

Corriegarth 2 Wind Farm

Supplementary Environmental Information Report

Volume 1 - SEI Report Text

April 2022



CORRIEGARTH 2 WIND FARM

SEI Report – Volume 1 – SEI Report text

- Chapter 1** Introduction
- Chapter 2** Energy and Planning Policy
- Chapter 3** Site Selection and Design
- Chapter 4** Development Description
- Chapter 5** EIA Methodology
- Chapter 6** Landscape and Visual Amenity
- Chapter 7** Ecology
- Chapter 8** Ornithology
- Chapter 9** Archaeology and Cultural Heritage
- Chapter 10** Noise
- Chapter 11** Traffic and Transport
- Chapter 12** Hydrology and Hydrogeology
- Chapter 13** Geology and Peat
- Chapter 14** Socio-Economics, Recreation and Tourism
- Chapter 15** Climate Change and Carbon Balance
- Chapter 16** Other Issues



CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 1
Introduction



1 INTRODUCTION

1.1 INTRODUCTION

In January 2021, Corriegarth 2 Windfarm Limited ('the Applicant') submitted an Environmental Impact Assessment Report (EIA Report), for consent pursuant to Section 36 of the Electricity Act 1989¹ (Planning Reference: ECU00002175) to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Development'). In addition, the Applicant sought a Direction from the Scottish Ministers for planning permission to be deemed to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997², as amended.

This Supplementary Environmental Information (SEI) Report provides further, and updated, environmental information in light of revisions to the Development. The Applicant has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14;
- Relocation of eight turbines (T1, T2, T8, T9, T11, T13, T14, T15), and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pit & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

Given that the Revised Development is expected to exceed 50 MW and is classed as a Section 36 application, an EIA was undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017³ referred to as 'the EIA Regulations'.

In line with the EIA Regulations, the Applicant recognised that the Development is an 'EIA Development' following consideration of the characteristics of the Development, the location of the land within the site boundary in which the Development is located (the Site) and the characteristics of the potential impacts as outlined within Schedule 3 of the EIA Regulations.

The EIA Report as submitted in January 2021, presented information on the likely significant environmental effects of the Development. The EIA Report also informed the reader of the nature of the Development and the measures proposed to protect the environment during site preparation, construction, operation and decommissioning.

Following submission of the EIA Report, the Energy Consents Unit (ECU) of the Scottish Government consulted relevant statutory and non-statutory organisations, the majority of which provided consultation responses.

Since the EIA Report was submitted and on receipt of consultation responses, the Applicant has taken the decision to make amendments to the location of eight turbines and the removal of turbines T10 & T12, resulting in a revised layout of 14 turbines. Further, relocation of ancillary infrastructure components associated with the

¹ Electricity Act 1989 [Online] Available at: <http://www.legislation.gov.uk/ukpga/1989/29/contents> (Accessed 21/01/2021)

² The Town and Country Planning (Scotland) Act 1997 [Online] Available at: <http://www.legislation.gov.uk/ukpga/1997/8/section/57> (Accessed 11/04/2022)

³ The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 <http://www.legislation.gov.uk/ssi/2017/101/contents/made> (Accessed 11/04/2022)

Development have also been undertaken. The effects of revisions are required to be reassessed under the EIA regulations.

The Applicant has therefore prepared this SEI Report to respond to points raised from consultees during the consultation process and to provide an EIA of effects arising from changes proposed represented by the Revised Development.

1.2 SUPPLEMENTARY ENVIRONMENTAL INFORMATION REPORT

This SEI Report provides the information required to be submitted as a result of revisions made to the Development. The majority of the assessment reported within the EIA Report is still relevant to the Development, and the site boundary (the Site) is unchanged.

The SEI Report should be read in conjunction with the EIA Report and demonstrates how the predicted effects of the Revised Development differ from that presented in the EIA Report. It is not the intention of the SEI Report to repeat or replace information presented within the EIA Report that remains valid, except where alterations in the baseline, assessment methodology or assessment results have been identified. Additionally, clarifications on information presented in the EIA Report have been incorporated as appropriate and relevant amendments that have ensued since the EIA Report have been specified, for instance, variations in guidance.

In summary this SEI Report is intended to address the following:

- Describe and assess changes made to the layout of the Development, specifically the removal and relocation of turbines and associated infrastructure;
- The Peat Slide Risk Assessment has been updated following comments made on the EIA Report, as well as due to the revisions within the Development;
- An Outline Habitat Management Plan (oHMP) has been provided following consultee comments, namely NatureScot & Scottish Environment Protection Agency (SEPA); and
- Whilst not a reason for the preparation of this SEI Report, it is noted that the status of nearby wind farms has changed since the submission of the EIA Report, which are captured within the SEI Report as relevant for completeness.

1.3 STRUCTURE OF SEI REPORT

The SEI Report presents the findings of the updated EIA. It includes a description of the Revised Development and focuses on changes to the identified likely effects which may result. Where appropriate, mitigation is proposed and residual effects are highlighted. The SEI report is presented in four Volumes described as the following:

- **Volume 1** – SEI Report Text;
- **Volume 2** – SEI Report Figures;
 - **Volume 2a** – Figures excluding LVIA;
 - **Volume 2b** – LVIA Figures;
 - **Volume 2c** – NatureScot Visualisations;
 - **Volume 2d** – The Highland Council (THC) Visualisations;
- **Volume 3** – SEI Report Technical Appendices; and
- **Volume 4** – SEI Report Non-Technical Summary.

Following the Introductory Chapters, the SEI Report is divided into a series of technical chapters. All of these have been reviewed to identify the need to update or replace content in the light of the proposed revisions to the Development and/or information gathered since the EIA Report was concluded. Whilst the chapter numbering of the SEI Report reflects that of the EIA Report, the format and content of the technical area does not vary.

As in the EIA Report, the SEI Report includes chapters covering the following areas:

- **SEI Chapter 1** – Introduction;
- **SEI Chapter 2** – Energy and Planning Policy*;
- **SEI Chapter 3** – Site Selection and Design;
- **SEI Chapter 4** – Development Description;
- **SEI Chapter 5** – EIA Methodology;
- **SEI Chapter 6** – Landscape and Visual Amenity;
- **SEI Chapter 7** – Ecology;
- **SEI Chapter 8** – Ornithology;
- **SEI Chapter 9** – Archaeology and Cultural Heritage*;
- **SEI Chapter 10** – Noise;
- **SEI Chapter 11** – Traffic and Transportation;
- **SEI Chapter 12** – Hydrology and Hydrogeology;
- **SEI Chapter 13** – Geology and Peat;
- **SEI Chapter 14** – Socio-Economics, Recreation and Tourism*;
- **SEI Chapter 15** – Climate Change and Carbon Balance; and
- **SEI Chapter 16** – Other Issues (Health and Safety, Infrastructure, Telecommunications, Aviation and Shadow Flicker)*.

Figures have been updated where appropriate to illustrate the findings of this SEI Report.

Chapters marked by an asterisk (*) represent environmental topics that do not require a full chapter update; Section 1.4 below outlines these topics and provides appropriate commentary.

1.4 CHAPTERS NOT REQUIRING AN SEI REPORT UPDATE

As detailed in Section 1.3 above, the following environmental topics are not subject to a full SEI Chapter update:

- Archaeology and Cultural Heritage;
- Socio-Economics, Recreation and Tourism; and
- Other Issues (Health and Safety, Infrastructure, Telecommunications, Aviation and Shadow Flicker).

These topics are not updated on the premise that the Revised Development's 14 turbine layout will further reduce environmental effects when compared to the 16 turbine layout of the Development. The conclusions of the EIA Report assessments for these environmental topics remain valid and accurate for the Revised Development.

1.4.1 Archaeology and Cultural Heritage

Chapter 9: Archaeology and Cultural Heritage of the Environmental Impact Assessment (EIA) Report, submitted in January 2021 (Planning Reference: ECU00002175), does not require to be updated in light of revisions to the Development.

As a result of the turbine numbers reducing from 16 to 14 as part of the Revised Development, it is considered by EIA assessors that the Revised Development will not introduce any significant effects within the archaeology and cultural heritage resource. Additionally, whilst the reduction in the number of turbines may slightly reduce the effects predicted in the EIA Report, effects as a result of the Revised Development would remain not significant.

1.4.2 Socio-Economics, Recreation and Tourism

Chapter 14: Socio-Economics, Recreation and Tourism of the EIA Report concluded that the Development resulted in effects that were not significant in terms of the EIA Regulations.

As a result of the turbine numbers reducing from 16 to 14, it is considered by EIA assessors that the Revised Development will not introduce any significant effects within the resource of Socio-Economics, Recreation and Tourism.

1.4.3 Other Issues

Chapter 16: Other Issues of the EIA Report concluded that the Development resulted in effects that were not significant in terms of the EIA Regulations; however, for Aviation, the EIA Report acknowledged that some effects is predicted in relation to civil aviation infrastructure. The EIA Report stated that the Applicant was engaged in discussions with Highlands and Islands Airport Limited (HIAL) to both better determine impacts and as required to identify suitable mitigation. It remains the case that the Applicant is in discussions with HIAL and the proposed condition set out in HIAL's consultation response dated 1st March 2021.

As a result of the turbine numbers reducing from 16 to 14 as part of the Revised Development, it is considered by EIA assessors that the Development will not introduce any new significant effects within the resource of Other Issues.

1.5 CONTACT DETAILS

The SEI Report will be publicised in accordance with Part 5 of the EIA Regulations and the Electricity (Applications for Consent) Regulations 1990⁴ and the Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020⁵ (the Coronavirus Regulations).

The SEI Report and supporting documentation, including the EIA Report, is available on the Corriegarth 2 Wind Farm project website: www.baywa-re.co.uk/en/wind/corriegarth-2-windfarm/

CD copies of the complete application submission are available free of charge. Hard copies of the application submission may be obtained for a fee of £500.

To request a copy of the application submission please contact:

Corriegarth Windfarm Ltd.

c/o: BayWa r.e. UK Limited

3/1

58 Waterloo Street

Glasgow

G2 7DA

info@corriegarth2windfarm.co.uk

⁴ The Electricity (Applications for Consent) Regulations 1990 [Online] Available at: <http://www.legislation.gov.uk/uksi/1990/455/regulation/4/made> (Accessed 11/04/2022)

⁵ The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 [Online] Available at: <https://www.legislation.gov.uk/ssi/2020/123/made> (Accessed 11/04/2022)

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 2
Energy and Planning Policy



2 ENERGY AND PLANNING POLICY

Chapter 2: Energy and Planning Policy of the Environmental Impact Assessment (EIA) Report, submitted in January 2021 (Planning Reference: ECU00002175), does not require to be updated in light of revisions to the Development.

Any planning and policy changes since January 2021 are outlined and discussed in the updated planning statement which accompanies this Supplementary Environmental Information (SEI) Report which is submitted in support of the Development.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 3
Site Selection and Design



3 SITE SELECTION & DESIGN

3.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) describes the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks; and
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter should be read in conjunction with **Chapter 3: Site Selection & Design** of the EIA Report.

This Chapter of the SEI Report is supported by the following Figures provided in Volume 2a: Figures excluding LVIA:

- Figure 3.1: Site Design Evolution;
- Figure 3.2: EIA vs SEI Layout Comparison; and
- Figure 3.3: Turbine 13 Alternatives.

3.2 KEY CONCLUSIONS OF THE EIA REPORT

Chapter 3: Site Selection and Design of the EIA Report set out the design strategy for the Development in which various economic, technical, and environmental factors were all considered in the iterative design process and resulted in the layout proposed within the EIA Report. The factors were informed through a variety of baseline surveys and consultation with a range of stakeholders.

A key element of this process was informed by: a review of the Site and its landscape context, consultation with stakeholders, and advice contained in good practice guidance, including NatureScot's Siting and Designing Wind Farms in the Landscape¹ and the Onshore Wind Energy Supplementary Guidance (2016, and addendum 2017). In accordance with this guidance, and discussions with consultees, the landscape and visual impact of the Development was a key consideration from an early stage during the feasibility studies and subsequent design process. Landscape architects worked closely with the project team to achieve a design at a scale that minimises the potential landscape and visual effects whilst maintaining economic viability. The landscape and visual effects had been a focus of discussions with the Highland Council ('the Council') following the Scoping process. Several design workshops were undertaken which sought to eliminate any unacceptable landscape and visual effects.

¹ NatureScot (2017) Siting and Designing Wind Farms in the Landscape Guidance – Version 3a [Online] Available at: <https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf> (Accessed 11/02/2022)

3.3 POST SUBMISSION DESIGN EVOLUTION

As noted in **SEI Chapter 1: Introduction** and **SEI Chapter 5: EIA Methodology**, following the application for consent for the Development, stakeholders had been given the opportunity to provide comment on the application and consultation responses were received from various statutory and non-statutory bodies (consultees).

Of particular relevance, and as outlined in **SEI Chapter 5: EIA Methodology**, is Highland Council ('the Council') and Scottish Environment Protection Agency (SEPA). Both of these consultees provided key recommendations on potential revisions to the design of the Development in respect of landscape/visual and peat impacts (respectively).

The following sections summarise the key layout iterations relevant to the work undertaken to resolve the Council's and SEPA's concerns. The layouts discussed below are shown on Figure 3.1.

3.3.1 Application Layout – January 2021 – Up to 16 Turbines – Maximum Tip Height 149.9 m

The turbine layout as presented in the EIA Report, and shown on Figure 3.1, was the subject of a number of iterations and refinements which sought to avoid or minimise predicted adverse effects as far as reasonably practicable via design embedded mitigation. The design evolution prior to the layout presented in the EIA Report is set out in **Chapter 3: Site Selection & Design** of the EIA Report. The layout sought to balance the environmental and technical constraints, whilst producing an economically viable project.

The turbine layout was devised based on the following technical parameters and constraints detailed below:

- Minimum turbine spacing/separation of approximately 6 x rotor diameter downwind and 4 x rotor diameter crosswind and a south-westerly prevailing wind direction (approximately 240 degrees).
- Avoidance of slopes of 14% or greater;
- A hard constraint of 50 m buffers around the banks of watercourses for turbine locations;
- A hard constraint to avoid all known archaeological records;
- A hard constraint of a minimum 100 m buffer around Groundwater Dependent Terrestrial Ecosystems (GWDTE);
- A soft constraint to minimise turbine locations in deep peat (>1 m) where feasible and to ensure no turbines are located in excess of 1.5 m of peat; and
- A soft constraint to balance visual composition that respects the original design objectives and principles of the Operational Corriegarth Wind Farm.

3.3.2 Revised L&V Layout – August 2021 – Up to 14 Turbines – Maximum Tip Height 149.9 m

The key consideration for the August 2021 design workshop with the Council were the landscape and visual effects of the Development (as detailed in Section 5.5.1.1 in **SEI Chapter 5: EIA Methodology**). The principal aim of the workshop was to understand the Council's key concerns with the design of the Development, and explore changes to the Development layout to create a revised design that was agreeable to the Council in landscape and visual terms; this was achieved by reducing the horizontal extent of the Development by bringing the northern and southern turbines closer towards the Operational Corriegarth Wind Farm turbines. The workshop considered views experienced by key visual receptors and recreational receptors on promoted routes, and particularly from promoted viewpoints and local hill summits.

Whilst the workshop took account of all other environmental considerations, subsequent changes to the layout were primarily implemented with the landscape and visual concerns of the Council in mind. This approach was deliberate so that the project team could understand what was and was not agreeable with the Council in terms of landscape and visual effects.

The revised L&V layout sought to address the key concerns of the Council which are detailed in **SEI Chapter 5: EIA Methodology** and summarised below:

- The overall extent of the Development was considered to extend too far horizontally when seen from elevated locations to the north of the Great Glen;
- The most westerly and easterly turbines were judged to appear either higher up or lower down within the landscape, resulting in overspill, and a lack of relationship with the existing wind farm; and
- The eastern and western outlying turbines were judged not to relate well to the existing scheme.

The key design changes which were incorporated into the revised L&V layout are summarised in Table 3.1.

Table 3.1: Key Design Changes from Application Layout to Revised L&V Layout

Turbine No.	Key Design Changes from Application Layout to Revised L&V Layout
T1	Relocated north-east to address landscape and visual concerns (THC), Peat concerns (SEPA)
T2	Relocated north to address landscape and visual concerns (THC), Peat concerns (SEPA)
T3, T4, T5, T6, T7, T14, T16	No change.
T8	Relocated north to address landscape and visual concerns (THC), Peat/GWDTE concerns (SEPA)
T9	Relocated west to address landscape and visual (THC), Peat concerns (SEPA)
T10, T12	Turbines removed.
T11	Relocated south to address landscape and visual concerns (THC)
T13	Relocated south-east, south of watercourse - Peat concerns (SEPA)
T15	Relocated south-east to address landscape and visual concerns (THC)

As detailed in Section 5.5.1.1 in **SEI Chapter 5: EIA Methodology** this layout was judged to be acceptable to the Council in respect to landscape and visual effects, in addressing its main concerns.

3.3.3 Revised Development (SEI) Layout – January 2022 – Up to 14 Turbines – Maximum Tip Height 149.9 m

Following the acceptance of the revised L&V layout from the Council, there was a need to verify the design against all other environmental constraints, particularly peat. The aim was to ensure that SEPA's consultation comments, described in full in **SEI Chapter 5: EIA Methodology**, were addressed.

SEPA's consultation response to the EIA Report and Development design stated that in the absence of sufficient justification, the overall track length, and number of watercourse crossings, should be reduced in an effort to reduce the "excavation of a very large volume of peat (355,284 m³)".

The changes made by the revised L&V layout (namely the removal of both T10 & T12, and the general movements of northern turbines towards the Operation Corriegarth Wind Farm) have allowed the Revised Development layout to reduce its new access track by 4 km (from 10 km to 6 km) – a key requirement of SEPA to reduce impact on peat within the Site. Further, the reduction of new access track has reduced the watercourse crossings by four, satisfying SEPA's concern about the number of watercourse crossings included in the Development layout. Figure 3.2 illustrates the change between the Development Application layout and the Revised Development layout.

Table 3.2 below summarises the turbine moves which were largely driven to reduce impacts on deep peat following the L&V revisions. Of particular importance to SEPA was the location of T13 due to the associated high level of peat excavation required (14,899 m³). As a result, additional peat probing was carried out in the area of the Site where T13 is located which identified an area of shallower peat into which T13 was relocated. The revised location of T13 addresses SEPA's concern as it has resulted peat excavation at T13 being reduced by more than 50% to 7,376 m³. Figure 3.3 illustrates the extensive probing in the area of T13 and the options that were investigated; option T13f represents the final location of T13 that is presented in this SEI Report.

The changes made as part of the Revised Development layout, taking account of the reduction of new access track, T13 movement, and all other turbine refinements, has resulted in an approximately 67.5% reduction in the volume of peat requiring excavation from 355,284 m³ to 176,000m³. More detailed information can be found in **Chapter 13: Geology & Peat**.

Table 3.2: Key Design Changes from Revised L&V Layout to Revised Development (SEI) Layout

Turbine No.	Key Design Changes from Revised L&V Layout to Revised Development (SEI) Layout
T1	Moved 68 m northwest to ensure landscape & visual criteria maintained following T2 movement. Peat conditions considered similar in new location when compared to previous location.
T2	Moved 100 m northwest into shallower peat.
T3, T4, T6, T7, T16	No change. Turbine hardstanding of T6 flipped in orientation onto shallower peat – see Figure 3.2.
T5	Moved 1 m south as a result of engineering refinement. Turbine hardstanding of T5 flipped in orientation onto shallower peat – see Figure 3.2.
T8	Moved 77 m northeast onto shallower peat; turbine access track redesigned through shallower peat, and to reduce overall track length.
T9	Moved 61 m southeast onto shallower peat; turbine access track redesigned through shallower peat, and to reduce overall track length.
T10, T12	Turbines removed.
T11	Moved 51 m east as a result of T13 movement; turbine access track redesigned through shallower peat, and to reduce overall track length. Peat conditions considered similar in new location when compared to previous location.

T13	Moved 50 m south onto shallower peat; turbine access track redesigned through shallower peat, and to reduce overall track length. See Figure 3.3 for alternative T13 investigation locations.
T14	Moved 19 m southwest onto shallower peat; turbine access track redesigned through shallower peat, and to reduce overall track length.
T15	Moved 9m west onto shallower peat; turbine access track redesigned through shallower peat, and to reduce overall track length.

3.4 SUMMARY

Various economic, technical and environmental factors were all considered in the iterative design process. These were informed through a variety of baseline surveys as well as pre and post submission consultation with a range of stakeholders. Comments from the Council and SEPA received following the submission of the EIA Report, has led the Applicant to make amendments to the layout which are considered as acceptable to both The Council and SEPA and reflect their consultation responses. These amendments are reflected in the layout presented and assessed within this SEI Report.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 4
Development Description



4 DEVELOPMENT DESCRIPTION

4.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) describes the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter should be read in conjunction with **Chapter 4: Development Description** of the EIA Report.

This Chapter of the SEI Report is supported by the following Figures provided in Volume 2a: Figures excluding LVIA:

- Figure 4.1: Revised Development Site Layout; and
- Figure 4.2: Substation Layout Plan.

4.2 OVERVIEW OF THE REVISED DEVELOPMENT

In common with the layout presented in the EIA Report, the Development would comprise of three-bladed horizontal axis turbines up to 149.9 m tip height; however, the Revised Development seeks planning permission for up to 14 turbines, reduced from 16 turbines as per the Development. The Revised Development also includes all associated infrastructure including:

- New and upgraded access tracks;
- Substation & compound (including a control building);
- Crane hardstandings;
- Underground cabling;
- External transformer enclosures located adjacent to each turbine;
- Temporary construction compound;
- One borrow pits; and
- Temporary laydown areas.

The components of the Revised Development are summarised in Table 4.1, which describes any changes made as part of the SEI and shown on Figures 4.1 and 3.2.

Table 4.1 Key Parameters of the Revised Development

Element	EIA Report Layout Details ('the Development')	SEI Report Layout Detail ('the Revised Development')
Turbines	Up to 16 turbines, each with a blade tip height of up to 149.9 m. Depending on the final turbine choice, a small transformer will be located at the base of each turbine. Each turbine will have a foundation with a diameter of approximately 21 m, with a depth of approximately 3 m.	As a result of the removal of T10 & T12, the Revised Development includes up to 14 turbines, each with a blade tip height of up to 149.9 m. Eight turbines have been relocated as part of the SEI Design - T1, T2, T8, T9, T11, T13, T14, T15. There is no change to the information on turbine transformers or foundations.
Access Track	Access track to serve the construction and operation of the wind farm with width approximately 5 m, this will consist of localised upgrades along 13 km of the existing 25 km of track and 10 km of newly constructed track. For the southern borrow pit at Carn Fluich Bhaid, the access track will not be utilised for abnormal loads, so there is no requirement for widening.	Same specification of track however reduction in overall length, consisting of approximately 13 km of upgraded track and 6 km of newly constructed track. Four watercourse crossings have been removed following the rerouting of access tracks to the revised turbine locations. The southern borrow pit at Carn Fluich Bhaid has been removed, and so too has the access track serving it. In addition to the changes made to the access tracks as a result of the removal of T0 and T12, and the relocation of T1, T2, T5, T8, T9, T11, T13, T14 and T15, the access tracks for T1, T3, T4 and T22 were realigned to avoid the existing Operational Corriegarth Wind Farm turbine foundations.
Electrical Infrastructure	A substation building will be located towards to the west of the turbines, measuring approximately 30 x 20 m with another control building measuring approximately 25 x 15 m. Both buildings will be located within a compound measuring approximately 60 x 90 m, which will also include any external electrical infrastructure and vehicle parking. Underground cabling, laid where possible alongside the access tracks, will link the turbine transformers to the onsite substation.	The substation building has been moved approximately 50 m to the west of the proposed updated borrow pit. There is no change to the substation and control building specification, however, they will be located within a compound which will also include any electrical and HV infrastructure and vehicle parking. There is no change to the information on underground cabling.

Element	EIA Report Layout Details ('the Development')	SEI Report Layout Detail ('the Revised Development')
Crane Hardstanding	Crane hardstandings will be required adjacent to each turbine; this will consist of a main area of approximately 1400 m ² at each turbine. In addition to the main hardstanding areas, there will be additional flattened areas for crane assembly and turbine blade storage; however, these will be temporary and only include small areas of hardstandings.	No change to crane hardstanding details; locations and alignments of crane hardstandings will change in response to the Revised Development turbine relocations.
Temporary Construction Compound	A temporary construction compound will be required during the construction of the Development, forming an area of hardstanding providing space for portakabins, parking and lay down areas; this will measure a maximum of 100 x 50 m and is located at the same location as the construction compound for the Operational Corriegarth Wind Farm.	No change.
Borrow Pits	Up to two onsite borrow pits are proposed. One is located adjacent to the borrow pit used for the Operational Corriegarth Wind Farm at Carn na Saobhaidhe and the other is in the south of the Site on the slopes of Carn Fluich Bhaid. Given that there is 35 km of track with 25 km existing, relatively little aggregate will be required when compared to a typical wind farm of this size, and the use of both borrow pits may not be required.	Only one borrow pit is proposed, located adjacent to the borrow pit used for the Operational Corriegarth Wind Farm at Carn na Saobhaidhe. Given the reduction in overall length of tracks proposed, consisting of approximately 13 km of upgraded track and 6 km of newly constructed track, relatively little aggregate will be required when compared to a typical wind farm of this size, and therefore, the use of only one borrow pit is now required.
Site Access	Site access will be taken from the B862, utilising the existing access for the Operational Corriegarth Wind Farm.	No change.

4.2.1 Wind Turbines

As noted in **SEI Chapter 3: Site Selection & Design**, turbines have been relocated closer to the Operational Corriegarth Wind Farm to reduce visible extent of the Development, and in the interest of impacts on deep peat. The spatial changes are reflected in Table 4.2 below, and shown on SEI Figure 3.2.

The turbine tip height will not exceed 149.9 m (as per the EIA Report) and the specifications including foundations remain unchanged as described in Chapter 4 of the EIA Report.

Table 4.2 Wind Turbine Co-ordinates and Elevations

Turbine No.	EIA Report Layout			SEI Layout			Spatial Change	
	Easting	Northing	Elevation (m) AOD	Easting	Northing	Elevation (m) AOD	Horizontal Change (m) and direction	Vertical Change (m)
1	255650	812676	584m	255905	813030	612m	436 NE	+28
2	256065	812153	615m	255999	812412	594m	267 N	-21
3	256563	812077	644m	256563	812077	644m	No Change	
4	257157	812139	644m	257157	812139	644m	No Change	
5	257690	812131	698m	257690	812130	697m	1 S	-1
6	258376	812555	702m	258376	812555	702m	No Change	
7	259091	812839	699m	259091	812839	699m	No Change	
8	259524	813455	743m	259491	813469	743m	36 NW	0
9	259249	813893	732m	259262	813864	732m	32 S	0
10	258820	814213	740m	<i>Turbine Deleted</i>				
11	258262	814348	690m	258373	814282	732m	129 SE	+42
12	257669	814560	656m	<i>Turbine Deleted</i>				
13	257161	814559	630m	257722	814277	651m	628 SE	+21
14	257136	814013	622m	257119	814005	620m	19 W	-2
15	256358	814038	579m	256442	814004	585m	91 SE	+6
16	255875	813556	562m	255875	813556	562m	No Change	

4.2.2 Turbine Foundations

No change, remains as described in the EIA Report.

4.2.3 Transformers and Cabling

No change, remains as described in the EIA Report.

4.2.4 Crane Hardstandings

No change in terms of specification and as per the EIA Report; however, the location of hardstandings associated with the five relocated turbines have been revised.

4.2.5 Access Tracks

The specification of access tracks in terms of design and construction methods will be unchanged. However, due to the relocation and removal of turbines, the location of track associated with these turbines has been revised accordingly; the overall track length was also reduced in line with SEPA feedback to reduce impacts on peat. The length of access track associated with the Development layout totalled approximately 25 km which consisted of approximately 13 km of upgraded track and 10 km of new track, while the track associated with the Revised Development layout consists of 13 km of upgraded track and 6 km of new track representing an approximately 74% reduction in overall length. The differences primarily relate to the removal of the loop track associated with

T8 to T13 within the Development layout, and the creation of a new spurs of track to T8, T9, T11, & T13 of the Revised Development layout.

In addition to the changes made to the access tracks as a result of the removal of T0 and T12, and the relocation of T1, T2, T5, T8, T9, T11, T13, T14 and T15, the access tracks for T1, T3, T4 and T22 were realigned to avoid the existing Operational Corriegarth Wind Farm turbine foundations.

4.2.6 Watercourse Crossings

Following the revision to the track layout, there are four less new watercourse crossings required; the new watercourse crossings for the Revised Development totals five.

4.2.7 Borrow Pits

Following the revision of the track layout and reduction in overall length of tracks proposed, only one borrow pit is proposed, located adjacent to the borrow pit used for the Operational Corriegarth Wind Farm at Carn na Saobhaidhe.

4.2.8 Substation Compound

The substation building has been moved approximately 50 m to the west of the proposed updated borrow pit, as detailed on Figure 4.1. There is no change to the substation and control building specification, illustrated on Figure 4.2, however, they will be located within a compound which will also include any electrical and HV infrastructure and vehicle parking.

There is no change to the information on underground cabling. There is no change to the information on underground cabling.

4.2.9 Grid Connection

No change, remains as described in the EIA Report.

4.2.10 Temporary Construction Compound

No change, remains as described in the EIA Report.

4.2.11 Site Access and Main Site Entrance

No change, remains as described in the EIA Report.

4.2.12 Site Signage

No change, remains as described in the EIA Report.

4.2.13 Micrositing

No change, remains as described in the EIA Report.

4.2.14 Restoration

No change, remains as described in the EIA Report.

4.3 CONSTRUCTION AND DEVELOPMENT PHASING

No change, remains as described in the EIA Report.

4.4 OPERATIONAL PHASE

No change, remains as described in the EIA Report.

4.5 DECOMMISSIONING

No change, remains as described in the EIA Report.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 5
EIA Methodology



5 EIA METHODOLOGY

5.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) explains the approach to reviewing the environmental effects associated with the changes made to the Application install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

The Chapter also sets out the consideration of key consultee responses received post-submission of the Environmental Impact Assessment (EIA) Report associated with the Development. This Chapter should be read in conjunction with **Chapter 5: EIA Methodology** of the EIA Report.

This Chapter of the SEI Report is supported by the following Technical Appendix documents provided in Volume 3: Technical Appendices:

- A5.1: Applicant Final Response to SEPA.

5.2 PURPOSE OF THE SEI REPORT

The purpose of the SEI Report is to present the environmental assessment of likely significant effects resulting from the Revised Development, and to update and supplement information presented in the EIA Report as appropriate.

5.3 ASSESSMENT METHODOLOGY

The broad assessment methodology used within the SEI Report remains as stated in the EIA Report.

The majority of technical assessment methods presented in the EIA Report remain valid; however, where different assessment methods have been used within the SEI Report to correspond with the latest guidance or assessment tools, these are highlighted within the individual technical chapters.

5.4 SIGNIFICANCE OF EFFECTS

The significance criteria used within the SEI report remains as stated in the EIA report. Each technical chapter within the SEI Report includes a description of the changes to the level of significance due to the proposed design changes.

5.5 CONSULTATION

5.5.1 January 2021 EIA Report Application

Following submission of the Corriegarth 2 Wind Farm application for consent (ECU00002175), consultation responses were received from various statutory and non-statutory consultees.

Table 5.1 summarises the consultation responses received post submission where further actions were taken or further information has been presented in this SEI Report. Full responses can be found on the ECU portal, and each response / action(s) is discussed in the relevant technical chapter of this SEI Report.

Table 5.1: Consultee Responses – Action Taken

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Highland Council 23 rd April 2021	Landscape and Visual Amenity (Chapter 6)	The Council's Planning Officer raised the following concerns with the Development: • Some of the new turbines were judged to appear either higher up or lower down within the landscape, resulting in overspill, and a lack of relationship with the existing wind farm; • The turbines of greatest concerns were considered to be the eastern and western outliers which were judged not to relate well to the existing scheme; • Less concern was raised regarding the northern and southern middle portion of turbines of the Development; and • When viewed from VP11 it was judged that turbines T3 and T12 should mark the furthest horizontal extent of the scheme, and that there may be scope for the turbines beyond T3 and T12 to be relocated within the scheme, but the amended locations would have to be appropriate and avoid detrimental visual impacts from other locations.	The Applicant and LUC's Landscape Architects held a video conference meeting with the Council on 12th August 2021 to discuss the Council's concerns, this was followed by written correspondence to agree potential revisions to the turbine layout. The Applicant shared a revised turbine layout with the Council via letter on 19th August 2021, removing T10 and T12, and relocating of T8, T9, T11, T13 and T15. The removal of T10 and T12 was welcomed by the Council, but concerns remained regarding T1 and T2. The Applicant provided further clarification with respect to T1 and T2 by letter on 4th October 2021. the Council confirmed on 1st November 2021 that it was able to support the revised 14 turbine proposal. Following necessary minor refinement to turbine positions of this 14 turbine layout in response to concerns raised by SEPA, the final turbine layout was shared with the Council on 31st January 2022 (i.e. the Revised Development). Further consultation and information between the Applicant and the Council is detailed below in Section 5.5.1.1. See Chapter 6: LVIA and associated Technical Appendices.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Highland Council 10 th March 2021	Noise (Chapter 10)	The Council Environmental Health Officer (EHO) requested the following: • Predicted operational noise levels from this development alone at the nearest noise sensitive receptors; • Predicated cumulative levels from this development and those listed in Table 10.4 of the EIA; and • Details of a scheme for the suppression of dust due to construction traffic along the access track.	Arcus Noise specialists and the Council EHO held a telephone discussion on 18/05/2021, this was followed by a formal written response supplied on 16/06/2021. The Applicant committed to undertaking a Construction Environmental Management Plan (CEMP), to be secured via a planning condition, which would include a Dust Suppression Scheme. The Applicant provided the maximum predicted noise level from each development at the nearest receptor to the Development in a tabulated format – this was agreed with the Council EHO. The tabulated data represented already submitted data that was previously presented in graphical format in the EIA Report as Figure 10.2. The Council EHO responded to the Arcus letter on the 18/06/2021 noting no objections subject to suspensive planning conditions.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Highland Council 3 rd February 2021	Traffic and Transport (Chapter 11)	The Council Roads Department raised concerns relating to: • Traffic & Transport assessment methodology; • Traffic figures presented within the EIA Report; • Road condition; and • Construction Traffic Management Plan. The Council noted the assessment methodology and conclusions relied upon 'Guidelines for the Environmental Assessment of Road Traffic' which they noted as flawed. The Council had various concerns relating to the road condition which the Development proposed to make use of during construction. The Council noted that all staff numbers had been recorded as single way trips (one-way), rather than two-way traffic.	The Applicant responded to Council concerns via letter on 23rd June 2021. The Applicant noted that the assessment methodology was in line with current EIA best practice and was accepted by the Council in their scoping response. The Applicant acknowledged the condition of the roads serving the Development and stated that a detailed assessment of the roads and structures in accordance with the Councils specifications and requirements will be undertaken prior to construction. The Applicant responded to note that they are willing to agree an appropriately worded condition that secured any repairs post-construction to be covered by the Applicant. Traffic numbers were acknowledged as one-way by the Applicant and revised two-way figures were provided; the conclusions of the EIA Report however remained unchanged. The Applicant noted that a Framework Construction Traffic Management Plan was submitted as a Technical Appendix to the EIA Report, and noted that the Applicant seeks to work closely with the Council to develop a robust Construction Traffic Management Plan.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
SEPA 12 th August 2021	Geology and Peat (Chapter 13)	SEPA responded to the Application with an objection on the grounds that the Development design will result in the excavation of a very large volume of peat and it must be demonstrated that every effort has been taken to minimise peat disturbance and carbon loss. SEPA commented that the length of new track proposed should be shortened and that the number of watercourse crossings should be reduced.	The Applicant responded via letter on the 23rd September 2021 to outline the design rationale and justification. SEPA responded maintaining their objection, stating that further information was needed to demonstrate a reduction in the disturbance of peat. SEPA require evidence to suggest that peatland restoration can beneficially utilise the quantities of excavated peat estimated; and compensation for the proposed impacts increased. Further consultation and information between the Applicant and SEPA is detailed below in Section 5.5.1.2. See Chapter 13 Geology and Peat, and associated Technical Appendices.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Ironside Farrar April 2021	Geology and Peat (Chapter 13)	Ironside Farrar reviewed the Peat Slide Risk Assessment (PSRA) submitted in support of the EIA Report and Application. Ironside Farrar had the following recommendation requiring an Applicant response: • Provide further information that had informed the desk study; • Provide probing details beneath site infrastructure (substation, construction compound, and borrow pit) or the justification for the lack of probing in such areas (including track between T8 & T9; • Provide clarification as to why only three (out of six) contributory factors of peat slide risk were considered; and • Mitigation is considered generic –further details / clarification of practices is required in the case of medium risk zones.	The Applicant responded via letter (dated 21 June 2021) to Ironside Farrar. The Applicant letter provided further information sources that informed the desk study. Further, the letter responded to Ironside Farrar regarding the lack of probing of identified infrastructure; justification was provided as outlined in the letter available on the ECU portal.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Ironside Farrar October 2021	Geology and Peat (Chapter 13)	Ironside Farrar accepted the Applicant response however maintained the following recommendation requiring an Applicant response: Further clarity is sought in the definition of the medium risk areas displayed in Figure 13.1.9. More specific mitigation should be provided for infrastructure specific locations in order to satisfy the guidance (see table 5.4).	See Chapter 13 Geology and Peat, and associated Technical Appendix TA13.1: Peat Slide Risk Assessment.
RSPB 31 st May 2021	Ornithology (Chapter 8)	RSPB responded to the Application noting the proposal had the potential to give rise to significant adverse impacts on local populations of red kite and white-tailed eagle, and contribute to cumulative impacts on golden eagle. RSPB requires a detailed Habitat Management Plan and requests related planning conditions.	See Chapter 8: Ornithology and Chapter 7: Ecology, including Outline Habitat Management Plan.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Scotways 3 rd March 2021	Landscape and Visual Amenity (Chapter 6) Socio-Economics, Recreation and Tourism (Chapter 14)	Scotways objected to the proposals due to an incomplete baseline regarding public rights of way etc.	The Applicant responded in writing on 01/04/2021 outlining the routes highlighted by Scotways having not been considered in the EIA Report baseline, these routes included: • HI/HI111/1; • HI/HI198/1; • HI/HI112/2; • HI/HI106/1; • Old Road to Coignafearn; • Glen Markie Track; and • Scottish Hill Tracks. The Applicant demonstrated that each route had been considered in the EIA Report either in Chapter 6 and/or Chapter 14. Scotways responded lifting their objection on 27/04/2021. See Chapter 6: LVIA and associated Technical Appendices.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Stratherrick and Foyers Community Council 3 rd March 2021	Landscape and Visual Amenity (Chapter 6) Traffic and Transport (Chapter 11)	Stratherrick and Foyers Community Council response highlights concerns primarily relating to both landscape and visual amenity and traffic and transport.	The Applicant notes the Community Council's concerns regarding visual impact. The revisions to the turbine layout in respect to the concerns raised by the Highland Council (detailed above and in Section 5.5.1.1 below) address many of the local views experienced from the Stratherrick and Foyers Community Council area, including the Suidhe Viewpoint (VP7) referred to in the Community Council's response. The Applicant notes the Community Council's concerns regarding the existing road network – please see above response to the Council's roads department where the Applicant commits to undertaking repairs on the road networks where damage during construction has occurred. The receptors raised by the Community Council are assessed in Chapter 11: Traffic and Transport.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Mountaineering Scotland 15 th February 2021	Landscape and Visual Amenity (Chapter 6) Socio-Economics, Recreation and Tourism (Chapter 14)	Mountaineering Scotland response highlighted concerns primarily relating to landscape and visual amenity, and tourism. Mountaineering Scotland objected to turbines T8, T9 and T10; and to the heights of turbines T7 and T11 on grounds of unacceptable adverse visual impact with consequential adverse impact on mountaineering recreation. Mountaineering Scotland highlighted the absence of a viewpoint from Carn na Saobhaidhe (811m) within the LVIA.	The removal of T10, and relocation of T8 and T9, in response to concerns raised by the Highland Council address some of the concerns raised by Mountaineering Scotland. Whilst the views from Carn na Saobhaidhe (811m) are not represented by an assessment viewpoint within the LVIA the proximity of the existing Corriegarth Wind Farm to this hill summit gives rise to existing significant visual effects which would not be unduly exacerbated by the addition of the Development. See Chapter 6: LVIA and associated Technical Appendices.
Defence Infrastructure Organisation (DIO) 22 nd February 2021	Landscape and Visual Amenity (Chapter 6) Other Issues [Aviation and Radar] Aviation (Chapter 16)	DIO's response highlighted safeguarding concerns of the turbines and their potential to create a physical obstruction to air traffic movements. To address this impact, and given the location and scale of the development, the DIO had no objections subjects to conditions being added to any consent issued requiring that the Development is fitted with aviation safety lighting and that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction As a minimum the DIO requested that the cardinal turbines are fitted with Combi lighting emitting both 25cd visible and infra-red (IR) light, the remainder of the perimeter turbines are marked by either 25cd visible or IR lights.	The Applicant notes the DIO's concerns in regards to safeguarding but have requested the use of infrared aviation warning lighting which is not visible to the naked eye to fulfil MOD aviation lighting requirements.

Consultee	Technical Area	Comments from Consultee	Response and Action Taken
Defence Infrastructure Organisation (DIO) 19 th April 2021	Landscape and Visual Amenity (Chapter 6) Other Issues [Aviation and Radar] Aviation (Chapter 16)	The DIO response detailed that the Ministry of Defence (MOD) is aware that lighting the Development as recommended in their response on the 22nd February may be problematic for the Applicant so, confirmed that to suitably address military low flying safety considerations the turbines of the Development should at minimum be fitted with MOD accredited 25 candela omni-directional red lighting or equivalent infrared beacons with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration to be attached at the highest practicable point. The DIO sustained their no objection subject to conditions.	As detailed in Chapter 5: EIA Methodology , infrared aviation warning lighting which is not visible to the naked eye will be fitted to the turbines to fulfil MOD aviation lighting requirements.

Table 5.2 summarises the consultation responses received post submission where no further actions were required as a result of the SEI layout. Full responses can be found on the ECU portal.

Table 5.2: Consultation Responses – No Actions Required

Consultee	Technical Area	Comments from Consultee
NatureScot 25 th May 2021	Landscape and Visual Amenity (Chapter 6) Ecology (Chapter 7) Ornithology (Chapter 8) Geology and Peat (Chapter 13)	Subject to conditions, no objection.
Cairngorms National Park Authority 23 rd April 2021	Landscape and Visual Amenity (Chapter 6)	No objection.
Joint Radio Company 4 th March 2021	Other Issues [Telecommunications] (Chapter 16)	No objection.
NATS Safeguarding 4 th February 2021	Other Issues [Aviation & Radar] (Chapter 16)	No objection.
Scottish Forestry 4 th March 2021	Forestry (Chapter N/A)	No objection.
Ness and Beaully Fisheries trust 4 th March 2021	Ecology (Chapter 7)	No comments.
Transport Scotland 4 th March 2021	Traffic and Transport (Chapter 11)	Subject to conditions, no objection.
Highlands and Islands Airport Limited 1 st March 2021	Other Issues [Aviation & Radar] (Chapter 16)	Subject to conditions, no objection.
Historic Environment Scotland 1 st March 2021	Archaeology & Cultural Heritage (Chapter 9)	No objection.
Crown Estate Scotland 2 nd February 2021	N/A	No comments.
Scottish Water 28 th January 2021	Hydrology and Hydrogeology (Chapter 12)	No objection.

5.5.1.1 Highland Council Landscape and Visual Amenity Consultation

The Highland Council response to the EIA Report in respect to landscape and visual effects has been limited to initial correspondence received from the planning officer by email dated 23rd April 2021. The Applicant facilitated a design workshop with the Council, the ECU, and the Applicants Landscape Architects (LUC) which was held virtually on 12th August 2021. The Council had the opportunity to explain the main concerns with the Development and how these concerns could be mitigated through changes to the turbine layout. As detailed in the original response:

"From upland locations across Loch Ness (such as VP11) the scheme appears to be spilling beyond the contained bowl with the horizontal spread of Corriegarth extended, particularly by turbines T1 and T2 in the western extent of the site and T8, T9, T10 and T11 in the eastern extent of the site. When viewed from VP11 it is considered that turbines T3 and T12 should mark the furthest extent of the scheme, there may be scope for the turbines beyond T3 and T12 to be relocated within the scheme but the amended locations would have to be appropriate and avoid detrimental visual impacts from other locations."

Following these initial discussions with the Council, the Applicant and its consultants explored potential revisions to the turbine layout, including the removal and relocation of specific turbines. The Applicant shared a revised layout of 14 turbines (Revised L&V Layout – August 2021, as detailed in **SEI Chapter 3: Site Selection & Design** and shown on Figure 3.2), which removed T10 and T12, and relocated T8, T9, T11, T13 and T15 with the Council along with an accompanying letter by email, dated 19th August 2021.

The Council responded by email on 26th August 2021 and stated: *"Following a review of the proposed amendments there are improvements to the scheme with the removal of T10, T12 and relocation of T8, T9, T11, T13, T15 which has gone some way to minimise overspill of the eastern outlier turbines beyond the contained landform. The western outliers have been pulled in towards the existing scheme and the prominence of a number of turbines in the key views noted has been diminished. The combination of removal and relocation of these turbines better retains the "resting in a bowl" characteristic of the existing Corriegarth scheme."*

Concerns remained however in relation to T1 and T2: *"However, whilst the above changes are welcomed I still have significant concerns that there are no changes proposed to turbines T1 and T2. These are still viewed as western outliers which increase the horizontal extent of the proposed scheme beyond the contained landform, particularly from the upland locations noted. I appreciate that there are limitations regarding relocation of turbines T1 and T2 due to environmental and technical constraints but as mentioned previously I consider the current locations would undo hard won mitigation measures secured for the existing Corriegarth scheme. I still consider that turbine T3 should mark the furthest extent of the scheme when viewed from VP11 and other upland locations, if appropriate relocation is not possible then turbines T1 and T2 should be removed."*

Further review of the layout was undertaken by the Applicant and its consultants to explore potential opportunities to address the concerns raised by the Council in respect to T1 and T2. Through relocation of these turbines, whilst preserving the mitigation achieved in respect to other environmental and technical on-site constraints (i.e. peat and hydrology, slope gradients etc.), it was not deemed possible to relocate the turbines elsewhere within the layout. As such T1 and T2 were retained, with only minor changes in their proposed locations in response to concerns raised by SEPA in respect to peat.

Clarification was provided by the Applicant in a letter dated 4th October 2021, which set out the key justifications for the retention of T1 and T2, and the limited opportunity for their relocation elsewhere within the Site.

Following consideration of the Applicant's justifications, the Council's planning officer confirmed that *"Having reviewed the latest amendments relocating turbines T1 and T2 I am able to support the proposal when considered in the round. Whilst I still have some concerns with the proposal there has been an improvement to the visual impact the scheme will have, particularly from the upland viewpoints."* (by email, dated 1s November 2021).

Following agreement of this 14 turbine revised layout with the Council as acceptable in respect to landscape and visual effects, the Applicant undertook further peat probing surveys as detailed in para 5.5.1.2 below, which would inform the final turbine positions for the revised layout.

Following minor refinement to turbine positions in response to the final peat surveys and concerns raised by SEPA, details of the final revised 14 turbine layout (Revised Development (SEI) Layout – January 2022, as detailed in **SEI Chapter 3: Site Selection & Design** and shown on Figure 3.2) which is the subject of this SEI Report were shared with the Council by email, dated 31st January 2022.

More detailed information on the changes and design iterations can be found in **SEI Chapter 3: Site Selection & Design** of this SEI Report.

5.5.1.2 Scottish Environment Protection Agency (SEPA) Peat Consultation

SEPA's consultation response to the EIA Report and Development design stated that in the absence of sufficient justification, the overall track length and number of watercourse crossings should be reduced in an effort to reduce the *"excavation of a very large volume of peat (355,284 m³)"*. As a result of the redesign required to address the Council's landscape and visual concerns (outlined above) the Applicant took the opportunity to address SEPA's concerns through the redesign the Development.

Following the initial revised layout, agreed with the Council as acceptable in terms of landscape and visual concerns, the Applicant engaged peat and engineering experts to tweak the revised design in order to reduce the impact on peat. A design day exercise was undertaken where turbines and associated infrastructure were micrositied to both maintain the landscape and visual integrity of the layout, but also reduce the impact on peat; this resultant layout was then presented to SEPA via a meeting to discuss the layout. The Applicant, and their experts, met with SEPA on the 14th December 2021. During the meeting the engineering and environmental experts outlined the changes made to the Development, namely: the deletion and movements to turbines out of deep peat and a track redesign which sought to reuse existing infrastructure associated with the Operational Corriegarth Wind Farm. Following the meeting, the Applicant sent SEPA layout figures and materials for their consideration.

SEPA responded to the Applicant's redesign proposals on the 17th January 2021. SEPA were largely content with the redesigned proposal, but concerns regarding the new location of T13 remained:

"We [SEPA] are unfortunately unlikely to be able to accept the current location of T13 as we do not consider this change to the layout to be an improvement. We would therefore encourage you to find an alternative location for it now, prior to the formal submission of the information. We would be very happy to provide further advice on any alternative locations you may like to discuss."

The Applicant accepted SEPA's position on T13 and undertook further, extensive peat probing in the area of the proposed T13; several options were considered by the Applicant and their expert team, with a new position in shallower peat located decided upon. In February 2022, the Applicant wrote to SEPA outlining the final change to T13 and provided justification for the Revised Development design, namely the reduction in

excavated peat from 355,284 m³ to 176,000 m³. The Applicant's final response to SEPA can be found in Technical Appendix A5.1.

More detailed information on the changes and design iterations can be found in **SEI Chapter 3: Site Selection & Design**.

5.6 ASSUMPTION AND LIMITATIONS

A number of assumptions have been made during preparation and production of this SEI Report, as set out below. The assumptions are:

- The principal land uses adjacent to the Site remain as they are at the time of writing;
- Information provided by third parties, including publicly available information and databases, is correct at the time of publication; and
- Baseline conditions have been assumed to be accurate at the time of the physical surveys but, due to the dynamic nature of the environment, conditions may change over time and could be different during site preparation, construction, operational and decommissioning phases.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 6
Landscape and Visual Amenity



6 LANDSCAPE AND VIUSAL AMENITY

6.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Revised Development on the landscape and visual resource due to the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The substation for the Revised Development has been moved slightly from its previous location, now adjacent to the borrow pit location, as detailed in SEI Figure 3.2. However, as for the original Development, the substation will remain screened in views from each the landscape and visual impact assessment (LVIA) viewpoints.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter supplements **Chapter 6: Landscape and Visual Amenity** and accompanying appendices of the EIA Report which should be read in conjunction with this chapter. This assessment was undertaken by Chartered Landscape Architects (CMLI) at LUC (Land Use Consultants Limited) on behalf of Corriegarth 2 Wind Farm Limited (the Applicant).

This Chapter of the SEI Report is supported by the following Figures contained in **Volume 2b: LVIA Figures of the Landscape and Visual Impact Assessment (LVIA)** and the following updated figures contained in **Volume 2b: SEI LVIA Figures**:

- SEI Figure 6.2: Comparative Blade Tip Height (120 m & 149.9 m) Zone of Theoretical Visibility (ZTV) Corriegarth and Corriegarth 2
- SEI Figure 6.3a: Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV) and Viewpoint Locations (A3)
- SEI Figure 6.3b: Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV) and Visual receptors
- SEI Figure 6.3c: Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV) and Viewpoint Locations (A1)
- SEI Figure 6.4a: Hub Height (83.4 m) Zone of Theoretical Visibility (ZTV) and Viewpoint Locations
- SEI Figure 6.4b: Hub Height (83.4 m) Zone of Theoretical Visibility (ZTV) and Visual Receptors
- SEI Figure 6.5: Blade Tip Height (149.9 m) and Hub Height (83.4 m) Comparative Zone of Theoretical Visibility (ZTV) and Viewpoint Locations
- SEI Figure 6.6b: Landscape Character Types with Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV)
- SEI Figure 6.7b: Designated Landscapes & Wild Land Areas with Blade Tip Height (149.9 m) Zone of Theoretical Visibility (ZTV)

- SEI Figure 6.8b: Other Wind Farm Developments - 40 km
- SEI Figure 6.16b: Combined ZTV - Corriegarth 2, Corriegarth, Bhlaraidh and Bhlaraidh Extension

Accompanying comparative visualisations are provided in **Volume 2c: NatureScot SEI Visualisations** (53.5 degree wirelines only)¹ and **Volume 2d: The Highland Council (THC) SEI Visualisations** (full updated package of THC visualisations)² and have been prepared in accordance with the methodology set out in Appendix A6.2 to the Development LVIA. The visualisations presented in Volume 2c and Volume 2d should be viewed alongside the original visualisations presented in the EIA-Report in order to understand the amendments to the Development. References to the original visualisations are included in the table of contents of each volume.

This Chapter of the SEI Report is supported by the following Technical Appendix documents provided in **Volume 3: Technical Appendices** of the EIA Report:

- A6.1: Landscape and Visual Impact Assessment (LVIA) Assessment Methodology;
- A6.2: ZTV and Visualisation Methodology;
- A6.3: Assessment of Effects on Special Landscape Qualities; and
- A6.4: Wild Land Impact Assessment.

These technical appendices have not been updated in full to accompany this SEI Report, however the implications of changes to the proposed Development and the assessment of effects on Special Landscape Qualities and Wild Land resulting from the revised turbine layout are discussed in Section 6.7: Assessment of Potential Effects below.

6.2 KEY CONCLUSIONS OF THE EIA REPORT

The LVIA presented in the EIA Report set out the likely significant landscape and visual effects of the Development (16 wind turbines at 149.9 m blade tip height) during construction, operation, and decommissioning, with reference to mitigation which was developed during the design and EIA process.

The LVIA also considered the possible cumulative landscape and visual effects arising from Corriegarth 2 Wind Farm in conjunction with other approved, under construction and proposed wind farms in the local area.

Landscape Effects

The landscape character of the LVIA Study Area is varied and includes open areas of rolling moorland plateau contrasted with intimate glens and straths. The Site is located within the Rolling Uplands – Inverness (LCT 221) and Farmed Strath – Inverness (LCT 227). Proposed wind turbines of the Development are only located in LCT 221, whilst the existing access track is located within LCT 227.

The LCTs listed below were considered in the detailed assessment of landscape effects:

- LCT 221 – Rolling Uplands – Inverness;
- LCT 125 – Rolling Uplands – Cairngorms;
- LCT 227 – Farmed Strath – Inverness;
- LCT 224 – Farmed and Wooded Foothills; and
- LCT 225 – Broad Steep-Sided Glen.

The Development was judged to result in moderate (adverse) and significant direct landscape effects within localised extents of the Site. Given the existing presence of wind farm development within LCT 221 – Rolling Uplands – Inverness, effects on this LCT as

¹ As agreed with NatureScot case officer via email dated 9th November 2021.

² As agreed with THC planning officer via email dated 5th November 2021.

a whole were considered to be minor (adverse) and not significant. Indirect effects on other LCTs within the Study Area were considered to be not significant.

Visual Effects

Potential visual receptors (people) within the LVIA Study Area include:

- Residents, including views from isolated properties, scattered communities or defined settlements;
- Road users (including tourists);
- Those engaged in recreational activities (e.g. hill walkers and cyclists); and
- People at their place of work, including agricultural workers.

As indicated by the ZTV shown on Figure 6.2 of the LVIA, wind turbines of the Development would typically be seen in combination with the Operational Corriegarth Wind Farm and result in limited areas of additional visibility.

It was considered that during the operational phase, moderate (adverse) and significant visual effects would be experienced from four of the 19 representative viewpoints located within approximately 11 km of the Development. These viewpoints are listed below:

- Viewpoint 3: B862 West of Corriegarth Lodge;
- Viewpoint 4: South Loch Ness Trail, north of Whitebridge;
- Viewpoint 5: Errogie;
- Viewpoint 7: General Wade's Military Road.

From these locations, wind turbines within the Development would be seen, slightly increasing the horizontal extent and perceptibility of the Operational Corriegarth Wind Farm in views, and experienced by receptors considered to be of medium or high sensitivity. From other viewpoint locations considered in the assessment, wind turbines within the Development would be seen as a discrete extension to the Operational Corriegarth Wind Farm, typically in views containing existing wind farm development. Whilst the Development would slightly increase the horizontal extent of the Operational Corriegarth Wind Farm, spacing between existing clusters of wind farm development would be maintained.

Whilst moderate (adverse) and significant effects would be experienced from localised sections of the B862, NCN Route 78 and the South Loch Ness Trail, an overall minor (adverse) and not significant effect would be experienced from each of these routes.

Whilst moderate (adverse) and significant effects were identified for residential receptors from VP1: Gorthleck, this represented a worst-case scenario from relatively limited extents of the settlement. An overall minor (adverse) and not significant effect was identified for the settlement of Gorthleck as a whole.

Designated Landscapes and Wild Land

The Site itself is not located within a designated landscape or wild land area; however, there are a number of protected areas located across the 40 km radius Study Area for the Development LVIA. Potential effects upon the Loch Ness and Duntelchaig Special Landscape Area (SLAs), the Cairngorms National Park and Monadhliath Wild Land Area (WLA 20) were considered within the assessment.

The Loch Ness and Duntelchaig SLA is located approximately 7.3 km from the nearest wind turbine within the Development. The ZTV indicates visibility of wind turbines from within the SLA within 7-20 km of the Development. Whilst the LVIA noted that localised moderate (adverse) and significant effects were anticipated from locations within the SLA (VP4: South Loch Ness Trail North of Whitebridge, VP7: General Wade's Military Road), the introduction of the Development was not judged to significantly affect or alter the Special Qualities of the SLA. An overall minor (adverse) and not significant effect was identified for the SLA. Given that existing wind farms, including the Operational

Corriegarth Wind Farm are already present in views from the Loch Ness and Duntelchaig SLA, and as no direct effects on key landscape features would occur, the Development would not significantly affect the integrity of the SLA by adversely impacting on the qualities for which it has been designated.

The Cairngorms National Park (CNP) is located approximately 9.7 km from the nearest wind turbine of the Development. An Assessment of the Special Landscape Qualities of the CNP was included in Appendix A6.3 of the LVIA. The assessment of SLQs established that the Development would not compromise any of the defined SLQs of the CNP. The Development would lead to indirect effects experienced from a relatively small geographical area of the CNP, exclusively affecting these elevated areas and summits, from where the wind turbines of the Development would appear consistent with the existing pattern of wind energy development in the landscapes outside the CNP and as a coherent extension to the existing Operational Corriegarth Wind Farm. The adverse effects on the SLQs of the CNP identified within the assessment were judged not to undermine the objectives for its protection, and the overall integrity of the CNP would not be compromised by the introduction of the Development.

The Monadhliath Wild Land Area (WLA 20) is located less than 1 km from the nearest wind turbine within the Development. A Wild Land Impact Assessment was included in Appendix A6.4 of the LVIA. The existing influence of wind farm development to the south-west, west and north-west of the WLA 20 was acknowledged, with additional effects resulting from the Development judged to be very localised in their extent. Large areas of the WLA would remain unaffected by the influence of wind farm development. The adverse effects on the wild land qualities identified within the assessment were judged not to undermine the objectives for its protection, and the overall integrity of the WLA was judged not to be compromised by the introduction of the Development.

Cumulative Effects

Operational wind farms and those under construction including the Operational Corriegarth Wind Farm were included as part of the baseline for the LVIA and considered as part of the primary LVIA assessment. Scenario 1 of the Cumulative Landscape and Visual Impact Assessment (CLVIA) considered the addition of the Development to a landscape with operational, under construction and consented wind farms. Scenario 2 of the CLVIA considered the addition of the Development to a landscape with operational, under construction, consented and undetermined valid planning applications. No significant cumulative effects were identified in the CLVIA. In general, other wind energy developments considered as part of both cumulative scenarios would consolidate the existing pattern of wind energy development, and the perceptible gap between discernible clusters of wind turbines would be maintained. The cumulative effects resulting from the introduction of the Development were typically considered to be minor (adverse) and not significant, and in some instances no additional or total cumulative effects were predicted to occur.

6.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

The guidance, legislation and information sources that have been considered in carrying out this assessment and the previous LVIA are listed in Section 6.2: Legislation, Policy and Guidance of the LVIA. The relevant legislation, policy and guidance listed in the LVIA remain current, with the exception of the Cairngorms National Park Local Development

Plan 2021³ and accompanying non-statutory Planning Guidance, which was adopted in its final form in March 2021 and supersedes the proposed Local Development Plan 2020⁴.

6.4 METHODOLOGY AND APPROACH

The LVIA methodology was prepared in accordance with the principles contained within GLVIA3⁵ and is described in detail in Appendix A6.1 of the LVIA. Appendix A6.1 of the LVIA should be referred to whilst reviewing the findings of this assessment in order to gain a clear understanding of how findings of significance have been informed.

6.5 CONSULTATION

Consultation responses of relevance to landscape and visual matters were received after submission of the EIA Report from THC, NatureScot, Ministry of Defence (MOD), Mountaineering Scotland, Scotways and Stratherrick and Foyers Community Council. A summary of these responses with respect to landscape and visual amenity and how these responses have been dealt with are summarised in Table 5.1 in **SEI Report Chapter 5: EIA Methodology**.

The Revised Development SEI Layout has sought to address the key concerns of the Council which are detailed in **SEI Chapter 5: EIA Methodology** and summarised below:

- The overall extent of the Proposed Development was considered to extend to far horizontally when seen from elevated locations to the north of the Great Glen;
- The most westerly and easterly turbines were judged to appear either higher up or lower down within the landscape, resulting in overspill, and a lack of relationship with the existing wind farm; and
- The eastern and western outlying turbines were judged not to relate well to the existing scheme.

The changes which have been incorporated into the Revised Development SEI Layout are detailed in **SEI Chapter 3: Site Selection & Design**. These changes were informed by initial email dialogue between the Applicant and the Council in April 2021, followed by a design workshop held via video conference in August 2021 where the Council's landscape and visual concerns were explored in further detail.

A detailed summary of these concerns and how they have been addressed in the Revised Development SEI Layout are set out in Table 5.1 **SEI Chapter 5: EIA Methodology**

6.6 BASELINE REVIEW

Since the submission of the S36 application for the original 16 wind turbine layout proposed in January 2021, the landscape and visual baseline remains similar to that described in the LVIA. The landscape and visual baseline for the Study Area is summarised below.

Landscape Baseline

Sections 6.5 of the LVIA presented an overview of the landscape baseline including landscape character (including constituent landscape elements), landscape condition and any designations attached to the landscape. This remains valid and current for the Revised Development.

³ Cairngorms National Park (2021), Local Development Plan 2021. [Online] Available at: <https://cairngorms.co.uk/planning-development/ldp-2021/> (Accessed 06/01/2022)

⁴ Cairngorms National Park (2019), Local Development Plan 2020, Proposed Plan. [Online] Available at: <https://cairngorms.co.uk/planning-development/local-development-plan-2020/> (Accessed 06/03/2022)

⁵ Landscape Institute and the Institute of Environmental Assessment (2013), Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)

Visual Baseline

Section 6.6 of the LVIA presents the visual receptors that were assessed within the visual assessment of the LVIA. This section also introduces the viewpoints that were used as representative points from which to assess effects on visual receptors (people) and particular views, including reasons for their selection.

SEI Figures 6.3a-6.3c and SEI Figures 6.4a-6.4b illustrate the updated theoretical visibility of the wind turbines of the Revised Development to blade tip height (149.9 m) and hub height (83.4 m) respectively. Theoretical visibility of the Revised Development SEI Layout remains broadly similar to that of the Development EIA Layout. Within 5 km of the outermost wind turbines of the Revised Development, theoretical visibility is largely focused within the interior of the Site, with the broad 'bowl'-shaped landform of the Site containing visibility of the Revised Development in views from lower lying areas to the west of the Site. Theoretical visibility is indicated from lower lying areas along and adjacent to the existing access track, which passes to the north-west of the Site to the B862.

Within 10-15 km of the outermost wind turbines of the Revised Development, theoretical visibility is indicated from Stratherrick to the west, elevated slopes to the west of the Great Glen, and elevated summits and slopes within the interior of the Monadhliath Mountains to the east. Due to intervening landform and the dramatic profile of the Great Glen, very limited visibility is indicated from Loch Ness and its shoreline with actual visibility further limited by the presence of intervening woodland and forestry.

Beyond 15 km of the outermost wind turbines of the Revised Development, theoretical visibility is indicated from west-facing slopes of the Cairngorms Massif at the western interior of the CNP; elevated summits within the Ardverikie Forest and Ben Alder to the south; elevated summits within the Central Highlands to the west; elevated ground within the Drynachan moor to the north-east; and across Drummossie Muir, the Moray Firth and Kessock Bridge to the north of the Site.

Potential visual receptors include:

- Residents, including views from isolated properties, scattered communities or defined settlements;
- Road users (including tourists);
- Those engaged in recreational activities (e.g. hill walkers and cyclists); and
- People at their place of work, including agricultural workers.

The viewpoints used to assess the visual effects are listed in Table 6. below and are shown on SEI Figure 6.3a and SEI Figure 6.3c.

Table 6.2 Viewpoint Locations

Viewpoint Locations⁶					
No.	Location	Reason for Selection	Grid Reference		Approx. Distance (km)⁷
			Easting	Northing	
1	Gorthleck ⁸	Represents views experienced by road users and residential receptors.	252920	819575	6.59 km

⁶ Several the viewpoint locations are also used as assessment points within the Assessment of Effects on Special Landscape Qualities (Appendix A6.3) and Wild Land Impact Assessment (Appendix A6.4 of the LVIA).

⁷ Distance between viewpoint and the nearest wind turbine of the Revised Development.

⁸ Viewpoint referred to as 'South Murnich' in the LVA (July 2007) for the operational development and subsequent Section 36 Application: Supporting Environmental Report (June 2013)

Viewpoint Locations⁶					
No.	Location	Reason for Selection	Grid Reference		Approx. Distance (km)⁷
			Easting	Northing	
2	Boleskine Parish Church ⁹	Represents views experienced by visitors and nearby residential receptors.	250719	818235	6.96 km
3	B862 West of Corriegarth Lodge	Represents views experienced by road users and nearby residential receptors.	249664	817270	7.24 km
4	South Loch Ness Trail, north of Whitebridge	Represents views experienced by recreational users of this promoted trail and nearby residential receptors.	248861	816336	7.54 km
5	Errogie	Represents views experienced by road users and residential receptors.	255535	822146	8.17 km
6	Beinn Bhreac Mhor	Represents views experienced by recreational receptors.	267785	819786	10.38 km
7	General Wade's Military Road ¹⁰	Represents views experienced by road users, tourists and recreational receptors on National Cycle Network (NCN) Route 78, and within the Loch Ness and Duntelchaig SLA.	244961	810545	11.19 km
8	Great Glen Way, East of Creag Dhearg ¹¹	Represents views experienced by recreational receptors on the Great Glen Way, within the Loch Ness and Duntelchaig SLA.	246953	821103	11.7 km
9	Carn Sgulain	Represents views experienced by recreational receptors (hill walkers on the Munro summit), within Monadhliath Wild Land Area (WLA 20) and from boundary of the Cairngorms National Park.	268305	805814	11.6 km
10	A82 Achnahannet	Represents views experienced by road users of A82 passing through the Loch Ness and Duntelchaig SLA.	251277	826100	13.2 km
11	Meall Fuar-mhonaidh	Represents views experienced by recreational receptors at the popular local hill summit within the Loch Ness and Duntelchaig SLA.	245892	822187	13.2 km

⁹ Viewpoint referred to as 'St. Dunstan's Cemetery' in the LVA (July 2007) for the operational development and subsequent Section 36 Application: Supporting Environmental Report (June 2013)

¹⁰ Viewpoint referred to as 'B862, General Wades Military Road East of Carn an t-Suidhe' in the LVA (July 2007) for the operational development and subsequent Section 36 Application: Supporting Environmental Report (June 2013)

¹¹ Viewpoint referred to as 'Great Glen Way Viewpoint, East of Creag Dhearg (b)' in the Section 36 Application: Supporting Environmental Report (June 2013)

Viewpoint Locations⁶					
No.	Location	Reason for Selection	Grid Reference		Approx. Distance (km)⁷
			Easting	Northing	
12	B862 North of Torness	Represents views experienced by road users within the Loch Ness and Duntelchaig SLA.	257595	827908	13.6 km
13	Geal Charn	Represents views experienced by recreational receptors (hill walkers) from this Munro summit, within WLA 20 and boundary of the CNP.	256139	798771	13.3 km
14	Corrieyairack Hill	Represents views experienced by recreational receptors (hill walkers) on the hill summit.	242818	799737	18.3 km
15	Carn na Leitire	Represents views experienced by recreational receptors (hill walkers) from hill summit near to route of the Great Glen Way.	254695	834464	20.4 km
16	North Kessock - A9 northbound picnic area	Represents views experienced by road users and tourists at this popular stopping point on the A9.	265470	848026	34.5 km
17	Ben Tee	Represents views experienced by recreational receptors on the Corbett summit within the Loch Lochy and Loch Oich SLA.	224027	797264	35.4 km
18	Toll Creagach	Represents views experienced by recreational receptors on the Munro summit within the Central Highlands WLA, looking across the Glen Affric NSA.	219452	828264	39.3 km
19	Ptarmigan Restaurant, Cairngorm	Represents views experienced by recreational receptors from the popular and accessible mountain location within the CNP.	300459	804888	41.9 km

Settlements are those defined as such within THC Inner Moray Firth Local Development Plan and the CNP Local Development Plan. The broad pattern of settlement within the Study Area is generally concentrated within the glens and straths, located along key transportation routes. Outside of settlements, scattered residential properties and farmsteads follow a similar pattern of development.

There are no settlements located within 5 km of the outermost wind turbines of the Revised Development. The settlement of Gorthleck, located 6.6 km to the north-west of the Revised Development, is considered within the assessment due to the theoretical visibility indicated from areas of the settlement (SEI Figure 6.3b) and the principal views afforded south-east from residential properties across Loch Mhor towards the Revised Development.

Road and Recreational Routes within the Study Area are listed in Table 6.7 of the LVIA. Within the Study Area, many of the road routes tend to follow low lying areas, glens or passes, but walking routes are more variable and can pass over elevated ground including hills and along ridges, often offering open longer-distance views. The A82 and B862 are considered within the assessment due to the visibility indicated from these roads and glimpsed views afforded towards the Revised Development. NCN Route 78 -

The Caledonia Way, the Great Glen Way and the South Loch Ness Trail are considered within the assessment based on the theoretical visibility indicated from these routes.

6.7 ASSESSMENT OF POTENTIAL EFFECTS

The assessment of landscape and visual effects follows the methodology set out in detail in Appendix A6.1 of the LVIA and is based upon the project description for the Revised Development outlined in **SEI Chapter 4: Development Description**. Key changes to the Revised Development are outlined in **SEI Chapter 3: Site Selection and Design**. These changes were made with the intention of addressing key landscape and visual concerns raised by THC and concerns raised by Scottish Environment Protection Agency (SEPA) in respect to peat impacts, as outlined in **SEI Chapter 5: EIA Methodology**

Table 6.3 below provides a summary of the effects detailed in the Development LVIA for each landscape and visual receptor, with an updated assessment for the proposed Revised Development SEI Layout.

Table 6.3 Summary of Effects

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
Construction Effects			
The Site	Medium	Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 6.9 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on the Site during construction. Changes to the turbine layout will result in a slightly improved relationship of the turbine layout to the underlying 'bowl'-like landform of the Site, a reduction in the total number of turbines and associated foundations and hardstanding, and a reduction in the total length of access track required. Overall, the magnitude of change to the landscape of the Site will remain as medium, resulting in a moderate (adverse) and significant landscape effect. However, these effects would be temporary and largely contained within localised geographical extents.
Operational Effects on Landscape Character			
The Site	Medium	Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 6.10 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on the Site during operation. Changes to the turbine layout will result in a slightly improved relationship of the turbine layout to the underlying 'bowl'-like landform of the Site and a reduction in the total access track length. Overall, the magnitude of change to the landscape of the Site will remain as medium, resulting in a moderate (adverse) and significant landscape effect.
LCT 221 – Rolling Uplands – Inverness (host)	Medium	Medium magnitude of change locally, Low magnitude of change for LCT as a whole Minor (adverse), not significant effect (Detailed in Table 6.11 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on LCT 221. The geographical extent of direct effects on LCT 221 will be slightly reduced, given the reduction in number of turbines and shorter length of access track. Direct operational effects will arise from the introduction of 14 wind turbines and associated infrastructure, within the central extents of the LCT and within the area immediately adjacent to the Operational Corriegarth Wind Farm. Visibility of the Revised Development SEI Layout from LCT 221, as illustrated by the ZTV on SEI Figure 6.6b, remains broadly similar to that of the Development EIA Layout. However,

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
			given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. There has been a slight reduction in visibility within the LCT to the north-west of the Site. SEI Figure 6.6b indicates extensive theoretical visibility from elevated landform and hill summits to the north-east to south-east of the Site, and lower-lying areas along the River E to the north-west, adjacent to the existing access track. Within 15 km theoretical visibility is indicated from hill summits and elevated landform. In views from elevated landform within approximately 12 km of the Site, turbine layout changes of the Revised Development SEI Layout will result in a slightly decreased prominence and horizontal extent of turbines. In views from elevated landform to the north-east (VP 6: Beinn Bhreac Mhor) and south-west (VP 7: General Wade's Military Road), wind turbines will appear as a relatively distant feature, partially screened by intervening landform with some turbine hubs and blade tips seen against the skyline. Turbines will be seen in views with an existing presence of wind farm development. In more distant views from elevated landform across the LCT (illustrated by VP 13: Geal Charn and VP 14: Corrieyairack Hill), turbine layout changes of the Revised Development SEI Layout will be barely noticeable. Within localised extents of the LCT, the magnitude of change will remain as medium, resulting in a moderate (adverse) and significant landscape effect locally. The magnitude of change for the LCT as a whole will remain as low, resulting in a minor (adverse) and not significant effect.
LCT 125 – Rolling Uplands - Cairngorms	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.12 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on LCT 125. The Revised Development will be located entirely outside this LCT; therefore, any effects will be limited to indirect effects experienced through views of the Revised Development from within the LCT. Visibility of the Revised Development SEI Layout from LCT 125, as illustrated by the ZTV on SEI Figure 6.6b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
LCT 227 – Farmed Strath - Inverness	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.13 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on LCT 227. The existing access track for Operational Corriegarth Wind Farm is located within this LCT. However, no proposed wind turbines or other ancillary infrastructure will be located within this LCT. Therefore, operational effects will be limited to indirect effects experienced through views of the Revised Development from within the LCT. Visibility of the Revised Development SEI Layout from LCT 227, as illustrated by the ZTV on SEI Figure 6.6b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. Changes made to the Development EIA Layout will result in a slightly reduced prominence and reduced horizontal extent of turbines for the Revised Development SEI Layout in views some extents of LCT 227. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
LCT 224 – Farmed and Wooded Foothills	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.14 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on LCT 221. The Revised Development will be located entirely outside this LCT; therefore, any effects will be limited to indirect effects experienced through views of the Revised Development from within the LCT. Visibility of the Revised Development SEI Layout from LCT 224, as illustrated by the ZTV on SEI Figure 6.6b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
LCT 225 – Broad Steep-Sided Glen	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.15 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will not result in a change to the magnitude of change or significance of landscape effect on LCT 225. The Revised Development will be located entirely outside this LCT; therefore, any effects will be limited to indirect effects experienced through views of the Revised Development from within the LCT. Visibility of the Revised Development SEI Layout from LCT 225, as illustrated

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
			by the ZTV on SEI Figure 6.6b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible from areas of indicated theoretical visibility. Changes made to the Development EIA Layout, specifically the removal of T10 and the relocation of T1 and T2 will result in reduced horizontal extent of turbines for the Revised Development SEI Layout in views from slightly elevated locations on the glen sides of LCT 225 (illustrated by VP 8: Great Glen Way, East of Creag Dhearg). The removal of T10 will result in a slightly improved relationship of the Revised Development to the Operational Corriegarth Wind Farm and the underlying 'bowl' landform of the Site. In views from lower-lying extents of LCT 225, turbine layout changes of the Revised Development SEI Layout will be barely noticeable, given screening of the development by intervening forested landform (illustrated by VP 10: A82 Achnahannet). The magnitude of change will therefore remain as low, resulting in a minor (adverse) and not significant effect.
Operational Effects on Views and Visual Amenities			
Viewpoint 1: Gorthleck (Residential receptors, road users)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.16 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T12 and relocation of T13 and T15, will result in reduced prominence of turbines in the view for the Revised Development SEI Layout. The blade tips of one turbine (T13) will be seen just above the skyline, and with the blade tips of two further turbines (T11 and T15) barely visible beyond intervening landform in views to the south-east. Given screening of the Revised Development and the Operational Corriegarth Wind Farm by intervening landform, wind turbines will occupy a relatively small proportion of the available view. Blade tips of T13 of the Revised Development will slightly increase the perceptibility of wind turbines in views looking south-east (to a lesser degree, however, than the original Development Layout). However, blade tips of T11 and T15 will appear similar in scale to the visible blade tips of T8 of the Operational Corriegarth Wind Farm. The scale of wind turbines will not overwhelm that of the adjacent landform. Similar views, from which the Revised Development will be perceived to introduce blade tips wind turbines into the view, will be experienced from relatively localised extents within Stratherrick. The geographical extent of similar views is considered to be small.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
			The introduction of the Revised Development will result in a small scale change to the view. The overall magnitude of change will remain as low, resulting in a minor (adverse) and not significant visual effect.
Viewpoint 2: Boleskine Parish Church (Residential receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.17 of the LVIA).	Changes made to the Development EIA Layout, specifically the relocation of T1 and T2, will result in reduced horizontal extent of turbines for the Revised Development SEI Layout. The hubs and blade tips of four wind turbines and the blade tips of a further four wind turbines will be seen against the skyline in views south-east. The Revised Development will be seen in combination with the Operational Corriegarth Wind Farm and will slightly increase the horizontal extent of wind farm development further south (to a lesser degree, however, than the original Development Layout). Wind turbines forming the Revised Development, particularly the relocated T1, improve the composition of the Operational Corriegarth Wind Farm by filling in some of the existing gaps and uneven spacing between turbines, particularly the existing outlying turbine T4 of the Operational Corriegarth Wind Farm. The overall magnitude of change will remain as low, resulting in a minor (adverse) and not significant visual effect.
Viewpoint 3: B862 West of Corriegarth Lodge (Road users, residential receptors)	Medium	Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 6.18 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T10 and T12 and relocation of T1, T2 and T11, will result in reduced horizontal extent of turbines in the view for the Revised Development SEI Layout. The hubs and blade tips of 10 wind turbines and the blade tips of a further four wind turbines will be seen against the skyline in long-distance views south-east. The Revised Development will be seen in combination with the Operational Corriegarth Wind Farm, slightly increasing the horizontal extent of wind farm development (to a lesser degree, however, than the original Development Layout). The overall magnitude of change will remain as medium, resulting in a moderate (adverse) and significant visual effect.
Viewpoint 4: South Loch Ness Trail, north of Whitebridge (Recreational and residential receptors)	High	Medium magnitude of change Moderate (adverse), significant effect	Changes made to the Development EIA Layout, specifically the removal of T10 and T12 and relocation of T11, will result in reduced horizontal extent and prominence of turbines in the view for the Revised Development SEI Layout. Composition of the turbine layout is also improved, with less 'stacking', or overlapping, or turbine blades. The hubs and blade tips of three wind turbines and the blade tips of a further five turbines will be seen on the skyline of long-distance views east from this location. The majority of the

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
		(Detailed in Table 6.19 of the LVIA).	Revised Development will be partially screened by intervening landform, however T9, T11 and T13 appear prominently on the skyline. The movement of wind turbine blade tips of Operational Corriegarth Wind Farm are barely perceptible beyond intervening landform. The Revised Development will increase the horizontal extent and prominence of wind turbines in views east (to a lesser degree, however, than the original Development Layout). The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.
Viewpoint 5: Errogie (Road users, residential receptors)	High	Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 6.20 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.
Viewpoint 6: Beinn Bhreac Mhor (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.21 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T10, will result in fewer visible turbine hubs from this location. The hubs and blade tips of six turbines and the blade tips of one further turbine will be visible beyond intervening landform. Wind turbines will appear as a relatively distant feature against the skyline in long-distance views south-west. The Revised Development will be seen in combined and successive views with a number of operational wind farms, including Dunmaglass, Millennium, Beinneun and Extension Wind Farms and the Operational Corriegarth Wind Farm. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 7: General Wade's Military Road (Road users, recreational receptors including tourists)	High	Medium magnitude of change Moderate (adverse), significant effect (Detailed in Table 6.22 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T12 and relocation of T13 and T15 will result in reduced horizontal extent and prominence of turbines in the view for the Revised Development SEI Layout. The hubs and blade tips of seven turbines and the blade tips of a further three turbines will be seen in long-distance views north-east, partially screened by intervening landform. The Revised Development will extend on either side of the Beinn Mheadhoin, increasing the horizontal

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
			extent of the Operational Corriegarth Wind Farm towards Dunmaglass (to a lesser degree, however, than the original Development Layout). The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect.
Viewpoint 8: Great Glen Way, East of Creag Dhearg	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.23 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T10 and the relocation of T1 and T2 will result in reduced horizontal extent of turbines for the Revised Development SEI Layout. The hubs and blade tips of all 14 turbines will be seen in long-distance views south-east looking across the Great Glen. Wind turbines will slightly increase the horizontal extent and prominence of Operational Corriegarth Wind Farm (to a lesser degree, however, than the original Development Layout). The removal of T10 will result in a slightly improved relationship of the Revised Development to the Operational Corriegarth Wind Farm and the underlying 'bowl' landform of the Site. Proposed wind turbines will improve the composition of the operational layout by filling in some of the existing gaps and uneven spacing between wind turbines. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 9: Carn Sgulain (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.24 of the LVIA).	Changes made to the Development EIA Layout, specifically the relocation of T11 and removal of T10 will result in a slight reduction in the prominence of turbines and an improvement in turbine layout composition, including a reduction in the 'stacking' of turbine blades, for the Revised Development SEI Layout in distant views from this location. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 10: A82 Achnahannet (Road users)	Medium	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.25 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will therefore remain as low, resulting in a minor (adverse) and not significant effect.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
Viewpoint 11: Meall Fuar-mhonaigh (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.26 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T10 and the relocation of T1 and T2, will result in reduced horizontal extent of turbines for the Revised Development SEI Layout. The hubs and blade tips of all 14 turbines of the Revised Development will be seen in long-distance views south-east, partially backclothed by landform. Proposed wind turbines will slightly increase the horizontal extent of the Operational Corriegarth Wind Farm (to a lesser degree, however, than the original Development Layout). The removal of T10 has resulted in a slightly improved relationship of the Revised Development to the Operational Corriegarth Wind Farm and the underlying 'bowl' landform of the Site. The magnitude of change will therefore remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 12: B862 North of Torness (Road users)	Medium	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.27 of the LVIA).	Changes made to the Development EIA Layout, specifically the relocation of T1 and T2, will result in a slightly reduced horizontal extent of turbines for the Revised Development SEI Layout. The hubs and blade tips of two turbines and the blade tips of a further six turbines will be seen in long-distance views south, partially screened by intervening landform. The horizontal extent of the Operational Corriegarth Wind Farm will be slightly increased (to a lesser degree, however, than the original Development Layout). However, a perceptible gap will still exist between the Revised Development and Dunmaglass to the north. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 13: Geal Charn (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.28 of the LVIA).	Changes made to the Development EIA Layout, specifically the relocation of T8 and removal of T10, will result in a slight reduction in the prominence of turbines for the Revised Development SEI Layout in distant views from this location. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 14: Corrieyairack Hill (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect	Turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
		(Detailed in Table 6.29 of the LVIA).	The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 15: Carn na Leitire (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.30 of the LVIA).	Turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location. The relocation of T1 will result in a slightly reduced horizontal extent of turbines in the view for the Revised Development SEI Layout, however given the distant nature of views, these changes will not result in a change to the level of effect. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 16: North Kessock - A9 northbound picnic area (Road users, including tourists)	High	Low magnitude of change Negligible (adverse), not significant effect (Detailed in Table 6.31 of the LVIA).	Given the distant nature of views and screening by intervening landform, turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a negligible (adverse) and not significant effect.
Viewpoint 17: Ben Tee (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.32 of the LVIA).	Given the distant nature of views and screening by intervening landform, turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 18: Toll Creagach (Recreational receptors)	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.33 of the LVIA).	Given the distant nature of views, turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint. The magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect.
Viewpoint 19: Ptarmigan Restaurant, Cairngorm	High	Low magnitude of change Negligible (adverse), not significant effect	Given the distant nature of views, turbine layout changes of the Revised Development SEI Layout will be barely noticeable in views from this location and will not result in a change to the magnitude of change or significance of visual effect on receptors represented by this viewpoint.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
(Recreational receptors)		(Detailed in Table 6.34 of the LVIA).	The magnitude of change will remain as low, resulting in a negligible (adverse) and not significant effect.
Operational Effects on Settlements			
Gorthleck	High	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.35 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T12 and relocation of T13 and T15, will result in reduced prominence of turbines in the view from the settlement for the Revised Development SEI Layout. Screening by intervening landform limits the visibility of the Revised Development from the settlement, as illustrated by the ZTV on SEI Figure 6.3b and VP 1: Gorthleck. Where visible, turbine blades will be seen against a relatively small proportion of the skyline beyond intervening landform. The overall magnitude of change will remain as low, resulting in a minor (adverse) and not significant visual effect.
Operational Effects on Routes			
A82 (Road users)	Medium	Low magnitude of change Minor (adverse), not significant effect locally; Negligible (adverse), not significant effect for the road as a whole. (Detailed in Table 6.36 of the LVIA).	Visibility of the Revised Development SEI Layout from the A82, as illustrated by the ZTV on SEI Figure 6.3b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. Where outward views are afforded from the road (VP 10: Achnahannet), turbine layout changes of the Revised Development SEI Layout will be barely noticeable. The Revised Development will be seen in long-distance oblique views from short sections of the road from which the Operational Corriegarth Wind Farm is already seen. The magnitude of change will remain as low, for localised sections of the A82, resulting in a minor (adverse) and not significant effect. Given the limited extent of visibility indicated and screening of outward views from the road by intervening vegetation, the overall level of effect for the road will remain as negligible (adverse) and not significant .
B862 (Road users)	Medium	Medium magnitude of change locally; Low magnitude of change for the road as a whole.	Visibility of the Revised Development SEI Layout from the B862, as illustrated by the ZTV on SEI Figure 6.3b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
		Moderate (adverse), significant effect locally; Minor (adverse), not significant effect for the road as a whole. (Detailed in Table 6.37 of the LVIA).	Changes made to the Development EIA Layout, specifically the removal of T10 and T12 and relocation of T1, T2 and T11, will result in reduced prominence and horizontal extent of turbines in views from the road. The Revised Development will be seen in long-distance views from the road, partially screened by intervening landform. Proposed wind turbines will often be seen alongside the Operational Corriegarth Wind Farm, but at times the Revised Development will slightly increase the horizontal extent and prominence of operational wind turbines in views afforded from the road (to a lesser degree, however, than the original Development Layout). For the section of the road between the Suidhe viewpoint and Errogie, the magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect locally. Given partial screening of outward views from the road by intervening vegetation, and the contained nature of the Revised Development beyond landform, the overall magnitude of change for the road will remain as low, resulting in a minor (adverse) and not significant effect.
NCN Route 78 - The Caledonia Way (Cyclists/recreational receptors)	High	Medium magnitude of change locally; Low magnitude of change for the route as a whole. Moderate (adverse), significant effect locally; Minor (adverse), not significant effect for the road as a whole. (Detailed in Table 6.38 of the LVIA).	Visibility of the Revised Development SEI Layout from NCN Route 78, as illustrated by the ZTV on SEI Figure 6.3b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. Changes made to the Development EIA Layout, specifically the removal of T12 and relocation of T13 and T15 will result in reduced horizontal extent and prominence of turbines in views from the route for the Revised Development SEI Layout. For the section of the route near the Suidhe viewpoint on the B862, the magnitude of change will remain as medium, resulting in a moderate (adverse) and significant effect locally. Beyond this section of the road, the magnitude of change will remain as low, resulting in a minor (adverse) and not significant effect for the route as a whole.
Great Glen Way (Recreational receptors)	High	Low magnitude of change. Minor (adverse), not significant effect locally;	Visibility of the Revised Development SEI Layout from the Great Glen Way, as illustrated by the ZTV on SEI Figure 6.3b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
		Negligible (adverse), not significant effect for the route as a whole. (Detailed in Table 6.39 of the LVIA).	Where outward views are afforded from the route (illustrated by VP 8: Great Glen Way, East of Carn Dearg) changes made to the Development EIA Layout, specifically the removal of T10 and the relocation of T1 and T2 will result in reduced horizontal extent of turbines for the Revised Development SEI Layout. The removal of T10 will result in a slightly improved relationship of the Revised Development to the Operational Corriegarth Wind Farm and the underlying 'bowl' landform of the Site. For sections of the route near Creag Dhearg and to the south-east of Carn na Leitire, the magnitude of change will remain as low, resulting in a minor (adverse) and not significant visual effect. Beyond these sections of the route, the level of effect will remain as negligible (adverse) and not significant .
South Loch Ness Trail (Recreational receptors)	High	Medium magnitude of change locally; Low magnitude of change for the route as a whole. Moderate (adverse), significant effect locally; Minor (adverse), not significant effect for the road as a whole. (Detailed in Table 6.40 of the LVIA).	Visibility of the Revised Development SEI Layout from the South Loch Ness Trail, as illustrated by the ZTV on SEI Figure 6.3b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. Where outward views are afforded from the route (illustrated by VP 4: South Loch Ness Trail north of Whitebridge and VP 7: General Wade's Military Road), changes made to the Development EIA Layout will result in a reduced horizontal extent of turbines in the view. The magnitude of change will remain as medium, resulting in a moderate (adverse) and significant visual effect for sections of the route north of Whitebridge and near the Suidhe viewpoint. Beyond these sections of the route, the magnitude of change will remain as low, resulting in a minor (adverse) and not significant visual effect.
Operational Effects on Designated Landscapes			
Cairngorms National Park (CNP) ¹²	High	Low magnitude of change Minor (adverse), not significant effect	The Revised Development will be located approximately 9 km to the west of the CNP, therefore any effects on the SLQs of the CNP will be limited to indirect effects experienced through views of the Revised Development from within the CNP. Changes made to the Development EIA Layout, specifically the relocation of T8 and T11 and removal of T10, will result in a slight decrease in the perceptibility of turbines in views from the

¹² Assessment of effects on special landscape qualities of Cairngorms National Park detailed in Appendix A6.3: Assessment of Effects on Special Landscape Qualities of the LVIA

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
			Cairngorms National Park for the Revised Development SEI Layout, including from VP 9 (AESLQ05): Carn Sgulain, VP 13 (AESLQ04): Geal Charn, AESLQ01: Carn Ban and AESLQ03: A'Chailleach. Turbine layout changes will also result in a slight improvement to composition including reduction in turbine 'stacking'. In views further north within the CNP (AESLQ02: Càrn an Fhreicheadain), the removal of T10 will result in a slight reduction in the horizontal extent of turbines in the view. Visibility of the Revised Development SEI Layout from the Cairngorms National Park, as illustrated by the ZTV on SEI Figure 6.7b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. The ZTV indicates visibility from elevated summits on the western park boundary, and from elevated summits and west-facing slopes within the north-western extents of the park, including the summits of Cairn Gorm and Braeriach. The Revised Development will be seen in distant views with an existing presence of wind farm development and will form a coherent extension to the Operational Corriegarth Wind Farm. The slight improvements noted above will be experienced in distant views from the CNP. The previous assessment of AESLQs therefore remains relevant to the Revised Development. The level of effect for the SLQs assessed in Appendix A6.3 of the LVIA will remain as negligible or minor (not significant). It is therefore considered that none of the SLQs of the CNP will experience significant effects as a consequence of the introduction of the Revised Development. As for the original Development Layout, the Revised Development will not compromise any of the defined SLQs of the CNP.
Loch Ness and Duntelchaig Special Landscape Area (SLA)	Medium	Low magnitude of change Minor (adverse), not significant effect (Detailed in Table 6.41 of the LVIA).	The nearest turbine of the Revised Development will be located 7.4km to the east of the Loch Ness and Duntelchaig SLA, therefore any effects will be limited to indirect effects experienced through views of the Revised Development from within the SLA. Visibility of the Revised Development SEI Layout from the Cairngorms National Park, as illustrated by the ZTV on SEI Figure 6.7b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. Changes made to the Development EIA Layout will result in reduced prominence and horizontal extent of turbines for the Revised Development SEI Layout. In slightly elevated views from the

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect	Revised Development Layout (14 wind turbines at 149.9 m blade tip height) Magnitude of Change & Residual Effect
			SLA (illustrated by VP 8: Great Glen Way, East of Creag Dhearg and VP 11: Meall Fuar-mhonaigh), the removal of T10 will result in a slightly improved relationship of the Revised Development to the Operational Corriegarth Wind Farm and the underlying 'bowl' landform of the Site. The level of effect on the special qualities of the Loch Ness and Duntelchaig will remain as minor (adverse) and not significant .
Operational Effects on Wild Land Areas			
WLA 20 Monadhliath ¹³	High (Wild Land Quality 4) Medium (Wild Land Quality 1-3)	Low magnitude of change Minor (adverse), not significant effect	The nearest turbine of the Revised Development will be located 330m west of the boundary of WLA 20. Visibility of the Revised Development SEI Layout from WLA 20, as illustrated by the ZTV on SEI Figure 6.7b, remains broadly similar to that of the Development EIA Layout. However, given the reduction in turbine numbers, fewer turbines will be visible in areas with indicated visibility. Changes made to the Development EIA Layout, specifically the relocation of T8 and T11 and removal of T10, will result in a slight decrease in the perceptibility of turbines in views from WLA 20: Monadhliath for the Revised Development SEI Layout, including from VP 9 (WLA04): Carn Sgulain, VP 13: Geal Charn (WLA06), WLA02: Allt Cam Ban and WLA03: Carn Ban. In views further north within WLA 20 (WLA05: Càrn an Fhreiceadain), the removal of T10 will result in a slight reduction in the horizontal extent of turbines in the view. There will be no perceptible change to the turbine layout in views from WLA01: River Eskin Estate track. Whilst the changes noted above will result in a slight decrease in the perceptibility of turbines in views from WLA20, the previous assessment remains relevant to the Revised Development. The overall level of effect for the WLQs assessed in Appendix A6.4 of the LVIA will remain as negligible or minor (not significant). As for the original Development Layout, significant effects on the qualities of WLA 20 are judged to have been overcome through sensitive siting and design of the Revised Development. The adverse effects on the wild land qualities identified within Appendix A6.4 of the LVIA are judged not to undermine the objectives for its protection, and the overall integrity of the WLA will not be compromised by the introduction of the Revised Development.

¹³ Assessment of effects on WLA 20 Monadhliath detailed in Appendix A6.4: Wild Land Impact Assessment.

6.8 MITIGATION AND RESIDUAL EFFECTS

As set out in the methodology for the Development LVIA (EIA Report – Technical Appendix A6.1), mitigation of landscape and visual effects has been undertaken through design modifications and input to the design process. The design evolution is set out in **Chapter 3: Site Selection and Design** of the SEI Report. As all mitigation for landscape and visual effects is embedded within the final design for the Revised Development, all effects identified in this chapter are residual effects.

6.9 CUMULATIVE EFFECT ASSESSMENT

Since the Development CLVIA was undertaken a new accessible version of the NatureScot guidance¹⁴ on the cumulative landscape and visual impacts of onshore wind farms has been published and replaces the previous cumulative impacts guidance published in 2012. There have been no changes to the assessment methodologies, which are the same as described in the 2012 guidance, and the only changes made to the content are the removal of the section on cumulative impacts on birds (published as a separate document in 2018) and the removal of some outdated contextual information.

Since submission of the S.36 application¹⁵ for the original 16 wind turbine layout proposed in January 2021 there have been relatively few changes to the cumulative baseline situation considered in the Development CLVIA. These changes are summarised in Table 6.4 below, with key changes shown in **bold**.

Table 6.4: Other Wind Farm Developments within 40 km¹⁶

Distance ¹⁷	Name	Status	Blade Tip Height (m)	Number of Wind Turbines
Operational and Under Construction				
0.4 km	Corriegarth	Operational	120 m	23
3.7 km	Easter Aberchalder	Operational	45.5 m	1
5.4 km	Dunmaglass	Operational	125 m	33
7.4 km	Stronelaig	Operational	135 m	67
18.8 km	Kyllachy	Operational	110 m	20
18.8 km	Bhlaraidh	Operational	135 m	32
19.7 km	Farr ¹⁸	Operational	101 m	40
24.1 km	Corrimony	Operational	100 m	5
26.4 km	Millennium	Operational	125 m	26
26.4 km	Beinneun	Operational	132 m	25
29.4 km	Moy	Operational	125 m	20
32.4 km	Beinneun Extension	Operational	136 m	7

¹⁴ NatureScot (2021). Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments. [Online] Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> (Accessed 11/03/2022)

¹⁵ A cut-off date of 30th September 2020 was applied for the inclusion of other wind energy developments within the cumulative assessment for the Development LVIA.

¹⁶ A cut-off date of 11th February 2022 has been applied for the inclusion of other wind energy developments within the cumulative assessment of the SEI.

¹⁷ Approximate distance between the turbines of the Revised Development and the turbines of the closest turbines of the wind energy development listed.

¹⁸ A planning application to extend the operational period of Farr Wind Farm from 25 years to 35 years (ECU reference: ECU00002123) was consented on 23rd March 2021.

Distance ¹⁷	Name	Status	Blade Tip Height (m)	Number of Wind Turbines
33.4 km	Tom Nan Clach	Operational	125 m	13
35.9 km	Auchmore Extension	Operational	79 m	1
36.2 km	Auchmore	Operational	79 m	1
40.6 km	Fairburn	Operational	100 m	20
Consented				
7.4 km	Dell	Consented ¹⁹	130.5 m	14
8.1 km	Aberarder	Consented ²⁰	130 m	12
28.0 km	Millennium South	Consented	132 m	10
In Planning / At Appeal or Public Inquiry				
8.0 km	Cloiche	Application Submitted	149.9 m	36
11.0 km	Glenshero	Public Inquiry	135 m	39
16.9 km	Bhlaraidh Extension	Application Submitted	180 m	18
39.7 km	Lethen	Application Submitted	185 m	17

¹⁹ A scoping request for a revised proposal comprising 12 wind turbines at 149.9m blade tip height was submitted to the Highland Council in September 2021 (THC reference: 21/04400/SCOP). However, given the early stage and associated uncertainty of this proposal, the previously consented application is considered within the cumulative assessment.

²⁰ A scoping request for a revised proposal comprising 12 wind turbines at 180m blade tip height was submitted to the ECU in November 2020 (ECU reference: ECU00002179). However, given the early stage and associated uncertainty of this proposal, the previously consented application is considered within the cumulative assessment.

Table 6.5 Summary of Cumulative Effects

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
Construction Effects			
The Site	Medium	Scenario 1: None Scenario 2: None	None.
Operational Effects on Landscape Character			
The Site	Medium	Scenario 1: None Scenario 2: None (Detailed in Table 6.10 of the LVIA).	No change to the potential for cumulative effects assessed. No significant additional or total cumulative landscape effects are predicted under either cumulative assessment scenario.
LCT 221 – Rolling Uplands – Inverness	Medium	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.11 of the LVIA).	No change to the potential for cumulative effects assessed.
LCT 125 – Rolling Uplands – Cairngorms	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.12 of the LVIA).	No change to the potential for cumulative effects assessed.
LCT 227 – Farmed Strath – Inverness	High	Scenario 1: Minor (not significant) Scenario 2: None	No change to the potential for cumulative effects assessed.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
		(Detailed in Table 6.13 of the LVIA).	
LCT 224 – Farmed and Wooded Foothills	High	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.14 of the LVIA).	No change to the potential for cumulative effects assessed.
LCT 225 – Broad Steep-Sided Glen	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.15 of the LVIA).	No change to the potential for cumulative effects assessed.
Operational Effects on Views and Visual Amenity			
Viewpoint 1: Gorthleck (Residential receptors, road users)	High	Scenario 1: None Scenario 2: None (Detailed in Table 6.16 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 2: Boleskine Parish Church (residential receptors)	High	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.17 of the LVIA).	Turbines of Bhlaraidh Extension will be screened by intervening woodland and vegetation in views to the west, north-west from this location. No change to the potential for cumulative effects assessed.
Viewpoint 3: B862 West of Corriegarth Lodge	Medium	Scenario 1: None Scenario 2: None	Turbines of Bhlaraidh Extension will be screened by intervening woodland and vegetation in views to the west, north-west from this location.

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
(Road users, residential receptors)		(Detailed in Table 6.18 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 4: South Loch Ness Trail, north of Whitebridge (Recreational and residential receptors)	High	Scenario 1: None Scenario 2: None (Detailed in Table 6.19 of the LVIA).	Turbines of Bhlaraidh Extension will be screened by intervening woodland and vegetation in views to the north-west from this location. No change to the potential for cumulative effects assessed.
Viewpoint 5: Errogie (Road users, residential receptors)	High	Scenario 1: None Scenario 2: None (Detailed in Table 6.20 of the LVIA).	Turbines of Bhlaraidh Extension will be screened by intervening woodland and vegetation in views to the west from this location. No change to the potential for cumulative effects assessed.
Viewpoint 6: Beinn Bhreac Mhor (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.21 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 7: General Wade's Military Road (Road users, recreational receptors including tourists)	High	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.22 of the LVIA).	Scenario 1: No change to the cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will be seen in successive views north-west from this location, with turbine hubs and blade tips increasing the horizontal extent of turbines across the skyline. Given Bhlaraidh Extension is seen in the opposite direction of the view as the Revised Development, with limited interaction between the schemes, the cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
Viewpoint 8: Great Glen Way, East of Creag Dhearg	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.23 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 9: Carn Sgulain (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.24 of the LVIA).	Scenario 1: No change to the cumulative effects assessed. Scenario 2: Turbine blade tips of the proposed Bhlaraidh Extension will be seen in combined views with the Revised Development. The introduction of the Revised Development, in combination with Bhlaraidh Extension, will result in wind farm development extending as one continuous development between the operational Bhlaraidh Wind Farm and Corriegarth. However, Bhlaraidh and Bhlaraidh Extension Wind Farms will appear as a perceptibly more distant cluster of development on the opposite side of the Great Glen. The existing spacing between wind farm developments on the east side of the Great Glen will be maintained. As such, the cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .
Viewpoint 10: A82 Achnahannet (Road users)	Medium	Scenario 1: None Scenario 2: None (Detailed in Table 6.25 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 11: Meall Fuar-mhonaidh (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant)	Scenario 1: No change to the cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will be seen in successive views west south-west from this location, bringing turbines perceptibly closer in the view than the operational Bhlaraidh Wind Farm. The proposed Bhlaraidh Extension and the Revised Development both result in modest increases to the horizontal extent of wind farms seen across

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
		(Detailed in Table 6.26 of the LVIA).	the view, however coalescence is avoided, and the underlying pattern of wind farm development is maintained. Given Bhlaraidh Extension is seen in the opposite view direction as the Revised Development, with limited interaction between the schemes, the cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .
Viewpoint 12: B862 North of Torness (Road users)	Medium	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.27 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 13: Geal Charn (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.28 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will form a distant feature in combination with the operational Bhlaraidh Wind Farm, seen in the same angle of the view as the more prominent proposed Glenshero and Cloiche, consented Dell and operational Stronelaig Wind Farms. The proposed Bhlaraidh Extension and the Revised Development will be seen in different angles of the view and will not result in any further coalescence of more distant wind farm developments. The cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .
Viewpoint 14: Corrieyairack Hill (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.29 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will form a distant feature in combination with the operational Bhlaraidh Wind Farm, seen in a separate angle of the view as the Revised Development. As there will be limited interaction between the schemes, the cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
Viewpoint 15: Carn na Leitire (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.30 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will form a distant feature in combination with the operational Bhlaraidh Wind Farm, seen in a separate angle of the view as the Revised Development. As there will be limited interaction between the schemes, the cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .
Viewpoint 16: North Kessock – A9 northbound picnic area (Road users, including tourists)	High	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.31 of the LVIA).	No change to the potential for cumulative effects assessed.
Viewpoint 17: Ben Tee (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.32 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will form a distant feature in combination with the operational Bhlaraidh Wind Farm, seen in a separate angle of the view as the Revised Development. As there will be limited interaction between the schemes, the cumulative magnitude of change to views will be barely perceptible and the additional and total cumulative visual effect will be negligible (adverse) and not significant .
Viewpoint 18: Toll Creagach (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.33 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will form a distant feature in combination with the operational Bhlaraidh Wind Farm and will appear closer in views from this location than the Revised Development. Bhlaraidh Extension will slightly increase the horizontal extents of the operational Bhlaraidh Wind Farm; however, the Revised Development appears in a smaller proportion of the view than the proposed Bhlaraidh Extension. The pattern of existing spacing between wind turbine clusters will be maintained. The cumulative magnitude of change to views will be

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
			barely perceptible and the additional and total cumulative visual effect will be negligible (adverse) and not significant .
Viewpoint 19: Ptarmigan Restaurant, Cairngorm (Recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.34 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The blade tips of the proposed Bhlaraidh Extension Wind Farm will be barely perceptible beyond intervening landform in distant combined views with the Revised Development. Whilst both the Revised Development and Bhlaraidh Extension Wind Farm will slightly increase the horizontal extent of wind farm development in the view, spacing between wind turbine clusters will be maintained and both developments appear as partially screened and distant features. The cumulative magnitude of change to views will be barely perceptible and the additional and total cumulative visual effect will be negligible (adverse) and not significant .
Operational Effects on Settlements			
Gorthleck	High	Scenario 1: None Scenario 2: None (Detailed in Table 6.35 of the LVIA).	No change to the potential for cumulative effects assessed.
Operational Effects on Routes			
A82 (road users)	Medium	Scenario 1: None Scenario 2: None (Detailed in Table 6.36 of the LVIA).	No change to the potential for cumulative effects assessed.
B862 (road users)	Medium	Scenario 1: Minor (not significant) Scenario 2: None	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlaraidh Extension will be visible from limited extents of the road and will be seen in a different angle of the view as the Revised Development, with potential for some sequential effects from parts of the road where the developments will be visible separately

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
		(Detailed in Table 6.37 of the LVIA).	or in combination. However, there will be limited interaction between the schemes. The cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .
NCN Route 78 – The Caledonia Way (cyclists/recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.38 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlairaidh Extension will be visible from limited extents of the route and will be seen in a different angle of the view as the Revised Development, with potential for some sequential effects from parts of the route where the developments will be visible separately or in combination. However, there will be limited interaction between the schemes. The cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .
Great Glen Way (recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant) (Detailed in Table 6.39 of the LVIA).	No change to the potential for cumulative effects assessed.
South Loch Ness Trail (recreational receptors)	High	Scenario 1: Minor (not significant) Scenario 2: None (Detailed in Table 6.40 of the LVIA).	Scenario 1: No change to the potential for cumulative effects assessed. Scenario 2: The proposed Bhlairaidh Extension will be visible from limited extents of the route and will be seen in a different angle of the view as the Revised Development, with potential for some sequential effects from parts of the route where the developments will be visible separately or in combination. However, there will be limited interaction between the schemes. The cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be minor (adverse) and not significant .

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
Operational Effects on Designated Landscapes			
Cairngorms National Park (CNP) ²¹	High	Scenario 1: Not significant Scenario 2: Not significant	Scenario 1: No change to the potential for cumulative effects. Scenario 2: The proposed Bhlaraidh Extension Wind Farm will be seen in distant outward views from the CNP, in combination with the operational Bhlaraidh Wind Farm. In views from VP09: Carn Sgùlain (AESLQ05) the introduction of the Revised Development, in combination with Bhlaraidh Extension, will result in wind farm development extending as one continuous development between the operational Bhlaraidh Wind Farm and Corriegarth. However, Bhlaraidh and Bhlaraidh Extension Wind Farms will appear as a perceptibly more distant cluster of development on the opposite side of the Great Glen. In views from AESLQ01: Carn Ban and VP 13: Geal Charn (AESLQ04), Bhlaraidh Extension will increase the horizontal extent of the operational Bhlaraidh Wind Farm in combined distant views. However, spacing between existing clusters of development will be maintained. In views from AESLQ03: A'Chailleach, Bhlaraidh Extension will be screened by intervening landform. In views further north within the CNP (AESLQ05: Càrn an Fhreiceadain), the proposed Bhlaraidh Extension will be seen beyond the Revised Development in combined views. Given the limited interaction between the proposed Bhlaraidh Extension and the Revised Development, and distant nature of views of the proposed Bhlaraidh Extension from the CNP, there will be no change to the potential for cumulative effects assessed in Appendix A6.3.
Loch Ness and Duntelchaig Special Landscape Area	Medium	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant)	Scenario 1: No change to the potential for cumulative effects. Scenario 2: The proposed Bhlaraidh Extension Wind Farm will be located approximately 1.6km to the west of the SLA, with views afforded from elevated extents of the SLA including Meall Fuar-Mhonaigh. The proposed Bhlaraidh Extension and the Revised Development both result in modest increases to the horizontal extent of wind farms seen across

²¹ Assessment of effects on special landscape qualities of Cairngorms National Park detailed in Appendix A6.3: Assessment of Effects on Special Landscape Qualities

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
			the view from this elevated location, however coalescence of these wind farms will not occur given their separation either side of the Great Glen, and the underlying pattern of wind farm development is maintained. Given Bhlaraidh Extension would only be seen in successive views from the SLA, and often in opposite view directions to the Revised Development, there will be very limited interaction between the two schemes. Overall, the cumulative magnitude of change will be barely perceptible and the additional and total cumulative effect will be negligible (adverse) and not significant.
Operational Effects on Wild Land Areas			
WLA 20 Monadhliath ²²	High (Wild Land Quality 4) Medium (Wild Land Quality 1-3)	Scenario 1: Not significant Scenario 2: Not significant	Scenario 1: No change to the potential for cumulative effects. Scenario 2: The proposed Bhlaraidh Extension Wind Farm will be seen in distant outward views from WLA20, in combination with the operational Bhlaraidh Wind Farm. In views from VP09: Carn Sgulain (WLA04) the introduction of the Revised Development, in combination with Bhlaraidh Extension, will result in wind farm development extending as one continuous development between the operational Bhlaraidh Wind Farm and Corriegarth. However, Bhlaraidh and Bhlaraidh Extension Wind Farms will appear as a perceptibly more distant cluster of development on the opposite side of the Great Glen. In views from WLA03: Carn Ban and VP 13: Geal Charn (WLA06), Bhlaraidh Extension will increase the horizontal extent of the operational Bhlaraidh Wind Farm in combined distant views. However, spacing between existing clusters of development will be maintained. In views from WLA07: A'Chailleach, Bhlaraidh Extension will be screened by intervening landform. In views further north within the WLA (WLA05: Càrn an Fhreiceadain), the proposed Bhlaraidh Extension will be seen beyond the Revised Development in combined views.

²² Assessment of effects on WLA 20 Monadhliath detailed in Appendix A6.4: Wild Land Impact Assessment

Receptor	Sensitivity of Receptor	Development Layout (16 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)	Revised Development Layout (14 wind turbines at 149.9m blade tip height) Potential for Future Cumulative Effects (Scenarios 1 & 2)
			There will be no visibility of the proposed Bhlaraidh Extension from WLA01: River Eskin Estate track and WLA 02: Allt Cam Ban. Given the limited interaction between the proposed Bhlaraidh Extension and the Revised Development, and distant nature of views of the proposed Bhlaraidh Extension from WLA20, there will be no change to the potential for cumulative effects assessed in Appendix A6.4.

6.10 APPRAISAL OF DEVELOPMENT AGAINST THC SG LANDSCAPE & VISUAL CRITERIA

THC Onshore Wind SG²³ sets out ten landscape and visual criteria that the Council will use as a framework for assessing proposals. The criteria do not set absolute requirements but seek to ensure that developers are aware of key constraints to development, which should be taken account of when progressing assessment and design of wind energy proposals. An assessment of the Development EIA Layout against the ten criteria is set out in full in Table 6.6 of the LVIA and replicated in the Planning Statement (Table 4.2) which accompanied the Section 36 Application. It is judged that the changes made to the Development EIA Layout have resulted in improvements relating to three of these criterion, which are addressed in Table 6.6 below.

Table 6.6: Appraisal of Revised Development against THC SG Landscape & Visual Criteria

Criterion	Measure	Evaluation
Criterion 6		
The existing pattern of Wind Energy Development is respected	The degree to which the proposal fits with the existing pattern of nearby wind energy development, considerations include: • Turbine height and proportions, • Density and spacing of turbines within developments, • Density and spacing of developments, • Typical relationship of development to the landscape. • Previously instituted mitigation measures • Planning Authority stated aims for development of area	As per the Development EIA Layout, the Revised Development SEI Layout is designed as an extension to the Operational Corriegarth Wind Farm and will be located within the interior of the wider plateau, similar to other operational, consented and proposed schemes located within the Rolling Uplands – Inverness (LCT 221). Changes made to the Development EIA Layout resulting in the Revised Development SEI Layout include the relocation of the most westerly and easterly turbines closer to the Operational Corriegarth turbines and removal of two of the most north-easterly turbines. These changes have resulted in a slightly improved relationship between the Revised Development SEI Layout and the Operational Corriegarth Wind Farm, and a decrease in the prominence and horizontal extent of turbines seen in some views from lower-lying landscapes, including with Stratherrick. The Revised Development will appear beyond the containing ridgeline of the uplands. As such, the scale of the Revised Development SEI Layout will not overwhelm the scale of more intimate and enclosed landscapes located to the west of the Site.
Development should seek to achieve a threshold where:	The proposal contributes positively to existing pattern or objectives for development in the area.	The layout of proposed wind turbines will be deeper along the axis perpendicular to the Great Glen, limiting the horizontal extent of the Revised Development as seen in views experienced from elevated locations looking east across the Great Glen (Figure 6.31 VP 11: Meall Fuar-mhonaidh). The horizontal extent of the Revised Development has been slightly decreased in views from these locations. Overall composition, in conjunction with the Operational Corriegarth Wind Farm, will maintain simple and balanced spacing between wind turbines with minimal overlapping of wind turbine blades.

²³ THC (2016) Onshore Wind Energy Supplementary Guidance (with addendum, December 2017). [Online] Available at: https://www.highland.gov.uk/downloads/file/16949/onshore_wind_energy_supplementary_guidance-_nov_2016

Criterion	Measure	Evaluation
		Whilst the proposed turbine size of the Revised Development SEI Layout will be slightly larger than that of the Operational Corriegarth Wind Farm, the differences in wind turbine height and rotor diameter will only be discernible from locations in relatively close proximity to the Revised Development SEI Layout. The blade tip height of the proposed wind turbines will be below 150 m, avoiding the introduction of visible aviation lighting ²⁴ to wind turbines within the Study Area.
Criterion 7		
The need for separation between developments and/ or clusters is respected	The extent to which the proposal maintains or affects the spaces between existing developments and/ or clusters.	The pattern of operational, consented, and proposed wind farm development within the Study Area comprises distinct clusters of wind farm development, located within the interior of the plateaux on either side of the Great Glen. Nearest the Revised Development SEI Layout, this includes clusters of wind farm development comprising: • Dunmaglass (operational) and Aberarder (consented) Wind Farms located 5.4 km to the north-east of the Revised Development; • Stronelaig (operational), Dell (consented), Glenshero (at PLI) and Cloiche (application) Wind Farms located 7.2 km south-west of the Revised Development; and • Kyllachy (operational) and Farr (operational) Wind Farms located 18.7 km to the north-east of the Revised Development. Changes made to the Development EIA Layout will result in a slightly reduced horizontal extent of turbines for the Revised Development SEI Layout in views from which the pattern of existing wind farm development is appreciated (including VP 11: Meall Fuar-mhonaidh and VP 15: Carn na Leitire). In comparison to the Development EIA Layout, the maintenance of spacing between clusters of operational, consented, and proposed wind farms will therefore be further improved, and the integrity of adjacent clusters maintained by the Revised Development SEI Layout.
Development should seek to achieve a threshold where:	The proposal maintains appropriate and effective separation between developments and/ or clusters.	
Criterion 9		
Landscape setting of nearby wind energy developments is respected	The extent to which the landscape setting of nearby wind energy developments is affected by the proposal.	Changes made to the Development EIA Layout resulting in the Revised Development SEI Layout include the relocation of the most westerly and easterly turbines closer to the Operational Corriegarth turbines and removal of two of the most north-easterly turbines. These changes have resulted in a slightly improved relationship of the Revised Development SEI Layout to the Operational Corriegarth Wind Farm and underlying topographical ‘bowl’ of the Site. As for the Development EIA Layout, the Revised Development SEI Layout will slightly increase the prominence of the Operational Corriegarth Wind Farm, in a limited number of views. However, this
Development should seek to achieve a threshold where:	Proposal relates well to the existing landscape setting and does not increase the perceived visual prominence of surrounding wind turbines.	

²⁴ As detailed in **Chapter 5: EIA Methodology**, infrared aviation warning lighting which is not visible to the naked eye will be fitted to the turbines to fulfil MOD aviation lighting requirements.

Criterion	Measure	Evaluation
		increase in prominence will typically be experienced in long-distance views with an existing presence of wind farm development, resulting in a relatively small scale change to the view.

6.11 STATEMENT OF SIGNIFICANCE

The overall significance of effects on the landscape and visual amenity of the Study Area will remain the same as that assessed in the LVIA for the original Development Layout.

The turbine layout changes proposed as part of the Revised Development SEI Layout will result in an improved relationship between the proposed turbines and the Operational Corriegarth Wind Farm, and with the underlying open sided 'bowl' topography of the Site.

In comparison to the original Development Layout, this will result in a slight decrease in the extent of direct effects on the landscape character of the Site and on LCT 221 – Rolling Uplands – Inverness (host LCT), given the reduction in number of turbines and decrease in length of access track. The following significant landscape effects will remain:

- Direct **moderate** (adverse) and **significant** landscape effects on the Site during construction and operation; and
- Localised direct and indirect **moderate** (adverse) and **significant** landscape effects on LCT 221 – Rolling Uplands – Inverness (decreasing to minor and not significant for the LCT as a whole).

In comparison to the original Development Layout, this will result in a slight decrease in the prominence and horizontal extent of turbines seen in views experienced by some visual receptors (people), including the following:

- Residential and recreational receptors, and road users within Stratherrick (represented by Viewpoint 1: Gorthleck, Viewpoint 2: Boleskine Parish Church, Viewpoint 3: B862 West of Corriegarth Lodge, Viewpoint 4: South Loch Ness Trail, north of Whitebridge);
- Road users travelling on the B862, including cyclists (represented by Viewpoint 1: Gorthleck, Viewpoint 3: B862 West of Corriegarth Lodge and Viewpoint 12: B862 North of Torness), and recreational receptors at the promoted viewpoint on the road (represented by Viewpoint 7: General Wade's Military Road); and
- Recreational receptors at elevated locations in the west of the Loch Ness and Duntelchaig SLA (represented by Viewpoint 8: Great Glen Way, East of Creag Dhearg and Viewpoint 11: Meall Fuar-mhonaidh).

Overall, the magnitude of change and level of effect for the landscape and visual receptors considered within the assessment will remain the same as that set out in the LVIA for the original Development Layout. The following significant visual effects will remain for the receptors at the following representative viewpoints and routes:

- Viewpoint 3: B862 West of Corriegarth Lodge (**Moderate** (adverse) and **significant** effects);
- Viewpoint 4: South Loch Ness Trail, north of Whitebridge (**Moderate** (adverse) and **significant** effects);
- Viewpoint 5: Errogie (**Moderate** (adverse) and **significant** effects);
- Viewpoint 7: General Wade's Military Road (**Moderate** (adverse) and **significant** effects);
- **Moderate** (adverse) and **significant** effects for localised extents of the B862 (reducing to minor and not significant for the route as a whole);
- **Moderate** (adverse) and **significant** effects for localised extents of NCN Route 78 (reducing to minor and not significant for the route as a whole);

- **Moderate** (adverse) and **significant** effects for localised extents of the South Loch Ness Trail (reducing to minor and not significant for the route as a whole).

Whilst localised moderate (adverse) and significant effects are anticipated from locations within the Loch Ness and Duntelchaig SLA (VP4: South Loch Ness Trail North of Whitebridge, VP7: General Wade's Military Road), the introduction of the Revised Development will not significantly affect or alter the Special Qualities of the SLA. An overall **minor** (adverse) and **not significant** effect was identified for the SLA.

The Cairngorms National Park (CNP) is located approximately 9.7 km from the nearest wind turbine within the Revised Development. An Assessment of effects on the Special Landscape Qualities of the CNP was included in Appendix A6.3 of the LVIA, based on the original Development Layout. Given the limited perceptible change in the turbine layout of the Revised Development, as experienced in views from the CNP, the previous assessment remains relevant to the Revised Development. The Revised Development will not compromise any of the defined SLQs of the CNP.

The Monadhliath Wild Land Area (WLA 20) is located less than 1 km from the nearest wind turbine within the Development. A Wild Land Assessment was included in Appendix A6.4 of the LVIA, based on the original Development Layout. Given the limited perceptible change in the turbine layout of the Revised Development in views from the WLA, the previous assessment remains relevant to the Revised Development. The level of effect for the WLQs described in Appendix A6.4 of the LVIA will remain as **negligible** or **minor (not significant)**. The adverse effects on the wild land qualities identified within the assessment are judged not to undermine the objectives for its protection, and the overall integrity of the WLA will not be compromised by the introduction of the Revised Development.

Key changes to the cumulative baseline situation considered in the CLVIA include submission of an application for Bhlaraidh Extension Wind Farm. However, interactions between the Revised Development and the proposed Bhlaraidh Extension Wind Farm will be limited, given the intervening distance and the location of the developments within the upland plateaux, located to either side of the Great Glen. Where both developments will be visible by receptors, either in successive views at static viewpoints or sequential views from the road and recreational routes which cross the Study Area, the cumulative magnitude of change to views will be low and the additional and total cumulative visual effect will be **minor** (adverse) and **not significant**. In some instances, no additional or total cumulative effects are predicted to occur.

As a result of the siting and design of the Revised Development as a discrete extension to the Operational Corriegarth Wind Farm, significant landscape and visual effects will be limited to relatively localised extents of the Study Area. All significant effects are judged to be reversible; following decommissioning of the Revised Development at the end of the operational phase, when the wind turbines and ancillary infrastructure would be removed, and the Site restored.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 7
Ecology



7 ECOLOGY

7.1 Introduction

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Revised Development on the ecological resource due to the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter forms an addendum to **Chapter 7: Ecology** of the Corriegarth II Wind Farm Environmental Impact Assessment (EIA) Report which should be read in conjunction with this chapter.

This Chapter of the SEI Report is supported by the following figures:

- Figure 7.1: Habitat and Botany Survey Results;
- Figure 7.2: Potential Groundwater Dependent Terrestrial Ecosystems; and
- Figure 7.3: Potential Habitat Management Areas (HRA).

7.2 Changes to Legislation, Policy and Guidance

There have been no relevant updates or changes in legislation of policy since the writing of EIA Report, however as a consequence of Scotland's exit from the European Union (EU), it was necessary for Ministers to make a number of changes to the Conservation (Natural Habitats, &c.) Regulations, as well as other related pieces of legislation. These came into effect in January 2021, after the completion of the EIA Report Chapter.

Policy on the protections and standards afforded by the Habitats Regulations including the requirements to undertake Habitats Regulations Appraisal (HRA), remain unchanged. However, there have been some changes in terminology and the Scottish Ministers now exercise some functions that were previously carried out at an EU-level. In addition, the species given special protection in Scotland as European Protected Species remain as such, as there will be no change to how these species are protected.

In the longer term, guidance may be updated and/or new guidance may be produced, for example to replace guidance by the European Commission. However, in the shorter-term existing guidance continues to apply and should still be used.

The most relevant change to this Chapter is that SACs are no longer part of the EU's Natura 2000 network. Instead, they form a UK-wide network of protected sites known as '*the UK site network*' within which they are afforded the same level of protection they did as Natura 2000 Sites. In Scotland, sites formally known as Natura Sites are now known as '*European Sites*'. European Sites are made up of Special Protection Areas (SPAs) and SACs.

7.2.1 Changes in Guidance

Since the submission of the EIA Report, NatureScot guidance¹ regarding the validity periods of protected species surveys have been updated. In accordance with this new guidance, the accepted validity period for red squirrel (*Sciurus vulgaris*), wildcat (*Felis silvestris*) badger (*Meles meles*) and otter (*Lutra lutra*) is two years from the completion of surveys (increased from 18 months). For bats, water vole (*Arvicola amphibious*), and pine marten (*Martes martes*), surveys, the validity period is two full survey season since the completion of surveys (also increased from 18 months).

7.3 Consultation

Statutory consultation responses were received after submission of the EIA Report from NatureScot, and Scottish Environmental Protection Agency (SEPA). A summary of their responses with respect to ecology and how these responses have been dealt with in the SEI Report are summarised in Table 7.1 below.

Table 7.1: Summary of Post Application Statutory Consultation Responses

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
NatureScot, May 2021	Response to EIA Submission	Ness Woods Special Area of Conservation (SAC) This proposal could be progressed with appropriate mitigation. However, because it could affect internationally important natural heritage interests, however we object to this proposal unless it made subject to conditions so that the works are done strictly in accordance with the mitigation detailed below: Mitigation as outlined in section 7.7.2 of the EIAR • A pre-construction otter survey • Following the pre-construction otter survey an otter protection plan will be agreed with NatureScot. Outline Habitat Management Plan (oHMP) Due to the extent of blanket bog habitat on site then there is no scope for micro-siting the infrastructure. We therefore welcome the applicant's proposal for blanket bog restoration to compensate for the losses to construction, within the context of an Outline Habitat Management Plan (OHMP). We do however advise that the proposed scale and location of the works are inadequate to compensate for the nature and value of the habitat that will be lost. We advise that the extent of restoration should reflect direct and indirect habitat loss, and habitat disturbance.	See Section 7.7: Mitigation and Residual Effects (otter survey and plan included) The oHMP has been revised to ensure the extent of restoration reflect direct and indirect habitat loss associated with the revised Development. See section 7.7.1 Revised Outline Habitat Management Plan, and Figure 7.3: Outline Habitat Management Plan Search Areas

¹ NatureScot (2021) Planning and development: protected species. Available online at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-protected-species>. [accessed 22/03/2022]

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
SEPA, August 2021.	Response to EIA Submission	SEPA stated that the site design submitted requires additional justification as to why the layout represents an acceptable environmental solution and it must be clearly demonstrated that every effort has been taken to minimise peat disturbance and carbon loss. Supporting information should outline what works could be carried out on the site and include an indicative plan showing the potential opportunities and could also include aerial photographs identifying areas proposed for ditch blocking and other methods of restoration.	Further information on the site layout design is included in Chapter 3 – Site Selection and Design, and Technical Appendices A13.1 Peat Slide Risk Assessment (PSRA), and A13.2 oPMP. See section 7.7.1 Outline Habitat Management Plan, and Figure 7.3: Indicative Peatland Restoration Area

7.4 Key Conclusions of the EIA Report

Following baseline surveys, Important Ecological Features (IEFs) were determined as follows:

- Ness Woods SAC;
- Blanket bog;
- Flush and spring – basic flush;
- Bats;
- Otter; and
- Wildcat

Following the implementation of embedded mitigation and good practice measures (including the implementation of HMP measures), no significant effects (in terms of the EIA Regulations) were predicted on any of the above IEFs.

Habitat Regulation Appraisal (HRA) Screening was also carried out on all local European Sites (formerly Natura 2000 Sites), and '*likely significant effects*', were determined for Ness Woods SAC, however, '*no adverse effects*' were anticipated.

7.5 Baseline Review and Update

In accordance with NatureScot guidance¹, some ecological survey data now exceeds NatureScot's advised validity period for protected species data to inform a planning application, with the remainder exceeding the validity period in April 2022. This is summarised in Table 7.2 below.

Table 7.2: Summary of Ecology Surveys & Validity Periods

Survey Completed	Surveys completed/Survey Period	NatureScot Validity
badger, otter and red squirrel surveys	September 2019	2 years – October 2021
Wildcat surveys	January 2022	2 years – January 2022
Protected Species Surveys (water vole and pine marten)	April to September 2019	2 survey periods – until before start of third survey period (April 2022)

Bat Surveys	April to October 2019	2 survey periods – until before start of third survey period (April 2022)
-------------	-----------------------	---

Surveys carried out to inform the EIA Report and SEI Report in 2019 and 2022, respectively, recorded the presence of water vole, badger and otter with protected resting areas recorded for all of these species. Evidence of pine marten, red squirrel and wildcat was not recorded, however desk study recorded of wildcat were recorded during the desk study.

EIA Surveys recorded low levels of bat activity and very low species diversity (limited to soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*) and *Myotis spp.*).

Soprano and common pipistrelle are high collision risk species², however the risk assessment carried out in accordance with NatureScot guidance², concluded a 'Low' risk for soprano and common pipistrelle bats within the Site. *Myotis* species are low collision risk species.²

7.6 Assessment of Potential Effects

Within the EIA Report, the potential for significant effects of the Development on IEFs was assessed. By implementing the embedded measures detailed in Section 7.7 of the EIA Report, and following good practice guidance during construction, effects of the Development on IEFs both alone and in combination with other schemes was assessed as being **not significant** in terms of the EIA Regulations.

The SEI Report represents a revision of the Development, is not a new application and involves a reduction of the Development footprint by reducing the number of turbines from 16 to 14. As per **Chapter 1: Introduction** of the SEI Report, the Revised Development will comprise of the:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14;
- Relocation of eight turbines (T1, T2, T8, T9, T11, T13, T14, T15), and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pit & substation compound

The removal of both T10 & T12, and the general movements of northern turbines towards the Operation Corriegarth Wind Farm have allowed the Revised Development layout to reduce its new access track by 4 km). Further, the reduction of new access track has reduced the watercourse crossings by four. The revised location of T13 has also resulted peat excavation at T13 being reduced by more than 50%.

The changes made as part of the Revised Development layout, taking account of the reduction of new access track (from 10 km to 6 km), the T13 movement, and all other turbine refinements, has resulted in an approximately 67.5% reduction in the volume of peat requiring excavation. More detailed information can be found in **Chapter 13: Geology & Peat**.

With consideration of the reduction of the Development footprint, the low risk posed to bat species (based on a greater turbine number), and the inclusion of Pre-Construction Surveys as embedded mitigation in the EIA Report, it is not considered necessary for further fieldwork to be carried out to inform the SEI Report, and the ecology baseline data remains appropriate to inform this SEI Report.

² NatureScot (2019), Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter and the Bat Conservation Trust (BCT) - Bats and onshore wind turbines - survey, assessment and mitigation

The only potential groundwater dependent terrestrial ecosystem (GWDTE) determined to have Site specific groundwater dependency was Flush and spring – basic flush/ M10 community, this is a the high dependency GWDTE in accordance with Scottish Environmental Protection Agency (SEPA) guidance³. However, these features are located beyond 250m of the Revised Development, so in accordance with SEPA guidance³ no impacts are predicted.

Following a review of the Revised Development against the ecology baseline data collected for EIA IEFs, it has been concluded that the assessment of all effects presented in EIA Report are still considered valid, with the exception of the assessment of construction phase effects on blanket bog and Flush.

7.6.1.1 Habitats (Blanket Bog)

As the land take footprint and habitat loss calculations presented with Chapter 7 of the EIA Report are no longer accurate, the assessment of the effects on blanket bog habitat requires to be updated in this SEI Report.

To update the assessment of construction phase effects, the habitat loss calculations for all habitats recorded during baseline surveys have been updated from those presented in the Chapter 7 of the EIA Report, to account for the changes to the Revised Development. A summary of the updated habitat loss calculations is provided in Table 7.3 below.

In addition, an updated Phase 1 Habitat Survey Results figure (SEI Figure 7.1) has been created to reflect the Revised Development. The potential GWDTEs overlaid with the Revised Development has been presented in Figure 7.2.

Table 7.3: Update Habitat Loss Calculation Summary

Phase 1 Habitat	Area Lost (Ha)	% of Recorded Habitat to be Lost
Acid Grassland/Flush mosaic	0.07	0.50
Flush and Spring - Acid/Neutral Flush	0.20	0.99
Marshy Grassland/Flush mosaic	0.10	3.61
Other habitat - Including Tracks / Hardstanding	0.25	0.47
Sphagnum Blanket Bog	11.94	1.07
Sphagnum Blanket Bog/Flush Mosaic	0.19	5.03
Wet Dwarf Shrub Heath	2.31	2.08
Wet Heath/ Natural Rock	1.55	4.45
Total Habitat Loss	16.62 ha	

The total overall habitat loss from the Revised Development will be 16.62 ha, which represents a **11% reduction in direct habitat loss** compared to the extent of loss (18.61 ha) predicted to result from the EIA layout, presented in Chapter 7 of the EIA Report.

Of the predicted total loss from the Revised Development, 11.94 ha will comprise blanket bog, which represents 1.07% of the blanket bog recorded, 71% of the overall habitat loss, and a **21% reduction of blanket bog loss** when compared the EIA layout (presented in Chapter 7 of the EIA Report. A comparison of the blanket bog loss between

³ SEPA (2017) Land Use Planning System SEPA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems

the Development and the Revised Development SEI Layout is presented in Table 7.4 below.

In addition to the above reduction in direct impacts, as outlined in **Chapter 13: Geology and Peat** of the SEI Report, one of the key SEI design objectives was to ensure that no turbines were located in areas where peat depths were greater than 1.5 m of peat, so that six turbines are in less than 1 m of peat and ten between 1-1.5 m of peat. As such, impacts have been further reduced by avoiding more sensitive, deeper areas of peat, and as outlined above, as a result, the volume of excavation required has been reduced by an approximately 67.5%.

Table 7.4: Blanket Bog Habitat Loss Comparison (Ha)

Infrastructure Element	The Development Loss	Revised Development Loss
Access Tracks	4.96	4.47
Borrow Pit	1.21	0.42
Crane Hardstanding/Turbine Bases	8.87	6.82
Substation Compound	0.01	0.23
Total	15.05 ha	11.94 ha

Peatland habitats are extensive across the Site, however blanket bog vegetation has been extensively modified, drained or is actively eroding, likely through a combination of grazing and drainage. As such, its ecological value is notably diminished.

The Development layout presented in the EIA Report impacts heavily degraded blanket bog habitat, and the Revised Development will continue to impact the same low value habitats, however impacts will be on a reduced extent and will avoid more sensitive, deeper areas of peat.

In light of the above, the overall magnitude of the effect on this habitat will be less for the Revised Development, however the potential effects predicted on blanket bog remain the same as the EIA Report and are **not significant** in relation to the EIA Regulations.

7.6.2 Habitat Regulations Appraisal

As presented in Table 7.1, NatureScot has concluded that the Development could be progressed with appropriate mitigation. As it could affect internationally important natural heritage interests, mitigation to safeguard otter associated with the Ness Woods SAC (outlined in section 7.7.2.2 of the EIA Report) will be required and made subject to planning condition.

Therefore, although likely significant effects on SAC are predicted, and thus an Appropriate Assessment will be required, through appropriate mitigation secured by a planning condition (see Section 7.7) an adverse effect on the integrity of the SAC will be avoided.

7.7 Mitigation and Residual Effects

No additional embedded mitigation or good practice is proposed, and measures as proposed in Section 7.7 of the EIA Report remain valid. However, to ensure the removal of NatureScot's objection to impact so the Ness Woods SAC otter population, it is proposed that the Mitigation as outlined in Section 7.7.2.2 of the EIA Report is secured by planning condition.

In addition, in response to NatureScot's pre-application response to the Development, the oHMP for the Revised Development has been revised to ensure the extent of

restoration reflect direct and indirect habitat loss associated with the revised Development. The Revised oHMP is presented in Section 7.7.1.

7.7.1 Revised Outline Habitat Management Plan

A Habitat Management Plan (HMP) will be implemented and it is anticipated that the fully detailed version of this plan will be written and developed following consent and prior to construction commencing, and in consultation with the landholder, NatureScot and the Highland Council, where relevant.

The primary aim of the HMP will be blanket bog restoration. Restoration will involve accepted good practice methods including the to re-use of excavated peat as donor material. The overall goal will be to achieve a net gain of blanket bog habitat by restoring twice the area of blanket bog estimated to be impacted through direct and indirect habitat loss arising from the Development.

Upon consent, the development of the HMP will be informed, where necessary, by further site appraisal to ensure the appropriate restoration methods are employed. Once developed, the HMP will remain an active document and will be reviewed on a regular basis by appropriate stakeholders.

It is anticipated the HMP will be secured via an appropriately worded planning condition.

7.7.1.1 *Blanket Bog Restoration*

Peatland habitats are extensive across the Site, however the blanket bog vegetation and structure has been extensively modified and degraded by a combination of grazing, drainage and subsequent erosion. Extensive hagg and gullies extend throughout the Site and demonstrate that the blanket bog is on a quickly declining trajectory.

7.7.1.2 *Extent of Peatland Restoration*

As stated in section 7.6.1.1, the predicted total direct loss of blanket bog from the Revised Development will be 11.94 ha and represents 1.07% of the blanket bog recorded. This represents a reduction of direct blanket bog loss when compared the Development,

To ensure the scale of peatland restoration is sufficient to compensate for indirect and direct effects and habitat disturbance (as advised by NS via consultation, see Table 7.1), it is proposed that the final Habitat Management Area (HMA) is likely to comprise, an absolute extent twice the total direct blanket bog impacted by the Development. It is therefore anticipated that the HMA will comprise of, as a minimum, an absolute extent of **23.88 ha** of peatland habitat and will focus on restorable high altitude M17a blanket bog within the Site, as much as is practicable. Further areas of blanket bog restoration will be considered in addition to this for the purpose of delivering enhancement (over and above compensation).

Following consent, further surveys will be required to finalise the extent of restoration, as well as the methods to be used to achieve it.

7.7.1.3 *Peatland Restoration Search Areas*

Although the proposed minimum extend of restoration is clarified above, the location of restoration is yet to be finalised. Following consent, further surveys will be required to finalise this, however, at this stage, four search areas are proposed as presenting potential sites for peatland restoration to be established. These four areas are presented in Figure 7.3, and are defined as follows:

- Area A: This area is located offsite and comprises of approximately 30.5ha of degraded peatland habitat and is an expansion of the HMP Area proposed in the OHMP presented within the EIA Report. Further information on NVC communities will be required to establish if the blanket bog habitat is of similar type to that

impacted by the wind farm to ensure it is compensating the appropriate NVC communities.

- Area B: This area is also located offsite and comprises of approximately 48.4 ha of degraded peatland habitat. Further information on NVC communities will be required to establish if the blanket bog habitat is of similar type to that impacted by the wind farm to ensure it is compensating the appropriate NVC communities
- Area C: This area is located in the south-western boundary of the Site and comprises of approximately 26.9 ha of blanket bog habitat. NVC data confirms that this area comprises of the same bog communities (M17a) at a similar altitude as those to be impacted by the Development.
- Area D: This area is located in the south-western boundary of the Site and comprises of approximately 44.5 ha of blanket bog habitat. NVC data confirms that this area comprises of the same bog communities (M17a) at a similar altitude as those to be impacted by the Development.

The total search areas A-D comprise of a combined area of 150.3 Ha within which a suitable area will be brought forward for restoration.

In addition to the above, restoration of the area lying 15 m either side of the tracks and turbines will be undertaken using the excavated peat where use of donor peat is appropriate. This work will be undertaken to mitigate the impacts associated with track construction and to ensure the construction area is appropriately restored. A detailed methodology for use of donor peat from the wind farm construction will be prepared as part of the final HMP.

7.7.1.4 Restoration Methods

As discussed, post-consent surveys will be required to finalise the restoration areas that comprise the HMA, and the methods used to achieve restoration, and these will be detailed in the Final HMP. However, at this stage it is anticipated that:

- methods within Area A & B will primarily comprise of the blocking of existing drainage ditches; and
- methods within Area C & D will comprise of hag re-profiling and the blocking of existing drainage ditches, as well as other potential measures such as revegetation/brash re-seeding and use of donor peat.

Ditch Blocking (Areas A and B)

The Site and surrounding area contain numerous drainage ditches, therefore to facilitate blanket bog habitat recovery, a number of existing drainage ditches within the HMA will be blocked to 're-wet' these areas. Following consent, ditches within these areas will be identified, mapped and numbered on a detailed plan. These ditches will be surveyed, assessed and the restoration requirements for each ditch detailed.

The number and type of dams installed and intervals between them will be dependent upon the ditch gradient, width, depth, flow, best practice guidance and the professional judgement of the experienced staff who undertake the work. However, it is anticipated that most ditches will require several dams to be installed, and will use damming methods appropriate to site conditions.

Hag Reprofiling (Areas B, C, D and E)

Peat hags are erosion features often arising as a consequence of a combination of adverse factors such as deer pressure, domestic stock, burning and artificial drainage. Without restoration, these peat hags can potentially enter a spiral of perpetual erosion resulting in the development of large areas of peat pans and ultimately complete loss of peatland.

To restore this area to functional bog habitat, eroding peat hags can be re-profiled to a flatter topography through the use of excavators. Excavators will firstly remove vegetated turves, before flattening out the hag to form a shallower profile. After this, turves are placed on top of profiled bare peat, to stabilise the surface and prevent further erosion. Over time, the turves will grow and interlock preventing erosion in the future, and in some case contributing to active peat formation. Donor material from the wind farm site could also be used to assist in hagg reprofiling in accordance with methods detailed with *Conserving Bogs, The Management Handbook*⁴ (2019) and other established good practice techniques.

7.7.1.5 Land Use

In addition to the above, the HMP area and the peatland restoration measures proposed will be defined to avoid detrimental impacts on current and future land use, namely grouse shooting. Conversely, the HMP area will be safeguarded from detrimental impacts of sporting management activities, such as muirburn, drainage and/or grit mounds of the type and size currently in use, as well as deer grazing and any future wind farm or associated renewables development.

7.7.2 Residual Effects

No significant effects on IEFs are predicted, and no further mitigation is proposed. However, the Revised Development will result in a notable decrease in direct and indirect impacts on blanket bog, and the oHMP has been revised to ensure the scale of peatland restoration is sufficient to, as a minimum, account for indirect and direct effects on blanket bog. It is however anticipated that due to the current degraded nature of the blanket bog present, that successful restoration on a comparative scale to direct and indirect effect, would likely constitute an enhancement.

In light of the above, the potential residual effects on blanket bog from the revised Development are likely to be in the worst case neutral, and **not significant** in relation to the EIA Regulations.

7.8 Cumulative Effect Assessment

Cumulative developments identified within 10 km of the Revised Development are presented in Table 7.5.

Table 7.5 Cumulative Developments within 10 km

Development	Development Stage	Ecologically Connected IEFs
Aberarder Wind Farm	Consented ⁵	Otter
Dell Wind Farm	Consented ⁶	Otter
Stronelairg	Constructed	Otter
Cloiche Wind Farm	Application submitted	Otter
Dunmaglass	Constructed	Otter
Aberarder	In Planning	Otter

⁴ Thom, T., Hanlon, A., Lindsay, R., Richards, J., Stoneman, S. & Brooks, S (2019) *Conserving Bogs, The Management Handbook*. 2nd Edition.

⁵ A scoping request for a revised proposal comprising 12 wind turbines at 149.9m blade tip height was submitted to the Highland Council in September 2021 (THC reference: 21/04400/SCOP). However, given the early stage and associated uncertainty of this proposal, the previously consented application is considered within the cumulative assessment.

⁶ A scoping request for a revised proposal comprising 12 wind turbines at 180m blade tip height was submitted to the ECU in November 2020 (ECU reference: ECU00002179). However, given the early stage and associated uncertainty of this proposal, the previously consented application is considered within the cumulative assessment.

Since the EIA Report, there have been no changes to the cumulative situation, and all Development presented in Table 7.5 have been assessed in the EIA Report. As such, there is no change to the cumulative assessment presented in Section 7.10 the EIA and the conclusions within the EIA Report remain unchanged (**not significant**).

7.9 Summary

Overall, the reduction in wind turbine numbers, and smaller footprint of the Revised Development is likely to result in reduced, or at least unchanged effects on IEFs as those predicted in the EIA Report.

The Revised Development will result in a considerable decrease in direct and indirect impacts on blanket bog, and the oHMP has been revised to ensure the scale of peatland restoration is at least sufficient to account for indirect and direct effects and habitat disturbance. Therefore, the potential effects on blanket bog from the revised Development will be the worst case neutral, and **not significant** in relation to the EIA Regulations.

7.10 Statement of Significance

Effects on ecology associated with the Revised Development are considered to be **not significant**. This represents no change to the conclusions of the EIA Report or the HRA appraisal.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 8
Ornithology



8 ORNITHOLOGY

8.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects on ornithological features due to changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

It supplements **Chapter 8: Ornithology** of the Environmental Impact Assessment Report (EIA Report) which should be read in conjunction with this Chapter. This assessment was undertaken by MacArthur Green, authors of the EIA Report chapter.

This Chapter of the SEI Report is supported by the following Figures provided in Volume 2: SEI Report Figures:

- Figure 8.1: Golden Eagle Topographical Model;
- **Confidential** Figure 8.2: Golden Eagle Nest Locations 2018 to 2021; and
- **Confidential** Figure 8.3: Raptor Nest Locations 2019 to 2021.

8.2 KEY CONCLUSIONS OF THE EIA REPORT

Following the collation of existing bird records from baseline surveys and operational monitoring associated with the Operational Corriegarth Wind Farm in 2015-18 and 2019-20, field surveys for the Development were undertaken from January to August 2019.

Based on baseline survey results and historic data, a total of six Important Ornithological Features (IOFs) were taken forward for assessment, due to identified potential for significant effects from the Development: red kite, golden eagle, white-tailed eagle, peregrine, golden plover and dunlin.

The closest designated site is approximately 6.8 km away, and so all designated sites were scoped out of the assessment due to a lack of connectivity, in agreement with consultees.

Construction and operational effects were considered for each IOF. Construction effects included temporary and permanent habitat loss, and disturbance over a short-term construction period.

Unmitigated, a disturbance effect of no more than minor adverse significance was predicted for any IOF, mainly due to the lack of breeding activity in proximity to infrastructure in the case of raptors, and relatively low numbers of waders within a Natural Heritage Zone (NHZ 10) population context that may be temporarily affected. A Breeding Bird Protection Plan (BBPP) is proposed which would ensure reasonable measures are taken to avoid the destruction or disturbance of any nest site, and with

species-specific temporal and spatial restrictions around construction works, the residual effects were no more than minor adverse and **not significant** for each breeding IOF.

Operational effects (displacement and collision risk) were considered for each IOF. Unmitigated, a displacement effect of no more than minor adverse significance was predicted for any IOF. For collision risk, a moderate adverse and potentially significant unmitigated effect was predicted for red kite and white-tailed eagle when placed within appropriate reference populations. Various mitigation measures to reduce the likelihood of a significant displacement or collision effect would be in place throughout the operational period including habitat management of blanket bog to improve raptor prey and wader habitat, as well as maintaining mature woodland within the estate for potential nesting and roosting sites for red kite and white-tailed eagle. With these mitigation measures in place, the residual effects were considered to be no more than minor adverse and **not significant** for each IOF.

Cumulative construction and operational effects were assessed for other Wind Farm projects at an NHZ 10 level, or at a wider population level, where appropriate. When mitigation measures for the Development and other projects were considered, the cumulative level of significance was determined to be no more than minor adverse and Not Significant for each IOF. The exception to this was the potential cumulative collision effects on the very small NHZ 10 populations of red kite and white-tailed eagle. However, when placed within a wider North Scotland and national population context respectively, and when considering that no breeding pairs are likely to regularly use any Wind Farm site, a minor adverse and **not significant** effect was considered appropriate.

8.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

All legislation, policy and guidance listed in EIA Report **Chapter 8: Ornithology** remains applicable. Since the publication of the EIA Report, NatureScot has released a position statement on the approach to model effects of wind farms on golden eagle¹ and this has been considered in the SEI Report assessment.

An updated version of the UK's Birds of Conservation Concern list has been recently published (Stanbury *et al.* 2021²). The status of all IOFs remain the same, except for dunlin which has moved from the Amber to the Red list.

8.4 METHODOLOGY AND APPROACH

The methodology and approach to assessment presented in EIA Report **Chapter 8: Ornithology** remains relevant and unchanged for this SEI Report, section 8.3.7.

8.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from NatureScot and RSPB Scotland. A summary of their responses with respect to ornithology and how these responses have been dealt with are summarised in Table 8.1 below.

¹ <https://www.nature.scot/doc/naturescot-statement-modelling-support-assessment-forestry-and-wind-farm-impacts-golden-eagles>

² t Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available online at <https://britishbirds.co.uk/content/status-our-bird-populations>.

Table 8.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
NatureScot 25 May 2021	It is unlikely that the Development will have a significant effect on any qualifying interests either directly or indirectly on the River Spey – Insh Marshes Special Protection Area (SPA). An appropriate assessment is therefore not required.	Noted.
	Based on the information within the EIA Report and assessment by NatureScot detailed in consultee response letter, it is considered that there will be no significant adverse impacts on North Scotland red kite population. NatureScot considers that the mitigation suggested within the EIA Report is sufficient to reduce potential impacts of the Development on red kite.	Noted. All mitigation measures presented in EIA Report Chapter 8: Ornithology remain unchanged.
	NatureScot advises that the Development will not adversely affect the current conservation status of the NHZ 10 white-tailed eagle population or significantly increase the time it will take for it to reach its carrying capacity. The mitigation of removing carcasses from the Wind Turbine envelope and a buffer around it would be sufficient to reduce the collision risk.	Noted. All mitigation measures presented in EIA Report Chapter 8: Ornithology remain unchanged.
	NatureScot advises that the Development will not adversely affect the current conservation status of the NHZ 10 golden eagle population or significantly increase the time it will take for it to reach its carrying capacity. Contributions to the Regional Eagle Conservation Management Programme (RECM) is welcome.	Noted. All mitigation measures presented in EIA Report Chapter 8: Ornithology remain unchanged.
	NatureScot is in agreement with the assessment in the EIA Report that the Development would not have a significant effect on other raptors, waders or wildfowl.	Noted.
	NatureScot notes the assessment limitations outlined in section 8.3.8 of the EIA Report and consider that the justification for these are acceptable and the results will not be significantly impacted as a result.	Noted.
	NatureScot welcomes the proposed Breeding Bird Protection Plan (section 8.6.1.1 of the EIA Report) and proposed operational mitigation (section 8.6.2 of the EIA Report). They advise that this mitigation will be required to ensure that impacts on birds in NHZ 10 are minimised.	Noted. All mitigation measures presented in EIA Report Chapter 8: Ornithology remain unchanged.
RSPB Scotland 31 May 2021	RSPB considers there to be a risk of an adverse effect on the local red kite and white-tailed eagle breeding populations and recommended planning conditions to reduce the risks are presented (protocol for reporting collisions, removal of carcasses and grallochs within wind farm, provision of winter larder, annual monitoring, contributions to RECM).	All mitigation measures presented in EIA Report Chapter 8: Ornithology remain unchanged. The exact programme of mitigation and monitoring will be presented within the Habitat Management Plan (HMP) and agreed with consultees prior to finalisation.

Consultee	Summary of Consultation Response	Response to Consultee
	RSPB considers the collision risk to golden eagle from the Development in isolation to be low. However, it contributes to a high cumulative collision risk for the NHZ 10 population which will slow the time that the population reaches its estimated carrying capacity.	Noted. Mitigation measures aim to reduce the level of effect on the population at an NHZ level.
	Despite a risk of territory abandonment to breeding golden eagles highlighted in the EIA Report, the availability of alternate nest sites in all three nearby territories may decrease the risk of abandonment.	Noted.

8.6 BASELINE REVIEW

A summary of surveys carried out in 2015-18 and 2019-20 for the Operational Corriegarth Wind Farm, and from January to August 2019 for the Development was presented in section 8.4 of the EIA Report **Chapter 8: Ornithology**. Since then, the following information has been made available for consideration in this SEI Report:

- Provision of raptor monitoring data from 2020 and 2021 by the Highland Raptor Study Group (HRSG), including an interpretation of golden eagle territories, and the current number of occupied territories within NHZ 10 (see Confidential Figures 8.2 and 8.3); and
- The Operational Corriegarth Wind Farm 2020 bird survey report (Nevis, 2020³), summarising survey results from September 2019 to August 2020.

There has been no further information since the EIA Report to suggest that the scope of IOFs for assessment should change. Therefore, the key findings, in relation to identified IOFs, are as follows:

- **Red kite:** this was the most frequently observed Schedule 1 raptor species recorded in surveys up to 2019, with usage widely across the Site. No evidence of breeding was recorded within the 2 km survey area in any year, and so most records were of individual foraging birds. The HRSG did not provide any breeding records from 2019 or 2020, although the species was again regularly recorded in flight in 2019-20, according to the Operational Corriegarth Wind Farm 2020 bird survey report. A red kite carcass was found below Turbine 7 in June 2020 and reported by the wind farm's operations team.
- **Golden eagle:** birds have been frequently recorded in flight during operational monitoring and 2019 baseline surveys. There are three active golden eagle territories are located within 6 km of the Site. Confidential Figure 8.2 shows the location of nest sites used within each territory from 2018 to 2021. Within each territory there are alternative nest sites available to each pair, and it is evident that birds often move within their territory from one year to the next. In 2021, one pair ('Corriegarth' territory) seemed to have moved a considerable distance west (beyond 6 km) to a nest site where they fledged two young. This eyrie location was last used in the early 1980s and is part of a long vacant territory.
- **White-tailed eagle:** the only known breeding location in the wider area is approximately 9.8 km south-west of the Site. Whilst observations were initially infrequent, since 2018 activity levels have increased, which may be reflective of an increased regional breeding population. It is possible that breeding individuals (from the surrounding areas) may be present on occasion, but most activity is likely to be attributable to non-breeding birds.

³ Nevis Environmental (2020). Corriegarth Windfarm Bird Survey Summary Report: Year 5 – 2020.

- **Peregrine:** One probable peregrine territory was recorded within the 2 km Study Area in 2019, however, the location of the nest was not confirmed, and it was considered that it may have been located further afield. No breeding territories were recorded within 2 km in 2020 or 2021. Numbers of peregrine flights recorded during flight activity surveys are generally low.
- **Golden plover:** surveys in 2019 recorded eight golden plover territories within or just outside of the 500 m survey area. A small number of flights have been recorded each year.
- **Dunlin:** eight dunlin territories (including two confirmed breeding) were recorded within 2 km in 2019.

8.7 ASSESSMENT OF POTENTIAL EFFECTS

The aim of the assessment is to determine whether the changes made to the Development, as outlined in **Chapter 4: Development Description**, will result in any new effects, or change the significance of predicted effects upon ornithological features previously assessed in **Chapter 8: Ornithology** of the EIA Report.

In relation to ornithological features, the main changes, as exhibited by the Revised Development proposals, are the removal of wind turbines T10 and T12, and associated infrastructure. This has resulted in a more compact wind turbine envelope.

There have also been some movements of wind turbines (T1, T2, T11, T13, T15) and associated infrastructure, although they remain within a similar wind turbine envelope.

8.7.1 Construction Effects

Direct habitat loss for IOFs due to the construction of temporary and permanent infrastructure would still occur, but with a reduced footprint, the effects of the Revised Development would be slightly reduced from those predicted for the Development.

Although the Revised Development now consists of fewer wind turbines, for the purposes of this assessment it is assumed that the construction period will occur over a similar timeframe to that assessed for the Development in the EIA Report. The smaller wind turbine envelope means that the spatial extent of potential construction disturbance will be reduced, thereby reducing the extent of foraging area for raptors that would have been temporarily unavailable, and the extent of breeding habitat that would have been temporarily unavailable to waders, compared to the Development layout.

As such, it can be reasonably concluded that residual construction effects predicted for the Development will be unchanged, or potentially reduced, for the Revised Development. The unmitigated effects on each IOF's reference breeding population from construction are therefore classified as at worst, minor adverse and is therefore **not significant** in the context of the EIA Regulations.

8.7.2 Operational Effects

8.7.2.1 Displacement

As outlined above in the Section 8.7.1, the Revised Development will comprise fewer turbines and a smaller wind farm envelope than the Development assessed in the EIA Report. This would have the effect of reducing the physical extent of habitat that may be unavailable to IOFs as a result of being displaced around wind turbines and other permanent infrastructure.

Red Kite and White-tailed Eagle

In the case of red kite and white-tailed eagle, no breeding has been recorded within 2 km of the proposed wind turbine locations and so any displacement would only potentially affect the behaviour of foraging (mainly of non-breeding birds) rather than nesting birds.

Although these raptor species are likely to exhibit different behavioural responses to operational wind turbines, both are considered to be both relatively unaffected by the presence of operational wind turbines, and sufficiently wide-ranging in their behaviour so that any localised displacement effects would not significantly inhibit the ability of individuals to obtain sufficient food resource. For red kite and white-tailed eagle, the EIA Report concluded that the unmitigated effects of displacement would be minor adverse and therefore **not significant** on their small but expanding reference populations. This conclusion remains unchanged for the Revised Development.

Peregrine

For peregrine, again no breeding has been recorded within 2 km and so the Site does not form an important part of a breeding territory. Records of peregrine were infrequent, and as a wide-ranging forager, localised displacement is unlikely to reduce the ability to forage. Displacement effects on peregrine are therefore unchanged (minor adverse and **not significant**).

Golden Eagle

The assessment for golden eagle in EIA Report **Chapter 8: Ornithology** used a Predicted *Aquila* Territory (PAT) model to show that the predicted range use occupancy of breeding eagles within the Site would be low, ranging from 0.6 % for the Garrogie pair to 3.3 % for the Dunmaglass pair (no overlap was predicted for the Corriegarth pair). Following NatureScot's recent recommendation that a "*GET (Golden Eagle Topographical) model is a superior model to the PAT [model] in terms of predicting areas of significant use by territory holding golden eagles*"¹, Figure 8.1 shows the output of the GET model for the local area around the Site, following the methods in Fielding *et al.* (2020)⁴. The results show consistency with the findings of the PAT model, in that the majority of the Site, alongside the Operational Corriegarth Wind Farm, would be within an area of less-favoured topographical features (which are usually ridges, steep slopes rocky promontories etc.) compared with other parts of each territory. Much of the Site is comprised of topographical categories 1-4 which are less favoured, with only small areas of more suitable topography.

It is therefore considered that despite some potential territory loss for two golden eagle breeding pairs, territories are likely to remain viable due to the remaining widespread availability of preferred habitat. As commented by RSPB Scotland in their consultation response (Table 8.1), the apparent availability of alternative nest sites in all three nearby territories is likely to decrease the risk of abandonment.

The unmitigated effects on the golden eagle NHZ 10 population from operational displacement are therefore unchanged, and classified as minor adverse and therefore **not significant** in the context of the EIA Regulations.

Golden Plover and Dunlin

For breeding golden plover and dunlin, the EIA Report **Chapter 8: Ornithology**, section 8.5.4.1 presented information that evidence for displacement of breeding pairs around wind turbines is inconsistent, but unlikely to be 100%. A worst-case loss of five golden plover pairs, and four dunlin pairs was assessed. The smaller footprint of the Revised Development would reduce the extent of land potentially unavailable to breeding waders, although the distribution recorded during 2019 surveys did not suggest that the changes in layout for the Revised Development would greatly affect any territories either in a beneficial or adverse nature. As such, the conclusions in the EIA Report for unmitigated

⁴ Fielding, A.H., Haworth, P.F., Anderson, D., Benn, S., Dennis, R., Weston, E. and Whitfield, D.P. (2020), A simple topographical model to predict Golden Eagle *Aquila chrysaetos* space use during dispersal. *Ibis*, 162: 400-415. <https://doi.org/10.1111/ibi.12718>

displacement effects on golden plover and dunlin remain unchanged (negligible and minor adverse respectively, both **not significant**).

8.7.2.2 Collision Risk

A reduction in wind turbine numbers and movement of some remaining proposed wind turbine locations has meant that collision risk modelling (CRM) was redone to quantify changes in predicted collision rates as a result of the Revised Development. All methods and input parameters (apart from turbine numbers) remain consistent with those presented in Technical Appendix A8.3 of the EIA Report, to allow a direct comparison.

The results of the CRM, compared to those presented for the Development, are presented in Table 8.2 (no at-risk dunlin flights were recorded, and so this species was excluded from the CRM).

Table 7.2. Comparison of estimated mean annual collision rates for Development (Dev) and Revised Development (RD).

Species	Annual collision rate (mean)			One collision every <i>X</i> years		
	Dev	RD	Difference	Dev	RD	Difference (± years)
Red kite	0.222	0.187	-0.035	4.5	5.4	+0.9
White-tailed eagle	0.311	0.346	+0.035	3.2	2.9	-0.3
Peregrine	0.020	0.014	-0.006	50.5	70.7	+20.2
Golden eagle	0.093	0.081	-0.012	10.8	12.4	+1.6
Golden plover	0.014	0.014	0.000	69.7	70.3	+0.6

The results show that due to a decrease in numbers of wind turbines, the collision rates have reduced for all IOFs, with the exception of white-tailed eagle, which increased slightly from 0.311 to 0.346 collisions per year. This was due to one flight being approximately 0.5 seconds longer within the Collision Risk Analysis Area (CRAA) in the Revised Development version (despite an overall decrease in CRAA size for the Revised Development, all other flight durations within the CRAA were unchanged). This highlights the sensitivity of the CRM for a species such as white-tailed eagle which has an assumed low avoidance rate (95%) compared to other species.

Red Kite and White-tailed Eagle

In the EIA Report **Chapter 8: Ornithology**, for both red kite and white-tailed eagle, a moderate adverse, and therefore potentially **significant** unmitigated collision effect was predicted due to additional mortality as a result of the Development. This is due to relatively small reference populations associated with both species, although evidence was presented to show that birds present within the Site are mainly likely to be non-breeding individuals who are not part of the breeding population. However, with a slight decline in annual collision rate predicted for red kite, and slight increase for white-tailed eagle, the predicted effects associated with the Revised Development remain unchanged (moderate adverse and potentially **significant**).

Peregrine

A low collision rate of one bird every 50 years was predicted for the Development, which has reduced to one collision every 70 years. The original prediction of a minor adverse and **not significant** effect remains applicable for the Revised Development.

Golden Eagle

The CRM for golden eagle predicted a reduced mean annual collision rate, from one collision every 10.8 years for the Development, down to one every 12.4 years for the Revised Development.

A Golden Eagle Population Model (GEPM) was run, as described in the EIA Report **Chapter 8: Ornithology**, in order to determine the significance of this possible additional mortality of the Development on the NHZ 10 breeding population, which was taken to be 25 pairs in 2019, and considered to be in favourable condition based on the criteria used by Whitfield *et al.* (2008⁵).

The GEPM output predicted that with additional annual mortality due to collisions with the Development's turbines taken into consideration, the annual NHZ 10 growth rate would reduce from 1.033 (3.1 %) to 1.031 (3.1 %), a reduction in by 0.02 %, but with no delay in the number of years required to theoretically achieve carrying capacity of NHZ 10 (13 years, based on 37 territories).

Since then, the HRSG has provided data to suggest that the NHZ 10 population increased to 26 pairs in 2021 and evaluated the potential maximum number of territories within NHZ 10 based on recent and historical occupancy, and recent cases of territories splitting in two. It was concluded that 38 territories would be a theoretical maximum although would require substantial changes for this to be realised. Therefore, it is evident that the NHZ 10 population remains in favourable condition with likely continued expansion. As such, the conclusions of the EIA Report remain unchanged for the Revised Development – a minor adverse and **not significant** effect on the NHZ 10 population.

Golden Plover

The predicted collision rate for golden plover continued to be low for the Revised Development (approximately one every 70 years), and so the conclusions of the EIA Report remain unchanged – negligible and **not significant** on the NHZ 10 population.

8.8 MITIGATION AND RESIDUAL EFFECTS

The mitigation and enhancement measures outlined in section 8.6 of the EIA Report **Chapter 8: Ornithology** remain appropriate, and committed to by the Applicant. To address a potential significant collision risk for red kite and white-tailed eagle, mitigation in the form of carrion removal within 200 m of wind turbines, woodland management, an HMP, monitoring and contributions towards the RECMP within NHZ 10 is planned (see EIA Report **Chapter 8: Ornithology**, section 8.6.2).

As a result of the prescribed mitigation measures, the residual effects were reduced to at most, minor adverse and **not significant** for all IOFs, and these are unchanged for the Revised Development.

8.9 CUMULATIVE EFFECT ASSESSMENT

The cumulative effect assessment in section 8.7 of the EIA Report evaluated the construction (disturbance) and operational (displacement and collision) effects of the Development on IOFs, when considered alongside other wind farm projects. The IOFs scoped in to the assessment due to the potential for a significant effect were red kite, white-tailed eagle, golden eagle and dunlin. It was concluded that when considering any required mitigation measures at the Development, and mitigation and enhancement

⁵ Whitfield, D P, Fielding, A H, McLeod, D R A and Haworth, P F (2008). A conservation framework for golden eagles: implications for their conservation and management in Scotland. Scottish Natural Heritage Commissioned Report No.193 (ROAME No. F05AC306).

measures committed to by other projects, the significance of cumulative effects on the relevant reference populations are at worst minor adverse and **not significant**.

Since the EIA Report, the only changes in status to considered wind farm projects within NHZ 10 are that Glen Kyllachy is now operational and Paul's Hill II has been consented. As both of these projects were considered within the worst-case cumulative assessment for the Development, no further cumulative assessment is therefore considered necessary for the Revised Development. As such the conclusions within the EIA Report remain unchanged (**not significant**).

8.10 SUMMARY

Overall, the reduction in wind turbine numbers, and smaller footprint of the Revised Development is likely to result in reduced, or at least unchanged effects on IOFs as those predicted in the EIA Report. During construction, effects on breeding IOFs would be avoided by implementation of a BBPP alongside pre-construction surveys. During operation, the extent of breeding or foraging habitat that may have become unavailable to IOFs due to displacement will be smaller than for the Development, and the risk of collisions would be reduced. The same mitigation and enhancement measures would however still be implemented to address these potential effects, which include an HMP, removal of carrion from within 200 m of wind turbines, woodland management, monitoring, and contributions to the RECMP within NHZ 10.

8.11 STATEMENT OF SIGNIFICANCE

The above assessment for the Revised Development has concluded that there would be no change to the levels of residual significance predicted for the Development in the EIA Report, either alone, or cumulatively with other wind farm projects (**not significant**).

8.11.1 NTS Input

Chapter 8 of the SEI Report evaluates the construction and operational effects of the Revised Development on ornithological features, in comparison to those predicted for the Development in EIA Report **Chapter 8: Ornithology**. It takes into consideration consultation responses on the EIA Report relating to ornithology, provided by NatureScot and RSPB Scotland.

All methods of assessment are consistent with those used in EIA Report **Chapter 8: Ornithology** to allow a direct comparison of predicted effects between the Development and Revised Development. The baseline survey information used is also the same but includes more recent data on breeding raptor species up to 2021, provided by the Highland Raptor Study Group. The Important Ornithological Features (IOFs) taken forward to assessment are unchanged from the EIA Report, based on the information available. These are: red kite, white-tailed eagle, golden eagle, peregrine, golden plover and dunlin.

In general, the main changes in the Revised Development for ornithology features are the reduction in wind turbine numbers and associated infrastructure, and consequent reduced footprint.

For assessing construction effects (temporary and permanent habitat loss, temporary disturbance), although the overall footprint would be reduced, it is assumed that as a precaution, the duration and nature of construction activities would be similar, and so predicted unmitigated construction effects are unchanged (at worst minor adverse, **not significant**). Effects on breeding birds would be mitigated via a BBPP and pre-construction surveys.

During operation, it is concluded that the effects of displacement on foraging or breeding birds would be slightly reduced due to the smaller footprint, although this change is

unlikely to be significant at a population level for any IOF. It is demonstrated via a Golden Eagle Topography (GET) model that most of the Site is of comparatively lower suitability for golden eagles than much of the surrounding land within nearby territories.

Collision effects are also slightly reduced due to the decrease in wind turbine numbers, and based on the outputs of the Golden Eagle Population Model presented in the EIA Report for the Development, the predicted additional mortality due to collisions associated with the Revised Development would not significantly affect the Natural Heritage Zone (NHZ) 10 reference breeding population from continuing its expansion and maintaining favourable conservation status. Annual collision rates are also not predicted to be significant for any other IOF's reference populations, when mitigation measures (e.g., carrion removal from within 200 m of wind turbines, habitat management) are taken into consideration.

The status of other wind farm projects within NHZ 10 has been reviewed to determine whether the cumulative assessment in the EIA Report remains applicable. It is found that the EIA Report's assessment remains a suitable worst-case cumulative assessment and that the predicted cumulative effects are unchanged.

With the mitigation and enhancement measures outlined in the EIA Report still committed to by the Applicant for the Revised Development, it can be reasonably concluded that the residual effects predicted for all IOFs would be unchanged from the EIA Report, and therefore negligible or minor adverse and **not significant**.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 9
Archaeology and Cultural Heritage



9 ARCHAEOLOGY AND CULTURAL HERITAGE

Chapter 9: Archaeology and Cultural Heritage of the Environmental Impact Assessment (EIA) Report, submitted in January 2021 (Planning Reference: ECU00002175), does not require to be updated in light of revisions to the Development.

Chapter 9: Archaeology and Cultural Heritage of the EIA Report concluded that the Development resulted in effects that were not significant in terms of the EIA Regulations.

As a result of the turbine numbers reducing from 16 to 14 as part of the Revised Development, it is considered by EIA assessors that the Revised Development will not introduce any significant effects within the archaeology and cultural heritage resource. Additionally, whilst the reduction in the number of turbines may slightly reduce the effects predicted in the EIA Report, effects as a result of the Revised Development would remain not significant.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 10
Noise



10 NOISE

10.1 INTRODUCTION

This chapter of the Supplementary Environmental Information (SEI) Report addresses the potential effects of noise due the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter supplements **Chapter 10: Noise** of the Environmental Impact Assessment Report (EIA Report) which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Ltd.

SEI Figure 10.1 provided in Volume 2 SEI Report Figures, presents an update to the corresponding figure in the EIA Report.

10.2 KEY CONCLUSIONS OF THE EIA REPORT

The key conclusions of the EIA Report in relation to noise were:

- Application of good practice measures to manage construction noise, described in Section 11.6.1 of the EIA Report, will ensure that noise effects associated with the Development are minimised as far as is reasonably practicable and that the construction process is operated in compliance with the relevant legislation; and
- Levels of operational noise are predicted to be compliant with the requirements of ETSU-R-97 derived in accordance with both ETSU-R-97¹ and the recommendations of the GPG².

The principles of the EIA Report remain valid and appropriate and therefore have not been reassessed for this SEI Report, unless otherwise stated.

10.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

There are no changes to legislation, policy and guidance since the EIA Report. The information presented in Section 10.2 of the EIA Report therefore remains valid.

10.4 METHODOLOGY AND APPROACH

With regard to construction noise, there are no changes to the methodology and approach presented in Section 10.3.7.1 of the EIA Report, other than minor revisions to

¹ ETSU-R-97 (1996) The Assessment and Rating of Noise from Wind Farms, ETSU: DTI

² A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind turbine Noise, IOA, 2013.

borrow pit and substation layouts, which have no effect on the previous conclusions of the EIA Report.

With regard to operational noise, there are no changes to the methodology and approach presented in Section 10.3.7.2 of the EIA Report, other than an updated Revised Development layout, for which predicted noise levels have been calculated as part of this SEI. The cumulative developments considered in this assessment remain as follows:

- Aberarder Wind Farm;
- Cloiche Wind Farm;
- Corriegarth (the Operational Corriegarth Wind Farm);
- Dell Wind Farm;
- Dumnaglass Wind Farm;
- Single Turbine 2 km SE Of Easter Aberchalder; and
- Stronelaig Wind Farm.

Details of the noise emission data for each cumulative development considered in this assessment remains as presented in Section 10.3.7.3 of the EIA Report.

10.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from The Highland Council ('The Council'). A summary of their responses with respect to noise and how these responses have been dealt with are summarised in Table 10.1 below.

Table 10.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
The Council Environmental Health Officer (EHO). 10/03/2021	<u>Construction Noise:</u> The separation distance between the turbine sites and any noise sensitive receptors are such that construction noise is unlikely to be a significant issue. However, the proposal includes using and widening the existing access track which passes close to Keepers Cottage and Corriegarth Lodge and within only a few metres of Garthbeg Bungalow. The level of traffic, especially HGV traffic could have a significant adverse impact on residents and the occupants of Garthbeg Bungalow in particular which is confirmed by the predicted noise levels in table 10.5 of the noise assessment. Section 10.6.1 outlines the proposed mitigation measures which includes the provision of temporary sound barriers. For the avoidance of doubt, this Service would expect the following to be met: - • Construction activities, excluding vehicle movements, for which noise is audible at the curtilage of any noise sensitive property shall be restricted to between 7am – 7pm Monday to Friday and 7am to 1pm Saturdays. • Construction vehicle movements between the site and the B862 shall be restricted to between 8am – 6pm Monday to Friday and 8am to 1pm Saturdays. This applies to all traffic.	The comments regarding construction noise are noted, and the minor revisions to the construction works proposed as part of the Revised Development have no effect on the previous conclusions of the EIA Report. The Applicant commits to implementing the good practice mitigation measures detailed in Section 10.6.1 of the EIA report, and is willing to accept planning condition(s) limiting working hours and vehicle movements as suggested.

Consultee	Summary of Consultation Response	Response to Consultee
The Council EHO 19/03/2021	Operational Noise: The applicant's noise assessment states that cumulative noise levels from this development and others in the area will still comply with the simplified ETSU standard of 35 dB LA90. Given the separation distances involved this is not unexpected. However, the assessment has not provided information on what the relevant noise levels are from each development at each noise sensitive receptor.	Further detail on predicted noise levels from the Development and each individual cumulative development were provided on 16 th June 2021. The EHO provided a further response, as detailed below.
The Council EHO 19/03/2021	The applicant has provided a summary of maximum cumulative noise levels arising from the numerous developments in this area. I have no further objections on that basis subject to a standard wind farm noise condition being attached to any consent which restricts noise limits to 26 dB LA90 i.e., the maximum predicted level plus a 2 dB margin. I understand the applicant proposes to submit a detailed construction environmental management plan which would address potential noise and dust issues that may arise during the construction phase and in particular, from works to the access track and subsequent construction traffic. I have no objection to this being the subject of a suspensive condition requiring the submission of a CEMP for the approval of the Planning Authority.	Predicted noise levels due to the operation of the Development have been updated based upon Revised Development layout, and assessed in combination with cumulative scenario. The applicant is willing to accept a planning condition requiring the submission of a Construction Environmental Management Plan for the approval of the Planning Authority, prior to the commencement of works.

10.6 BASELINE REVIEW

As cumulative predicted noise levels including the Revised Development (as shown in Figure 10.1) remain below the ETSU-R-97 simplified assessment criterion of 35 dB(A), no background noise measurements are required.

There is no change to baseline conditions reported in the EIA Report.

10.7 ASSESSMENT OF POTENTIAL EFFECTS

10.7.1 Construction Effects

As noted in Section 10.2, there are no changes proposed as part of the Revised Development, other than minor revisions to borrow pit and substation layouts, which have no effect on the conclusions of the EIA Report in terms of noise, and have therefore not been considered further.

10.7.2 Operational Effects

As can be seen from Figure 10.1, no noise-sensitive receptors are located within the Study Area, as defined in Section **Error! Reference source not found.** of the EIA Report, and the change in predicted noise level is negligible when compared to Figure 10.2 of the EIA Report. The Revised Development will therefore comply with the requirements of ETSU-R-97, and effects remain **not significant** in terms of the EIA Regulations.

10.8 MITIGATION AND RESIDUAL EFFECTS

10.8.1 Construction Noise

There is no change to the construction noise mitigation and residual effects presented in the EIA Report.

10.8.2 Operational Noise

No specific mitigation is required for operational noise due to the Revised Development. Residual effects remain as previously assessed, i.e. not significant in terms of the EIA Regulations.

10.9 CUMULATIVE EFFECT ASSESSMENT

Cumulative effects have been taken into consideration in the assessment presented above.

10.10 SUMMARY

An assessment of potential noise effects associated with the Revised Development has been carried out.

10.10.1.1 Construction Noise

Construction noise will be limited in duration and confined to working hours as specified by the Council and therefore can be adequately controlled through the application of good practice measures and secured by planning condition. This will ensure that any noise from the Revised Development during construction will be adequately controlled.

10.10.1.2 Operational Noise

Operational noise has been assessed in accordance with ETSU-R-97 and in line with current best practice. It has been shown that the Revised Development would comply with the requirements of ETSU-R-97 at all receptor locations. The operation of the Revised Development results in a negligible reduction in noise levels relative to those previously predicted in the EIA Report.

The noise limit suggested by the Council's EHO in their Response to the EIA Report (i.e., 26 dB LA90) remains appropriate. However, due to the low level of proposed limit, it may not be possible to accurately measure noise due to the Revised Development at the nearest receptor. Any such assessment would therefore also require measurements to be undertaken at a location substantially closer to the Revised Development, and used to calculate the resulting noise level at the receptor to determine compliance with the noise limit.

The cumulative effects of the Revised Development in conjunction with nearby wind energy developments either operational, consented or the subject of a current planning application were taken into consideration in the above assessment, in accordance with ETSU-R-97 and the GPG.

10.10.1.3 Decommissioning Noise

Noise during decommissioning will be of a similar nature to that of construction and will be managed through best practice or other guidance or legislation relevant at the time.

10.11 STATEMENT OF SIGNIFICANCE

The above assessment has resulted in no changes to the significance of the Development in terms of noise. Significance of noise due to the Development therefore remains **not significant**.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 11
Traffic and Transport



11 TRAFFIC AND TRANSPORT

11.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects on the Traffic & Transportation resources with the locality of the Development and on the wider road network due to changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter supplements **Chapter 11: Traffic and Transportation** of the Environmental Impact Assessment Report (EIA Report) which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the EIA Report is supported by the following Appendix:

- SEI Appendix A11.1: Construction Development Program

11.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report concluded that the anticipated increase in traffic during construction of the Development would exceed the threshold of significance in two cases; however, this was as a result of a very low baseline flow. Taking into account the capacity of routes in relation to baseline and predicted traffic flow levels, effects were predicted to be low or negligible and not significant in all cases.

11.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

No changes to the relevant legislation, policy and guidance identified in Section 11.2 of the EIA Report have been found.

11.4 METHODOLOGY AND APPROACH

No changes to the EIA Report methodology and approach are proposed. This can be found in Sections 11.2.6 and 11.2.7 of the EIA Report.

11.4.1 Scoping Responses and Consultations

Consultation responses were received after submission of the EIA Report from Transport Scotland and The Highland Council (THC). A summary of their responses with respect to Traffic and Transportation and how these responses have been dealt with are summarised in Table 11.1.

Table 11.1: Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
Transport Scotland – 04/03/2021	Based on the review undertaken, [sic] Transport Scotland considers that the EIAR and associated information should have gone further to satisfy our requirements in terms of demonstrating that the size of turbines proposed can negotiate the selected route and that their transportation will not have any detrimental effect on structures within the trunk road route path. Transport Scotland does not, however, propose to object to this planning application on the understanding that Conditions and obligations be placed on the applicant to deliver trunk road mitigation.	Noted. Prior to the start of construction, an Abnormal Load Route Assessment which demonstrates the suitability of roads within the study area to transport the wind turbine components for the Development will be undertaken and presented to Transport Scotland
THC–03/02/2021	Roads Condition Concerns	This has been addressed in an Arcus letter dated 23/06/2021 to the THC Transport Planning Team.
THC – 03/02/2021	Traffic Figures – Staff numbers.	This has been addressed in an Arcus letter dated 23/06/2021 to the THC Transport Planning Team. The revised staff number has been adopted in this SEI Report.

11.5 BASELINE REVIEW

11.5.1 Baseline Traffic Flow Data

Baseline traffic flow conditions were established by automatic traffic counts (ATCs) undertaken between the 14th and the 20th of March 2020 at three locations on routes near the Site. Further, information was collected from publicly available information published by the Department for Transport at one location for the year 2018.

The dates of the ATC surveys were selected so as to represent a 'neutral week', that is outwith school or public holiday dates. In 2020, the Easter holiday for schools in the Highland Council area starts from 30th March and finished on the 13th of April, therefore the selected week was 'neutral'. It was not considered necessary to update baseline traffic flow information as any changes are expected to be minimal and insignificant in the context of this assessment. The counts were also completed prior to the UK being put into "lock down" as a result of the Covid 19 pandemic and are therefore considered to be typical conditions.

11.6 FUTURE BASELINE SCENARIO

Background traffic growth will occur on the local road network irrespective of whether or not the Development is constructed.

A traffic growth factor of 1.025 & 1.039 was calculated for the relevant geographic area using the Trip End Model Presentation Program (TEMPro¹) and applied to the baseline traffic flow information collected for each route to give the estimated traffic flow for the

¹ UK Government, Department for Transport (2013). Trip End Model Presentation Program (TEMPro). Available at: <https://www.gov.uk/government/publications/tempro-downloads>. Accessed on 18/02/2022.

year of construction (2025). Table 11.2 indicates the projected baseline traffic flow at each of the locations for the anticipated year of construction.

Table 11.2: Projected Baseline Traffic Flow (2025)

Ref	Road	Location	Growth Factor	Project ADT	HGV ADT	% HGV
1	A9	South of B851	1.039	7,639	675	8.8%
2	B851	South-west of A9	1.025	822	274	33.3%
3	B851	North of Aberarder	1.025	356	138	38.9%
4	B862	Bailebeag	1.025	386	129	33.4%

11.7 ASSESSMENT OF POTENTIAL EFFECTS

The principal effect of the removal of two turbines and change in turbine positions for nine turbines from the EIA Report is that the length of new and upgraded access tracks is altered with the new track length being reduced. This will result in a change in the volume of construction traffic associated with the import of materials for track construction.

The following subsections indicate the anticipated volume of construction traffic for each element which will change from the EIA Report. All other movements not set out in this SEI remain extant within the EIA Report Chapter 11. A summary of all construction vehicle movements, including those which have not changed from the previous assessment, is provided in Table 11.8.

SEI Appendix A11.1 includes a programme indicating the anticipated number of vehicle movements associated with each element of work throughout construction and is expected to run for a total of 18 months. The following sub-sections provide detail for each element of work. A summary of all predicted construction traffic is provided at the end of this section.

11.7.1 Access Track and Hardstanding Construction

The number of vehicle movements associated with access track and hardstanding construction have been revised in light of the reduced length of track now required as detailed above.

The top 0.15 m layer of fine material required for all access tracks and hardstandings will be imported to site; the remaining aggregate required will be won from on-site borrow pits.

The volume of material required for a 0.15 m surface layer across all track and hardstandings is estimated to be 19,095 cubic metres (m³). Assuming each dump truck has a volumetric capacity of 9 m³, this will result in approximately 2,122 loads, or 4,243 total vehicle movements over the duration of this phase of works.

It is assumed that the excavators and rollers will be delivered to the Site via low loaders at the commencement of construction and will generate four vehicle trips each for delivery and another four trips during removal, the dumper trucks will be self-propelled to and from the Site.

Other materials will require to be imported regularly throughout construction of the access tracks such as geo-membrane, drainage pipes and culvert sections

Table 11.3 sets out the anticipated number of vehicle movements associated with access track and hardstanding construction.

Table 11.3: Anticipated Vehicle Movements - Access Track and Hardstanding Construction

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Plant	HGV Dump Truck	2,8	16	8
	HGV Low Loader (Excavators/Rollers)	2,8	16	8
Material Deliveries	HGV	2-8	35	5
Aggregate Import	HGV	2-8	4,243	606
Overall			4,310	627

A total of 5,510 vehicle movements were anticipated to be required for access track and hardstanding construction in the Development's EIA Report, therefore 1,200 fewer vehicle movements are required for the Revised Development.

11.7.2 Turbine Foundation Construction

The concrete for each turbine foundation will be formed from concrete batched on-site. Each foundation will have a volume of approximately 612 m³. In order to assess the worst-case scenario, it has been assumed that the aggregate won from the on-site borrow pit will not be suitable for concrete batching, therefore all aggregate will be imported. Therefore, in the event that borrow pit aggregate proves suitable for concrete the number of vehicles associate with this phase of works would be reduced.

Assuming a volumetric capacity of 9 m³ per dumper truck, approximately 952 loads would be required to supply 8,582 m³ of material for the 14 turbines. This would result in 1904 HGV vehicle movements over this phase of works.

In addition to concrete, steel rebar will require to be imported. It is assumed that up to 4 HGV loads per turbine will be required, therefore 56 loads will be required for the 14 turbines resulting in 112 vehicle movements. Rebar will be delivered prior to the commencement of foundation pouring and would be spread throughout the concrete delivery period

Additional miscellaneous items will be required to be delivered to support the foundation construction phase. These include shuttering, geotextiles and equipment. It is assumed that the majority of these deliveries would occur in month 5, and the further deliveries that are required during the pouring phase would be timed to avoid pouring days so as to lower the peak traffic flow. An allowance for 40 miscellaneous deliveries during this phase of works has been made, this would result in up to 80 two-way HGV movements.

Table 11.4: Anticipated Vehicle Movements - Turbine Foundation Construction

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Aggregate Delivery	HGV Dump Trucks	6-11	1, 904	317
Rebar Delivery	HGV	5-8	112	28
Miscellaneous	HGV	5-8	80	20

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Overall			2,096	365

A total of 1,778 vehicle movements were predicted to be required for construction of turbine foundations in the EIA Report. However, it is acknowledged that 318 more vehicle movements will be required for the Revised Development. This is mainly due to an increase in the volume of concrete required for the turbine foundations as a result of a minor discrepancy in the Development's EIA Report and has been corrected in consultation with THC.

11.7.3 Electrical Cabling Delivery

Electrical cabling for wind farm power distribution will require to be delivered and will constitute 27 HGV movements over the period of delivery. Table 11.5 indicates the number of vehicle movements associated with electrical cabling delivery.

Table 11.5: Anticipated Vehicle Movements - Electrical Cabling Delivery

Operation	Vehicle Type	Operational Months	Total	Max Monthly
Electrical Cabling Delivery	HGV	10-12	27	9

A total of 30 vehicle movements were predicted to be required for electrical cabling delivery in the Development's EIA Report therefore 3 fewer vehicle movements are required for the Revised Development.

11.7.4 Turbine Delivery

Turbines will be delivered as separate components the majority of which will require to be transported by ALV. The towers will be transported in three separate sections and each blade will be transported individually. Five further abnormal load vehicles will be required to transport the nacelle and hub. For 14 turbines, 154 ALV deliveries will therefore be required equalling 308 vehicle movements.

Following delivery of components, the ALVs will retract to the size of a standard HGV for the return journey. Two escort vehicles are likely to be required to accompany each ALV which will result in a worst-case of 616 additional vehicle movements. In practice, this figure may be reduced where ALVs approach the Site in convoy and fewer escort vehicles per ALV are required. 20 HGV vehicle movements will be required for the delivery of turbine accessories and ancillary equipment.

Table 11.6 indicates the number of vehicle movements that are expected for turbine delivery.

Table 11.6: Anticipated Vehicle Movements - Turbine Delivery

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Turbine Components	ALV	10-17	308	39
	Escort Car or Van	10-17	616	77
	HGV	10-17	308	39

Operation	Vehicle Type	Construction Months	Total Movements	Maximum Monthly Movements
Ancillary Equipment	HGV	10-17	20	3
Overall			1,252	157

A total of 1,056 vehicle movements were predicted to be required for turbine delivery in the EIA Report. However, it is acknowledged that there are 196 more vehicle movements required for the Revised Development even though there are fewer turbines. This is mainly due to a minor discrepancy in the Development's EIA Report which has been corrected in consultation with the THC.

11.7.5 Construction Personnel and Staff

It is anticipated that an average of 40 staff will be required on-site per day throughout the construction phase, months 1-18. For the purposes of this assessment, the most recent available Scottish private vehicle occupancy² rate of 1.57 people per vehicle was used, equating to 26 vehicles per day during construction.

Assuming a 26 work days per month, this will result in 663 vehicles or 1,326 movements per month and a total of 23,868 vehicle trips for staff over the course of construction of the Development. Table 11.7 indicates the number of vehicle movements associated with staff.

Table 11.7: Anticipated Vehicle Movements - Staff

Operation	Vehicle Type	Operational Months	Total	Max Monthly
Staff	Car or Minibus	1-18	23,868	1,326

A total of 11,934 vehicle movements were predicted to be required for staff in the EIA Report. However, this has been revised upwards in the supplementary assessment in consultation with the THC to correct a minor discrepancy in the Development's EIA Report.

11.7.6 Summary of Traffic Movements from all Activities

Table 11.8 provides a summary of all deliveries expected throughout duration of construction. The values calculated in this section may differ from those generated in SEI Appendix A11.1 due to both rounding and assuming the worst-case scenario, which has led to an artificial inflation of the values in the Construction Development Programme.

Table 11.8: Anticipated Vehicle Movements – Summary

Operation	Vehicle Type	Construction Months	Total	Max Monthly
Site Mobilisation/Demobilisation				
Site Mobilisation/ Demobilisation	Car or Minibus	1,18	32	16
Site Mobilisation/ Demobilisation	HGV	1,18	120*	60*

² The Scottish Government (2020) Transport and Travel in Scotland 2019 [Online] Available at: <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/table-td9-car-occupancy-percentage-of-car-stages-by-car-occupancy-2009-2019/> (Accessed 18/02/2022)

Operation	Vehicle Type	Construction Months	Total	Max Monthly
Subtotal			152	76
Access Track and Hardstanding Construction				
Plant	HGV Dump Truck	2,8	16	4
	HGV Low Loader (Excavators/Rollers)	2,8	16	2
Material Deliveries	HGV	2-8	35	5
Aggregate Import	HGV	2-8	4,243	606
Subtotal			4,310	627
Turbine Foundation Construction				
Aggregate Delivery	HGV	6-11	1,904	317
Rebar	HGV Low-Loader	5-8	112	28
Miscellaneous	HGV	5-8	80	20
Subtotal			2,096	365
Control Building Substation and Battery Storage				
Electrical Components and Switchgear Delivery, BESS Delivery	HGV	3-10	40	5
Transformer Delivery	ALV	3-10	2	1
	HGV	3-10	2	1
	Escort Car/Van	3-10	8	4
Material Delivery	HGV	3-10	50	6
Subtotal			102	17
Electrical Cabling Delivery				
Electrical Cabling Delivery	HGV	10-12	27	9
Subtotal			27	9
Crane Delivery				
Crawler Crane	HGV	10,17	52	26
	Abnormal Load Vehicle**	10,17	2	1
	Escort Car/Van	10,17	8	4
Subtotal			62	31
Turbine Delivery				
Turbine Components	ALV	10-17	308	39
	Escort Car or Van	10-17	616	77
	HGV	10-17	308	39
Ancillary Equipment	HGV	10-17	20	3
Subtotal			1,252	157
Fuel Delivery				

Operation	Vehicle Type	Construction Months	Total	Max Monthly
Fuel Delivery	HGV Fuel Tanker	1-18	144	8
Subtotal			144	8
Staff				
Staff	Car or Minibus	1-18	23,868	1,326
Subtotal			23,868	1,326
Totals			Total	Max Monthly
Total HGV and Abnormal Load Movements			7,373	991
Total Car and Van Movements			24,532	1,407
Overall Total			32,905	2,317***

* Includes transporter vehicle leaving and then returning to site during demobilisation

**Self-propelled vehicles which arrive in one month and depart in another

***Total flow in peak month

As indicated in Table 11.8, the total number of car and van movements anticipated over the duration of construction of the Development is 24,532, whilst that total number of HGV and Abnormal Load Movements is 7,373, an overall reduction of 609 movements when compared with the Development's EIA Report. The reduction in HGV movement is due to the reduction in access track length and hardstanding areas requiring a smaller volume of aggregate and electrical cabling to be imported to site. Although a reduction in the overall number of vehicle movements is anticipated, the number of movements in the peak month remains unchanged.

11.8 REVISED TRAFFIC GENERATION

Referring to the overall construction programme in SEI Appendix A11.1 it can be seen that the peak increase in traffic flow remains as reported in the Development's EIA Report i.e. during months 6-8. During the peak months, compared to the baseline conditions the anticipated increase in traffic is estimated to be 90 additional vehicle movements per day, consisting of 38 HGV movements and 51 car/van movements. Table 11.9 indicates the revised (SEI) percentage in traffic expected at each location within the study.

Table 11.9: Predicted Average Daily Traffic - Peak Month (Revised Assessment)

Location	Total Vehicles			HGVs		
	2025 Baseline	Peak Month	% Increase	2025 Baseline	Peak Month	% Increase
1	7,639	7,728	1.2%	675	713	5.6%
2	822	911	10.8%	274	312	13.9%
3	356	445	25.1%	138	176	27.5%
4	386	476	23.1%	129	167	29.5%

In terms of the Development's EIA Report, the conclusion of paragraph **11.5.11.1**, remains the same for the Revised Development as this only refers to HGV traffic. The conclusion of paragraph **11.5.11.2** also remains the same, and although the impact of general traffic increases to 25.1%, as a result of discrepancies in the EIA report, it is still less than the 30% assessment threshold. Therefore, no change to the effects detailed in the Development's EIA Report would occur and no further assessment is warranted.

11.9 OPERATIONAL EFFECTS

No changes to operational effects in relation to traffic and transport are anticipated.

11.10 MITIGATION AND RESIDUAL EFFECTS

As no change in effects is predicted, mitigation will be as detailed in Section 11.6.1 of the Development's EIA Report.

11.11 CUMULATIVE EFFECT ASSESSMENT

The cumulative effect assessment has been updated to reflect the current known nearby developments. Table 11.10 provides daily traffic generation figures that have been obtained from the EIA Reports for each of the identified developments.

Table 11.10: Cumulative Daily Traffic Movements from Identified Developments (Peak Month)

Development	No. Turbines	Total Traffic	HGV
Cloiche	36	105	18
Aberarder	12	123	40
Glenshero	39	159	67
Dell	14	54	18
Red John	N/A	35	8
Total		476	151

The cumulative traffic associated with the identified developments will primarily result due to the import of materials and from staff movements. For the purposes of this assessment, it has been assumed that all traffic will use each road within the Study Area.

Table 11. indicates the anticipated total traffic and the percentage increase above baseline in the worst-case cumulative scenario.

Table 11.11: Cumulative Daily Traffic Increase (Peak Month)

Location	Total Vehicles			HGVs		
	2025 Baseline	Peak Month	% Increase	2025 Baseline	Peak Month	% Increase
1	7,639	8115	6.2%	675	826	22.4%
2	822	1298	57.9%	274	425	55.2%
3	356	832	133.8%	138	289	109.1%
4	386	862	123.2%	129	280	116.9%

As indicated in Table 11. the addition of all construction traffic from the identified cumulative developments results in a worst-case increase of 133.8% at Location Reference 3, for overall flow, over baseline flow. This is lower than identified in the Development's EIA Report where a 172.4% increase in flow was predicted at Location Reference 3.

The likelihood of all of the identified developments is scheduled to be constructed simultaneously is low. Should that scenario occur, it is assumed that the respective Traffic Management Plans would be agreed in consultation and will detail any measures required

to avoid conflict between peak construction periods. For these reasons the likely impact is expected to be significantly lower than stated in Table 11..

The impact on traffic and transport due to cumulative effects is therefore considered to be low and not significant. This does not differ from the Development's EIA Report.

11.12 SUMMARY

The Revised Development would result in a reduced total number of HGV traffic movements but with an increase in the total number of general construction traffic through construction of the Development. It is noted that, this increase in general construction traffic does not exceed the relevant thresholds of significance throughout construction along the proposed construction route. Therefore, the assessed effect on routes is unchanged from the Development's EIA Report including in relation to pedestrian amenity, additionally it should be noted that the proposed mitigation measures remain extant; all residual effects are anticipated to be low or negligible and not significant, and no further assessment is warranted.

11.13 STATEMENT OF SIGNIFICANCE

No change from the Development's EIA Report has been identified for the Revised Development, and the proposed mitigation from the EIA Report remains extant and all residual effects are not significant.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 12
Hydrology and Hydrogeology



12 HYDROLOGY AND HYDROGEOLOGY

12.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) addresses the potential effects on hydrological receptors due to the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter supplements **Chapter 12: Hydrology and Hydrogeology** of the Environmental Impact Assessment Report (EIA Report) which should be read in conjunction with this Chapter. This assessment was undertaken by Arcus Consultancy Services Ltd.

This Chapter of the SEI Report is supported by the following Figures provided in Volume 2: Report Figures:

- Figure 12.1: Hydrological Study Areas;
- Figure 12.2: Hydrological Catchments;
- Figure 12.3: Watercourse Crossings; and
- Figure 12.4: Private Water Supplies.

This Chapter of the SEI Report is supported by the following Technical Appendix document provided in SEI Volume 3: Technical Appendices:

- A12.1: Updated Water Construction Environmental Management Plan.

This Chapter of the SEI Report is also supported by the following Technical Appendix document provided in the original EIA submission EIA Volume 3: Technical Appendices:

- A12.2: Private Water Supply Risk Assessment.

The information provided in A12.2 was deemed to be relevant and applicable despite the layout and infrastructure changes.

12.2 KEY CONCLUSIONS OF THE EIA REPORT

The EIA Report chapter has assessed the likely significance of effects of the Development on hydrology and hydrogeology. The Development has been assessed as having the potential to result in effects of negligible significance.

12.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

The following guidance, legislation and information sources have been updated since the EIA Report submission in January 2021:

- The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021 (the CAR Regulations)¹;
- SEPA (2022), CAR - A Practical Guide, Version 9²;
- The Scottish Government (2019), The Conservation (Natural Habitats, & c.) Amendment (Scotland) Regulations 2019³;
- Update in pollution prevention guidelines GPP21: Pollution incident response planning⁴; and
- SEPA (2020) GPP 1: Understanding your environmental responsibilities – good environmental practices⁵; and
- SEPA (2021), River Basin Management Plan⁶.

12.4 METHODOLOGY AND APPROACH

The assessment methodology used within this SEI is unchanged from Chapter 12: Hydrology and Hydrogeology of the original EIA report. Certain receptors may be scoped out of further assessment based on the findings of the previous EIA. This will be stated in the appropriate sections if required.

12.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from Highland Council Environmental Health, SEPA and Scottish Water. A summary of their responses with respect to hydrology and hydrogeology and how these responses have been dealt with are summarised in Table 12.1 below.

Table 12.1 Post Application Consultation Responses

Consultee	Summary of Consultation Response	Response to Consultee
Highland Council Environmental Health (10/03/2021)	Expression of expectation to carry out mitigation measures detailed in EIA report for Private Water Supplies (PWS).	It is confirmed that the mitigation measures as detailed in the EIA report TA12.1 Water Construction Environmental Management Plan will be implemented for the Revised Development.
SEPA (12/08/2021)	SEPA request that the track length and number of watercourse crossings be reduced. Objection to the quantity of peatland excavated.	Following further consultation with SEPA, track lengths, turbine numbers and positions were discussed and revised as outlined in Chapter 4: Development Description. Following the SEPA request, the track length and number of watercourse crossings have been reduced. Figure 12.3 shows the reduced number and locations of watercourse crossings.
Scottish Water (28/02/2021)	Scottish Water has no objections but cautions that the Development	Noted that the Revised Development is located within a

1 SEPA (2022) The Water Environment (Controlled Activities) (Scotland) Amendment regulations 2021 [Online] Available at:

<https://www.legislation.gov.uk/ssi/2021/412/body/made> (Accessed 07/02/2022)

2 SEPA (2022) The CAR Practical Guide, Version 9. Available at: https://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf Accessed on: 07/02/2022

3 The Scottish Government (2019), The Conservation (Natural Habitats, & c.) Amendment (Scotland) Regulations 2019 [Online] Available at:

<https://www.legislation.gov.uk/sdsi/2019/9780111041062> (Accessed 07/02/2022).

4 SEPA (2021) GPP21: Pollution incident response planning [online] Available at: <https://www.netregs.org.uk/media/1436/gpp-21-final.pdf> (Accessed 07/02/2022).

5 SEPA (2020) GPP 1: Understanding your environmental responsibilities – good environmental practices [Online] Available at:

<https://www.netregs.org.uk/media/1835/gpp-1.pdf> (Accessed 07/02/2022).

6 SEPA (2021) River Basin Management Plan. Available at: <https://www.sepa.org.uk/environment/water/river-basin-management-planning/> [Available online] Accessed: 07/02/2022

Consultee	Summary of Consultation Response	Response to Consultee
	is within a Drinking Water Protected Area (DWPA)	DWPA as assessed and summarised in Section Error! Reference source not found..1
Fisheries	No comment was provided by the Ness & Beaully Fisheries Trust	No comment noted.

12.6 BASELINE REVIEW

The Site studied for hydrological receptors is the same as within the previous EIA Report.

There have been no changes to baseline published mapping and sources referred to in the EIA report. There have been no further Site walkovers undertaken following the EIA Report, including consultation and visits to Private Water Supplies. No further baseline Site visits have been undertaken to update NVC communities and therefore GWDTEs. No further consultation has been undertaken with Scottish Water regarding public water assets.

Therefore, there have been no changes to the baseline conditions presented in the 2019 EIA Report.

12.7 ASSESSMENT OF POTENTIAL EFFECTS

The effect of the Revised Development on hydrological receptors has been considered for the construction, operation and decommissioning phases of the Revised Development. Effects occurring during construction and decommissioning are short term effects, with those occurring as a result of the operational phase of the Revised Development being considered as long-term effects.

12.7.1 Construction Effects

The nature and magnitude of effects that could result from construction activities, as described in **Chapter 4: Development Description** are assessed in the following paragraphs, which includes construction of new access tracks, wind turbines and associated infrastructure, hardstanding, and temporary construction compounds and borrow pits. Amendments to form the Revised Development layout as detailed in Section 12.1 includes:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14;
- Relocation of eight turbines (T1, T2, T8, T9, T11, T13, T14, T15), and adjustments to turbine crane hardstanding's and access tracks;
- Relocation ancillary infrastructure, including borrow pit & substation compound.

The changes to Site layout have improved impacts on hydrological receptors in comparison to the EIA layout. This includes removal of turbines and reduction in track length and watercourse crossings.

12.7.1.1 Chemical Pollution

While there are alterations to the layout of infrastructure footprint proposed for the Revised Development when compared to the Development, the potential for chemical pollution remains the same as stated within the EIA report. The mitigation and design measures discussed within the EIA report and WCEMP mean that there will be no change to the significance previously stated and therefore is '**not significant**'.

12.7.1.2 Erosion and Sedimentation

As there will be a reduction in the number of turbines, borrow pits and length of access track utilised, the risk for erosion and sedimentation will only lessen in magnitude.

Therefore, the significance will not change from '**not significant**' in terms of the EIA regulations.

127.13 Impediments to Flow

Due to the relocation of T1, the previously proposed new watercourse crossing which may have required a bridge structure is no longer required.

The reduction in the number of watercourse crossings from eight to four and the reduction in the overall length of access track utilised lessens the risk of impediments to flow. However, as there are still risks from impediments to flow due to the presence of watercourse crossings, there will be no change and remains '**not significant**'.

127.14 Increased Run-off and Flood Risk

The presence of areas of hardstanding within the Site will likely increase surface water run-off. However, due to the revisions to the Site layout for the Revised Development including infrastructure and number of watercourse crossings, there is a reduced area of hardstanding proposed across the Site. This results in a reduction of increased run-off compared to the EIA Report findings. As stated in the previous EIA report, embedded mitigation will ensure watercourses are at least 50 m from turbine bases.

The area and percentage of new access tracks within relevant catchments can be found in Table 12.2.

Table 12.2: New Access Tracks in Catchments

Watercourse	Area of new tracks within catchment (m²)	Total catchment (m²)	% of catchment
Allt a' Ghille Charaich	18,066.02	3,895,910	0.46
Allt Bad Fionnaich	10,820.73	3,720,993	0.29
River E (upper)	36,718.85	7,224,727	0.51

As shown in Table 12.3, new access tracks will only be constructed in three catchments as opposed to five in the EIA Report and the percentage of new access track within each catchment is small based on the magnitude criteria outlined in Table 12.3 of the EIA Report. There has been a reduction in percentage of the Allt Bad Fionnaich catchment, however, increases in the other catchments. Therefore, the magnitude of change is considered to be negligible and the significance is '**not significant**'.

127.15 Effects on Groundwater Dependent Terrestrial Ecosystem (GWDTE)

As stated in the previous EIA report, there are small mosaics of M10a and M32b that were found to be of high or moderate dependency around the Site. The locations of these GWDTEs have not changed, only the layout proposed for the Revised Development.

Due to the removal and relocation of turbines, there are now no moderate or high dependency GWDTEs within 100 m of the Revised Development infrastructure. However, some communities still lie within the 250 m buffer area, as shown on Figure 7.2.

- A moderate dependency M10a habitat and high dependency M32b habitat are found 50 m from an existing access track and turbines for the Original Corriegarth Wind Farm, however no direct loss of habitats will occur.
- Two moderate dependency communities of M32b are located 218 m and 236 m north of T15. Given that the GWDTE communities are located upslope of the proposed construction works, the extent of indirect effects is likely to be limited.
- One moderate dependency community of M32b is located approximately 223 m north of the new access track to T8, as such there will be no direct or indirect loss.

- A GWDTE community of high dependency M10a habitat lies approximately 200 m south of the new access track leading to T8, therefore there will be no direct or indirect loss.

As no area of GWDTE will be directly lost as a result of infrastructure, the direct hydrological effects will equate to a minimal detectable effect of a GWDTE or no discernible effect on its integrity as a feature or its functionality. Therefore, the magnitude of loss will result in a negligible effect. Due to the medium sensitivity of this receptor and the negligible magnitude of effect, the resulting significance of effect remains unchanged and is stated to be '**not significant**'.

12.7.1.6 Effects on Public Water Supplies

Previous assessment has shown that while the Revised Development is situated within the Loch Ness Drinking Water catchment, there is no change in potential effects on both public and private water supplies compared to those reported in the EIA report.

Whilst the assessment shows water supplies classed as being hydrologically connected. However, mitigation measures will still be put in place and the percentage of hardstanding within the drinking water catchment has been reduced due to the revised layout. Therefore, the significance will not change from '**not significant**'.

12.7.1.7 Effects on Private Water Supplies

12.7.2 Operational Effects

As discussed in Chapter 12 of the EIA, potential operational effects include increased run-off rates and volume, erosion and sedimentation, alterations to natural flow pathways and risk of minor pollution from maintenance vehicle spills. These effects have not been deemed to change and due to good practice during construction and appropriate mitigation measures, the state of significance remains the same and is therefore '**not significant**'.

12.7.3 Potential Decommissioning Effects

The effects of decommissioning would be no different than those stated within the previous EIA report, also meaning that the significance would not change and is therefore '**not significant**'.

12.8 MITIGATION AND RESIDUAL EFFECTS

The embedded mitigation measures within the WCEMP remain the same. The WCEMP has only been updated to reflect changes in number of watercourse crossings and the areas of new hardstanding as percentage of catchments. No residual effects are predicted for all phases of the Revised Development, and are therefore '**not significant**' in terms of the EIA Regulations.

12.9 CUMULATIVE EFFECT ASSESSMENT

A cumulative effect is an additional effect on hydrological resources arising from the Revised Development in combination with other proposed developments (either under construction, consented but not built (operational) or at application stage) likely to affect the hydrological environment. At distances greater than 10 km, it is considered that schemes are unlikely to contribute to a cumulative hydrological effect due to attenuation and dilution over distance of potentially polluting chemicals. Therefore, for the purposes of the assessment of potential cumulative effects on the immediate catchment and hydrological regime, only consented and developments in planning within approximately 10 km of the Revised Development have been considered. These developments have been updated through consultation with the relevant local authorities and statutory

consultees, as outlined in Chapter 6: Landscape and Visual Amenity of the SEI. The methodology followed to assess the cumulative effects is the same as that used for the Revised Development in isolation.

12.9.1 Cumulative Developments within 10 km

Cumulative developments identified within 10 km of the Revised Development are outlined in Table 12.3.

Table 12.3 Cumulative Developments within 10 km

Development	Development Stage	Hydrologically Connected
Aberarder Wind Farm	Consented ⁷	Loch Ness catchment
Dell Wind Farm	Consented ⁸	River Foyers catchment
Cloiche Wind Farm	Application submitted	River Foyers catchment

12.9.2 Predicted Cumulative Effects

The greatest potential for cumulative effects arises when the construction phase of another development overlaps with the construction phase of the Revised 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.*).

The Revised Development, Dell Wind Farm, Aberarder Wind Farm and Cloiche Wind Farm are all located within the Loch Ness catchment. Furthermore, the Revised Development and Cloiche Wind Farm and Dell Wind Farm are all situated within the River Foyers catchment. The date of construction phases for these wind farms are unknown which means there is potential for the construction phases to coincide. Given their respective locations, the primary cumulative impact is likely to be an increase in flow rates associated with increased run-off from new hardstanding areas of the two wind farm developments.

12.9.3 Construction Phase

The increase in flow rates is of negligible magnitude for the Revised Development. According to the cumulative applications submitted, CEMPs have been committed to being developed with appropriate water management and mitigation measures to be implemented during construction at Dell Wind Farm, Cloiche Wind Farm and Aberarder Wind Farm. These will be similar to those described in the WCEMP for the Revised Development, including a requirement for a Construction Site Licence, as these are in line with standard practice as required by SEPA. Given this, the magnitude of cumulative impacts during the construction phase will be negligible and, therefore, of negligible significance. This is **'not significant'** in terms of the EIA Regulations.

12.9.4 Operational Phase

It is anticipated that there will be a minor reduction in the potential for increase in flow rates during the operational phase of all wind farm developments, when compared to the construction phase, due to the reduction in overall hardstanding areas post-construction.

⁷ A scoping request for a revised proposal comprising 12 wind turbines at 149.9m blade tip height was submitted to the Highland Council in September 2021 (THC reference: 21/04400/SCOP). However, given the early stage and associated uncertainty of this proposal, the previously consented application is considered within the cumulative assessment.

⁸ A scoping request for a revised proposal comprising 12 wind turbines at 180m blade tip height was submitted to the ECU in November 2020 (ECU reference: ECU00002179). However, given the early stage and associated uncertainty of this proposal, the previously consented application is considered within the cumulative assessment.

Therefore, the magnitude of cumulative effects during the operational phase will be negligible, and the significance of these effects will also be negligible, being '**not significant**' in terms of the EIA Regulations.

12.10 SUMMARY

The alterations to the layout do not significantly alter the impact of the potential risks to receptors during the construction phase or operational phase.

There are two other consented wind farms within 10 km of the Revised Development, of which both are situated within the same catchment. Should the construction phases coincide, the cumulative effects will be negligible given the mitigation measures put in place and the assumed mitigation measures of the other developments.

12.11 STATEMENT OF SIGNIFICANCE

The above assessment has resulted in no changes to the significance of the Revised Development in terms of hydrology and hydrogeology. Potential effect on hydrology and hydrogeology as result of the Development therefore remains '**not significant**'.

12.11.1 NTS Input

All turbine infrastructure associated with the Revised Development is located within the catchments of the River E and River Foyers.

All turbine infrastructure is located outwith areas identified as medium to high risk of flooding from all sources. Only the existing access track to the currently operational wind farm is located on a small flood plain.

The Revised Development lies within a designated Drinking Water Protected Area (DWPA) under the Water Framework Directive associated with the Loch Ness and Invermoriston catchments.

Consultation with Highland Council confirmed that there are three PWS within 2 km of the Development boundary. Two more PWS were identified during the assessment outlined within the EIA report. Considering whether these PWS were hydrologically or hydrogeologically connected to the Development, three of the PWS were scoped into the Private Water Supply Risk assessment. These are Corriegarth Lodge and Keepers Cottage, Garthbeg Farm and Garthbeg Bungalow.

No statutory designations are hydrologically connected to the Revised Development.

Embedded good construction practice provided in the Outline Water and Construction Environmental Management Plan (WCEMP) and a 50 m buffer of surface watercourses will limit the potential for significant effects on the hydrological environment.

All effects have been assessed as negligible or minor and are '**not significant**' in terms of the EIA Regulations.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 13
Geology and Peat



13 GEOLOGY AND PEAT

13.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Revised Development on the Geology and Peat resource due to the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter supplements **Chapter 13: Geology and Soils** of the EIA Report which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the following Technical Appendix documents provided in Volume 3: Technical Appendices:

- Appendix 13.1: Peat Slide Risk Assessment (PSRA); and
- Appendix 13.2: Outline Peat Management Plan;

This Chapter of the SEI Report is also supported by the following figures in Volume 2: Figures:

- Figure 13.1: Superficial Soils;
- Figure 13.2: Bedrock Geology;
- Figure 13.3: National Soils of Scotland;
- Figure 13.4: Extract from Carbon and Peatland 2016; and
- Figure 13.5: Interpolated Peat Depths.

13.2 KEY CONCLUSIONS OF THE EIA REPORT

The assessment for the Development was based on a desk study, site surveys, and consultation with the SEPA. Embedded design mitigation measures to reduce effects upon peat consisted of maximising use of existing access tracks and avoiding sensitive environmental constraints, minimising the number of watercourse crossings and reducing the total length of new track.

Peat was identified as a sensitive receptor within the Site with average depths across the Site of 1.2 m. As such one of the key design objectives was to ensure that no turbines were located in areas where peat depths were greater than 1.5 m of peat, six turbines are in less than 1 m of peat and ten between 1-1.5 m of peat. The assessment also analysed the risk of peat slide with several areas across the site assessed as being moderate risk, in particular at turbines and associated crane hardstand areas T2, T4, T6, T7, T8, T9, T12, T13, T14 and T16 and track sections.

In the absence of mitigation, significant effects were identified in the disturbance of peat and peaty soils and in peat stability.

Construction mitigation will allow for the micro-siting of infrastructure up to 50 m should it be required to avoid pockets of deep peat. The adoption of best practice for storage and re-use up 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 should ensure there are no significant residual effects from the Development on Geology, Soils and Peat.

13.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

There have been no changes to legislation, policy or guidance with respect to Geology and Peat since the EIA Report was prepared in December 2019. The revised assessment methodology has however been revised to bring it in line with current guidance as the original chapter was carried out in accordance with a now superseded methodology.

13.4 METHODOLOGY AND APPROACH

The assessment methodology differs slightly from that used in the EIA, in terms of significance of effects. For the purposes of the SEI, the receptor sensitivity will have a five-tier approach ranging from Negligible to Very High (Negligible-Low-Medium-High-Very High) this was previously assessed in the EIA as a three-tier Low, Medium and High ranking.

Magnitude will be assessed as four-tier magnitude of change ranging from Negligible to High (Negligible-Low-Medium-High) this was previously assessed in the EIA as a four-tier ranking ranging from Low to Major (Negligible-Minor-Moderate-Major). The following sections and Tables 13.1 to 13.3 presents the revised Receptor Sensitivity, Magnitude of Change and Significance of Effects criteria and framework.

13.4.1.1 Sensitivity of Receptors

The sensitivity of the receiving environment is defined as its ability to absorb an effect without perceptible change and can be classified as high, medium or low. These classifications are dependent on factors such as the nature and extent of peat, associated habitats, and soil characteristics as well as the Site geology and their purpose and existing influences, such as land-use.

Table 13.1 provides an overview of the different categories of sensitivity that are used within this Chapter to inform the assessment of effects on existing geology and peat, identifying whether the effects would be significant under EIA Regulations.

Table 13.1: Receptor Sensitivity Criteria

Sensitivity of Receptor	Definition
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.
High	- Soil type and associated land use are highly sensitive (e.g. peat/blanket bog); - Class 1 or 2 priority peatland, carbon-rich and peaty soils cover >20% of the development area; - Areas containing geological or geomorphological features considered to be of national importance (e.g. geological SSSIs); and - Receptor contains areas of regionally important economic mineral deposits.
Medium	- Soil type and associated land use are moderately sensitive (e.g. commercial forestry); - Class 1 or 2 priority peatland, carbon-rich and peaty soils cover <20% of the Development Area; - Class 3 and 5 peatland areas, carbon rich and peaty soils; - Receptor contains areas of locally important economic mineral deposits; and - Areas containing geological features of designated regional importance including Regionally Important Geological/geomorphological Sites (RIGS), considered worthy of protection for their historic or aesthetic importance.
Low	- Geological features or geology not protected and not considered worthy of specific protection. - Soil type and associated land use not sensitive to change in hydrological regime (e.g. intensive grazing); and - Receptor contains Class -2, -1, 0, and 4 non-peatland areas, with no carbon-rich and/or peaty soils.
Negligible	The receptor is resistant to change and is of little environmental value.

13.4.1.2 Magnitude of Change

The magnitude is determined by the timing, scale, size and duration of the potential effect resulting from the Development. The magnitude of potential change can be classified as major, moderate, minor or negligible as outlined in Table 13.2.

Table 13.2: Magnitude of Change Criteria

Magnitude of Change	Definition
High	- Major or total loss of or alteration to peatland resource such that post development characteristics or quality will be fundamentally or irreversibly changed; - Catastrophic failure of site infrastructure due to ground instability; - Long term/permanent change to baseline resource; and - Major or total loss of a geological site or mineral deposit, where the value of the site would be severely affected.
Medium	- Loss of, or alteration to the baseline resource such that post development characteristics or quality will be partially changed; - Ground failure that requires remediation but does not cause catastrophic failure of site infrastructure; - Mid-term/permanent change to baseline resource; and - Partial loss of a geological site or mineral deposit, with major effects to the settings, or where the value of the site would be affected.
Low	- Small loss of soils or peatland, or where soils will be disturbed but the value not impacted; - Ground settlement/subsidence that does not adversely affect site infrastructure or require remedial action; - Short-term change to baseline resource; and - Small effect on a geological site or mineral deposit, such that the value of the site would not be affected.

Magnitude of Change	Definition
Negligible	- Minimal or no change to soils or peatland deposits; - Minimal or no change to ground stability; - A very slight change from the baseline conditions. The change is barely distinguishable, and approximates to the 'no-change' situation; and - Minimal or no change to a geological site or mineral deposit.

13.4.1.3 Significance of Effect

The sensitivity of the asset and the magnitude of the predicted effects will be used as a guide, in addition to professional judgement, to predict the significance of the likely effects. Table 13.3 summarises guideline criteria for assessing the significance of effects.

Table 13.3: Framework for Assessment of the Significance of Effects

Magnitude of Change	Sensitivity of Resource or Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

Effects predicted to be of major or moderate significance are 'significant' in the context of the EIA Regulations, and are shaded in light grey in the above table.

13.5 CONSULTATION

Consultation responses were received after submission of the EIA Report from SEPA, and Ironside Farrar. A summary of their responses with respect to geology and peat and how these responses have been dealt with are summarised in Table 13.4 below. Additional consultation also took place with SEPA throughout the SEI Site Layout Design evolution, as summarised below.

Table 13.4 Post Application Consultation Responses

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
SEPA, August 2021.	Response to EIA Submission	SEPA stated that the site design submitted requires additional justification as to why the layout represents an acceptable environmental solution and it must be clearly demonstrated that every effort has been taken to minimise peat disturbance and carbon loss. We therefore object to the proposed application as it has not been adequately demonstrated that the disturbance of peat has been minimised through siting and design, as is required by paragraph 205 of Scottish Planning Policy and Policy 55 of the Highland Wide Local Development Plan. The layout should be amended in line with our previous advice, or in other ways which would reduce	Major design changes have been made in order to minimise the disturbance of peat on site. This is clearly demonstrated through the series of changes made during the SEPA consultation process and following additional peat probing on site. This process has resulted in the

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
		peat disturbance.	amended site design i.e. removal of 2 turbines, relocation of 8 turbines into areas of shallower peat and the redesign of the access road layout to use, wherever possible, existing tracks. This revised layout has been assessed and as set out in this SEI chapter and associated Technical Assessments. Further information on the site layout design is included in Chapter 3 – Site Selection and Design, and Technical Appendices A13.1 PSRA, and A13.2 oPMP.
SEPA, January 2022	Response to SEI Consultation	We have compared the previous and revised figures provided in the 'Peat and Borrow Excavations and Re-Use Calculations' to assess how much peat disturbance reduction is a result of the omitted turbines and how much is a result of the overall changes to the layout. A simple comparison appears to indicate that, excluding the removal of T10 and T12, the revised layout results in a reduction of approximately 20,840m³ with regards to the turbine construction and 106,135m³ with regards to the tracks. As such, most of the reduction can be attributed to the increase in the length of floating track proposed. We are content that its clear with nearly all the turbines that measures have been taken to reduce peat disturbance however we note that the new location of Turbine 13 requires the excavation of almost 15,000m³ of peat, 11,000m³ of which is catotelmic. This is almost three times the volume of catotelmic peat than previously for T13 and higher than required for any other turbine. We understand that there were other constraints which meant the removal of some of the turbines from the initial layout which has led to the revised location of T13. However, we don't think that the impacts on peat have been shown to be minimised for this turbine	Further peat probing was carried out in January 2022 around turbine 13 to establish whether a preferable location could be identified. This probing work identified the new proposed T13 location which leads to a reduction in excavated peat from 15,000 m³ to 7,350 m³.

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
		and we are unfortunately unlikely to be able to accept the current location of T13 as we do not consider this change to the layout to be an improvement. We would therefore encourage you to find an alternative location for it now, prior to the formal submission of the information. We would be very happy to provide further advice on any alternative locations you may like to discuss. It is noted that at our meeting in December you mentioned the reason for the omission of Turbine 10 from the initial layout plan was due to Landscape and Visual constraints, however with regards to peat, this appears to be a better environmental option than the newly proposed T13 as it is located on peat depths of less than 1m and would likely require a shorter section of track. If it were possible to reinstate T10 instead of the addition of T13 this would be a great improvement and a further reduction of approximately 7,400m³ of peat disturbance. We acknowledge that through detail design opportunities and micro-siting there are likely to be further opportunities to reduce the impacts on peat. As any benefits achieved at that stage will be at a smaller scale than the reductions which could be made through changes to the site layout, we would recommend that avoidance and minimisation of the impacts on peat are further explored at this stage.	
Ironside Farrar		Recommendations requiring response from Developer: While the desk study is generally considered consistent with a level required to satisfy the guidance some potential sources of information have potentially been overlooked. These sources include but are not limited to; information obtained during the construction and operational phase of the existing windfarm, local knowledge from landowners / land managers, historical mapping, newspaper articles etc. Please provide comment on whether these resources have been considered and update the desk study to reflect their findings where necessary. Probing of borrow pits, construction compounds, substations etc should have been undertaken in detail during the investigation. Please provide details of the probing beneath such infrastructure or justification for the lack of probing in such areas.	This SEI chapter and associated Technical Assessments includes updated PSRA in relation to the revised development layout. Within the PSRA, the points raised during the Stage 1 checking report has been addressed.

Consultee	Type of Response	Summary of Consultation Response	Response to Consultee
		Includes the section of track between T8 and T9 where probing is not on the track itself. Section 4.7 of the PLHRA lists six contributory factors that would typically be considered: peat depth, slope angle, historical instability, substrate material, vegetation cover and hydrology. Please provide some clarification as to why only 3 factors from the identified six were carried forward to the assessment. The mitigation provided in Table 13 is considered generic and not specifically targeted to the risks identified in the risk assessment. Further detail / clarification of practices is required particularly in the case of medium risk zones in order to satisfy the ECUBPG.	
	Response to EIA Submission – Stage 2 (in response to Arcus Stage 1 clarifications)	Recommendations requiring response from Developer: Further clarity is sought in the definition of medium risk areas displayed in figure 13.1.9, are these medium risk areas extrapolated from smaller pockets of medium risk to display a worst case scenario? If so, more specific mitigation should be provided for infrastructure specific locations in order to satisfy the guidance (see table 5.4). Targeted mitigation may involve a microsite plan overlayed on peat depth or infrastructure specific descriptions defining mitigation procedures. Several pieces of information have been provided in the Arcus response to the IFL Stage 1 Checking Report. Such information could usefully be included in future Arcus PLHRA reports, potentially negating the need for a stage 2 checking process.	This SEI chapter and associated Technical Assessments includes updated PSRA in relation to the revised development layout. Within the PSRA, the points raised during the Stage 2 checking report have been addressed.

13.6 BASELINE REVIEW

The Core Study Area is the same as stated within Chapter 13 of the EIA Report.

There have been no changes to land use and no changes to the baseline published mapping referred to in the EIA report, and therefore no changes to the Baseline Conditions presented in Section 9.5 of the 2019 EIA Report.

Additional field surveys were undertaken to target the revised layout changes proposed, and including areas proposed for Habitat Management. In total (including the EIA probing) 5390 probes were sunk. The peat probe locations and peat depth interpolation are shown in Figure 13.5 and further details on the peat probing is included in Appendix 13.2. Table 13.5 summarises the peat depth findings of both EIA and SEI.

Table 13.5: Comparative Peat Depth Summary

EIA Peat Depth Summary			SEI Peat Depth Summary (inc EIA probes)		
Peat Depth Range (m)	Number of peat probes	Percentage of Total (%)	Peat Depth Range (m)	Number of peat probes	Percentage of Total (%)
<0.50	453	13.4	<0.50	742	15.5
0.51 - 1.00	1072	31.7	0.51 - 1.00	1471	30.7
1.01 - 1.50	799	23.6	1.01 - 1.50	1108	23.1
1.51 - 2.00	764	22.6	1.51 - 2.00	1040	21.7
2.01 - 2.50	195	5.8	2.01 - 2.50	299	6.2
2.51 - 3.00	79	2.3	2.51 - 3.00	105	2.2
3.01 – 3.50	6	0.2	3.01 – 3.50	10	0.2
3.51 – 4.00	10	0.3	3.51 – 4.00	13	0.3
4.01 – 4.50	1	<0.1	4.01 – 4.50	2	<0.1
4.51 – 5.00	0	<0.1	4.51 – 5.00	0	<0.1
5.01 – 5.50	1	<0.1	5.01 – 5.50	1	<0.1
TOTAL	3380	-	TOTAL	4791	-

The average peat depth recorded was found to be just less than 1.2m, with 15.5% less than 0.5 m and over 46 % less than 1.0 m. Peat depths extending greater than 1.0 m were recorded in 56% of probes.

13.7 ASSESSMENT OF POTENTIAL EFFECTS

13.7.1 Overview

As detailed in Chapter 1 of the SEI, the updated layout includes:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14;
- Relocation of eight turbines (T1, T2, T8, T9, T11, T13, T14, T15), and adjustments to turbine crane hardstanding's and access tracks;
- Relocation ancillary infrastructure, including borrow pit & substation compound.

The changes to the site layout have significantly improved the impacts on peat in comparison to the EIA layout. The two key factors influencing the design changes were limiting the visual impacts and positioning the revised turbines in areas of shallow peat. Turbine removal and a redesign of the track use has resulted in a significant reduction in new track lengths, from 10km to 6km. Further optimisation of the preliminary design has been developed to ensure infrastructure has minimal impact on the existing peat.

13.7.2 Construction Effects

13.7.2.1 Peat Disturbance

The Revised Development includes the removal of two turbines (T10 and T12) and relocation of T1, T2, T8, T9, T11, T13, T14, T15 to areas of shallower peat to limit peat disturbance. In addition, the length of new tracks has been reduced due to a concerted

effort to utilise the existing track network and adopting short spurs to the revised turbine locations.

Including a 10% bulking factor applied to the calculations, the reduction in peat requiring excavation is approximately 172,500 m³. A summary of disturbance reduction is outlined in SEI Table 13.3.

SEI Table 13.3: Comparison of Peat Disturbance

EIA Report – Estimated Peat Excavation Vol (m³)	SEI – Estimated Peat Excavation Vol (m³)
355,284	182,800

As a number of turbine locations were unchanged in the Revised Development, peat disturbance at these locations remains largely the same or marginally due to design optimisation to reduce the footprint impacting on the peat. The Revised Development design has sought to reduce disturbance to the peat and carbon rich soils through a reduction in the overall footprint and track length (an overall footprint of new infrastructure of approximately 23 Ha compared with the EIA application where the new infrastructure had a footprint of almost 31 Ha), and also by reducing impacts on the deep peat by turbine re-location.

While carbon and peatland mapping indicate the presence of mainly Class 1 and Class 4 soils within the main body of the site, it is important to note that the area is extensively hagged and the Ecology habitat surveys recorded limited blanket bog conditions (See EIA Chapter 7: Ecology) and Photographs 13.1 to 13.4 below.

Photograph 13.1 and 13.2 – Peat Hagg, Exposed Peat and Bare Areas



Photograph 13.3 and 13.4 – Peat Hagg, Localised Slip and Exposed Peat



The disturbance to peat and existing Class 1 and 4 peatlands (see Table 13.1) is classified as High receptor sensitivity whereby 'class 1 or 2 priority peatland, carbon-rich and peaty soils cover >20% of the Development Area'. The magnitude of change is classified as medium whereby the loss of, or alteration to the baseline resource is such that post development characteristics or quality will be partially changed.

On this basis, in the absence of mitigation, the Revised Development is considered to result in a moderate effect and therefore significant in terms of the EIA Regulations. This remains consistent with the EIA Report.

13.7.2.2 Peat Instability

The Revised Development includes the removal of two turbines (T10 and T12) and relocation of T1, T2, T8, T9, T11, T13, T14, T15 to areas of shallower peat to limit peat disturbance and in-turn peat instability.

However, the key changes to the design took place in the north, therefore T3 to T7 were unchanged in terms of turbine locations and associated tracks. These areas had previously been assessed as a Moderate risk for T3 – T6, and Low risk for T7, which remains the same. T16 was also unchanged.

The analysis of the Revised Development and subsequent peat slide risk assessment highlighted that the changes in the northern half of the site, involving re-location of T9, T11, T13, T14, and T15 largely presents low risk, although there was a localised location within the new track to T8 and T9 classified as moderate risk, a result of deep peat lying on slightly sloping ground in an area with proposed infrastructure and blanket bog present.

Compared with the EIA layout, there is a reduction in the number and extent of Moderate risk areas beneath the Revised Development in addition to an overall reduction in footprint, however the Moderate risk remains.

On this basis, the impact from peat slide on a receptor of High sensitivity, with a Medium level of magnitude of change results in a potential Moderate effect in the absence of

mitigation. Therefore, the Revised Development would be significant in accordance with the EIA regulations.

The outcome of the assessment is consistent with that of the EIA Report, and confirms the Revised Development presents no further risk in terms of peat instability, however a potential Moderate effect remains.

13.7.2.3 Loss and Compaction of Peat and Soils

The revised Development layout presents a reduced length of new tracks and two fewer turbines compared to the EIA application and therefore a reduced Development footprint. The significance of effects of Loss and Compaction of Peat and Soils remains consistent with that of the EIA Report, and confirms the Revised Development presents no further risk and therefore, not significant in accordance with the EIA Regulations.

13.7.3 Operational Effects

Peatland enhancement is proposed as part of the Habitat Management for the scheme which is likely to continue from construction phase into the operational phase. Details of the areas and techniques being proposed are included in Chapter 7: Ecology, and Technical Appendix A13.2 oPMP.

With adoption of best practice measures, there would be minimal or no impacts upon peat and soils during the operational phase, and significant effects are not anticipated.

On this basis, during operation, effects on the receptors during operational phase are classified as Medium sensitivity, with a negligible magnitude of change, therefore, the Development will result in a potential Negligible effect and not significant, in accordance with the EIA Regulations.

13.7.4 Decommissioning Effects

During decommissioning, the turbine foundation bases would be broken out to 0.5 m below ground level. All cables would be cut off below ground level, de-energised, and left in the ground. Access tracks would be left for use by the landowner if agreed. No stone would be removed from the Site. The decommissioning works are estimated to take six months.

This approach is less environmentally damaging than seeking to remove foundations, cables and roads entirely. It should be noted that the restored areas of peatland would be retained following decommissioning of the infrastructure.

Decommissioning activities would be less intrusive with infrastructure in place for access, meaning no or little requirement for further disturbance of peat, therefore no significant effects are anticipated.

On this basis, effects on the receptors during decommissioning phase is classified as Medium sensitivity, with a negligible magnitude of change, therefore, the Development will result in a potential Negligible effect and not significant, in accordance with the EIA Regulations.

13.8 MITIGATION AND RESIDUAL EFFECTS

No additional mitigation is proposed as a result of the Revised Development, although enhanced location specific mitigation measures are proposed in detail for peat slide risk and peat management, which supplements the mitigation measures proposed in Section 13.7 of the EIA Chapter (as well as Technical Appendix A12.1 - Outline Water and Construction Environmental Management Plan) of the EIA Report which remain valid and should be applied to the Revised Development.

The Revised Development results in a substantial reduction in disturbance of deep peat and Class 1 peatland in comparison to the EIA Report, particularly with the reduction of new tracks from 10km to 6km, and removal of two turbines. No additional mitigation is proposed to that of the mitigation measures outlined for peat disturbance in Table 13.6: Summary of Effects of the EIA Report and those set out in Technical Appendix 13.2 oPMP.

Following the implementation of mitigation, the magnitude of effects on peat disturbance can be reduced from moderate to minor, and are therefore not significant in accordance with the EIA Regulations. no residual effects are predicted for all phases of the Development, and are therefore not significant in terms of the EIA Regulations.

13.9 CUMULATIVE EFFECT ASSESSMENT

The EIA Report concludes that geology and peat are deemed as a site-specific matter and it is not considered that there will be cumulative effects. This remains valid and is therefore not significant in terms of the EIA Regulations.

13.10 SUMMARY

The Revised Development includes an overall reduction in footprint due to the removal of two turbines and re-location of eight turbines and a reduction in the length of new tracks. In addition, turbines and tracks have been moved to areas of thinner peat where possible. This has resulted in a reduction of peat disturbance in the region of approximately 172,500 m³ as well as a reduction in impact on Class 1 peatland due to reduction of new track length.

Excavated peat will be utilised in a peatland restoration programme to enhance the currently deteriorating peat areas as presented in **SEI Chapter 7: Ecology**.

Following the same mitigation measures as the EIA Report, and supplemented with the enhanced mitigation included in Technical Appendix A13.1 PSRA and Technical Appendix A13.2 oPMP, the residual effect is reduced to minor and not significant (as per the EIA Report). As a result, there is no significant effect on peat.

The relocation of turbines and associated infrastructure has resulted in the removal of one new watercourse crossing and remains not significant.

The Revised Development presents no change to the effects assessed in the EIA Report in terms of geology.

13.11 STATEMENT OF SIGNIFICANCE

The effects on geology and peat resources associated with the Revised Development are considered to be not significant.

This represents no change to the conclusions outlined in the EIA Report.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 14
Socio-Economics, Recreation and Tourism



14 SOCIO-ECONOMICS, RECREATION AND TOURISM

Chapter 14: Socio-Economics, Recreation and Tourism of the Environmental Impact Assessment (EIA) Report, submitted in January 2021 (Planning Reference: ECU00002175), does not require to be updated in light of revisions to the Development.

Chapter 14: Socio-Economics, Recreation and Tourism of the EIA Report concluded that the Development resulted in effects that were not significant in terms of the EIA Regulations.

As a result of the turbine numbers reducing from 16 to 14 as part of the Revised Development, it is considered by EIA assessors that the Revised Development will not introduce any significant effects within the resource of Socio-Economics, Recreation and Tourism.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 15
Climate Change and Carbon Balance



15 CLIMATE CHANGE AND CARBON BALANCE

15.1 INTRODUCTION

This Chapter of the Supplementary Environmental Information Report (SEI Report) evaluates the effects of the Revised Development on the climate change and carbon balance resource due to the changes made to the Application to install and operate a wind farm comprising 16 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years (Planning Reference: ECU00002175) ('the Development').

Corriegarth 2 Windfarm Ltd ('the Applicant') has revised the Development by:

- Removal of T10 & T12, therefore reducing the number of turbines from 16 to 14 turbines;
- Relocation of turbines (T1, T2, T5, T8, T9, T11, T13, T14, T15) and adjustments to turbine crane hardstandings and access tracks;
- Relocation ancillary infrastructure, including borrow pits & substation compound.

The Applicant now seeks to install and operate a wind farm comprising 14 wind turbines, with a generation capacity exceeding 50 megawatts (MW), and associated infrastructure, at a site within the Scottish Highlands for a period of 30 years ('the Revised Development').

This Chapter supplements **Chapter 15: Climate Change & Carbon Balance of the EIA Report** which should be read in conjunction with this chapter. This assessment was undertaken by Arcus Consultancy Services Limited (Arcus).

This Chapter of the SEI Report is supported by the following Technical Appendix documents provided in SEI Volume 3 Technical Appendices:

- SEI Technical Appendix A15.1: Updated Carbon Balance Calculations.

15.2 KEY CONCLUSIONS OF THE EIA REPORT

In summary, no significant effects to all receptors identified in **Chapter 15: Climate Change and Carbon Balance** of EIA Report were predicted as a result of climate change during the operational phase of the Development. The predicted future climatic baseline conditions were considered highly unlikely to affect the operation of the Development. The Development was assessed to have a positive effect on carbon savings and a significant positive effect when considered cumulatively with the UK-wide renewable energy deployment.

15.3 CHANGES TO LEGISLATION, POLICY AND GUIDANCE

No changes have been noted in terms of policy regarding climate change & carbon balance from those presented in **Chapter 15: Climate Change and Carbon Balance** of the EIA Report.

15.4 METHODOLOGY AND APPROACH

As indicated in the EIA Report, applications submitted under Section 36 of the Electricity Act are required to undertake the carbon balance assessment using the Scottish Government's carbon calculator tool. This has been completed for the Revised

Development (Reference Number: UA89-7D06-2QKC) using the latest version of the calculator (CCalcWebV1.6.1)¹.

All assessment methodology and significance criteria used within the SEI Report remain the same as stated within the EIA Report with regard to climate change. The assessment presented in the EIA Report used Climate Change Projections Report 2018 (UKCP18) to provide baseline projections. To ensure consistency of approach, the same report will be used to review the baseline conditions for the SEI Report.

15.5 BASELINE REVIEW

The baseline conditions, including all observed climate data, remain applicable and valid for the Revised development.

Climate Projections show that the trends over the 21st century in the UK are towards warmer and wetter winters and hotter, drier summers, with an increase in frequency and intensity of extremes.

The climate parameters considered most relevant to the assessments referenced within the EIA Chapter were wind speed, temperature and precipitation, which remain valid.

15.6 ASSESSMENT OF POTENTIAL EFFECTS

The following assessments were considered in the EIA Report:

- Vulnerability of the Revised Development to climate change;
- The influence of the Revised Development on climate change; and
- A summary of effects on environmental receptors sensitive to climate change

No significant effects were identified in the EIA Report for each of the above parameters and this assessment remains applicable.

15.6.1 Carbon Saving

Due to amendments to the layout, an updated carbon balance assessment has been undertaken as part of this SEI Report. The carbon balance assessment is included as SEI A15.1.

Based on an anticipated capacity factor of the Revised Development of 40%, it is expected the Revised Development would result in the production of 235,469 megawatt hours (MWh) annually, equating to approximately 7,064,064 MWh over the 30-year operational life of the Revised Development. This equates to displacing approximately 3,178,830 tonnes of fossil-fuel mix generation equivalent CO₂ emissions, based on DUKES emission factors². A comparison to the overall carbon savings for the EIA Report Development and the SEI Report Development are presented in Table 15.1.

¹ Scottish Government & SEPA. Carbon Calculator Tool v1.6.1
<https://informatics.sepa.org.uk/CarbonCalculator/index.jsp>

² DUKES (2021) Digest of United Kingdom Energy Statistics 2018 [Online] Table 5E Available at:
[Digest of UK Energy Statistics \(DUKES\) 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/digest-of-uk-energy-statistics-2018) (Accessed 22/03/2022)

Table 15.1: Carbon Savings for the Revised Development (Expected Scenario)

	Expected CO ₂ Saving (t CO ₂ yr ⁻¹) EIA Report Findings	Expected CO ₂ Saving (t CO ₂ yr ⁻¹) SEI Report Findings
Coal fired electricity generation	265,071	216,631
Grid mix electricity generation	53,283	59,710
Fossil fuel mix electricity	120,022	105,961

Overall, the carbon saving from the Revised Development have decreased in comparison to the Development, although, these are modest changes which are largely due to the removal of T10 & T12, which has reduced the number of turbines from 16 to 14 as part of the Revised Development.

15.6.2 Carbon Losses

A comparison to the overall carbon losses for the EIA Report Development and the SEI Report Development are summarised in Table 15.2.

Table 15.2: Carbon Losses for the Revised Development (Expected Scenario)

Losses	t CO ₂ Equivalent (total for wind farm lifetime) EIA Report Findings	t CO ₂ Equivalent (total for wind farm lifetime) SEI Report Findings
Losses due to turbine life (e.g. manufacture, construction, decommissioning)	66, 805	58,771
Losses due to back-up	34,876	26,702
Losses due to reduced carbon fixing potential	1,270	1,566
Losses from soil organic matter	26,052	17,727
Losses due to Dissolved Organic Carbon (DOC) and Particulate Organic Carbon (POC) leaching	2,163	2,101
Losses due to felling forestry	0	0
TOTAL LOSSES	131,166	106,867

Overall, the carbon losses for the Development have reduced, this is largely due to the removal of T10 & T12, which has reduced the number of turbines from 16 to 14.

15.6.3 Payback Period

The carbon payback period is a measurement to help assess a proposal. The shorter the payback, the greater the benefit the Revised Development will have in displacing emissions associated with electricity generated by burning fossil fuels.

The estimated payback period for the Revised Development has decreased from approximately 2 years from the EIA Report carbon calculator, to approximately 1.7 years when compared to grid-mix electricity generation. In comparison to fossil fuel-mix and coal-fired electricity generation, the payback period of the Revised Development is 1.0 year and 0.5 years respectively. Table 15.3 below goes into further detail regarding the carbon payback period.

Table 15.3: Payback in years for each scenario used in the Carbon Calculator

Compared to...	Expected Scenario		Best Case Scenario		Worst Case Scenario	
	EIA Report	SEI Report	EIA Report	SEI Report	EIA Report	SEI Report
Coal fired electricity generation	0.5	0.5	0.4	0.3	1.1	0.7
Grid-mix electricity generation	2	1.7	1.4	1.3	4.2	2.6
Fossil fuel-mix of electricity generation	1.1	1.0	0.8	0.7	0.8	1.4

On this basis, the CO₂ emissions for the Revised Development are forecast to be cancelled out within approximately 1.7 years. The CO₂ emission savings for the operational lifetime beyond that (currently predicted as 30 years) would result in a net benefit of the Revised Development to reducing climate change. The carbon payback period is reduced for the Revised Development which is largely due to the reduction in turbine numbers and ancillary infrastructure required for the Revised Development in comparison to the Development, as detailed in Section 15.1. This is considered a low magnitude of effect i.e. a slight, detectable alteration of the baseline condition.

15.7 MITIGATION AND RESIDUAL EFFECTS

This Chapter of the SEI Report identified that no significant negative effects are predicted as a result of the Revised Development and therefore, no formal mitigation is required under the EIA Regulations other than that already incorporated into the Revised Development and recommended as best practice. An iterative design approach has been undertaken for the SEI Layout to avoid siting infrastructure in deep peat where possible to minimise disturbance of peat soils and associated carbon losses.

An updated outline PMP has been produced and is provided as Appendix SEI A13.2. Proposed reuses of the excavated peat are in line with the Scottish Renewables and SEPA Guidance³², and the updated outline PMP demonstrates that all the excavated peat will be reused on-site. The outline PMP will be updated prior to construction once more detailed site investigation data and detailed engineering designs are available.

Other best practice mitigation measures will include the management of wind turbines to maintain operational efficiency during their lifetime. Maintenance plans for wind turbines would be developed to maximise turbine output and efficiency. Key performance indicators to monitor and track operational efficiency would be developed.

15.8 CUMULATIVE EFFECT ASSESSMENT

As indicated in the EIA Report, the cumulative effect of the Revised Development with other UK renewables generation is considered to be a fundamental change in the climate effects of UK energy supply, which is a major, positive, environmental effect that is significant under the EIA Regulations and will contribute to the UK's legally binding emission reduction targets.

15.9 SUMMARY

The findings predicted in the EIA Report with regard to climate change and carbon balance remain valid.

In summary, no significant effects were predicted in the EIA Report as a result of climate change. As stated within the EIA Report, the predicted future climatic baseline conditions are highly unlikely to affect the operation of the Revised Development. The Revised

Development will have a positive effect on carbon savings and a significant positive effect when considered cumulatively with UK-wide renewable energy development.

15.10 STATEMENT OF SIGNIFICANCE

The Revised Development is predicted to have a significant positive effect on carbon balance when considered cumulatively with other UK wide renewable energy development. Other effects relating to climate change associated with the Revised Development are considered to be not significant. Effects relating to climate change associated with the Revised Development remain considered to be not significant. This represents no change to the conclusions outlined in the EIA Report.

CORRIEGARTH 2 WIND FARM
SEI Report – Volume 1 – SEI Report Text

Chapter 16
Other Issues



16 OTHER ISSUES

Chapter 16: Other Issues of the Environmental Impact Assessment (EIA) Report, submitted in January 2021 (Planning Reference: ECU00002175), does not require to be updated in light of revisions to the Development.

Chapter 16: Other Issues of the EIA Report concluded that the Development resulted in effects that were not significant in terms of the EIA Regulations; however, for Aviation, the EIA Report acknowledged that some effects is predicted in relation to civil aviation infrastructure. The EIA Report stated that the Applicant was engaged in discussions with Highlands and Islands Airport Limited (HIAL) to both better determine impacts and as required to identify suitable mitigation. It remains the case that the Applicant is in discussions with HIAL.

As a result of the turbine numbers reducing from 16 to 14 as part of the Revised Development, it is considered by EIA assessors that the Development will not introduce any new significant effects within the resource of Other Issues.