from the Muirkirk and North Lowther Uplands SPA population due to the contribution from the Revised Proposed Development to cumulative collision risk. Therefore, there are no implications for the SPA's conservation objective relating to population viability for non-breeding hen harrier. As the SPA breeding hen harrier

[17] 3R Energy. 2017. Douglas West Wind Farm Environmental Statement – Revised Scheme.

[18] Glenmuckloch Renewable Energy Ltd. 2015 Glenmuckloch Wind Farm Environmental Statement.

[19] Falck Renewables Wind Ltd. 2012. Auchrobert Wind Farm Environmental Statement.

[20] Renewco Power and Ramboll. 2024. M74 Wests Renewable Energy Park Environmental Impact Assessment Report.

[21] Brookfield Renewable UK Ltd. 2021 Kennoxhead Wind Farm Extension II (Penbreck) EIA Report.

population is larger than the non-breeding population, there will also be no implications to the population viability of the breeding population.

5.40 For the other IOFs considered in the 2023 EIA Report Chapter 5 (Ornithology), specifically curlew, goshawk and red kite, predicted collision impacts from the Revised Proposed Development on regional (NHZ 19) populations were considered too low (0% of the regional breeding population for curlew, 0.03% of the regional breeding population for goshawk, and 0.02% of the regional breeding population for red kite[16]) to result in a significant cumulative effect. These species were therefore scoped out of the cumulative assessment.

RESIDUAL EFFECTS

5.41 All potential effects of the Revised Proposed Development were predicted to be of low to negligible magnitude. As no significant effects under the EIA Regulations on any IOFs are predicted, no mitigation was proposed and an assessment of residual effects on IOFs is not required.

6. ECOLOGY AND NATURE CONSERVATION

This chapter presents the findings of an Ecological Impact Assessment (EcIA) for the construction and operation of the Revised Proposed Development.

The study area was found to support a number of important ecological features (IEFs), amongst which were sites designated for nature conservation, areas of peatland habitats, groundwater dependent terrestrial ecosystems (GWDTEs) and protected species, including, badger, otter and bats, with assigned ecological importance ranging from Site to International level.

Potential construction and/or operational phase impacts were identified for blanket bog, heathlands, marshy grasslands, GWDTEs, badger and bats. However, as a result of embedded mitigation and/or application of a hierarchy of other mitigation measures, none of these are considered to be significant. Embedded mitigation measures include the use of 'stand-off' zones and a curtailment strategy to protect bats, and the adoption of standard pollution prevention measures to protect other IEFs within the study area.

The assessment finds that following the implementation of mitigation and enhancement measures, including those contained in an Outline Habitat Management Plan (OHMP), there will be no significant residual adverse effects of the Revised Proposed Development, and there will be positive effects for upland habitats. These effects are considered to be in the same order of magnitude as those assessed for the 2023 Proposed Development.

Design Changes recommended by NatureScot relating to ecological receptors have been implemented as part of the Revised Proposed Development. In particular, the removal of T09 and BP09, and the rerouting of access tracks south of T31, will reduce the likely impacts on peatlands.

STATEMENT OF COMPETENCE

6.1 This chapter has been prepared by Applied Ecology Ltd. All Applied Ecology Ltd ecologists are professionally trained and comply with best practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM); the company is a CIEEM Registered Practice. The Ecology Project Director has 25 years of experience in the ecology and conservation sector, including 25 years as an ecological consultant and compiling EcIAs. She has a first degree from the University of Cambridge, a Masters degree from Lancaster University and a doctorate in Applied Ecology from the University of Liverpool. She is a full member of CIEEM and both a Chartered Ecologist and a Chartered Environmentalist. AEL is therefore suitably qualified in the survey and assessment of ecological features.

INTRODUCTION

6.2 This chapter presents the findings of an assessment of the potential effects of the construction and operation of the Revised Proposed Development on non-avian ecology and nature conservation features. It utilises the findings of a range of ecology surveys undertaken in 2022, and considers the significance of potential impacts the Revised Proposed Development may have on ecological features.

6.3 The assessment set out in this chapter is based on information provided in **Chapter 2: Development Description**, and **Chapter 3: Design Evolution and Alternatives**.

6.4 Other chapters relevant to this chapter include **Chapter 5: Ornithology** and **Chapter 10: Hydrology, Hydrogeology and Geology**.

6.5 This chapter is supported by a number of updated Technical Appendices that supersede those submitted as part of the 2023 EIA Report:

- FEI Technical Appendix 6.1: Non-Avian Ecological Surveys Technical Report (excluding bats);
- FEI Technical Appendix 6.2: Bats Technical Report;
- FEI Confidential Technical Appendix 6.3: Badger Technical Report;
- FEI Technical Appendix 6.4: Outline Habitat Management Plan

SCOPE OF ASSESSMENT

STUDY AREA

6.6 For the purposes of the assessment, the study areas referred to throughout the chapter vary by ecological feature. Surveys were carried out within the following buffers:

- Statutory designated site searches - 10 km from the Site;
- Existing faunal/flora records - 2 km from the Site;
- Bat surveys - within the Site;
- Other protected species surveys - Within 50-250 m of the Site; and
- Scottish EUNIS and National Vegetation Classification (NVC) surveys - within the Site and 250 m of this where access permitted.

6.7 No change to the Study Area is proposed since the 2023 EIA Report.

CONSULTATION RESPONSES

6.8 From the outset of the initial surveys, and throughout the original design process, a number of organisations were consulted to inform both the design and assessment processes for the 2023 Proposed Development. These were presented in the 2023 EIA Report and are not repeated here. Table 6.1 summarises consultation responses subsequently received for the 2023 EIAR, with information relating to how these have been addressed in this FEI.

Table 6.9: Post-submission consultee responses Responses for Non-Avian Ecology

Consultee	Summary of Issue Raised	Where & How Addressed
NatureScot (NS) Consultee response dated 17 October 2023	In respect of the Muirkirk & North Lowther Uplands Special Protection Area and the North Lowther Uplands Site of Special Scientific Interest, NS object to the proposal until further information, as detailed in paragraph 3.16 of their response, is provided, to enable them to carry out an appraisal of these effects and help SLC determine the proposal.	Impacts on the Muirkirk & North Lowther Uplands Special Protection Area are covered in Chapter 5: Ornithology. Comments relating to the North Lowther Uplands Site of Special Scientific Interest, are solely with respect to the ornithological features of this SSSI and therefore are also covered in Chapter 5: Ornithology.
	In respect of Red Moss Special Area of Conservation and Site of Special Scientific Interest, NS object to the proposal unless it is made subject to conditions requiring works to be done strictly in accordance with the mitigation detailed in paragraph 3.21 of their consultee response.	The requirements listed in paragraph 3.21 of the NS response were included in the 2023 EIAR for the Proposed Development, and reiterated in this chapter at paragraph 6.114.
	Advice provided in relation to other natural heritage interests including deep peat, carbon-rich soils and priority peatland habitat, and protected species. Identification of where the provision of further information would assist the decision-making process, including in respect of the adequacy of compensatory habitat management and enhancement proposals.	The Revised Proposed Development has taken on board a number of these comment, and more detail can be found in Chapter 10: Hydrology, Hydrogeology and Geology. More detail regarding impacts on different classifications of peatland are provided in Table 6.11. More information relating to the balance between peatland habitat enhancement and compensation measures has been provided in

		TA6.4 (OHMP) and at paragraphs 6.100-6.102.
	Identification of measures which would further assist in avoiding or further reducing impacts on the natural heritage, including through the deletion or relocation of turbines (particularly in Bodinglee West).	Turbines 9 and 10 in Bodinglee West have been removed as part of this Revised Proposed Development.
RSPB Consultee response dated 02 October 2023	The location of turbines and associated infrastructure in vicinity of Flow Moss should be reviewed to reduce likely impact to deep peat habitat.	Turbines 9 and 10 in Bodinglee West have been removed as part of this Revised Proposed Development.
	Habitat restoration of Flow Moss is included in the HMP as a main objective which would expand on the current area proposed for restoration which is not adequate in relation to the predicted direct or indirect impact to this site	More information relating to the balance between peatland habitat enhancement and compensation measures has been provided in TA6.4 (OHMP) and at paragraphs 6.100-6.102.
	Clarification of measures to ensure compliance with the requirement to deliver biodiversity enhancement in line with Policy 3 of Scotland's Fourth National Planning Framework (NPF4).	More information relating to the biodiversity positive outcomes required by NPF4 Policy 3 has been provided in TA6.4 (OHMP) and at paragraphs 6.100-6.102.
SEPA Consultee response dated 07 December 2023	GWDTEs: agreement that the approach proposed appears appropriate and mitigation is adequate to avoid negative impacts on GWDTE.	All mitigation relating to ecological aspects of GWDTEs is reproduced in this FEI and would still form part of the CEMP and Schedule of Mitigation.

METHODOLOGY

RELEVANT LEGISLATION AND POLICY

6.9 Detailed information relating to planning policy can be found within the accompanying Planning Statement. This chapter has also been informed by relevant biodiversity legislation and policy, including European and domestic environmental legislation, UK nature conservation policy and local biodiversity guidance. These include:

- The Conservation (Natural Habitats etc.) Regulations 1994 as amended, including amendments made in 2017 with limited relevance to Scotland, and as translated post-Brexit by the UK Withdrawal from the European Union (Continuity) (Scotland) Bill (2020);
- The Wildlife and Countryside Act (as amended) 1981;
- National Planning Framework 4 (NPF4), Policies 3 and 4;
- The Protection of Badgers (Scotland) (as amended) Act 1992;
- The Scottish Biodiversity List (SBL); and
- The South Lanarkshire Local Biodiversity Action Plan (LBAP);
- EU Water Framework Directive;
- The Salmon and Freshwater Fisheries Act (1975) (as amended).

6.10 Further detail of relevant legislation and policy is provided in the Technical Appendices accompanying this chapter.

METHOD OF BASELINE CHARACTERISATION

6.11 This chapter has been informed by a suite of desk and field studies, further details of which are described below. The Ecological Impact Assessment (EcIA) has been undertaken in line with good practice guidance, also as described below.

6.12 The scope of desk and field studies were agreed with NatureScot during scoping, and as set out in Table 6.1.

6.13 No changes to methodology have been made since the 2023 EIA Report.

Desk Study

6.14 In order to anticipate the potential ecological sensitivities associated with the Revised Proposed Development, a desk study was conducted in advance of the field surveys. This included a review of:

- Existing data on statutory designated sites available through NatureScot Sitelink website for statutory designated sites up to 10 km from the Site;
- Records of Ancient Woodlands available from NatureScot (up to 2 km from the proposed Development Area);

- The SBL;
- Records from Scottish Badgers (up to 1 km from the Site); and
- Records from Glasgow Museums Resources Centre (GMRC) (up to 2 km from the Site);
- Pre-existing fisheries records held by the Clyde River Foundation (CRF).

6.15 SLC does not currently maintain a formal register of non-statutory nature conservation sites, and no such sites are included in the newly adopted Local Development Plan 2 (LDP2) proposals maps.

6.16 Other pre-existing biological data relevant to the Site were also searched for in online databases to which the authors had access and for which there were no copyright issues based with their use in a commercial setting.

Field Survey

6.17 The ecological assessment has been informed by a series of technical field studies. For habitat and non-bat faunal surveys, the methodologies adopted for these are described in Technical Appendix 6.1. For bats, these are as described in Technical Appendix 6.2. In summary, the surveys included:

- Habitats, including GWDTEs and those listed as Annex 1 Priority Habitats;
- Otter;
- Bats;
- Water vole;
- Badger;
- Red squirrel;
- Pine marten; and
- Fisheries.

6.18 Following the desk study, scoping and field surveys, not all of these features were determined to be IEFs needing to be incorporated into this EcIA. More information regarding this can be found in Technical Appendix 6.1.

CRITERIA FOR ASSESSING SIGNIFICANCE

6.19 The EcIA was undertaken following good practice guidelines current at the time of writing (CIEEM, 2018[22]). This is unchanged from that used in the 2023 EIA report.

[22] *CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. CIEEM, Winchester. September 2018.*

6.20 In summary, EcIA requires six steps:

- Identifying and characterising Important Ecological Features (IEFs);
- Identifying and characterising impacts and their effects;
- Identifying measures to avoid and mitigate effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement and monitoring.

Identifying Important Ecological Features (IEFs)

6.21 The sensitivity, value or importance of ecological features can be related to a wide range of ecosystem services that they can provide to the environment, people or wider society. These benefits can include the conservation of genetic diversity, people's enjoyment or understanding of biodiversity, or the health benefits of biodiversity. A summary of an approach to valuing ecological features in Scotland can be found in Table 6.2. The table shows how ecological importance can be ascertained using a combination of statutory measures (legally protected sites and species) and non-statutory but widely accepted measures, such as the presence of notable habitats and species listed in biodiversity lists of local Biodiversity Action Plans (LBAPs). Use can also be made of the Ratcliffe assessment criteria for the selection of sites with nature conservation value (Ratcliffe, 1977[23]) and certain protected species have their own frameworks for the assessment of the importance of on-site populations. All these criteria can vary at different geographical scales.

Table 6.2: An approach to determining Important Ecological Features in Scotland

Level of sensitivity or value	Examples (not exhaustive)
International (including European)	An internationally designated site or candidate site (SPA[24], proposed SPA (pSPA)[25], Special Area of Conservation (SAC)[26], candidate SAC (cSAC)[27], pSAC[28], Ramsar site[29], Biogenetic Reserve[30]) or an area which NatureScot has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified. A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of that ecological resource.

[23] *Ratcliffe, D.A. (1977) A Nature Conservation Review: Volume 1: The Selection of Biological Sites of National Importance to Nature Conservation in Britain, Cambridge University Press, Cambridge, UK.*

[24] Special Protection Area classified under the EU Birds Directive for importance to birds.

[25] Potential Special Protection Area.

[26] Special Area of Conservation Area classified under the EU Habitats Directive for important habitat or non-bird species.

[27] Candidate Special Area of Conservation.

[28] Potential Special Area of Conservation.

[29] Wetland of international importance designated under the Ramsar Convention.

[30] Sites deemed representative examples of particular habitats in Europe.

Level of sensitivity or value	Examples (not exhaustive)
	A regularly occurring population representing >1 % of the European resource of a species listed in Schedules 2 or 4 of the Habitat Regulations (As amended post-Brexit).
National	A nationally designated site (Site of Special Scientific Interest (SSSI)[31], National Nature Reserve (NNR)[32], Marine Nature Reserve) or a discrete area which NatureScot has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified. A viable area of a priority habitat identified in the SBL, or smaller areas of such habitat which are essential to maintain the viability of that ecological resource. A regularly occurring population representing >1 % of the national population of a nationally important species, i.e., a priority species listed in the Scottish Biodiversity List and/or Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act, or Schedules 2 or 4 of the Habitat Regulations (as amended post-Brexit). A regularly occurring and viable population of a UK Red Data Book species.
Council/ Regional	Viable areas of key habitat identified in Council LBAP or Scottish Biodiversity List, or smaller areas of such habitats that are essential to maintain the viability of that ecological resource. Any regularly occurring, locally significant population of a species listed as being nationally scarce (occurring in 16-100 10 km squares in the UK) or in a relevant Council LBAP or Natural Heritage Zone profile on account of its rarity or localisation. Non-statutory designated wildlife sites including semi-natural ancient woodland greater than 0.25 ha. Networks of species-rich hedgerows.
Local	Locally important habitats or species such as: - semi-natural ancient woodland smaller than 0.25 ha; - features that are scarce within the local area or which appreciably enrich the local habitat resource e.g. networks of hedgerow/ditches not considered to be species-rich; - small populations of notable species (e.g., SBL or LBAP species) regularly resident on or using the site.
Site	Commonplace and widespread habitats or species which contribute to the functioning or value of the wider ecological landscape, such as: - scrub, poor semi-improved grassland, coniferous plantation woodland, intensive arable farmland etc.; - common and widespread faunal species, or occasional individuals of more notable species such as SBL or LBAP species, either resident on or using the site.

[31] Site of Special Scientific Interest.

[32] National Nature Reserve.

Identifying impacts and their effects

6.22 Characterising impacts refers to the changes expected in the extent and integrity of an IEF. It takes into consideration the fact that different impacts on different IEFs can result in permanent or temporary effects of differing magnitudes, and this is also dependent on their timing and/or frequency of occurrence, and whether or not they can be reversed.

6.23 Impacts have been defined here as being high, medium, low or neutral, as summarised in Table 6.3. Impacts may be adverse (detrimental) or positive (beneficial).

Table 6.3: Criteria for describing impacts and effects on Important Ecological Features

Impact type	Description
High	High impacts may include those that result in large-scale, permanent (or at least lasting the lifetime of the Revised Proposed Development) changes in an IEF, and likely to change its ecological integrity. These impacts are likely to result in overall changes in the conservation status of a species population or habitat type at the location(s) or geographical scale under consideration.
Medium	Medium impacts may include moderate-scale, permanent (with respect to the lifetime of the Revised Proposed Development) changes in an IEF, or larger-scale temporary changes, but the integrity of the feature is not affected. This may mean that there are temporary changes in the conservation status of a species-population or habitat type at the location(s) or geographical scale under consideration, but these are unlikely to be irreversible or long-term.
Low	Low impacts may include those that are small in magnitude, have medium-scale temporary changes, and where integrity is not affected. These impacts are unlikely to result in overall changes in the conservation status of a species population or habitat type at the location(s) under consideration, but it does not exclude the possibility that mitigation or compensation will be required.
Neutral	There is no perceptible change in the ecological feature.

6.24 Different impacts and their outcomes also have different probabilities of occurring. It is rarely possible to quantify probability accurately in the natural world in the absence of large, long-running data sets, and therefore for the purposes of this EcIA, probabilities are simply assessed qualitatively and relatively, using the terms defined in Table 6.4 below.

Table 6.4: Criteria for categorising the probability of effects occurring

Probability	Description
Certain	It is reasonable to conclude that these effects will occur as a result of the proposals.
Likely	It is reasonable to conclude that these effects are more likely to occur than not occur.
Unlikely	It is reasonable to conclude that these effects are more likely not to occur than to occur.

Significance of effects

6.25 The 2018 CIEEM guidelines use only two categories to classify effects, namely those which are significant, and those which are not. In accordance with those guidelines, a "significant effect" in this assessment is one which supports (positive) or undermines (adverse) biodiversity conservation objectives for a stated IEF, or for biodiversity generally if this is more relevant to the circumstances being assessed, in particular

where the integrity of an IEF will be affected. These significant effects are considered by an ecological professional to be sufficiently important to warrant explicit assessment and reporting so that a decision-maker is adequately informed of the environmental consequences of a proposed project.

6.26 The significance of an effect on an IEF is given with reference to a specific spatial scale (as per column 1 in Table 6.2), which may or may not be related to the geographical scale used to define the IEF. The mitigation hierarchy (avoid, mitigate, compensate, enhance) may need to be applied, consistent with the scale at which the significant effect has been identified, in order to ameliorate any identified significant effects.

PROJECT DESIGN ASSUMPTIONS, GOOD PRACTICE MEASURES AND EMBEDDED DESIGN

6.27 The assessment of impacts and their effects presented in this chapter of the FEI has been undertaken in the context of the application of embedded mitigation which will reduce impacts associated with both construction and operation of the Revised Proposed Development. There are no changes to the proposed mitigation beyond those measures set out the 2023 EIA Report. As per the requirements of the Mitigation Hierarchy which underpins Policy 3 of NPF4, this embedded mitigation includes avoidance of IEFs during the design process, followed by the implementation of standard best practice mitigation during construction.

Mitigation by design

6.28 During the design process, various factors were taken into consideration in order to minimise potential impacts on IEFs. These can be summarised as:

- The configuration of access tracks and other infrastructure components have been designed to avoid sensitive habitats wherever practicable, as well as to maintain or impede drainage through water dependent habitats where either of these scenarios would be beneficial to habitat quality and the hydrological regime;
- Maintaining at least 30 m stand-off distances from recorded badger setts;
- Maintaining a distance of at least 50 m + rotor sweep between each turbine and woodland edges to minimise collision risk for bats; and
- Locating turbines at least 50 m + rotor sweep from watercourses to minimise collision risk for bats and potential impacts on fisheries.

Best practice during construction

6.29 An Ecological Clerk of Works (ECoW) will oversee all stages of construction, to ensure that good practice measures with regards to ecology are implemented. Other good construction practice measures can be found in the draft Construction Method Statement contained within Technical Appendix 2.1: Outline Environmental Management Plan. These can be summarised as:

- Pre-construction surveys will be carried out for otter, water vole and badger, and destructive searches carried out for features of potential value to reptiles. All watercourses within 200 m of the Revised Proposed Development footprint will be resurveyed for signs of otter, within 50 m for

water vole, and all habitat within 100 m for signs of badger if these surveys are considered appropriate. If necessary, a derogation licence will be sought for any relevant shelters, resting places or setts;

- The site induction for construction personnel will include a briefing provided by the ECoW regarding otter, water vole reptiles and badger, and the identification of shelters of these species. The briefing will also emphasise the importance of protection of watercourses and key habitats such as wetland areas;

- Work areas will be carefully marked out and delimited on the ground, with the assistance of the ECoW, to ensure no extraneous habitat loss. This will be particularly for habitats identified as being IEFs, where temporary fencing will also be used to ensure that plant and operatives do not encroach further into these more sensitive areas than is necessary;

- General good practice measures for working in and near to watercourses will be adhered to, for example, during construction, silt interception traps will be provided to minimise unchecked contaminated run-off. Appropriate artificial drainage must be designed and installed. Detailed drainage designs will require review and approval by the scheme Environmental Manager (and ECoW as required), and appropriate drainage measures will be installed in advance of major ground-breaking works. A pollution prevention plan will be included in the CEMP;

- Fuels and other chemicals will be stored securely within the site construction compound;

- Appropriate wash-out facilities will be available for vehicles and machinery;

- Trenches and excavations will be covered at the end of each working day, or will include ramps, and stored pipes will be capped, to prevent entrapment of animals;

- If construction work is carried out during the hours of darkness, machinery and floodlights will be directed away from watercourses and woodland edges. Use of heavy machinery and pile drivers will be limited to avoid two hours before and after dawn and dusk within 50 m of watercourses or woodland edges; and

- A site speed limit of 15 mph for all construction traffic will be in place to protect badger and otter.

BASELINE CONDITIONS

Desk Study and Designations

6.30 The findings of the desk study are as presented in Table 6.5. These remain unchanged from the information provided for the 2023 Proposed Development.

Table 6.5: Summary of the desk study

Source	Relevant Data
NatureScot	No statutory designated sites were identified within the Site. The following statutory designated sites were identified within 2 km of the Site: • Red Moss SAC and SSSI, 345 m south of the western part of the Site. • Miller's Wood SSSI, 600 m west of the Site.
SLC	SLC no longer maintain a register of Sites of Importance for Nature Conservation (SINCs). A Biodiversity Assets Approach has instead been adopted, with a focus on the maintenance of areas of peatland, Ancient Woodland and freshwater systems.
Ancient Woodland Inventory	No ancient woodland was identified within the Site. Extensive areas of ancient woodland of plantation origin occur within 2 km of the northern parts of the Site, as well as smaller areas of semi-natural ancient woodland, including that within Millers Wood SSSI (see above), and Craigburn Wood adjacent to the eastern access route.
NBN	No data records were found for which there were no copyright issues and dating between 2012-2022 located within 2 km of the Revised Proposed Development. The NBN Atlas did return records of the following bat species within 10 km of the Site boundary: • Common pipistrelle; • Soprano pipistrelle; • Brown long-eared *Plecotus auritus* (BLE); • Leisler's *Nyctalus leisleri*; • Daubenton's *Myotis daubentonii*; and • Natterer's *M. nattereri*.
Scottish Badgers	A total of 20 records for road casualties were supplied by Scottish Badgers, dating back to 2002, with 15 occurring along the A70 and five on the M74. Two sett records were supplied, a main sett recorded in 2007, and an unclassified sett from 2021.
Clyde River Foundation	Of the five locations around the Site for which data were requested, CRF had historic records of three supporting fish, the most recent survey dating from 2021. Where trout was recorded, the densities were considered by the CRF to be low.
AEL bat records	Between 2017 and 2022, AEL carried out bat activity surveys at various sites in Douglas as part of other contracted work. A number of bat roosts were confirmed as a result of these, including two maternity colonies of soprano pipistrelles, one at Blackwood Court, 2 km north-west of the Site, and one on Welldale Street, 1.7 km north-west of the Site.

Field Survey

Scottish EUNIS Habitat Survey, NVC and GWDTEs

6.31 Full details of the 2022 habitat survey results can be found in Technical Appendix 6.1. The Site was predominantly open hillside, supporting a range of dry and wet grassland types, as well as areas of blanket bog habitat. Semi-improved grassland habitats were found closer to occupied farmsteads and along existing access routes. Intricate mosaics of a number of different habitat types were frequently recorded, including some small-scale flushes and grassland types considered to be of nature conservation importance. Woodland habitats were restricted to areas of planted Scots pine, and broad-leaved riparian planting along some of the main burns draining the Site.

6.32 Many of the habitats within the Site contained elements considered to be Annex 1 priority habitat types, or were partially classifiable as such. The vast majority of these were blanket bog habitats, but small areas of woodland also contained NVC types which overlapped with certain Annex 1 habitat descriptions, as well as many of the small-scale flushes. Annex 1 habitat types occurred in both the eastern and western parts of the Site, but were more scattered and fragmented in the east.

6.33 Just over 60 % of the Site comprised habitats classifiable as groundwater dependent terrestrial ecosystems (GWDTEs), under the current SEPA guidance. However a number of these habitat types may be fed by a combination of both surface and groundwaters, and would not typically be considered habitats of high nature conservation value, such as MG9, MG10 and M23b. These were typically species-poor communities, commonplace in ill-drained, unimproved or reverted pastures. U6 was also recorded on the Site, but predominantly as a mosaic with other grassland and mire types. Generally, this was also a species-poor habitat with relatively low nature conservation interest, but is considered by SEPA to be moderately groundwater dependent. M25 is also a common mire habitat type in western parts of the UK, on gently sloping ground and often in seepage zones and flushed areas, which is why it is considered to be moderately groundwater dependent. At the Site, the M25 habitats were generally species-poor and not considered to be of high conservation importance, despite being GWDTEs.

6.34 There were, however, vegetation communities present on the Site that were undisputedly groundwater fed and which did have high conservation value. In particular, the small recorded extents of M10, M37 and CG10 which occurred within larger areas of other supporting habitats, were highly characteristic of where there was base-rich flushing of groundwaters, and all of these communities can be host to a number of rare species.

Otter

6.35 Otter were confirmed to be active along a number of watercourses across the Site, but signs were limited to spraints, and the watercourses were generally lacking in features suitable for resting sites. Based on the geographical spread of spraints recorded, the various burns across the Site were likely to be part of otter territories associated with the Douglas Water, River Clyde and Duneaton Water. The species also likely utilises burns where no signs were recorded in 2022, albeit infrequently.

Bats

6.36 Full details of the bat survey results can be found in Technical Appendix 6.2. No maternity bat roosts were confirmed in buildings within the Site or in a 200 m buffer of the Revised Proposed Development. Emergence watches carried out on relevant buildings which determined this recorded low or even no activity during all of the surveys. Scattered areas of trees were identified within the Site with suitability for roosting bats, but none of these were within the Zone of Influence of the Revised Proposed Development and were therefore discounted as IEFs.

6.37 The Site was, however, well-used by commuting and foraging bats, covering three species (common pipistrelle, soprano pipistrelle and BLE) and two genera (*Myotis* and *Nyctalus*), with varying levels of activity depending on location and season. Activity during the May 2022 deployment was as expected for an open, predominantly upland site, with low levels of activity across open ground, and slightly higher activity at locations in closer proximity to woodland features or main watercourses. However, the May 2022 results did seem to show that bats were specifically navigating to blocks of Scots pine in the eastern section of the Site, despite the absence of established connective features with the wider landscape. Activity levels then rose sharply for all species in July 2022, and again in August/September 2022, with particularly high levels of pipistrelle activity at Location 6 in the western section of the Site and at Location 18 in the east, as well as an increase in *Nyctalus* passes across the whole Site. NatureScot guidance highlights evidence from southern Scotland suggesting that the four week period between mid-August and mid-September often corresponds with a substantial seasonal peak in bat activity, and this was found to be the case at the Site.

6.38 Common and soprano pipistrelle, and *Nyctalus* bats, were all identified as being at high risk of collision with wind turbines as a result of the application of the NatureScot bat collision risk assessment (see Technical Appendix 6.2 for full details). Three detector locations used in the bat surveys were subsequently classified as high risk for common or soprano pipistrelle, when considering either the median or maximum activity levels. This included Location 6 on in the northern area of the western part of the Site for common pipistrelle in July and August, Location 18 (south-western areas of the eastern part of the Site) for common and soprano pipistrelle in July and August/September, and Location 10 (southern area of the eastern part of the Site) for common and soprano pipistrelle in August. For *Nyctalus* bats, two detector locations were classified as high risk, when considering either the median or maximum activity levels. This included Location 6 in July and August, and Location 19 (far south-eastern area of the eastern part of the Site) in July, all based on the maximum risk category, rather than the median.

Badger

6.39 A summary of the badger survey details can be found in Technical Appendix 6.1, with full details in Confidential Technical Appendix 6.3.

6.40 Badger were confirmed to be present throughout the Study Area, albeit concentrated within drier habitats. Based on the setts and field signs recorded, it was assumed that several active clan territories were present. Without full bait-marking survey it would not be possible to identify conclusively which setts belonged to each clan, however based on the distribution of main and associated setts, and latrines, it was considered possible that there could be at least four separate clans with territory within the Study Area.

Brown hare

6.41 Suitable habitat for brown hare occurred within grassland habitats across the Site, but it was considered likely that this species would be present at a density below which survey would produce useful returns. It was therefore agreed during scoping that brown hare survey would not be not practicable. However, during the other 2022 field surveys, a single sighting of brown hare was made within the eastern section of the Site.

Reptiles

6.42 Suitable habitats for all three of common lizard, slow-worm and adder were noted within the Site, including south-facing areas of undergrowth within the drier bog habitats, dense bracken, tussocky grassland and rough pasture, particularly when located in close proximity to shorter grassland or exposed rocks where reptiles may bask. Nevertheless, it was also considered likely that they would be present at a density below which survey would produce useful returns. It was therefore agreed during scoping that reptile survey was not practicable.

6.43 During the 2022 surveys, three casual records for female common lizard were made, two in the east of the Site, and one in the west.

Fisheries

6.44 The watercourses within the Site were found to be typical of their surrounding habitats, with ephemeral and ill-defined upper stretches of catchments leading into more established burns, some of which offered potential for, or had confirmed fish populations. Water quality was generally found to be good, but catchment impediments to fish migration mean that no migratory salmon or trout would be expected to be present within the Site. Nevertheless, non-migratory trout have been shown to be present, either close to or immediately outwith the Site boundaries, and there was potential for brook lamprey to be present in the lower catchments.

Other ecological features

6.45 All other potential IEFs within the Site were scoped out of the EcIA, as described in Technical Appendix 6.1. This included water vole, red squirrel, pine marten, Scottish wildcat, freshwater pearl mussel and great crested newt.

Modifying Influences (Future Baseline in the Absence of the Development)

6.46 The dynamic nature of the natural environment means that with and without the Revised Proposed Development the ecological features associated with the Site will change over time, in response to changes in land management such as grazing, drainage, burning or cutting. Climate change will also potentially influence the habitat composition of the Site and hence the faunal species that they support.

6.47 According to the UK Climate Change Projects 2018 (UKCP18) in the west of Scotland, in the 2060s (which is when the operational period of the Revised Proposed Development is likely to end), it is anticipated that both summer temperatures and winter precipitation are expected to increase. Additionally, extreme weather events are likely to increase in both frequency and intensity. These longer-term changes are predicted to cause range shifts in some species and may alter habitat composition and health of the plant communities present. The suitability of the Site may therefore change for some of the species which are currently present, and new, different species

may colonise. The baseline surveys carried out for this EIAR represent a snapshot of ecological composition and activity present at the time of survey, and cannot be extrapolated to predict future population trends in the event of climate change.

Information Gaps, Assumptions and Limitations

6.48 While every attempt was made to collect accurate baseline data for this EIAR, as identified above all ecological surveys represent a 'snapshot' of activity. Ecological features are dynamic and often transient and it is rarely possible to confirm the absence of a species through survey. It may be necessary to update ecological surveys prior to construction, and data presented in this chapter should not be used for long-term analysis of species distribution or occurrence. However, it is considered that sufficient data have been collected for the assessment purposes of this EcIA.

6.49 Species or habitat specific limitations are discussed further in the relevant Technical Appendices.

Identification of Important Ecological Features (IEFs)

6.50 Based on the criteria given in Table 6.2, a summary of the importance of designated site IEFs scoped into the EcIA is provided in Table 6.6. Table 6.7 provides a similar table for habitats, and Table 6.8 for protected species.

Table 6.6: Summary of designated sites IEFs

Site	Value	Rationale
Red Moss SAC	International	Site designated under EU legislation for its important habitat types.
Red Moss SSSI	National	Site designated under national legislation for its important habitat mosaic.

Table 6.7: Summary of habitat IEFs

Habitat	Value	Rationale
Low altitude blanket bog	Council	The low altitude bogs recorded within the Site include NVC types which would represent Annex 1 habitats. These were the higher quality bog habitats recorded within the Site, and important for their rarity at a European level. However, they only comprised a small proportion of the Site and lacked connectivity with each other. Peatlands are considered to be a Biodiversity Asset within South Lanarkshire, and the bogs and their associated flushes include some NVC types which are considered to be GWDTEs.
Montane blanket bog	Council	The bogs recorded within the Site include NVC types which would represent Annex 1 habitats. The montane blanket bog types comprised a large proportion of the bog resource within the Site and are therefore important for their size and rarity at a European level. However, the quality of much of this habitat within the Site has been degraded by historical grazing and drainage. Nevertheless, peatlands are considered to be a Biodiversity Asset within South Lanarkshire, and these bogs and their associated flushes include some NVC types which are considered to be GWDTEs.

Habitat	Value	Rationale
Poor soft water springs and flushes	Local	Although small in area, the flushes recorded within the Site form part of the overall bog mosaic, considered to be a Biodiversity Asset within South Lanarkshire and include NVC types which are considered to be GWDTEs.
Basic mountain flushes	Council	Although small in area, the flushes recorded within the Site form part of the overall bog mosaic, considered to be a Biodiversity Asset within South Lanarkshire. They include small areas of NVC types which are considered to be Annex 1 habitat and/or GWDTEs, and contain less common plant species.
Northern wet heath	Council	These heathlands include NVC types which would represent some overlap with habitats considered to be Annex 1, as well as being GWDTEs. As soligenous types of wet heath, these would be considered to be a biodiversity asset within South Lanarkshire important for their size, species-richness and position in the ecological mosaic.
Sub-montane *Vaccinium – Calluna* heaths	Council	These heathlands include NVC types which would represent some overlap with habitats considered to be Annex 1. These heathland types would be considered to be a biodiversity asset within South Lanarkshire. They are important for their size, species-richness and position in the ecological mosaic.
Alder/ash and oak/alder/ash woodland	Local	Some of these habitat areas within the Site include NVC types which would represent some overlap with habitats considered to be Annex 1. All of these woodland types would be considered to be a biodiversity asset within South Lanarkshire; they are important for their species-richness, position in the ecological mosaic and potential ecological value.
Oak/birch bog woodland	Local	Includes NVC types which would represent some overlap with habitats considered to be Annex 1. These woodland types would also be considered to be a biodiversity asset within South Lanarkshire. They are important for their species-richness and position in the ecological mosaic.
Acidophilous oak woodland	Council	Includes NVC types which would represent some overlap with habitats considered to be Annex 1. These woodland types would also be considered to be a biodiversity asset within South Lanarkshire. They are important for their size, species-richness and position in the ecological mosaic.
Scots pine plantation	Local	Not semi-natural woodlands but of a type which would be considered to be a biodiversity asset within South Lanarkshire. They are important for their position in the ecological mosaic and potential ecological value.
Juncus effusus/J. acutiflorus/ humid meadows	Site	Widespread and commonplace habitat, although much of this habitat is considered by SEPA to be a GWDTE.

Table 6.8: Summary of faunal species IEFs

Species		Value	Rationale
Otter		Local	No evidence of residency but the Site provides territory for potentially a number of otters, particularly at its peripheries. A European Protected Species also listed on the SLB.
Foraging and commuting bats	Common and soprano pipistrelle	Local	High collision risk species consistently present within the Site. European Protected Species also listed on the SLB, but relatively widespread in its distribution.
	Nyctalus species	Council	High collision risk species consistently present within the Site. European Protected Species also listed on the SLB. Leisler's bat potentially at its north-westerly limit of UK distribution.
Badger		Local	Multiple badger clans present in the area, contributing to the biodiversity value of the Site as a whole.
Brown hare		Local	Extensive grassland and heathland habitats suitable for this species, but not encountered regularly or in large numbers. Contributes to the biodiversity value of the Site as a whole.
Reptiles		Local	There was an extensive network of heathland, bog and grassland habitats suitable for these species, but they were not encountered regularly or in large numbers. Species of principle importance on the SBL and contributes to the biodiversity value of the Site as a whole.
Fisheries		Local	Small number of non-migratory trout recorded at the peripheries of the Site, with some suitability for brown trout and possibly brook lamprey on the Site watercourses where these formed well defined channels with constant flow.

Zone of Influence

6.51 The study area for this assessment has been defined by determining the zone of influence of the Revised Proposed Development in relation to each of the IEFs, including the extent to which direct effects caused by land take and habitat loss may be experienced by those IEFs and the extent of indirect effects, such as an IEF's prey species being affected by the Revised Proposed Development.

6.52 The zone of influence is different for each of the IEFs assessed and therefore a separate study area was defined for each.

IMPACT ASSESSMENT

Construction Phase Effects

6.53 Potential direct effects of construction include:

- Direct loss of habitat through land take for construction of the turbines and associated infrastructure; and

- Direct loss or harm of species through felling and construction activities.

6.54 Potential indirect effects of construction include:

- Changes to the existing hydrology that could lead to detrimental changes in wetland flora and fauna as a result of increased drainage or dewatering;
- Increased pollution risk associated with accidental spillage of fuels, oils, and increases in silt laden run-off and dust emission; and
- Disturbance effects to faunal species.

6.55 Using GIS, the Revised Proposed Development footprint was overlain on the Scottish EUNIS Habitat Map to calculate the extent of habitat lost directly to construction. Construction footprints supplied for this purpose accounted for instances where batter edges and cabling may lead to increased direct impacts.

6.56 Indirect impacts on habitats and species are less easy to quantify. In terms of habitats, the disruption of the hydrological patterns within water-dependent habitats as a result of built infrastructure is an area still lacking empirical research, and effects tend to be highly site-specific. Most existing data still refer to the effects of ditching and ploughing as part of afforestation projects on bog habitats and which may or may not be transferable to construction situations. Gilman (1994) suggests that alterations in blanket bog water levels do not extend further than approximately 10 m from the nearest forestry drain whereas some estimates quote effects occurring up to 50 m from drains (Natural England, 2010). In accordance with current NatureScot guidance and that contained within the Peatland Code[33], an estimate of indirect effects on water-dependent habitats has been made here via the calculation of the area of such habitats within a 30 m buffer around the infrastructure footprint. However, it is recognised that this does not account for micro-scale variations in hydrological functioning of habitats and hence there may be variation in this zone of influence. Nevertheless, the estimate allows a comparative evaluation of areas where indirect effects are predicted to be higher or lower.

6.57 In addition to potential changes in groundwater and surface water affecting water dependent habitats, there is potential for construction operations to cause pollution of wetland and terrestrial habitats through accidental spillages if inadequately controlled (see also **Chapter 10: Hydrology, Hydrogeology and Geology**). This may include vehicular fuels and oils as well as the risk of pollution from road surface slurry formed from dust deposition during the laying and use of access tracks. The risk of silt-laden run-off is greatest during periods of heavy rain; for dust emissions it is highest during dry weather. These could lead to adverse effects on receiving aquatic and terrestrial habitats and their associated fauna.

6.58 Fragmentation as a source of habitat deterioration as a result of construction is discussed at a qualitative level through consideration of the habitat map and the layout of the Revised Proposed Development. Fragmentation and disturbance effects are also applicable to faunal ecological features.

[33] IUCN (2023) Peatland Code, v2.0, March 2023. Available online at https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2023-03/Peatland%20Code%20V2%20-%20FINAL%20-%20WEB_0.pdf Accessed March 2025.

Designated sites

6.59 Potential construction phase impacts and resulting effects on designated sites are summarised in Table 6.9 below.

6.60 During the construction phase, there will be no direct impacts on Red Moss SAC/SSSI. However, construction of Turbine 11 will occur within the catchment of the Black Burn which subsequently flows through the designated site, and the access track along the southern part of the western section of the Site will cross that burn and tributaries of it. There will therefore be a risk of wash-out of fines and other pollutants from the construction areas associated with this turbine and its access track. The main access track along the southern part of the western section of the Site is already constructed; it will not need to be widened nor will new culverts need to be installed. The potential impacts associated with this will therefore be limited to the possible wash-out of fines from the track surface, arising from an increased use in the running surface during the construction phase. Given the good practice measures and CEMP which will already be in place, these impacts are considered to be unlikely, temporary in nature and therefore not significant in terms of an EcIA. The potential implications of these effects in the context of a Habitats Regulations Assessment (HRA) are considered later in this chapter.

Table 6.9: Summary of likely construction phase impacts and effects on designated sites prior to mitigation

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
Red Moss SAC	International	Construction of infrastructure.	No direct loss predicted.	Neutral, certain.	Not significant.
			No fragmentation predicted.	Neutral, certain.	Not significant.
		Changes in hydrological regime.	Potential changes in quantity and/or quality of flow.	Low, adverse impact, temporary, unlikely.	Not significant.
Red Moss SSSI	National	Construction of infrastructure.	No direct loss predicted.	Neutral, certain.	Not significant.
			No fragmentation predicted.	Neutral, certain.	Not significant.
		Changes in hydrological regime.	Potential changes in quantity and/or quality of flow.	Low, adverse impact, permanent or temporary, unlikely.	Not significant.

Habitats

6.61 Potential construction phase impacts and resulting effects on habitat IEFs, including those considered to be GWDTEs, are summarised in Table 6.10 below.

6.62 A total of 137.16 ha of direct habitat impacts will occur as a result of the Revised Proposed Development, although 86.84 ha (63.31 %) of this will be habitats not considered to be IEFs. This is a larger calculated habitat impact than presented for the Proposed Development, in part because this FEI afforded an opportunity to model more accurately the cut and fill and vertical infrastructure required to deliver the proposed infrastructure, but also because amendments to the track layout to avoid peatland impacts have created a larger overall footprint of habitats not considered to be IEFs. . With respect to impacts on IEFs, a breakdown by NVC type is provided in Table 6.11.

6.63 In terms of the habitat IEFs that will be directly affected, only the losses of montane blanket bog are considered to be an effect that would be significant at the **Council** level prior to mitigation, due in part to the importance category of this IEF but also because of the hectarage of loss involved. Construction phase effects significant at the **Local** level are predicted for low altitude blanket bog, northern wet heaths and the *Juncus* dominated meadows. All other impacts on habitat IEFs would be not significant at the **Site** level, prior to mitigation. Although the hectarages and percentages included in Table 6.10 differ to those presented in the 2023 EIA report, their associated impact scale and certainty has not changed, and therefore there is no overall change to effect significance prior to mitigation.

6.64 With respect to the NVC communities comprising the habitat IEFs for which direct or indirect impacts have been identified, the majority of the blanket bog impacts incurred will be in relation to M20 or mosaics of this habitat type (15.0 % of direct impacts, and up to 16.2 % of the total direct and indirect footprint). Although M20 is considered to be a priority peatland community, within current NatureScot guidance relating to Policy 5 of NPF4, it is not a vegetation community which is likely to raise issues of national interest. NVC communities M17, M18 and M19 are however communities where impacts have the potential to raise issues of national importance. Collectively, these habitats comprised just under 5 % of all direct impacts, and c. 4.2 % of the total direct and indirect footprint of the Revised Proposed Development.

Table 6.10: Summary of likely construction phase impacts and effects on habitat IEFs prior to mitigation

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
Low altitude blanket bog	Council	Construction of infrastructure.	Direct loss of 1.59 ha (1.1 % of footprint).	Low, permanent, certain.	Adverse effect significant at the **Local** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Local** level.

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
		Changes in hydrological regime.	Indirect effects on c. 2.61 ha of additional habitat.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Local** level.
Montane blanket bog	Council	Construction of infrastructure.	Direct loss of 25.85 ha of habitat (18.8 % of footprint).	Low, permanent, certain.	Adverse effect significant at the **Council** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Local** level.
		Changes in hydrological regime.	Indirect effects on c. 52.85 ha of habitat.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Council** level.
Poor soft water springs and flushes	Local	Construction of infrastructure.	Direct loss not calculatable as an individual habitat type.	Low, permanent, certain.	Adverse effect significant at the **Site** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Site** level.
		Changes in hydrological regime.	Pollution and/or interruption of hydrological flows.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Site** level.
Basic mountain flushes	Council	Construction of infrastructure.	Direct loss not calculatable as an individual habitat type.	Low, permanent, certain.	Adverse effect significant at the **Site** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Site** level.
		Changes in hydrological regime.	Pollution and/or interruption of hydrological flows.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Site** level.

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
Northern wet heath	Council	Construction of infrastructure.	Direct loss of 3.10 ha of habitat (2.3 % of footprint).	Low, permanent, certain.	Adverse effect significant at the **Local** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Local** level.
		Changes in hydrological regime.	Indirect effects on c. 8.92 ha of habitat.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Local** level.
Oak/birch bog woodland	Local	Construction of infrastructure.	Direct loss of 0.12 ha of habitat (0.1 % of footprint).	Low, permanent, certain.	Adverse effect significant at the **Site** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Site** level.
		Changes in hydrological regime.	Indirect effects on c. 1.35 ha of habitat.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Site** level.
Juncus effusus/J. acutiflorus humid meadows	Site	Construction of infrastructure.	Direct loss of 19.67 ha of habitat (14.3 % of footprint).	Low, permanent, certain.	Adverse effect significant at the **Local** level.
			Fragmentation	Low, permanent, likely.	Adverse effect significant at the **Site** level.
		Changes in hydrological regime.	Indirect effects on c. 47.35 ha of habitat.	Medium, permanent and temporary, likely.	Adverse effect significant at the **Local** level.

Table 6.11: Likely construction phase impacts and effects on habitat IEFs prior to mitigation, summarised by NVC type

IEF	Importance level	NVC communities	Direct impacts (ha)	% of total direct impact footprint	Indirect impacts (ha)	Total impact (ha)	% of total impact footprint
Low altitude blanket bog	Council	M17 and mosaics	1.03	0.8	1.65	2.68	0.7
		M18 and mosaics	0.55	0.4	0.96	1.51	0.4
Montane blanket bog	Council	M19 and mosaics	5.21	3.8	11.13	16.33	4.2
		M20 and mosaics	20.64	15.0	41.72	62.36	16.2
Poor soft water springs and flushes	Local	M6 and mosaics	< 0.01	< 0.1	0.09	0.09	< 0.1
Basic mountain flushes	Council	Not mapped at individual community level.					
Northern wet heath	Council	M15d and mosaics	3.10	2.3	8.92	12.02	3.1
Oak/birch bog woodland	Local	W11, W7, W17 and W4	0.12	0.1	1.35	1.47	0.4
Juncus effusus/J. acutiflorus humid meadows	Site	M23 and mosaics	19.57	14.3	47.06	66.63	17.3
		MG10 and mosaics	0.07	0.1	0.12	0.19	< 0.1
		MG9 and mosaics	0.03	< 0.1	0.17	0.20	0.1

Species

6.65 Potential construction phase impacts and resulting effects on the faunal species IEFs below are summarised in Table 6.12.

Otter

6.66 Otter are unlikely to venture into construction areas, although they may use terrestrial habitat whilst moving between catchments. They may be subject to collision or experience habitat fragmentation where new access tracks are constructed, and/or be disturbed by noise or changes in water quality or quantity. However, usage of the Site by otter is low, and infrastructure will be located at least 50 m from watercourses with the exception of watercourse crossings and three other locations (see **Chapter 10: Hydrology, Hydrogeology and Geology** for further details)). Therefore, assuming the

best practice measures described earlier are implemented, these effects are considered to be **Not Significant**.

Bats

6.67 No bat roosts will be disturbed by the construction of the Revised Proposed Development, and periods of darkness falling within normal working hours will be limited to the winter months when bats would be hibernating. Construction phase effects on bats are therefore considered to be **Not Significant**.

Badger

6.68 There will be no direct impacts on badger, however the proximity of sett locations to specific parts of the Proposed Development means that it is likely that there will be indirect disturbance impacts and potentially direct effects arising from construction traffic collisions. There is an active sett within 27 m of Borrow Pit 2, and an active, one hole outlier sett within 10 m of the eastern access track. Potential licensing requirements for badger are therefore discussed below, and construction phase impacts on badger are considered to be significant at the **Site** level prior to mitigation.

Brown hare

6.69 Direct impacts on brown hare are considered to be unlikely, but indirect impacts may occur as a result of noise, vibration or human disturbance during the construction phase. Given that brown hare is a highly mobile species and likely to be sparsely distributed, these disturbance effects are unlikely to occur frequently and therefore considered to be **Not Significant**.

Reptiles

6.70 Assuming implementation of the embedded construction phase mitigation measures (see earlier), impacts on reptiles are predicted to be **Not Significant**.

Fisheries

6.71 Infrastructure will be located at least 50 m from watercourses with the exception of watercourse crossings and three other locations (see **Chapter 10: Hydrology, Hydrogeology and Geology** for further details). There will be strict pollution prevention measures, described in full in the CEMP as embedded mitigation, which will include no instream works between October and the end of May at locations considered to be more sensitive for fisheries, namely those at lower elevations. Impacts on fisheries are therefore predicted to be **Not Significant**.

Table 6.12: Summary of likely construction phase impacts and effects on faunal species IEFs prior to mitigation

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
Otter	Site	Collision with plant.	Injury or death.	Low negative impact; temporary; unlikely	Not significant.

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
		Excavations	Entrapment	Low negative impact, temporary, unlikely.	Not significant.
		Noise, vibration or lighting.	Disturbance – reduced survival/ reproduction rates.	Low negative impact, temporary, unlikely.	Not significant.
Bats	Local	Severance of foraging/ commuting routes.	Altered opportunities for foraging.	Low negative impact, permanent, unlikely.	Not significant.
		Noise, vibration or lighting.	Disturbance.	Low negative impact, temporary, unlikely.	Not significant.
Badger	Local	Collision with plant.	Injury or death.	Low negative impact; temporary; likely only in specific locations.	Adverse effect significant at the **Site** level.
		Loss of foraging habitat.	Reduced survival/ reproduction rates.	Low negative impact; unlikely.	Not significant.
		Severance of traditional foraging/ commuting routes.	Reduced survival/ reproduction rates. Increased risk of RTAs Entrapment.	Low negative impact; permanent; likely only in specific locations.	Adverse effect significant at the **Site** level.
		Noise, vibration or lighting.	Disturbance – reduced survival/ reproduction rates; collapse of tunnel system.	Low negative impact; temporary; likely only in specific locations.	Adverse effect significant at the **Site** level.
Brown hare	Local	Interaction with plant.	Injury or death.	Low negative impact,	Not significant.

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
				temporary; unlikely.	
		Reduced habitat.	Reduced survival/ reproduction rates.	Low negative impact, permanent; unlikely.	Not significant.
Reptiles	Site	Interaction with plant.	Injury or death.	Low negative impact, temporary; unlikely.	Not significant.
		Reduced habitat.	Reduced survival/ reproduction rates.	Low negative impact, permanent; unlikely.	Not significant.
Fisheries	Local	Changes in hydrological regime.	Pollution and/or interruption of hydrological flows.	Low negative, permanent and temporary, unlikely.	Not significant.
		Altered habitat through siltation.	Reduced survival/ reproduction rates.	Low negative impact, temporary; unlikely.	Not significant.

Operational Phase

6.72 During the operational phase of the Revised Proposed Development, Site activities will be limited to the operation and maintenance of turbines and occasional Site traffic. As such, potential operational impacts of the Revised Proposed Development will be limited to potential impacts on bats. No operational phase impacts on habitats or non-bat protected species are anticipated.

Direct operational phase impacts

6.73 The primary operational impacts of wind turbine developments on bats relate to the direct collision with turbine blades or barotrauma (see Technical Appendix 6.2 for a more detailed discussion).

6.74 High levels of bat activity were recorded within certain parts of the Site for certain species, resulting in an assessed high level of collision risk for common and soprano pipistrelles, and *Nyctalus* bats at specific recording locations. Despite the incorporation of appropriate stand-off distances between turbines and features commonly used navigationally by bats, such as watercourses or woodland edges, much of the bat activity recorded on the Site was independent of clear landscape features with which it could be associated. There therefore remains the possibility that

bat deaths could be associated with the Revised Proposed Development. These impacts have been assessed as being significant at the **Local** level for pipistrelle species of bats, and at the **Council** level for *Nyctalus* species.

Indirect operational phase impacts

6.75 It has been suggested that the lighting of tall turbines for aviation purposes may increase the risk of collisions for foraging bats if insect prey are attracted to the light sources. However, several studies in the USA have found that there is no statistically significant difference in the number of bat collisions at lit and unlit turbines (Johnson *et al*., 2004; Jain *et al*., 2010; Baerwald & Barclay, 2011). Such lighting will not be sufficient to directly light watercourses or woodland edges, and to that end there will be no indirect effects on bats as a result of aviation lighting.

Table 6.13: Summary of likely operational phase impacts and effects on IEFs prior to mitigation

IEF	Importance level	Impacts	Effects	Impact scale and certainty	Effect significance prior to mitigation
Foraging and commuting pipistrelle bats	Local	Collision and/or barotrauma.	Death or injury.	Medium negative impact, permanent, likely.	Adverse effect significant at the **Local** level.
Foraging and commuting *Nyctalus* bats	Council	Collision and/or barotrauma.	Death or injury.	Medium negative impact, permanent, likely.	Adverse effect significant at the **Council** level.

Decommissioning Phase

Designated sites

6.76 Impacts to and resulting effects on Red Moss SAC/SSSI as a result of the decommissioning phase are predicted to be of a similar nature to the construction phase impacts assessed above, in terms of both type and magnitude. To that end, a similar suite of mitigation measures would be required in order to ameliorate those impacts and these would be incorporated into a Decommissioning Plan in advance of that phase of the Revised Proposed Development.

Habitats

6.77 Details of the works involved for the decommissioning phase can be found in **Chapter 2: Development Description**, but in summary impacts on habitats being limited to the breaking down of turbine foundations, and that of the substation. It is likely that access tracks and cabling would be retained *in situ* to minimise habitat disturbance, thus restricting both disturbance and loss impacts for the habitats comprising the Revised Proposed Development and buffers of these. Natural regeneration would be encouraged, and methods of accelerating this could be described as part of the Decommissioning Plan.

Faunal IEFs

6.78 Given that the disturbance associated with decommissioning activities is likely to be of the same magnitude and longevity as the construction phase disturbance, impacts on faunal IEFs are predicted to be similar, being restricted to potential disturbance of otter, badger, brown hare, reptiles and fisheries. These will be localised impacts relating to noise, vibration, presence of personnel and vehicles, and will be temporary and time-limited. Pre-decommissioning surveys will be needed for protected species for which these impacts may present licensing requirements, and this process, in addition to other mitigation measures will be described in full in the Decommissioning Plan.

CUMULATIVE EFFECTS

6.79 As agreed with the statutory consultees during scoping, no cumulative ecological assessment is presented in this chapter.

MITIGATION

6.80 The CIEEM (2018) guidance for EcIA describes a well-established Mitigation Hierarchy which should be applied in all EcIA situations in order to ameliorate adverse effects of development proposals. This hierarchy should be applied sequentially, namely:

(i) Avoidance

(ii) Mitigate

(iii) Enhance

(iv) Compensate.

6.81 NPF4 also identifies the need for a similar hierarchy of mitigation for potential impacts (avoid, reduce or offset), with a focus on the need to deliver enhancements for biodiversity at a spatial scale proportionate to the development under consideration.

Mitigation and Monitoring during Construction

GWDTEs and freshwater habitats

6.82 Significant effects on habitat IEFs, including GWDTEs, have been avoided as much as the design process will allow. These will be mitigated further by the good construction practice measures described earlier. It should be noted that approximately 90 % of the highly groundwater-dependent GWDTEs directly or indirect affected would be *Juncus* dominated marshy grasslands (17.3 % of the total footprint), which in accordance with the findings presented in **Chapter 10: Hydrology, Hydrogeology and Geology** are likely to be only partially GWDTE as a conservative judgement. However, it will be possible to reduce further the significance of these effects during micro siting and detailed design, including the use of floating track and porous materials at track and infrastructure locations associated with bog habitats and GWDTEs. This will allow the continued movement of groundwater and support the existing bog and GWDTE resources.

6.83 Pollution prevention measures as described in 2023 EIA Report **Technical Appendix 2.1: Outline Environmental Management Plan** will also reduce the likelihood of significant effects.

Badger

6.84 There is an active single hole outlier badger sett within 27 m of BP02. Unless this borrow pit is not utilised, or micro siting can be used to increase the separation distance to at least 30 m, a Licence to Disturb this sett will be needed. It is likely that this can be achieved via a Badger Low Impact Licence, the application for which will need to be supported by an updated badger survey up to a 1 km buffer around the sett, and consideration of the need or otherwise for a temporary exclusion.

6.85 There is also an active, single hole outlier badger sett within 10 m of the eastern access track. It is likely that this sett will need to be permanently excluded during the construction phase, in order to reduce the risk of tunnel collapse and the subsequent entrapment of badgers. It is likely that this also could be achieved via a Badger Low Impact Licence, supported by the appropriate level of up-to-date survey information and a method statement detailing how the works will be carried out, as well as the additional mitigation required.

6.86 Enforcement of the 15 mph speed limit for all Site traffic will also mitigate potential construction phase effects on badger arising from road traffic collisions.

Fisheries

6.87 No in-stream works will occur between the months of October and the end of May at locations assessed as being Moderate, Good or High suitability for fisheries, or points on these watercourses downstream of those assessment locations.

6.88 Electrofishing surveys for fisheries will occur pre-, during and post-construction at all locations identified in Technical Appendix 6.1 as presenting Moderate, Good or High suitability for fisheries. A water quality monitoring programme with automatic alerts for surpassing set thresholds will also be established for all watercourses as they leave the Site boundary. This will involve sampling for at least 6 months prior to the commencement of construction so as to establish a baseline from which changes as a result of construction of the Revised Proposed Development can be detected and quickly responded to.

Other faunal IEFs

6.89 No other faunal species construction phase mitigation is needed over and above the good practice measures described earlier.

6.90 All construction phase mitigation will be monitored by the ECoW.

Micro Siting During Construction

6.91 Micro siting (by a maximum distance of 50 m) must not alter the significance of effects as assessed here, and the following restrictions will be observed:

- Micro siting must not result in works closer than 30 m from a badger sett;
- Micro siting must not result in infrastructure closer than 50 m from a watercourse, unless on the approach to and from a watercourse crossing point;

- Micro siting must not increase the number of watercourse crossing points above that included in this FEI;

- Micro siting must not result in a turbine position and its rotor sweep falling any closer than 50 m from a watercourse or a woodland edge;

- Micro siting must not result in an increased loss of habitat IEFs, including GWDTEs in particular those classified in the NVC as being M10, M37 or CG10, as assessed in this EcIA.

6.92 All proposals for micro siting will therefore involve input from the ECoW, who will check compliance with the above requirements.

Mitigation and Monitoring During Operation

Curtailment strategy

6.93 Operational impacts on bats have been assessed as potentially being significant, due to collision risk and/or barotrauma from turbines. Given that bat activity across the Site was highly variable, the NatureScot collision risk for bats (see Technical Appendix 6.2) identified specific locations where risk was notably elevated and/or not uniform across the Site. The turbines associated with those sampling points (or sampled conditions) where elevated risk was identified are T2, T3, T31 and T37.

6.94 Analysis of the meteorological data provided for the Site for the time periods encompassed by the static bat detector surveys identified that 90 % of bat passes occurred at wind speeds below 8 ms^{-1} (measured at 60 m above ground level) or at ground level temperatures above 8.5 ^{o}C. Modelling a combination of both of these parameters, showed that based on the 2022 data, 90.1 % of passes occurred when wind speed were at or below 8.25 ms^{-1} (at 60 m AGL) and temperatures ground level were at or above 8.5 ^{o}C.

6.95 A curtailment strategy is therefore proposed for T2, T3, T31 and T37 when **all** of the following criteria are met:

- The months of May to September inclusive; **and**

- The time period between 30 mins before sunset until 30 mins after sunrise; **and**

- Wind speeds at or below 8.25 ms^{-1} (at 60 m AGL); **and**

- Temperatures at or above 8.5 ^{o}C (at ground level).

6.96 In addition to these specific requirements for T2, T3, T31 and T37, the likelihood of collision will be reduced further by feathering **all** turbine blades below cut-in wind speeds.

Post-construction monitoring of bats

6.97 A comprehensive post-construction monitoring of bat activity will be devised and implemented for the Revised Proposed Development. The purpose of the monitoring will be to establish the effectiveness of the implemented curtailment strategy, and to determine whether cut-in parameters (wind speed and temperature) can or should be

increased or decreased, or adjustments made to seasonality of implementation. It is also possible that the specific turbines included in the curtailment strategy may need to be altered.

6.98 The detail of the post-construction monitoring will be determined following confirmation of the consented turbine locations and in consultation with NatureScot, but would likely include some or all of the following:

- Static detector surveys at ground level and at-height at the nacelle;
- Carcass searches with specialist search dogs;
- Collection of met mast data for correlation with bat activity, potentially at a by-turbine level.

Additional operational phase enhancement or compensation measures

6.99 Additional operational phase enhancement or compensation measures will be provided via a Habitat Management Plan (HMP), described in outline in Technical Appendix 6.4, forming part of a wider scheme of Nature Positive initiatives associated with the Revised Proposed Development. In summary, it is intended that the HMP will involve:

- planting of native broad-leaved shrub species along riparian corridors (enhancement);
- strengthening of existing plantation shelterbelts with underplanting of appropriate native broad-leaved tree species (enhancement);
- replanting of existing Sitka spruce plantation with native broad-leaved tree species after the existing crop has been harvested;
- improving the condition of blanket bog in key locations, such as at Flow Moss (compensation);
- restoring bog habitats in locations offsite where peatlands have been artificially drained (enhancement and compensation);
- appropriate management to heathlands both onsite and offsite to ensure their optimal biodiversity value is achieved (enhancement);
- remediating artificial drains in key locations to improve wet grassland habitats for wading birds and as buffers against lower catchment peak flows.

6.100 With regards to aspired net gain, a summary of the ecological enhancement and/or compensation to be incorporated into the Revised Proposed Development is provided in Table 6.14. Biodiversity positive outcome objectives contained in the new NPF4, include specific consideration of the need to minimise losses of peatlands. A guidance note produced by NatureScot regarding the requirements of Policy 5 of NPF4 to minimise impacts on peatlands and carbon-rich soils, identifies the priority peatland types to be avoided by development proposals. That guidance states that in

circumstances where bog enhancement is to be offered as a form of compensation for losses of such habitats, the loss to enhancement ratio should be in the region of 1:10[34].

6.101 Peatland losses associated with the Revised Proposed Development could not be avoided given that all parts of the Site support peat deposits to a greater or lesser extent. However, attempts were made to reduce the impact wherever practicable through the removal of certain turbines (notably T9) and the redesign of the access track network. The direct and indirect impacts on peatland that described earlier total c. 82.9 ha, 20.5 ha of which would comprise habitat types considered to be priority peatlands. Based on an assumption that an additional 10 % of priority peatland losses should be compensated for over and above the 1:10 ratio described above, c. 831 ha of peatland enhancement should be the theoretical target for the Site.

6.102 At present, c. 630 ha of blanket bog and associated flush habitats occur within the Site, and therefore it will not be possible to meet this requirement on-site, even if all of the mapped peatlands were suitable for restoration and/or could be taken out of grazing tenancies. Therefore, in order to compensate for these losses, a large area of off-site moorland has been included in the OHMP where land management practices more focussed on optimal biodiversity outcomes will be implemented, including heathland and bog management. Taking the combined direct and indirect impacts on both blanket bog and heathland, the compensation ratio will be 1:14. Gains for peatlands are also expected to be achieved via a ditch blocking exercise in rush pastures. Given the hectarage involved, it is considered likely that the OHMP will provide the biodiversity positive outcomes required by NPF4.

Table 6.14: Summary of likely operational phase impacts and effects on IEFs prior to mitigation

IEF	Importance level	Predicted effects	Proposed enhancement/ compensation
Blanket bogs – priority peatlands	Council	6.79 ha direct impacts 13.73 ha indirect impacts Total: 20.53 ha	Ditch blocking and hag remediation across 47.8 ha of existing blanket bog.
Blanket bogs – not priority peatlands	Council	20.64 ha direct impacts 41.72 ha indirect impacts Total: 62.36 ha	
Poor, soft-water springs and flushes	Local	< 0.01 ha direct impacts 0.09 ha indirect impacts Total: 0.09 ha	Bog enhancement above will include areas of flush habitat.
Juncus dominated meadows (GWDTEs)	Site	19.64 ha direct impacts 47.18 ha indirect impacts Total: 66.82 ha	Rush pasture topping and ditch blocking of 72.4 ha of existing *Juncus* dominated meadow. These areas include ground with peat depths > 30 cm and will therefore also provide

[34] **NatureScot (2023)** Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Guidance note dated June 2023, available online at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management accessed March 2025.

IEF	Importance level	Predicted effects	Proposed enhancement/ compensation
			compensation for blanket bog impacts.
Native broad-leaved shrubs and woodland	Local	0.12 ha direct impacts	Riparian planting of 27.8 ha of upland birch/willow scrub. Broad-leaved underplanting of 8.1 ha of existing native woodlands. Replanting 9.1 ha of conifer plantations with broad-leaved species following harvesting.
Heathlands	Council	3.10 ha direct impacts 8.92 ha indirect impacts Total: 12.02 ha	Appropriate management of 1344 ha of moorland habitat to increase biodiversity value, including management of Molinia, altered stocking densities, ditch blocking, and altered muirburn approaches, as relevant.

Mitigation and Monitoring during Decommissioning

6.103 Impacts on designated sites, habitats and faunal IEFs during the decommissioning phase are likely to be similar in magnitude to those incurred during the construction phase. Therefore a suite of mitigation measures will be needed to ameliorate these, as well as post-works monitoring, and as such will be similar in scope to those required for the construction phase. Such measures would be described in full in the Decommissioning Plan.

SHADOW HABITATS REGULATIONS ASSESSMENT

Red Moss SAC

6.104 The conservation objectives of the Red Moss SAC are listed as:

1. To ensure that the qualifying feature [active raised bogs] of Red Moss SAC is in favourable condition and make an appropriate contribution to achieving favourable conservation status;

2. To ensure that the integrity of Red Moss SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature:

   (2a) Maintain the extent and distribution of the habitat within the site;

   (2b) Maintain the structure, function and supporting processes of the habitat;

   (2c) Restore the distribution and viability of typical species of the habitat.

6.105 There is one qualifying feature for the SAC, namely active raised bog.

The need for Habitats Regulations Assessment

6.106 The access track along the southern edge of the western part of the Site crosses watercourses which feed the SAC, the closest of these being c. 460 m from the SAC at its closest point. This location is on the installed access track to the Kennoxhead/Andershaw Wind Farms, and is suitable for wind farm deliveries without any further modification. However, its increased use by vehicles during either the construction or operational phases of the Revised Proposed Development may generate surface run-off into the Black Burn which flows through the SAC, and Turbine 11 falls within the upper catchment of that watercourse. Although the raised bogs themselves are wholly rain-fed hydrologically, there is the potential for the Revised Proposed Development to affect the quality and/or quantity of water within the Black Burn, which feeds the fen habitats surrounding the raised bogs. Therefore, there is potential for the qualifying interest features of this site to be indirectly affected by the Revised Proposed Development.

6.107 Due to the connection with the SAC and nature of the Revised Proposed Development, the proposals fall under the provisions of Article 6(3) of the EU Habitats Directive, and hence Regulation 48 of the Habitat Regulations 1994 (as amended).

6.108 Under Regulation 48, an "appropriate assessment" needs to be undertaken in cases where any plan or project which:

(a) either alone or in combination with other plans or projects would be likely to have a significant impact on a European site designated for nature conservation, and

(b) is not directly connected with the management of the site for nature conservation.

6.109 The term Habitats Regulations Assessment (HRA) is usually adopted to describe this appropriate assessment process.

6.110 In terms of the requirements listed above for HRA, it is clear that the Revised Proposed Development is not directly connected with the management of the SAC for nature conservation (criterion b). Therefore, it must be demonstrated that the Revised Proposed Development, either alone or in combination with other plans or projects, does not have a significant impact on the SAC. Guidance provided by SERAD (2000) and SNH (2012, updated in 2015) is clear that the HRA process is also relevant to projects or plans outwith a SPA or SAC site boundary; it is the potential impacts on a site's qualifying interests which are relevant, and not necessarily the project or plan's location in respect to the SPA or SAC site boundary.

6.111 Under the terms of the Regulations, the HRA is to be carried out by the relevant competent authority. With respect to the Revised Proposed Development, the competent authority is South Lanarkshire Council (SLC), and this section of the EcIA seeks to provide the information required by SLC to undertake a HRA of the Revised Proposed Development on the SAC. It is based on a review of proposed construction and operational impacts and effects of the Revised Proposed Development, and the known ecological characteristics of the relevant qualifying features.

Potential impacts on the SAC's conservation objectives

6.112 With regards to the actual qualifying raised bog feature, the Revised Proposed Development will not have any effect on the condition of that specific habitat because it is rain-fed, and therefore Conservation Objective (1) will be met.

6.113 With regards to Conservation Objectives (2a) and (2c), the Revised Proposed Development will not result in any changes to the extent and distribution of raised bog within the SAC, nor any changes in the distribution and viability of typical species of this habitat. However, regarding Conservation Objective (2b), the potential for siltation and/or other types of pollution entering the Black Burn could alter the quality of the water feeding the lagg fen habitat surrounding the raised bog, and thus could alter the supporting processes associated with the qualifying feature. In the EcIA presented above, these potential impacts were identified as being unlikely, limited to the construction phase and low in magnitude. However, due to the precautionary approach to be taken in HRA, it is not possible to state conclusively that the Revised Proposed Development will not result in likely significant effects (LSEs) on supporting processes in an HRA context, although potential impacts on the SAC were not considered to be significant in EcIA terms.

6.114 Therefore, all of the mitigation measures identified for the construction and operational phases will need to be implemented rigorously and in full, in order to ensure that there are no impacts on water quality which would affect the any of the conservation objectives of the SAC. No development within Bodinglee West can commence until a construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by SLC in consultation with NatureScot, to include all measures detailed here and in Chapter 11: Schedule of Mitigation, needed to protect and monitor water quality, including emergency response procedures, covering both construction and operational phases. In doing so, none of the SAC's conservation objectives will be undermined, and it can then be concluded that overall there would be no adverse effect on the integrity of the SAC.

Conclusions of the shadow HRA

6.115 Due to the precautionary nature of the HRA process, likely significant effects in HRA terms could not be definitively ruled out for the qualifying habitats of the Red Moss SAC. However, following the application of best practice mitigation measures, no adverse effects on the integrity of the SAC can be concluded.

RESIDUAL EFFECTS AND STATEMENT OF SIGNIFICANCE

6.116 A summary of the residual significance following successful implementation of mitigation and enhancement is provided in Table 6.15 below. Assuming full compliance with the embedded mitigation described here, and implementation of additional construction phase mitigation and operational phase enhancement including the HMP, there will be no significant adverse residual ecological effects associated with the Revised Proposed Development. This means that there is no material change in the overall findings of this EcIA compared to that for the 2023 Proposed Development.

6.117 If the HMP is delivered in full, the Revised Proposed Development will result in positive residual effects for blanket bog, , *Juncus* meadows, northern wet heaths, oak/birch woodlands, reptiles and fisheries.

6.118 The 50 m micro siting tolerance has been considered during this assessment and the residual effects of the Revised Proposed Development will remain valid within this distance if the restrictions stated above are complied with.

Table 6.15: Summary of Residual Effects of the Revised Proposed Development

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
Construction Phase						
Designated Sites - SAC	Not significant (in EIA terms – see additional information relating to the HRA)	n/a	All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible. Good practice measures when working in or near to watercourses or waterbodies will be adhered to at all times. A Pollution Prevention Plan will be produced and executed in full.	n/a	n/a	Not significant
Designated Sites - SSSI	Not significant	n/a	All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible. Good practice measures when	n/a	n/a	Not significant

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
			working in or near to watercourses or waterbodies will be adhered to at all times. A Pollution Prevention Plan will be produced and executed in full.			
Low altitude blanket bog	Adverse effect significant at the **Local** level	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	Disturbed peat habitats will be restored as described in the detailed EMP which will be produced prior to commencement of the works. All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible.	n/a	At least 11 ha of Flow Moss will be enhanced through a programme of hag restoration to reduce peat erosion from this bog.	Positive effect significant at the **Local** level.
Montane blanket bog	Adverse effect significant at	Micro siting with the ECoW to avoid sensitive areas where possible.	All onsite work will be supervised by an ECoW who will aim for ecological	n/a	Ditch blocking in at least 37 ha of degraded peatland areas capable of	Positive effect significant at the **Local** level.

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
	the **Council** level	Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	effects to be minimised wherever possible. Disturbed peat habitats will be restored as described in the detailed EMP which will be produced prior to commencement of the works.		supporting blanket bog vegetation.	
Flushes	Adverse effect significant at the **Site** level	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible. A Pollution Prevention Plan will be produced and executed in full.	n/a	n/a	Not significant.
Juncus meadows	Adverse effect significant at the **Local** level	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid	All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible.	n/a	Ditch blocking and rush topping of at least 72 ha to improve wet meadow habitat mosaic and encourage	Positive effect significant at the **Local** level

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
		unnecessary encroachment into sensitive habitats.			restoration of functioning peatland where applicable.	
Northern wet heaths	Adverse effect significant at the **Local** level	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	Disturbed peat habitats will be restored as described in the CEMP which will be produced prior to commencement of the works. All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible.	Restoration of at least c. 1344 ha of moorland to create healthy mosaic of heather-dominated habitats at all life-stages, and restoration of bogs where appropriate. Cessation of muirburn in locations where peat depths exceed 30 cm.	n/a	Positive effect significant at the **Council** level.
Oak/birch bog woodland	Adverse effect significant at the **Site** level	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible.	Replant existing Sitka spruce plantations with native broad-leaved species after harvesting – at least 9 ha.. Broad-leaved scrub planting along riparian corridors of at least 27.8ha.	Strengthening of existing Scots pine plantations through underplanting with broad-leaved shrubs away from potential turbine collision zones for bats. Combined with enhancement – at least 8.1 ha.	Positive effect significant at the **Local** level.

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
Otter	Not significant	All infrastructure at least 50 m from watercourses except at watercourse crossing points. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	Pre-commencement survey for otter and production of Species Protection Plan if outcome of survey warrants this. All onsite work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible. Pre-works toolbox talk by the ECoW regarding otter, its protection and signs of presence. A Pollution Prevention Plan will be produced and executed in full. Site speed limit of 15 mph. Cover/ramp all trenches and excavations.	n/a	n/a	Not significant

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
			No floodlighting of watercourses or edges of waterbodies.			
Bats	Not significant	n/a	n/a	n/a	n/a	Not significant.
Badger	Adverse effect significant at the **Site** level	30 m buffer from all known setts, wherever practicable. Licensed interventions where this cannot be achieved (see Mitigation).	Pre-commencement survey for badger and production of licence applications/ Species Protection Plan if outcome of survey warrants this. All on-site work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible. Pre-works toolbox talk by the ECoW regarding badger, its protection and signs of presence.	n/a	Strengthening existing Scots pine plantation through underplanting and restocking Sitka spruce plantation with native broad-leaved species will provide new cover habitat for badger (at least 17 ha).	Not significant.
Brown hare	Not significant	Micro siting with the ECoW to avoid	All onsite work will be supervised by an ECoW who will	n/a	n/a	Not significant.

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
		sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	aim for ecological effects to be minimised wherever possible. Pre-works toolbox talk by the ECoW regarding brown hare, its protection and signs of presence.			
Reptiles	Not significant	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary encroachment into sensitive habitats.	All on-site work will be supervised by an ECoW who will aim for ecological effects to be minimised wherever possible. Pre-works toolbox talk by the ECoW regarding reptiles, their protection and signs of presence.	n/a	Restoration of at least 1344 ha of moorland and cessation of muirburn where peat depths exceed 30 cm will have positive benefits for reptile species on and off the Site.	Positive effect significant at the **Site** level.
Fisheries	Not significant	Micro siting with the ECoW to avoid sensitive areas where possible. Work areas will be tightly contained marked to avoid unnecessary	A Pollution Prevention Plan will be produced and executed in full.	n/a	72.4 ha of riparian broad-leaved tree plantation will improve upland habitats for fisheries.	Positive effect significant at the **Site** level.

Ecological Feature	Maximum Significance of Effect Prior to Mitigation	Avoidance	Mitigation	Compensation	Enhancement	Residual Significance of Effect
		encroachment into sensitive habitats.				
Operational Phase						
Bats	Adverse effect significant at the **Council** level	All turbines placed at least 50 m + rotor sweep from watercourses and woodland edges.	Detailed curtailment strategy to be employed for specific turbines where collision risk has been identified.	n/a	New broad-leaved woodlands along riparian corridors will strengthen commuting and foraging features for bats.	Not significant

7. NOISE AND VIBRATION

SUMMARY

Would remain negligible to minor, and temporary, and there not significant. The noise and vibration effects associated with construction activities and construction traffic. Decommissioning is likely to result in less noise than during construction of the Revised Proposed Development and would therefore, in the worst-case, have minor temporary adverse noise effects which and Not Significant. In both cases, standard management measures and restricted hours of working would still represent sufficient mitigation, and no additional measures would be required.

Predicted operational noise levels from the Revised Proposed Development are reduced compared to those for the 2023 EIAR Report. Operational noise levels from the Revised Proposed Development turbines, in combination with the cumulative wind farms assessed, are sill predicted to be compliant with applicable noise limits. This can be secured in practise through an appropriate planning condition.

STATEMENT OF COMPETENCE

7.1 The noise and vibration assessment of the FEI Report was authored by Matthew Cand of Hoare Lea LLP (HL). Matthew (Dipl. Eng., PhD, MIOA) is a full member of the UK Institute of Acoustics. He is an Associate Director at Hoare Lea LLP who has responsibility for running the environmental noise group, which has a focus on Environmental Impact Assessments (EIAs). He has over 19 years' experience in the assessment of environmental acoustics and has conducted more than 80 noise assessments for EIA of wind farms. Matthew is an expert in the assessment of wind farm noise and is one of the authors of the UK Institute of Acoustics Good Practice Guide (IOA, 2013). He has also been engaged as expert witness at planning inquiries and noise nuisance cases.

INTRODUCTION

7.2 This Chapter of the FEI Report summarises the assessment of the potential noise effects of the Revised Proposed Development on the residents of nearby noise-sensitive receptors, to reflect the updates made to the Revised Proposed Development since the submission of the 2023 EIA Report. Full details of the EIA noise assessment can be found in the Hoare Lea Technical Report, included as Technical Appendix 7.1 of the 2023 EIA Report. This FEI Report assessment considers the Revised Proposed Development's (the Bodinglee Wind Farm) construction, its operation and decommissioning.

7.3 The number of Revised Proposed Development turbines has reduced from 37 to 35 since the 2023 EIA Report, as a result of changes in the design of the western turbine group of the Revised Proposed Development. Turbine tip heights up to 210m, 230m and 250m are proposed as set out in FEI Report Chapter 2 (The Revised Proposed Development). There are no substantial changes to the substation and energy storage that would require an updated assessment of operational noise impacts, and this aspect of the Revised Proposed Development is therefore not discussed further in this FEI Report.

7.4 A review of other wind farm developments within a zone of approximately 5 km around the Revised Proposed Development was undertaken. Other, more distant wind farms were not considered as they do not make an acoustically relevant contribution to cumulative noise levels. Changes made to the cumulative context for operational noise since the 2023 EIA Report include:

a) Exclusion of Glentaggart Wind Farm.

b) Addition of the M74 West Renewable Energy Park.

c) An updated cumulative noise assessment for Little Gala Wind Farm.

SCOPE OF ASSESSMENT

STUDY AREA

7.5 The study area has remained largely unchanged since the 2023 EIA Report with consideration of the noise-sensitive receptors as set out in **Table 7.1** of the **2023 EIA Report**. For completeness, because of the submission of the M74 West Renewable Energy Park proposal to the south of the Revised Proposed Development, one additional receptor at Maidencots (Easting / Northing: 292627 / 626370) was also considered, as representative of properties located east of the M74 West Renewable Energy Park.

CONSULTATION RESPONSES

7.6 No further correspondence from consultees related to noise were received since the 2023 EIA Report.

7.7 Specific engagement with the developer of the Little Gala Wind Farm and their technical advisers was undertaken to discuss the cumulative noise impact with the Revised Proposed Development. Mutually applicable site-specific noise limits (see paragraph 7.42) were discussed and agreed.

RELEVANT GUIDANCE

7.8 Guidance pertinent to the noise assessment remains the same as that of the 2023 EIA Report.

BASELINE CONDITIONS

7.9 The baseline noise environment has remained generally unchanged since the 2023 EIA Report, and the survey data previously considered in the 2023 EIA Report remains applicable. The resulting ETSU-R-97 noise limits were set out in **Table 4** and **Table 5** of **Appendix 7.1** of the **2023 EIA Report**. These limits are summarised below:

- ETSU-R-97 daytime fixed lower limit of 40 dB(A), or 5 dB above the prevailing background noise level, whichever is the greater; and

- ETSU-R-97 night-time fixed lower limit of 43 dB(A), or 5 dB above the prevailing background noise level, whichever is the greater.

7.10 The noise limits above are consistent with those presented in the 2023 EIA Report and would apply to the combined noise of the cumulative wind farms and the Revised Proposed Development.

7.11 Financially involved receptors are subject to an increased noise limit of 45 dB(A), or 5 dB above the prevailing background noise level, whichever is the greater.

PREDICITNG AND ASSESING IMPACTS & POTENTIAL EFFECTS

CONSTRUCTION PHASE

7.12 The assessment of construction noise impacts presented in **Chapter 7 of the 2023 EIA Report** was based on a worst-case assessment based on the closest distances from the different construction activities to the noise-sensitive receptors. The minimum distances between these receptors to the proposed infrastructure (shown in FEI Report Figure 7.1) remain unchanged from the 2023 EIA Report, therefore worst case predicted construction noise levels remain unchanged. A rerouted portion of new access track is proposed in the updated infrastructure layout from T27 to T35, however the shortest distance between new access track works and the closest receptor (Uddington house on the A70 road) remains unchanged from the 2023 EIA Report. Therefore, construction noise effects remain negligible to minor at most and therefore remain **Not Significant**.

7.13 Construction traffic noise associated with the Revised Proposed Development, during the peak month 13, was concluded to result in a temporary minor impact at most as outlined in **Appendix 7.1** of the **2023 EIA Report**. The reduction from 37 turbines to 35 turbines is predicted to result in reduced construction traffic levels, as et out in Chapter 9 of the FEI Report. Therefore, the overall impact would likely remain, as a worst case, minor. Therefore, construction traffic noise effects remain as minor and temporary and therefore remain **Not Significant**.

DECOMMISIONING PHASE

7.14 Decommissioning is likely to result in less noise than during the construction of the Revised Proposed Development. The minor noise impact relating to decommissioning activity remains unchanged from the 2023 EIA Report, therefore effects remain as **Not Significant**.

OPERATIONAL PERIOD

INTRODUCTION AND ASSUMPTIONS

7.15 The updated layout was modelled (in line with the 2023 EIA Report methodology) on the General Electric GE 5.3/5.5-158 candidate turbine, with hub heights of 131, 151 and 171 m to reflect the Design Changes and the variations in tip heights of 210, 230 and 250 m respectively across the Revised Proposed Development turbines. The noise emission data previously described in the 2023 EIA Report was referenced.

7.16 In addition, the operational noise assessment now assumes constrained operation of the Revised Proposed Development for two turbines: T14 in reduced noise mode 'NRO 105 L_{wA} (dB)' and T15 in reduced noise mode 'NRO 104 L_{wA} (dB)'. This was determined to satisfy the site-specific noise limits at the relevant receptors derived for the Revised Proposed Development subsequently in the present chapter. The remaining 33 turbines on the Revised Proposed Development are assumed to operate

unconstrained. Source sound power levels and spectral data for the Revised Proposed Development are outlined in *Table 7.10* and *Table 7.11* below.

7.17 The assumptions made in terms of turbine operational modes were chosen to illustrate how compliance with the applicable noise limits could be achieved in practice. However, compliance could be demonstrated in a similar way using other operational management schemes, depending on the final choice of turbine model for the Revised Proposed Development.

Table 7.10: Turbine sound power level L_{WA} (dB) data for the Revised Proposed Development - General Electric GE 5.3/5.5-158-50Hz

Turbine information	Standardised 10 m Wind Speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
Standard operating mode	96.2	100.1	104.9	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Mode: NRO 104 L_{wA}	96.2	99.5	104.4	106.0	106.0	106.0	106.0	106.0	106.0	106.0
Mode: NRO 105 L_{wA}	96.2	99.7	104.6	107.0	107.0	107.0	107.0	107.0	107.0	107.0
Derived from: GE 'Technical Documentation Wind Turbine Generator Systems 5.3/5.5-158 - 50 Hz' Normal Operation according to IEC - 2019, with the addition of +2 dB for uncertainty (included in values shown).										

Table 7.11: Turbine octave band sound power level L_{WA} (dB) data for the Revised Proposed Development

Turbine information	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	A
General Electric GE 5.3/5.5-158-50Hz Source hub height: 161m	89.2	94.6	99.2	101.7	103.3	101.1	93.7	78.0	108.0
Derived from: GE 'Technical Documentation Wind Turbine Generator Systems 5.3/5.5-158 - 50 Hz' Normal Operation according to IEC - 2019 at 8m/s and 161m HH.									

7.18 Information on the turbine sound power data for the Revised Proposed Development and cumulative wind farms is also outlined in **Annex B** in **Appendix 7.1** of the **2023 EIA Report**. The source sound power data assumed for the sites assessed in the FEI Report remains unchanged from the 2023 EIA Report with the exception of updated source data for the Little Gala Wind Farm, based on more recent available data from Nordex, as shown in **Error! Reference source not found.** and **Error! Reference source not found.**.

7.19 Source sound power emission data for the N133/4800 turbine model previously considered in **Appendix 7.1** of the **2023 EIA Report** assumed 2018 Nordex data with Serrated Trailing Edges (STEs) applied to the blades. Source data for Little Gala Wind Farm turbines modelled for this assessment references more recent Nordex noise emission data, without STEs applied, as a conservative assumption. The resulting data, outlined in **Error! Reference source not found.** and **Error! Reference source not found.** below, is consistent with the source emission data assumed for the N133/4800 turbine model from the Little Gala Wind Farm EIAR[35].

7.20 An application for the proposed M74 West Renewable Energy Park has been submitted since the submission of the 2023 EIA Report and is therefore considered in the FEI Report assessment. The scheme is located approximately 870 m south of the Revised Proposed Development. Turbine sound power levels, spectra levels and

[35] Technical Appendix 10.2: Operational Noise Report, Little Gala Wind Farm, ref. 14530-012-D1, 11/05/2022, TNEI group.

dimension information for the Siemens Gamesa SG 6.6-155 turbine, representative of the proposed turbines, are also outlined in **Error! Reference source not found.** and **Error! Reference source not found.**. The 22 M74 West Renewable Energy Park turbines were modelled at a hub height of 122.5 m in the noise prediction model in line with the M74 West Renewable Energy Park EIAR, based on source sound power emission level data for the turbine referenced to a hub height of 125 m. As assumed in the EIAR for the M74 West Renewable Energy proposal[36], this turbine variant has STEs on the blades.

7.21 The M74 West Renewable Energy Park EIAR assessment outlines a proposed operational noise mitigation strategy to demonstrate compliance with the relevant noise limits at the Red Moss Hotel receptor. The M74 West Renewable Energy Park is however assumed to operate with all turbines in their standard operational mode as a worst-case assumption for the purpose of the present assessment.

7.22 The Glentaggart Wind Farm considered in the **2023 EIA Report** is not considered in the cumulative operational noise assessment, as no further project updates have been provided since 2023, and no such project site exists on the developer's website. It is therefore assumed that the project has been put on hold or cancelled.

7.23 All other assumptions in terms of the cumulative operational assessment remain as presented in the 2023 EIA Report

Table 7.12: Turbine sound power level L_{WA} (dB) data for the cumulative wind farms in the FEI Report

Turbine information	Standardised 10 m Wind Speed (m/s)									
	3	4	5	6	7	8	9	10	11	12
[1] **Little Gala Wind Farm** Nordex N133/4800 Source hub height: 83m Mode 00 (no STE)	96.5	97.7	103.2	107.4	108.0	108.0	108.0	108.0	108.0	108.0
[2] **M74 West Renewable Energy Park** Siemens Gamesa SG 6.6-155 Source hub height: 125m Mode AM0-6.6MW (STE)	95.2	100.4	105.2	107.0	107.0	107.0	107.0	107.0	107.0	107.0

[1]Derived from: Nordex document 'Noise level, Power curves, Thrust curves, Nordex N133/4.8', reference F008_272_A13_EN, rev 02, 31/01/2020. With +2dB added for uncertainties ('expected values in terms of statistics') included in the above values. The turbine can be equipped with serrated trailing edges (STE), but this has not been assumed in this case.

[2] Derived from: Siemens Gamesa document 'D2359800-002 SGRE ON SG 6.0-155 Standard Acoustic Emission, Rev.0, AM 0 - AM-8, N1 - N6, IEC Ed3. With no specific information provided on uncertainties, +2dB was added and included in the above values.

Table 7.13: Turbine octave band sound power level L_{WA} (dB) data for the cumulative wind farms in the FEI Report

Turbine information	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	A
[3] Nordex N133/4800 (no STE)	88.0	95.1	99.9	102.3	102.9	100.4	92.9	80.6	108.0
[4] Siemens Gamesa SG 6.6-155 (STE)	79.6	87.0	91.6	93.9	93.7	94.0	87.4	72.4	99.9

[36] M74 West Renewable Energy Park, South Lanarkshire Council planning ref. P/24/1236, 02/10/2024.

Turbine information	Octave Band Centre Frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	A
[3]Derived from: Nordex document 'Octave sound power levels, Nordex N133/4.8', reference F008_272_A14_EN, Revision 02, 31/01/2020 (data for non-STE variant), with +2dB added to match dB(A) values. [4] Derived from: Siemens Gamesa document 'D2359800-002 SGRE ON SG 6.0-155 Standard Acoustic Emission, Rev.0, AM 0 - AM-8, N1 - N6, IEC Ed3. With no specific information provided on uncertainties, +2dB was added and included in the above values.									

7.24 The ISO 9613-2 noise model and associated parameters used for the predictions remain the same as previously outlined in **Section 5.4** of **Appendix 7.1** from the **2023 EIA Report**, and these remain in line with current good practice.

Revised Proposed Development in Isolation.

7.25 *Table 7.14* below shows the predicted operational noise levels at each assessment receptor, for the Revised Proposed Development (updated 35-turbine layout) in isolation. The predictions below assume two of the proposed turbines (T14 & T15) will operate in the reduced noise modes, as detailed in paragraph 7.16.

7.26 Compared to predictions for the previous 37-turbine layout set out in **Table 9** in **Appendix 7.1** from the 2023 EIA Report, the updated levels of *Table 7.14* below are predicted to be lower by just over 1 dB at Glentaggart Cottage and Andershaw Farm. Lower reductions are experienced at other properties, for example reductions of 0.9 dB at Glentaggart Farm Cottage, 0.5 dB at Mount Stewart, 0.4 dB at Weston Farm and 0.2 dB at Redshaw. Reductions of 0.5 dB or less are predicted at the other receptors considered.

Table 7.14: Predicted L_{A90} (dB) receptor noise levels from the Revised Proposed Development in isolation.

Predicted L_{A90} (dB) noise levels	Standardised 10 m Wind Speed (m/s)								
Receptor name	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Little Gala Farm	27.1	31.9	34.8	34.8	34.8	34.8	34.8	34.8	34.8
Fallside Farm	30.9	35.7	38.8	38.8	38.8	38.8	38.8	38.8	38.8
Thirstone	22.7	27.5	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Mount Stewart	31.3	36.1	38.9	38.9	38.9	38.9	38.9	38.9	38.9
Red Moss Hotel	26.0	30.8	33.9	33.9	33.9	33.9	33.9	33.9	33.9
Parkhead Cottage	31.2	36.0	39.1	39.1	39.1	39.1	39.1	39.1	39.1
Redhurst	25.4	30.2	33.2	33.2	33.2	33.2	33.2	33.2	33.2
Parkhall Farm	26.6	31.4	34.4	34.4	34.4	34.4	34.4	34.4	34.4
Millbank	26.0	30.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8
Castlemains	27.0	31.8	34.9	34.9	34.9	34.9	34.9	34.9	34.9
Coalgill	27.5	32.3	35.4	35.4	35.4	35.4	35.4	35.4	35.4
Castlemains Cottage	26.6	31.4	34.5	34.5	34.5	34.5	34.5	34.5	34.5
Redshaw	30.7	35.5	38.6	38.6	38.6	38.6	38.6	38.6	38.6
Springhill Street (Douglas)	27.2	32.0	35.1	35.1	35.1	35.1	35.1	35.1	35.1
Midtown Farm	28.2	33.0	36.1	36.1	36.1	36.1	36.1	36.1	36.1
Andershaw Farm	22.8	27.6	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Weston Farm	28.7	33.5	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Glentaggart Cottage	25.9	30.7	33.8	33.8	33.8	33.8	33.8	33.8	33.8

Predicted L_{A90} (dB) noise levels	Standardised 10 m Wind Speed (m/s)								
Receptor name	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Earls Mill	26.2	31.0	34.1	34.1	34.1	34.1	34.1	34.1	34.1
Hazelside Lodge	25.6	30.4	33.5	33.5	33.5	33.5	33.5	33.5	33.5
Glentaggart Farm Cottage	19.2	24.0	27.1	27.1	27.1	27.1	27.1	27.1	27.1

7.27 The L_{A90} (dB) operational noise predictions are assessed in *Table 7.15* and *Table 7.16* below against the ETSU-R-97 day and night noise limits of **Table 4** and **Table 5** of **Appendix 7.1**. Noise limits for receptors that are financially involved with cumulative wind farms (Andershaw Farm and Little Gala Farm) are assessed against the non-involved L_{A90} day 40 dB(A) and night 43 dB(A) ETSU-R-97 noise limits when assessing operational noise from the Revised Proposed Development in isolation.

7.28 The assessment results detailed in Table 7.15 and Table 7.16 compare the Revised Proposed Development operating in isolation (*Table 7.14*) against the day and night ETSU-R-97 noise limits respectively. The resulting assessment for the Revised Proposed Development operating in isolation indicates predicted compliance with the ETSU-R-97 noise limits at the noise sensitive receptors identified. Therefore, operational noise effects from the Revised Proposed Development in isolation remain **Not Significant**. This is consistent with the reduction in operational noise levels described at paragraph 7.26.

Table 7.15: Operational noise assessment at noise assessment receptors for the Revised Proposed Development in isolation compared with the ETSU-R-97-day noise limits. Negative values indicate predicted noise levels are below the day noise limit.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Little Gala Farm	-8.1	-5.2	-5.7	-6.3	-7.0	-7.7	-8.7	-10.2	-13.0
Fallside Farm*	-9.3	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2	-14.1
Thirstone	-15.6	-12.6	-12.9	-13.4	-14.2	-15.2	-16.5	-18.0	-20.4
Mount Stewart	-3.9	-1.1	-1.4	-3.2	-5.7	-8.8	-12.0	-14.7	-8.7
Red Moss Hotel	-12.3	-9.2	-9.5	-10.1	-10.8	-11.9	-13.1	-14.6	-17.1
Parkhead Cottage	-21.8	-19.1	-19.5	-19.9	-20.3	-20.7	-21.1	-21.5	-26.2
Redhurst	-18.2	-15.7	-16.3	-16.8	-17.3	-17.9	-18.4	-18.9	-22.5
Parkhall Farm	-17.0	-14.5	-15.1	-15.6	-16.1	-16.7	-17.2	-17.7	-21.3
Millbank	-17.7	-15.2	-15.7	-16.2	-16.8	-17.3	-17.8	-18.3	-21.9
Castlemains	-16.6	-14.1	-14.6	-15.2	-15.7	-16.2	-16.7	-17.3	-20.9
Coalgill	-16.1	-13.6	-14.2	-14.7	-15.2	-15.7	-16.3	-16.8	-20.4
Castlemains Cottage	-17.0	-14.5	-15.0	-15.6	-16.1	-16.6	-17.2	-17.7	-21.3
Redshaw	-7.6	-4.6	-4.9	-5.4	-6.2	-7.2	-8.5	-10.0	-12.4
Springhill Street (Douglas)	-8.0	-4.9	-4.9	-5.1	-6.6	-9.4	-14.2	-22.0	-12.8
Midtown Farm	-7.0	-3.9	-3.9	-4.1	-5.6	-8.4	-13.2	-21.0	-11.8
Andershaw Farm	-12.4	-9.3	-9.3	-9.3	-9.3	-9.3	-9.8	-11.3	-17.2
Weston Farm	-6.5	-3.4	-3.4	-3.6	-5.1	-7.9	-12.7	-20.5	-11.3
Glentaggart Cottage	-9.3	-6.2	-6.2	-6.2	-6.2	-6.2	-6.7	-8.2	-14.1
Earls Mill	-9.0	-5.9	-5.9	-5.9	-5.9	-5.9	-6.5	-8.0	-13.8

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Hazelside Lodge	-9.6	-6.5	-6.5	-6.7	-8.2	-11.0	-15.8	-23.6	-14.4
Glentaggart Farm Cottage	-16.0	-12.9	-12.9	-12.9	-12.9	-12.9	-13.4	-14.9	-20.8
* Receptor is involved with the Revised Proposed Development									

Table 7.16: Operational noise assessment at noise assessment receptors for the Revised Proposed Development in isolation compared with the ETSU-R-97 night noise limits. Negative values indicate predicted noise levels are below the night noise limit.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm	-11.1	-8.2	-8.2	-8.2	-8.2	-8.2	-8.2	-10.4	-16.0
Fallside Farm*	-9.3	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2	-6.4	-14.1
Thirstone	-15.5	-12.4	-12.4	-12.4	-12.4	-12.4	-12.4	-12.4	-20.3
Mount Stewart	-6.9	-4.1	-4.1	-4.1	-4.1	-6.6	-10.1	-13.2	-11.7
Red Moss Hotel	-12.2	-9.1	-9.1	-9.1	-9.1	-9.1	-9.1	-9.1	-17.0
Parkhead Cottage	-16.6	-13.1	-12.7	-12.3	-11.9	-11.5	-11.1	-10.7	-21.9
Redhurst	-15.1	-11.9	-11.9	-12.0	-12.3	-12.7	-13.3	-14.0	-20.2
Parkhall Farm	-13.9	-10.7	-10.7	-10.8	-11.1	-11.5	-12.1	-12.8	-19.0
Millbank	-14.5	-11.3	-11.3	-11.4	-11.7	-12.1	-12.7	-13.4	-19.6
Castlemains	-13.4	-10.2	-10.2	-10.4	-10.6	-11.1	-11.6	-12.3	-18.6
Coalgill	-13.0	-9.8	-9.8	-9.9	-10.2	-10.6	-11.2	-11.9	-18.1
Castlemains Cottage	-13.9	-10.7	-10.6	-10.8	-11.0	-11.5	-12.0	-12.7	-19.0
Redshaw	-7.5	-4.4	-4.4	-4.4	-4.4	-4.4	-4.4	-4.4	-12.3
Springhill Street (Douglas)	-11.0	-7.9	-7.9	-7.9	-7.9	-7.9	-11.4	-17.4	-15.8
Midtown Farm	-10.0	-6.9	-6.9	-6.9	-6.9	-6.9	-10.4	-16.4	-14.8
Andershaw Farm	-15.4	-12.3	-12.3	-12.3	-12.3	-12.3	-15.1	-20.0	-20.2
Weston Farm	-9.5	-6.4	-6.4	-6.4	-6.4	-6.4	-9.9	-15.9	-14.3
Glentaggart Cottage	-12.3	-9.2	-9.2	-9.2	-9.2	-9.2	-12.1	-16.9	-17.1
Earls Mill	-12.0	-8.9	-8.9	-8.9	-8.9	-8.9	-11.8	-16.7	-16.8
Hazelside Lodge	-12.6	-9.5	-9.5	-9.5	-9.5	-9.5	-13.0	-19.0	-17.4
Glentaggart Farm Cottage	-19.0	-15.9	-15.9	-15.9	-15.9	-15.9	-18.7	-23.6	-23.8
* Receptor is involved with the Revised Proposed Development									

7.29 ETSU-R-97 also requires an assessment of cumulative operational noise, and this is considered in the following section.

Cumulative Assessment Effects

7.30 The following wind farms and their latest planning status were considered in the cumulative noise assessment, in addition to the Revised Proposed Development. Other, more distant wind farms have not been considered in further detail and are scoped out of the assessment, because their potential noise contribution was considered negligible.

- Galawhistle (Operational)

- Hagshaw Hill Extension (Operational)
- Hagshaw Hill Repowering (Consented)
- Douglas West (Operational)
- Douglas West Extension (Consented)
- Andershaw (Operational)
- Middle Muir (Operational)
- Little Gala (Submitted, pending decision and appeal)
- M74 West Renewable Energy Park (Submitted, pending decision)

7.31 The predicted cumulative L_{A90} (dB) operational noise levels from the above wind farms, except the Little Gala Wind Farm, operating with the Revised Proposed Development are outlined in *Table 7.17* below. The Little Gala Wind Farm is not included in this prediction as it is considered in a separate section below at relevant receptors.

7.32 As outlined in the M74 West Renewable Energy Park EIAR, the Thirstone receptor would be removed from residential use if the scheme were to be consented. Therefore, this receptor is not considered further and is excluded from the cumulative noise assessment, which includes the noise contribution from the M74 West Renewable Energy Park.

7.33 As in **Appendix 7.1** of the **2023 EIA Report**, the cumulative noise analysis considering Little Gala Wind Farm was restricted to the three closest receptors, located to the northeast of the eastern section of the Revised Proposed Development: Mount Stewart, Little Gala Farm and Fallside Farm. At these three receptors, the contribution of the other wind farms considered (not the Revised Proposed Development or Little Gala Wind Farm) remains more than 10 dB below the Revised Proposed Development together with the Little Gala Wind Farm and therefore are negligible for the purposes of this cumulative noise assessment at these receptors. Furthermore, for other assessment receptors located further away, the predicted contribution of the Little Gala Wind Farm is negligible relative to the predicted contributions from the Revised Proposed Development together with the other cumulative wind farms considered, and therefore no further assessment is required. The cumulative assessment of Little Gala Wind Farm and the Revised Proposed Development at the relevant receptors is therefore considered in a separate section below.

7.34 The Red Moss Hotel receptor lies adjacent and west of the M74 West Renewable Energy Park. At this receptor, predictions from the Revised Proposed Development in isolation in *Table 7.14* are 9 dB to 10 dB below the ETSU-R-97 noise limits. Furthermore, directional effects are not considered in the predictions, as all receptors are predicted to lie downwind of all schemes considered as a conservative assumption. However, the Red Moss Hotel receptor cannot simultaneously lie downwind of the M74 West Renewable Energy Park and the eastern and the western turbine groups of the Revised Proposed Development. Therefore, considering directional effects at the Red Moss Hotel receptor, the relative contribution from the Revised Proposed Development

at this receptor is considered acoustically negligible[37] and this receptor is therefore excluded from the cumulative assessment.

7.35 The predictions in *Table 7.17* are cumulative assuming all relevant nearby wind farms and the Revised Proposed Development are operating with the turbine models as set out in **Annex B** of **Appendix 7.1** (except the Glentaggart Wind Farm which is removed and Little Gala Wind Farm considered separately) and that all receptors are downwind of all wind turbines at the same time. These cumulative noise levels are therefore unlikely to occur in practice.

Table 7.17: Predicted operational cumulative $L_{A90,T}$ windfarm noise levels at each of the noise assessment locations as a function of standardised wind speed, with the Revised Proposed Development and all cumulative sites operating together, except the Little Gala Wind Farm.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Parkhead Cottage	31.9	36.6	39.7	39.7	39.7	39.7	39.8	39.8	39.8
Redhurst	27.0	31.7	34.7	34.9	35.0	35.1	35.2	35.3	35.4
Parkhall Farm	28.1	32.7	35.8	36.0	36.1	36.1	36.2	36.3	36.5
Millbank	27.6	32.2	35.3	35.5	35.6	35.6	35.7	35.9	36.0
Castlemains	28.5	33.2	36.3	36.5	36.5	36.6	36.7	36.8	36.9
Coalgill	28.9	33.6	36.7	36.9	36.9	37.0	37.1	37.2	37.3
Castlemains Cottage	28.3	32.9	36.0	36.2	36.3	36.4	36.4	36.6	36.7
Redshaw	33.0	37.5	40.4	40.6	40.6	40.6	40.6	40.7	40.7
Springhill Street (Douglas)	30.5	35.0	38.1	38.6	38.7	38.9	39.1	39.4	39.7
Midtown Farm	31.0	35.5	38.6	39.0	39.2	39.3	39.6	39.9	40.2
Andershaw Farm	32.7	37.0	40.5	42.0	42.2	42.2	42.2	42.3	42.3
Weston Farm	31.4	35.8	38.9	39.3	39.5	39.7	40.0	40.3	40.7
Glentaggart Cottage	29.8	34.1	37.1	37.8	38.0	38.2	38.4	38.7	39.0
Earls Mill	29.8	34.0	37.1	37.6	37.9	38.1	38.3	38.7	39.1
Hazelside Lodge	30.1	34.3	37.4	37.9	38.2	38.5	38.9	39.3	39.8
Glentaggart Farm Cottage	28.0	32.1	35.3	36.6	36.8	36.9	37.0	37.2	37.4

7.36 As outlined in **Appendix 7.1** of the **2023 EIA Report**, the Andershaw Farm receptor is involved with the Andershaw Wind Farm and therefore cumulative noise predictions at this receptor are assessed against the involved noise limit.

7.37 Additional properties identified to the east of the Revised Proposed Development and the M74 West Renewable Energy Park were also considered. Predicted cumulative noise levels at properties such as Muirhead, Kilnpotlees and Maidencots are below 35 dB(A). Therefore, these receptors are below the lowest applicable ETSU-R-97 noise limit and outside of the study area scope. Of these additional properties, the Maidencots receptor (Easting / Northing: 292627 / 626370) was the greatest predicted at L_{A90} 34 dB(A) considering the cumulative sites only (excluding the Revised Proposed Development). As the greatest contribution from the Revised Proposed Development in isolation is predicted L_{A90} 23 dB(A) at this receptor, this is more than 10 dB below cumulative noise contributions and is therefore acoustically negligible and not considered further.

37 The IOA GPG suggests that cumulative noise effects need not be considered where differences between existing and proposed wind farm noise levels are 10 dB or more.

7.38 *Table 7.18* and *Table 7.19* compare the operational noise predictions of the cumulative schemes together with the Revised Proposed Development, at the relevant assessment receptors in *Table 7.17* to the ETSU-R-97 noise limits outlined in **Table 4** and **Table 5** of **Appendix 7.1** of the **2023 EIA Report**. The predicted cumulative contributions from the cumulative sites considered operating with the Revised Proposed Development, are predicted to be below the ETSU-R-97 day and night noise limits at the relevant receptors. Therefore, cumulative operational noise effects accounting for the above schemes are **Not Significant**.

Table 7.18: Cumulative operational noise assessment (excluding the Little Gala Wind Farm) at noise assessment receptors compared with the ETSU-R-97 day noise limits. Negative values indicate predicted noise levels are below the day noise limit.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Parkhead Cottage	-25.5	-21.2	-18.5	-18.9	-19.2	-19.6	-20.0	-20.4	-20.7
Redhurst	-20.9	-16.8	-14.3	-14.6	-15.0	-15.5	-15.9	-16.3	-16.7
Parkhall Farm	-19.8	-15.7	-13.2	-13.5	-14.0	-14.4	-14.9	-15.3	-15.7
Millbank	-20.3	-16.2	-13.7	-14.0	-14.5	-14.9	-15.4	-15.8	-16.1
Castlemains	-19.4	-15.2	-12.7	-13.0	-13.5	-14.0	-14.4	-14.8	-15.2
Coalgill	-19.0	-14.9	-12.3	-12.6	-13.1	-13.6	-14.0	-14.5	-14.9
Castlemains Cottage	-19.6	-15.5	-13.0	-13.3	-13.8	-14.2	-14.7	-15.1	-15.5
Redshaw	-10.1	-5.6	-2.7	-2.9	-3.4	-4.1	-5.2	-6.4	-7.9
Springhill Street (Douglas)	-9.5	-5.0	-1.9	-1.5	-1.4	-2.8	-5.4	-9.9	-17.4
Midtown Farm	-9.0	-4.5	-1.4	-1.0	-1.0	-2.3	-4.9	-9.4	-16.9
Andershaw Farm[1]	-12.3	-8.0	-4.6	-3.0	-2.8	-2.8	-2.8	-2.7	-2.7
Weston Farm	-8.6	-4.2	-1.1	-0.7	-0.6	-1.9	-4.5	-9.0	-16.3
Glentaggart Cottage	-10.2	-6.0	-2.9	-2.2	-2.0	-1.8	-1.6	-1.9	-3.1
Earls Mill	-10.3	-6.0	-2.9	-2.4	-2.2	-1.9	-1.7	-1.8	-3.0
Hazelside Lodge	-9.9	-5.7	-2.6	-2.1	-1.9	-3.1	-5.6	-10.0	-17.3
Glentaggart Farm Cottage	-12.0	-7.9	-4.7	-3.4	-3.2	-3.1	-3.0	-3.3	-4.7

[1] Andershaw Farm is involved with the Andershaw Wind Farm.

Table 7.19: Cumulative operational noise assessment (excluding the Little Gala Wind Farm) at noise assessment receptors compared with the ETSU-R-97 night noise limits. Negative values indicate predicted noise levels are below the night noise limit.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Parkhead Cottage	-21.1	-16.0	-12.6	-12.1	-11.7	-11.2	-10.8	-10.4	-9.9
Redhurst	-18.6	-13.6	-10.4	-10.2	-10.3	-10.4	-10.8	-11.2	-11.8
Parkhall Farm	-17.5	-12.6	-9.3	-9.1	-9.2	-9.4	-9.7	-10.2	-10.8
Millbank	-18.0	-13.1	-9.9	-9.6	-9.7	-9.9	-10.2	-10.6	-11.2
Castlemains	-17.0	-12.1	-8.9	-8.6	-8.7	-8.9	-9.3	-9.7	-10.3
Coalgill	-16.7	-11.7	-8.5	-8.3	-8.3	-8.5	-8.9	-9.3	-9.9
Castlemains Cottage	-17.3	-12.4	-9.1	-8.9	-9.0	-9.2	-9.5	-10.0	-10.5
Redshaw	-10.0	-5.5	-2.6	-2.4	-2.4	-2.4	-2.4	-2.4	-2.3
Springhill Street (Douglas)	-12.5	-8.0	-4.9	-4.5	-4.3	-4.1	-3.9	-7.1	-12.8
Midtown Farm	-12.0	-7.5	-4.4	-4.0	-3.8	-3.7	-3.4	-6.6	-12.3

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Andershaw Farm[1]	-12.3	-8.0	-4.6	-3.0	-2.8	-2.8	-2.8	-3.6	-8.4
Weston Farm	-11.6	-7.2	-4.1	-3.7	-3.5	-3.3	-3.0	-6.2	-11.7
Glentaggart Cottage	-13.2	-9.0	-5.9	-5.2	-5.0	-4.8	-4.6	-7.2	-11.8
Earls Mill	-13.3	-9.0	-5.9	-5.4	-5.2	-4.9	-4.7	-7.2	-11.6
Hazelside Lodge	-12.9	-8.7	-5.6	-5.1	-4.8	-4.5	-4.1	-7.2	-12.7
Glentaggart Farm Cottage	-15.0	-10.9	-7.7	-6.4	-6.2	-6.1	-6.0	-8.7	-13.4
[1] Andershaw Farm is involved with the Andershaw Wind Farm.									

Little Gala Wind Farm

7.39 Cumulative noise considerations for the Little Gala Wind Farm operating with the Revised Proposed Development are assessed in the present section.

7.40 Table 7.20 to *Table 7.22* below show that, at the three assessment receptors considered in turn, the Revised Proposed Development operating (with operational constraints to T14 & T15) together with the Little Gala Wind Farm is predicted to comply with the proposed ETSU-R-97 noise limits. Therefore, cumulative operational noise effects accounting for the Little Gala Wind Farm are **Not Significant**.

7.41 The predictions for Little Gala Wind Farm presented below are conservative, particularly within the lower wind speed range. This is because they are effectively referenced to the standardised wind speeds derived to represent the range of turbine hub heights of 131 to 171 m of the Revised Proposed Development turbines. The predicted levels from the Little Gala Wind Farm, with lower hub heights of 83 m, are therefore marginally precautionary in that respect when referenced to the same wind speed.

Table 7.20 – Supplementary windfarm cumulative noise assessment at Mount Stewart: Revised Proposed Development operating together with Little Gala Wind Farm. Negative assessment values indicate the predicted level is below the limit.

Mount Stewart	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Cumulative Day ETSU-R-97 Noise Limit	40.0	40.0	40.0	40.3	42.1	44.6	47.6	50.9	53.6
Cumulative Night ETSU-R-97 Noise Limit	43.0	43.0	43.0	43.0	43.0	43.0	45.4	49.0	52.1
Little Gala Wind Farm Noise Prediction	23.7	29.2	33.4	34.0	34.0	34.0	34.0	34.0	34.0
Revised Proposed Development Noise Prediction	31.3	36.1	38.9	38.9	38.9	38.9	38.9	38.9	38.9
Cumulative Noise Prediction	32.0	36.9	40.0	40.1	40.1	40.1	40.1	40.1	40.1
Cumulative Assessment against Day Noise Limit	-8.0	-3.1	0.0	-0.2	-2.0	-4.5	-7.5	-10.8	-13.5
Cumulative Assessment against Night Noise Limit	-11.0	-6.1	-3.1	-2.9	-2.9	-2.9	-5.3	-8.9	-12.0

Table 7.21 – Supplementary windfarm cumulative noise assessment at Little Gala Farm: Revised Proposed Development operating together with Little Gala Wind Farm. Negative assessment values indicate the predicted level is below the limit.*

Little Gala Farm*	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Cumulative Day ETSU-R-97 Noise Limit*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Cumulative Night ETSU-R-97 Noise Limit*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Little Gala Wind Farm Noise Prediction	30.4	35.9	40.1	40.7	40.7	40.7	40.7	40.7	40.7
Revised Proposed Development Noise Prediction	27.1	31.9	34.8	34.8	34.8	34.8	34.8	34.8	34.8
Cumulative Noise Prediction	32.1	37.3	41.2	41.7	41.7	41.7	41.7	41.7	41.7
Cumulative Assessment against Day Noise Limit	-13.0	-7.7	-3.8	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3
Cumulative Assessment against Night Noise Limit	-13.0	-7.7	-3.8	-3.3	-3.3	-3.3	-3.3	-3.3	-3.5
*Little Gala Farm is involved with the Little Gala Wind Farm									

Table 7.22 – Supplementary windfarm cumulative noise assessment at Fallside Farm: Revised Proposed Development operating together with Little Gala Wind Farm. Negative values indicate the predicted level is below the limit.*

Fallside Farm*	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Cumulative Day ETSU-R-97 Noise Limit*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Cumulative Night ETSU-R-97 Noise Limit*	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Little Gala Wind Farm Noise Prediction	28.9	34.4	38.6	39.2	39.2	39.2	39.2	39.2	39.2
Revised Proposed Development Noise Prediction	30.9	35.7	38.8	38.8	38.8	38.8	38.8	38.8	38.8
Cumulative Noise Prediction	33.0	38.1	41.7	42.0	42.0	42.0	42.0	42.0	42.0
Cumulative Assessment against Day Noise Limit	-12.0	-6.9	-3.3	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Cumulative Assessment against Night Noise Limit	-12.0	-6.9	-3.3	-3.0	-3.0	-3.0	-3.0	-3.0	-3.2
*Fallside Farm is involved with Revised Proposed Development									

Site - Specific Noise Limits

7.42 Satisfactory control of cumulative noise levels at noise-sensitive properties can be achieved through enforcement of individual consent limits for each of the individual wind energy developments. This is considered to represent good practice, as the consent limits for each wind farm only relate to turbines within the control of each

respective operator. These site-specific limits were derived by using the remaining 'noise budget' approach, which involves taking the ETSU-R-97 noise limits which apply at an assessment location and subtracting the contribution from the relevant adjacent wind farms. This remaining noise budget is calculated assuming all receptors are downwind from all wind farms simultaneously and discounts directional effects, representing a robust approach.

7.43 The selection of the final turbine to be installed for the Revised Proposed Development should be made on the basis of enabling compliance with the relevant site-specific noise limits presented in Table 7.23 to Table 7.28 below. This represents an update of the site-specific noise limits previously outlined in **Table 17** and **Table 18** of **Appendix 7.1** of the **2023 EIA Report**. Compliance of the Revised Proposed Development with the derived site-specific noise limits will maintain the conclusion of the cumulative assessment and result in cumulative levels which do not exceed the derived ETSUR97 noise limits, presented in **Table 4** and **Table 5** of **Appendix 7.1** of the **2023 EIA Report**.

Table 7.23 – L_{A90} (dB) operational day-time site-specific derived noise limits applicable to the Revised Proposed Development in isolation – Little Gala Wind Farm operational.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm*	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
Fallside Farm*	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6
Mount Stewart*	38.9	38.9	38.9	39.1	40.9	43.5	46.5	49.7	52.5
Parkhead Cottage	56.2	56.6	57.0	57.4	57.8	58.2	58.6	59.0	59.4
Redhurst	46.3	46.8	47.3	47.9	48.4	48.9	49.5	50.0	50.5
Parkhall Farm	46.3	46.8	47.3	47.8	48.4	48.9	49.4	50.0	50.5
Millbank	46.3	46.8	47.3	47.9	48.4	48.9	49.4	50.0	50.5
Castlemains	46.2	46.8	47.3	47.8	48.4	48.9	49.4	50.0	50.5
Coalgill	46.2	46.8	47.3	47.8	48.4	48.9	49.4	50.0	50.5
Castlemains Cottage	46.2	46.8	47.3	47.8	48.4	48.9	49.4	50.0	50.5
Redshaw	41.9	41.9	42.0	42.3	42.8	43.6	44.6	45.9	47.4
Springhill Street (Douglas)	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.7	39.2
Midtown Farm	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.6	39.1
Andershaw Farm	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Weston Farm	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.4	38.8
Glentaggart Cottage	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Earls Mill	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Hazelside Lodge	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.4	38.9
*Revised Proposed Development In the event that the Little Gala Wind Farm is not consented or not operational, then the noise limits of Table 7.25 would apply instead at the highlighted properties.									

Table 7.24 – L_{A90} (dB) operational night-time site-specific derived noise limits applicable to the Revised Proposed Development in isolation – Little Gala Wind Farm operational.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm*	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
Fallside Farm*	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Mount Stewart*	41.9	41.9	41.9	41.9	41.9	41.9	44.3	47.9	51.0
Parkhead Cottage	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
Redhurst	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.1	45.4
Parkhall Farm	45.0	45.0	45.0	45.0	45.0	45.0	44.9	45.1	45.4
Millbank	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.1	45.4
Castlemains	44.9	44.9	44.9	44.9	44.9	44.9	44.9	45.1	45.3
Coalgill	44.9	44.9	44.9	44.9	44.9	44.9	44.9	45.1	45.3
Castlemains Cottage	44.9	44.9	44.9	44.9	44.9	44.9	44.9	45.1	45.3
Redshaw	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6
Springhill Street (Douglas)	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
Midtown Farm	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
Andershaw Farm	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6	37.6
Weston Farm	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5
Glentaggart Cottage	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8
Earls Mill	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6
Hazelside Lodge	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5
*In the event that the Little Gala Wind Farm is not consented or not operational, then the noise limits of Table 7.26 would apply instead at the highlighted properties.Revised Proposed Development									

Table 7.25 – L_{A90} (dB) operational day-time site-specific derived noise limits applicable to the Revised Proposed Development in isolation – Little Gala Wind Farm not operational. Refer to Table 7.23 for all other locations.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm	40.0	40.0	40.0	40.5	41.1	41.8	42.5	43.5	45.0
Fallside Farm	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Mount Stewart	40.0	40.0	40.0	40.3	42.1	44.6	47.6	50.9	53.6

Table 7.26 – L_{A90} (dB) operational night-time site-specific derived noise limits applicable to the Revised Proposed Development in isolation – Little Gala Wind Farm not operational. Refer to Table 7.24 for all other locations.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	45.2
Fallside Farm	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.2
Mount Stewart	43.0	43.0	43.0	43.0	43.0	43.0	45.4	49.0	52.1

7.44 Table 7.27 and Table 7.28 below compare predictions from the Revised Proposed Development in isolation from *Table 7.14* (with applied operational constraints to turbines T14 and T15) to the site-specific noise limits outlined in Table 7.23 and Table 7.24 above, based on the scenario in which the Little Gala Wind Farm is consented and operational. The predictions from the Revised Proposed Development in isolation are shown to meet the site-specific day and night noise limits at all relevant assessment receptors. If Little Gala Wind Farm is not consented, the specific limits of Table 7.25

and Table 7.26 would apply, but these are higher and therefore the same conclusions would be reached in terms of compliance of the wind farm with these limits.

Table 7.27 – Operational noise assessment at noise assessment receptors for the Revised Proposed Development in isolation against the site-specific day noise limits of Table 7.23. Negative values indicate predicted noise levels are below the day site specific noise limit.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm	-11.3	-6.4	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5
Fallside Farm	-10.7	-5.9	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Mount Stewart	-7.6	-2.8	0.0	-0.2	-2.0	-4.6	-7.6	-10.8	-13.6
Parkhead Cottage	-25.0	-20.6	-17.9	-18.3	-18.7	-19.1	-19.5	-19.9	-20.3
Redhurst	-20.9	-16.6	-14.1	-14.7	-15.2	-15.7	-16.3	-16.8	-17.3
Parkhall Farm	-19.7	-15.4	-12.9	-13.4	-14.0	-14.5	-15.0	-15.6	-16.1
Millbank	-20.3	-16.0	-13.5	-14.1	-14.6	-15.1	-15.6	-16.2	-16.7
Castlemains	-19.2	-15.0	-12.4	-12.9	-13.5	-14.0	-14.5	-15.1	-15.6
Coalgill	-18.7	-14.5	-12.0	-12.5	-13.1	-13.6	-14.1	-14.7	-15.2
Castlemains Cottage	-19.6	-15.4	-12.8	-13.3	-13.9	-14.4	-14.9	-15.5	-16.0
Redshaw	-11.3	-6.5	-3.4	-3.7	-4.2	-5.0	-6.0	-7.3	-8.8
Springhill Street (Douglas)	-10.4	-5.6	-2.5	-2.5	-2.5	-2.5	-2.5	-2.6	-4.1
Midtown Farm	-9.3	-4.5	-1.4	-1.4	-1.4	-1.4	-1.4	-1.5	-3.0
Andershaw Farm	-14.6	-9.8	-6.7	-6.7	-6.7	-6.7	-6.7	-6.7	-6.7
Weston Farm	-8.5	-3.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.8	-2.2
Glentaggart Cottage	-11.2	-6.4	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3	-3.3
Earls Mill	-10.4	-5.6	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Hazelside Lodge	-11.6	-6.8	-3.7	-3.7	-3.7	-3.7	-3.7	-3.9	-5.4
Glentaggart Farm Cottage	-15.5	-10.7	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6

Table 7.28 – Operational noise assessment at noise assessment receptors for the Revised Proposed Development in isolation against the site-specific night noise limits of Table 7.24. Negative values indicate predicted noise levels are below the day site-specific noise limit.

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Little Gala Farm	-11.3	-6.4	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.7
Fallside Farm	-10.7	-5.9	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Mount Stewart	-10.6	-5.8	-3.0	-3.0	-3.0	-3.0	-5.4	-9.0	-12.1
Parkhead Cottage	-20.6	-15.8	-12.7	-12.7	-12.7	-12.7	-12.7	-12.7	-12.7
Redhurst	-19.6	-14.8	-11.8	-11.8	-11.8	-11.8	-11.8	-11.9	-12.2
Parkhall Farm	-18.4	-13.6	-10.6	-10.6	-10.6	-10.6	-10.5	-10.7	-11.0
Millbank	-19.0	-14.2	-11.2	-11.2	-11.2	-11.2	-11.2	-11.3	-11.6
Castlemains	-17.9	-13.1	-10.0	-10.0	-10.0	-10.0	-10.0	-10.2	-10.4
Coalgill	-17.4	-12.6	-9.6	-9.6	-9.6	-9.6	-9.6	-9.8	-10.0
Castlemains Cottage	-18.3	-13.5	-10.4	-10.4	-10.4	-10.4	-10.4	-10.6	-10.8
Redshaw	-10.9	-6.1	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Springhill Street (Douglas)	-14.5	-9.7	-6.6	-6.6	-6.6	-6.6	-6.6	-6.6	-6.6

Receptor name	Standardised 10 m Wind Speed (m/s)								
	4	5	6	7	8	9	10	11	12
Midtown Farm	-13.5	-8.7	-5.6	-5.6	-5.6	-5.6	-5.6	-5.6	-5.6
Andershaw Farm	-14.8	-10.0	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9	-6.9
Weston Farm	-12.8	-8.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
Glentaggart Cottage	-15.9	-11.1	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Earls Mill	-15.4	-10.6	-7.5	-7.5	-7.5	-7.5	-7.5	-7.5	-7.5
Hazelside Lodge	-15.9	-11.1	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Glentaggart Farm Cottage	-21.9	-17.1	-14.0	-14.0	-14.0	-14.0	-14.0	-14.0	-14.0

SUMMARY OF EFFECTS

7.45 The effects associated with construction activities and construction traffic would remain negligible to minor, and temporary, therefore **Not Significant**.

7.46 Decommissioning is likely to result in less noise than during construction of the Revised Proposed Development. Decommissioning would, in the worst-case, have minor temporary adverse noise effects which are **Not Significant**.

7.47 Predicted operational noise levels from the Revised Proposed Development are reduced compared to those from the **2023 EIA Report** layout.

7.48 Operational noise levels from the Revised Proposed Development turbines, in combination with the cumulative wind farms assessed are predicted to be compliant with applicable ETSU-R-97 noise limits, outlined in **Table 4** and **Table 5** of **Appendix 7.1** from the **2023 EIA Report,** in accordance with the ETSU-R-97 guidance. This can be secured in practice through an appropriate planning condition, based on the site-specific noise limits outlined in Table 7.23 to Table 7.28 above. This would enable the Revised Proposed Development operating with the cumulative sites considered to comply with the ETSU-R-97 noise limits at all nearest receptors.

ACRONYMS

Table 7.29: List of acronyms

Acronym	Meaning
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report (under the 2017 EIA regulations the output of an EIA is the EIAR)
m	Metres
FEI	Further Environmental Information
km	Kilometres
NSR	Noise-sensitive Receptors
dB	Decibels
FI	Financially involved
dB(A)	Decibels (A-weighted). The A-weighting curve represents the frequency response of the human ear.

Acronym	Meaning
STEs	Wind turbine blade Serrated Trailing Edges

8. CULTURAL HERITAGE

SUMMARY

This chapter considers the potential effects of the Revised Proposed Development on the Historic Environment resource, as a result of the design modifications (the proposed Design Changes) set out in FEI Chapter 3 (Design Iteration). The proposed Design Changes include the removal of two turbines (T9 and T10) in Bodinglee West and tip height reductions of turbines across both Bodinglee East and Bodinglee West. The proposed Design Changes were primarily made to respond to concerns raised by Historic Environment Scotland (HES) and NatureScot.

In EIA terms, there would be no change to the number of significant effects on key historic environment receptors identified in Chapter 8 of the 2023 Environmental Impact Assessment (EIA) Report (2023 EIA Report).

As significant proposed Design Changes identified in Chapter 3 of this FEI Report have primarily been undertaken to reduce the magnitude of change to Auchensaugh Hill cairn (SM4234) as a consequence of setting change, the detailed assessment of impacts to this asset is the focus of this FEI chapter. Where assessment of a heritage asset has not been further detailed within this FEI submission, the 2023 EIA Report remains relevant and there is no material change to the 2023 findings.

The assessment identified that the removal of turbines T9 and T10 and reduction in height of turbines T5, T6 and T7 has reduced the magnitude of impact that will occur. The Revised Proposed Development leads to a moderate operational impact to an asset of high sensitivity, resulting in a moderate and therefore significant level of effect for the purposes of the EIA Regulations – albeit at a meaningfully lower level than identified with respect to the design of the 2023 Proposed Development. Based on this reduction in the level of impact, HES confirmed (in consultation received in April 2025) that they no longer consider the effects of the Revised Proposed Development to raise heritage issues of national interest.

This chapter also provides an updated cumulative assessment, taking into account changes in the cumulative baseline since the 2023 EIA Report. Taking into account the updates to the cumulative baseline, the M74 West Renewable Energy Park and the Proposed Development would result in significant cumulative effects to identified historic environment receptors, principally Auchensaugh Hill Cairn (SM4234). All other cumulative effects remain as detailed in the 2023 EIA Report.

STATEMENT OF COMPETENCE

8.1 The Historic Environment Impact Assessment (HEA) update has been led and managed by members of the LUC Historic Environment team.

8.2 **Steven Orr MA (Hons) MSc LRTPI FSAScot** is a highly experienced town planner, landscape archaeologist, Licentiate member of the Royal Town Planning Institute and Director of LUC's Historic Environment team. Steven has over twenty years' experience in research, policy development and environmental assessment. In

addition to developing planning guidance for a number of World Heritage Sites, this experience has seen Steven lead many HEAs for major infrastructure projects and renewable energy developments across the UK, from initial feasibility through to evidence at Examination. Steven's strong track record in policy and research makes him a trusted adviser to government, agencies and NGOs, including acting as an expert witness.

8.3 **Amy Farrington McCabe BA (Hons) MA MCIfA** is an associate Historic Environment Consultant at LUC, Member of the Chartered Institute for Archaeologists, and has over a decade of experience in renewables environmental assessment, particularly in Scotland. This experience has resulted in a thorough understanding of electricity generation and transmission both within Scotland and throughout the UK. Amy has developed a large portfolio of advising on the heritage aspects of successfully delivered projects, from Screening to Submission on projects which include windfarms, repowering projects and transmission schemes. As such, Amy has expert knowledge of the historic environment assessment process with insights from project inception to post-planning advice. Amy was Project Manager of the Historic Environment inputs for the 2023 EIAR.

8.4 **Tricia Hardie BSc (Hons) MSC (GIS),** is an Associate of GIS & Visualisation at LUC with over 15 years of experience in GIS and visualisations for wind farm projects. Tricia is in a unique position with the ability to support and deliver on both the GIS and the 3D visualisation elements of projects. She has contributed to GIS analysis and mapping alongside full visualisation content for numerous EIA reports, public exhibitions, consultations, and public inquiries. Her work includes developing vast experience and knowledge in data management, manipulation and analysis, the 3D visualisation of renewable projects, from single turbines to national infrastructure developments.

INTRODUCTION

8.5 Chapter 8: Cultural Heritage and Archaeology of the 2023 EIA Report presents the findings of the Historic Environment Assessment for the 2023 Proposed Development. This was supported by the following technical appendices (2023 EIA Report Volume 4):

- Technical Appendix 8.1: Archaeological Desk Based Assessment;
- Technical Appendix 8.2: Assessment of Indirect Effects Within 5km;
- Technical Appendix 8.3: Sieving Exercise for Designated Assets between 5-15km; and
- Technical Appendix 8.4: Assessment of indirect Effects between 5-15km.

8.6 This FEI chapter should be read in conjunction with the 2023 EIA Report technical appendices noted above.

8.7 Any amendments to the design that have resulted in changes to the historic environment from those reported in June 2023, are reported within this chapter.

8.8 The purpose of this chapter of the FEI is to:

- Evaluate the effects of the Revised Proposed Development on the historic environment, due to the design modifications set out in FEI Chapter 2 (The Revised Proposed Development); and

- Update the cumulative historic environment assessment to take into account the changes to the cumulative baseline since the 2023 EIARt was submitted.

8.9 This chapter is accompanied by the following figures, which replace those of the same figure number in the 2023 EIA Report:

- **FEI Figure 8.1** - Site Location and Study Area

- **FEI Figure 8.2a -** Core Study Area West With Infrastructure

- **FEI Figure 8.2b -** Core Study Area East With Infrastructure

- **FEI Figure 8.3 -** Designated Heritage Assets Within 5km Study Area

- **FEI Figure 8.4a -** Designated Heritage Assets Between 5 - 15km

- **FEI Figure 8.4b -** Designated Heritage Assets Between 5 -15km North West

- **FEI Figure 8.4c -** Designated Heritage Assets Between 5 - 15km North East

- **FEI Figure 8.4d -** Designated Heritage Assets Between 5 - 15km South East

- **FEI Figure 8.4e -** Designated Heritage Assets Between 5 -15km South West

- **FEI Figure 8.5 -** Designated Heritage Assets Cumulative

8.10 The photomontages in **FEI Figures 8.6 and 8.7** have been prepared in accordance with the methodology set out in Technical Appendix 4.1 of the 2023 EIA Report. Wirelines from the remaining viewpoints are presented in 90 degree sections.

- **FEI Fig 8.6 Viewpoint 1:** Auchensaugh Hill Cairn (SM4234)

- **FEI Fig 8.7 Viewpoint 2:** Thorril Castle (SM5425)

- **FEI Fig 8.16 Viewpoint 1:** Auchensaugh Hill Cairn (SM4234) comparative wires

- **FEI Fig 8.17 Viewpoint 2:** Thorril Castle (SM5425) comparative wires

- **FEI Fig 8.18 Viewpoint 3:** Thirstone Stone Circle (SM5094) comparative wires

- **FEI Fig 8.19 Viewpoint 4:** Wildshaw Hill Cairn (SM4511) comparative wires

- **FEI Fig 8.20 Viewpoint 5:** St. Brides Church (CA268) comparative wires

- **FEI Fig 8.21 Viewpoint 6:** Netherton Cairn (SM4513) comparative wires
- **FEI Fig 8.22 Viewpoint 7:** Devonshaw Hill Cairn (SM4235) comparative wires
- **FEI Fig 8.23 Viewpoint 8:** Lanark WHS (WHB3) comparative wires
- **FEI Fig 8.24 Viewpoint 9:** Castle Hill Strip Fort (SM2635) comparative wires
- **FEI Fig 8.25 Viewpoint 10:** Tinto Cairn (SM4660) comparative wires

8.11 This chapter is also accompanied by the following technical appendices, which present the consultee correspondence during the post-submission design review, as well as a summary of setting and physical effects, as well as the associated archaeological mitigation:

- **FEI TA 8.1:** Consultation Responses
- **FEI TA 8.2:** Physical Effects Summary
- **FEI TA 8.3:** Setting Effects Summary
- **FEI TA 8.4:** Summary of archaeological mitigation

8.12 This Chapter should be read in conjunction with the HEA for the Proposed Development which is set out in Volume 2, Chapter 8 of the 2023 EIA Report, with supporting figures in Volume 3a and supporting visualisations in Volume 3b of the 2023 EIA Report. The HEA methodology applied in the 2023 EIA Report and this FEI chapter was developed primarily in accordance with the principles contained within the Guidelines for such assessments[1]. **Moderate and Major effects** are considered to be **Significant** for the purposes of the EIA Regulations.

8.13 A summary of physical effects on the heritage assets within the Site/Core Study Area is provided in Table 8.6 and 8.7 of the 2023 EIA Report HEA. A summary of effects arising from setting change to heritage assets within the 0-5km and 5-15km Setting Study Areas are provided in Table 8.8 and 8.9 of the 2023 EIA Report HEA respectively. This is superseded by the assessment contained within this FEI Report.

SCOPE OF ASSESSMENT

STUDY AREA

8.14 The HEA study areas comprised the Site/Core Study Area, a 1km DBA Study Area, a 0 - 5km Setting Study Area and a 5 -15km Setting Study Area as agreed with statutory consultees, Historic Environment Scotland (HES) and the West of Scotland Archaeology Service (WoSAS) on behalf of South Lanarkshire Council (SLC). The study areas are shown on **FEI Figures 8.1 - 8.5.** The updated cumulative assessment contained within this Chapter focusses on other wind farms within 20 km of the Revised Proposed Development, as this is where most significant interactions would occur.

CONSULTATION RESPONSES

8.15 The following table sets out the responses provided by consultees on the original application, and where these are addressed in the FEI report. Copies of consultation documents are presented in **FEI TA 8.1:** Consultation Responses.

Table.8 - 30: Consultation Responses

Consultee	Summary of Response	Where & How Addressed
HES (letter to ECU following 2023 EIA Report submission dated 03 November 2023)	HES objected to the 2023 Proposed Development due to a significant adverse impact on the integrity of the setting of the scheduled monument known as Auchensaugh Hill, cairn (SM4234). This change to the setting of the asset arises from: • The prominence of the 2023 Proposed Development behind the monument in views from the upper reaches of the valley of the Black Burn, the B7078 road on the approach from the Clyde Valley, to views from Black Burn, and outward from the following assets towards Auchensaugh Hill: • Tinto Cairn, cairn on summit of Tinto Hill (SM4660) • Wildshaw Hill, cairn 500m WSW of summit (SM4511) • Thirstone, stone circle 1300m NNW of (SM5094) • Netherton, cairn 800m SW of (SM4513) • HES considered that the most notable in views are T6, T7, T9, and T10. • The location of T32 which obstructs the intervisibility between Auchensaugh Hill cairn and Tinto Hill cairn (SM4660) HES noted that it was possible to mitigate this effect through a redesign of the scheme, and that following alterations which adequately reduce the impact on the setting of this asset they could remove their objection. HES proposed that the removal, or adequate relocation of, T6, T7, T9	Modifications to the design of the Revised Proposed Development are set out in Chapter 2 of this FEI Report. Within the Revised Proposed Development T5, T7 and T32 have been reduced in height from 210m and T9 and T10 have been removed. Whilst this does not go as far as full removal or relocation, the reduction of T5, T7 and T32 reduced the prominence of turbines from and towards Auchensaugh Hill cairn (SM4234), reducing the level of effect during operation, albeit still to a significant level. T6 remained unaltered.

Consultee	Summary of Response	Where & How Addressed
	and T10 would reduce the significant adverse impact on Auchensaugh Hill cairn (SM4234) to an acceptable level. HES also recommended relocation or a reduction in tip height of T32 would allow the important reciprocal view between Auchensaugh Hill cairn (SM4234) towards Tinto Hill cairn (SM4660) to be retained.	
HES (post-application consultation date 03 May 2024)	HES welcomed the reduction in height of T5, T7 and T32 and the removal of T9 and T10. HES stated that the reduction in height of T32 was sufficient to reduce the level of impact on the key view from Auchensaugh Hill cairn (SM4660) towards Tinto Hill cairn (SM4234). HES noted that the removal of Turbines 9 and 10 and the reduction in height of Turbines 5 and 7 would reduce the impact of the Proposed Development on key views towards Auchensaugh Hill cairn. However, HES also highlighted that the lack of revision to T6 meant that there would still be a significant impact on key views towards Auchensaugh Hill cairn (SM4660). HES strongly recommended reducing the height of T6 to 210m	Following further consultation T6 has been reduced from 250m to 210m. Taken together the Applicant has now responded to each of the mitigation measures proposed by HES with respect to turbine removal and turbine tip height reduction in order to address the setting impacts on Auchensaugh Hill cairn. The Applicant should now be in a position to have the HES objection removed on the basis that the Revised Proposed Development would sufficiently mitigate the effects relating to HES' concerns.
HES (post-application consultation date 28 February 2025 and 22 April 2025)	HES welcomed the decrease in turbine blade tip height for T6 from 250m to 210m and the reduced prominence of T6 in key views towards Auchensaugh Hill Cairn from Netherton Hill Cairn. As a result, HES state that they are now likely to be in a position to withdraw their objection to the scheme, as it would no longer raise issues of national interest, should these revisions be submitted to the Energy Consents Unit and they be reconsulted.	Comments acknowledged by Applicant.

METHODOLOGY

8.16 There have been no changes to the methodology and approach to the cultural heritage assessment identified in Chapter 8 and Appendix 8.1 of the 2023 EIA Report. **Moderate** and **major** effects are considered to be significant for the purposes of the EIA Regulations.

POLICY, LEGISLATION AND GUIDANCE

8.17 Policy and legislation that was considered in carrying out this assessment and the previous Historic Environment Assessment is listed in Chapter 8 of the 2023 EIA Report. There have been no substantive changes to the legislation, policy and guidance identified.

BASELINE CONDITIONS

DESIGNATIONS

8.18 Designated heritage assets comprise: world heritage sites, scheduled monuments, listed buildings, conservation areas, Inventory-listed historic gardens and designed landscapes, and Inventory battlefields. A full list of designated heritage assets is presented in FEI **Technical Appendix 8.3 – Table A.1**, and shown on **FEI Figures 8.3 - 8.5**

DESK STUDY AND FIELD SURVEY

8.19 The historic environment baseline for the 2023 Proposed Development is set out in Volume 2, Chapter 8 of the 2023 EIA Report.

8.20 A site visit was undertaken in February 2024, targeting those assets identified by HES in their 2023 EIAR post submission consultation response (see **TA 8.1**) as being sensitive to setting change as a result of the 2023 Proposed Development. It was established that there have been no substantive changes to the baseline since the 2023 EIA Report.

8.21 Following a review of updated Historic Environment Record (HER) data as provided by WoSAS in March 2024, an additional seven non-designated heritage assets have been identified. These assets are summarised in Table 8-2 below.

8.22 WoSAS maintains a non-statutory register (NSR) of heritage assets of regional or national importance. None of the assets listed below have been added to this register. Therefore, following a review of these assets, in line with the baseline presented in Technical Appendix 8.1 and methodology laid out in Chapter 8 of the 2023 EIA Report, these assets have been assigned either a low or negligible sensitivity based on professional judgment.

8.23 These assets have been considered for direct physical effects a summary of which is presented in Table 8-2.

Table.8- 31: Non-designated Heritage assets

HER ID	Name	Monument Type	Easting	Northing	Location	Sensitivity
40882	RoddenHill Wood	Rig	286800	633400	Bodinglee East	Negligible
90908	Chapel	Sheepfold (Period Unassigned)	287505	632240	Bodinglee East	Negligible
90613	Redshaw	Farmstead (Period Unassigned), Field Boundary(s) (Period Unassigned), Rig And Furrow (Medieval)	285850	628970	Bodinglee West	Low
91612	Mid Rig	Plantation Bank (Period Unassigned)	286250	627560	Bodinglee West	Negligible
13296	Auchensaugh Hill	Enclosure; Rig	285600	626900	Bodinglee West	Low
90279	Shiel Burn	Rig And Furrow (Medieval) - (Post Medieval), Sheepfold(s) (Period Unassigned)	284160	627890	Bodinglee West	Negligible
63231	Weston	Wall	282744	628279	Bodinglee West	Negligible

MODIFYING INFLUENCES

8.24 No additional modifying influences have been identified from those identified in para 8.55 of Chapter 8 of the 2023 EIA Report.

INFORMATION GAPS

8.25 No substantial information gaps were identified during the preparation of baseline information or undertaking of the assessment. It is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on the Historic Environment.

ASSUMPTIONS AND LIMITATIONS

8.26 This FEI is based on the 2023 EIA assessment, and a review of updated WoSAS HER data. Whilst this information is assumed to be accurate, it does not preclude the potential for hitherto unidentified archaeological remains or deposits to be encountered within the Revised Proposed Development.

8.27 The updated assessment of cumulative effects is reliant on the availability of information on other developments.

8.28 All heritage assets as identified and assessed in the 2023 EIA report have been reassessed in relation to the proposed Design Changes, as have newly identified receptors (see Table 8-2). Following the 2023 EIA Report post submission consultation, the iterative design process, and the production of the supporting FEI wireframes and photomontages, the Design Changes are not considered to have had

a material change to the level of effects as presented in the 2023 EIAR, unless otherwise stated within this FEI submission.

8.29 Therefore, for the purposes of the FEI submission, this Chapter focuses on the effects on Auchensaugh Hill cairn (SM4234), which was the primary subject of the HES objection in their 2023 EIA Report consultation response and as the only heritage asset to experience a material change in likely effects as a result of the Design Changes. The assessment of operational effects presented in this report has been limited to this asset only, with a summary of setting effects presented in FEI TA 8.3.

8.30 Whilst the overall assessment of effects have not changed as a result of the Revised Proposed Development, the summary of setting effects table has been updated to address inaccuracies between Table 8.1. and Table 8.3 of the 2023 EIA Report as identified by HES in their November 2023 consultation.

PREDICTING AND ASSESSING IMPACTS & POTENTIAL EFFECTS

8.31 The assessment of effects to the Historic Environment follows the methodology set out in detail in Chapter 8 of the 2023 EIA Report and is based on the project description outlined in Chapter 2 (The Revised Proposed Development) of this FEI Report. The proposed Design Changes are set out in Chapter 3 (Design Evolution) and were primarily made to respond to concerns raised by HES and NatureScot. All design changes were reviewed against historic environment, landscape and visual design objectives to ensure that they would not result in any significant effects over and above those identified in the 2023 EIA Report. This included consideration of the layout from key design viewpoints.

CONSTRUCTION PHASE

8.32 In line with para 8.61 of Chapter 8 of the 2023 EIA Report direct physical impacts are only likely to occur as a result of construction within the footprint of the Proposed Development.

8.33 Following a review of the FEI redesigned layout and associated infrastructure, no new physical effects as a result of the FEI design have been identified (including potential effects through micro-siting), either as a result of new heritage asset identification or due to updates to infrastructure design.

8.34 A summary of construction phase effects is presented in FEI TA 8.2: Physical Effects Summary. These effects are limited to non-designated assets, considered to be of low and negligible value, , and poorly preserved common archaeological features.

8.35 As per Chapter 8 of the 2023 EIA Report, even with substantial or moderate magnitudes of change, where there may be total or partial loss of the assets fabric to the extent that its cultural significance is appreciably altered or lost, there are not anticipated to result significant effects, with only minor or negligible effects reported. See FEI TA 8.2 for the full list of physical effects identified and FEI TA 8.4 for the proposed associated mitigation.

OPERATIONAL PERIOD

8.36 As reported in the 2023 EIA Report, the footprint of the 2023 Proposed Development during operation will not increase from the construction footprint, and as a result there are no anticipated direct physical impacts during the operational phase.

8.37 The proposed Design Changes identified in Chapter 3 of this FEI Report have primarily been undertaken to reduce the magnitude of setting change to Auchensaugh Hill cairn (SM4234).

8.38 The updated proposals are not anticipated to result in any other changes to the assessment of effects due to setting change put forward in Chapter 8 of the 2023 EIA Report. Setting effects would therefore remain as reported.

8.39 As per paragraph 8.26 an updated assessment for -Auchensaugh Hill cairn (SM4234) is presented below.

SM4234 Auchensaugh Hill cairn

8.40 The following assessment identifies direct effects due to setting change to Auchensaugh Hill cairn during the operational period and considers the additional embedded design mitigation measures proposed in Chapter 3.

8.41 Set in a prominent position upon Auchensaugh Hill, a peak at the edge of an upland plateau to the south of Douglas, the cairn forms a distinct marker within the surrounding landscape. A full baseline description of Auchensaugh Hill cairn, is provided in the 2023 EIA Appendix 8.2 Table 2.2.

8.42 The cairn's position affords it an open setting, with short-distance views from the monument northwards to Pagie Hill, and long distance reciprocal views east, south and south east towards the cairn on summit of Tinto Hill (SM4660), Wildshaw Hill cairn (SM4511) and Thirstone stone circle (SM5094), as well as to the south over and across Black Burn and Red Moss towards Netherton cairn (SM4513). Views from the monument highlight the topographic standing of the cairn, the importance of the asset's appreciable visibility within the landscape, as well as the intervisibility of the monument with putatively contemporary assets (as above).

8.43 Views towards Auchensaugh Hill cairn from key landscape features, such as Red Moss and Tinto Hill, and its spatial relationship with other prehistoric heritage assets, demonstrate the interconnectivity of the cairn with the landscape. Views towards the asset are of particular importance from the south of the cairn, looking northwards, and in views looking west and north-west towards the monument from the east. These views, particularly those from Tinto Hill Cairn (SM4660) and Thirstone stone circle (SM5094), are important in understanding the setting of the monument, and its contribution to its cultural significance.

8.44 The 2023 EIA Report identified that the presence of the 2023 Proposed Development during operation will be a noticeable addition to the landscape and adversely affect the contribution that the current setting makes to the asset's cultural significance, to the extent that '*a moderate magnitude of change to cultural significance'* (A8.2 Table 2.2) would be anticipated.

8.45 Whilst the assessment in the 2023 EIA Report highlighted that key views outward from the monument would largely be preserved, and that setting change would result from turbine proximity and overbearance, HES advised that the assessment should fully consider the adverse impact of the introduction of turbines behind the cairn in views towards the monument, and how the presence of turbines during operation could distract from how the cairn's position in the landscape is experienced, understood and appreciated, or detract from the perception of its spatial relationships with other prehistoric assets.

8.46 Following the implementation of design amendments, undertaken in response to the design mitigation requested by HES in the November 2023 and May 2024 consultation, the removal of T9 and T10 and the reduction in height of T5, T6 and T7 will reduce the impact of changes in the setting of the asset, by preserving the openness of the Auchensaugh hilltop and reducing the dominance of turbines in views that contribute to how the siting of the asset and its relationships with other heritage assets are understood and appreciated. This reduction is greatest in views of the cairn in views primarily from the south and south-east, as show in **FEI Figure 8.18a** from Thirstone stone circle (SM5094), **FEI Figure 8.21a** from Netherton Cairn (SM4513) and **FEI Figure: 4.2.4 a-h** from the B7078 Red Moss hotel.(LVIA Viewpoint 4). The removal of these turbines in proximity to the cairn also decreases the sense of encroachment of the Revised Proposed Development, leaving open the landscape to the north-west of the cairn, with the height reduction of the aforementioned turbines also decreasing the dominance of the development in views northward.

8.47 In addition, the reduction in height of T32, reduces the impact of the Revised Proposed Development upon the experience, understanding and appreciation of the relationship between Auchensaugh Hill cairn and Tinto Cairn (SM4660), ensuring an unobstructed view from the monument towards Tinto Hill, as shown in **FEI Figure: 8.16e - f** and **FEI Figure: 4.2.15**.

8.48 The removal and reduction in height of turbines has reduced the level of impact that will occur. Nevertheless, the Revised Proposed Development will still result in changes to the way that the setting of Auchensaugh Hill cairn (SM4234) contributes to its cultural significance, and how it is appreciated and experienced. The Revised Proposed Development will still lead to a level of impact judged to be **moderate** to an asset of **high** sensitivity, resulting in a **moderate** and therefore significant level of effect for the purposes of the EIA Regulations – albeit at a meaningfully lower level than those identified for the 2023 design.

DECOMMISSIONING PHASE

8.49 An assessment of historic environment effects during the decommissioning phase has not been undertaken, as the baseline against which to assess likely significant decommissioning effects is not yet known.

CUMULATIVE EFFECTS

8.50 The changes to the cumulative context are set out in Table 6 of Chapter 4. Wind farms which are operational or under construction are considered as part of the baseline.

8.51 Following a review of schemes within approximately 20 km of the Proposed Development, only one additional scheme has been identified from Chapter 8 of the 2023, where cumulative interactions are likely to occur, comprising the M74 West Renewable Energy Park (**FEI Figure 8.5**).

8.52 All previous cumulative effects, including the significant effects resulting from Andershaw and Middle Muir Wind farms remain as reported in the 2023 EIA report.

8.53 An application has been submitted for M74 West Renewable Energy Park, a 22-turbine scheme located either side of the M74 c.800m to the south of Bodinglee East (**FEI Figure 8.5**).

M74 West Renewable Energy Park

8.54 The construction of the M74 West Renewable Energy Park would result in a noticeable increase in turbine density in key views to the south and south-east from Auchensaugh Hill Cairn (SM4234). Design work for the Revised Proposed Development has made efforts to ensure that partial views to the north are maintained from the cairn, with key views from Auchensaugh Hill Cairn east towards Wildshaw Hill Cairn (SM4511) and Tinto Hill containing only peripheral turbines.

8.55 Outward views to the south/south-east from the monument towards Thirstone Stone Circle (SM5094) (**FEI Figure: 8.16f**) and Netherton Cairn (SM4513) would, however, be seen through the context of M74 West Renewable Energy Park, as would views towards Auchensaugh Hill Cairn (SM4234) from Wildshaw Hill Cairn (SM4511) (**FEI Figure 8.19c**) and the aforementioned stone circle (**FEI Figure 8.18b**) and Netherton Cairn (**FEI Figure: 8.21a**), which would feature a highly noticeable increase in turbines.

8.56 Introduction of the Revised Proposed Development and M74 West Renewable Energy Park into this landscape would result in an intensification of turbines in views from and towards key sensitive receptors (identified above), resulting in changes in setting that may affect the understanding, appreciation and experience of these assets. The magnitude of change could be considered **moderate,** to assets of **high** sensitivity, therefore resulting in a **moderate** effect which is significant in terms of the EIA Regulations. Although in the same broad category as effects arising from the Revised Proposed Development alone, the effect in combination with the M74 scheme would be quantitatively and qualitatively more severe. While key relationships would remain understandable – in that sight-lines would still be appreciable – the increased density and profusion of turbines would result in substantially greater intrusion, and diminution of the ability to appreciate and experience visual relationships between assets.

MITIGATION

MITIGATION AND MONITORING

8.57 The approach to mitigation and monitoring are as set out in paragraphs 8.124 to 8.125 of Chapter 8 of the 2023 EIA Report.

8.58 No new construction effects were identified as a result of the Revised Proposed Development layout, and a summary of mitigation and monitoring is presented in **FEI TA 8.4**

ENHANCEMENT

8.59 There are no changes proposed to the enhancement measures put forward paragraphs 8.132 – 8.136 in Chapter 8 of the 2023 EIA Report.

RESIDUAL EFFECT

8.60 There are no additional significant residual effects beyond those reported in Chapter 8 of the 2023 EIA Report.

8.61 Measures to reduce effects to the historic environment are embedded within the design of the Revised Proposed Development layout. This has provided a meaningful reduction in the number of turbines and the height of key turbines that interact with the integrity of the setting of Auchensaugh Hill Cairn (SM4234), compared to the 2023 EIA Report, with a concomitant reduction in the magnitude of change. However, the Proposed Development will still lead to a level of impact judged to be **moderate** to an

asset of **high** sensitivity. This remains a significant effect for the purposes of the EIA Regulations.

SUMMARY AND CONCLUSION

8.62 This chapter considers the potential effects of the Revised Proposed Development on the Historic Environment as a result of the Design Changes set out in Chapter 2 (The Revised Proposed Development) with the analysis of the iterative design process that has led to the Revised Proposed Development in Chapter 3 (Design Evolution). These design changes include the removal of two turbines (T9 and T10) in Bodinglee West and a reduction in the maximum tip height of turbines T5, T6 and T7 in Bodinglee West and T13, T14, T15, T18, T22 and T32 in Bodinglee East from 250m to 210m. The Design Changes were primarily made to respond to concerns raised by HES and NatureScot, following an objection from HES in November 2023, on the basis of issues that HES considered potentially of national interest due to a significant adverse impact on the integrity of the setting of the Auchensaugh Hill cairn (SM4234) scheduled monument.

8.63 The objection raised by HES, and the subsequent consultation, resulted in the Design Changes set out in Chapter 3 (Design Evolution). These changes would result in the reduction the impact of changes in the setting of the asset, by preserving the openness of the Auchensaugh hilltop and reducing the dominance of turbines in views that contribute to how the siting of the asset and its relationships with other heritage assets are understood and appreciated. Whilst these changes would still result in a moderate, and therefore significant, level of effect, the measures implemented by the Applicant have resulted in a meaningfully lower magnitude of change compared to the 2023 design. Based on this reduction in the magnitude of change, HES confirmed that they no longer consider the Revised Proposed Development to raise issues of national interest, as confirmed in April 2025.

9. ACCESS, TRAFFIC AND TRANSPORT

SUMMARY

This chapter considers the potential effects of the Revised Proposed Development on Access, Traffic and Transport during construction of the Revised Proposed Development, as a result of the Design Changes set out in Chapter 3 (Design Evolution and Alternatives). These Design Changes include the removal of two turbines (T9 and T10) in Bodinglee West and tip height reductions of turbines across both Bodinglee East and West.

Paths along the Core Path / Right of Way network are located within the vicinity of the Revised Proposed Development and National Cycle Network Route Number 74 is located along the B7078 and mainly comprises segregated paths.

The maximum traffic impact associated with construction is predicted to occur in Month 13 of the indicative construction programme.

The traffic associated with the Revised Proposed Development, at the peak of construction, would result in an additional 366 total movements which comprises 268 HGV movements per day (134 inbound and 134 outbound) and 98 Cars & Lights movements per day (49 inbound and 49 outbound). This represents a modest reduction in construction traffic during the peak month.

The assessment of significance suggests that traffic flows interacting with the Core Path / Right of Way network are considered moderate adverse, prior to the application of mitigation measures.

The originally assessed schemes of Cumberhead Wind Farm and Broken Cross Wind Farm will be complete prior to works commencing on the Proposed Development. There are no further committed developments within the study area. However, should other nearby developments be consented and constructed concurrently with the Revised Proposed Development, then the Applicant will work with neighbouring developers to develop common traffic management measures.

With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and transport issues. The residual effects are all assessed to be minor or negligible. As they will occur during the construction phase only, they are temporary and reversible.

STATEMENT OF COMPETENCE

9.1 This assessment has been carried out by Gordon Buchan BEng (Hons), MSc, CEng CMILT, FCIHT, Sector Director for Energy of Pell Frischmann. Gordon has over 27 years of undertaking transport assessment associated with new developments and has worked on renewable energy and energy distribution projects across the UK, Ireland and Northern Europe.

INTRODUCTION

9.2 This Further Environmental Information (FEI) Chapter 9: Access, Traffic and Transport (FEI Chapter 9) considers the potential significant effects on receptors along the transport routes anticipated to be used by the Revised Proposed Development during construction.

9.3 This FEI Chapter 9 should be read in conjunction with:

- The Environmental Impact Assessment Report (2023 EIA Report) Chapter 9: Access, Traffic and Transport (2023 EIA Chapter 9) accompanied by relevant Figures submitted in 2023

9.4 Technical Appendix TA 9.1 Transport Assessment submitted in 2023 with the 2023 EIA Report (2023 TA 9.1: TA) – comprising Pell Frischmann Bodinglee Wind Farm Abnormal Indivisible Load Route Survey, dated June 2022. This has now been superseded by updated FEI Technical Appendix TA 9.1 Transport Assessment (FEI TA 9.1: TA) which is submitted as part of this FEI.This FEI Chapter 9 is accompanied by the following figure which replaces the figure with the same number in the 2023 EIA Report:

9.5 FEI Figure 9.4: Abnormal Indivisible Load and Construction Vehicle Delivery Routes. The FEI Chapter 9 is also supported by refreshed Stage 1/2 Road Safety Audit provided in Technical Appendix TA 9.2: Road Safety Audit (FEI TA 9.2: RSA) updated in response to comments issued by South Lanarkshire Council (SLC) Roads, Transportation and Fleet Services, ref. P/23/0941, dated 06/10/2023.

SCOPE OF ASSESSMENT

STUDY AREA

9.6 The study area used in this FEI Chapter 9 is unchanged from the information provided in the 2023 EIA Report Chapter 9.

CONSULTATION RESPONSES

9.7 In addition to the comments received during the scoping stage noted in the original application, comments from consultees has also been received. This commentary is described in Table 9.1.

Table 9.1: Scoping Responses

Consultee	Summary of Response	Where & How Addressed
South Lanarkshire Council (SLC) 06/10/2023	Any required bridge assessments and inspections can be addressed by means of suitably worded planning conditions covering all wind turbine components, battery components, transformers and heavy cranage equipment.	Noted and agreed. The battery units however are not classed as Abnormal Indivisible Loads (AIL).
	A Section 96 Wear & Tear Agreement is required. This would be secured by planning condition.	Noted and agreed.

Consultee	Summary of Response	Where & How Addressed
	The Council has concerns regarding the potential impact of HGV movements through the villages of Glespin and Douglas where the latter includes traffic calming chicanes at Douglas Primary School. We recommend that Figure 9.4 be amended to remove this western section of the A70 whereby HGV construction traffic using the A70 can only travel from Junction 12 as far as the A70/B7078 junction.	No HGV access is proposed passing through Glespin or Douglas. The Figure 9.4 has been updated and is attached with FEI submission as FEI Figure 9.4.
	1. The submission should include details of the anticipated movements and weight of the battery and transformer(s) and proposed delivery route.	Noted. All supply routes would be confirmed through the use of a detailed Construction Traffic Management Plan (CTMP), to be secured via a suitably worded planning condition. Battery units are not proposed to be AIL. This would be confirmed prior to works commencing. Transformers will be AIL and again would be confirmed prior to works commencing. Both batteries and transformers movements have been included in calculations of traffic movements in FEI TA 9.1: TA.
	2. Figure 9.4 should be amended to remove the use of the A70 west of the B7078 junction.	The route to the west was indicative only. All supply routes would be confirmed through the use of a Construction Traffic Management Plan (CTMP), to be secured via a suitably worded planning condition. The Figure 9.4 has been updated and is attached with FEI submission as FEI Figure 9.4.
	3. Applicant to investigate scope to access both site from Junction 13 via the A702 and B7078 to reduce impact on local roads.	The access from Junction 13 via A702 to Bodinglee East has been investigated at the initial stages of the project when larger Wind Farm was considered. However, pending reduction of turbines south of current red line boundary and analysis of requirements for a long access track having greater impact on landscape and habitats than the access proposed from the north from A70, it was deemed that A702 access is not a suitable alternative.

Consultee	Summary of Response	Where & How Addressed
	4. Confirmation requirement that the vertical road alignment does not present issues for any of the abnormal loads.	There are no vertical constraints.
	5. Applicant to submit layout of each site access showing details of fencing, bollards, overrun areas, surface area and indication of drainage. The layout should consider normal access function for routine HGV movements and that for abnormal loads and how site will be secured when abnormal loads are not being moved. Swept paths to be provided showing abnormal loads and HGVs leaving the public road. Visibility splays should be shown appropriate for speed of the public road. Site security gates where proposed shall be located at least 18metres from the edge of the public road.	Please refer to FEI TA 9.1: TA where all access drawing figures are provided.
	6.Clarification required on anticipated vehicle type and vehicles numbers using each access; this should be illustrated by construction stage and month. This information should be supported by a network diagram showing the anticipated trip pattern and background traffic flows for HGV and all traffic expected to use each site access.	This information is provided in tabular form in the FEI TA 9.1: TA and the 2023 EIAR Chapter 9. All supply routes would be confirmed through the use of a Construction Traffic Management Plan (CTMP), to be secured via a suitably worded planning condition.
	It is recommended that the applicant submit an Access Management Plan for approval by the Councils Access Officer in advance of works commencing on site to demonstrate how key path networks through both sites are maintained during the construction phase. This document would remain evergreen throughout the build phase to ensure adaptions are made to reflect the sequencing of works as development progresses. We recommend that planning agree the wording of this condition with the Council's Access Officer.	Noted and agreed. An Access Management Plan (AMP) to be secured via a suitably worded planning condition.

Consultee	Summary of Response	Where & How Addressed
	7. For each access, the applicant shall submit plans and road long sections if necessary to demonstrate that the extents of the required visibility splays at each access can be achieved in the horizontal and vertical plane. Where any part of the visibility splay passes over third-party land then the applicant shall demonstrate that legal agreements are in place for implementation and maintenance of these splays for the life of the windfarm and battery storage facility. The visibility splays shall be free from any form of obstruction that impedes its operation in accordance with the DMRB.	Please refer to FEI TA 9.1: TA where all access drawing figures are provided. Suitable visibility splays for construction access have been provided, in line with DMRB requirements and practical design criteria.
	8. A copy of the site access proposals referred to under Problem 4.1.1 and 4.3.1 above should be submitted along with proposals to prevent surface water run-off onto the A70.	Please refer to FEI TA 9.1: TA where all access drawing figures are provided. Please refer to refreshed RSA provided with FEI submission as FEI TA 9.2: RSA.
	9. The applicant should share the swept path analysis with the Audit team to allow a refresh of the report. The audit will need updated post planning to reflect any detailed design work.	Noted. Please refer to refreshed RSA provided with FEI submission as FEI TA 9.2: RSA. A revised RSA will be also undertaken post determination.

METHODOLOGY

9.8 The methodology used in this FEI Chapter 9 is unchanged from the information provided in the 2023 EIAR Chapter 9.

BASELINE CONDITIONS

9.9 The baseline traffic flows in this FEI Chapter 9 are unchanged from the information provided in the 2023 EIAR Chapter 9.

9.10 Road accident data has been updated in FEI TA 9.1: TA.

ASSUMPTIONS AND LIMITATIONS

9.11 As with the original application, the assessment is based upon average traffic flows in one month periods. During the month, activities at the Site may fluctuate between one day and another and it is not possible to fully develop a day by day traffic flow estimate as no Balance of Plant (BoP) contractor has been appointed and external factors can impact upon activities on a day by day basis (weather conditions, availability of materials, time of year, etc.).

PREDICTING AND ASSESSING IMPACTS & POTENTIAL EFFECTS

CONSTRUCTION PHASE

9.12 The Revised Proposed Development will attract fewer construction traffic movements on the study area network as a result of the proposed design changes.

9.13 Using the same methodology as that used in the 2023 EIAR Chapter 9, the revised peak traffic flows will still occur in Month 13 as illustrated in 2023 TA 9.1: TA. The revised peak traffic calculated for the Revised Proposed Development will consist of 268 Heavy Goods Vehicle (HGV) movements and 98 Car / Light Goods Vehicle (LGV) movements per day. This represents a reduction of 6 cars & LGV and 8 HGV trips from the 2023 EIAR Chapter 9.

9.14 Table 9.2 summarises the peak traffic flows on the study area road links.

Table 9.2: Peak Construction Month Daily Traffic Flows

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	B7078, near Bodinglee West Site Access	43	246	289
2	A70, between the B7078 junction and Junction 12 of the M74	53	176	229
3	A70, near Bodinglee East Site Access	77	192	269
4	M74, to the north of Junction 11	23	29	52
5	A70, west of Douglas	38	0	38
6	A702, near Duneaton Foot	7	0	7

Please note minor variances due to rounding may occur.

9.15 The increase in traffic volumes is presented below as percentage increases for each class of vehicle in Table 9.3.

Table 9.3: Peak Construction Traffic Impact

Site Ref.	Survey Location	Cars & LGV	HGV	Total
1	B7078, near Bodinglee West Site Access	7.06%	78.23%	31.46%
2	A70, between the B7078 junction and Junction 12 of the M74	1.47%	14.71%	4.76%
3	A70, near Bodinglee East Site Access	2.19%	22.78%	6.19%
4	M74, to the north of Junction 11	0.09%	0.26%	0.14%
5	A70, west of Douglas	2.22%	0.00%	1.87%
6	A702, near Duneaton Foot	0.11%	0.00%	0.10%

Please note minor variances due to rounding may occur.

9.16 The change in peak construction traffic is slight and the associated traffic impact is reduced on all links marginally. The construction impact and significance is otherwise as per the 2023 EIAR Chapter 9, in that the total traffic flows along B7078 during the peak construction works are considered to result in significant adverse effects, prior to the application of mitigation measures.

9.17 The Revised Proposed Development traffic flows interacting with the Core Path / Rights of Way network would still be considered to result in significant adverse effects during construction, prior to the application of mitigation measures.

9.18 It is also worth considering that, as with the 2023 Proposed Development, the effects relate solely to the peak of construction activities (Month 13), and that the construction period is short lived and the effects transitory in nature.

OPERATIONAL PERIOD

9.19 The operational phase impacts remain unchanged from the information provided in the 2023 EIAR Chapter 9 (not significant).

DECOMMISSIONING PHASE

9.20 The decommissioning phase impacts remain unchanged from the information provided in the 2023 EIAR Chapter 9.

CUMULATIVE EFFECTS

9.21 The originally assessed schemes of Cumberhead Wind Farm, Cumberhead West Wind Farm and Broken Cross Wind Farm will be complete prior to works commencing on the Revised Proposed Development.

9.22 Kennoxhead Extension 2 Wind Farm and Priestgill Wind Farm were previously assessed as cumulative development and have yet to commence on site. As such, these projects are still considered as cumulative development and the results including this development are therefore still valid.

9.23 There are no further committed developments that have been consented recently within the study area that are likely to result in significant effects on access, traffic and transport receptors.

9.24 Should other nearby developments be consented and be constructed concurrently with the Revised Proposed Development, then the Applicant will work with neighbouring developers to develop common traffic management measures, which will be managed through adherence to a detailed CTMP.

MITIGATION

MITIGATION AND MONITORING

9.25 The mitigation measures set out in the 2023 EIAR Chapter 9 remain unchanged. These include:

- A Construction Traffic Management Plan (CTMP);

- Abnormal Load Transport Management Plan (TMP); and
- An Access Management Plan (AMP).

9.26 In light of the feedback from SLC Roads Officers, the proposed mitigation measures can all be secured via suitably worded planning conditions.

9.27 The Section 96 Wear & Tear Agreement would be secured in the CTMP or could be provided as a stand-alone condition. It is proposed the AIL weight review and assessment is addressed via a separate planning condition.

RESIDUAL EFFECT

Construction

9.28 An evaluation of the potential effects of the increase in traffic on the study area roads used for construction traffic has been considered. The summary of this assessment is provided in Table 9.4.

9.29 The level of traffic impact of the Revised Proposed Development is such that the significance of residual effects would be the same, being **Minor** in nature and therefore **Not Significant**. The traffic effects are transitory in nature. No long-lasting detrimental transport or access issues are associated with the construction phase of the Revised Proposed Development.

Operation

9.30 There are no significant residual effects associated with the operational phase of the Revised Proposed Development.

Decommissioning

9.31 There are no residual effects associated with the decommissioning phase of the Revised Proposed Development.

SUMMARY

9.32 The Revised Proposed Development would lead to a temporary increase in traffic volumes on the study area during the construction phase. Traffic volumes would fall considerably outside the peak period of construction.

9.33 The maximum traffic impact associated with construction is predicted to occur in Month 13 of the indicative construction programme.

9.34 The traffic associated with the Revised Proposed Development, at the peak of construction, would result in an additional 366 total movements which comprises 268 HGV movements per day (134 inbound and 134 outbound) and 98 Cars & Lights (49 inbound and 49 outbound). This represents a reduction of 14 movements (6 Car & LGV and 8 HGV).

9.35 The greatest impact would occur along the B7078 and the Core Path network. This is a temporary effect experienced during the construction phase.

9.36 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and transport issues. The residual effects are all

assessed to be minor or negligible. Furthermore, as they will occur during the construction phase only, they are temporary and reversible.

9.37 In comparing the original submission to this FEI submission, the changes in transport effects are minimal and with the provision of the proposed mitigation, the residual effects are still considered not significant.

Table 9.4: Summary of Significant Effects of the Revised Proposed Development

Receptors	Likely Significant Effect	Mitigation Proposed	Means of Implementation	Residual Effect
Construction				
B7078 Users and Residents and Core Path / Right of Way Users	Severance	CTMP proposals	Via a condition of consent. CTMP to be agreed with SLC prior to construction activities commencing.	Minor (Not significant)
	Driver delay	CTMP Proposals and improved signage	Via a condition of consent. CTMP to be agreed with SLC prior to construction activities commencing.	Minor (Not significant)
	Pedestrian delay	CTMP and AMP proposals	Via a condition of consent. CTMP and AMP to be agreed with SLC prior to construction activities commencing.	Minor (Not significant)
	Pedestrian amenity	CTMP and AMP proposals	Via a condition of consent. CTMP and AMP to be agreed with SLC prior to construction activities commencing.	Minor (Not significant)
	Fear and intimidation	CTMP and AMP proposals	Via a condition of consent. CTMP and AMP to be agreed with SLC prior to construction activities commencing.	Minor (Not significant)
	Accidents and safety	CTMP and AMP proposals	CTMP Proposals, improved signage and develop signage strategy and agree works with TS and SLC. Access junctions to be designed in accordance with SLC guidelines.	Minor (Not significant)
Operation				
	None	None	None	None
Decommissioning				
	None	None	None	None

10. HYDROLOGY, HYDROGEOLOGY & GEOLOGY

SUMMARY

This Chapter evaluates the effects of the Revised Proposed Development arising from the construction, operation and decommissioning phases on the Hydrology, Hydrogeology and Geology resource, as a result of design modifications set out in Chapter 3 (Design iterations). The Design Changes reflect consultation feedback from SEPA and NatureScot on the 2023 Proposed Development. These Design Changes include the removal of two turbines (T9 and T10) in Bodinglee West and tip height reductions of turbines across both Bodinglee East and West and localised change to access track alignment. T9 was removed as a result of SEPA comments relating to peat depth at this location. The assessment for the Revised Proposed Development is based on a desk study, consultation and site surveys undertaken for 2023 Proposed Development.

These identified a number of surface watercourses within the Site, two designated sites (Red Moss SSSI, SAC and Miller's Wood SSSI) that are potentially in hydraulic connectivity with the Site and one private water supply (Coalgill), which while not being in hydraulic connectivity with the Site, has the potential to have the infrastructure damaged during construction or decommissioning. An impact assessment was then undertaken to determine the likely impact of the Revised Proposed Development on the water environment, including surface watercourses groundwater, groundwater dependent terrestrial ecosystems, designated sites and private water supplies.

Localised deep peat was identified as a sensitive receptor within the Site following peat probing surveys with over 95% of probes recording peat depths at 1.0 m or less. One of the key design objectives was to ensure that turbines were located in less than 1.0 m of peat which was largely achieved, with the exception of T1 encroaches into an area of deeper peat. T9 which previously encroached on an area of deep peat has now been removed as part of the Revised Proposed Development.

The assessment also analysed the risk of peat slide which indicated that the majority of the Site is generally of Low and Negligible risk although localised medium risk areas were identified, mainly across a section of access track in the north of Bodinglee East (Parcel A). Notwithstanding this, infrastructure locations and existing site conditions will be checked at the time of construction and micro-siting adopted if required in order to maintain the design objective of avoiding any potential deep peat to minimise peat slide risk.

Construction mitigation will allow for the micrositing of infrastructure up to 50 m to avoid pockets of deep peat. The adoption of best practice for storage and re-use of peat onsite as well as drainage measures will be developed throughout the construction period to include robust peat management and a monitoring programme.

Implementation of the proposed mitigation measures and undertaking the construction works in accordance with best practice will ensure that there are no significant residual effects on hydrology, hydrogeology and geology, including soils and peat, from the Revised Proposed Development.

The removal of T9 and the commitment to micro-site T1 to avoid areas of peat with a depth of 1 m or greater reduces the potential effects on receptors such as watercourses and geology.

STATEMENT OF COMPETENCE

10.1 The Geology aspects of this Chapter and its associated Technical Appendices were undertaken by Steven Seaton, an Engineer with seven years of experience, and was supported by Hugh Powell, a Geotechnical Associate Director of twenty-one years of experience in ground condition assessments. The Hydrology and Hydrogeology aspects of this Chapter and their associated Technical Appendices have been undertaken by Liam Nevins, a chartered Water and Environmental Manager with 18 years' renewable energy industry EIA experience, as outlined in Table 10.1.

10.2 The Chapter and its Technical Appendices have been reviewed by Gavin Bain, Group Director of Power and Energy.

Table 10.1: Key Team Members

Team Member	Job Title	Qualifications	No. Years Experience
Steven Seaton	Engineer	MEng	7 Years
Hugh Powell	Associate Director	BSc (Hons), MSc	22 Years
Liam Nevins	Senior Consultant	BSc Hons MCIWEM C.WEM	18 Years
Gavin Bain	Group Director	BEng (Hons), MSc, MICE	18 Years

INTRODUCTION

10.3 An Environmental Impact Assessment Report (EIA Report) was submitted for Bodinglee Wind Farm (the 2023 Proposed Development) in June 2023 (2023 EIA Report), ECU reference: ECU00004839.

10.4 The 2023 Proposed Development consisted of:

- 37 three-bladed turbines.
- Permeable access tracks.
- Wind turbine foundations, blade laydown areas and crane hardstanding at each wind turbine location.
- A substation incorporating electrical switchgear and wind farm control elements.
- A temporary construction compound.
- Borrow pits; and
- A network of underground cabling running adjacent to the access tracks, where achievable.

10.5 Following submission of the planning application and the 2023 EIA Report and subsequent consultees comments, the 2023 Proposed Development has been revised

and re-assessed for the Further Environmental Information (FEI) submission and hereafter is referred to as the 'Revised Proposed Development'.

10.6 The revisions involved:

- Reduction to 35 turbines through the removal of T9 and T10.
- Reduction and alteration of infrastructure, such as access tracks and crane hardstanding, to reflect the above changes.
- Additional areas of floated track.
- Spur towards T35 and T36 has changed to minimise length of track travelling through areas of peatland habitat.
- An additional watercourse crossing NWC14; and
- Candidate turbine specifications and the locations of the other turbines remain unchanged.

10.7 In accordance with Section 19 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) this FEI Chapter was prepared in order to detail the revised information.

10.8 This FEI Chapter evaluates the predicted effects of the Revised Proposed Development on the geological and hydrological environment and provides a preliminary assessment of the baseline conditions and potential impacts to hydrological and hydrogeological resources.

10.9 The information and data collated from desk-based assessments and hydrological surveys undertaken prior to the 2023 EIAR Chapter 10 submission has informed the Design Changes to avoid, where possible, and minimise the potential effects on, hydrological receptors as a result of the Revised Proposed Development.

10.10 This FEI Chapter should be read in conjunction with the following:

- The Environmental Impact Assessment Report (2023 EIA Report) Chapter 10: Hydrology, Hydrogeology and Geology (2023 EIAR Chapter 10) accompanied by relevant Figures submitted in 2023.
- Technical Appendix TA2.1: Outline Environmental Management Plan (2023 TA 2.1 oEMP), dated June 2023;
- Techincal Appendix TA10.1: Geotechnical Desk Study (2022 TA 10.1 GDS), dated July 2022.
- Technical Appendix TA10.2: Watercourse Crossing Schedule (2023 TA 10.2 WCS), dated April 2023.
- Technical Appendix TA10.3: Peat Slide Risk Assessment (2023 TA 10.3 PSRA), dated June 2023.
- Technical Appendix TA10.4 : Outline Peat Management Plan (2023 TA 10.4 oPMP), dated June 2023 ;

- Technical Appendix TA10.5: Groundwater Dependent Terrestrial Ecosystem Assessment (2023 TA 10.5 GDTEA), dated June 2023.
- Technical Appendix TA10.6: Private Water Supply Risk Assessment (2023 TA 10.6 PWSRA), dated June 2023.
- FEI Technical Appendix TA10.2: Watercourse Crossing Schedule (FEI TA 10.2 WCS), dated April 2025.
- FEI Technical Appendix TA10.3: Peat Slide Risk Assessment (FEI TA 10.3 PSRA), dated April 2025; and
- FEI Technical Appendix TA10.4 : Outline Peat Management Plan (FEI TA 10.4 oPMP), dated April 2025.

10.11 This FEI Chapter is supported by the following Figures provided in Volume 3a: Figures:

- FEI Figure 10.1: Bedrock Geology.
- FEI Figure 10.2: Superficial Soils.
- FEI Figure 10.3: National Soils of Scotland Map.
- FEI Figure 10.4: Extract from Carbon and Peatland Map 2016.
- FEI Figure 10.5: Interpolated Peat Depths.
- FEI Figure 10.6: Hydrology Study Area.
- FEI Figure 10.7: Hydrological Catchments.
- FEI Figure 10.8: Hydrological Features.
- FEI Figure 10.9: Watercourse Crossings; and
- FEI Figure 10.10: Groundwater Dependant Terrestrial Ecosystems.

10.12 This FEI Chapter includes the following elements:

- Key Conclusions of the 2023 EIAR Chapter 10.
- Study Area.
- Relevant Changes to Legislation, Policy and Guidance.
- Methodology and Approach.
- Consultation.
- Assessment of Potential Effects.
- Mitigation and Residual Effects.
- Summary of Effects; and

- Statement of Significance.

10.13 This FEI Chapter is written with consideration given to The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (The EIA Regulations)[38] which establishes in broad terms what is to be considered when determining the effects of development proposals on Hydrology, Hydrogeology and Geology, including peat.

10.14 The Water Framework Directive (WFD) (2000/60/EC)[39] establishes a framework for the protection, improvement and sustainable use of all water environments. It is transposed within Scotland by the Water Environment and Water Services (Scotland) Act 2003[40] and subsidiary regulations.

10.15 Consideration was also given to the National Planning Framework 4 (NPF4)[41] and sets out the Scottish Government's policy on how nationally important land use planning matters should be addressed. Policy 5 within this document details the approach to Soils, and includes some of the following key points relating to developments on peatlands:

10.16 "Development proposals on peatland, carbon rich soils and priority peatland habitat will only be supported for:

- Essential infrastructure and there is a specific locational need and no other suitable site;
- The generation of energy from renewable sources that optimises the contribution of the area to greenhouse gas emissions reductions targets;
- Small-scale development directly linked to a rural business, farm or croft;
- Supporting a fragile community in a rural or island area; or
- Restoration of peatland habitats.

10.17 Where development on peatland, carbon-rich soils or priority peatland habitat is proposed, a detailed site specific assessment will be required to identify:

- The baseline depth, habitat condition, quality and stability of carbon rich soils;
- The likely effects of the development on peatland, including on soil disturbance; and
- The likely net effects of the development on climate emissions and loss of carbon.

[38] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) https://www.legislation.gov.uk/ssi/2017/101/contents/made (Accessed 16/03/2023)
[39] European Commission (2000) The Water Framework Directive (2000/60/EC) [Online] Available at: http://ec.europa.eu/environment/water/water-framework/index_en.html (Accessed 24/03/2022)
[40] Scottish Government (2003) The Water Environment and Water Services (Scotland) Act 2003 [Online] Available at: http://www.legislation.gov.uk/asp/2003/3/contents (Accessed 24/03/2022)
[41] Scottish Government, 2023: National Planning Framework 4 (NPF4) [online] available at: National Planning Framework 4 - gov.scot (www.gov.scot) (Accessed 23/03/23)

10.18 This assessment should inform careful project design and ensure, in accordance with relevant guidance and the mitigation hierarchy, that adverse impacts are first avoided and then minimised through best practice. A peat management plan will be required to demonstrate that this approach has been followed, alongside other appropriate plans required for restoring and/ or enhancing the site into a functioning peatland system capable of achieving carbon sequestration."

10.19 The Revised Proposed Development is considered to meet the policy test under Policy 5 as a renewable energy development and therefore an outline Peat Management Plan (2023 TA 10.4 oPMP) has been provided as part of the 2023 EIA Report and updated oPMP (FEI TA 10.4 oPMP) as part of FEI submission.

SCOPE OF ASSESSMENT

STUDY AREA

10.20 The hydrology and hydrogeology study area (the Core Study Area) is defined by the indicative developable area and is shown in FEI Figure 10.6. A study area of 2 km from the Core Study Area has been defined to assess the potential effects on PWS (the PWS Study Area), and a wider study area of 10 km from the Core Study Area to assess potential effects on the downstream water environment (the Wider Study Area).

10.21 The geology study area for the Revised Proposed Development is shown in FEI Figures 10.1 to 10.5. The eastern portion of the Site is located to the east of the M74 and it will be referred to as Bodinglee East. Bodinglee West is the portion of land to the west of the M74. Bodinglee East is located approximately on grid reference NS 88436 29583 and Bodinglee West is located approximately on grid reference NS 85864 27782.

10.22 The topography on the Site is complex with several notable hilltops occurring onsite. The hilltops on the Site as well as the watercourses on the Site are listed below.

10.23 Hilltops on Bodinglee East:

- Maidengill Hill (329 m AOD) in the north-west portion of the Site;
- Birshaw Rig (332 m AOD) in the north-west portion of the Site;
- Young Hill (335 m AOD) in the central portion of the Site;
- Scaur Hill (382 m AOD) in the central portion of the Site;
- Cuff Hill (341 m AOD) in the northern portion of the Site;
- Limmer Hill (384 m AOD) in the northern portion of the Site;
- Bodinglee Law (345 m AOD) in the southern portion of the Site;
- Jack's Law (351 m AOD) in the southern portion of the Site;
- Wedders Law (361 m AOD) in the southern portion of the Site;
- Outer Law (362 m AOD) in the southern portion of the Site;

- Wildshaw Hill (375 m AOD) in the south-eastern portion of the Site;

10.24 Hilltops on Bodinglee West:

- Brown Hill (381 m AOD) in the centre of the Site;
- Auchensaugh Hill (392 m AOD) in the southern portion of the Site;
- Paige Hill (388 m AOD) in the northern portion of the Site; and
- Sheepfold Braid Knowe (322 m AOD) in the south-west portion of the Site.

CONSULTATION RESPONSES

10.25 Consultation was undertaken with stakeholders following 2023 EIA Report submission. Table 10-2 shows the relevant responses from consultees relating to hydrology and hydrogeology as well as indicating how these have been addressed within this FEI Chapter.

Table 10.2: Consultation Responses

Consultee	Summary of Response	Where & How Addressed
SEPA (ref 10839 / ECU00004839) Response issued on 07/12/2023	In general, the site layout has avoided areas of deep peat. However, T9 (2.35 m average peat depth as shown in table 10.11) and to a lesser extent T1 (1.01 average peat depth) appear to be located on peat greater than 1m depth. During pre-application discussions with the applicant, we highlighted concerns, in particular relating to the location of T9, in relation to impacts on peat. Although it is stated within the EIAR that micrositing will be used to avoid deep peat pockets, it is our view that the submitted layout must first demonstrate avoidance, as per the mitigation hierarchy. It appears from the peat survey information submitted with the application that there may be scope to relocate T9 to shallower areas of peat to minimise impacts. On that basis we are not currently satisfied the proposal demonstrates avoidance in line with the mitigation hierarchy of NPF4. In relation to T9 we note the applicant's comments that the current location was based on a number of factors including avoiding Annex 1 habitat, watercourse buffers, site topography, cultural heritage and visual receptors. The applicant however acknowledges that there may be potential to reposition the turbine, and that this will be reviewed when comments from all consultees have been received. We therefore issue a holding objection pending submission of further information from the applicant following the receipt of all consultation responses. It remains	T9 and the associated infrastructure, such as crane pads and access tracks, have been removed from the Revised Proposed Development. The access track south west of T24 (west of T19) will use a floating track method. As discussed with SEPA, there is a commitment to micro-site T1 to areas with a recorded peat depth of 1 m or less. As such, this addresses the points raised by SEPA in relation to deeper peat.

Consultee	Summary of Response	Where & How Addressed
	our preference that the positioning of T9 and, if possible T1 and associated components are **modified** to avoid development on peat depths greater than 1m and if this is not possible, we may request that the turbines be removed from the proposals. We note there is a section of access track in Bodinglee East (south west of T24) which appears to cross deep peat. In this case, as the peat is around 1m deep, we would be content with a section of floating road, as set out in the Schedule of Mitigation (to be secured by planning condition as outlined above).	

EFFECTS SCOPED INTO THE ASSESSMENT

10.26 No changes from information provided in the 2023 EIAR Chapter 10.

EFFECTS SCOPED OUT OF THE ASSESSMENT

10.27 No changes from information provided in the 2023 EIAR Chapter 10.

METHODOLOGY

10.28 This FEI Chapter has followed the guidance and techniques presented in the application for the 2023 Proposed Development.

RELEVANT LEGISLATION AND POLICY

10.29 This FEI Chapter was produced with consideration given to all of the legislation, policy and guidance at the time of witing.

10.30 No changes to legislation, policy or guidance has occurred since the submission of the 2023 EIAR Chapter 10.

10.31 It should be noted that SEPA released new Surface Water and Small Watercourses Flooding data in March 2025. This FEI provides an updated assessment regarding pluvial flood risk.

METHOD OF BASELINE CHARACTERISATION

10.32 This FEI Chapter has followed the guidance and techniques presented in the original application.

10.33 There has been no change to the published mapping referred to in the 2023 EIAR Chapter 10, and the land use at the Site remains the same. Therefore, there are no changes to the baseline conditions presented in the Method of Baseline Characterisation section of the 2023 EIAR Chapter 10.

CRITERIA FOR ASSESSING SIGNIFICANCE

10.34 No changes from information provided in the 2023 EIAR Chapter 10.

PREDICTED DESIGN ASSUMPTIONS, GOOD PRACTICE MEASURES AND EMBEDDED MITIGATION

10.35 No changes from information provided in the 2023 EIAR Chapter 10.

BASELINE CONDITIONS

10.36 No physical changes from baseline information provided in the 2023 EIAR Chapter 10.

10.37 The updated SEPA surface water maps have been used for this assessment.

10.38 This FEI Chapter has followed the guidance and techniques presented in the original application.

10.39 There has been no change to the published mapping referred to in the 2023 EIAR Chapter 10 and Study Area, and the land use at the Site remains the same. Therefore, there are no changes to the baseline conditions presented in the Baseline Conditions section of the 2023 EIAR Chapter.

10.40 The geology, hydrology and hydrogeology baseline information at the Site is displayed for the Revised Proposed Development on FEI Figures 10.1 to 10.10.

10.41 As such, the sensitivity classification of receptors remains the same as per the 2023 EIAR Chapter 10.

IMPACT ASSESSMENT

10.42 This FEI Chapter summarises the assessment of potential effects from the final layout of the Revised Proposed Development. As detailed in the FEI Chapter 2: Development Description, the revisions incorporated within the FEI Layout are:

- Removing T9 and T10;
- Realigning access tracks to provide access between T31 and T35;
- Removal of one borrow pit (BP09); and
- Additional areas of floated track.

There is less of an effect on hydrological receptors as a result of these changes to the Revised Proposed Development.

Infrastructure Within 50m of Watercourses

10.43 No changes from information provided in the 2023 EIAR Chapter 10.

Micro-siting

10.44 The embedded mitigation includes a 50 m watercourse buffers for construction works with the exception of identified watercourse crossings. As such, micro-siting of up to 50m will not alter the outcome of the impact assessment of the Revised Proposed Development on the water environment.

Construction Phase

Chemical Pollution

10.45 Whilst there are alterations to the layout of infrastructure and a reduction in the footprint proposed for the Revised Proposed Development compared to the 2023 Proposed Development, the potential for chemical pollution remains the same as stated within the 2023 EIAR Chapter 10. The embedded design measures and mitigation discussed within the 2023 EIAR Chapter 10 and 2023 TA 2.1: oEMP mean that there will be no change to the significance previously assessed. Therefore, effects on watercourses of High sensitivity remain Negligible and therefore have a residual significance of **Minor Significance**.

10.46 This is **Not Significant** in terms of the EIA Regulations.

10.47 Effects on near surface water and groundwater remain Negligible and therefore the significance of the residual effect associated with chemical pollution is considered to be **Minor Significance**.

10.48 This is **Not Significant** in terms of the EIA Regulations.

Erosion and Sedimentation

10.49 As there will be a reduction in the number of turbines (i.e. removal of T9 and T10) and associated infrastructure, such as access tracks and crane pads, the risk for erosion and sedimentation to Moss Burn and near surface water receptors on Flow Moss, will reduce due the reduction in the area required for excavation etc.

10.50 The measures outlined within the 2023 EIAR Chapter 10 to manage construction surface water run-off and provide suitable water treatment are to be adhered to during the construction of the design. Therefore, the significance will not change from **Minor Significance** (all receptors) and therefore **Not Significant** in terms of the EIA regulations.

Impediments to Flow

10.51 The realignment of the access track between T31 and T35 in the Revised Proposed Development layout means there is a requirement to cross Birshaw Burn i.e. adds watercourse crossing NWC14.

10.52 Whilst there is a slight increase in the potential for effects associated with the aforementioned additional crossing, the measures outlined within the 2023 EIAR Chapter 10 to manage crossing designs are to be adhered to during the construction of the design in order to limit the risk of impediments to flow.

10.53 Conversely, the removal of T9 and T10 reduces the potential for near surface flow impediments.

10.54 Therefore, the significance will not change from **Minor** (all receptors) and is therefore **Not Significant** in terms of the EIA regulations.

Acidification of Watercourses, Groundwater and Near-surface Water

10.55 The felling proposals for the Revised Proposed Development are the same as for the 2023 Proposed Development i.e. in proximity to Craig Burn for access from the A71.

10.56 As such, there is no change in the effects on watercourses of High sensitivity which are considered to be of Negligible magnitude of change and, therefore of **Minor Significance**. This is **Not Significant** in terms of the EIA Regulations.

10.57 Potential effects on Groundwater (Medium to High sensitivity receptor) and Near Surface Water (High sensitivity receptor) are considered to be of Negligible magnitude of change and therefore of **Minor** residual significance.

10.58 This is **Not Significant** in terms of the EIA Regulations.

Increased Surface Water Runoff and Flood Risk

10.59 As outlined previously, the felling proposals remain the same as per the application for the 2023 Proposed Development. As the Site has relatively impermeable geology high surface-water run-off rates are considered to be part of the baseline and felling would not contribute a perceptible increase in rates.

10.60 The removal of T9 and T10 and associated infrastructure reduces the amount of hardstanding and therefore marginally reduces the potential for increased run-off rates when compared to the 2023 Proposed Development.

10.61 Furthermore, measures, including SuDS measures, to attenuate run-off and intercept sediment prior to run-off entering watercourses are described in 2023 TA 2.1: oEMP and will be incorporated as part of the Revised Proposed Development.

10.62 Whilst SEPA have updated their flood maps (March 2025) to better represent flood risk from surface water and small watercourses, the majority of infrastructure avoids the future surface water and small watercourses pathways, with the exception of batching plant CBP1. Given that the batching plant would be onsite for a temporary period (i.e. only during eh construction phase), it is not anticipated that the surface water climate change flow pathways will interact with the infrastructure.

10.63 Therefore, there will be no change to the residual significance previously stated in the 2023 EIAR Chapter 10 (**Minor**).

10.64 This is **Not Significant** in terms of the EIA Regulations.

Effects on the Condition of Wetland Habitats

10.65 Whilst there are alterations to the layout of infrastructure footprint proposed for the Revised Proposed Development when compared to the 2023 Proposed Development, the potential for changes to groundwater interflow patterns remains the same as assessed within the 2023 EIAR Chapter 10.

10.66 Whilst T9 and T10 have been removed from the Revised Proposed Development layout, neither the turbine bases or crane pads associated with T9 and T10 were within 250 m of GWDTE communities (identified as M23/MG9). Accordingly, 2023 TA10.5: GWDTEA does not require updating and the conclusions remain valid for the Revised Proposed Development i.e. effects of Adverse at the Local level and Adverse effect significant at the Site level in the absence of mitigation.

10.67 The mitigation and design measures discussed within the 2023 EIAR Chapter 10 and 2023 TA 2.1: oEMP mean that there will be no change to the significance previously stated i.e. Positive effect significant at the Local level or a residual effect of **Not Significant** and therefore is **Not Significant** in accordance with the EIA Regulations.

Effects on the Quality, Quantity and Continuity of Private Water Supplies

10.68 As discussed in the Baseline Conditions section of the 2023 EIAR Chapter 10, there is only one PWS identified that has the potential to be impacted by the Revised Proposed Development (Coalgill).

10.69 This PWS is not hydraulically linked but the pipeline would run underneath an access track and there is the potential for damage to the pipeline to occur during the construction phase. The PWS is classified as having High sensitivity but measures, including a watching brief, will be developed to ensure that no damage occurs to the pipeline during construction. Therefore, effects remain the same as the original assessment and will be of Negligible magnitude and therefore **Minor Significance**.

10.70 This is **Not Significant** in terms of EIA Regulations.

Risk of Battery Fires

10.71 The design parameters for the BESS compound remains the same as per the 2023 Proposed Development and the measures to limit the potential for fire suppressant to interact with the hydrological environment remains the same as outlined in the 2023 EIAR Chapter 10.

10.72 As such, the magnitude of change and significance of effects associated with contamination from battery storage are assessed as being of **Minor** on all receptors, and **Not Significant** in terms of the EIA Regulations.

Interrelated Effects on Hydrological Receptors

10.73 No changes from information provided in the 2023 EIAR Chapter 10.

Construction Phase - Geology

Disturbance of Deep Peat

10.74 Within the 2023 Proposed Development the majority of the turbines are located in areas where the peat depths are less than 1.0 m, with the exception of T1 and T9. T9 and the associated access tracks and crane pad have been removed from the Revised Proposed Development.

10.75 Additionally, as discussed with SEPA, there is a commitment to micro-site T1 to an area with less than 1.0 m of peat if feasible following detailed ground investigations.

10.76 The realigned track serving T31 and T35 crosses peat probe locations which recorded depths of less than 0.5 m.

10.77 On this basis, there will be less disturbance to peat compared to the 2023 Proposed Development. Disturbance to peat classified as Medium sensitivity, will have a Negligible magnitude of effect, and therefore, the Revised Proposed Development will result in a potential **Negligible** effect.

10.78 A comparison of the peat disturbance at the 2023 EIA stage and the FEI stage is shown within FEI TA10.4: oPMP, where the benefit from the FEI layout changes has been quantified.

10.79 This is **Not Significant** in accordance with the EIA Regulations.

Peat Stability

10.80 Within the 2023 Proposed Development the majority of the turbines are located in areas where the peat depths are less than 1.0 m, with the exception of T1 and T9. T9 and the associated access tracks and crane pad have been removed from the Revised Proposed Development.

10.81 Additionally, as discussed with SEPA, there is a commitment to microsite T1 to an area where peat depths were recorded to be less than 1.0 m where feasible.

10.82 The realigned track serving T31 and T35 crosses peat probe locations which recorded depths of less than 0.5 m.

10.83 The potential effect on receptors from potential for peat slide is the same as per the 2023 EIAR Chapter 10 i.e. Low magnitude, therefore, the Revised Proposed Development will result in a potential **Minor** effect that would be **Not Significant** in accordance with the EIA Regulations.

10.84 The details of the changes to the layout at the FEI stage and the changes to the peat slide risk assessment are highlighted within FEI TA10.3: PSRA.

Loss and Compaction of Peat and Soils

10.85 In relation to the compaction of soils, investigations at the Site have established that the vast majority of the Site is underlain by less than 1.0 m of peat. The Revised Proposed Development infrastructure generally avoids the isolated areas of deep peat within the Site, however, there are some infrastructure elements sited in areas of deep peat.

10.86 Although some infrastructure, such as minor sections of access track and the Batching Plant, are sited in deep peat, this is only a small proportion of the whole infrastructure footprint and is limited to small, localised pockets of deep peat. These small areas can be further reduced as the Revised Proposed Development includes floated access tracks and micro-siting into areas of shallower peat. Furthermore, the removal of T9 and the commitment to micro-site T1 to areas where peat is less than 1.0 m also reduces the potential for loss and compaction of peat and soils compared to the 2023 Proposed Development.

10.87 On this basis, given the very localised impacts on deep peat throughout the Site; loss and compaction of soils is classified as Medium sensitivity, with a Low magnitude of change, therefore, the Revised Proposed Development will result in a potential **Minor** effect and is **Not Significant** in accordance with the EIA Regulations.

Impact on Geology

10.88 One borrow pit (BP09) has been removed from the Revised Proposed Development.

10.89 As per the 2023 EIAR Chapter 10 assessment the effect on geology, classified as Low receptor sensitivity, will be of Low magnitude, therefore, the Revised Proposed Development will result in a residual **Negligible** effect.

10.90 This is **Not Significant** in accordance with the EIA Regulations

Changes in Groundwater Interflow Patterns and GWDTEs

10.91 Whilst there are alterations to the layout of infrastructure footprint proposed for the Revised Proposed Development when compared to the 2023 Proposed Development, the potential for changes to groundwater interflow patterns remains the same as assessed within the 2023 EIAR Chapter 10.

10.92 Whilst T9 and T10 have been removed from the Revised Proposed Development layout, neither the turbine bases or crane pads associated with T9 and T10 were within 250 m of GWDTE communities (identified as M23/MG9). Accordingly, 2023 TA10.5: GWDTEA does not require updating and the conclusions remain valid for the Revised Proposed Development i.e. effects of Adverse at the Local level and Adverse effect significant at the Site level in the absence of mitigation.

10.93 The mitigation and design measures discussed within the 2023 EIAR Chapter 10 and the 2023 TA 2.1: oEMP mean that there will be no change to the significance previously stated i.e. Positive effect significant at the Local level or a residual effect of **Not Significant** and therefore is **Not Significant** in accordance with the EIA Regulations.

Operational Phase

10.94 Potential effects in relation to hydrology and hydrogeology associated with the operation of the Revised Proposed Development remain unchanged from the effects provided for the 2023 Proposed Development which are as follows:

- Increased run-off rates and volume.
- Continued erosion and sedimentation from runoff from areas of hardstanding.
- Alterations to natural flow pathways from runoff from areas of hardstanding.
- Risk of chemical pollution as a result of battery fires from the substation and battery storage facility; and
- Risk of a chemical pollution event from minor spills from maintenance vehicles.

10.95 The nature of these effects has been discussed in relation to the construction phase. As there would be substantially less activity during operation, and as there is unlikely to be any significant ground disturbance during operation, the magnitude of these effects is similarly reduced.

Peatland Restoration

10.96 As a result of the peat excavation and re-use volume assessment undertaken in FEI TA10.4: oPMP, there is a peat deficit and it is anticipated that all peat and peaty soils excavated during construction will be fully reinstated in borrow pits and in the verges of access tracks and hardstanding areas. Therefore, the use of excess peat for peatland restoration will not be required as part of the Revised Proposed Development.

10.97 Adoption of best practice measures as outlined in the 2023 TA 2.1: oEMP, there would be minimal or no impacts upon peat and soils during the operational phase, and significant effects are not anticipated.

10.98 On this basis, during operation, effects on the receptors during operational phase is classified as Medium sensitivity, with a negligible magnitude of change. Therefore, the Revised Proposed Development will result in a potential **Negligible** effect and is **Not Significant**, in accordance with the EIA Regulations.

Decommissioning Phase

10.99 The effects of decommissioning would be marginally less than those stated within the 2023 EIAR Chapter 10 due to the removal of T9 and T10. On this basis, effects on the receptors during decommissioning phase is classified as Medium sensitivity, with a negligible magnitude of change, therefore, the Revised Proposed Development will result in a potential Negligible effect and is therefore **Not Significant** in accordance with the EIA Regulations.

CUMULATIVE EFFECTS

10.100 Since the 2023 EIA Report the M74 West Renewable Energy Park has been submitted to the ECU and is located approximately 3 km south of the Revised Proposed Development

10.101 The greatest potential for cumulative effects arises when the construction phase of another development overlaps with the construction phase of the Revised Proposed Development. Cumulative effects are considered to have the potential to be significant only where such an overlap may exist, as activities that could be potentially detrimental to the hydrological environment are greatly reduced during the operational phase of developments (e.g. excavation works, concrete pouring etc.).

10.102 Whilst the construction phases of the Revised Proposed Development and the M74 West Renewable Energy Park could overlap, both schemes have a commitment to good construction practice through the implementation of an oEMP and a Draft Outline Construction Environmental Management Plan (Technical Appendix 2.1, EIAR Volume 4 of the M74 West Renewable Energy Park) and as such, these construction measures will limit the potential for contaminants and sediment to be transferred to surface watercourses and groundwater.

10.103 Therefore, for the purposes of the assessment of potential cumulative effects, hydrology, hydrogeology and geology, including peat, are considered to be site-specific considerations and it is not anticipated that there will be cumulative effects.

MITIGATION

10.104 The embedded design measures within the 2023 TA 2.1: oEMP remain the same and no additional mitigation is required for the Revised Proposed Development.

RESIDUAL EFFECTS

10.105 Embedded mitigation measures and construction good practice measures are included in the 2023 TA 2.1: oEMP. The embedded mitigation and construction good practice measures are based on experience of providing detailed site design for several wind farm developments across Scotland, in consultation with SEPA.

10.106 Following the implementation of embedded mitigation as well as the mitigation measures detailed in Table 10.3, residual effects associated with peat disturbance, peat stability and peat and soil losses will all be Negligible. Residual impacts on the

water environment are predicted to be Minor as a result of the Revised Proposed Development.

10.107 With the mitigation proposed, the maximum magnitude of effects on hydrology, hydrogeology and geology, including peat, can be reduced from **Minor to Negligible**, and therefore remains **Not Significant** in terms of the EIA Regulations.

SUMMARY

10.108 Table 10.3 provides a summary of the effects detailed within this Chapter.

Table.10.3 - Summary of Effects

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect	Change from FEI
Construction Phase					
Peat and Peaty Soils	Disturbance of peat and peaty soils.	Negligible	Adoption of best practice measures for dealing with peat excavations, storage and backfilling as outlined in **FEI TA10.4: oPMP**.	Negligible	Yes
Peat and Peaty Soils	Peat Stability	Minor	Slope stability monitoring will occur during the construction phase, where necessary. Where required, micro siting of infrastructure to further reduce any risk of peat instability should be undertaken following detailed design. Adoption of best practice measures for dealing with peat excavations, storage and backfilling as outlined in **FEI TA10.4: oPMP and FEI TA10.3: PSRA**.	Negligible	No
Soils	Loss and Compaction of Peat and Soil	Minor	Best practice measures should be adopted during construction in line with **2023 TA2.1: oEMP**. Avoid over compaction of soils through excessive vehicle tracking, minimising the number of trips over vegetated ground where possible. Use of low-pressure tracked vehicles and bog matting when crossing areas of deep peat.	Negligible	No
Geology	Impact on Geology	Negligible	Intrusive ground investigation should be undertaken post-consent to ascertain the exact nature and quality of the underlying rocks,	Negligible	No

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect	Change from FEI
Construction Phase					
			particularly at the borrow pit search areas.		
Surface Watercourse	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
Groundwater	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
GWDTE	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
Designated Sites	Chemical Pollution	Minor	Adoption of embedded mitigation measures	Minor	No

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect	Change from FEI
Construction Phase					
	Erosion and Sedimentation	Minor	outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
PWS	Damage to Pipeline	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice including a watching brief	Minor	No
Operational Phase					
Peat, Soils and Geology	Disturbance, Loss and Stability	Negligible	Adoption of best practice measures for dealing with peat excavations, storage and backfilling as outlined in **FEI TA10.4: oPMP**.	Negligible	No
Surface Watercourse	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
Groundwater	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect	Change from FEI
Construction Phase					
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
GWDTE	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
Designated Sites	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
PWS	Damage to Pipeline	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
Decommissioning Phase					
Peat, Soils and Geology	Disturbance, Loss and Stability	Negligible	Adoption of best practice measures for dealing with peat excavations, storage and backfilling as outlined in **FEI TA10.4: oPMP**.	Negligible	No
Surface Watercourse	Chemical Pollution	Minor	Adoption of embedded mitigation measures	Minor	No

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect	Change from FEI
Construction Phase					
	Erosion and Sedimentation	Minor	outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
Groundwater	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
GWDTE	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
Designated Sites	Chemical Pollution	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice	Minor	No
	Erosion and Sedimentation	Minor		Minor	No
	Impediments to Flow	Minor		Minor	No

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect	Change from FEI
Construction Phase					
	Increase in run-off	Minor		Minor	No
	Acidification of waterbodies	Minor		Minor	No
	Contamination from battery fire	Minor		Minor	No
PWS	Damage to Pipeline	Minor	Adoption of embedded mitigation measures outlined in **2023 TA2.1: oEMP** and good construction practice including a watching brief	Minor	No

10.109 This FEI Chapter has assessed the likely significance of effects relating to the Revised Proposed Development on Hydrology, Hydrogeology and Geology, including peat. Although Design Changes were undertaken to limit the potential effects on the hydrological and hydrogeological environment, the changes were limited and did not have an impact on the overall significance of effects. The Revised Proposed Development has been assessed as having the potential to result in effects of Minor or Negligible significance.

10.110 Given that only effects of moderate significance or greater are considered significant in terms of the EIA Regulations, the potential effects on Hydrology, Hydrogeology and Geology, including peat, are **Not Significant**.