Lorg Wind Farm
Technical Appendix 11C

Protected Species Report 2021 [Confidential]

WSP Environment & Infrastructure Solutions UK Limited – September 2022

Report for

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2	Final	21/11/22

Contents

1. Introduction

1.1 Background and purpose of this report

1.1.1 WSP E&I Solutions (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' or 'the Proposed Development').

1.1.2 The Site is positioned approximately 11 kilometres (km) north-east of Carsphairn and 10.5km south of New Cumnock, within Dumfries and Galloway and East Ayrshire Council areas (Central Ordnance Survey [OS] Grid Reference: NS 66841 00661).

1.1.3 The principal components of the Proposed Development would comprise: 15 turbines; associated hardstanding areas; access tracks; two anemometer masts; interconnecting cables between turbines and ancillary connecting infrastructure elements.. Temporary development areas will also be required in order to facilitate a construction e.g. two construction compounds, a gatehouse and up to two borrow pits.

1.1.4 This report provides the results of a protected species survey carried out in May 2021. This survey was undertaken in order to update previous protected species surveys[1] which showed the presence of protected species within the survey area and to keep survey results sufficiently up to date, as per NatureScot guidance[2]. The aim of the survey was to identify the presence of, and/or potentially suitable habitat and field signs for the following protected species: otter (*Lutra lutra*), water vole (*Avicola amphibius*), and badger (*Meles meles*), as well as any other features of ecological interest that may pose a potential constraint to works. Protected species legislation relevant to this report is summarised in **Appendix A**.

1.1.5 This report outlines the methods employed to carry out the survey, followed by presentation of results and a summary of key findings. These data may be used to inform an assessment of the ecological effects of the proposed development with regards to the Environmental Impact Assessment Report (EIAR) process and, in turn, assist to inform master planning and mitigation design.

This report contains sensitive ecological data relating to legally protected mammals, and therefore must be treated as confidential.

1.2 Site and study area description

1.2.1 The Site is located at the northern end of a 10km-long single-track road leading off from the B729 (**Figure 2.1**). 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 642m AOD at the summit of Alhang.

1.2.2 Several watercourses exist 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.

[1] Wood 2013, 2014, 2015, 2020 and 2021
[2] https://www.nature.scot/doc/standing-advice-planning-consultations-otters

1.2.3 The 'Study Area' was defined by the proposed wind farm layout at the time of the survey and incorporates all land within the red-line Site boundary (**Figure 2.1**).

2. Methodology

2.1 Desk study

2.1.1 A desk-based study was carried out in March 2020 to establish an insight into the nature conservation interest of the Site and suitable buffers (**Technical Appendix 11A**).

Data search

2.1.2 To inform the survey design and provide context for assessment, information relating to non-statutory designated sites within 10 km radius of the Site boundary was acquired from the NatureScot Sitelink web-based application[3]. Records of protected species made within 2km[4] of the Site boundary were also obtained through South West Scotland Environmental Information Centre (SWSEIC) and a review of the National Biodiversity Atlas (NBN) database[5]; these data were obtained in March 2020.

Secondary data review: Previous survey work

2.1.3 The Lorg Wind Farm Environmental Statement (ES) (Amec Foster Wheeler, 2015) details the results of protected species survey work carried out in 2013 and 2014, which has been reviewed to provide contextual information about the Study Area.

2.2 Field survey

2.2.1 The following methodologies for otter, water vole and badger were utilised:

Otter

2.2.2 The survey for otter comprised a walkover assessment of all water features, associated banks, and up to 50 m from bank tops, plus any other areas of suitable otter habitat, within the Study Area (**Figure 2.1**). Surveyors walked along opposite watercourse edges/banksides in order to cover the area efficiently, and to comply with health and safety requirements associated with work in/near water.

2.2.3 Otter field signs were recorded by location, type, condition, and age. Field signs are described by Harris and Yalden (2008), Bang and Dahlstom (2006), and Chanin (2003), and include the following:

- Holt - underground features where otters shelter and rest. They are often situated in natural cavities, such as tunnels along the edge of riverbanks, underneath tree root plates, heather root matrices, or boulder piles. Holts can also be located within man-made structures such as drains or embankments;
- Couch - typically above ground resting sites that are used for sleeping or grooming. Often located on the banks of watercourses, ponds or lochans, and occasionally found further inland in thick vegetation or reed beds. Rolling places, where the otter dries and grooms its fur after leaving the water, may also be used as couches;

[3] https://gateway.snh.gov.uk/sitelink/searchmap.jsp
[4] Extended to 15km for bats
[5] https://nbnatlas.org

- Resting site - collective term for holts and couches used in the Habitats Regulations;
- Spraints - otter faeces, which tend to be black or green-black in colour. They have distinct aromas and are generally composed of fish remains and crustacean shells. Spraints are often located on prominent features within the channel or river bank, such as large rocks, and can also be found close to, or within, the entrance to holts or couches;
- Sign heap - a small mound of sand, gravel, grass, or mud scraped up by an otter to form a prominent landmark on which to deposit spraint;
- Feeding signs - remains of prey such as fish and skinned amphibians;
- Prints - otters have five toes and unique footprints that can be identified in mud, silt or sand at the edge of waterbodies;
- Paths - routes that otters use to traverse across land, often between watercourses and resting places; and
- Play areas/ slides - located in areas where otters travel down a steep, often grassy, bank, sliding down on their tummy.

2.2.4 Features that surveyors considered to support suitable otter habitat, e.g. as resting sites, but where clear signs were lacking, were recorded as 'potential resting sites' and categorised as above.

Water vole

2.2.5 A search for water vole was carried out in conjunction with the otter survey, during which all watercourses and waterbodies within the Study Area were assessed.

2.2.6 Water vole field signs are described in Strachan and Moorhouse (2011), and include the following:

- Faeces - cylindrical droppings with blunt ends, measuring approximately 12mm long and 4-5 mm wide, resembling a large 'tic-tac'. Colour can vary depending on diet, ranging from green to dark purple/ black;
- Latrines - these are the most distinctive field signs left by water voles. Latrines are piles of faeces that are often deposited in discrete locations. Latrines can be used to mark territories between February and November;
- Feeding stations - water voles often bring food items to feeding stations along their pathways, at burrow entrances, or on platforms along the water's edge. These include neat piles of chewed vegetation (such as coarse grasses, reeds, sedges and rushes) up to 10cm long that are left after feeding. Sections typically have distinctive 45-degree cuts to their ends;
- Burrows - these appear as a series of holes along the water's edge within banking, up to 3m from the water's edge. Holes typically have a diameter of 4-8 cm;
- Runways - low tunnels leading through vegetation close to the water's edge; and
- Nests - in some areas of rush pasture, water voles make woven nests above ground amongst tussocks. Nests are generally around 20 cm wide.

Other protected species

2.2.7 Incidental sightings of other protected species were also recorded.

3. Results

3.1 Desk study

3.1.1 The results of the desk-based search for statutory and non-statutory designated sites are summarised below. For full details relating to the location and descriptions of statutory and non-statutory designated sites, please refer to Lorg Wind Farm Ecological Desk Study (**Technical Appendix 11A**).

Statutory designated sites

3.1.2 There are no statutory sites designated for the purpose of protected species conservation within 10 km of the Site boundary.

Non-statutory sites

3.1.3 Afton Uplands Provisional Wildlife Site[6] is positioned within 2 km of the Site boundary. 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*"[7].

3.1.4 Three former Red Squirrel Priority Woodlands (RSPW) are also present within 2km of the Site, including Cairn Head RSPW, Euchanhead RSPW, and Carsphairn Forest RSPW. While these areas have now been superseded in terms of strategic priorities, the woodlands are still considered to be of local importance for red squirrel (Sciurus vulgaris).

Protected species records

3.1.5 The following protected species records were provided by SWSEIC:

- Otter: 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); and
- No records of water vole or badger were provided by the desk study.
- Brown hare (*Lepus europaeus*) two records made in 1995 were provided by the desk study, both made at Cairnkinna, 9 km from the Site boundary. No recent records were provided (within the last 10 years).

Secondary data review: Previous survey work

3.1.6 A suite of baseline ecological surveys were carried out at the Site by Natural Power in 2012, followed by further targeted protected species surveys by Amec Foster Wheeler in 2013, 2014, and 2015 to support the 2015 ES (Amec Foster Wheeler, 2015). Further protected species survey were carried out in July 2020. The results of these surveys are summarised in **Table 3.1**.

[6] Wildlife Sites are areas of importance to wildlife which have been surveyed then assessed by a team of local experts. Provisional Wildlife Sites are sites which have not yet been formally assessed.
[7] http://www.gsabiosphere.org.uk/

Table 3.1 Summary of protected species field surveys (2013, 2014, 2015 and 2020)

Species	Year				
	2012	2013	2014	2015	2020
Otter	Evidence of otter activity, in the form of spraint, was recorded under Lorg Bridge and Dalquhairn Bridge. No active resting sites were identified within the survey area.	Suitable otter foraging and commuting habitat was identified along many of the watercourses within the Study Area. Evidence of otter activity (spraint) was recorded along the Water of Ken and the lower stretch of the Lorg Burn within the Site. No active resting sites were identified within the Study Area. Although there are no major barriers to movement into and around the Study Area, no identifiable overland otter paths were recorded.	Evidence of otter activity (spraint) was identified along the Water of Ken, Lorg Burn, Altry Burn, and Clashywarrant Burn - thus indicating that otters utilise watercourses within the Study Area for commuting and foraging purposes. A total of five potential couches and three potential holts were recorded during the survey. These features were identified along Water of Ken, Lorg Burn, Alwhat Burn, Spout Burn, Grains Burn and an unnamed watercourse near Craigdarroch. No confirmed resting places were however identified during the survey.	Evidence of otter spraint was identified along the Lorg Burn, Altry Burn, and Water of Ken. Two potential resting sites were identified in the upper reaches of Lorg Burn, with a further potential resting site recorded adjacent to the Alwhat Burn.	Evidence of otter activity (spraint) was limited to the Water of Ken and the Lower reaches of the Lorg Burn. No active resting sites were identified within the Study Area during the 2020 survey.

Species	Year				
	2012	2013	2014	2015	2020
Water vole	No evidence of water vole or active water vole habitat was identified during survey. The watercourses within the survey area were mainly fast flowing with little or no rank bankside vegetation. Thus, the habitats on Site were considered sub-optimal for water vole.	No evidence of water vole or active water vole habitat was identified during survey. The watercourses within the survey area were generally considered to provide sub-optimal habitat for water vole as they are fast flowing and water levels quickly change following periods of high rainfall. The Lorg Burn in the vicinity of Lorg Farm and the lower reaches of the watercourse running off Small Cleugh and Rough Cleugh were considered to provide limited habitat suitability for water vole.	No evidence of water vole or active water vole habitat was identified during survey.	N/A	No evidence of water vole or active water vole habitat was identified during survey.
Badger	The results of the 2012 badger survey are shown in a confidential annex to this report.	The results of the 2013 badger survey are shown in a confidential annex to this report.	The results of the 2014 badger survey are shown in a confidential annex to this report.	N/A	The results of the 2020 badger survey are shown in a confidential annex to this report.

3.2 Field Survey

3.2.1 A survey for otter and water vole was carried out between 01 and 02 June 2021. Both surveyors meet the CIEEM competency standards for undertaking protected species surveys (CIEEM, 2021). Weather conditions prior to and during the survey were dry, warm (>10 °C), and calm.

3.2.2 The survey for badger was carried out by David Knox on 8 July 2021.

3.2.3 The results of the 2021 otter and water vole field survey are described below. Target notes (TNs) relating to the location of field signs, along with representative photographs, are displayed in Table B.1 and Table B.2 in **Appendix B**. The TNs are designed to accompany the mapped results in **Figure 3.1**. Incidental sightings of other protected species are noted at the end of this section.

Otter

3.2.4 The survey carried out in June 2021 identified evidence of otter activity along most watercourses within the Study Area. The greatest concentration of activity was associated with the Water of Ken.

3.2.5 Eighteen records of otter spraints were made within the Water of Ken, Coranbae Burn, Altry Burn, Small Burn, Lorg Burn, and Afton Water (TNs numbered 1 - 19, **Figure 3.1**).

3.2.6 Four of these spraints were recorded beyond the Site: TN 4 to the north west of Turbine N02 and N01, TN 5 to the south west of the Site on the Water of Ken, and to the north east of the Site along Forty Penny Burn (TN 11 and 12).

3.2.7 A total of four confirmed resting places (three holts and one couch) were also identified within the Study Area. These resting places were located on the north and south bank of Coranbae Burn (a couch at TN 20 and a holt at TN 21) on the south western limit of the Site, and the west bank of Lorg Burn (TN 23) within the Site in northern valley to the east of Brown Hill. One holt was recorded beyond the Site, along the east bank of the Water of Ken (TN 22) to the north.

3.2.8 In addition, two potential resting places (holts) were recorded along the Altry Burn (TN 24) in the southern limit of the Site and Alwhat Burn (TN 25) within the Site at the bottom of Brown Hill and Ewe Hill during the survey.

3.2.9 One suitable otter resting feature was also recorded (TN 26), close to turbine T04.

Water vole

3.2.10 No evidence of active water vole habitat was recorded along any of the watercourses or marshy grassland/ flush habitat within the Study Area.

3.2.11 However, field signs suggesting potential historic water vole activity were identified in the headwaters of a tributary of Alwhat Burn (TN 27), in the north western section of the Site, to the south east of turbine N02. The field signs comprised well-defined runways through acid grassland and rush vegetation which lead to a burrow-like entrance that dropped down into the watercourse.

3.2.12 While much of the Study Area is subject to heavy grazing by sheep and thus has limited habitat for water vole, areas of potentially suitable water vole habitat were also noted within

rush vegetation alongside the minor un-named watercourse located east of Lorg Farmhouse, and in the lower reaches of Small Cleugh and Rough Cleugh.

Badger

3.2.13 The results of the 2020 badger survey are provided in the confidential annex supporting this report and on Figure 3.2

Other protected species

3.2.14 Two sightings of viviparous lizard (*Zootoca vivipara*) were made within the Site during the protected species survey (TNs 28 - 29). Common frog (*Rana temporaria*) was also recorded in the Site (TN30).

3.2.15 In addition, active sand martin nest sites were recorded in the Site within the banks of Water of Ken and Lorg Burn (TNs 31-33).

4. Summary

4.1 Desk study

4.1.1 Data obtained from SWSEIC relating to legally protected/ priority species within 2km of the Site boundary returned no records of otter or water vole made within the last 10 years (2010 -2020).

4.1.2 Protected species survey work carried out between 2012 and 2020 identified evidence of otter activity (in the form of spraint) along watercourses within the Study Area. While 'potential' resting places were identified in 2014, no confirmed resting places were identified within the Study Area.

4.1.3 No evidence of water vole was identified during surveys carried out between 2012 and 2020.

4.2 Field survey

Otter

4.2.1 The protected species survey carried out in June 2021 confirmed evidence of otter activity, in the form of spraint, along most watercourses within the Study Area. A total of four resting places (one couch and three holts) were identified, with an additional two potential resting places (holts) also recorded within the Study Area.

4.2.2 The greatest level of otter field signs were recorded along the Water of Ken and the lower reaches of the Lorg Burn, close to the confluence with Water of Ken. Multiple otter field signs were also recorded along the Coranbae Burn and associated tributaries.

4.2.3 The frequency of otter field signs recorded within the Study Area during the 2021 survey appears to be higher overall than those recorded between 2012 and 2020. The distribution of field signs along watercourses within the Study Area also appears to vary each year. This may be related to seasonal and temporal variations in the pattern of otter activity, climatic conditions, or changes in food source.

4.2.4 The results of the 2021 field survey indicate that otter utilise watercourses within the Study Area for foraging, commuting and resting purposes. Any development within the Study Area should therefore consider the presence of this European Protected Species (**Appendix A**). Further survey work may be required, along with the incorporation of appropriate mitigation measures, if the proposed development is considered to have direct or indirect effects on this species.

Water vole

4.2.5 Given the lack of water vole evidence identified through the desk and field-based study, it is considered unlikely that this species is present within the survey area at present. However there are a large number of waterbodies within the Site, therefore there remains a possibility that water vole may colonise the survey area in the future. It is therefore recommended that pre-commencement surveys are carried out within any areas of suitable water vole habitat that may be directly affected by construction works.

Badger

4.2.6 Conclusions are presented within **Appendix C**.

Other protected species

4.2.7 Viviparous lizard was recorded during the 2021 protected species survey. This species is afforded protection under the Wildlife and Countryside Act 1981 (as amended), whereby it is an offence to intentionally or reckless kill or injure a viviparous lizard. Consideration should therefore be given to the potential presence of these species during construction operations.

References

Amec Foster Wheeler (2015). *Lorg Wind Farm Environmental Statement*.

Bang, P., Dahlstrom, P. (2006). *Animal Tracks and Signs*. Oxford University Press.

Chanin, P. (2003). Mo*nitoring the otter Lutra* lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10. English Nature, Peterborough.

CIEEM (2021). Competency Standard for Water Vole Survey, Mitigation and Management. Draft Version: July 2021. https://cieem.net/wp-content/uploads/2021/06/Water-Voles-Competency-Standard-June-2021.pdf

CIEEM (2013a). *Competency for species survey: Eurasian otter*. https://cieem.net/wp-content/uploads/2019/02/CSS-EURASIAN-OTTER-April-2013.pdf

Harris, S., Yalden, D. (2008). *Mammals of the British Isles: Handbook, 4th Edition*. Mammal Society.

Scottish Badgers (2018). *Surveying for badgers: Good Practice Guidelines*, Version 1.

Strachan, R., Moorhouse, T., Gelling, M. (2011). *Water Vole Conservation Handbook*, 3rd edition. Wildlife Conservation Research Unit, Great Britain.

Wood (2022). *Lorg Wind Farm Environmental Impact Assessment*, Chapter 11 Ecology.

Appendix A
Relevant Legislation

Otter

The otter is a European Protected Species and receives full protection under the Conservation (Natural Habitats & c.) Regulations 1994 (as amended) (The Habitats Regulations)[8] . This legislation makes it an offence to deliberately or recklessly:

- capture, injure or kill such an otter;
- harass an otter or group of otters;
- disturb an otter while it is occupying a structure or place used for shelter or protection;
- disturb an otter while it is rearing or otherwise caring for its young;
- obstruct access to a breeding site or resting place, or deny an otter use of a breeding site or resting place;
- disturb an otter in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species; and
- disturb an otter in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal (whether deliberately or recklessly); and
- keep, transport, sell or exchange, or offer for sale or exchange, and wild otter (or any part or derivative of one) obtained after 10 June 1994.

Any activity which is likely to affect such species requires consultation with the relevant statutory nature conservation organisation prior to any works commencing. In Scotland, this is NatureScot.

Water vole

The water vole receives partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In Scotland, this legal protection is currently restricted to the water vole's places of shelter or protection. This legislation makes it an offence to intentionally or recklessly:

- damage, destroy or obstruct access to any structure or place that water voles use for shelter or protection; and
- disturb a water vole while it is using any such place for shelter or protection.

Any work that may potentially cause disturbance to such species requires prior consultation with NatureScot.

[8] The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) have been amended by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019. The regulations as detailed above therefore remain in force following the UK's departure from the European Union.

Appendix B
Protected Species Field Signs

Table B.1 Otter and Water Vole Field Signs

TN	Field sign	Grid reference	Description	Photograph
1	Spraint	NS 66993 00660	Remains of a very old spraint (bones only) on a rock on south bank of watercourse.	
2	Spraint	NS 66774 00606	Two to three recent otter spraints on a rock under bridge	N/A
3	Spraint	NS 66867 00890	Two recent and one old otter spraint on rock next to watercourse.	
4	Spraint	NS 63780 01700	Remains (bones only) of very old otter spraint on rock in centre of watercourse.	N/A
5	Spraint	NX 66184 99293	Two old otter spraints on a rock under a bridge.	N/A
6	Spraint	NS 66613 00125	Two old otter spraints on a rock on the east edge of watercourse.	N/A
7	Spraint	NS 66887 00631	Remains of a very old spraint under bridge on east side of watercourse.	N/A

TN	Field sign	Grid reference	Description	Photograph
8	Spraint	NX 66688 99233	Old spraint on rock in centre of watercourse under overhanging Sitka spruce branch.	N/A
9	Spraint	NX 67180 99764	Remains of a very old spraint (bones only) on a rock at the edge of watercourse.	
10	Spraint	NX 67236 99831	Three old spraints on a rock on west bank of the watercourse.	N/A
11	Spraint	NS 68436 01873	Several old spraints on a rock under the bridge.	N/A
12	Spraint	NS 68419 01805	Old otter spraint on rock on eastern edge of watercourse at confluence with tributary.	N/A
13	Spraint	NS 67657 01152	Three old spraints on rock on south bank of watercourse.	N/A
14	Spraint	NS 67579 01089	One large, recent spraint on rock on south bank of watercourse.	N/A
15	Spraint	NX 66680 99314	Remain of several old otter spraints on rock (bones only).	N/A
16	Spraint	NX 67272 99566	Two old spraints on boulder in watercourse – one large and intact while other composed of bone remains.	N/A

TN	Field sign	Grid reference	Description	Photograph
17	Spraint	NS 68283 00485	Remains of very old spraint on rock (bones only)	N/A
18	Spraint	NS 68342 01669	Remains of very old spraint on boulder	N/A
19	Spraint	NS 66434 00771	Remains of old spraint on a rock next to watercourse. Only bones and stain on rock remains.	N/A
20	Couch	NX 66424 99371	Otter couch on south side of watercourse under large boulder. One recent and two old spraints present inside. Scratch march in muddy substrate inside feature suggests recent use.	
21	Holt	NX 66460 99354	Otter holt located along Coranbae Burn next to small waterfall. Feature located inside alcove between two large boulders that extends at least 1m. Two old spraints present inside the feature.	
22	Holt	NS 68421 01747	Clear path through wood rush from river to a sheltered alcove under boulder that is large enough to support otter.	N/A

TN	Field sign	Grid reference	Description	Photograph
23	Holt	NS 65836 02025	Large boulder on west bank of watercourse with a sheltered alcove stretching back approximately 1 – 1.5m. One old spraint present inside. Monitoring required to determine whether currently active.	
24	Potential holt	NX 67542 99527	Heavily eroded riverbank with overhanging boulder that forms a small tunnel, of which may serve as a suitable resting place. No current field signs to indicate activity.	N/A
25	Potential holt	NS 65824 01395	Boulders on north side of watercourse create a sheltered alcove that stretches back approximately 1m. One old spraint present inside. Monitoring required to determine whether feature is currently in use.	
26	Suitable resting feature	NS 68192 00175	Sheltered alcove on east bank of watercourse stretching approximately 1.5m along the bank edge. No evidence of spraint inside, however feature looks suitable as a resting place.	

TN	Field sign	Grid reference	Description	Photograph
27	Water vole potential	NS 64910 01632	Potential water vole field signs in the form of well-defined runways through acid grassland and rush vegetation. Runways lead into a burrow-like feature that dropped down into the watercourse (of which is just under the surface of the ground). No current field evidence to suggest that this area is currently active (e.g. latrines or feeding stations) – most likely to indicate signs of historic activity.	

Table B.2 Other Protected Species Field Signs

TN	Species	Field sign	Grid reference	Description	Photograph
28	Viviparous lizard	Observation	NX 68116 99884	Common lizard observed on grassy tussock.	N/A
29	Viviparous lizard	Observation	NS 66867 00890	Common lizard basking on rock next to fence line.	
30	Common frog	Observation	NX 68156 99856	Common frog observed next to small watercourse.	N/A
31	Sand martin	Nest	NS 66601 00105	Sand martln nest observed in east bank of watercourse.	N/A
32	Sand martin	Nest	NS 66670 00756	Sand martln nest in banking on east side of watercourse.	N/A
33	Sand martin	Nest	NS 66627 00765	Approximately 14 sand martln nest entrances in banking on west side of watercourse.	N/A

Appendix C
Confidential Badger Data

Introduction

This appendix updates and supersedes the confidential badger annex for the Lorg Wind Farm development produced in 2015 (summarising the findings of badger surveys undertaken in 2013 and 2014) by Amec Foster Wheeler (now WSP E&I Solutions UK Ltd).

This appendix describes badger evidence and summary evaluation of the badger ecology in light of the evidence.

Methodology

Desk Study

A desk-based study was carried out in March 2020 to establish an insight into the nature conservation interest of the Site and suitable buffers (**Technical Appendix 11.1**).

To inform the survey design and provide context for assessment, information relating to non-statutory designated sites within 10km radius of the Site boundary was acquired from the Scottish Natural Heritage (SNH) Sitelink web-based application.[9]

Records of protected species made within 2km of the Site boundary were also obtained through South West Scotland Environmental Information Centre (SWSEIC) and a review of the National Biodiversity Atlas (NBN) database[10]; these data were obtained in March 2020.

Secondary data review

Secondary data review: Previous survey work

The Lorg Wind Farm Environmental Statement (ES) (Amec Foster Wheeler, 2015) details the results of protected species survey work carried out in 2013 and 2014, which has been reviewed to provide contextual information about the Study Area.

Field survey

The survey for badger comprised a search of all areas of potentially suitable badger habitat within the Study Area (**Figure 2.1**), including well-drained sloping hillsides, field edges, and slopes near watercourses. Badger field signs are described in Scottish Badgers (2018), Clark (2010), and Harris et al (1989), and include the following:

- Setts – structures used by badgers. Sett entrances are typically D-shaped, measuring between 25 and 30cm wide. There is often a substantial pile of earth called a spoil heap just outside the entrance, which may contain badger guard hair and discarded vegetation that had been used as bedding. There are four categories of badger sett, as described below:
  - Main sett - generally the largest sett in the territory, consisting of several entrances with well-used interconnecting paths between them;

[9] https://gateway.snh.gov.uk/sitelink/searchmap.jsp
[10] https://nbnatlas.org

- Annex sett - may consist of several entrance holes, however generally smaller than the main sett. They are located close to the main sett (usually less than 150m) and connected by well used paths;
- Subsidiary sett - generally located at least 50m away from the main sett, and typically comprise three to five entrances. They are not always active and are not necessarily connected to other setts by well-defined paths; and
- Outlier sett - the smallest type of sett consisting of one or two entrance holes with little or no spoil outside, and no clear paths connecting to other setts. Several outlier setts can exist within a badger territory.

- Latrines – a collection of shallow dung pits that badgers excavate to deposit their droppings. These are often located near setts and can also be used to mark territorial boundaries.
- Prints and/ or tracks - badger paths are often well worn and lead from setts to, and along, boundaries such as fence lines. They may be marked at strategic points with latrines that signify the end of a territory. Prints measure 4.5 - 6.5cm wide and have five toes with prominent claws.
- Guard hairs - long, elliptical hairs with black and white bands, and are often found on wire fencing; and
- Feeding signs – such as snuffle holes, which are indentations in the ground where badgers have been rooting for food such as bulbs and invertebrates.

Incidental sightings of excavations potentially made by foraging badgers, or badgers investigating the soil for future sett formation, referred to as 'diggings' were also recorded.

Results

Desk study

SWSEIC provided no badger records

Secondary data review

Badger surveys undertaken in 2013 recorded a sett with nine active holes, located approximately 90m south-west of the Site boundary. The only badger activity sign found within the site in 2013 was a badger path (location undisclosed).

Badger survey in 2014 recorded the same sett as above but with seven active entrances. Similar to the above, the only signs of badger activity within the site were paths are present on the edges of the Site e.g. following boundary fence lines. It was concluded that badger activity was largely restricted to areas close to the south-west site boundary.

Field survey results

A badger survey in 2020 and 2021 recorded the following features, summarised in Table C.1 and **Figure 3.2** (showing the locations of TN1 to 31).

Badger setts

No setts were present within the Site of the Proposed Development in 2020 and 2021.

An active sett (TN3) and three active outlier setts (TN2, TN3 and TN23) were recorded beyond the Site, in 2021. All four setts were recorded in the same locale, beyond the south western extent of the Site.

The surveys found that the main sett recorded in 2013 and 2014 (TN3) remained and had increased considerably in extent to a definitive main sett featuring 23 active entrances in 2020 but had reduced

to 18 active entrances in 2021. Some signs of recent badger activity were evident by the sett in 2020 and 2021, e.g. discarded bedding, diggings and tracks in between entrances and leading away from the sett (uphill, downhill and along slope).

In 2020 evidence was found of two outlier setts located beyond the main sett (TN3) with tracks leading up to the main sett. A definitely active, outlier sett was located in open ground (TN2) and potential outlier sett (TN1), lacking definite badger signs, was located close to the edge of extensive conifer plantation below the TN2 satellite sett. In 2021 these two outlier setts were judged to be less active. However, a new, active satellite sett was evident in 2021 (TN23) in grassland located a few metres above forestry plantation.

Other field signs

The great majority of the remaining 28 badger field signs were recorded along the southern Site boundary. Four field signs recorded within the Site as follows: tracks were recorded at TN5 and TN6; a dung pit was recorded within the south western limit of the Site at TN18 in 2020, but was not observed in 2021; a latrine was recorded in the southern part of the Site at TN21, in both 2020 and 2021.

A number of potential badger signs were recorded close to the south-west margin of the Site in 2020 (TN4 to 17) in the form of mainly fence crossing points with tracks and less commonly diggings. In 2021 the TN4 to 17 contained comparable evidence of badger activity as in 2020. However, no evidence was found at TN7 locality, A surface deposit of badger dung was also recorded in this area in 2020 (TN18). In 2021 a fresh latrine and fence crossing point was found in the south-west margin of the Site (TN26), where no badger activity was recorded in 2020. Also, in 2021 diggings (TN27) and a fence crossing point were recorded where no badger activity was evident in 2020. In 2021 no evidence of badger activity was found at the 2020 TN18 locality.

In 2020 some signs of badger activity were also recorded in the centre of the Site (TN21) and at the southern margin of the Site by Holm of Dalquhairn Bridge (TN19 and TN20). In 2021, badger activity signs remained in this area (although no signs were evident at TN22 locality along the southern Site boundary). No setts were recorded in these areas.

Table C.1 Summary of badger field survey results carried out in 2020 and 2021

Target Note	OS Grid Reference	Field sign type	2020 result	2021 result
TN1	NS 65344 00840	Sett: Outlier Active:Yes	Potential single entrance outlier sett on steep ground close to upper (northern) edge of extensive conifer plantation. Potential snuffle hole nearby and a vague animal track present.	Not found.
TN1	NS 65355 00871	Sett: Outlier Active: Yes	Two entrance outlier sett on steep slope above (to north) of extensive conifer plantation. Located in area of acid grassland (ungrazed by sheep). Large spoil heap present at one of the entrances. Sett entrances were rather overgrown with grass.	Sett entrances and spoil heap remained evident but had become more heavily overgrown since 2020. Some diggings and paths present at locality.
TN3	NS 65464 00908	Sett: Main Active: Yes	Extensive main sett on steep, open ground about 100m north of extensive conifer plantation. Sett located on mosaic of acid grassland (ungrazed by sheep). A few tracks led down to the conifer plantation and also led up slope (to south). 23 entrances recorded spread across an area of 30m across slope (east to west) and 20m up and down slope (north to south). Uppermost setts (three) were judged to be the most active with fresh bedding and diggings by the entrances. Two entrances near the centre of the sett were concealed in character (dug from underground to the surface), whereas the other entrances had spoil heaps.	Main sett remained present and was judged to be active. 18 entrances were recorded as being open and useable by badgers. Some old discarded bedding (hay-like) was present on the spoil heaps at four locations. A few paths were evident going up and down the slope from the sett and along slope as well.
TN4	NS 65247 01146	Excavation	Fresh diggings near fence in lush acid grassland. Animal track on both side of fence, crossing under it.	Vague animal tracks on both side of fence crossing. No diggings evident.
TN5	NS 65367 01091	Tracks	Fence crossing point with animal track.	Remained evident.
TN6	NS 65388 01069	Tracks	Fence crossing point with animal track. Diggings nearby.	Remained evident.
TN7	NS 65382 01032	Excavation	Diggings close to fence.	Not evident.
TN8	NS 65439 01013	Tracks	Fence crossing point with animal track.	Remained evident. Minor diggings present.
TN9	NS 65521 00994	Excavation	Diggings close to fence.	See TN26. Fence crossing point with animal track evident. Diggings not evident.
TN10	NS 65562 00987	Tracks	Fence crossing point with animal track.	Remained evident.

Target Note	OS Grid Reference	Field sign type	2020 result	2021 result
TN11	NS 65608 00911	Tracks	Fence crossing point with animal track. Judged to be well used.	Remained evident.
TN12	NS 65639 00846	Tracks	Fence crossing point with animal track in area with some bog habitat.	Remained evident.
TN13	NS 65686 00750	Tracks	Fence crossing point with animal track. Judged to be well used.	Remained evident. Judged to not be well used by badgers.
TN14	NS 65719 00684	Tracks	Fence crossing point with animal track. Leads to pool on ridge of hill a few 10s m to north of fence. Possible used as a drinking supply. Mammal track continued along south side of fence, which extends south-east to the summit of the hill.	Fence crossing point remained evident. Tracks not evident along fence.
TN15	NS 65870 00460	Tracks and excavations	Diggings in lush acid grassland to south of fence. Fence crossing point at locality.	Fence crossing point with animal track evident. Diggings not evident.
TN16	NX 66021 99947	Tracks	Fence crossing point from conifer plantation to acid grassland.	Fence crossing point remained evident.
TN17	NX 66104 99883	Tracks	Fence crossing point from conifer plantation to acid grassland.	Fence crossing point remained evident. Rather overgrown and judged to be not recently used.
TN18	NS 65295 01323	Dung pit	Large amount of fairly fresh badger-like dung on open ground.	Not evident at locality or in local vicinity.
TN19	NX 66198 99283	Tracks and excavations	Mammal path leading under fence next to bridge. Small excavations were also present along the adjacent fence line – possibly attributed to badger.	Old dung pit remained evident close to the fence crossing. Animal path evident.
TN20	NX 66200 99284	Latrine	Latrine composed of several recently excavated, dung pits close to fence line, some of which contain badger dung.	Freshly dug pit at NX 66174 99280. No dung evident.
TN21	NS 66611 00972	Latrine	Single badger dung pit with fresh dung near watercourse. A snuffle hole was also present within 1m of the dung pit.	Dung pit remained evident and contained moderately old dung.
TN22	NX 66424 99362	Snuffle holes	Potential badger snuffle holes in bank (measuring approximately 9cm x 6cm).	Not evident.
TN23	NS 65423 00874	Sett: Outlier Active: Yes	Not evident.	Outlier sett. Located by small area of slumped ground in open grassland habitat a few metres north of edge of conifer plantation on steep slope.

Target Note	OS Grid Reference	Field sign type	2020 result	2021 result
				Large, fresh spoil heap (with discarded bedding) with two small entrances present. Another sett entrance was located a few metres away with no adjacent spoil heap.
TN24	NS 65918 00426	Snuffle holes	Not evident.	Snuffle hole by fence.
TN25	NS 65779 00569	Snuffle holes	Not evident.	Snuffle hole by fence.
TN26	NS 65515 00996	Latrine	Latrine not evident.	Close to TN9 locality. Latrine with several pits, with three with fresh dung located a few metres west of the fence. A fence crossing point was also evident.
TN27	NS 65460 01007	Excavation	Not evident.	Some diggings evident by the fence.
TN28	NS 65323 01085	Tracks	Not evident.	Fence crossing point with animal track evident.
TN29	NX 66073 99911	Tracks	Not evident.	Animal track evident in grassland by east side of fence (conifer plantation on west side of fence).
TN30	NX 65998 99981	Tracks	Not evident.	Fence crossing point. Vague animal tracks along fence and in grassland heading roughly north-east of locality.
TN31	NS 65966 00389	Tracks	Not evident.	Fence crossing point. Possible snuffle hole evident close by.

Summary

Overall, the findings of the 2020 and 2021 badger surveys infer that the local badger population (presumed to be a single badger 'clan') had increased in size considerably since the previous surveys in 2013 and 2014. However, the badger 'clan' remained in setts (a main sett and a small number of outlier setts) located beyond the Site, close to the north-west Site boundary of the development. No setts were recorded within the Site boundary.

There was considerable evidence that badgers were commuting regularly into the western part of the Site (for feeding and territorial marking behaviour) and similarly in the southern central part of the Site (by Holm of Dalquhairn Bridge). There were no signs of badger activity in the eastern and northern parts of the Site, which are upland in character.

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Key

- Site boundary
- Study area
- Turbine location
- Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area

0 0.5 1 km

Scale at A3: 1:22,500

Client

RWE

Lorg Wind Farm
Technical Appendix 11.C
Protected Species Report

Figure 2.1
Protected species study area

October 2022

32964-WOOD-XX-XX-FG-OE-0018_S0_P01.2

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Key

- Site boundary
- Study area
- Turbine location
- Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area
- Common frog
- Common lizard
- Couch
- Holt
- Potential holt
- Runways
- Sand marten
- Spraint
- Suitable otter resting feature

0 0.5 1 km

Scale at A3: 1:22,500

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Technical Appendix 11.C
Protected Species Report

Figure 3.1
Protected species results plan

October 2022

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Waterfall
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Spout Burn
Alcherry Cleugh Burn
Ewe Hill Strand
Small Burn
Altry Burn
Coranbae Burn

Rough Craig
Ervie Craig
Rough Cleugh
Small Cleugh
Lorg
Glede Craig
Long Craig
Lorg Bridge
Sheepfolds
Mid Height
Whigs' Hole
Craigfad
Hawks Craig
Waterfalls
Glede Craig
Ewe Hill
Hare Cleugh
Corby Craig
Cow Knowe
Cairn
Mid Rig
Quarrel End
Sheepfold
White Knowe
Upper Holm of Dalquhairn
Holm of Dalquhairn Bridge
Cattle Grid
Rowantree Plantation
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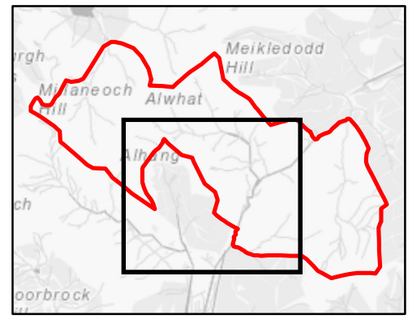
TN18 TN4 TN28 TN5 TN6 TN7 TN27 TN8 TN9 TN26 TN10 TN11 TN3 TN23 TN2 TN1 TN12 TN13 TN14 TN25 TN15 TN24 TN31 TN21 TN30 TN16 TN29 TN17 TN22 TN19 TN20

Key

- Site boundary
- Turbine location
- Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area
- Badger target note



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Scale at A3: 1:10,000

Client

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Figure 3.2
Badger surveys of Lorg Wind Farm – 2020 and 2021 [Confidential]

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October 2022