2 Site Description & Design Evolution

2.1 Introduction

2.1.1 The area bounded by the red line boundary on **Figure 1.2** shall be referred to as 'the Site'. The Site is located on elevated open moorland, located approximately 27km south-east of Inverness, and approximately 5.5km south of the village of Tomatin.

2.1.2 This chapter describes the Site, the Site selection process, outlines the key constraints and details the design evolution adopted that allowed the Applicant to arrive at the final layout of the Proposed Development, as described in **Chapter 3: Proposed Development Description** of this Environmental Impact Assessment (EIA) Report. The final layout of the Proposed Development is shown in **Figure 1.3**.

2.1.3 It then draws on issues considered in more detail in the relevant technical chapters (Chapters 5 to 12). However, it does not pre-empt the conclusions of the later chapters. Instead, it explains how potential environmental effects identified early in the design process and throughout the EIA have influenced the layout design of the Proposed Development.

2.2 Current Land Use and Site Context

2.2.1 The Site comprises predominately managed upland grouse moorland with agricultural fields and mixed woodland in lower altitude areas. Clune Burn and Allt Lathach traverse the Site along with other smaller tributaries running into the River Findhorn that lies to the north-west, out with the Site boundary.

2.2.2 The Site inclines generally in a north-east to south-west direction, reaching the highest point of the Site, 750m, at Carn Dubh'Ic an Deoir. The northern edge is bounded by the River Findhorn and the northeastern boundary by the A9. The Site can be approximately divided by four main watercourses that flow north into the River Findhorn: Allt Phris, Clune Burn, Allt Lathach, and Wester Strathnoon Burn.

2.2.3 The Site is mainly used as a grouse moor, managed by grazing livestock such as sheep, and regular burning of mature heather to provide new growth. The Site also consists of small patches of grassland along the northern boundary used by grazing livestock, a block of conifer plantation in the north-east, and an area of ancient deciduous woodland on the banks of the Allt Phris.

2.2.4 There are a number of wind farms within 35km of the Proposed Development (see **Figure 5.12**). Operational, under construction and consented wind farms include Dunmaglass Estate, Aberarder, Glen Kyllachy, Farr, Moy, Tom nan Clach all within 15km of the Site.

2.3 Policy Considerations

National Planning Policy

2.3.1 National Planning Framework 4 (NPF4) was adopted by the Scottish Government on 13 February 2023 and sets out the overarching spatial strategy for Scotland to 2045. The foundations for the spatial strategy as a whole are the global climate emergency and the nature crisis. NPF4 supports a large and rapid increase in electricity generation from renewable sources to meet Scotland's net zero emissions targets. Policy 11 'Energy' identifies that onshore renewable energy development proposals will be supported in principle, except for onshore wind farm developments in National Parks and National Scenic Areas. Policy 11 also sets out that project design and mitigation should demonstrate how impacts, including significant landscape and visual impacts, have been addressed.

2.3.2 There are two central themes running through NPF4 namely addressing i) the climate emergency and ii) the nature crisis. These key themes are reflected in the detailed wording of many policies, as well as their stated Intent and Outcomes. As the Ministerial Foreword notes:

> *'Putting the twin global climate and nature crises at the heart of our vision for a future Scotland will ensure the decisions we make today will be in the long-term interest of our country'.*

2.3.3 The positive contribution that the Proposed Development can make to addressing the twin nature and climate crises is set out in the **Planning and Energy Policy Statement**. The commentary starts with Part 1 of NPF4, working through the document in chronological order, and considering the Proposed Development against specific planning policies and wider stated outcomes and spatial priorities.

2.3.4 Part 1 of NPF4 sets out the national spatial strategy and regional spatial priorities for different parts of Scotland. Six spatial principles are identified which will influence all plans and decisions as follows:

- Just Transition;
- Conserving and Recycling Assets;
- Local Living;

- Compact Urban Growth;
- Rebalanced Development; and
- Rural Revitalisation

2.3.5 Part 2 of NPF4 sets out the national planning policies. There are 33 national planning policies in total, set out under the three headings of:-

- Sustainable Places;
- Liveable Places; and
- Productive Places.

2.3.6 For each policy, NPF4 provides commentary on Policy Intent, Policy Outcomes and then discusses implications of the policy for Local Development Plans. Following the policy wording, NPF4 then sets out statements on Policy Impact and cross references to other Key Policy Connections.

2.3.7 The Site is located within the North and West and Coast Area. As detailed in the Planning Statement, NPF4 identifies that *"this part of Scotland will be at the forefront of our efforts to reach net zero emissions by 2045. As one of the most renewable energy rich localities in Europe with significant natural resources, there is a real opportunity for this area to support our shared national outcomes*".

2.3.8 A number of priorities are set out for the region in order to achieve the:

"By guiding Regional Spatial Strategies and Local Development Plans in this area, our strategy aims to:

- *Maximise the benefits of renewable energy whilst enhancing blue and green infrastructure, decarbonising transport and building resilient connections.*
- *Support coastal and island communities to become carbon neutral, thus contributing to net-zero commitments and reducing fuel poverty.*
- *Seize the opportunities to grow the blue and green economy, recognising the world-class environmental assets that require careful management and opportunities to develop skills and diversify employment".*

2.3.9 There are significant opportunities to capitalise on the natural assets of the North and West and Coast Area (which includes the Site) to significantly reduce greenhouse gas emissions through increased renewable energy generation, as outlined in NPF4 National Development Statements of Need, Section 3 Strategic Renewable Electricity Generation and Transmission Infrastructure.

Local Planning Policy

2.3.10 Relevant Local planning policy, forming part of the Development Plan, at the time of the EIA comprises:

- Highland-wide Local Development Plan (HwLDP) (2012);
- The Inner Moray Firth LDP 2 (2024) (IMFLDP); and
- Relevant Supplementary Guidance, including:
  - Onshore Wind Energy Supplementary Guidance (November 2016).

Highland-wide Local Development Plan

2.3.11 The Highland-wide Local Development Plan (HwLDP) was adopted in April 2012 and sets out the Highland wide policies on development and land use within the region. Preparation of the second HwLDP is underway, with preparatory stages such as the Main Issues Report complete and published. There is no anticipated date that the HwLDP 2 is to be adopted, although THC have indicated that further review of the current HwLDP post NPF4 has now begun, albeit with no formal timeline in place. The HwLDP is therefore considered to be a relevant Local Development Plan, however, it is noted that the weight to be attached to the HwLDP is decreased as it is over 5 years old.

2.3.12 The HwLDP Policy most relevant to the Proposed Development is Policy 67 – Renewable Energy Developments, which sets out THC's support in principle for renewable energy developments. The first part of Policy 67 states:

- *"Renewable energy development proposals should be well related to the source of the primary renewable resources that are needed for their operation. The Council will also consider:*
- *The contribution of the Proposed Development towards meeting renewable energy generation targets; and*
- *Any positive or negative effects it is likely to have on the local and national economy;*

2.3.13 *and will assess proposals against other policies of the development plan the Highland Renewable Energy Strategy and Planning Guidelines and have regard to any other material considerations, including proposals able to demonstrate significant benefits including by making effective use of existing and proposed infrastructure of facilities."*

2.3.14 The 'Highland Renewable Energy Strategy' referred to in Policy 67, was removed as a material consideration in August 2016 by the Planning, Development and Infrastructure Committee.

2.3.15 The following policies of the HwLDP are also considered relevant to the Proposed Development:

- Policy 28 – Sustainable Design;
- Policy 51 – Trees and Development;
- Policy 52 – Principle of Development in Woodland;
- Policy 53 – Minerals;
- Policy 55 – Peat and Soils;
- Policy 57 – Natural, Built and Cultural Heritage;
- Policy 58 – Protected Species;
- Policy 59 – Other Important Species;
- Policy 60 – Other Important Habitats;
- Policy 61 – Landscape;
- Policy 64 – Flood Risk;
- Policy 67 – Renewable Energy;
- Policy 69 – Electricity Transmission Infrastructure; and
- Policy 77 – Public Access

Inner Moray Firth LDP 2 (IMFLDP)

2.3.16 The Inner Moray Firth LDP2 was adopted on 27 June 2024 and has been published on the Highland Councils Website[1]. There are no additional policies within this document relevant to the Proposed Development above that in the HwLDP.

Other Local Planning Policy

Cairngorms Local Development Plan

2.3.17 The Site is located in proximity to (but entirely outwith) the Cairngorms National Park Authority (CNPA).

2.3.18 The Cairngorms National Park Partnership Plan 2022 – 2027 (NPPP) is the management plan for the area and is approved by Scottish Ministers. The Plan contains policies relevant to development outwith the boundary of the National Park, but which may have an affect on its special qualities. It will therefore be a material consideration for the Proposed Development.

2.3.19 The relevant policies of the Cairngorms National Park Partnership Plan will be considered where appropriate within each topic specific chapter of the EIA Report.

2.3.20 For the avoidance of doubt, the Site lies outwith the Park Authority boundary.

2.4 Principles of EIA Process

2.4.1 The principles of the EIA process require that site selection and design of the Proposed Development be iterative and constraint-led, to ensure that potential environmental impacts as a result of the Proposed Development are avoided or minimised, as far as reasonably possible. Schedule 4 (2) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations'), requires the consideration of reasonable alternatives in terms of site location and characteristics of the Proposed Development. Regulation 40 (2)(c) of the EIA Regulations requires that an EIA Report should include (in respect of alternatives studied by an Applicant): *"The main alternatives studied by the Applicant and the main reasons for his choice taking into account the effects on the environment"*. Alternative layouts are discussed further in Section 2.7 below.

2.4.2 This EIA Report does not make any judgements regarding the acceptability of the Proposed Development. A separate **Planning Statement** is provided which presents an appraisal of the Proposed Development with reference to the energy and planning policy framework and relevant material planning considerations.

2.5 Site Selection Considerations

2.5.1 The Applicant maintains a sophisticated Geographic Information System (GIS) model for site selection which seeks to mirror planning, environmental, technical and commercial constraints. The GIS model is updated regularly when new data becomes available or when other factors change. Where available and appropriate, the GIS model incorporates published advice from statutory consultees. The Applicants use of the GIS model enables objective and consistent treatment of the whole country to assist with site selection.

2.5.2 The GIS model is based upon a combination of generalised and graded suitability layers covering environmental, economic and technical aspects, known as 'key layers'. All key layers are assessed using a 0% – 100% suitability scale, represented by a 0 – 1 score, where 0 represents unsuitable and 1 represents 100% suitability.

2.5.3 The key layers included in the GIS model are as follows:

- wind speed;
- proximity to housing;
- natural and built heritage constraints; and
- slope constraint.

[1] https://www.highland.gov.uk/info/178/development_plans/202/inner_moray_firth_local_development_plan

2.5.4 In addition, for each site, a visual sweep of the following 'informative layers' is carried out:

- national and local planning policy / development plans / spatial frameworks (as discussed above in Section 2.3);
- MOD tactical training areas;
- electromagnetic links and utilities;
- proximity to other wind farm sites (pre-planning, consented and operational); and
- other information gleaned from maps or knowledge of the area such as masts, undesignated parks, tourist attractions, etc).

2.5.5 These informative layers are included in the GIS model for information, but not scored and combined into the results.

2.5.6 The Applicant undertook an analysis of its GIS model and after having scored with medium to excellent preferability on all inputs, the combination of the scored layers results in a good score for the site.

2.6 Key Issues and Constraints

2.6.1 Once the Site was identified, key issues and constraints for consideration in the design process were established through a combination of desk-based research, extensive field survey and consultation (through the EIA scoping process). The design process considered the following key issues and constraints:

- landscape designations and visual amenity;
- archaeological and cultural heritage assets;
- sensitive fauna;
- sensitive habitats;
- watercourses, private water supplies and sensitive surface water features;
- topography and ground conditions;
- public road accessibility;
- recreational and tourist routes;
- proximity of residential properties;
- aviation and defence constraints; and
- presence of utilities.

2.6.2 **Figure 2.1** shows the key Site constraints.

2.6.3 Information in respect of the survey work to identify various key issues and constraints and how they have contributed to the layout design has been investigated in greater detail in the technical chapters of this EIA Report (Chapters 5 to 12).

2.6.4 The key issues and constraints gleaned from the assessments within the technical chapters has allowed for the careful placement of the Proposed Development within the Site. This allowed the Applicant to facilitate effective mitigation, with potentially significant effects avoided or minimised as far as reasonably practicable through the design process. A summary of the design evolution and potential impacts addressed through the design process is provided in **Table 2.1**. **Table 2.2** categorises the potential impacts following the selection of the final design and where in the EIA Report these are assessed in detail.

2.7 Design Principles and Alternatives

2.7.1 The principles of the EIA process require that site selection and layout design be iterative and constraint-led, to ensure that potential environmental impacts as a result of the Proposed Development are avoided or minimised, as far as reasonably possible.

2.7.2 Schedule 4 (2) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations'), requires the consideration of reasonable alternatives in terms of site location and characteristics of the Proposed Development. Regulation 40 (2)(c) of the EIA Regulations requires that an EIA report should include (in respect of alternatives studied by an Applicant): *"The main alternatives studied by the Applicant and the main reasons for his choice taking into account the effects on the environment"*.

2.7.3 This section will review the principles of the layout design and alternatives options for the Proposed Development.

Design Principles

2.7.4 As part of the iterative approach adopted by the Applicant, a number of design principles have been incorporated into the Proposed Development as standard practice, including the following:

- consideration to the underlying landscape and its scale;
- consideration to operational, consented and proposed wind turbines neighbouring the Site;
- consideration to the size and scale of the Proposed Development appropriate to the location and proximity to residential properties;

- sensitive siting of the proposed infrastructure incorporating appropriate buffer distances from environmental and archaeological receptors to avoid or reduce effects;
- maximising the re-use of existing tracks as much as possible to access proposed wind turbine locations;
- optimising the alignment of new access tracks and hardstands taking due consideration to the topography of the Site, to minimise cut and fill, minimise the impact on sensitive peatland habitats and reduce landscape and visual effects;
- adoption of floating access tracks to minimise disturbance of peat where appropriate;
- minimising watercourse crossings and encroachment on watercourse buffers;
- consideration to inclusion of borrow pit search areas to minimise the volume of the stone required to be imported to the Site;
- using the latest wind turbine technology, consisting of more efficient and larger turbines where these can be reasonably accommodated within the landscape, as supported by the Onshore Wind Policy Statement (OWPS); and
- maximising the potential energy yield of the Site through the employment of co-located technology in optimal locations (wind and BESS).

Alternative Sites

2.7.5 The Applicant uses a range of criteria to select sites for the development of renewable energy projects. As part of the growth plans for the development of renewable energy projects, the Applicant is continually assessing potential sites. The pipeline of potential sites is commercially sensitive and are not considered to be alternative sites to the Proposed Development. Alternative sites are therefore not considered further in the EIA Report.

Do Nothing

2.7.6 The "do nothing" scenario is a hypothetical alternative conventionally considered in the EIA Report as a basis for comparing the development proposal under consideration. This scenario is considered to represent the current baseline situation as described in the individual chapters of this EIA Report.

2.7.7 In the absence of the Proposed Development, it is anticipated that the Site would continue to be managed as a combination of grazing livestock and hunting sports. These land uses would continue on the Site whether or not the Proposed Development proceeds.

Infrastructure & Technologies

2.7.8 Onshore wind remains the most cost-effective option for new renewable energy generation. This Site has been predominantly selected for its potential to generate electricity from wind turbines.

2.7.9 Advances in wind turbine technology have led to the deployment of larger, more efficient turbines. It is recognised that wind turbines will continue to increase in tip height and rotor diameter to maximise electricity generation. To ensure optimal capture of wind energy and associated generation of electricity, spacing between wind turbines increases with wind turbine size. This usually leads to fewer, more productive wind turbines across any given site.

2.7.10 Larger wind turbines are needed if onshore wind development is to continue making a contribution to both the UK and Scottish Government's renewable energy targets. This is especially important given the government's enduring commitment to net zero by 2045, despite declaring the interim carbon reduction targets unachievable. given the

2.7.11 The necessity for larger wind turbines is also recognised in paragraph 23 of the Scottish Government Onshore Wind Policy Statement (OWPS, 2017), which states that the Scottish Government "*acknowledge that onshore wind technology and equipment manufacturers in the market are moving towards larger and more powerful (i.e. higher capacity) turbines and that these by necessity will mean taller towers and blade tip heights*". Paragraph 25 of the OWPS continues that the Scottish Government "*fully supports the delivery of large wind turbines in landscapes judged to be capable of accommodating them with significant adverse impacts.*"

2.7.12 The newer OWPS (2022) states that "*Meeting our climate targets will require a rapid transformation across all sectors of our economy and society. This means ensuring the right development happens in the right place. Meeting the ambition of a minimum installed capacity of 20 GW of onshore wind in Scotland by 2030 will require taller and more efficient turbines. This will change the landscape.*"

2.7.13 The use of larger but fewer wind turbines across any given site allows for greater efficiencies with respect to the civil infrastructure required per wind turbine and hence per megawatt produced. A site with large wind turbines requires fewer wind turbine foundations, crane hardstands, and lengths of access track in comparison to the same site that adopted a greater number of smaller wind turbines.

2.7.14 Furthermore, the supply of smaller wind turbines across Europe is already reducing, due to lack of demand. Manufacturers are recognising the world market is shifting to larger machines with development work focussing on larger wind turbines to maximise the generation of electricity. The onshore wind industry has experienced a reduction in the supply of smaller wind turbines due to a lack of demand from mainland Europe, where the tendency is to install wind turbines with tip heights of 180m – 250m to blade tip. Therefore, it is highly unlikely that a range of smaller wind turbines (e.g. 150m to blade tip) would be available at competitive prices by the time the Proposed Development is ready to be constructed, should it be consented.

2.7.15 For these reasons, the final selection of the wind turbine tip height of 200m was considered to represent the best balance of tall wind turbines and design in the landscape. These considerations and the final selection of wind turbine height are described in Section 2.7 of this chapter.

2.7.16 There is a national requirement to balance the peaks and troughs associated with electricity supply and demand to avoid strains on transmission and distribution networks and to keep the electricity system stable. A battery energy storage system (BESS) is therefore proposed as part of the Proposed Development to support the flexible operation of the national grid and decarbonisation of electricity supply.

2.7.17 The BESS would store electrical energy through the use of batteries, contained alongside inverters (to convert the direct current (DC) from the batteries to alternating current (AC), suitable for exporting to the grid), within a self-contained building adjacent to the substation compound to allow easy connection to the grid and minimise energy losses.

Biodiversity Enhancement

2.7.18 The OWPS 2022 states, in Section 3.5.6, that *"as the rate of onshore wind deployment increases in the coming years, we see a great opportunity for wind energy developments to further contribute significantly to our biodiversity ambition. By proactively managing intact habitats and the species they support, restoring degraded areas and improving connectivity between nature-rich areas, onshore wind projects will contribute to our climate change targets and help address the biodiversity crisis."*

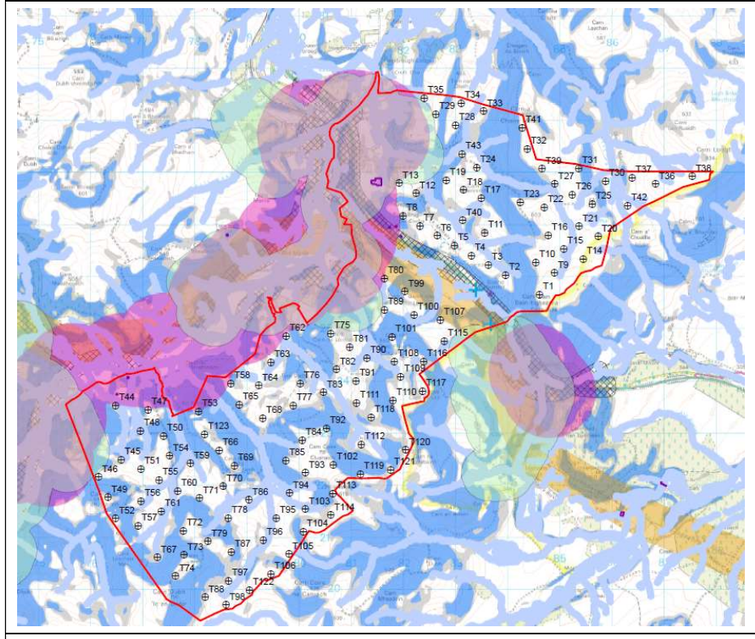
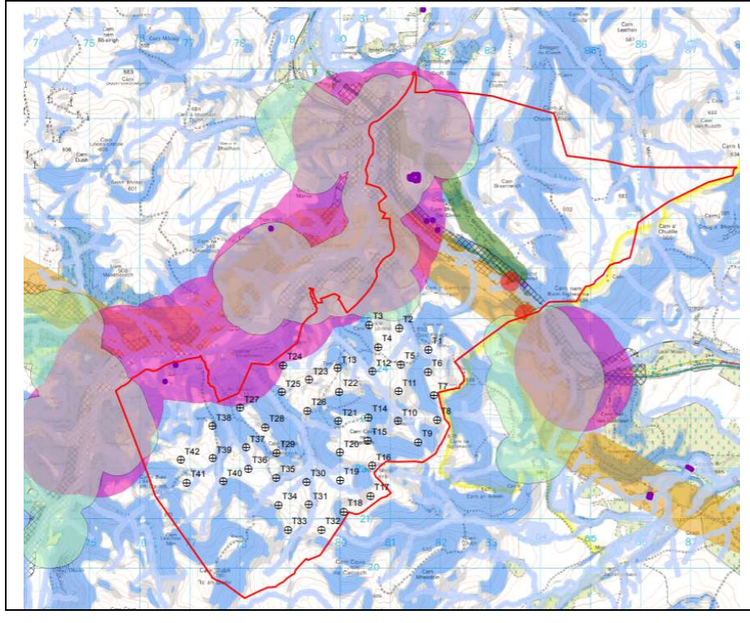
2.7.19 The Applicant is committed to not only meeting the net zero targets but contributing positively to the regeneration of our natural environment and the inclusion of biodiversity enhancement measures as part of the Proposed Development demonstrate this (see Chapter 7: Ecology, and Technical Appendix 7.5: Outline Habitat Management Plan and Biodiversity Enhancement Plan).

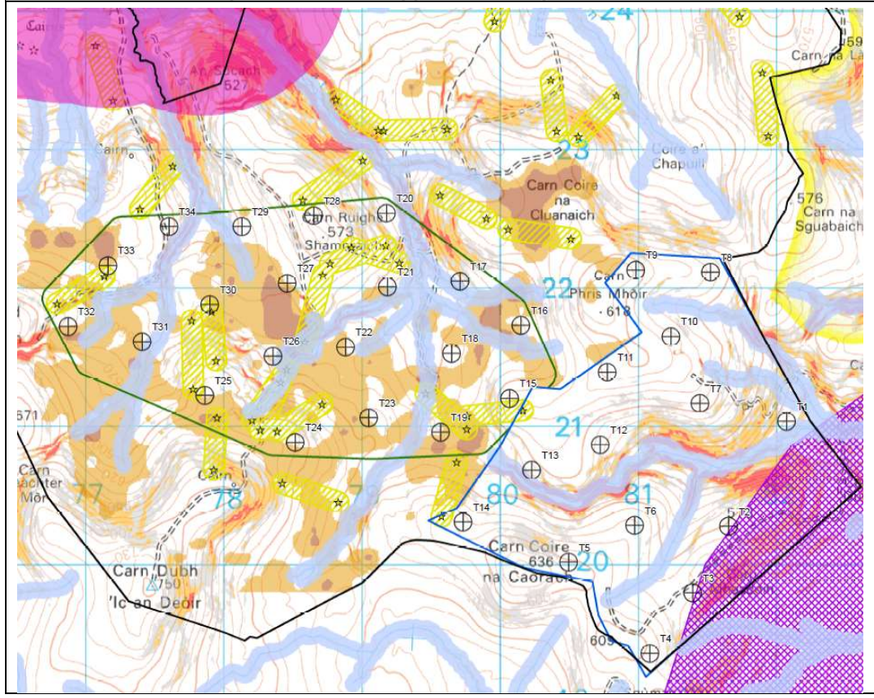
Micrositing

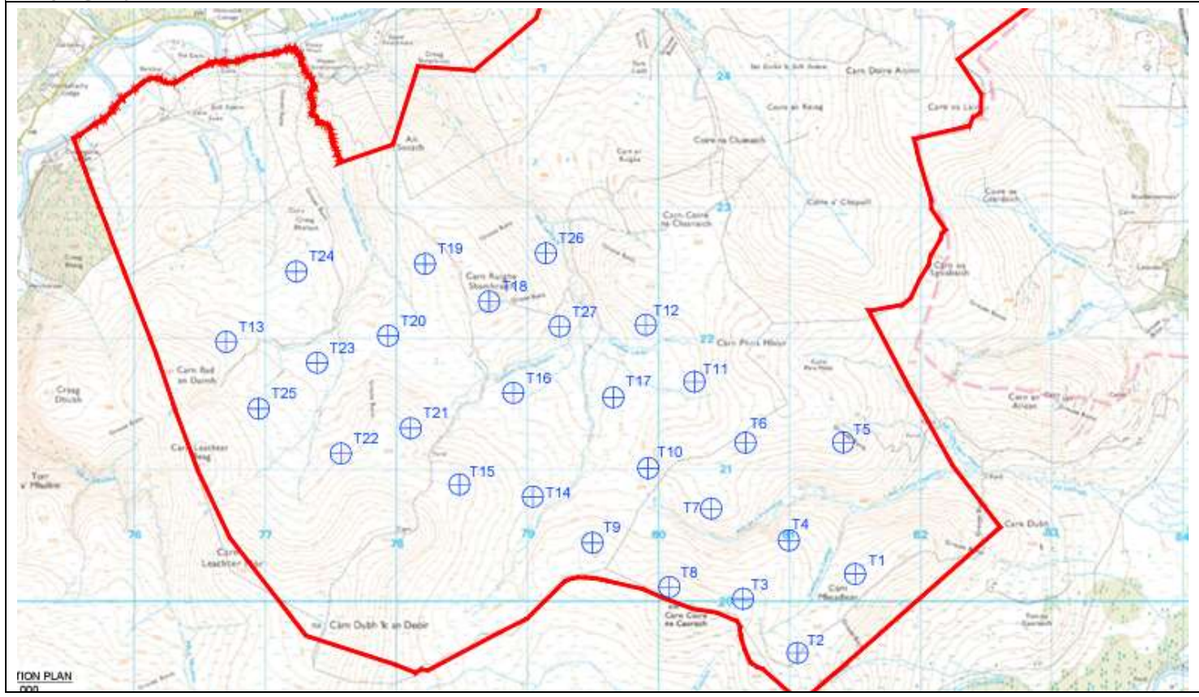
2.7.20 In order to address any localised environmental sensitivities, unexpected ground conditions, or technical issues that are found during detailed intrusive site investigations and construction, it is proposed that 100m micrositing allowance around the wind turbine locations all other infrastructure is allowed.

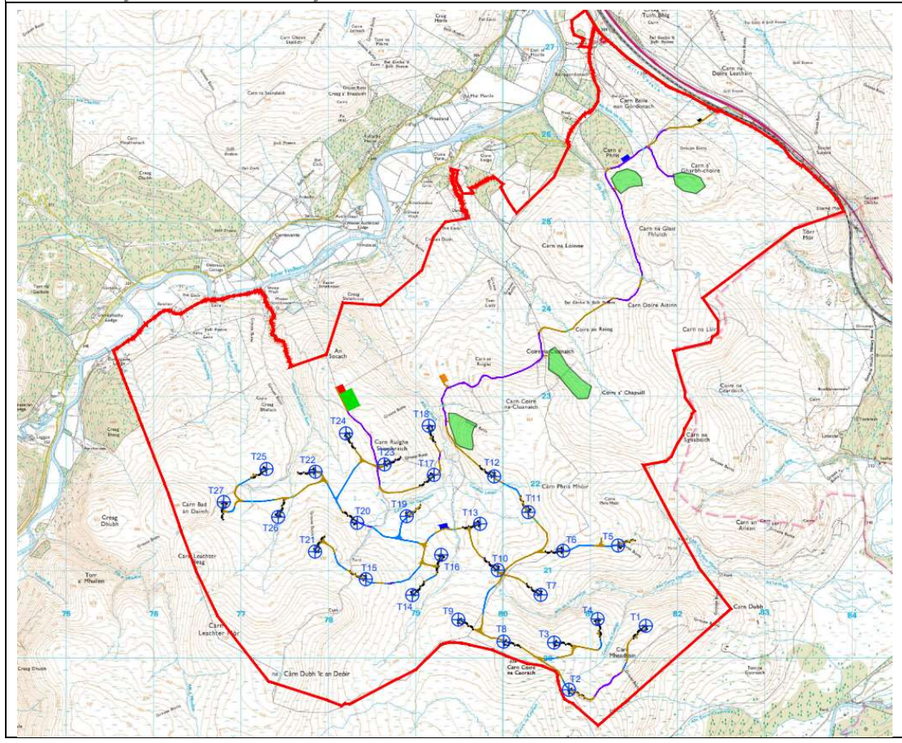
2.7.21 During construction, the need for any micrositing would be assessed and agreed with the on-site Environmental Clerk of Works (ECoW).

Table 2.1 – Assessment of Site Potential.

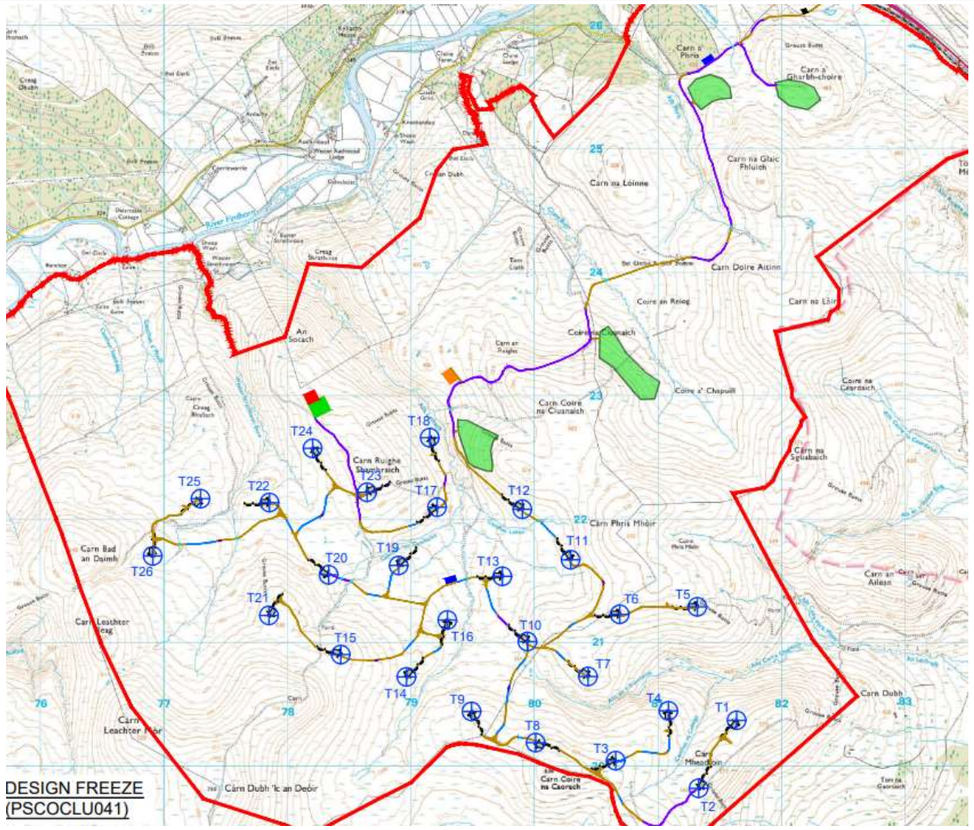
Assessment of Site Potential	
	**No. of turbines: 123** **Turbine tip height: 149.9m** **Site capacity: 443MW** **Commentary on design** The first exploratory layout design, based only on generic constraints and assumptions pending surveys and further assessments. By design, this is not a realistically buildable area but merely an investigation of the limits of buildability and feasibility of the Site, and is to be seen as a starting point for LVIA assessments and further site surveys before being refined. The project is progressed following approval from Applicant's internal process and agreement with landowner. Two years' worth of ornithology site survey work commissioned.
Detailed Assessment of Site Potential	
	**No. of turbines: 42** **Turbine tip height: 180m** **Site capacity: 235MW** **Commentary on design** Feasibility studies undertaken for grid, planning and Landscape and Visual (L&V). Following landscape consultant's advice, the Site was reduced to 42 turbines with larger, more efficient turbine models. The turbine spacing was increased in line with the larger rotors. The northern section of the Site which is immediately adjacent to the National Park was abandoned entirely, as was the south-western edge to reduce visibility from prominent viewpoints.

Wind Turbine Developable Area/Pre-application Stage	
	**No. of turbines: 34** **Turbine tip height: 180m** **Site capacity: 204MW** **Commentary on design** Following landscape consultant's advice, the layout was updated based on a recommended LVIA developable area. The developable area was expanded to the east to include the neighbouring Seafield land ownership. The distance to the nearest inhabited properties is more than 1700m, significantly reducing the risk of any acoustic or visual impact at these properties. In the western section first peat probing results were incorporated in the design, avoiding peat deeper than 1m in turbine placement.

Scoping Layout	
	**No. of turbines: 27** **Turbine tip height: 200m** **Site capacity: 194.4MW** **Commentary on design** **Updated for submission to Scoping in Q1 2024.** Following further landscape consultant's advice, the LVIA developable area was reduced, now clearing the vicinity of the National Park to the east entirely. A buffer was applied to the Monadhliath Wild Land Area and the Kinveachy Forest SSSI to ensure that no part of the infrastructure or turbine structure would oversail these areas Turbine numbers were reduced considerably, but a slightly larger, significantly more efficient model was chosen to balance this. The remaining peat probing results for the eastern section of the Site were incorporated in the design, avoiding peat deeper than 1m in both turbine placement and associated foundations. Based on these inputs, the turbine layout was optimised for maximum yield.

Preliminary Infrastructure Layout Chill	
	**No. of turbines: 27** **Turbine tip height: 200m** **Site capacity: 194.4MW** **Commentary on design** Public feedback following the first round of public exhibitions was reviewed. The optimised turbine layout was adjusted for engineering considerations, peat deeper than 1m for turbine locations, foundations and surrounding infrastructure such as crane pads. Initial infrastructure layout design based on environmental constraints available from baseline studies, while also considering the complex topography of the Site. Technical constraints, including turbine separation ellipses, phase 1 peat probing data, and an LVIA developable area agreed with the LVIA consultant were also considered and assessed to inform the initial layout.

Design Freeze



No. of turbines: 26

Turbine tip height: 200m

Site capacity: 187.2MW

Commentary on design

Following the results of the phase 2 peat survey based on the chilled infrastructure layout, one turbine location in the western section of the Site was found to contain much deeper peat than initially assumed, thus discarded from the layout.

The surrounding turbines were adjusted to mitigate the visual impact of the move which generally improved the visual presentation of the Site. Furthermore, two turbines were moved in the eastern section of the Site to present a more compact layout from several viewpoints.

Following the phase 2 peat probing and the peat slide risk assessment data being provided by consultant, the next iteration of the infrastructure layout was created.

In addition to the targeted peat probing on infrastructure locations, GWDTE and updated hydrological constraint data was added which meant all required data was available. Changes to infrastructure layout resulting from updated constraint mapping are listed below:

- T1 moved north away from deep peat which allowed the hardstands and turning head to be relocated to area outwith deep peat, and ensure no infrastructure or construction works fall within SSSI.
- Infrastructure at T2 rotated southeast, and mirrored to opposite side of track, to allow hardstand to avoid hydrology buffer and deep peat.
- Junction south of T3 moved west out of deep peat.
- T5 rotated approximately 150°, moving hardstands out of deep peat.
- Track between T10 and T9 moved west to avoid hydrology buffer.
- Proposed section of upgraded track which follows existing track east of T17 south towards TCC has been removed following discussion with hydrologist. Alternative track included.
- Track section between T12 and T13 removed to avoid 2 water crossings. Track now goes between T12 and T11, which involves 1 water crossing.
- AIL turning head at T11 removed due to updated track layout from T12.
- T13 rotated 90° out of deep peat, taking all associated hardstanding infrastructure clear of peat as well.
- T14 realigned to reduce impact on deep peat.
- T16 rotated out of deep peat as much as possible with surrounding constraints limiting movements.
- T18 mirrored about track and rotated out of hydrology buffer.
- Temporary track between T17 & T18 removed due to hydrology buffer.
- T19 rotated to take assist pads out of deep peat.
- Proposed upgraded track between T20 and T23 which was within hydrology buffer has been removed and replaced with alternative access track approach.
- T20 rotated slightly to minimise impact of assist pads on deep peat.
- Access to T21 moved to avoid hydrology buffer.
- T22 moved northwest to allow infrastructure to be placed outwith deep peat, and junction to T26 moved out of deep peat.
- T24 moved southeast to allow space for infrastructure to be free of deep peat.

	• T26 rotated to ensure impact on deep peat and within hydrology buffer is minimised. • T26 removed as phase 2 probing data indicated the foundation would have been in deep peat, with no orientation available to mitigate impacts. T27 was also renamed as T26. • T11 rotated slightly to bring assist pads out of deep peat. • T25 mirrored to opposite side of the track to remove hardstand from deep peat. • Track between T26 and T25 moved to avoid hydrology buffer. • T15 Assist pads rotated out of deep peat and away from low-risk peat slide area as much as possible. • T2 moved east out of deep peat. • T4 rotated slightly to avoid moderate risk peat slide area. • Turning head at T4 moved north out of deep peat. • T19 rotated slightly to minimise impacts on low-risk peat slide area. • Track between T13 and TCC moved slightly to avoid some deep peat and moderate risk peat slide area. • Junction between T9 and T8 moved south to avoid deep peat, GWDTE, and low risk peat slide area. • Track to T1 and hardstand infrastructure rotated slightly to move away from moderate risk peat slide area. • Junction between T20 and T22 moved out of deep peat and low risk peat slide area. • AIL turning head at T19 removed due to updated track layout negating requirement for it. • Junction to T3 moved west out of deep peat. • Floated track section heading northeast to T24 adjusted to avoid hydrology buffer. • Track approaching T21 from T15 moved slightly south to avoid moderate risk peat slide area. • Section of new access track on Coire an Reoig, east of batching plant, modified to avoid deep peat and moderate risk peat slide area. Following final ground truthing the layout through a site walkover, the following amendments to the proposed infrastructure design were made and finalised. • T5 rotated approximately 180° out of low-risk peat slide area. Turning head also removed from this section of track. • Water crossing southeast of T11, and hydrology buffer, avoided. Discussions with the landowners concluded with an agreement for a site-wide biodiversity enhancement and management practices including peatland restoration works, native woodland planting along the River Dulnain corridor and spot planting to improve floristic composition of the existing sward.

Table 2.2 – Summary of Mitigation by Design.

Issue	Environmental Constraint / Potential Effect	Mitigation by Design	Issues Remaining
Landscape and Visual	The following key landscape and visual sensitivities were identified in the vicinity of the Site: • potential effects on local landscape character and regional and local landscape designations; • potential effects on visual receptor groups including local roads, residents, and core paths; • potential visibility from nearby dwellings, settlements and transport routes as noted above; • changes in the experience of recreational users; • potential effects on the night time environment arising from the lighting of wind turbines; • potential cumulative effects in combination with operational and consented wind farms close to the Site (Farr, Glen Kyllachy, Moy, Tom nan Clach, Aberarder, Dumglass Estate, Corriegarth, Stronelairg, Berry Burn, Hill of Glaschyle, Corriegarth 2, Cloich, Dell, Belladrum, and Berry Burn 2). The nearby Highland Wind Farm is also considered despite being at Scoping stage; • potential effects on the night time environment in combination with nearby wind farms (Lethen and Ourack).	Landscape and visual mitigation is embedded into the design of the Proposed Development. This is shown in Table 2.1, which highlights some of the key design stages throughout the iterative design process of the Proposed Development. This iterative design process has seen the following results: • landscape and visual advice (amongst other technical topics) result in the initial number of proposed turbines reduced from 123 to 42; • Seen the setting out of an LVIA developable area (on the advice of the landscape consultant). This LVIA developable area reduced the area within the Site where turbines could be proposed, in order to reduce/avoid significant landscape and visual effects where possible; • The implementation of the LVIA developable area led to the further reduction in the number of turbines from 42 to 27; The distance to the nearest inhabited properties kept at more than 1700m, reducing the risk of any excessive residential visual amenity impacts at these properties.	The landscape and visual effects of the Proposed Development are addressed further in Chapter 5: Landscape and Visual Impact Assessment, Technical Appendix 5.2: Residential Visual Amenity Assessment, and Technical Appendix 12.1: Aviation Lighting Plan
Archaeology and Cultural Heritage	The following is a breakdown of the heritage assets within the Site; • Six pre-historic heritage assets (including two Scheduled Monuments); • Seven post-medieval heritage assets; • Six undated heritage assets. There is the potential for these heritage assets to experience both direct and indirect effects as a result of the Proposed Development.	Throughout the design process the two scheduled monuments within the Site have had a 250m buffer placed around them to ensure no direct physical impacts would occur to these assets. As can be seen from the various key design iterations in Table 2.1, turbines that were initially located in close proximity to the two scheduled monuments were removed. The mitigation by design applied to the two scheduled monuments has resulted in the nearest turbines to these assets being 1.8km away. Non designated heritage assets within the Site were also considered during the iterative Site design process and avoided by infrastructure where possible.	The archaeological and cultural heritage effects of the Proposed Development are addressed further in Chapter 6: Cultural Heritage & Archaeology.
	The following key archaeological and cultural heritage sensitivities were identified in the vicinity of the Site: • potential effects on the settings of designated heritage assets in the wider landscape. • cumulative effects on the settings of designated heritage assets in the wider landscape.	Heritage assets outwith the Site were also considered as part of the iterative Site design process. Advice from the projects cultural heritage experts with regards to setting effects (including cumulative) were taken into account in each iteration of the Site layout.	
Ecology	The following key ecological sensitivities were identified in the vicinity of the Site: • potential effects on sensitive habitats through habitat loss, fragmentation and degradation, including peat forming habitats. • potential effects on protected species e.g. mammals, fish, etc.;	The Proposed Development has been designed to reduce the potential for ecological effects by avoiding more sensitive ecological interest features including: • avoidance of areas of deeper peat - this has reduced the habitat loss of more sensitive higher quality habitats such as blanket bog; • Avoidance of areas of moderate, and where possible, low peat slide risk areas;	The ecological effects of the Proposed Development are addressed further in Chapter 7: Ecology. In addition, an outline Biodiversity Enhancement and Restoration Plan is available in Technical Appendix 7.5.

Issue	Environmental Constraint / Potential Effect	Mitigation by Design	Issues Remaining
	• cumulative effects as arising from the addition of the Proposed Development in combination with other relevant projects; and • potential effects on statutory sites within 5km designated for ecological interests.	• avoidance of watercourses - these have been buffered by 50m, apart from locations where access tracks unavoidably need to cross watercourses; • Avoidance of areas of GWDTE; • Avoidance of sensitive habitats, where possible.	
Ornithology	The following key ornithological sensitivities were identified in the vicinity(10km) of the Site: • Kinveachy Forest Special Protection Area (SPA); • Loch Vaa SPA; • Kinvaechy Forest Site of Special Scientific Interest (SSSI); • Loch Vaa SSSI; • Kinveachy Forest Important Bird Area (IBA)	The Proposed Development infrastructure has been designed to avoid these designations and therefore the more sensitive ornithological habitats in the vicinity. Collision Risk Modelling was carried out as the iterative design progressed in order to ensure that no potential Site layout would result in significant effects through potential collisions with turbines.	The ornithological effects of the Proposed Development are addressed further in Chapter 8: Ornithology. In addition, an outline Breeding Bird Protection Plan and outline Biodiversity Enhancement and Restoration Plans are available in Technical Appendix and Technical Appendix respectively.
Peat and Soils	The following sensitivities have been identified: • Potential impacts of excavated peaty soils. • Potential impacts of sliding of peatlands. • Potential effects on peatland habitats through habitat loss, fragmentation and degradation.	The Proposed Development has been designed to avoid areas of deeper peat reducing the habitat loss of more sensitive, higher quality habitats, such as blanket bog, wherever possible. The Proposed Development has been designed to avoid any areas of ground that may be subject to peat slide risk where possible. The ground condition factors that were considered in the design of the Proposed Development were: • identification of peat depths in excess of 0.5m - to minimise incursion, protect from physical damage, minimise excavation and transportation of peat, reduce potential for peat instability, and minimise potential soil carbon loss; • identification of slope angles greater than 4˚- to minimise soil loss and potential instability; and • avoidance of areas where initial peat stability concern was identified where possible - to avoid areas with possible instability issues and associated indirect effects on surface water. Proposals for peatland restoration have been included in the outline Habitat Management and Biodiversity Enhancement Plan (Technical Appendix 7.5), seeking to restore areas of degraded peatland habitats.	The potential effects on peat and soils due to the Proposed Development are addressed further in Chapter 9: Hydrology, Hydrogeology & Geology and Technical Appendix 9.1: Peat Landslide Hazard and Risk Assessment.
Hydrology	The following key hydrological sensitivities were identified in the vicinity of the Site: • potential effects on designated sites due to potential changes in surface and/or groundwater quality and quantity; • potential effects on the catchments due to changes in surface and/or groundwater quality and quantity; • potential localised increase in flood risk due to watercourse crossings; • potential effects on Groundwater Dependent Terrestrial Ecosystems (GWDTEs) through changes to site hydrogeology;	The Proposed Development has been designed to reduce the potential for hydrological effects by avoiding more sensitive ecological interest features including: • avoidance of watercourses - these have been buffered by 50m, apart from locations where access tracks unavoidably need to cross watercourses; • minimising the number of watercourse crossings through the layout design process, with the locations of watercourse crossings selected to avoid damage; • avoidance of private water supply spring sources - these have been buffered by at least 250m to the nearest infrastructure (including wind turbine locations).	The hydrology and hydrogeology effects of the Proposed Development are addressed further in Chapter 9: Hydrology, Hydrogeology & Geology. Technical Appendix 9.1: Peat Landslide Hazard and Risk Assessment undertakes a thorough review of risk at each of the infrastructure locations and provides additional mitigation where required. Technical Appendix 9.2: Peat Management Plan Technical Appendix 9.4: Private Water Supply Risk Assessment In addition, an outline Pollution Prevention Plan is available in Technical Appendix 3.3

Issue	Environmental Constraint / Potential Effect	Mitigation by Design	Issues Remaining
	• potential effects on Public or Private Water Supply (PWS) abstractions due to potential changes in surface and/or groundwater quality and quantity; and • potential for peat slide risk.	• avoidance of any high-dependency GWDTE flushes identified on the Site - these have been buffered by at least 250m to the nearest wind turbine locations. The Proposed Development incorporates good practice drainage design during construction and operation adopting a sustainable drainage system (SuDS) approach to control the rate, volume and quality of runoff from the Proposed Development.	
Topography	The following key topographical sensitivities were identified in the vicinity of the Site: • potential for peat slide risk; • potential for deep cut / fill slopes around infrastructure; and • potential for safety risks to personnel during construction and operation of the Proposed Development.	The Proposed Development has been designed to reduce the potential for topographical effects by minimising: • areas of the Site where the topography is greater than 12% slope gradient for wind turbine and adjacent crane hardstand positioning; • positioning the crane hardstand downslope of the proposed wind turbine location where other site constraints allow it; • positioning the access track, adjacent to the crane hardstand at wind turbine locations, downhill to the crane hardstand when aligning parallel to the contours where other site constraints allow it; • aligning access tracks perpendicularly to slope gradients greater than 14% where other site constraints allow it; • areas where slope stability was identified as an area of high peat slide risk have been avoided at all turbine and infrastructure locations.	Technical Appendix 9.1: Peat Landslide Hazard and Risk Assessment undertakes a thorough review of risk at each of the infrastructure locations and provides additional mitigation where required.
Traffic and Transport	The following key transport sensitivities were identified in the vicinity of the Site: • severance; • driver delay; • pedestrian delay and amenity; • fear and intimidation; and • accidents and safety.	N/A. Mitigation will be applied during construction via the CEMP, Construction Traffic Management Plan (CTMP) and AIL Transport Management Plan.	The traffic and transport effects of the Proposed Development are addressed further in Chapter 10: Traffic & Transport. It is proposed that a Construction Traffic Management Plan (CTMP) and AIL Transport Management Plan are prepared post-consent to further mitigate any effects of the Proposed Development.
	Whilst there are no recorded public rights of way within the Site, the Site is used recreationally for walking and off-road cycing.	The Proposed Development has been designed to reduce the potential for effects by asking the public to avoid these paths during construction, with alternative routes being suggested, where available.	Further information on the outdoor access management across the Site is provided in the outline Outdoor Access Management Plan in Technical Appendix 3.4.
Noise	Potential effects at nearby properties due to operational and construction noise with potential for cumulative impact.	The Proposed Development has been designed to reduce the potential for noise effects by avoiding locating wind turbines at sufficient distances from noise receptors such that noise impacts are not an issue.	The noise effects of the Proposed Development are addressed further in Chapter 11: Acoustics.
Shadow Flicker	Potential effects of shadow flicker on residential receptors.	The Proposed Development includes a shadow flicker assessment to assess the impact. Most properties fall outwith the 11-rotor diameter study area as the Proposed Development has been designed such that the turbines are located sufficient distance from receptors. A single property falls within the study area, but no shadow flicker from turbines is predicted at the property.	The shadow flicker effects of the Proposed Development are addressed further in Chapter 12: Aviation & Other Issues.
Utilities	Potential effects on existing utilities within the Site.	The Proposed Development has been designed taking into consideration the location of the following existing utilities:	None.

Issue	Environmental Constraint / Potential Effect	Mitigation by Design	Issues Remaining
		• Low voltage electrical power line running alongside U2856 • High voltage electrical pylon mounted power line running above the proposed access tracks.	

2.8 Summary

2.8.1 The final layout of the Proposed Development was the result of extensive iterative design work, to sensitively locate the wind turbines and the infrastructure required to facilitate construction and operation of the wind turbines.

2.8.2 In summary, the final layout of the Proposed Development presented achieves the following:

- minimises impact on the underlying landscape and is in accordance overall with NPF4;
- visually accommodates operational, consented, and proposed wind turbines neighbouring the Site;
- minimises the proximity to and visibility from residential properties as well as the settlements surrounding the Site as far as possible;
- sensitively locates infrastructure incorporating appropriate buffer distances from environmental and archaeological receptors to avoid or minimise direct effects;
- maximises the use of existing access tracks;
- turbine and cranepads avoid the extensive areas of deep peat found across the Site;
- optimises the alignment of new access tracks and hardstands to minimise cut and fill, minimise the impact on sensitive peatland habitats, and reduce landscape and visual effects;
- minimises watercourse crossings and protects watercourses from the potential impacts of constructing the Proposed Development;
- Includes four borrow pit search areas to minimise the volume of the stone required to be imported to the Site;
- adopts of the latest wind turbine technology;
- maximises the potential for electricity generation through the adoption of wind turbines and energy storage technologies; and
- can be constructed and operated safely.

2.8.3 The final layout comprises 26 turbines of up to 200m tip height. The final layout, the BESS and associated infrastructure as has been presented in **Figure 1.3.** The potential effects of the resulting layout are addressed throughout Chapters 5 to 12 of the EIA Report.

2.8.4 The Proposed Development layout is considered to represent the most appropriate design, taking into account potential environmental impacts and physical constraints, while maximising the renewable energy generating capability of the Site.