



Lorg Wind Farm  
Technical Appendix 11A

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# Ecological Desk Study





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### Report for

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# 1. Introduction

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## 1.1 Background and purpose of this report

- 1.1.1 WSP E&I Solutions UK (formerly Wood Group UK Ltd) was commissioned by RWE Renewables UK Developments Ltd. to provide ecological consultancy services in relation to the proposed Lorg Wind Farm (herein after referred to as 'the Site').
- 1.1.2 The Site is positioned approximately 12 kilometres (km) north-east of Carsphairn and 13km south-east of New Cumnock, within Dumfries and Galloway and East Ayrshire Council areas (Central Ordnance Survey [OS] Grid Reference: NS 66841 00661).
- 1.1.3 This report provides the results of a desk-based ecological study conducted in March 2020. Details of the Site and Proposed Development are provided, followed by a description of methods employed to obtain desk study information, presentation of results, and a summary of findings.
- 1.1.4 The results of the desk study provide an insight into the nature conservation interest of the Site and surrounding area. These data may be used to inform an assessment of the ecological effects of the proposed development with regards to the Environmental Impact Assessment (EIA) process, and in turn, will inform master planning and mitigation design.

### Site context

- 1.1.5 The Site is located at the northern end of a 10km-long single-track road leading off from the B729 (See **Figure 1.1**). Landscape within the Site is defined by steep hillslopes of Ewe Hill, Lorg Hill, Alwhat, and Alhang Hill to the north-west, and Altry Hill to the south-east. Lorg Farmhouse, an unoccupied stone building, is positioned at the base of a steep sided valley in the centre of the Site. Elevation within the Site ranges from approximately 280 metres (m) Above Ordnance Datum (AOD) at the base of the valley to 642 m AOD at the summit of Alhang.
- 1.1.6 Several watercourses are present within the Site, which flow into the Water of Ken. The Water of Ken intersects the centre of Site, flowing in a north-east to south-west direction.

## 2. Methodology

### 2.1 Desk study

- 2.1.1 A desk-study was carried out by Wood in March 2020, in line with the Chartered Institute of Ecology and Environmental Management (CIEEM) best practice guidelines<sup>1</sup>. Information was collected regarding statutory and non-statutory sites designated for nature conservation purposes, and protected or notable species - including those listed on the Scottish Biodiversity List (SBL)<sup>2</sup>, and in the Dumfries and Galloway Local Biodiversity Action Plan (LBAP)<sup>3</sup>. The desk study features of interest are summarised in **Table 2.1** below.

**Table 2.1 Statutory and non-statutory sites of nature conservation value, protected and notable species**

Designation	Description
<b>Statutory nature conservation sites</b>	<p>Sites of international importance of relevance to this ecological study include designated Special Areas for Conservation (SAC) sites. Sites of national importance are designated as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSI) and local sites as Local Nature Reserves (LNRs).</p> <ul style="list-style-type: none"> <li>• Special Areas of Conservation (SAC) – sites designated under Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive) as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive;</li> <li>• Sites of Special Scientific Interest (SSSI) – these sites have been re-notified under the Wildlife and Countryside Act 1981 (as amended in Scotland) and provide statutory protection for the best examples of the UK’s flora and fauna;</li> <li>• National Nature Reserves (NNRs) – these are designated under the National Parks and Access to the Countryside Act 1949 or the Wildlife and Countryside Act 1981 (as amended) and contain examples of the most important natural and semi-natural terrestrial and coastal ecosystems; and</li> <li>• Local Nature Reserves (LNRs) – these are areas of natural heritage that are at least locally important. Local authorities select and designate LNRs under Section 21 of the National Parks and Access to the Countryside Act 1949 (as amended).</li> </ul>
<b>Non-Statutory nature conservation sites</b>	<p>These include Local Nature Conservation Sites (LNCs) such as: Listed Wildlife Sites (LWS); Sites of Importance for Nature Conservation (SINC); and Local Geodiversity Sites (LGS). Non-statutory conservation sites also include Scottish Wildlife Trust (SWT) reserves such as Provisional Wildlife Sites and areas included under the Ancient Woodland Inventory (AWI) or Semi Natural AWI (SNAWI). Priority Woodlands for Red Squirrel are also included as non-statutory conservation sites. These non-statutory sites, which are designated due to the presence of notable species or important</p>

<sup>1</sup> CIEEM, (2017). Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

<sup>2</sup> The Scottish Biodiversity List is a list of plants, animals and habitats that Scottish Ministers consider to be of principal importance to biological conservation. <https://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL>

<sup>3</sup> <https://swseic.org.uk/resource/dglbap-part1/>

habitats, broadly constitute the most important wildlife and geological sites that do not reach the criteria required for SSSI designation.

#### Protected species

Many species of animal and plant receive legal protection, which for the purposes of this study refers to:

- European Protected Species as defined within the EC Habitats Directive and translated into UK legislation through The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the Habitats Regulations);
- Species included on Schedule 1, 5 and 8 of the Wildlife and Countryside Act 1981 (WCA) (as amended), excluding species that are only protected in relation to their sale; and
- Badgers, which are protected under the Protection of Badgers Act 1992, as amended by the Nature Conservation (Scotland) Act 2004.

#### Priority and notable habitats and species

These include habitats and species listed in Annex 1 and Annex 2 of the Habitats Directive, together with habitats and species which are listed on the Scottish Biodiversity List, Local Biodiversity Action Plans, and/or those which are of some other conservation interest based on their status nationally, regionally or locally.

2.1.2 Where possible, data for the desk-based assessment were drawn from existing ecological records and site information gathered to inform the 2015 Lorg Wind Farm Environmental Statement (ES)<sup>4</sup>. A suite of ecological assessments were carried out between 2012 and 2013<sup>5</sup>, including:

- Desk-based ecological assessment;
- Phase 1 habitat and National Vegetation Classification (NVC) survey;
- Focused protected species surveys; and
- A fisheries habitat survey;

2.1.3 In addition to the use of existing data, a search for statutory and non-statutory designated sites, and legally protected or notable species was also carried out, as follows:

- Information regarding statutory designated sites within an approximate 10km radius of the Site boundary was acquired using the Scottish Natural Heritage (SNH) Sitelink web-based application<sup>6</sup>;
- Commercially available records of protected and/or notable species from within the last ten years were searched within the National Biodiversity Atlas (NBN) database<sup>7</sup>;
- A data request for records of protected and/or notable species within a 2km radius of the Site boundary (extended to 15km for mobile bat species) was submitted to the South West Scotland Environmental Information Centre (SWSEIC), formerly known as Dumfries and Galloway Environmental Records Centre. Analysis of species data focussed only on records made within the last ten years, as older records may give an inaccurate picture of the current ecological interest within the Site and the surrounding area;

<sup>4</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Chapter 11 - Ecology

<sup>5</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Technical Appendices 11A-F.

<sup>6</sup> <https://gateway.snh.gov.uk/sitelink/searchmap.jsp>

<sup>7</sup> <https://nbnatlas.org>

- Information relating to non-statutory designated sites within an approximate 2km radius of the Site boundary was also requested from SWSEIC; and
- A search to determine the potential habitats and features of interest was conducted using 1:25:000 scale Ordnance survey (OS) maps and aerial imagery from the Google Maps and Bing Maps websites.

## **2.2 Secondary data review**

- 2.2.1 A suite of surveys have been undertaken at the Site since 2013; a review of available survey data was undertaken to provide context to the desk study.

## 3. Results

### 3.1 Desk study results

#### Statutory and non-statutory sites

- 3.1.1 Results of the statutory and non-statutory site search are presented in **Table 3.1**. A map detailing the location of each site is presented in **Figure 3.1**.

#### Statutory designated sites

- 3.1.2 There are no statutory designated sites of importance for their ecological features within 10km of the Site boundary.

#### Non-statutory designated sites

- 3.1.3 Non-statutory sites within 2 km of the Site boundary include Afton Uplands Provisional Wildlife Site and a single stand of ancient woodland listed within the Ancient Woodland Inventory<sup>8</sup> (**Table 3.1**).
- 3.1.4 The Site is situated within the Galloway and Southern Ayrshire Biosphere Reserve. This UNESCO Biosphere reserve was designated because of the combination of the area's "*unique landscapes and wildlife areas and rich cultural heritage*"<sup>9</sup>.
- 3.1.5 In addition to the information provided in **Table 3.1**, three former Red Squirrel Priority Woodlands (RSPW) are present within 2 km of the Site, including Cairn Head RSPW, Eucharhead RSPW, and Carsphairn Forest RSPW. While these areas now been superseded in terms of strategic priorities, the woodlands are still considered to be of local importance for red squirrel.

**Table 3.1 Non-statutory designated sites within 2km of the Site boundary**

Site	Designation	Grid reference	Description	Distance and orientation from Site
Afton Uplands	Provisional Local Wildlife Site	NS 64963 08249	An extensive upland site which encompasses a range of upland mire, montane heath and grassland habitats. Alpine clubmoss and juniper are present, while stiff sedge is frequent over the summit of Craigbraneoch and Blackcraig.	The Site overlaps Afton uplands Provisional Local Wildlife Site.
Un-named woodland	Ancient Woodland Inventory	NX 69800 97200	In Scotland, Ancient Woodland is defined as land that is currently wooded and has been continually wooded since at least 1750. Its age means that it is important for biodiversity and cultural identity.	Located approximately 1.9km south-east of the Site boundary.

<sup>8</sup> The Ancient Woodland Inventory records where Scotland's ancient and mature woodlands can be found.

<https://gateway.snh.gov.uk/natural-spaces/dataset.jsp?dsid=AWI>

<sup>9</sup> <http://www.gsabiosphere.org.uk/>



## Legally protected and notable species

3.1.6 The results of the data search for legally protected/ notable species within 2 km of the Site boundary (extended to 15 km for bats) are presented in **Table 3.2**. Only records within the last 10 years have been included in this search.

**Table 3.2 Records of legally protected/ notable species (2010-2020)**

Species	Number of records	Year of most recent record	Conservation designation
<b>Terrestrial mammal</b>			
<i>Myotis</i> bat species	3	2016	HabRegs2, WCA5, DG-LBAP, SBL
Whiskered/ Brandts bat	4	2016	HabRegs2, WCA5
Daubentons bat	2	2016	HabRegs2, WCA5, DG-LBAP, SBL
Natterers bat	7	2016	HabRegs2, WCA5, DG-LBAP, SBL
<i>Nyctalus</i> bat species	1	2016	HabRegs2, WCA5, SBL, DG-LBAP
Noctule bat	2	2016	HabRegs2, WCA5, SBL, DG-LBAP
Leislers bat	11	2016	HabRegs2, WCA5, DG-LBAP
Pipistrelle bat	12	2016	HabRegs2, WCA5, DG-LBAP
Common pipistrelle bat	13	2016	HabRegs2, WCA5, DG-LBAP
Soprano pipistrelle bat	12	2016	HabRegs2, WCA5, DG-LBAP, SBL
Brown long-eared bat	1	2016	HabRegs2, WCA5, DG-LBAP, SBL
<b>Conifer</b>			
Juniper	1	2012	DG-LBAP, SBL
<b>Insect</b>			
Small heath butterfly	4	2016	SBL
Pearl bordered fritillary	2	2011	DG-LBAP, SBL

**HabRegs2** – The Conservation (Natural Habitats & c) Regulations 2010 (Schedule 2); **WCA 5** – Wildlife and Countryside Act (Schedule 5); **DG-LBAP** – Dumfries and Galloway Local Biodiversity Action Plan; **SBL** – Scottish Biodiversity List

Note that all records of bat species refer to bats recorded in flight within 15km of the Site boundary.

## Historical records

- 3.1.7 Sixteen records of otter were provided by the desk study ranging from 1978 to 1995, no recent records were provided (within the last 10 years).

## 3.2 Secondary data review

### Habitats

- 3.2.1 The 2012 Phase 1 habitat survey<sup>10</sup> identified that the landscape within the Site was characterised by wet modified bog on open ground and hill tops, with unimproved and semi-improved acid grassland restricted to steep hillsides where peat is shallow/ absent. Several areas of acid/ neutral flush habitat were also identified on hillsides and within lower sections of hillslope. The Phase 1 habitat survey identified potential Annex 1 habitat<sup>11</sup> in four locations within the Site, including two areas of intact basin mire, an area of transition mire and quaking bog, and a very small oligotrophic lochan/ pool, of which may correspond to the 'natural dystrophic lakes/ponds' Annex 1 habitat type.
- 3.2.2 NVC survey carried out between July 2013 and January 2015<sup>12</sup> identified that approximately 71.5% of the Site was attributed to grassland communities formed of marshy grassland (M23) and acid grassland (U2, U4, U5, U6, and MG9), and stands of bracken-dominated vegetation (U20). Mire habitat was found to cover 24.5% of the Site, of which was formed predominantly of blanket mire (NVC communities M17, M18, M19, M20 and M25), with patches of soligenous mire (NVC communities M4 and M6) present in areas associated with water seepage. The remainder of the Site contained stands of bracken dominated vegetation (U20) and minor areas of neutral grassland (MG9).
- 3.2.3 The NVC survey identified the presence of several Annex 1 habitats<sup>13</sup> on Site, including:
- M15 *Trichopogon germanicum* – *Erica tetralix* wet heath
  - M17 *Trichopogon germanicum* – *Eriophorum vaginatum* blanket mire
  - M18 *Erica tetralix* – *Sphagnum papillosum* raised and blanket mire; and
  - M19 *Calluna vulgaris* – *Eriophorum vaginatum* blanket mire
- 3.2.4 Several communities with Ground Water Dependent Terrestrial Ecosystems (GWDTE) potential were also recorded during the NVC survey:
- Moderate potential as a GWDTE:
    - M15 *Trichopogon germanicum* – *Erica tetralix* wet heath;
    - M25 *Molinia caerulea*-*Potentilla erecta* mire;
    - MG9 *Holcus lanatus* -*Deschampsia cespitosa* grassland; and
    - U6 *Juncus squarrosus* – *Festuca ovina* grassland.
  - High potential as a GWDTE:

<sup>10</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Technical Appendix 11F.

<sup>11</sup> Annex 1 habitats are listed within Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (the Habitats Directive), of which defines habitats of particular conservation importance in Europe.

<sup>12</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Technical Appendix 11A.

<sup>13</sup> Annex 1 habitats are listed within Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (the Habitats Directive), of which defines habitats of particular conservation importance in Europe.

- M6 *Carex echinata-Sphagnum fallax/ denticulatum* mire; and
- M23 *Juncus effusus/ acutiflorus – Galium palustre* rush-pasture.

## Protected species

### Bats

- 3.2.5 Static bat detector surveys carried out during 2012<sup>14</sup> confirmed that four bat species/ species groups utilise the Site, including common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Daubentons bat (*Myotis Daubentonii*), and brown long-eared bat (*Plecotus auritus*). Very low levels of activity were recorded on open hill tops within the Site, while significantly higher levels of activity were recorded at reference locations (positioned within areas of suitable habitat along the peripheries of the Site). The majority of activity recorded within the Site was considered to represent commuting bats that may occasionally forage across open land as they pass between areas of more suitable habitat.
- 3.2.6 In addition to surveys carried out in 2012, static detectors were deployed at two meteorological (met) mast locations in 2013<sup>14</sup>, known as 'Lorg East' and 'Lorg West'. A total of 303 bat contacts<sup>15</sup> were recorded between April and October 2013 which is considered to represent very low levels of bat activity. Almost all bat contacts recorded were related to activity at ground level as opposed to at activity at height<sup>16</sup>. Bat species/ species groups identified during the monitoring period included Nyctalus bat species, common pipistrelle, soprano pipistrelle, and Myotis bat species. As per 2012 results, the data suggested that small numbers of bats utilise the site for commuting and opportunistic foraging opportunities between roosts and areas of higher foraging value, which are assumed to be elsewhere in the Water of Ken catchment.
- 3.2.7 A suite of emergence surveys conducted at Lorg Farmhouse during 2013 confirmed the presence of a soprano pipistrelle roost. Due to the level of bat activity recorded outside the farmhouse, there was also potential for the building to be utilised as a roost for common pipistrelle and Daubentons bat species. Given its isolation from suitable foraging habitat, the farmhouse was assessed to offer only limited opportunity for small numbers of bats and was not considered suitable for larger maternity colonies.

### Otter

- 3.2.8 Otter surveys were carried out across the Site between years 2012 and 2015<sup>17</sup>. Evidence of otter activity (in the form of spraints and resting sites) was identified along the Water of Ken, Lorg Burn, Altry Burn, Clashwarrant Burn, Spout Burn, Afton Burn, Sandy Syke, Burn, and Grains Burn. The Water of Ken and Lorg Burn were considered to provide the most suitable habitat for otter, however all watercourses on Site provide were considered to provide ample opportunities for commuting.

<sup>14</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Technical Appendix 11D

<sup>15</sup> A total of 303 bat contacts were recorded, of which 283 of which were attributed to Lorg East met mast with the remaining 20 contacts attributed to Lorg West met mast.

<sup>16</sup> Due to issues associated with electrical interference, it was not possible to obtain data relating to bat activity at height for Lorg West met mast. At Lorg East met mast only one bat contact (a soprano pipistrelle) was recorded at height in August 2013.

<sup>17</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Technical Appendix 11B and 11C

## Water vole

- 3.2.9 No evidence of water vole was identified during field surveys carried out between 2012 and 2015. Watercourses within the Site were generally considered to provide sub-optimal habitat for water vole due to their fast-flowing nature and potential for rapidly changing water levels following periods of heavy rainfall. Some areas of suitable water vole habitat were however identified along the Lorg Burn (in the vicinity of Lorg Farmhouse) and in the lower reaches of the watercourse running downgradient from Small Cleugh and Rough Cleugh.

## Badger

- 3.2.10 The Site is characterised by steep sided hill slopes with altitudes ranging from 270 m to 630m above sea level. While acid grassland habitat within the Site may serve as suitable foraging habitat for badger, these areas are limited due to large sections of the Site being comprised of blanket bog habitat, which tends to be waterlogged in nature, and is thus considered unsuitable for badger sett construction.
- 3.2.11 No setts were recorded within the Site boundary; however, two active badger setts were recorded approximately 90 m west of the Site boundary, with several badger latrines also identified along the fence line that delineate the Site boundary<sup>18</sup>. The setts were positioned on a south facing slope above coniferous plantation woodland, which provides improved connectivity to surrounding habitat.

## Red squirrel

- 3.2.12 No suitable red squirrel habitat comprising coniferous/mixed or broad-leaved woodland is present within the Site boundary. Woodlands within 2 km of the site are former red squirrel priority woodlands; however these areas have been superseded in terms of strategic priorities by the red squirrel strongholds (none of which are present within the Study Area).

## Fish habitat

- 3.2.13 Fish habitat surveys undertaken on 12 sections of watercourse with the upper Kirkcudbrightshire Dee river catchment<sup>19</sup> revealed suitable habitat for a range of fish species. However, due to impassable barriers at Kendoon Dam, it is likely that Atlantic salmon is absent from watercourses upstream, and thus the only resident fish that is likely to be present is the brown trout.

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<sup>18</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Badger Survey Report – Confidential Annex

<sup>19</sup> Amec Foster Wheeler (2015). Lorg Wind Farm Environmental Statement, Technical Appendix 11E

## 4. Summary

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4.1.1 This desk-based study has been carried out to identify the nature conservation interest of the Site, and thus identify any potential ecological constraints to the development at an early stage. A summary of the assessment findings is provided below:

- No statutory sites for biological or interest have been identified within 10km of the Site;
- Afton Uplands Provisional Wildlife Site is the only designated non-statutory site within 2km of the Site. Three former RSPWs surround the Site, and thus potential for red squirrel to be present in the wider area exists;
- The Site is formed of open upland habitat comprising a mosaic of grassland (M23, U1, U2, U4, U5 and U6) and mire communities (M4, M6, M17, M18, M19, and M20), with small stands of bracken dominated vegetation (U20) and neutral grassland (MG9) scattered throughout. Several Annex 1 habitats - formed of mire and wet heath communities - are present within the Site. In addition, NVC communities corresponding to moderate and high potential GWDTE have also been identified.
- Bat species recorded within the Site during static detector monitoring surveys include common pipistrelle, soprano pipistrelle, Daubentons bat, brown long-eared bat, and Nyctalus species. Overall, bat activity within the Site was found to be low, with much of the activity considered to represent commuting bats that may occasionally forage across open land as they pass between areas of more suitable habitat;
- The presence of a bat roost had been confirmed within Lorg Farmhouse (comprising soprano pipistrelle bats, with some potential for common pipistrelle and Daubentons bats to also be roosting);
- Based on existing information, otters are known to utilise watercourses within the Site for foraging, commuting and sheltering purposes;
- No evidence of water vole has been identified within the Site to date. Watercourses within the Site are generally considered to provide sub-optimal habitat for water vole, however some areas of suitable habitat have been identified along the Lorg Burn and in the lower reaches of the watercourse running downgradient from Small Cleugh and Rough Cleugh; and
- Due to the nature of habitat present, the Site is considered to offer limited potential for badger. However, as a known sett is present within 100 m of the Site boundary, the potential occurrence of this species cannot be discounted.
- Based on existing information, brown trout are likely to utilise watercourses within the Site.

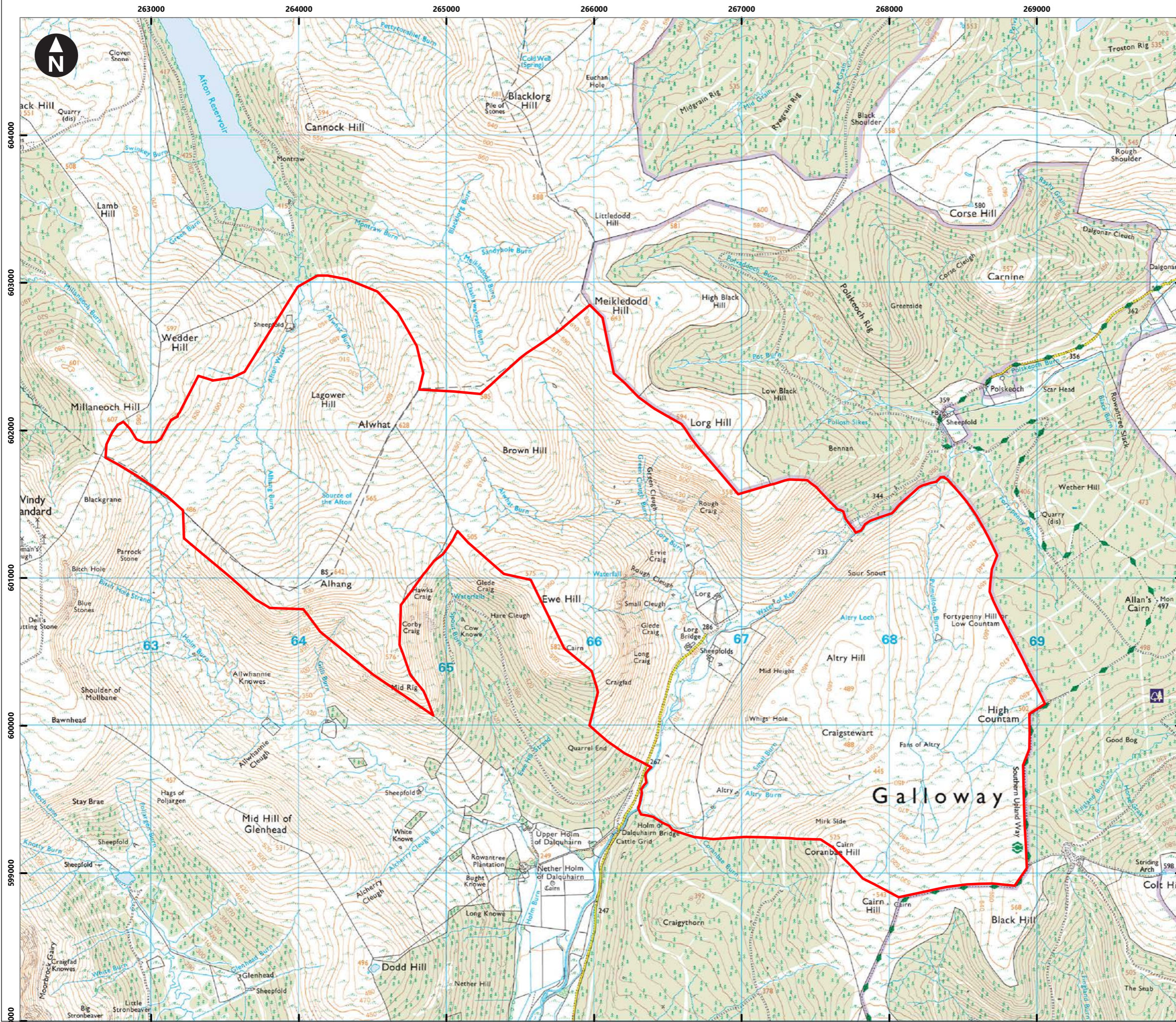
# Appendix A

## Species names

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Common Name	Scientific Name
<b>Badger</b>	<i>Meles meles</i>
<b>Brown long-eared bat</b>	<i>Plecotus auritus</i>
<b>Common pipistrelle</b>	<i>Pipistrellus pipistrellus</i>
<b>Daubenton's bat</b>	<i>Myotis daubentonii</i>
<b>Juniper</b>	<i>Junipeous sp.</i>
<b>Leisler's bat</b>	<i>Nyctalus leisleri</i>
<b>Noctule bat</b>	<i>Nyctalus noctula</i>
<b><i>Nyctalus</i> bat species</b>	<i>Nyctalus sp.</i>
<b><i>Myotis</i> bat species</b>	<i>Myotis sp.</i>
<b>Otter</b>	<i>Lutra lutra</i>
<b>Pearl bordered fritillary</b>	<i>Boloria euphrosyne</i>
<b>Red squirrel</b>	<i>Sciurus vulgaris</i>
<b>Small heath butterfly</b>	<i>Coenonympha pamphilus</i>
<b>Soprano pipistrelle</b>	<i>Pipistrellus pygmaeus</i>
<b>Water vole</b>	<i>Avicola amphibius</i>





Key

Site boundary

Scale at A3: 1:25,000

Based upon the Ordnance Survey Map with the permission of the Controller of Her Majesty's Stationery Office.  
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Client



Lorg Wind Farm  
Technical Appendix 11.A  
Ecological Desk Study

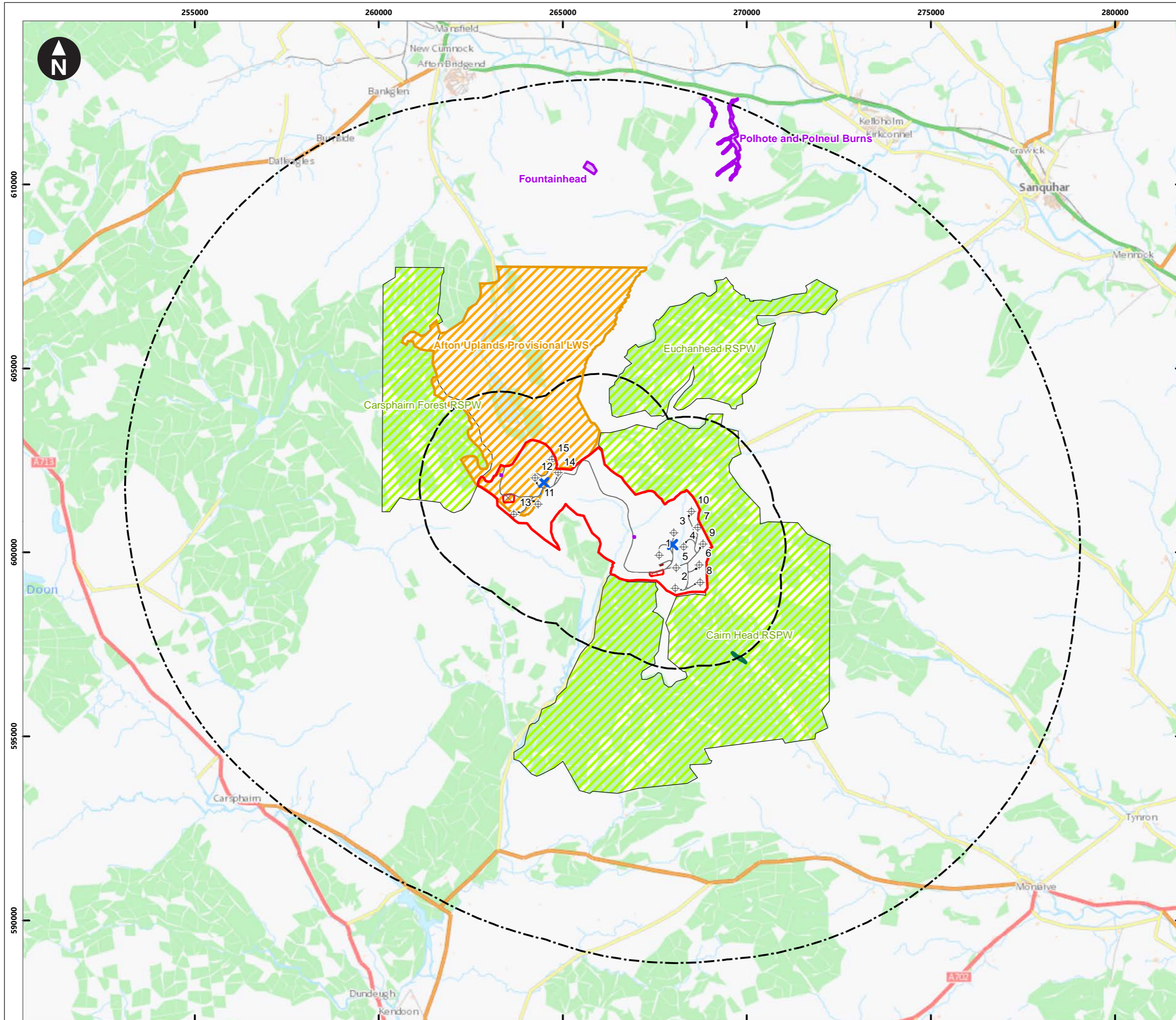
**Figure 1.1**  
**Site boundary plan**



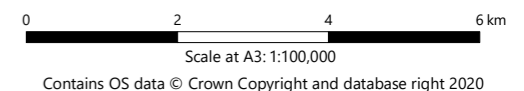
October 2022



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- Key
- Site boundary
  - Site boundary 2km buffer
  - Site boundary 10km buffer
  - + Turbine location
  - X Met mast location
  - Western control building
  - Temporary compound
  - Crane pads
  - Access tracks
  - Substation
  - Borrow pit search area
  - Site of Special Scientific Interest
  - Ancient Woodland Inventory
  - Provisional Local Wildlife Site
  - Red Squirrel Priority Woodland



Lorg Wind Farm  
 Technical Appendix 11.A  
 Ecological Desk Study

**Figure 3.1**  
**Statutory and non-statutory designated sites**

