STEPHENSON HALLIDAY

Planning, Landscape & Environment

Clashindarroch II Wind Farm

Supplementary Information

Volume 1: Updated Non-Technical Summary

October 2021

Contents

1 Introduction 1
1.2 Site Location 2
1.3 SI Update 3
2 The Proposed Development 4
2.1 Design Evolution (EIA Chapter 2 and SI Chapter 2) 4
2.2 Proposed Infrastructure 5
2.3 Construction Environmental Management Plan 6
2.4 Habitat Management Plan 6
2.5 Forest Design Plan 8
2.6 Proposed Community Shared Ownership 9
3 Benefits of the Development 10
3.1 Contribution Towards Government Targets 10
3.2 Shared Ownership 10
3.3 Community Benefit Package 10
3.4 Other Economic Benefits 11
4 Environmental Impact Assessment 12
4.1 EIA Process and Methodology 12
4.2 Landscape and Visual Amenity (EIA Chapter 7 and SI Chapter 7) 12
4.3 Ornithology (Birds - EIA Chapter 8 and SI Chapter 8) 15
4.4 Ecology (EIA Chapter 9 and SI Chapter 9) 18
4.5 Cultural Heritage and Archaeology (EIA Chapter 10 and SI Chapter 10) 23
4.6 Hydrology, Hydrogeology and Geology (EIA Chapter 11 and SI Chapter 11) 25
4.7 Carbon Balance (EIA Chapter 12 and SI Chapter 12) 26
4.8 Traffic and Transport (EIA Chapter 13 and SI Chapter 13) 27
4.9 Noise and Vibration (EIA Chapter 14 and SI Chapter 14) 29
4.10 Aviation (EIA Chapter 15 and SI Chapter 15) 30
4.11 16) Socio-economics, Tourism, Recreation and Land Use (EIA Chapter 16 and SI Chapter 32
4.12 Other Environmental Issues (EIA Chapter 17 and SI Chapter 17) 34

5 Summary of Significant Effects 36

6 Next Steps and Further Information 39

Figures

SI NTS Figure 1 - Location Plan

SI NTS Figure 2 - Application Boundary

SI NTS Figure 3 - Aerial Photo

SI NTS Figure 4 - Site Layout

1 Introduction

1.1.1 On 23rd December 2019, Vattenfall Wind Power Ltd (the Applicant) submitted an application (the Application) to the Scottish Government Energy Consents Unit (ECU) for Section 36 consent under the Electricity Act 1989 (the 1989 Act), to install and operate a wind farm comprising up to 14 wind turbines and associated infrastructure, with a generation capacity exceeding 50 megawatts (MW), on land adjacent to the existing Clashindarroch Wind Farm, in Aberdeenshire. A request was also made by the Applicant that planning permission be deemed to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended. The relevant planning authority is Aberdeenshire Council.

1.1.2 The wind farm would be located on land northeast of the existing Clashindarroch Wind Farm, in Aberdeenshire located approximately 6km to the south-west of Huntly, as shown on SI NTS Figure 1 (the Site). This would be known as the Clashindarroch II Wind Farm (the proposed development). The maximum height of the proposed turbines would be 180m to the tip of the blade in an upright position. It is expected that each wind turbine would be rated to between 4MW and 6MW (or greater, subject to future advances in turbine technology) giving an estimated total installed capacity of between 56MW and 84MW.

1.1.3 The proposed development would produce an average of between approximately 184GWh and 263GWh of electricity annually (based on an average capacity factor of 37.5%). This equates to the power consumed by between 48,653 and 72,980 average homes in the UK.

1.1.4 SLR Consulting Ltd (SLR) along with Osprey Consulting Ltd, DGA Forestry and MBEC were appointed to undertake an Environmental Impact Assessment (EIA) to determine and evaluate the potential effects of the proposed development. The results are presented in the EIA Report (Volumes 2 to 4) which was prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

1.1.5 Following the submission of the Application, consultation responses were received from a number of consultees. Aberdeenshire Council have lodged an objection to the Application and this objection has not been withdrawn, therefore under paragraph 2(2) of Schedule 8 of the 1989 Act, a Public Inquiry is to be held.

1.1.6 The Reporter, who has been appointed by Scottish Ministers to hold a Public Inquiry into the Application, has requested Supplementary Information (SI) from the Applicant under Regulations 19 and 20 of the Environmental Impact Assessment (EIA) Regulations for the purposes of the Public Inquiry.

1.1.7 The SI includes the following:

- An updated cumulative assessment for each EIA Report Chapter where relevant, and where not this is stated in the SI Chapter.
- Supplementary Information on borrow pits detailed in SI Chapter 7.
- An updated assessment of the landscape and visual effects of the Reduced Visible Aviation Lighting Strategy, including updated night-time visualisations.
- Plans showing the amended Red Line Application Boundary as approved by the ECU.
- A summary of the consultation responses received on the Application.

1.1.8 Stephenson Halliday along with Wood, MBEC, Headland Archaeology, SLR, Hayes McKenzie, Osprey Consulting Services and Dr Stuart Lumsden were appointed to prepare the SI. The SI comprises of three volumes:

- Volume 1 is this document which is an updated Non-Technical Summary (NTS),
- Volume 2 contains the Written Statement,
- Volume 3A contains the Technical Appendices, and
- Volume 3B contains the SI Figures and Visualisations.

1.1.9 This NTS is an updated version of the EIA Report NTS, which summarises the findings of the EIA Report and SI. It therefore replaces the NTS submitted in 2019.

1.1.10 An SI Update Section has been included in each summary of the technical and environmental assessment Chapters below. This allows the reader to clearly see any changes resulting from the updates considered as part of the SI as detailed above in the bullet points.

1.2 Site Location

Site Description

1.2.1 The Site is located within Clashindarroch Forest, approximately 6km to the southwest of the settlement of Huntly, Aberdeenshire and 55km northwest of Aberdeen. Nearby settlements include Rhynie, Haugh of Glass and Cabrach. The entire Site is located within the Aberdeenshire Council administrative boundary and is owned by Forestry and Land Scotland (FLS).

1.2.2 The area of the Site extends to approximately 1,234ha, with the proposed wind turbines located in the southern part of the Site. The Site and main turbine area is centred on grid reference NGR 344000,833000. Access to the Site is provided from the A920 and would utilise as far as possible the existing onsite access tracks.

1.2.3 The Site lies within an upland landscape which is characterised by a series of rounded hills and interlocking spurs separated by incised river valleys. Topography ranges from approximately 220m Above Ordnance Datum (AOD) to 525m AOD. The western side of the Site forms the most elevated part of the Site and is defined by a series of rounded hills which form a distinctive ridgeline comprising forestry to the east, and moorland/farmland to the west. Notable hills along this ridgeline include Red Hill (522m AOD), Grumack Hill (517m AOD), Black Hill (505m AOD), Mount of Haddoch (521m AOD), and Lelds Hill (482m AOD). To the east of this ridgeline, the Site is characterised by a series of rounded hills with interlocking spurs and incised valleys descending towards the River Bogie.

1.2.4 The Site is predominately covered by commercial forestry but has some limited areas of open moorland and ancient woodland. The commercial forestry is of varying ages and would be felled and re-stocked at the appropriate time as set out in the current Forest Design Plans (FDP) in accordance with usual commercial forestry practice.

1.2.5 The Site and the surrounding area is shown in SI NTS Figure 2, and an aerial photograph of the Site provided in SI NTS Figure 3.

1.2.6 There are no statutory ecological designations and no scheduled archaeological or cultural heritage designations within the Site. The existing forestry roads, which will be used for access to the proposed development, lie partially within the Deveron Valley Special Landscape Area (SLA).

Surrounding Area

1.2.7 The surrounding area is generally rural in nature with significant areas of commercial forestry to the east of the Site. The River Deveron is also located to the east of the Site.

1.2.8 The A920 is located immediately to the north of the access road for the Site (and about 8km from the nearest turbine) and runs from east to west, whilst the A96 runs north south some 3km to the east of the Site.

1.2.9 The closest designated site is the Craigs of Succoth Site of Special Scientific Interest (SSSI), which lies adjacent to the western part of the Site.

1.2.10 The closest part of the boundary of the Cairngorms National Park (CNP) is located approximately 12km to the southwest of the Site.

1.3 SI Update

Updated Cumulative Position

1.3.1 In the preparation of this SI the list of cumulative sites contained in the EIA Report was updated. Aberdeenshire Council and Moray Council were consulted on this list by email in June 2021. Aberdeenshire Council confirmed that the list was correct in July 2021. No response has been received to date from Moray Council. Table 1.1 shows the list of updated cumulative sites which have been used by the technical disciplines for the updated cumulative assessments. This is with the exception of SI Chapter 7 Landscape and Visual which contains many of the smaller schemes and schemes that are further from the Site for the reasons set out within SI Chapter 7.

Table 1.1: Updated Cumulative Position

Site Name	EIA Report Status	30 June 2021 status	Local Authority	Distance (km)
Hill of Burns	consented	Operational	Aberdeenshire	29.6
Meikle of Ardonald	Application	Consented	Aberdeenshire	9.6
Paul's Hill II	Application	Consented	Moray	30.6
Craig Watch Wind farm	NA	Scoping	Moray/ Aberdeenshire	4.3

Site Name	EIA Report Status	30 June 2021 status	Local Authority	Distance (km)
Garbet Windfarm	NA	Application	Moray	6
Glenfiddich Wind Farm	NA	Scoping	Moray	8.1
Edintore II (Cairds Wood)	NA	Scoping	Moray	13.4
Berry Burn Extension	NA	Application	Moray	34.5
Clashindarroch Extension (Infinergy Development)	NA	Scoping	Moray	1.1

Red Line Update

1.3.2 Since the submission of the Application there has been an update to the red line boundary of the Site. The red line was updated to ensure that all of the forestry coupes which were affected by the proposed development were contained within the red line in their entirety. This does not change the assessment in the EIA as these areas were already assessed in the EIA Report. It was simply a drafting error in the figures. This has resulted in an additional 0.17 hectares (ha) being included in the Site boundary.

1.3.3 Correspondence was submitted to the ECU, by the Applicant on 4th May 2021 and accepted by the ECU on 5th May 2021. The updated red line boundary is shown in SI NTS Figures 1 Location Plan, SI NTS Figure 2 Application Boundary, SI Figure 3 Aerial Photo and SI Figure 4 Site Layout.

2 The Proposed Development

2.1 Design Evolution (EIA Chapter 2 and SI Chapter 2)

2.1.1 The landscape and visual aspects of the site selection and design are described in full in the separate Design and Access Statement and in Chapter 2: Site Description and Design Evolution of the EIA Report. The design process for the proposed development started with bird and ecology surveys to understand where turbines could be placed to minimise disturbance to protected species. Watercourses and then peat information was then added to the plan to further inform the position of turbines. Further information was gathered from the Ministry of Defence, NATS and Aberdeen Airport to understand if their radar systems would be affected by the proposed development. In addition, key views into the Site were used to model the potential landscape and visual effects of the proposed

development so that the turbines could be positioned to reduce such effects where possible. Finally, appropriate spacing of turbines to ensure they work as efficiently as possible and project economics were carefully considered alongside all of the other factors to bring together design options.

2.1.2 The options themselves were subject to consultation with members of the public through both exhibitions and consultees with an interest in the design process of the proposed development including Aberdeenshire Council, NatureScot (previously Scottish Natural Heritage) and Historic Environment Scotland (HES).

2.1.3 Once turbine positions and location of ancillary infrastructure, were finalised, a track layout was prepared, taking account of the constraints. This design sought to use as much of the existing infrastructure associated with forestry operations and the existing Clashindarroch Wind Farm as reasonably possible. The design of the forest was also considered in the overall design to ensure the parts of the Site which are used a commercial forest can continue to be used in that way.

2.1.4 The final design, for the proposed development, seeks to balance all of the, sometimes, competing interests in so far as is reasonably possible.

2.2 Proposed Infrastructure

2.2.1 The proposed development would comprise up to 14 three-bladed horizontal axis turbines with a combined rated output of at least 50MW. It is expected that each wind turbine would be rated to between 4MW and 6MW (or greater, subject to future advances in turbine technology) giving an estimated total installed capacity of between 56MW and 84MW.). The development associated with the turbines would include turbine foundations, crane hardstandings underground cabling, and a substation compound including control buildings (Figure 2).

2.2.2 The proposed development, including maximum tip heights of up to 180m, has been chosen because it is considered to be the most productive array and would contribute significantly to Scottish Government targets for renewable energy production. Turbines at 180m to blade tip would allow for swept rotor diameters of up to 150m which would increase turbine productivity significantly.

2.2.3 As well as the proposed turbines the proposed development includes for new and upgraded roads, including water course crossing, an anemometer mast, temporary construction area and borrow pit areas where rock will be won to build roads. It also assumes a grid connection to the Transmission Grid network near Craighead/Wellheads, at the same location as the existing Scottish and Southern Electricity (SSE) substation associated with the existing Clashindarroch Wind Farm. The site layout is shown in SI NTS Figure 4.

2.2.4 Vehicular access to the Site would be from the Craighead/Wellheads access junction with the A920, the current Site access would be widened to allow for the movement of abnormal load vehicles (for transport configurations larger than that required for the construction of the existing Clashindarroch Wind Farm).

2.2.5 Existing onsite forestry tracks from the Site access junction, southwards, would be utilised and upgraded where necessary. The tracks would be left in place to provide access for maintenance, repairs and eventual decommissioning of the proposed development.

2.2.6 Full details of the proposed development are provided in Chapter 3: Description of the Development of the EIA Report.

SI Update

2.2.7 The need for visible aviation lighting is set out in the EIA Report at Chapter 3 in the context of the operational phase of the proposed development. This advised that all of the proposed turbines would be lit.

2.2.8 Following the submission of the Application, the Applicant sought a variation that, whilst maintaining air safety, does not necessitate the lighting of all turbines. This was in order to minimise landscape and visual amenity effects. This was supported by an aeronautical study on the proposed development in which the details of consultation with those aviation stakeholders who may be affected by the proposed windfarm development was included.

2.2.9 The Civil Aviation Authority (CAA) responded on the lighting variation application on 23rd December 2020 and granted a variation to the lighting requirements as follows:

- medium intensity steady red (2000 candela) lights on the nacelles of Turbines 1, 5, 6 and 12;
- a second 2000 candela light on the nacelles of Turbines 1, 5, 6 and 12, to act as alternates in the event of failure of the main light;
- the lights on Turbines 1, 5, 6 and 12 will be capable of being automatically dimmed to 10% of peak intensity when the atmospheric visibility as measured at the windfarm exceeds 5km; and
- The CAA also confirmed that infra-red lights to Ministry of Defence (MOD) specification should be installed on the nacelles of the following perimeter Turbines 8, 9 and 14.

2.2.10 The CAA also confirmed that intermediate level 32 candela lights are not required.

2.3 Construction Environmental Management Plan

2.3.1 The environmental protection measures during construction and site restoration works would be outlined in a Construction and Environmental Management Plan (CEMP). The outline content of the CEMP is provided in Technical Appendix 3.1 of the EIA Report. The CEMP would be prepared following the determination of the application and would include an outline of the proposed approach to construction methods and environmental protection during all aspects of construction works. The CEMP would be agreed in consultation with the Scottish Environmental Protection Agency (SEPA), NatureScot and Aberdeenshire Council.

2.4 Habitat Management Plan

2.4.1 An outline Habitat Management Plan is provided as Technical Appendix 9.5 of the EIA Report. It is anticipated that the document would be developed should consent be forthcoming in discussion with Aberdeenshire Council, Nature Scot, Forest and Land Scotland (FLS) and Scottish Wildcat Action (SWA). The Outline HMP has been developed based on the findings of the EIA Report Chapter 8: Ornithology and EIA Report Chapter 9: Ecology and promotes a

prescription for the habitats on Site to ensure protected species are protected and habitats are enhanced during the operation of the development. The HMP takes into consideration ongoing habitat management associated with the existing Clashindarroch Wind Farm to avoid conflicting management practices.

2.4.2 A important issue that the HMP would address are the effects of the proposed development on the wildcat population within Clashindarroch Forest and the surrounding area. The HMP proposals have been discussed in outline with NatureScot, SWA and FLS. They would be developed into fully detailed plans and prescriptions, within an agreed wildcat HMP document, prior to commencement of the proposed development and as soon as possible following determination.

2.4.3 The HMP would focus on 4 main objectives:

- Wildcat Habitat Corridors: develop, in consultation with SWA, FLS and other relevant landowners, a detailed plan for the improvement of habitat connectivity for wildcat along corridors linking Clashindarroch Forest to large woodland blocks at Gartley, Correen and Insch. This to include up to 50 ha of suitable native woodland / scrub planting which may be subdivided into smaller blocks of up to 1 ha not more than 500 m apart – in order to improve habitat connectivity within and beyond the Strathbogie Wildcat Protection Area (WPA).
- Riparian Zones within the Wildcat Project Area: protection and enhancement of suitable cover and hunting habitat for wildcat along riparian zones within the wind farm study area – to mitigate potential effects from the operating wind farm, affecting wildcat use of, and movement through, the area.
- Artificial Dens: create at least 10 den sites (e.g. boulder piles, hay barns, brash and root plate piles), breeding females are thought to use a suite of dens in close proximity to each other, which they will regularly transfer their kittens between – in order to address the potential loss of similar suitable resting places as a result of felling, construction and the operational effects of the proposed development.
- Windthrow: retaining or creating windthrow areas, cross-felling low value standing timber near to stand edges in suitable undisturbed locations >500 m from the proposed development – in order to address the potential loss of similar habitat as a result of felling, construction and the operational effects of the proposed development.

2.4.4 The Applicant intends to provide financial assistance to assist existing wildcat projects in the area as discussed below.

Funding a Wildcat Project Officer Post

2.4.5 SWA currently employs a wildcat project officer for the Strathbogie WPA. The project officer carries out important work in the WPA including monitoring and camera trapping, managing volunteers, promoting wildcat conservation, and the Trap-Neuter-Vaccinate-Release (TNVR) programme. When SWA completes this phase of its work in 2020, there will no longer be a dedicated project officer for Strathbogie. It is anticipated that there will be a single conservation officer to cover all the WPAs in Scotland who will oversee some monitoring work with the continued help of local volunteers.

2.4.6 Further discussion with SWA and NatureScot is proposed, prior to application determination, to establish the most effective way for the proposed development to support a full-time wildcat project officer (WPO) for at least 5-years should existing funding sources no longer be available at that time. The role of the WPO is anticipated to be broadly similar to the current role under SWA (i.e. including the continuation of wildcat monitoring within the WPA and the TNVR programme, see below) and would also include responsibility for overseeing the implementation of the proposed HMP. The management of the WPO position would be the responsibility of the Applicant.

Funding the Trap-Neuter-Vaccinate-Release (TNVR) Programme

2.4.7 SWA has also been managing a TNVR programme across the WPAs since 2016. As of summer 2018 over 200 cats have been treated through this programme. If this work were not to continue it is likely that the number of feral cats in the vicinity would grow, further increasing the impact of hybridisation on Scottish wildcat. There is the potential for the proposed development to fund the continuation of the TNVR programme should existing sources of funding no longer be available at that time.

2.4.8 The Applicant also intends to assist with funding for TNVR within the Strathbogie WPA. The feasibility of this and the exact funding requirements will be discussed with SWA and NatureScot with the aim to have an agreement in place prior to application determination for the proposed development.

2.5 Forest Design Plan

2.5.1 The proposed development is situated within an extensive area of commercial forestry, known as Clashindarroch Forest. The forestry study area (FSA), comprising the entire Clashindarroch Forest, extends to 6,279 ha. The forest was planted between 1930 and 2010, and predominantly with Sitka spruce and mixed conifers.

2.5.2 The species composition of the forest would change as a result of the proposed development forestry proposals. In particular, felling would be advanced on 125.3 ha, the area of productive conifer woodland would decrease by 79.9 ha and the area of broadleaf woodland would decrease by 0.4 ha. Overall, there would be a net loss of woodland area of 88.5 ha equivalent to 1.39 % of the FSA.

2.5.3 In order to comply with the Scottish Government's Control of Woodland Removal Policy (CoWR), compensation planting would be required to mitigate for the loss of woodland area. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with Scottish Forestry taking into account any revision to the felling and restocking plans prior to the commencement of operation of the proposed development.

2.5.4 The proposed Wind Farm Forest Plan has been developed to support the restructuring of the forest throughout the timescale of the development. It proposes the felling and restocking of the commercial forestry over a 25 year period. The restocking proposals retain the commercial objectives of the Site through the restocking of commercial conifer species, while a proposed network of broadleaved woodland and intimate open ground, based on the extensive network of watercourses, would allow habitat corridors to develop within and

through the forest. The Wind Farm Forest Plan demonstrates how restructuring of the forest within the Site would provide greater structural diversity through the design of felling and restocking coupes which would introduce species and age class diversity which meets the UK Forestry Standard.

2.5.5 There is provision within CoWR guidance[1] for a departure for the normal 'like-for-like' requirement for compensatory planting plans in specific cases where this can be justified on economic and public benefit grounds. Under Annex 5 the following is stated (emphasis added):

- *Compensatory planting (CP) should always take place on-site or in close proximity to the site- where on-site is not possible, the EIA Report must justify why. Options that include conversion to low management intensity and slow growing woodland should be considered.*
- *Details of off-site CP should be included in a suitable CP plan to be agreed before the developer can proceed with the development and the felling of trees. This plan must flesh out all the details of the proposed planting, including its maintenance over the entire life-span of the development.*
- *Tree/shrub species must be suited to the site and the objectives of management. Although direct planting is always preferable, proposals for the use of natural regeneration will be considered, where establishment can be achieved within a reasonable timescale.*

2.5.6 It is considered possible, in this specific case, that the compensatory planting requirements for the proposed development could also be met through native woodland creation under the proposed HMP in relation to wildcat habitat corridors. Further discussion with Scottish Forestry is planned to determine whether an exception to normal compensatory planting requirements can be made in this case.

2.6 Proposed Community Shared Ownership

2.6.1 The proposed development is being brought forward with the opportunity for communities in Aberdeenshire to share in its ownership as set out in the Section 3 of this NTS.

Proposed Community Benefit

2.6.2 In addition to the shared ownership opportunity, should the proposed development gain consent, a Community Benefit Fund would be made available to the community of interest as set out in Section 3 of this NTS.

[1] Scottish Government's policy on control of woodland removal: implementation guidance (February 2019)

3 Benefits of the Development

3.1 Contribution Towards Government Targets

3.1.1 The proposed development would:

- make a meaningful contribution of between 56MW and 84MW towards meeting the renewable energy generation targets set out by the Scottish Government such as the goal for 100% of gross electricity consumption in Scotland to come from renewable energy sources by 2020 and the Scotland to have a fully decarbonised energy system by 2050;
- make a valuable and significant contribution towards UK generation targets and the reduction in emissions of greenhouse gases, principally carbon dioxide, in becoming carbon neutral in 1.3 years as demonstrated by the carbon calculator. The carbon dioxide savings of the proposed development are;
  - 232,709 tonnes of CO_2 per year over coal-fired electricity (6,981 million tonnes assuming a 30 year lifetime);
  - 64,142 tonnes of CO_2 per year over grid-mix of electricity (1,924 million tonnes assuming a 30 year lifetime); or
  - 113,825 tonnes of CO_2 per year over a fossil fuel mix of electricity (3,414 million tonnes assuming a 30 year lifetime).
- make Scotland, and therefore the UK, less reliant on imported and price-volatile fossil fuels by generating the equivalent energy to supply the approximate domestic needs of approximately 48,500 to 72,980 average UK households[2] (depending on the actual turbines installed).

3.2 Shared Ownership

3.2.1 A shared ownership offer has been developed by Vattenfall which is based on a Shared Revenue model, with the opportunity to purchase a maximum revenue share of 5% of the total out-turn cost of the project. Very early stage discussions have been held with potential partner organisations.

3.2.2 Further information on shared ownership is contained in the Community Partnership Strategy which is provided as an appendix to the Planning Statement.

3.3 Community Benefit Package

3.3.1 The Applicant would provide a Community Benefit Package as part of the proposed development which is offered on the basis of a payment per MW of installed capacity at the Scottish Government recommended rate at the time of commissioning the proposed wind farm. The Scottish Governments Good Practice Principles on Community Benefits Guidance was updated earlier this year and recommends a rate of £5,000 per MW or equivalent value.

[2] Calculated using the most recent statistics from the Department of Business, Energy and Industrial Strategy (BEIS) showing that annual UK average domestic household consumption is 3,781kWh (RenewableUK, 2018).

3.4 Other Economic Benefits

3.4.1 Chapter 14 of the EIA Report advises that proposed development expenditure during the construction phase is estimated to be approximately £52.64 million and there is expected to be a peak workforce of 84. The Scottish economy would benefit by some £12 million net GVA during construction. During the operational phase, based on a 25-30 year period, the proposed development would contribute some £3.04 million in GVA to the Aberdeenshire and Moray economy through direct, indirect and multiplier effects, and over £14.40 million to the economy.

3.4.2 Allowing for multiplier effects, the proposed development could support up to around 34 net additional Full Time Equivalent (FTE) jobs each year on average over the construction period (18 months) in Scotland (including direct, supply chain and induced jobs).

4 Environmental Impact Assessment

4.1 EIA Process and Methodology

4.1.1 EIA is a process that identifies the potential environmental effects (both beneficial and adverse) of a proposed development and proposed mitigation to avoid, reduce and offset any potential significant adverse environmental effects. The EIA process adopted for the proposed development has followed best practice guidelines, as set out in Chapter 5: Environmental Impact Assessment of the EIA Report.

4.1.2 A scoping exercise was done at an early stage which invited comments from over 40 consultees regarding the proposed development and the key environmental issues to be addressed. This process allowed the EIA Report to focus on the main areas of interest raised by the various consultees, with agreement with consultees that impacts which are not likely to be significant could be scoped out of further assessment.

SI Update

4.1.3 Following the submission of the Application, consultation responses were received from a number of consultees. A number of consultees have not objected subject to the inclusion of conditions should consent be granted. The only outstanding objection from a statutory consultee is from Aberdeenshire Council.

4.1.4 The following is a brief non-technical summary of the technical chapters contained in the EIA Report and any updates following preparation of the SI. There is an SI Update to each section which allows the reader to see whether the SI has resulted in any changes to the EIA Report.

4.2 Landscape and Visual Amenity (EIA Chapter 7 and SI Chapter 7)

4.2.1 Chapter 7: Landscape and Visual Impact Assessment (LVIA) of the EIA Report, identifies the anticipated effects of the proposed development on the landscape fabric of the Site, as well as the effects on the landscape character, designated landscapes and visual amenity of a 40km study area. It also assesses the cumulative effects of the proposed development with operational, consented and proposed windfarms.

4.2.2 The approach to the LVIA, extent of study areas, viewpoint locations and list of cumulative wind farms included in the assessment were all agreed through consultation with Aberdeenshire Council, the Cairngorms National Park Authority (CNPA) and NatureScot. Consultation with members of the public was also carried out at public exhibitions held in in March 2017, June 2017, September 2018 and December 2019.

4.2.3 The LVIA has been carried out in accordance with current best practice guidance at the time of preparing the assessment, in particular the Landscape Institute and the Institute of Environmental Management and Assessment (IEMA)'s 'The Guidelines for Landscape and Visual Impact Assessment' Third Edition (December 2013).

4.2.4 The baseline conditions of the study area are described with reference to current landscape planning policy, published landscape character assessments, review of maps and Zones of Theoretical Visibility (ZTV) for the study area, as well as field survey observations.

4.2.5 The proposed development would be located in the Grampian Outliers area of the Moorland Plateaux Landscape Character Type (LCT). The northeast part of the Site including the access route, is on the south west edge of the Deveron Valley Special Landscape Area (SLA) and the south west corner of the Site abuts an extensive Area of Great Landscape Value in Moray. None of the proposed turbines would be within either of these locally designated landscapes.

4.2.6 The Site lies within an upland landscape characterised by a series of rounded hills and interlocking spurs separated by incised river valleys. The majority of the Site is planted with commercial forestry at various stages in the forest cycle including areas of clear felling. The siting and layout of the proposed development was subject to a design evolution process described in Chapter 2: Site Description and Design Evolution of the EIA Report.

4.2.7 The extent and nature of loss of landscape elements and fabric during construction and operation of the proposed development would be limited, but would result in a locally significant effect on landscape fabric within the Site.

4.2.8 The proposed development has a relatively limited and sporadic ZTV, covering approximately 15.5% of the 40km study area, of which approximately 7% is hub to blade tip visibility only (i.e. blades only). The prevailing topographic pattern of the Grampians separated by a series of valleys, results in the main areas of predicted visibility occurring from the northwest clockwise to the southeast. Beyond 20km, there is very limited and fragmented theoretical visibility on the other side of the study area. The proposed development would result in a limited additional areas of wind turbine visibility compared to the existing Clashindarroch Wind Farm.

4.2.9 The relationship of the proposed development with the existing Clashindarroch Wind Farm as well as other operational wind farms has been a key consideration in the assessment of significant effects. The proposed development would be located in front of the existing Clashindarroch Wind Farm in views from the northeast, and behind it in views from the southwest. In views from the southeast and northwest, it would be seen adjacent to the existing Clashindarroch Wind Farm.

4.2.10 Views to and from Tap O' Noth, a distinctive summit to the northeast of the proposed development, as well as the backdrop of the Deveron Valley ridgeline in views towards this summit, were also a key consideration in the assessment. As assessed in the LVIA, whilst the proposed development would unavoidably be a prominent feature in proximity to Tap O' Noth, it would not be perceived to reduce its height in the majority of views of this summit.

4.2.11 No significant effects were assessed on the landscape character areas beyond the immediate character area of the Grampian Outliers unit in which the proposed development would be located.

4.2.12 No significant effects were assessed on any local or national landscape designation within the study area. Effects on the special qualities of the Cairngorms National Park and the Cairngorms Wild Land Area were not assessed as significant due to the limited predicted visibility, and direction of views towards the Site, where the proposed development would mostly be seen behind the existing Clashindarroch Wind Farm.

4.2.13 The visual receptors that would experience the greatest magnitude of change from the proposed wind turbines would be nearby residents as well as people using the Clashindarroch Forest for recreational purposes and walkers on the immediately adjacent hillsides and summits. Significant visual effects on local residents would occur in relation to a few houses to the northeast of the Site at Tillathrowie where the turbines would be beyond 2km at its closest point and seen within a relatively narrow horizontal extent of the available views. In addition, significant effects are predicted for the residents of dispersed properties and farms on the lower slopes of the Coreen Hills to the southeast of Rhynie at between approximately 7-12km from the proposed development. There would be limited visibility from any of the large settlements within the study area.

4.2.14 Visibility from the main roads within the study area would be limited due to the landform as well as the pattern of shelterbelts and vegetation, and no significant effects were assessed for main road users. Localised significant effects would occur for users of the minor roads providing access to Tillathrowie and Coynachie due to the proximity of the proposed development, and a short stretch of the minor road between Rhynie and the B9002 with views of the proposed turbines and Tap O' Noth.

4.2.15 The viewpoint and ZTV analysis showed that open views of the proposed development would mostly occur from specific viewpoints on the elevated ground and summits within the study area, such as Tap O' Noth, The Buck and Clashmach Hill as well as Ben Rinnes and Ben Aigan. These summits provide panoramic views, encompassing the contrast from the settled, agricultural and wind farm landscape to the northeast, to the remote, upland landscape to the south west. Due to the location of the proposed development next to the existing Clashindarroch Wind Farm, it would be a relatively limited addition to the proportion of these views affected by wind turbines.

4.2.16 The height of the proposed turbines means aviation lighting would be required which would be seen as a series of red lights in contrast with the generally dark rural context of the Site. However, it would not introduce a new feature into the wider night time context, as there are several existing sources of artificial light in the study area, including settlements, dispersed properties, as well as industrial premises and some existing wind turbines. The assessment has identified significant adverse effects in relation to lighting on landscape character and visual amenity for the limited parts of the study area within approximately 20km from where the lighting would be visible. From the more settled parts of the study area, the limited predicted visibility of the turbine hubs on which the lights would be fixed, would limit the extent of effects resulting from the proposed aviation lighting.

4.2.17 Cumulative effects with other wind farms within the study area have been considered through the LVIA taking account of the numerous existing wind farms and single turbines that are a key characteristic of parts of the study area. In addition to the extensive baseline of operational and consented wind farms, the proposed development would represent a relatively minor addition due to its limited ZTV and location adjacent to the existing Clashindarroch Wind Farm.

4.2.18 The main potential for cumulative effects relates to the proposed development in addition to the existing Clashindarroch Wind Farm, as well as Dorenell Wind Farm approximately 10km to the west south west of the Site. The main combined effects of the proposed development with the existing Clashindarroch and Dorenell Wind Farms would be in areas where they potentially would be seen as one large wind farm or within the same portion of the view. This would occur from a limited number of locations, but particularly from the

edge of the Correen Hills, southeast of the Site. The application stage wind farms included within the cumulative assessment would either be located at considerable distance from the proposed development, or comprise an individual turbine and therefore it is not considered that the future cumulative scenario would alter the baseline cumulative effects.

4.2.19 As a consequence of the limited extent of the ZTV, the assessment has demonstrated that there would be few significant effects from the proposed development, notwithstanding the size of the proposed turbines.

SI Update

4.2.20 SI Chapter 7 provides an updated LVIA which includes the following amendments:

- Updated cumulative baseline and cumulative assessment with a new cut-off date 1st October 2021 with supporting visualisations for Viewpoints 1, 4, 5, 6, and 12;
- Supplementary information on borrow pits; and
- Further supplementary information (revised night-time assessment, ZTV and night-time visualisations) for the Reduced Visible Aviation Lighting Strategy.

4.2.21 SI Chapter 7 concludes there would be no change to the viewpoint analysis as a result of the updated cumulative baseline.

4.3 Ornithology (Birds - EIA Chapter 8 and SI Chapter 8)

4.3.1 Chapter 8 of the EIA Report provides an assessment of the potential effects of the proposed development on bird species of conservation concern and their supporting habitats.

4.3.2 The proposed development is located entirely within Clashindarroch Forest, an extensive area of predominantly upland conifer plantation, at an elevation of between 350 to 450m above sea level, manged by Forestry and Land Scotland. The forest is dominated by non-native conifers such as Sitka spruce, Norway spruce and hybrid larch at various growth stages, planted at typical stocking densities. Most of the proposed wind turbines would be located in areas which are currently thicket or pole-stage Sitka spruce plantation.

4.3.3 There are no statutory natural heritage designations within or adjacent to the proposed development area (e.g. SSSI or Special Protection Areas (SPA)) and there are no such designated sites present in the surrounding area. The nearest site is Craigs of Succoth SSSI located about 2.5km north of the nearest proposed wind turbine. There are also no local authority designated sites, such as Local Nature Reserves, Wildlife Sites or Local Biodiversity Sites (or similar), within or adjacent to the proposed development.

4.3.4 The assessment follows current best practice methods and focuses on the potential significant effects of the proposed development on key bird receptors (i.e. bird populations of conservation concern and sensitivity to wind farm development and their supporting habitats). What is considered a 'significant' impact, in terms of the EIA Regulations, is determined following a standardised process, informed by professional judgement.

4.3.5 In summary, the proposed development has the potential to adversely affect birds through the following impacts:

- Noise and visual disturbance during construction and operation;
- Collision with turbine rotor blades;
- Loss, degradation or fragmentation of supporting habitats; and
- Behavioural displacement from important habitats or flight paths due to the presence of the wind turbines.

4.3.6 The impact assessment process involves a number of steps. Initially, there is an evaluation of the importance of the proposed development area to the species under consideration. This evaluation is informed by data derived from a number of sources including the results of various surveys of the proposed development area. Also considered is information on key species from various sources including, in this case, records provided by Forestry & Land Scotland wildlife rangers.

4.3.7 The surveys followed standard methods for the assessment of onshore wind farms and were agreed in consultation with NatureScot as part of the EIA Scoping process. Also agreed during scoping were the key species that should be the focus of the assessment and the range of potential effects that would need to be considered.

4.3.8 Surveys for breeding and non-breeding birds, with a particular focus on breeding raptors (e.g. goshawk, hen harrier and merlin), black grouse and common gull and geese during the winter and peak migration periods, were completed during 2015, 2016 and 2017.

4.3.9 The core survey area included the proposed wind turbine area and its associated internal and main access routes and a 500 m wide strip around the outermost structures. For key raptor species a wider buffer zone around the outermost structures up to 2km wide was also surveyed. Breeding bird surveys were completed in all three years and provided an estimate of the population, or density, of key species present within and adjacent to the proposed development area.

4.3.10 The breeding bird surveys confirmed the presence of at least one pair of breeding goshawk within the proposed development area, with other breeding pairs present in the wider surrounding area. Goshawk is a scarce breeding raptor strongly associated with mature woodland, particularly commercial conifer plantations. The UK population has recovered from near extinction in the late 19th century, a result of habitat loss and human persecution, to a national population of about 400 pairs. North-east Scotland is considered to be a stronghold for the species in the UK, along with southern Scotland and Wales. Other, more abundant woodland species, recorded as breeding within the survey area (not necessarily within the development area) included sparrowhawk, common kestrel, tawny owl, woodcock, song thrush and bullfinch. There was no evidence of other species of high conservation concern such as hen harrier or black grouse breeding within or near to the proposed development area which, at present, generally lacks suitable breeding habitat for these species.

4.3.11 Bird flight activity surveys were also completed in all three years. Suitable vantage points were established, overlooking the proposed wind farm, and watches were completed through the year and at different times of day to record flight activity by key species within the airspace that the wind turbines would occupy. Key species recorded during the flight

activity surveys included goshawk, common kestrel, golden plover and pink-footed goose. Infrequently recorded species included osprey and hen harrier. The bird flight activity data was used to quantify the risk of collision, with the type of wind turbine proposed, for each species following a standard mathematical model developed by NatureScot.

4.3.12 The surveys provided data to allow a systematic evaluation of the use of all habitats within the Site. The importance (or sensitivity) of the bird populations that use the Site has been determined with reference to the survey results and reliable information, where available, on regional and national population sizes. This enables the assessment of effects at various scales (i.e. local, regional and national population levels) depending on what is appropriate for the species being considered.

4.3.13 The type and scale of the potential impacts of the proposed development on each species has been determined. Taking into consideration the conservation status, size and sensitivity of the populations affected and information available from the scientific literature about the vulnerability of the species to the range of potential impacts from onshore wind farm development. Where there was uncertainty about the potential importance of the area for any particular species then this was accounted for. For example if there was suitable habitat present but no, or limited, presence of the species during the survey period and the realistic potential for population to increase in the future, then conservative assumptions were made in the evaluation process. This provides the basis for the assessment to be made of the potential impacts on each species and their associated populations.

4.3.14 There is the potential for felling and construction to have localised effects on woodland bird breeding success for up to two breeding seasons. However, measures are proposed in the assessment to help ensure that impacts on all breeding birds from felling and construction are minimised, as much as possible, and species which are legally protected from disturbance while nesting are safeguarded. Pre-works breeding bird surveys are proposed so that up-to-date information is available to inform the tree felling and construction process so that nest sites are effectively protected. In addition, a suitably experienced Ecological Clerk of Works (ECoW) would be appointed for the duration of the construction and site restoration phase. They would have the authority on Site to stop any works that could be in breach of the agreed environmental commitments and the legislation protecting breeding birds.

4.3.15 In relation to wind turbine collision risk, a conservative approach has been taken to the assessment, however no significant mortality from collision was predicted for any of the key bird populations considered. The assessment has also taken into consideration the required aircraft warning lighting and the potential for this to increase collision risk for some species. The potential impact from collision risk on goshawk would be localised and unlikely to adversely affect the status of the population within Clashindarroch Forest in the long-term. There is the potential for local-level impacts on the common kestrel population, however, this would not be significant at the scale of the regional population. Collision risk for all other species considered in the assessment is not significant or is a negligible risk due to the very low levels of flight activity recorded. No significant habitat loss was predicted for any species, taking into consideration the scale of the proposed tree felling, the extent of permanent habitat loss from the construction of the wind farm, in comparison to the availability of similar suitable habitats unaffected in the wider area.

4.3.16 During the operational phase of the proposed development there is also the potential for the presence of the wind turbines to result in the partial or complete displacement birds from important supporting habitats around the individual turbines or the wind farm as a

whole. Displacement and/or disturbance of breeding birds could potentially reduce feeding opportunities and/or breeding success. However, although displacement effects will occur to some extent, in this case, taking into consideration the species present and the types of habitats affected, they are not considered to be significant for any species.

4.3.17 Particular focus was given in the 2017 surveys to the use of the development area by common gulls. The proposed development is located about 6km southeast of the Tips of Corsemaul and Tom Tor SSSI and Special Protection Area (SPA). The SPA is designated due to the international importance of the colonies of breeding common gulls that the site supports. Flight activity surveys were completed in 2017 to monitor the use of the proposed development area and a known flight corridor used by common gull located to the north of the proposed wind farm. A separate assessment of the potential effects of the proposed development on the SPA population has been completed and is provided as a Technical Appendix to Chapter 8 in the EIA Report. Taking into consideration the 2017 data and data collected previously for the Clashindarroch Wind Farm EIA, the assessment has concluded that the proposed development would result in negligible effects on common gull and would not affect the status of the SPA population.

4.3.18 The potential for cumulative effects on key species (in particular goshawk and common gull), as a result of interactions with proposed and existing wind farms in the wider area, has also been assessed. No significant residual cumulative effects were identified for any species.

4.3.19 In conclusion, the impact assessment considered the various potential adverse effects arising from the construction, operation and decommissioning of the proposed development and evaluated the significance of these effects on key bird species in the context of the sensitivity of their populations, vulnerability to wind farm development and the scale of the potential effects. Following consideration of a range of best practice and mitigation measures for the construction, operational and decommissioning phases of the development, the residual (mitigated) effects for all receptors combined would be not greater than minor/negligible and would therefore not be significant.

SI Update

4.3.20 The EIA Report cumulative assessment has been reviewed in relation to new information on wind farm proposals that has been made public since the assessment was completed. Consideration, in this review, was given to the proposals that could act cumulatively with the proposed development, potentially resulting in significant adverse effects on the relevant bird populations, from impacts such as wind turbine collision mortality, habitat loss, disturbance and displacement. The review focused on the potential for cumulative effects on the relevant ornithological receptors: breeding goshawk; and common gulls that are the qualifying interest of the Tips of Corsemaul and Tom Mor SPA. It was determined, based on the available information, that significant cumulative effects were unlikely to occur for these receptors and that the conclusions of the original assessment should remain unchanged.

4.4 Ecology (EIA Chapter 9 and SI Chapter 9)

4.4.1 Chapter 9 of the EIA Report considers the potential effects of the proposed development on habitats, flora and fauna of conservation concern.

4.4.2 There are no statutory natural heritage designations within or adjacent to the Site (e.g. SSSI or Special Areas of Conservation (SAC)) and there are no such designated sites present in the immediate surrounding area. The nearest site is Craigs of Succoth SSSI located about 2.5km north of the nearest proposed wind turbine. There are no local authority designated sites, such as Local Nature Reserves, Wildlife Sites or Local Biodiversity Sites (or similar), within or adjacent to the proposed development.

4.4.3 The proposed development is located within the Strathbogie Wildcat Priority Area (WPA), which includes all of Clashindarroch Forest and extends north of Huntly and eastwards over Gartly Moor. It is one of five areas in Scotland that have been identified, through the Scottish Wildcat Conservation Action Plan, as critical to the conservation and recovery of the Scottish wildcat population. The wildcat population in Scotland is considered to be critically endangered and may be 'functionally extinct', according to a recent review by the International Union for Conservation of Nature. Potential adverse effects on wildcat have been a key consideration for the project, through the design process and the assessment phase of the proposed wind farm.

4.4.4 The impact assessment follows current best practice methods and focuses on the potential significant effects of the proposed development on key ecological receptors (i.e. species and habitats of conservation concern and sensitivity to wind farm development). What is considered a 'significant' impact, in terms of the EIA Regulations, is determined following a standardised process, informed by professional judgement.

4.4.5 In summary, the proposed development has the potential to adversely affect ecological receptors through the following impacts:

- Pollution during tree felling and conduction works adversely affecting watercourses and fish populations;
- Noise and visual disturbance during construction affecting sensitive species;
- Collision with turbine rotor blades (bats);
- Loss, degradation or fragmentation of habitats; and
- Behavioural displacement from important habitats due to the presence of the operational wind turbines and associated maintenance activities.

4.4.6 The impact assessment process involves a number of steps. Initially, there is an evaluation of the importance of the proposed development area for the receptor (i.e. species or habitat) under consideration. This evaluation is informed by data derived from the results of various surveys of the proposed development area. Also considered is information from other sources including, in this case, SWA the organisation leading monitoring studies and wildcat conservation measures within Strathbogie WPA, FLS and North East Scotland Biological Records Centre.

4.4.7 A range of ecological surveys were completed between May 2015 and October 2019. The surveys largely followed standard methods for the assessment of onshore wind farms and were agreed in consultation with NatureScot as part of the EIA Scoping process. Also agreed during scoping were the key species that should be the focus of the assessment and the range of potential effects from the proposed development that would need to be considered. Additionally, focal surveys for wildcat (using camera trapping and thermal image

cameras) were also completed in co-ordination with ongoing monitoring of the species by SWA and FLS within Clashindarroch Forest.

4.4.8 Phase 1 habitat and National Vegetation Classification surveys were initially completed in 2015 with further surveys during summer 2019 to ensure that there was complete coverage of all elements of the proposed development and the necessary buffer zones. As the majority of the proposed development area is managed as conifer plantation there was few areas where semi-natural habitats were present, mostly alongside watercourses and within forest rides.

4.4.9 To provide a basis for the assessment of the potential effects of the proposed wind farm on protected species (including wildcat, otter, pine marten, red squirrel, water vole, badger and bat species) a range of surveys of the potential wind farm area were initially completed in 2015 and 2016. These surveys allowed the mapping and assessment of habitat suitability and quality for each species. Also completed was a systematic search for field signs within or near to the proposed development, and the mapping, assessing and describing of any features that could provide suitable shelter (e.g. den sites for wildcat, badger setts, bat roosts). Further, more targeted surveys, were completed in 2017, 2018 and 2019, which took into account the emerging wind farm design and the areas that would potentially be affected by the tree felling proposals.

4.4.10 In addition to these surveys, during autumn 2018 and summer 2019, baited and un-baited wildlife camera traps and thermal imaging cameras were used to monitor use of particular areas or features by wildcat, pine marten and badger. FLS and Scottish Wildcat Action (SWA) provided data, for the proposed development area and the wider Clashindarroch Forest, including the results of their camera trapping surveys between 2013 and 2018 and data from several wildcats that had been fitted with satellite collars during the same period. This data was used as background information in the assessment of the use and relative importance of habitats within the proposed development area for wildcat.

4.4.11 The proposed wind farm Site was known to be located in an area that overlaps with several wildcat territories. Wildcat territories vary greatly in size with males tending to range further than females. The whole of Clashindarroch Forest, which is about 59 square kilometres, has the potential to support a population of about 9 female wildcats. The surveys and other data sources confirmed the presence of wildcats and hybrid wildcats within the general area of the proposed wind farm and ranging within the wider Clashindarroch Forest. Wildcat activity was mostly concentrated along the main forest access tracks and banks of watercourses, with very little evidence of wildcat using areas where the wind turbines would be located. There was no evidence that habitat in the vicinity of the proposed wind farm are favoured in comparison to the wider forest. Also, most of the location fixes from the available satellite tracking data showed that the cats were spending most of their time (c. >85% of location fixes) outside of Clashindarroch Forest. These findings were consistent with previous assessments of habitat quality, in terms of wildcat prey availability, the favoured movement corridors and the distribution of features that wildcat may use for cover and as resting sites within the wind farm study area.

4.4.12 The surveys also confirmed the presence of red squirrel in some parts of the proposed development area, particularly where the conifer plantation provides more attractive habitat for this species. Pine marten were also found to be present across most of the proposed development area. Badger were also present in some locations and several setts were found.

4.4.13 A bat roost, used by a small number of common pipistrelles, was found within a ruined building within the proposed development area. This roost would not be directly affected by the construction of the wind farm. The bat activity surveys revealed the presence of both common and soprano pipistrelles commuting and foraging at most of the locations where activity was monitored. Myotis species and brown long-eared bats were also recorded but much less frequently and in fewer locations than common and soprano pipistrelles. Most of the more open bat activity monitoring sites, comparable to the proposed wind turbine locations once the trees have been cleared, had relatively low levels of activity in comparison to sites associated with river corridors and along sheltered forest edges.

4.4.14 The type and scale of the potential impacts of the proposed development on each receptor / species was determined in the assessment. Taking into consideration the conservation status, size and sensitivity of the populations affected and information available from the scientific literature about the vulnerability of the species to the range of potential impacts from onshore wind farm development.

4.4.15 Consideration was also given the potential for the quality of habitats within the proposed development area change with time, as would be expected given the cyclical nature of commercial forestry, for each species, so that the area might support a larger population in the future and therefore be of greater importance to that species.

4.4.16 Where there was uncertainty about potential effects (for example the potential long-term response of wildcat to operating wind turbines) then conservative assumptions were made in the assessment process and in determining the need, scope and scale of any proposed mitigation to offset the potential effects of the wind farm.

4.4.17 The proposed wind farm would require relatively small areas of tree felling, most of which would be re-planted following construction. The proposed felling would all be commercial non-native conifers, trees that would be felled at some point in the normal forestry rotation. Only about 88.5 hectares, mostly around the bases of the proposed wind turbines, would be left un-planted for the life-time of the wind farm, about 25 years. To put this into context, 88.5 hectares is about 1.4% of the area of Clashindarroch Forest.

4.4.18 The assessment of effects on key ecological receptors arising from the proposed development identified the potential for unmitigated significant effects to occur from felling and construction activities. In particular, associated with the risk of pollution to watercourses with resulting effects on sensitive watercourses and fish populations downstream of the site. Also the potential for unmitigated effects of disturbance associated with felling and construction of the wind farm to also result in significant effects on wildcat, red squirrel and pine marten. In order to address this, a range of measures have been proposed to avoid, minimise or offset each of these potentially significant effects.

4.4.19 A suitably experienced Ecological Clerk of Works (ECoW) would be appointed to supervise the implementation of, and adherence to, the agreed environmental protection measures for the duration of the construction and site restoration phases of the project. The ECoW would have authority to immediately halt any works that have the potential to affect protected species or that would contravene the ecological / environmental commitments.

4.4.20 A set of outline best practice Species Protection Plans have started to be developed and would be taken forward as detailed plans, in consultation with NatureScot and Aberdeenshire Council, well in advance of the commencement of felling operations for the

proposed development. Pre-felling and pre-construction surveys for the relevant protected species (i.e. badger, bats, otter, pine marten, red squirrel and wildcat) would be completed. The results would inform detailed species protection and mitigation measures that may need to be developed prior to works commencing, depending on the outcome of the pre works surveys. The protection plans would include appropriate best practice measures to ensure that the potential adverse effects on the species during felling and construction are avoided and that the works proceed lawfully with respect to the legislation protecting the species. It is vital that significant disturbance to wildcat, especially breeding females, is avoided during the works due to the 'critically endangered' status of the population in Scotland. The intention is to programme tree felling for the wind farm outside of the main breeding season for the species to reduce disturbance to wildcat generally and help avoid the risk of any active breeding sites being affected.

4.4.21 During felling and construction, best practice would be adopted to minimise any effect on watercourses and sensitive mire and flush habitats in and around the proposed development. A CEMP would be developed post-consent. It would include a range of plans and method statements detailing best practice approaches to water, soils and waste management and pollution prevention during the construction of the wind farm. The CEMP would include method statements for the construction of tracks and watercourses crossings, minimising the risk of water and chemical pollution to aquatic habitats.

4.4.22 An outline Fisheries Management Plan (FMP) has been developed in consultation with the Deveron, Bogie and Isla Rivers Charitable Trust. The FMP sets out the proposed approach to pre- and post-construction monitoring of the health of fish populations, in particular salmon and trout, within the watercourses draining from the site. Water quality monitoring would also be undertaken through chemical analysis of water samples, continuous and visual monitoring of water chemistry and silt loads, and sampling of stream invertebrates to detect any changes in water quality as a result of the proposed tree felling and construction works.

4.4.23 The risk of bat mortality during the operational phase of the wind farm is likely to be low and has been reduced through the design of the wind farm, the felling plans and a commitment to maintain forest edges at least 50m from the turbine blade tips. However, there is some uncertainty around this potential effect due to the inherent limitations of wind farm pre-construction bat monitoring. This uncertainty is increased by the requirement to install aircraft warning lighting on some of the wind turbines. Such lighting has the potential to increase the risk of bat mortality, although, given the type of lighting proposed this is also considered to be a low likelihood. It is possible that alternative technologies will be put in place to avoid the need for visible or permanent aircraft warning lighting. However, should permanent aircraft warning lighting be required, a monitoring programme is proposed, to ensure that the risk to bats from the operational wind farm is more fully understood.

4.4.24 An outline HMP has been developed, in consultation with NatureScot and FLS as detailed in Section 2 and Chapter 9: Ecology of the EIA Report. The HMP is primarily intended to address the potential for long-term effects of the proposed wind farm on the wildcat population associated with Clashindarroch Forest, although the HMP would also have wider biodiversity benefits. The outline HMP proposals would be developed into fully detailed plans prior to commencement of the proposed development and as soon as possible following application determination. The outline HMP includes measures to improve habitat connectivity for wildcat between Clashindarroch Forest and the large woodland blocks within the Strathbogie WPA.

4.4.25 The assessment has concluded, assuming that the proposed mitigation measures are implemented effectively, that all potentially significant adverse effects are avoidable for all sensitive ecological receptors. In relation to the HMP proposals, there is the potential to result in a net positive contribution to local biodiversity and national nature conservation policy objectives in the long-term.

SI Update

4.4.26 The EIA Report cumulative assessment has been reviewed in relation to new information on wind farm proposals that has been made public since the original assessment was completed. This review focused on those proposals that could act cumulatively with the proposed development, potentially resulting in significant adverse effects on the relevant ecological receptors (i.e. fish populations and protected species such as wildcat and bats) from impacts such as wind turbine mortality (bats), habitat loss, habitat degradation, disturbance. It was determined, based on the available information, that significant cumulative effects were unlikely to occur for these receptors and that the conclusions of the original assessment should remain unchanged.

4.5 Cultural Heritage and Archaeology (EIA Chapter 10 and SI Chapter 10)

4.5.1 An EIA was conducted on the direct and indirect impacts of the proposed development on Cultural Heritage assets. This assessment has been undertaken in accordance with national legislation, national and local government policies and guidance documents of the Chartered Institute of Archaeologists. In order to complete the assessment, Historic Environment Scotland (HES) and Aberdeenshire Council Archaeology Service (ACAS) were consulted with regard to heritage assets within their respective remits.

4.5.2 An Inner Study Area comprised of land within the Site boundary. A baseline condition for the Inner Study Area was compiled, which included synthesis of all known heritage assets within this area to create a predictive model of probability for unknown buried archaeological remains.

4.5.3 An Outer Study Area of 5km was established within the scoping and re-scoping report. The Outer Study Area was established to assess indirect impacts of the setting of designated heritage assets. Consultation was established with HES, Aberdeenshire Council and the ACAS in the initial scoping of the proposed development. HES requested that Assets such as Tap O' Noth, (SM63) Wormy Hillock, (SM3278) and Beldorney Castle (LB9164) were assessed by the EIA Report. After re-scoping in December 2017, Historic Environment Scotland welcomed the additional assets to be included in the assessment and requested Gallows Hill Cairn (SM11576) be added to the list. Photomontages and wireline drawings were also requested.

4.5.4 The assessment concluded that the potential impact upon on unknown heritage assets within the cultural heritage and archaeology Inner Study Area of a prehistoric, Roman or early medieval date are low. It noted that some of the undated sites within the cultural heritage and archaeology Inner Study Area maybe medieval in date, and that post-medieval sites may have medieval origins. It concludes that the potential for unknown assets of the medieval period is low to moderate. A number of assets are identified of the post-medieval period within the cultural heritage and archaeology Inner Study Area. The potential for unknown heritage asserts of this period is moderate.

4.5.5 The assessment concluded the proposed development has the potential for direct impacts upon 11 known heritage assets, each being post-medieval or modern in date. The heritage significance of these assets is assessed as low or negligible. The significance of effect was assessed as between very slight or negligible. Mitigation measures were recommended for each site impacted upon, following which no significant residual effects are anticipated.

4.5.6 Indirect impacts on asset setting were assessed for assets within the cultural heritage and archaeology Inner and Outer Study Areas as appropriate. In addition, further assets requested by consultees or identified by SLR beyond the cultural heritage and archaeology Outer Study Area were assessed for impacts upon their setting. Above negligible effects were found upon a single heritage asset, that of Tap O' Noth Scheduled Monument (SM63) were the significance of effect upon setting was assessed as very slight. There were no effects identified that are significant in EIA terms.

4.5.7 Heritage assets were included in an assessment of cumulative indirect impacts where an above negligible significance of effect was identified from the proposed development, which includes Tap O' Noth (SM63) only. Contributor developments included wind farms that are consented, are within the planning system as either an application or appeal, and are within 10km of the heritage assets. There were no contributor sites within 10km of Tap O' Noth, and therefore there are no cumulative indirect impacts upon the setting of the heritage asset.

SI Update

4.5.8 SI Chapter 10 provides an updated assessment of predicted cumulative effects on heritage assets. It therefore replaces the assessment previously reported in paragraphs 10.123 and 10.124 of the EIA Report.

4.5.9 This updated assessment takes account of changes in the wind farm developments that potentially contribute to cumulative effects and a decision by the Applicant to consider the proposed Clashindarroch Extension (Infinergy Development) Wind Farm. The updated assessment also takes account of comments received from HES in its response to the EIA Report regarding the relevance of the existing Clashindarroch Wind Farm to the cumulative impact assessment.

4.5.10 In the context of onshore wind farm development, the potential for cumulative effects on the significance of heritage assets arises when two or more operational schemes are present in the setting of a heritage asset. This potential for cumulative effects is only relevant to the current assessment when a heritage asset is predicted to experience adverse impacts of more than negligible magnitude from the proposed development in isolation. The only asset where this applies is the Tap O' Noth fort; the scope of the cumulative assessment is therefore limited to this Scheduled Monument, as it was in the EIA Report.

4.5.11 Comparing the various wind farms that are currently visible or might be present in future in the setting of Tap O' Noth fort, it is considered that only the cluster of three 'Clashindarroch' wind farms to the west are of sufficient scale and visual prominence to make a material contribution to cumulative impacts. This updated cumulative assessment has therefore considered the following four scenarios:

- Scenario 1: The additional impact of the proposed development against a baseline containing the existing Clashindarroch Wind Farm;

- Scenario 2: The combined impact of the existing Clashindarroch Wind Farm and the proposed development;
- Scenario 3: The additional impact of the proposed development against a baseline containing the existing Clashindarroch Wind Farm and Clashindarroch Extension (Infinergy Development); and
- Scenario 4: The combined impact of the existing Clashindarroch Wind Farm, the proposed development and Clashindarroch Extension (Infinergy Development).

4.5.12 For all four assessment scenarios, it is concluded that there would be adverse impacts of very low magnitude and slight significance on the Tap O' Noth fort. These are not significant effects in EIA terms. These findings reflect the fact that the presence of greater or lesser numbers of wind turbines in a group more than 5km to the west of the Tap O' Noth fort has very little impact on the contribution that setting makes to the significance of this Scheduled Monument and our ability to appreciate or understand the fort as an important place in the Iron Age. The different assessment scenarios therefore lead to essentially the same conclusion.

4.6 Hydrology, Hydrogeology and Geology (EIA Chapter 11 and SI Chapter 11)

4.6.1 The Hydrology, Hydrogeology and Geology Chapter of the EIA considers the potential effects of the construction of the proposed development on surface water and groundwater, modification of surface water drainage patterns, GWDTEs, private water supplies, soils and peat instability during construction. No significant operational effects or cumulative effects are predicted.

4.6.2 Information on the hydrological study area was compiled using baseline information from a desk study and was verified by field work prior to completion of the assessment. The assessment was undertaken considering the sensitivity of any receptors identified and considering mitigation measures incorporated as part of the Site design (embedded mitigation).

4.6.3 The proposed development is located in the catchments of the River Deveron and the River Bogie, a tributary of the River Deveron. Construction of infrastructure is restricted to the River Bogie catchment. A public water supply and water supply infrastructure have been identified near to the Site, and a number of private water supplies have been confirmed downstream of the Site. The proposed development is therefore considered to be located in the vicinity of sensitive receptors relating to the water environment.

4.6.4 A programme of peat probing has been completed and this has been used to inform the Site design. No deep peat would be disturbed by the proposed development.

4.6.5 The proposed development has used existing watercourse crossings wherever possible. Only two new watercourse crossings are proposed and four existing watercourse crossings would require upgrading. All proposed infrastructure would lie remote to any fluvial floodplains.

4.6.6 An assessment of potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs) has been completed. No potentially moderate or high GWDTEs would be disturbed or impaired by the proposed development.

4.6.7 Water samples have been obtained from the principal surface water catchments in which development is proposed and the data obtained has been compared to routine monitoring data collected at the Clashindarroch Wind Farm. The proposed development has been discussed with the Deveron District Salmon Fishery Board and it has been agreed water quality monitoring will be required prior to, during and for a period following construction of the proposed development.

4.6.8 The potential effects of forest felling have been assessed and areas of felling limited, in accordance with best practice, to minimise the potential for felling to affect the quality or quantity of rainfall runoff and consequently the water quality on the Site.

4.6.9 Mitigation measures have been identified, either through the Site design or in accordance with good practice guidance. Examples include no direct discharge of water into watercourses and the specification of Sustainable Drainage Systems (SuDS) to limit the rate of runoff from the Site and allow the quality of water to be managed at source prior to any discharge being made.

4.6.10 These measures have been shown to eliminate any significant residual effects associated with the construction and operation of the proposed development on soils, geology and the water environment. In addition it is concluded that the proposed development would not result in a cumulative effect on soils, geology or the water environment.

SI Update

4.6.11 Following the submission of the Application, there have been no objections from statutory consultees with regards to Hydrology, Hydrogeology and Geology.

4.6.12 The cumulative impact assessment presented in the EIA Report considered potential impacts from wind farms within 5km and within the same hydrological catchment as the proposed development. As part of the SI, this assessment has been reviewed to include the updated cumulative position. It was concluded no new or additional cumulative, or in-combination, significant adverse effects to Hydrology, Hydrogeology and Geology (inc. peat) are expected.

4.7 Carbon Balance (EIA Chapter 12 and SI Chapter 12)

4.7.1 Onshore wind farms by their very nature tackle the issue of climate change. It is estimated that the proposed development would displace between 1,964,000 and 6,981,000 tonnes of carbon dioxide (CO_2) in its lifetime when compared to the amount of CO_2 fossil fuels would have produced to generate the same amount of electricity.

4.7.2 Based on 14 turbines between 4MW and 6.0MW, the annual generation expected from the turbines is estimated at between approximately 184 and 276GWh per year of electrical energy, which equates to the annual power consumed by approximately between 48,653 and 72,980 average UK households (depending on the actual turbines installed).

4.7.3 The calculations of total CO_2 emission savings and payback time for the proposed development indicates the overall payback period of a wind farm with 14 turbines with an average installed capacity of 5.5MW each would be approximately 1.3 years, when compared to the fossil fuel mix of electricity generation.

4.7.4 This means that the proposed development is anticipated to take around 15 months to repay the carbon exchange to the atmosphere (the CO_2 debt) through construction of the wind farm; the Site would in effect be in a net gain situation following this time period and can then claim to contribute to national objectives.

SI Update

4.7.5 The revised cumulative position does not alter the carbon assessment contained in the EIA Report Chapter 12.

4.8 Traffic and Transport (EIA Chapter 13 and SI Chapter 13)

4.8.1 Chapter 13 of the EIA Report considers the potential effects of the proposed development on Highways, Traffic and Transport. It sets out the assessment methodology adopted, existing conditions in the study area, proposed best practice methods and predicted effects prior to, and following, the application of mitigation measures to reduce potentially adverse effects on the road infrastructure, road users and local communities.

4.8.2 The traffic etc assessment has been prepared according to the guidance document 'Transport Assessment and Implementation: A Guide published by the Development Department of the Scottish Executive in 2005. Chapter 13 of the EIA Report also takes account of the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993) and other departmental design standards. The assessment follows principle of assessment as set out in Transport Scotland - Transport Assessment Guidance (2012).

4.8.3 The effects of the construction phase traffic have been assessed against the measured baseline in terms of existing traffic levels, and then compared using standard practice criteria. Based on the IEMA Guidance, the following have been identified as being the most likely environmental effects to arise from changes in traffic movements:

- Noise and vibration – the potential effect caused by additional traffic on sensitive receptors, which in this case would relate to residential properties near to the road (see also Chapter 14: Noise of the EIA Report);
- Driver severance and delay – the potential delays to existing drivers and their potential severance (i.e. separation from other areas, facilities and services within the local area);
- Community severance and delay – the potential severance to communities and the delays to movements between communities;
- Vulnerable road users and road safety – the potential effect on vulnerable users of the road (e.g. pedestrians / cyclists);
- Hazardous and dangerous loads – the potential effect on road users and local residents caused by the movement of abnormal loads; and
- Dust and dirt – the potential effect of dust, dirt and other detritus being brought onto the road.

4.8.4 The significance of the likely effect has been determined by consideration of the sensitivity of receptors to change, taking account of the specific issues relating to the study area, and then the magnitude of that change.

4.8.5 The movement of abnormal loads has the potential to create a general hazard on the highway. Abnormal loads would be moved from the Port of Aberdeen along the A96 to the Site as detailed in the Abnormal Load Assessment Report (ALAR) provided as Technical Appendix 13-1 in the EIA Report. The ALRA details that the Abnormal Loads must be delivered to the Site under controlled conditions and under a suitable escort. The manner in which abnormal loads are transported along the public highway/trunk road network would be subject to the approval of Transport Scotland, Aberdeenshire Council and Police Scotland in advance. Vehicular access to the Site would be from the Craighead/Wellheads access junction with the A920, however the current Site access would be widened to allow for the movement of abnormal load vehicles (for transport configurations larger than that required for the construction of the existing Clashindarroch Wind Farm). The majority of construction activities would result in Heavy Good Vehicles (HGV) trip generation which would be spread over the construction period. The highest level of HGV trip generation would occur in months 7-9 of the construction period, with the maximum level of two-way trip generation of 78 HGV movements per day in Month 9. Over the 18 month construction period, HGV trip generation arising from the Site would amount to an average of 25 movements per day.

4.8.6 Noise and vibration, Community severance and delay and Dust and dirt have been classified as low sensitivity, due to the limited presence of sensitive receptors adjacent to the roads within the study area. Driver severance and delay has been classified as medium sensitivity, as the road network will be affected but is not currently experiencing congestion at peak times. The remaining receptors have been classified as high sensitivity receptors.

4.8.7 The predicted effects are considered to be negligible for all receptors, with the exception of Hazardous and dangerous loads which has been classified as having a ‘Minor’ effect on abnormal load delivery days, with a negligible effect on all other days.

4.8.8 The traffic etc assessments detailed in Chapter 13 of the EIA Report have been based on the assumption that there would be no additional construction activities for other wind farms taking place during the construction period for the proposed development: this ensures a worst case assessment in terms of traffic effect against baseline levels i.e. the baseline levels are not elevated by other construction traffic.

4.8.9 In the event that construction of the proposed development and any of the identified cumulative wind farm schemes (above) occur concurrently, this would not lead to any further environmental effect in transportation terms, beyond that assessed, provided that:

4.8.10 Abnormal load movements are programmed in conjunction with the police and the Roads Authority so as not to occur on the same day; and

4.8.11 Days of specific high density of traffic movement (e.g. concrete pour days) are programmed so as to not occur on the same day (to be enforced through inclusion as a factor within the Construction Traffic Management Plan (CTMP), to be agreed with Police Scotland and the Roads Authority accordingly).

4.8.12 Consideration would be given to these and any other major developments that may be utilising the same roads during drafting and agreement of the CTMP.

4.8.13 Potential residual impacts are likely to be those associated with delivery of the abnormal loads and resultant temporary road closures. In addition, an increase in traffic would add to the risk of general wear and tear to roads and verges. There are no significant residual impacts anticipated in relation to the proposed development.

4.8.14 All traffic receptors have been classified as not being significant due to the negligible effect discussed above. Although hazardous and dangerous loads have been classified as resulting in a 'minor' significant effect, the number of days over which abnormal loads will be delivered to Site are so few that the over-all impact is considered to be 'not significant'.

4.8.15 When taking account of consideration of all potential effects, it is considered that the proposed development would lead to an insignificant adverse effect in terms of traffic and transportation.

SI Update

4.8.16 The updated cumulative position considers the Garbet Wind Farm application. In the event that both Garbet Wind Farm and the proposed development were to be consented they would be subject to CTMPs which would ensure that traffic using the A920 form both developments would be managed appropriately. This is consistent with the EIA Report for Garbet Wind Farm.

4.8.17 There are scoping sites identified in the cumulative update which are within 5km of the Site but as these are still at the scoping stage they are not considered further.

4.9 Noise and Vibration (EIA Chapter 14 and SI Chapter 14)

4.9.1 The construction, operation and decommissioning of wind energy schemes can have an impact on nearby noise-sensitive receptors. However, disruption due to construction is a localised phenomenon and is temporary and intermittent in nature. Predictions have shown that there will be minimal impact during this phase of the development.

4.9.2 Onshore wind turbine developments generally occur in rural locations where background noise levels can be low and therefore wind turbines can be audible. Noise limits are set in accordance with the guidance document ETSU-R-97 to protect the amenity of residents living close to wind turbines.

4.9.3 The ETSU guidance establishes noise limits in relation to existing background noise levels. In this instance, background noise surveys have been conducted at the following locations in agreement with Aberdeenshire Council:

- Finglenny: and
- Corrylair.

4.9.4 The results of the background noise survey and noise limits stipulated in the existing Clashindarroch Wind Farm permission have been assessed in accordance with the ETSU guidance to derive suitable noise limits. The ETSU guidance allows for a higher noise limit at financially involved properties.

4.9.5 Predictions for a candidate wind turbine have been undertaken in accordance with the calculation methodology in ISO9613-2. The methodology is considered to provide realistic predictions of wind turbine noise based on suitable input parameters as outlined in the Institute of Acoustics Good Practice Guide. The existing Clashindarroch Wind Farm has been assumed to be operating at its consented limit.

4.9.6 The predicted cumulative noise levels have been found to exceed the derived noise limits at a number of locations for a range of windspeeds.

4.9.7 A review of Chapter 18 of the ES for the Clashindarroch Wind Farm indicates that suitable headroom exists so that cumulative noise levels would meet the full ETSU-R-97 noise limit. In addition, noise immission levels from Clashindarroch Wind Farm would be controlled by receptors the closest noise-sensitive receptors resulting in significantly reduced levels at receptors further away.

4.9.8 The predictions are based on downwind propagation from all wind turbines simultaneously. In reality this would not be the case based on turbine and receptor locations.

4.9.9 Whilst it is considered that suitable noise limits would be met, further analysis would be required to determine appropriate wording of any planning condition.

SI Update

4.9.10 Although the overall conclusion in the EIA Report was that there would be no significant noise effects, the assessment showed exceedances of the consented limit on the existing Clashindarroch wind farm.

4.9.11 Aberdeenshire Council have objected on noise grounds however Aberdeenshire Council's Infrastructure Services (Environmental Health) department have stated they have no objection subject to a condition.

4.9.12 A proposed alternative methodology for assessment is introduced, whereby the proposed development is assessed cumulatively with the existing Clashindarroch Wind Farm against the limits applied to the existing wind farm, with the intention that these would form limits on the two sites acting together in planning conditions on any deemed planning permission. These limits are shown to be met based on predicted noise levels for the two sites operating together under worst case downwind noise propagation conditions.

4.9.13 No other developments have been included in the cumulative assessment as the noise budget implicit in the limits, applied by condition, is only available to the operator of the existing windfarm, or any other wind farm under their control.

4.10 Aviation (EIA Chapter 15 and SI Chapter 15)

4.10.1 The potential effects of the proposed development on aviation receptors were assessed by analysing the proximity of the proposed development to aviation and defence facilities or activities, and through consultation with relevant aviation stakeholders. The analysis involved a systematic review of the aviation charts and data available, with reference to the appropriate UK aviation legislation and utilising radar line of sight analysis to establish the detectability of turbines by relevant regional radar systems. Potential aviation stakeholders were identified and for each receptor, the physical obstruction and/or radar effects (created

by predictability of radar detection of the wind turbines) and then subsequently the significance of effect were considered.

4.10.2 Desk-based analysis and consultation activities have identified that the proposed development would be likely to have an effect on the following aviation radar systems:

- NATS Allanshill Air Traffic Control (ATC) Primary Surveillance Radar (PSR) system[3]; and
- Ministry of Defence (MoD) Buchan Air Defence Radar (ADR) system

4.10.3 During commissioning activities of the proposed development, the static nature of the infrastructure is such that it would not be presented onto ATC radar displays by the system, and as such, the turbine commissioning process would have no significant effect on the affected radar systems. Once operational radar detectable wind turbines can generate a 'clutter' effect on the screens of radar equipment, which may hamper radar operators' ability to distinguish real aircraft radar returns from those created by the wind turbines, and therefore degrade the safety and efficiency of the air traffic services being provided.

4.10.4 During operation of the proposed development, it is predicted that radar detectable operational wind turbines would create unwanted radar returns (clutter) to be presented onto radar display screens which can affect air traffic controller's ability to maintain track identification of the aircraft they are controlling in the proximity of the windfarm.

4.10.5 Although not the only ATC PSR in use at Aberdeen Airport, data from the Allanshill PSR is utilised to provide ATC radar services from the airport. The airport safeguarding team stated that the position of the airport with regard to the proposed development would be confirmed on the submission of the application. It has been identified and agreed that a technical mitigation solution could be implemented to resolve the predicted effects of wind turbines on the NATS Allanshill PSR. Additionally, the Applicant is continuing engagement with the MoD to ensure that the proposed development would not affect the Buchan ADR.

4.10.6 All phases of the proposed development (construction, operation and decommissioning) may present a physical obstruction to aircraft operating in the MOD UK Low Flying System (UKLFS). The introduction of significant physical obstructions into the low-level environment has the potential to present a restriction to the flow of aircraft in the area. The fitting of aviation lighting to wind turbines with a blade tip height in excess of 150 metres above ground level (agl) would be required in accordance with CAA regulations.

4.10.7 Discussions regarding radar mitigation are ongoing with NATS and the MoD and it is expected that the deployment of appropriate mitigation measures will be implemented prior to the proposed development becoming operational and would remain in place until all turbines cease operation.

[3] The Allanshill PSR is utilised by Aberdeen Airport for the provision of radar based ATC services. NATS provide ATC services under contract to the airport.

SI Update

Aviation Lighting

4.10.8 Following the submission of the Application, the Applicant submitted a Proposal for a Variation from Obstructing Lighting Requirements of the Air Navigation Order in order to minimise potential landscape and visual amenity effects.

4.10.9 The CAA granted the variation which is as follows:

- medium intensity steady red (2000 candela) lights on the nacelles of Turbines 1, 5, 6 and 12;
- a second 2000 candela light on the nacelles of Turbines 1, 5, 6 and 12, to act as alternates in the event of failure of the main light;
- the lights on Turbines 1, 5, 6 and 12 will be capable of being dimmed to 10% of peak intensity when the visibility as measured at the wind farm exceeds 5km; and
- The CAA also confirmed that infra-red lights to Ministry of Defence (MOD) specification should be installed on the nacelles of the following perimeter Turbines 8,9 and 14.

4.10.10 The CAA also confirmed that intermediate level 32 candela lights are not required

NATS Allanshill PSR

4.10.11 An agreement has been entered into between NATS En Route Limited (NERL) and Vattenfall Wind Power Ltd dated 14/09/2020 for the agreement of suitable planning conditions and the implementation of an identified and defined mitigation solution in relation to the development that will be implemented under agreement. In summary, such mitigation solution will require works to be carried out to NERL's infrastructure and comprises blanking of the radar coverage from the affected Radar and infill coverage from an existing Infill Radar along with associated adaptation changes (including those that may be required for MultiRadar Tracking).

MOD Buchan ADR

4.10.12 Technical mitigation proposed by the Applicant has been accepted by the MOD.

4.10.13 The agreed technical mitigation is to be implemented through the inclusion of appropriate conditions, in any consent that may be granted.

4.11 Socio-economics, Tourism, Recreation and Land Use (EIA Chapter 16 and SI Chapter 16)

4.11.1 The assessment of socio-economic effects sets out the likely socio-economic effects, including land use, recreation and tourism effects, associated with the proposed development.

4.11.2 The assessment has been broken down into two phases: construction (approximately 18 months) and operational periods.

4.11.3 For the purposes of assessing socio-economic issues (employment and economy), a Wider Study Area (WSA) has been set primarily at the area of the Aberdeenshire Council and Moray Council administrative area but referencing Scotland as a whole where relevant. For the purpose of assessing effects on tourism and recreation receptors, the study area is a more local area (Local Area of Influence or LAI) defined as an area extending approximately 5km from the Site.

4.11.4 Proposed development expenditure during the construction phase is estimated to be approximately £53 million, from which businesses within the local area and Scotland as a whole would benefit.

4.11.5 Expenditure on goods and services together with spending by employees have been assessed in terms of their effects on the local and national labour markets:

- Allowing for multiplier effects, the proposed development could support up to around 34 net additional FTE jobs each year on average over the construction period (18 months) in Scotland (including direct, supply chain and induced jobs).
- During the operational phase the proposed development is expected to require between 4 and 5 new full time employees (engineers and technicians) locally and a further posts would be created elsewhere in Scotland. Additional benefits would accrue to the local supply chain as a result of services supplied to the operation of the windfarm. The effect on employment during the operational phase is considered to be negligible (but positive).

4.11.6 The local economy in the WSA would be expected to be boosted by a total of £3.04 million of net Gross Value Added (GVA) during the construction period. The Scottish economy would benefit by some £14.40 million net GVA.

4.11.7 Information from other projects developed by Vattenfall indicates that a wide range of supply chain businesses could expect to benefit from the investment in the local and Scottish economy, including haulage, aggregates supply, forestry services, building services, fencing, and security. Vattenfall is committed to employing good practice measures with regard to maximising local procurement and would adopt established good practice measures such as running supply chain/Meet the Buyer events.

4.11.8 In terms of the tourism and visitor economy, a number of published studies have been reviewed which indicate that the presence of the proposed development would not have a deterrent effect on people visiting the area. For both construction and operational phases, therefore, the socio-economic effects at the level of the WSA are considered to be not significant (but beneficial).

4.11.9 With regard to recreation and tourism assets, no significant effects are expected during construction of the proposed development subject to appropriate good practice management of construction traffic effects along the access roads to the Site and within the Site through implementation of a CTMP. Beneficial effects (also not significant) may be experienced by some businesses, such as accommodation businesses and shops, that supply goods and services to construction workers.

4.11.10 No significant adverse effects have been identified during the operational phase. The proposed development would leave a legacy of an additional 11km of new tracks that would support recreational uses within the Site, including informal use for cross-country skiing. Whilst this has potential to extend the recreational use of the Site, the primary use would

remain commercial forestry and the likely effect is considered to be not significant (but beneficial).

4.11.11 The Applicant is working with local communities associated with Clashindarroch and is committed to offering a package of measures to local communities that would include the opportunity for community benefit payments to be made and for communities to invest in the operational windfarm. The existing Clashindarroch Community Fund, funded by Clashindarroch I Wind Farm, awarded grants of nearly £550,000 in the three years from 2015 to 2018 across a wide range of projects in line with the fund's priority areas.

4.11.12 Benefits accruing from the scale and nature of the proposed income streams could, as on previous projects, have a positive effect on the physical and mental well-being of local residents as well as economic benefits. The long term nature of the income would allow the community to plan ahead, to draw in other sources of match funding to maximise the benefits and investment projects could be designed to match local socio-economic priorities.

4.11.13 Overall the proposed development is expected to have a positive economic effect that is not significant in EIA terms, and no significant adverse effect on land use, tourism and recreation. Benefits arising through spending by construction workers and operational staff, as well as through community benefits packages (including potential for investment) would support local businesses and communities.

SI Update

4.11.14 The revised cumulative position does not alter the assessment contained within the EIA Report summarised above.

4.12 Other Environmental Issues (EIA Chapter 17 and SI Chapter 17)

Shadow Flicker

4.12.1 Shadow flicker may occur under certain combinations of geographical position and time of day, when the sun passes behind the rotors of a wind turbine and casts a shadow over neighbouring properties/receptors. As the blades rotate, the shadow flicks on and off, an effect known as shadow flicker. The effect occurs inside buildings, where the flicker appears through a window opening.

4.12.2 An assessment has been carried out to identify whether shadow flicker would be likely to occur at properties neighbouring the proposed development, and if so to predict times of day and year, and duration of these potential effects. The assessment identifies any properties which are within an area 10 times the rotor diameter of the turbines because that is where shadow effects are considered to be most apparent.

4.12.3 No properties fall within the study area and therefore shadow flicker has not been considered further.

SI Update

4.12.4 The revised cumulative update does not alter the findings within the EIA Report summarised above.

5 Summary of Significant Effects

Table 5.1: Summary of Significant Effects

Topic	Mitigation	Residual Significant Effects Proposed Development
Landscape Character	Design	Outlying Hills and Ridges LCT (formerly Grampian Outliers LCA, Moorland Plateaux LCT)
Visual	Design	• 5 Viewpoints – VP1, VP4, VP5, VP6 and VP12. • Views from up to eleven residential properties in the Tillathrowie area and part of two minor roads accessing this area (Viewpoint 1); • Views from up to five residential properties southeast of Rhynie; • Views from forestry roads / paths within and adjacent to the Site; and • Views from hill summits (Viewpoints 4, 5, 6, and 12) including the Tap O' Noth and associated Core Path, and the summits of The Buck, Clashmach Hill and the Coreen Hills viewpoint.
Ecology	Design, Pre-Construction Surveys, Construction Environmental Management Plan, Habitat Management Plan, Species Protection Plan	None
Ornithology	Design, Pre-Construction Surveys, Construction Environmental Management Plan, Habitat Management Plan, Species Protection Plan	None
Hydrology, Hydrogeology and Geology	Design, Construction Environmental Management Plan, Water Quality Monitoring, Soil and Peat Management Plan	None
Cultural Heritage	Design, Watching Brief	None

Topic	Mitigation	Residual Significant Effects Proposed Development
Carbon Balance		• Generation of between 184 GWh and 276GWh per year of electrical energy. • Displacement of between 7,588,000 and 8,094,000 tonnes of CO2 in the wind farms lifetime. • Carbon payback of 1.3 years.
Highways, Traffic and Transport	Construction Environmental Management Plan, Traffic Management Plan	None
Noise	Design, Construction Environmental Management Plan	None
Aviation	Design, **Aviation Lighting** Following the submission of the Application, the Applicant submitted a Proposal for a Variation from Obstructing Lighting Requirements of the Air Navigation Order in order to minimise potential landscape and visual amenity effects. The CAA granted the variation which is as follows: • medium intensity steady red (2000 candela) lights on the nacelles of Turbines 1, 5, 6 and 12; • a second 2000 candela light on the nacelles of Turbines 1, 5, 6 and 12, to act as alternates in the event of failure of the main light; • the lights on Turbines 1, 5, 6 and 12 will be capable of being dimmed to 10% of peak intensity when the visibility as measured at the wind farm exceeds 5km. • The CAA also confirmed that infra-red lights to Ministry of Defence specification should be	None

Topic	Mitigation	Residual Significant Effects Proposed Development
	installed on the nacelles of the following perimeter Turbines 8, 9 and 14. The CAA also confirmed that intermediate level 32 candela lights are not required. **NATS Allanshill PSR** An agreement has been entered into between NERL and Vattenfall Wind Power Ltd dated 14/09/2020 for the agreement of suitable planning conditions and the implementation of an identified and defined mitigation solution in relation to the development that will be implemented under agreement. In summary, such mitigation solution will require works to be carried out to NERL's infrastructure and comprises blanking of the radar coverage from the affected Radar and infill coverage from an existing Infill Radar along with associated adaptation changes (including those that may be required for MultiRadar Tracking). **MOD Buchan ADR** Technical mitigation proposed by the Applicant has been accepted by the MOD. The agreed technical mitigation to be implemented through the inclusion of appropriate conditions, in any consent that may be granted.	
Socio-economic, Tourism and Recreation		• Positive construction sector effects. • 34 FTE workers during construction. • Approximately £54 million expenditure.
Other Environmental Issues	Design	None

6 Next Steps and Further Information

6.1.1 The Scottish Government appointed Reporter will consider the SI as part of the Section 36 application, with the findings of the EIA, at the forthcoming Public Inquiry.

6.1.2 The submission of the SI will trigger a minimum 30-day consultation period during which consultees will have the opportunity to make representations to the DPEA on its content.

6.1.3 A copy of the SI, updated NTS as well as the full EIA Report and wider application documents will be made available for download from the Applicant's corporate website at: www.vattenfall.co.uk/clashindarrochII/.

6.1.4 Hard copies of the updated NTS are available free of charge from:

Stephenson Halliday

23 Melville Street

Edinburgh

EH3 7PE

Email: sarah.sinclair@stephenson-halliday.com

6.1.5 Paper copies of the SI may be purchased by arrangement from the above address for £380.00 per copy or £15 per USB memory stick copy. The price of the paper copy reflects the cost of producing all of the landscape and visual graphics, therefore a USB memory stick version is recommended.

6.1.6 A copy of the SI and EIA Report can also be viewed electronically via the DPEA website.

Figures

SI NTS Figure 1 - Location Plan

SI NTS Figure 2 - Application Boundary

SI NTS Figure 3 - Aerial Photo

SI NTS Figure 4 - Site Layout

VATTENFALL

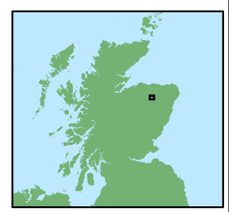
CLASHINDARROCH II WIND FARM

Supplementary Information
Non Technical Summary

SI NTS FIGURE 1
Location Plan

Legend

Site boundary



Datum: OSGB 1936
Projection: British National Grid

0 2 4 6 8 km

Drg No	CLON-1AG-500-001			**Figure 1**
Rev	A	Date	21/10/2021	
By	Ihop	Layout	NA	

VATTENFALL

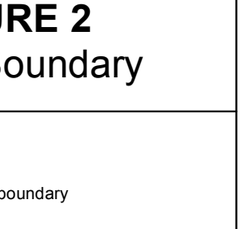
CLASHINDARROCH II WIND FARM

Supplementary Information
Non Technical Summary

SI NTS FIGURE 2
Application Boundary

Legend

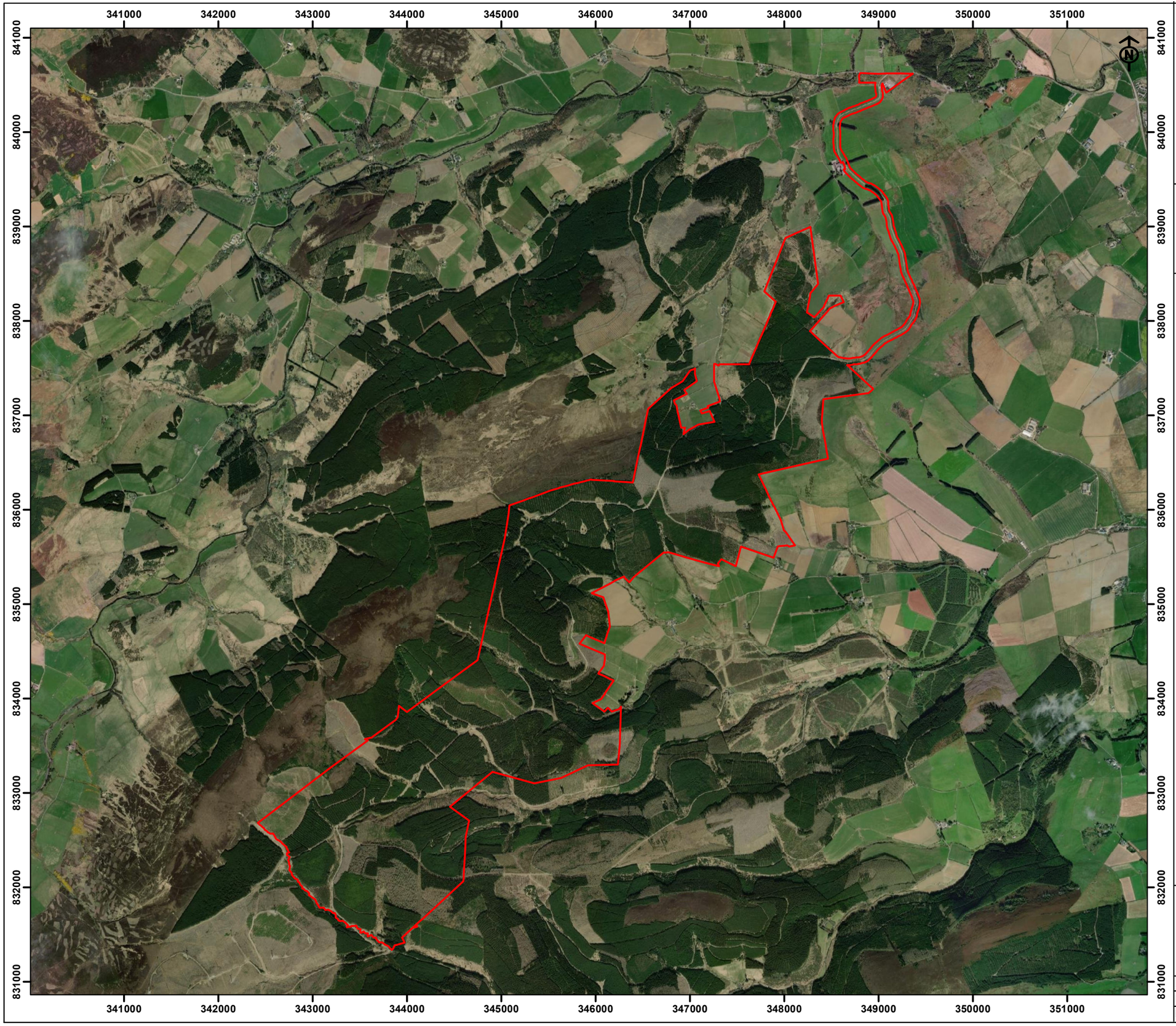
Planning application boundary



Datum: OSGB 1936
Projection: British National Grid

0 0.5 1 1.5 2 km

Drg No	CLON-1AG-500-002			**Figure 2**
Rev	A	Date	21/10/2021	
By	lhop	Layout	NA	



VATTENFALL

CLASHINDARROCH II WIND FARM

Supplementary Information
Non Technical Summary

SI NTS FIGURE 3
Site Aerial Photography

Legend

Planning application boundary

Datum: OSGB 1936
Projection: British National Grid

0 0.5 1 1.5 2 km

Drg No	CLON-1AG-500-003			**Figure 3**
Rev	A	Date	21/10/2021	
By	lhop	Layout	NA	

VATTENFALL

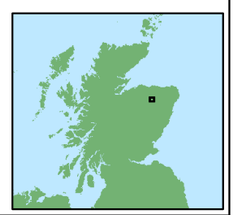
CLASHINDARROCH II WIND FARM

Supplementary Information
Non Technical Summary

SI NTS FIGURE 4
Site Layout

Legend

- Site boundary
- Proposed wind turbine
- Proposed met mast
- Proposed access track
- Alternative access track
- Existing acess track
- Existing substation
- Proposed control building
- Proposed laydown area
- Temporary construction compound
- Existing borrow pit
- Proposed borrow pit search area
- Proposed crane hardstanding
- Existing water crossing
- Existing water crossing with additional works
- New water crossing
- Watercourse
- 50 m buffer of watercourse



Datum: OSGB 1936
Projection: British National Grid

0 0.5 1 1.5 2 km

Drg No	CLON-1AG-500-004		
Rev	A	Date	21/10/2021
By	lhop	Layout	LCLON046

Figure 4