TECHNICAL APPENDIX 8.1

Clauchrie Windfarm

Extended Phase 1 habitat survey





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Executive Summary

An ecological desk study, extended Phase 1 habitat survey and a preliminary bat roost assessment were conducted in May 2019 in relation to a proposed windfarm development site and a wider Study Area. The desk study compiled a baseline of nature conservation designations and historical records of protected or otherwise notable species for the Site and local area. The field survey concentrated on assessing the baseline of the Study Area in terms of habitats, but also recorded any incidental evidence of, or potential for, protected or otherwise notable species presence. This included a specific preliminary roost assessment investigating the potential for trees and structures support roosting bats.

Two statutory nature conservation designations of national importance are present within 5km of the Site boundary: Feoch Meadows SSSI is located 2.8km southwest of the Site boundary, and Merrick Kells SAC and SSSI is located 2.9km to the east.

The Site was found to contain a variety of habitats, with a range of ecological value. Within the Study Area, the plantation coniferous woodland, found in large areas across the Site, offers low ecological value, due to the limited number of species present, the young ages of the coupes of woodland and the lack of features on the trees that could be used by protected species, such as bats. The Site provides good connectivity to the wider environment, especially areas of plantation woodland, semi-improved grassland and smaller burns leading into larger watercourses, such as the River Cree.

The watercourses found on the Site, such as the Muck Water, Shalloch Burn, Fardin Burn, Cairnfore Burn, Laniewee Burn and the Sprit Strand were all deemed to have good water quality and are priority habitats on the SBL and LBAP; these watercourses are therefore considered as having good ecological value.

A number of the waterbodies encountered during the survey were assessed in terms of their HSI for great crested newt, but none of the assessments returned scores indicative of requiring further survey.

Habitats within the Study Area were assessed as being suitable for a range of farmland and lowland/upland bird species. No incidental evidence was recorded for otter, badger, water vole, pine marten or red squirrel during the survey. However, suitable commuting routes and foraging areas were identified along some of the larger watercourses found on the Site. It is likely that protected mammals will commute through the Site. Four trees were identified with potential to support roosting bats in summer.

1 Introduction

Background 1.1

- 1.1.1 ITPEnergised was appointed by ScottishPower Renewables (SPR) to undertake an extended Phase 1 survey and baseline survey at the proposed Clauchrie Windfarm, located approximately 6 km northwest of Barrhill, South Ayrshire (hereafter referred to as the 'proposed Development'). This report forms a baseline ecological report including a desk study, the extended Phase 1 habitat survey as well as a Preliminary (bat) Roost Assessment (PRA), in relation to the proposed Development.
- 1.1.2 The purpose of the extended Phase 1 habitat survey was to document the habitats present within the Site and an additional 50m buffer (collectively referred to as 'the Study Area'). This survey also included searching for signs of activity of protected faunal species, as well as considering features that could support protected or otherwise notable species.
- This report describes the methods used to gather and record habitat and field signs of protected species for the 1.1.3 Site. It also summarises the findings of an ecological desk study and provides details of the field investigation.

1.2 The Site and Study Area

1.2.1 The area within the application boundary (hereafter referred to as the "Site") is located in Glentrool Forest, east of the operational Mark Hill Windfarm. It comprises an access corridor connecting the Site to the A714 in the south, within the Dumfries and Galloway Council Area, and a proposed turbine development area in the north within the

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1.2.2 The Site is dominated by Sitka spruce (Picea sitchensis) plantation, with coupes of varying ages, ranging from recently felled and/or re-stocked areas to mature forestry. Open habitats occur along watercourses and on some hillslopes that represent a typical upland/upland fringe habitat assemblage for the region, although they are often heavily influenced by the wider forestry. The extended Phase 1 survey focussed on mapping the habitats within the Site and a 100 m buffer (hereafter referred to as the 'Study Area' – see Figure TA 8.1.1). Because turbines would not be proposed on or near the Site boundary, a minimum 250m buffer was effectively observed around any potential deep excavations, e.g. for turbine foundations of borrow pits. The Study Area does not overlap with any nature conservation designation for botanical or habitat-related qualifying features.

Legislation, Policy and Guidelines 2

2.1 Legislation

- 2.1.1 Full consideration has been given to the relevant nature conservation legislation when carrying out this assessment. This includes the following:
 - The Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive) 1992 (92/43/3EEC);
 - The Conservation of Wild Birds (the Birds Directive) 1979 (as amended);
 - The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
 - Wildlife and Countryside Act 1981 (as amended);
 - Wildlife and Natural Environment (Scotland) Act 2011 (as amended); and
 - The Nature Conservation (Scotland) Act 2004 (as amended), which places a statutory duty on all public bodies to further the conservation of biodiversity through the Scottish Biodiversity Strategy, with Scottish priority species and habitats listed on the Scottish Biodiversity List (SBL), itself based on the former UK Biodiversity Action Plan (UKBAP), and regional biodiversity targets defined through the Local Biodiversity Action Plan (LBAP).

Bat-specific legislation

- All bat species within the UK are fully protected by law. Within Scotland, bats are primarily protected by the 2.1.2 Conservation (Natural Habitat &c) Regulations 1994 (as amended), which transposes the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) into domestic law. Under the Wildlife and Countryside Act 1981 (as amended) and The Nature Conservation (Scotland) Act 2004, it is an offence to intentionally and/or recklessly:
 - Deliberately capture, injure or kill a wild bat;
 - Harass a wild bat or group of bats;
 - Disturb a wild bat in a roost (any structure or place it uses for shelter or protection);
 - Disturb a wild bat while it is rearing or otherwise caring for its young (this would be a 'maternity' roost);
 - Obstruct access to a bat roost or to otherwise deny the animal use of the roost;
 - Disturb such a wild bat in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of that species;
 - Disturb a wild bat in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; and possess, control, transport, exchange or sell a bat or parts of a bat, alive or dead.

Policy Framework 2.2

- 2.2.1 Scottish Planning Policy (SPP) (Scottish Government, 2014a) outlines the duty of planning authorities to further the conservation of biodiversity as defined in the Nature Conservation (Scotland) Act 2004 and the SPP highlights that this should be reflected in the development plans.
- National Planning Framework 3 (Scottish Government, 2014b) recognises that "Stewardship of Scotland's wildlife 2.2.2 and biodiversity can make a significant contribution to sustainable economic growth. The planning system has an important role to play in improving the environment, for example by strengthening green infrastructure, safeguarding and enhancing urban and rural biodiversity, and contributing to the improvement of water, air and soil quality. Development plans should also seek to achieve a net enhancement of landscape quality and biodiversity".
- 2.2.3 The policies set out below are those relevant to nature conservation and include those from the Dumfries and Galloway Local Development Plan (LDP) and the Ayrshire LDP. The Dumfries and Galloway LDP was adopted in September 2014 and has since been updated in January 2018. The plan outlines policies, proposals and strategies for the future development and use of land and addresses a range of issues including housing, employment, shopping, transportation, recreation, countryside and the environment (Dumfries and Galloway Council, 2018). The South Ayrshire LDP was adopted September 2014 and it sets out strategic special priorities and policies for South Ayrshire and will secure land for specific uses (e.g. housing/industry etc) to provide certainty for development. The LDP replaces the South Ayrshires Local Plan and the Ayrshire Joint Structure Plan as the Council's adopted development plan. This section also considers the relevant aspects of SPP, Planning Advice Notes (PAN) and other applicable guidance.
- 2.2.4 In respect to the above, regard has been made to the following policies, which are summarised below and described in full in Annex A:
 - Scottish Planning Policy 2014 (Scottish Government, 2014a);
 - Planning Advice Note 60: Planning for Natural Heritage (Scottish Government, 2008);
 - Dumfries and Galloway Local Development Plan (Dumfries and Galloway Council, 2018); and
 - South Ayrshire Local Development Plan (SAC, 2014).

Scottish Biodiversity List

- 2.2.5 Scottish Ministers created the SBL (Scottish Government, 2013) in 2005 to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004, and to assist public bodies in carrying out conservation of biodiversity, as well as to provide the general public with information regarding conservation within Scotland. The SBL comprises species and habitats listed using both scientific and social criteria. Only scientific criteria are considered relevant to this report. They include the following:
 - All UK Priority Species present in Scotland;
 - Species which Scotland has an international obligation to safeguard;
 - All species defined as nationally rare at a GB or UK level that are present in Scotland;
 - Species with populations present (resident, wintering or breeding) in five or fewer 10km squares or sites in Scotland;
 - All species that are endemic to Scotland;
 - Any sub-species or race that is widely recognised and accepted by the scientific (or other relevant) community and that is endemic to Scotland, if it also meets one of the other criteria: and
 - Natural and semi-natural habitats that are known to be particularly important for supporting assemblages of plant or animal groups that are data deficient, such as fungi, bryophytes, lichens, algae and invertebrates.

Local Biodiversity Action Plans

2.2.6 As the Site straddles a council boundary with two different LBAPs both are described below.

Dumfries and Galloway Local Biodiversity Action Plan

- The first edition of the Dumfries and Galloway LBAP was published in 1999. Since then, more than 80 organisations 2.2.7 have taken positive action towards LBAP targets. The updated LBAP was published in April 2009 to bring the aims, objectives and actions up to date. The Dumfries and Galloway LBAP covering the area the study area is located within, outlines the key strategies, targets and goals for protecting and enhancing the area's biodiversity (Dumfries and Galloway Local Biodiversity Partnership, 2009). The LBAP outlines action for six habitat types relevant to the study area listed as:
 - Forest habitat networks:
 - Lowland rivers and backwaters;
 - Eutrophic lochs;
 - Marshes;
 - Raised bogs; and
 - Conifer plantations.

Ayrshire Biodiversity Action Plan

- 2.2.8 The current edition of the Ayrshire Biodiversity Action Plan 2007 – 2010 (SAC, 2008) is a revised edition of the original document produced by the Ayrshire Biodiversity Group in 2001 and it includes a comprehensive suite of Habitat Action Plans for 26 habitat types which together cover almost all habitat types found within the three unitary authorities of North, East and South Ayrshire. The LBAP outlines action for six habitat types relevant to the study are listed as:
 - Rivers and Streams;
 - Raised bog;
 - Unimproved neutral grassland;
 - Coniferous Woods;
 - Upland heath; and
 - Blanket bog.

Birds of Conservation Concern 4 (BoCC)

- 2.2.9 The leading government (Joint Nature Conservation Committee (JNCC)) and non-government conservation organisations in the UK jointly reviewed the population status of the 246 bird species that are regularly found within the United Kingdom using data from national monitoring schemes. This was most recently reviewed in 2015 (Eaton et al., 2015). On the basis of seven quantitative criteria, each species has been placed on one of three lists, these being:
 - Red red-listed species are those that are globally threatened, have had an historical population decline in the UK from 1800 -1995, a rapid (> or = 50%) decline in UK breeding population over the past 25 years, or a rapid (> or = 50%) contraction of UK breeding range over the past 25 years;
 - Amber amber-listed species have had a historical population decline from 1800-1995 but are recovering; population size has more than doubled over the past 25 years, a moderate (25-49%) decline in UK breeding population over the past 25 years, a moderate (25-49%) contraction of UK breeding range over the past 25 years, a moderate (25-49%) decline in UK non-breeding population over the past 25 years, or species with unfavourable conservation status in Europe also known as Species of European Conservation Concern (SPEC); and

Green - green-listed species have no identified threat to their population status.

2.3 Good Practice Ecological Guidance

- 2.3.1 As part of the baseline report, cognisance has been taken of the Chartered Institute of Ecology and Environmental Management (CIEEM) good practice guidelines, notably the standard methods developed for Preliminary Ecological Appraisals (CIEEM, 2017) and Ecological Impact Assessment (CIEEM, 2018).
- Phase 1 habitat survey guidance is provided by the Joint Nature Conservation Committee (JNCC, 2010). 2.3.2
- Additional guidance includes Collins (2016) for bat survey and Scottish Badgers (2018) for badger (Meles meles) 2.3.3 survey.

Methods 3

3.1 **Baseline Ecological Survey**

This section describes the methods used for the ecology survey, which comprises a combination of desk study and 3.1.1 the extended Phase 1 habitat field survey. Details of statutory consultee responses are also summarised.

Ecological Desk Study

- An ecological desk study was carried out using a range of publicly available information sources, as well as South 3.1.2 West Scotland Environmental Information Centre (SWSEIC), to provide an understanding of the ecological context of the Site and wider area.
- In terms of nature conservation designations, the desk study identified international and national statutory 3.1.3 designations, such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Ramsar wetlands, Sites of Special Scientific Interest (SSSIs) or National Nature Reserves (NNRs) within 5km of the Site boundary. Local Nature Reserves (LNRs), as well as non-statutory designations, such as Local Wildlife Sites (LWS), Sites of Interest for Nature Conservation (SINCs) or woodland areas included on the Ancient Woodland Inventory (AWI), were identified within a 2km distance from the Site boundary.
- Historical records were also compiled of protected or otherwise notable species (e.g. SBL/LBAP priority species) 3.1.4 within 2km of the Site boundary and 5km for bat records. Only records from within the last 10 years were considered relevant to the study.
- 3.1.5 In addition to SWRIC, data sources included the following:
 - National Biodiversity Network Atlas (NBN, 2019);
 - Scottish Natural Heritage SiteLink (SNH, 2019);
 - MAGIC: Nature on the Map (MAGIC, 2019); and
 - SNH Ancient Woodland Inventory (AWI) (SNH, 2010).

3.2 Field Surveys

Extended Phase 1 Habitat Survey

3.2.1 An extended Phase 1 habitat survey of the Site and a 50m survey buffer was undertaken on 17th May 2019, by a qualified and experienced ecologist, following the JNCC survey methodology (JNCC, 2010). Phase 1 habitat survey is a standard technique for classifying and mapping habitats. During the survey, habitats over 0.1ha were mapped. Where applicable, dominant plant species were recorded and habitats were classified according to their vegetation types. A series of target notes (TNs) were also produced to describe representative habitats and features of interest. Target notes were also recorded to describe habitats too small to be mapped. Plant nomenclature follows Stace (2019).

- The Phase 1 survey was 'extended' to record features on Site with the potential to support protected or otherwise 3.2.2 notable species, which may require further assessment within the Site and surrounding 50m buffer that could be extended up to 250m for any habitats that may potentially be Ground Water Dependent Terrestrial Ecosystems (GWDTEs) that can be observed in the National Vegetation Classification (NVC) report (see Technical Appendix 8.2). Any evidence of protected or otherwise notable species, including birds, was therefore also recorded as target notes.
- 3.2.3 Further targeted protected mammal surveys have been conducted to fully assess the baseline conditions (see Technical Appendix 7.3) and as such evidence of protected species or their preferred habitats has been included within that report.
- 3.2.4 While undertaking the Phase 1 habitat survey, an assessment of the potential for any suitable waterbodies to support great crested newts was also completed. The most common approach is to use the Habitat Suitability Index (HSI), as developed by Oldham et al. (2000). The HSI is a measure of the likelihood of great crested newt presence, and is commonly used to inform a decision of whether or not detailed newt surveys are required.
- 3.2.5 Ten key habitat criteria are assessed: geographic location (SI1), pond area (SI2), pond permanence (SI3), water quality (SI4), pond shading (SI5), number of waterfowl (SI6), occurrence of fish (SI7), pond density (SI8), terrestrial habitat quality (SI9) and macrophyte content (SI10). Each habitat criteria is assigned a value between 0 (highly unsuitable) and 1 (highly suitable). The geometric mean of these values provides an overall suitability score for the waterbody using the following equation: HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10) 1/10. This score is then used to categorise a waterbody's suitability for use by great crested newts as shown below:
 - < 0.5 = Poor;</p>
 - 0.5 0.59 = Below Average;
 - 0.6 0.69 = Average;
 - 0.7 0.79 = Good; and
 - >0.8 = Excellent.
- 3.2.6 A score of 0.7 or above is considered to be of suitable condition to potentially support great crested newt.

Preliminary Roost Assessment

- 3.2.7 A Preliminary Roost Assessment of all trees and structures within the Study Area was undertaken simultaneously with the extended Phase 1 habitat survey, using methods described in guidelines issued by the Bat Conservation Trust (BCT) (Collins, 2016).
- 3.2.8 Ground-level inspection of the trees involved searching for the presence of features which could be of value to roosting bats, such as splits, cracks, rot holes, coverings of ivy and peeling bark. The potential for the trees to support roosting bats was ranked in accordance with the criteria set out in the BCT guidelines. Ground-level classification was conducted when the visibility of tree features that have bat roosting potential and the surrounding habitat could be confidently assessed.
- 3.2.9 An external examination of the buildings within the Study Area was also undertaken, dependant on access permissions, to search for the presence of features which could be of potential value to roosting bats, such as gaps in construction materials and access points to internal spaces, such as loft voids, and to search for any signs of use, such as droppings, staining, etc., in accordance with the BCT guidelines.
- 3.2.10 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features, are given below:
 - Negligible Negligible habitat features on site, not suitable for roosting bats.
 - Low A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be

suitable for maternity or hibernation). Could also be a tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.

- Moderate A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat bat unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
- High A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

3.3 Survey Limitations

Extended Phase 1 Habitat Survey

- 3.3.1 In respect of habitats, the site visit was undertaken within the optimal botanical survey season, which is from April to October. It is possible that some species may not have been recorded during the survey. However, this is not considered a significant limitation as dominant species were identifiable during the survey and all habitats within the Study Area were readily identified. Some of the plant species, while clearly still in early growth phase but were still identifiable for an accurate record of their presence to be made. Some later-flowering species may have not been in a more advanced growth stage and so may have been missed during the survey.
- 3.3.2 In respect of protected species, this survey provides information relating to possible presence of protected or notable species using the Site as well as an indication as to suitability for supporting such species. However, the survey can only rely on relatively recent signs of use or activity and the assessment can only be based on the evidence found at the time of survey.
- 3.3.3 Some areas of the coniferous plantation woodland were deemed as too dense to enter and areas of windthrow and felled woodland were deemed as unsafe, due to the instability of trees and wood piles.

Preliminary Roost Assessment

- 3.3.4 Bats do not always leave visible signs on the outside of roosting locations and, if present, these signs can often be removed through adverse weather conditions. Therefore, the absence of bat evidence does not necessarily equate to the absence of roosting bats.
- 3.3.5 Due to the limitations of what is known about the ecology of tree-roosting bats, it is arguable that all trees with bat roosting potential should be considered part of a resource that will be used at one time or another by tree roosting bats, to determine the extent of potential impacts. Survey work on individual trees may confirm presence, but is unlikely to conclusively confirm absence. Precautionary measures are likely to still be required during works, even where surveys have not identified occupancy.

Ecological Baseline 4

Desk Study 4.1

Nature Conservation Designations

As listed in Table 8.1.1, and shown on Figure TA 8.1.1, two statutory nature conservation designations of 4.1.1 international and national importance, covering two distinct geographical areas, are present within 5km of the Site boundary.

Table 8.1.1: International and National Nature Conservation Designations within 5km of the Site

Site	Designation	Distance to Site	Desc
Feoch Meadows	SSSI	2.8km SW	Feocl
			incor
			grass
			grass
			Labi
			Нарі
Merrick Kells	SAC	2.9km E	11-1-24
			Нарії
			Speci
			•
	SSSI		Habit
			Speci
			•
			•

4.1.2 No non-statutory nature conservation designations were identified within 2km of the Site boundary.

External Data

Invasive Plant Species

- Records of the following non-native, invasive species records have been identified within 2km of the Site boundary: 4.1.3
 - Himalayan balsam (Impatiens glandulifera); and
 - Japanese knotweed (Fallopia japonica).

Terrestrial Animals

4.1.4 Within the 2km search radius of the Site boundary, records of eleven animal species of conservation concern were provided by the external data search and these are shown in Table 8.1.2, below.

Table 8.1.2: Protected species and species of conservation concern

Common Scientific		Protection	Existing Records			
Name	Name					
Palmate Newt	Lissotriton helveticus	Wildlife and Countryside Act (as amended)	One record was found within the Site c.690m east of Loch Moan in			
			2018			
Common	Bufo bufo	Wildlife and Countryside Act (as amended)	Three records of common toad			
Toad			were found within the last 10			

ription

h Meadows is a mosaic of grassland types that porates fen meadow and species-rich neutral sland. The fen meadow is a floodplain composed of and rush dominated communities.

tats:

- Fen meadows
- Lowland neutral grassland

tats:

- Acid peat-stained lakes and ponds
- Acidic scree
- Blanket bog
- Clear-water lakes or lochs with aquatic
- vegetation and poor to moderate nutrient levels Depressions on peat substrates
- Dry heaths
- Montane acid grasslands
- Plants in crevices on acid rocks
- Wet heathland with cross level heath
- ies:
- Otter (Lutra lutra)

tats:

Blanket bog

ies:

- Beetle assemblage
- Blue aeshna dragonfly (Aeshna caerulea)
- Breeding bird assemblage

Common	Scientific	Protection	Existing Records
Name	Name		
			years with the closest being within the Site in 2017 and 1.3km S of Loch Moan
Common lizard	Zootoca vivipara	Wildlife and Countryside Act (as amended)	Three records of common lizard were found within the last 10 years with the closest being on Site c.600m north east of Loch Moan
Natterer's Bat	Myotis nattereri	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	Four records of natterer's bat were found within the last 10 years within the closest being c.1km north west of the Site.
Common pipistrelle	Pipistrellus pipistrellus	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	Four records of common pipistrelle were found within the last 10 years with the closest being 1.4km SW of the Site.
Soprano pipistrelle	Pipistrellus pygmaeus	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	13 records of soprano pipistrelle were found within the last 10 years with the closest being 0.4km S of the Site.
Whiskered bat	Myotis mystacinus	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	One record of whiskered bat was found in 2016 1.6km SW of the Site.
Daubentons Bat	Myotis daubentonii	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	Two records of daubentons bat were recorded in 2016 c.1.6km NW of the Site.
Leisler's bat	Nyctalus leisleri	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	12 records of leislers bat were found within the last 10 years with the closest being c.1.7km S of the Site.
Pine marten	Martes martes	Wildlife and Countryside Act (as amended) Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).	One record of pine marten was found in 2015 c.1.8km NW of the Site
Red Squirrel	Sciurus vulgaris	Wildlife and Countryside Act (as amended)	Two records of red squirrel were found within the last 10 years with the most recent being in 2013 c.0.8km SW of the Site.

- Additional observation records were provided by Forestry and Land Scotland (FLS, 2019): 27 records of otter within 4.1.5 the Site and 250m buffer (three on the Clauchrie Burn, June-July 2010; 24 on the Thumb Loop of the River Cree, June-August 2010); one record of pine marten c.0.5km east of the Site at Drumjohn; two red squirrel records, one each from 2018 and 2019, at c.1.8km east and c.1.0km south, respectively; two records of common lizard from 2009 and 2010, both c.1.5km east of the Site and one record of at least two small pearl-bordered fritillary (Boloria selene) on the wing c.1.8km east of the site boundary.
- 4.1.6 A total of 60 records of breeding, migratory an over-wintering bird species observed within the last 10 years were provided by the desk study and of these, three are listed as Annex 1 within the Birds Directive 2009, ten are Schedule 1 under the Wildlife and Countryside Act 1981 (as amended) and seven are on the Scottish Priority list (see Annex C to this report).

4.2 Field Survey

Phase 1 Habitat Descriptions

- 4.2.1 The results of the Phase 1 habitat survey are presented below and presented in Figure TA 8.1.2 - 8.1.5, which illustrates the location and extent of habitat types recorded within the Study Area. TN locations are also shown and are detailed in full in Annex C. The following 16 habitat types were recorded in the study and are described below (Phase 1 codes shown in parenthesis):
 - Coniferous Plantation Woodland (A1.2.2);
 - Mixed Plantation Woodland (A1.3.2);
 - Scattered Coniferous Trees (A3.2);
 - Scattered Mixed Trees (A3.3);
 - Recently Felled Coniferous Woodland (A4.2);
 - Marshy Grassland (B5);
 - Marshy Grassland (B5)/Scattered Coniferous Trees (A3.3);
 - Marshy Grassland (B5)/Scattered Mixed Trees (A3.3)
 - Marshy Grassland (B5)/Dry Dwarf Shrub Heath (D1.1);
 - Poor Semi-improved Grassland (B6);
 - Dry Dwarf Shrub Heath (D1.1);
 - Dry Dwarf Shrub Heath (D1.1)/Poor Semi-improved Grassland (B6);
 - Standing Water (G1);
 - Running Water (G2.1);
 - Buildings (J3.6); and
 - Other (J5).

Coniferous Plantation Woodland

4.2.2 Large areas of the Site are dominated by coniferous plantation woodland in different stages of growth and regrowth, separated by forest rides, tracks, fire breaks and burns. Areas of wind throw are present in several places (e.g. TN12, TN17). The dominant trees species recorded were Scots pine and a smaller concentration of Sitka spruce. Many forest coupes are very poor in associated species, with dense shade and needle litter preventing a diverse ground flora.

Mixed Plantation Woodland

4.2.3 The edges of the coniferous plantation woodland is made up of a mix of coniferous and broadleaved trees, with the dominant species being ash, grey willow, goat willow, sessile oak, rowan, alder, birch and elder.

Scattered Coniferous Trees

Small areas of scattered coniferous trees are commonly found at the edges of coniferous woodland and lining the 4.2.4 forestry drains and burns found flowing throughout the Site. The scattered trees tend to be young, semi-mature age-class at c.10 years old and have very little growth so were deemed to have low ecological value within the greater biodiversity of the Site.

Scattered Mixed Trees

4.2.5 Scattered mixed trees are found at the edges of tracks and close to the residential buildings in the southwest of the Site, where fewer areas are used as part of the forestry operation. Tree species observed include grey willow, ash and rowan.

Recently Felled Coniferous Woodland

4.2.6 Large areas of clear-felled woodland are found across the Site (TN13), as the area is being used as an active forestry resource. Judging by the trunk size of felled trees, they are cut after an average of c.45 years leaving wide areas of clear-cut, open and disturbed ground. The removal of trees allows ground vegetation to grow and provides new foraging opportunities to species within the Site. Woodland found in this habitat type consisted primarily of Sitka spruce and Scots Pine.

Marshy Grassland

Marshy grassland can be found in between the coniferous woodland coupes and the forestry rides that run 4.2.7 throughout the Site. There is often a variety of plant species found in this habitat, as many of the forest drains filter water to the rides and they are open to direct sunlight. Species found in this habitat include: soft rush, heather, purple moor-grass, creeping thistle, common dandelion, ribwort plantain, blaeberry, foxglove, bramble, white clover, cock's-foot, common nettle, broad-leaved dock, common gorse, common cottongrass,, common hogweed, wavy hair-grass, bog-mosses, star moss and colt's-foot.

Marshy Grassland/Scattered Coniferous Trees

The forest rides and fire breaks between the plantation woodland are often made up of a mix of grassland and 4.2.8 Scots pine trees, seen most frequently running through the centre of the Site from north to south. The marshy grassland species assemblage was deemed the same as per Marshy Grassland above. The habitat is deemed to be of low ecological value, but it does provide a suitable commuting route for bats using the treeline as a guide and could possibly provide good foraging opportunities due to the presence of invertebrate species found within the marshy grassland.

Marshy Grassland/Scattered Mixed Trees

4.2.9 Marshy grassland and mixed trees are found more commonly around areas of recent felling, as the clearance has left individual trees with grassland and boggy ground contributed to by the tributaries of burns found at the sides of the access tracks. These can be found at the west and centre of the Site where clear felling of coniferous plantation was found to be more common. A typical mix of species was found to be purple moor-grass, alder and grey willow within areas of waterlogged soil and loam.

Marshy Grassland/Dry Dwarf Shrub Heath

4.2.10 The mix of grassland and shrub heath is found primarily in the northeast of the Site, in one large area and some smaller fragments to the south. The number of burns running through this part of the Study Area is high in comparison to other areas and this would account for the vegetation types of mosses and coniferous woodland present in this area. It provides very little ecological value to species commuting through the area, but the dwarf shrub may provide cover to notable species including small mammals, amphibians and reptiles.

Dry Heathland/Acid Grassland

4.2.11 Dry heathland and acid grassland dominates a large area in the centre of the Site, where deforestation had taken place recently and it is the main habitat to be found in this part of the Site. The grassland provides support for invertebrates, reptiles and amphibians using it as a commuting route between waterbodies and burns, but it is still considered to be of low ecological value.

Dry Dwarf Shrub Heath

Small areas of dry dwarf shrub heath were identified in the centre and north of the Site. Species found within these 4.2.12 areas included heather, bell heather and gorse.

Dry Dwarf Shrub Heath/Poor Semi-improved Grassland

4.2.13 An area of dry dwarf shrub mixed-in with acid grassland was found at the north end of the Site, north of the large area of acid grassland. This area connects two large areas of marshy grassland within the northern end of the Site. Notable species within this habitat include common bent, common centaury, wavy hair-grass and other ericaceous species.

Standing Water

4.2.14 One major waterbody is present in the Study Area, namely Loch Scalloch which is located in the mid-western part of the Site. Another waterbody, Loch Moan, is present to the east of the access track application boundary. Both lochs are fed by the numerous burns running through the Site and provide good habitats for wading birds and riparian mammals. Small areas of standing water can be found throughout the Site, at some points discharging into larger burns (TN9 and TN11).

Running Water

4.2.15 A number of burns are found flowing throughout the Site. These include the Muck Water (TN1), Half Mark Burn (TN3), Scalloch Burn (TN4), Fardin Burn (TN6), Cairnfore Burn (TN7), Laniewee Burn (TN19) and the Sprit Strand (TN21). These watercourses provide suitable habitat for commuting and foraging protected species.

Buildings

4.2.16 A small derelict farmhouse, Little Shalloch, can be found towards the west of the Site (TN2) constructed of stone brickwork and a slate roof.

Other

4.2.17 Other habitats would include the track and bare ground with no ecological value. These are found running through the Site, providing access to areas of the woodland for forestry machinery.

Protected or Otherwise Notable Species

Otter

No evidence of activity was recorded for otter during the survey. However, suitable commuting routes were 4.2.18 identified along some of the larger watercourses found on the Site. These include the Muck Water (TN1), Shalloch Burn (TN4), Fardin Burn (TN6), Cairnfore Burn (TN7), Laniewee Burn (TN19) and the Sprit Strand (TN21). The connectivity of the watercourses to the wider freshwater environment that includes larger rivers such as the Water of Minnoch and Water of Trool, would indicate that otter could use a number of areas within the Study Area.

Badger

- 4.2.19 No evidence of badger was recorded during the survey. However, suitable commuting routes for badger were identified between the stands of conifer plantation. Due to the density of the plantation it would be possible for foraging and sett building activities deeper into areas of woodland where badger would be less likely to be disturbed by forestry operations. Badger would also be able to commute from other parts of the Galloway Forest via stretches of coniferous woodland. In the context of the proposed Development, badger should be considered as present within the Site.
- 4.2.20 Badger tracks were found 32m west of the Site boundary during further surveys. The tracks were deemed to be recent, due to how often the track is driven, which supports the potential of finding badger on Site.

Water vole

4.2.21 No evidence was found during the survey that was indicative of water vole being present, although good quality habitat was located at Schalloch Burn due to the high sided banks and water flow speed and at Half Mark Burn, Laniewee Burn and Sprit Strand due to the slow water flow speed and overhanging vegetation that would provide cover from predation.

Pine marten

4.2.22 No evidence of pine marten (Martes martes), such as scats, prints or dens, were recorded during the survey. However, the pine marten population has been proven to have expanded its range in recent years down in to Southern Scotland, although in Dumfries and Galloway they have been found to be concentrated more towards the east of the region (Croose et al., 2014). Due to good connectivity between the areas of plantation and wider supporting habitat, they may be active within the Study Area. Residents within the Site have stated previously that pine marten have been released in the local area so there is a possibility that they would use the Site.

Red Squirrel

4.2.23 No evidence of red squirrel such as chewed cones or dreys, were recorded during the survey. However, the red squirrel population has been well documented within the Galloway Forest and, due to the connectivity between the areas of plantation and wider supporting habitat, it is likely that they will be found within the Study Area.

Birds

4.2.24 Observations of bird species were recorded during the extended Phase 1 habitat survey. A total of 12 common farmland and lowland species of bird were recorded: carrion crow, pied wagtail, magpie, wood pigeon, song thrush, robin, blue tit, wheatear, goldfinch, twite, blackbird and buzzard.

Amphibians

- 4.2.25 Common frog was found during the survey and there was evidence of suitable waterbodies on the Site that would provide support for amphibians during the reproductive stages of their lifecycle, including the smaller pools of water created by the streams at the side of the track and the standing waterbodies and lochs within the Site for newt species, including smooth newt and palmate newt. The burns would also support the adult stages of amphibians, including common frog and common toad.
- Subsequent to this study, one unidentified newt was observed by an FLS operative in late spring/early summer 4.2.26 2019, over 600m to the west of WTG2 and a juvenile palmate newt was noted on 10 July 2019, during other site work, close to the Site entrance.
- 4.2.27 Waterbodies including of pools and forestry drain recesses were assessed in terms of their potential to support great crested newts through calculation of HSI scores. The larger waterbodies (TN9, TN11 and TN15) had HSI scores of 0.6 or lower, which deems them as 'average' on the scale. Therefore, they will not require further surveys. Waterbodies were poorly connected to ponds within the wider area and they were not deemed to have been of good water quality due to runoff from forestry works within the Site. Smaller drains and pools found on the Site, typically at the side of access tracks were also assessed and all that were recorded received an HSI score of 0.6 or lower.

Reptiles

Reptiles were recorded during the survey with observations of common lizard and during subsequent visits to the 4.2.28 Site as the areas of woodland and scrub provide good foraging habitat, due to cover from predation.

Preliminary Roost Assessment

Bats

- A number of habitats within the Study Area were recorded as providing suitable roosting for bats. A detailed 4.2.29 assessment of these features for their potential to support bat roosts was not completed as part of the habitat survey (please refer to Technical Appendix 7.4 for the full bat roost assessment). All feature assessments are based on a ground-level inspection.
- The Site provides a variety of habitats for commuting and foraging bats, including: 4.2.30

- Woodland and trees the woodland habitat may be beneficial to foraging and commuting bats, particularly along the woodland edges, and four trees were found to have bat roosting potential. Woodland is suitable for species that forage within this habitat e.g. Myotis and Pipistrelle species.
- Unimproved and semi-improved grassland open areas, such as semi-improved grassland, may be suitable for bats that are specific to foraging in open spaces, e.g. common noctule and Leisler's bat.
- Burns and lochs Bat species that forage primarily over bodies of water, including Daubenton's bat, would be supported by the watercourses running through the Site and the lochs, including Loch Shalloch.

Nature Conservation Designations

Feoch Meadows and Merrick Kells were two nature conservation designations found within 3km of the Site. Feoch 4.2.31 meadows have been classified due to fen meadows and lowland neutral grassland. The hydrology and hydrochemistry of this area are the primary factors influencing the edaphic conditions and disruption to the groundwater would be detrimental to the habitats found there. As the Feoch Meadows are 2.8km away from the Site they are not deemed to be at risk from development activities. Merrick Kells is designated due to factors such as peatstained lakes and ponds, blanket bog, dry heaths and wet heathland. Species included in the designation that are also included in the SBL. As there are a number of Annex 1 habitats present within the Merrick Kells it is highly susceptible to impacts from works but as the distance from the Site and the habitats is greater than 2km, it is not deemed that they would impact this designation.

Habitats

- 4.2.32 The Site was found to contain a variety of habitats, with a range of ecological value. Within the Study Area, the plantation coniferous woodland, found in large areas across the Site, offers low ecological value, due to the limited number of species present, the young ages of the coupes of woodland and the lack of features on the trees that could be used by protected species, such as bats. However, due to the density of the woodland, it is likely that birds will be using the woodland for nesting. Red squirrel could be present in the future, as suitable habitats are present within the Site, and they would mainly be likely to occur when spruce cones are abundant. The woodland type would be able to support red squirrel, pine marten and nesting birds, but as it is undergoing forestry practices, including tree removal, these species would not be well-established in comparison to woodland that is not frequently disturbed by forestry activities. A number of trees found within the Study Area were found to have potential to support roosting bats in summer.
- 4.2.33 The Site provides good connectivity to the wider environment, especially areas of plantation woodland, semiimproved grassland and smaller burns leading into larger watercourses, such as the River Cree. The plantation woodland is part of the Galloway Forest Park that extends to the east, north and south of the Site, but is restricted to the south by the A714 road. The woodland connectivity can provide commuting routes for terrestrial mammals, including protects species (i.e. bats, badger, pine marten and red squirrel).
- 4.2.34 The watercourses found on the Site, such as the Muck Water, Shalloch Burn, Fardin Burn, Cairnfore Burn, Laniewee Burn and the Sprit Strand were all deemed to have good water quality and provide suitable connectivity to the wider environment for a number of protected species, including invertebrates and mammals. Such watercourses are priority habitats on the SBL and LBAP; these watercourses are therefore considered as having good ecological value.

Species

4.2.35 No specific evidence was recorded for protected species during the survey, although much of the habitat found within the Study Area consists of that which would be typical of supporting otter, water vole, red squirrel and pine marten. Riparian habitats within the Site are well-connected to larger aquatic habitats elsewhere (notably the burns leading to the River Cree) and this may be used for commuting, particularly by otter and water vole. Data collected during the desk study indicated populations of badger can be found in the local area and habitats such as woodland, scrub and grassland, are suitable for this species. Presence of otter within the Site boundary and red squirrel and pine martin in the wider area is indicated by FLS (2019) observation records.

- 4.2.36 A number of the waterbodies encountered during the survey were assessed in terms of their HSI for great crested newt, but none of the assessments returned scores indicative of requiring further survey. Direct evidence of amphibians was recorded during the field survey and there are suitable standing and flowing bodies of water identified within the Site that could support different stages of the amphibian lifecycle. Common amphibians, such as toads and newts that were not observed during the survey may occur within the Site, due to the proximity between burns. Reptiles, notably common lizard, was found to be present in parts of the Site, particularly in woodland edges and scrub. The Site is deemed to be of use to reptiles, due to the presence of good habitat for foraging; it is considered that there is also a possibility of finding other protected reptiles, including adder.
- 4.2.37 Habitats within the Study Area were assessed as being suitable for a range of farmland and lowland/upland bird species.

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Annexes

Annex A – Policy Framework

Scottish Planning Policy

The Scottish Planning Policy (SPP) (Scottish Government, 2014) superseded National Planning Policy Guideline (NPPG) 14 (Natural Environment) and forms the basis for planning system decisions with respect to conserving and enhancing the natural environment.

Under 'Landscape and Natural Heritage', the SPP sets out, in addition to other points, how planning authorities should take a strategic broader approach to landscape and natural heritage than just conserving designated or protected sites and species by taking into account ecosystems and natural processes in the area.

In addition to the above, the SPP also outlines how planning authorities should place emphasis on the prevention of 'further habitat fragmentation or isolation of habitats and identify opportunities to restore links which have been broke' and 'seek benefits for species and habitats from new development including the restoration of degraded habitats'.

With regards to International Designations, the SPP outlines that areas classed as 'Special Protection Areas (SPA) under the Birds Directive or areas classed as Special Areas of Conservation (SAC) under the Habitats Directive form part of the Natura 2000 Network and therefore any development that is likely to have a significant effect on a Natura 2000 site and is not directly connected with or necessary to the conservation management of that site will be subject to an appropriate assessment by the planning authority of the implications for the site's conservation objectives'. The SPP further states that, 'development which could have a significant effect on a Natura site will only be permitted where (a) an appropriate assessment has demonstrated no adverse effect on the integrity of the site, (b) no alternative solutions and (c) there are imperative reasons of overriding public interest'.

Furthermore, the SPP also outlines how that any 'development plan affecting a Natura site where a priority habitat or species as defined in Article 1 of the Habitats Directive will be affected prior consultation with the European Commission via Scottish Ministers will be required'. The SPP also notes that Ramsar sites are also subject to the above consideration.

In relation to National Designations such as SSSI or NNR the SPP outlines that 'development that affects a SSSI or NNR should only be permitted where (a) it will not adversely affect the integrity of the area or qualities for which it has been designated or (b) any such adverse effects are clearly outweighed by social, environmental or economic benefits of national importance'.

Local Designations such as LNR can complement both international and national designations and in combination protect, *'enhance and encourage the enjoyment and understanding of locally important landscapes and natural heritage'*. The SPP sets out how such local designations should be clearly identified and protected through development plans and the reasons for designation taken into account when developing development plans.

With regards to protected species, the SPP outlines that 'although the presence of legally protected species is an important consideration in planning decision they are not necessarily an absolute block on development with mitigation often needed. If protected species are on site or are likely to be affected by a proposed development their presence must be established and the requirements of the species factored in to the planning and design of the development along with any likely impact fully considered prior to the determination of the planning application'.

The SPP concludes by stating that, 'planning permission must not be granted for a development that would be likely to have an adverse effect on a European Protected species unless the planning authority is satisfied that there is no satisfactory alternative and the development is required for preserving public or public safety or for other imperative reasons overriding public interest (including social, economic and beneficial for the environment)'.

Planning Advice Notes (PANs) 60 and 44

National planning policy on landscape and natural heritage is supported by Planning Advice Note (PAN) 60 *Planning for Natural Heritage*, together with the SSP and PAN 44 *Fitting New Housing Development into the Landscape*; the key elements of these policies include:

- Taking a broader approach to landscape and natural heritage than just conserving designated or protected sites and species, taking into account ecosystems and natural processes.
- Facilitating positive landscape change whilst maintaining and enhancing distinctive character.
- Seeking benefits for species and habitats from new development including the restoration of degraded habitats.
- Siting and design of development should be informed by local landscape character.
- Encouraging connectivity between habitats, through green networks.
- Protecting internationally and nationally designated habitats and species.
- Protecting and enhancing woodland and trees of high nature conservation value.

Annex B – Target Notes

Target Note	Grid Reference	Description
1	225290 587956	Muck Water - Watercourse found at the west of the Site near to Mark Farm. The watercourse runs to the River Stinchar, which is deemed as good for otter potential, hence the possibility of otter using this part of the watercourse for commuting between areas of habitation and foraging is high.
2	226200 588116	Derelict building found at the west side of the Site (Little Shalloch) that is deemed to have good potential for bat roosting. Access points in the brickwork in the walls would allow access to the roofspace for bats and large egress points in the wall would be suitable for barn owl to use. The habitat surrounding the house, consisting of long grassland, is also good for barn owl hunting and nearby conifer/mixed woodland is good for bat foraging.

Target Note	Grid Reference	Description
3	226780 587145	Half Mark Burn - Watercourse cross There is one area of deeper water, brubble. Possibly good habitat for ott during times of high water, but at th generally poor for otter and may on
4	228673 586086	potential for burrow building at the potential for burrow building at the Shalloch Burn - Water crossing under and bankside gradient is relatively st and between 0.5 – 1m deep
5	330524 586773	Small channel running under the travole, due to the bankside vegetation is good for grazing. Water flow spee

4



sing that had low water level at time of survey. but further downstream there is more rock and tter as a sprainting location and for water vole he time of survey the watercourse was deemed as nly be used fo rcommuting; however there is e side of the channel for water vole.



er bridge on the Site. Vegetation is overhanging steep. The channel measures approx. 3m across



Small channel running under the track was deemed as good for the potential of water vole, due to the bankside vegetation providing suitable cover for burrows and the area is good for grazing. Water flow speed and depth also supports water vole presence. There is also the potential for otter to use the stream for commuting.

Target Note	Grid Reference	Description
6	232322 587036	Fardin Burn – burn that measures 3m – 4m wide, with clear slow-flowing water that was deemed to be good for use by protected species, including otter and water vole. Otter could use the burn for commuting into the wider freshwater environment with the potential to forage; even though there was no incidental evidence of fish seen at the time, the burn could provide suitable spawning redds for salmonid species. Water vole would also be able to build burrows, due to the bankside gradient and vegetation cover provided by the grass and juvenile scrub lining the burn. Depth of the burn varied between 50cm – 1m and there was no evidence of pollution or runoff from forestry activities.
7	234503 586935	Cairnfore Burn –burn that measures 3m – 4m wide with clear slowflowing water that was deemed to be good for use by otter and water vole. Otter could use the burn for commuting into the wider freshwater environment with the potential to forage, even though there was no incidental evidence of fish seen at the time, the burn could provide adequate spawning ground. Water vole would also be able to build burrows due to the bankside gradient and vegetation cover provided by the grass and juvenile scrub lining the burn. Depth of the burn varied between 50cm – 1m and there was no evidence of pollution or runoff from forestry activities.
8	234712 587103	

Target Note	Grid Reference	Description
		Area of boggy ground separating wo with a clay loam, due to the vegetati these areas between the plantation rye-grass, creeping thistle, common bramble, white clover, bracken, rose broadleaved dock, gorse, common c bog-mosses, star moss, daisy, thyme
9	234776 587411	Small waterbody measuring c.20m a HSI score of 0.6 average. Surroundin
10	234821 587559	Area of felled and replanted conifer Many areas of the Site were found to protected species was found using th bats that would use both open land
11	234736 588194	Small waterbody with HSI score of 0. deemed as good for small mammals amphibian breeding, due to the wate surrounding vegetation. Potential to species.

bodland margins. Possibly peat/peat-rich soil type ion types present. Dominant species found in woodland include soft-rush, heather, perennial dandelion ribwort plantain, bilberry, foxglove, ebay willowherb, cock's-foot, common nettle, cottongrass, common hogweed, wavy hair-grass, e-leaved speedwell and colt's-foot.



and approximately 50cm deep. Recorded as having ng vegetation includes grasses and it could be I mammals.



woodland that was in the scrub stage of growth. to be managed in a similar way. No evidence of hese areas, but it would make suitable habitat for and treelines for foraging.



.5 below average. The surrounding habitat is and the waterbody is deemed as good for er quality and the cover provided by the o find common frog, common toad and other newt

Target Note	Grid Reference	Description	Та	arget Note	Grid Reference	Description
12	234552 589151	Areas of windthrow can be found at some of the woodland margins. This area would provide good foraging and commuting opportunities for bat species and pine marten, as well as small mammals due to the cover it provides from predation.	16	5	233410 587110	Dead tree with fast uses that
	589498	Area of clear-felled woodland that at the time of survey is considered as semi- improved grassland with low ecological value. Image taken facing southwest	17	7	232971 586517	lifted bark and a long split at
14	232677 589537	Small watercourse running under the access road. No evidence of protected species.	18	3	232971 586517	Area of felled woodland brou and foraging route for small r
15	232972 587375	Area of standing water that could have the potential for newts, due to the lack of fish and birds observed. Unlikely to be affected by works on the Site. HSI score is 'average' at 0.6.				A row of three ash trees with holes in the trunk and split lin

could be used by roosting bats, including large holes, the top where the tree has broken in two.



ight down by wind and creating a sheltered commuting mammals and reptiles. North facing aspect



features that could be used by roosting bats including mbs. South facing aspect

Target Note	Grid Reference	Description
19	233436 586137	Laniewee Burn – the watercourse is deemed as good for use as a commuting route for protected species including water vole and otter, due to its slow flow and access to the wider freshwater environment south of the Site.
20	232097 583957	A small unnamed watercourse that could be good for use by water vole, due to the bankside vegetation cover and the slow-flowing water. This may also promote use by invertebrates
21	231599 582321	Sprit Strand – Steady flowing and deemed as a good commuting route for otter and could be used by water vole due to bankside vegetation cover and supporting habitat.

Annex C – Species List

Flora Species mentioned within report

Common Name	Scientific Name
Trees	
Alder	Alnus glutinosa
Birch	Betula pendula
Ash	Fraxinus excelsior
Sitka Spruce	Picea sitchensis
Scots Pine	Pinus sylvestris
Sessile oak	Quercus petraea
Goat willow	Salix caprea
Grey willow	Salix cinerea
Elder	Sambucus nigra
Rowan	Sorbus aucuparia
Plants	
Heather	Calluna vulgaris
Star moss	Campylopus introflexus
Common centuary	Centaurium erythraea
Creeping thistle	Cirsium arvense
Cock's-foot	Dactylis glomerata
Wavy hair-grass	Deschampsia flexuosa
Foxglove	Digitalis purpurea
Bell heather	Erica cinerea
Common cottongrass	Eriophorum angustifolium
Common hogweed	Heracleum sphondylium
Soft rush	Juncus effusus
Purple moor grass	Molinia caerulea
Ribwort plantain	Plantago lanceolata
Bramble	Rubus fruticosus
Broadleaved dock	Rumex obtusifolius
Bog mosses	Sphagnum spp
Dandelion	Taraxacum officinale
White clover	Trifolium repens
Colt's foot	Tussilago farfara
Common gorse	Ulex europaeus
Common nettle	Urtica dioica
Blaeberry	Vaccinium myrtillus
Thyme-leaved speedwell	Veronica serpyllifolia

Red squirrel	Sciurus vulgaris
Great crested newt	Triturus cristatus
Common lizard	Zootoca vivipara
Birds	
Carrion crow	Corvus corone
Pied wagtail	Motacilla alba
Magpie	Pica pica
Wood pigeon	Columba palumbus
Song thrush	Turdus philomelos
Robin	Erithacus rubecula
Blue tit	Cyanistes caeruleus
Wheater	Oenanthe oenanthe
Goldfinch	Carduelis carduelis
Twite	Linaria flavirostris
Blackbird	Turdus merula
Buzzard	Buteo buteo

Protected Bird Species - External Data recieved from SWSEIC, 2019

Common Name	Scientific Name	EU Birds	Schedule 1 Wildlife &	Scottish	Birds of
		Directive: Annex 1	Countryside Act 1981	Priority	Conservation
				List	Concern (BoCC)
Hen Harrier	Circus cyaneus	Х	Х	Х	Red
Merlin	Falco columbarius	Х	X	Х	Red
Whooper swan	Cygnus cygnus	Х	X	Х	Amber
Barn Owl	Tyto alba		X	Х	
Brambling	Fringilla montifringilla		X	Х	
Redwing	Turdus iliacus		X	Х	Red
Hobby	Falco subbuteo		X	Х	
Crossbill	Loxia curvirostra		X		
Goshawk	Accipiter gentilis		х		
Fieldfare	Turdus pilaris		Х		Red
Greylag Goose	Anser anser				Amber
Goldeneye	Bucephala clangula				Amber

Faunal Species mentioned within report

Common Name	Scientfic Name
Water vole	Arvicola amphibius
Common toad	Bufo bufo
Palmate newt	Lissotriton helveticus
Smooth newt	Lissotriton vulgaris
Otter	Lutra lutra
Pine Marten	Martes martes
Badger	Meles meles
Daubentons bat	Myotis daubentonii
Leisler's bat	Nyctalus leisleri
Common noctule	Nyctalus noctula
Common frog	Rana temporaria

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