Holm Hill Substation

Environmental Appraisal

Chapter 3: Ecology and Ornithology

November 25

Land & Planning

Contents

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3 ECOLOGY AND ORNITHOLOGY

3.1 Introduction

3.1.1 This Chapter assesses the likelihood of environmental effects on biodiversity resulting from the Holm Hill Substation (hereby referred to as the 'Proposed Development').

3.1.2 WSP was commissioned by Scottish Power Transmission (SPT) to undertake a Breeding Bird Survey (BBS) to inform proposals for construction of a substation on an area of land defined by the Red Line Boundary of the Proposed Development, near Carsphairn, Dumfries and Galloway (hereafter referred to as the 'Site').

3.1.3 The Proposed Development forms part of the infrastructure for the proposed Overhead Line (OHL) connection to Lorg Wind Farm.

3.2 Information Sources

3.2.1 The report draws on the following technical appendices and chapter:

- **Appendix 3.1: Habitats Technical Report**
- **Appendix 3.2: Protected Species Technical Report**
- **Appendix 3.3: Ornithology Technical Report**
- **Appendix 3.4: Biodiversity Net Gain Assessment**
- **Chapter 5: Hydrology, Hydrogeology, Geology and Soils**

3.2.2 External sources used to inform the above reports are referenced appropriately within each appendix and chapter.

3.3 Methodology

Baseline Information

3.3.1 A desktop study to obtain baseline and historical data, including a search for designated sites up to a maximum of 10 km from the Proposed Development, was undertaken.

3.3.2 Field surveys undertaken to obtain current baseline data for the Proposed Development and the surrounding area include:

- UK Habitat (UKHab) Classification Survey as well as a Habitat Condition Assessment (HCA) of The Site). Surveys were undertaken in August 2022, August 2024, and for a small section of The Site in July 2025;
- National Vegetation Classification (NVC) survey of The Site. Initial surveys were conducted in 2017/2018, with update surveys being completed in August 2022, August 2024 and a small section of the Holm Hill Site in July 2025;
- protected species surveys for otter *Lutra lutra*, badger *Meles meles*, water vole *Arvicola amphibius*, pine marten *Martes martes* and red squirrel *Sciurus vulgaris*. Habitat suitability assessment for bats, fish, reptiles and amphibians of the Proposed Development and up to an additional 250 m buffer (the Protected Species Survey Area) was undertaken. Surveys were conducted for the Quantans Hill Wind Farm development in 2021, and update surveys from the Lorg Wind Farm Grid Connection project in 2023, both of which fully encompassed the Proposed Development survey area;
- Breeding Bird Survey of The Site and an additional 500 m buffer (the Breeding Bird Survey Area). In addition, data from the related Lorg Wind Farm Grid Connection project has been referenced as the survey area for this development completely overlapped the Proposed Development. Initial surveys were conducted in 2020, with updated data being used from the Lorg Wind Farm Grid Connection project, which had surveys completed in 2022.

- further supplementary habitat and ornithological survey data gathered on the Lorg Wind Farm Grid Connection project in 2025 have also been reviewed to provide updates to the data sets where the Lorg Wind Farm Grid Connection project survey areas coincide with the Proposed Development

3.3.3 Evaluation of the conservation importance of species and habitats identified with reference to conservation legislation, local/national planning policy and population trends. Protected and priority species were identified, and their conservation status determined, based on their presence on at least one of the following legislative / planning frameworks or conservation lists:

- The Conservation of Habitats and Species Regulations 20171 ('Habitats Regulations');
- listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended);
- listed on the Scottish Biodiversity List (SBL)2;
- listed as a priority species/habitat on the Dumfries and Galloway Local Biodiversity Action Plan3;
- listed as 'Red' or 'Amber' Birds of Conservation Concern (BoCC)4; and
- habitats with the potential to support Ground Water Dependent Terrestrial Ecosystems (GWDTE) detailed in with The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR) and in Scottish Environment Protection Agency (SEPA) guidance5.

3.3.4 Consideration was given to any invasive non-native species (INNS) recorded in accordance with legal obligations to minimise their spread, as detailed in the Wildlife and Natural Environment (WANE) (Scotland) Act 2011 (as amended) and The Non-Native Species: Code of Practice[6]. The WANE Act makes it an offence to release, or allow to escape from captivity, any animal to a place outwith its native range or plant, or otherwise causes to grow, any plant in the wild at a place outwith its native range[7].

3.3.5 Full details of methodologies used to gather and evaluate baseline information can be found in each baseline technical report.

3.4 Appraisal

3.4.1 The appraisal methodology was formulated with cognisance of guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM)[8] in relation to ecological impact assessment. Based on this guidance, a geographical context has been applied to assign importance to each feature assessed here; habitats or species of less than local importance are not considered as species of elevated conservation importance. The assigned importance for each species is shown in **Section 3.8**. The appraisal methodology described is considered proportionate with the anticipated impacts of the Proposed Development and the planning framework.

[1] The 2017 Regulations transports the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC). The changes are made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

[2] Habitats and species considered to be of principal importance by Scottish Ministers. According to SNH (2020) Scottish Biodiversity List. Available at: Scottish Biodiversity https://web.archive.org/web/20240422023328/https://www.nature.scot/doc/scottish-biodiversity-list List | NatureScot

[3] Dumfries and Galloway Local Biodiversity Action Plan – Part 1 DGLBAP2009-part4.pdf (swseic.org.uk)

[4] Birds of Conservation Concern 5 (BoCC5, 2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. British Birds Volume 114.

[5] SEPA (2024) Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems.

[6] Scottish Government (2012). Non-native species: code of practice. Available at: https://www.gov.scot/publications/non-native-species-code-practice/

[7] UK Government (2011). Wildlife and Natural Environment (Scotland) Act 2011. Available at: https://www.legislation.gov.uk/asp/2011/6/part/2/crossheading/nonnative-species-etc/enacted

[8] CIEEM (2024). Guidelines for Ecological Impact Assessment in the U.K and Ireland. Version 1.3.

3.4.2 The appraisal methodology identified the potential impacts from the Proposed Development on designated sites and protected /priority habitats and species (hereafter collectively 'Biodiversity Features'). In some instances, Biodiversity Features were appraised in groups due to similarity in ecology, potential impacts from the Proposed Development, and subsequent effects.

3.4.3 The potential effect of the identified impacts from the Proposed Development on Biodiversity Features is then considered with cognisance of embedded mitigation detailed in **Section 3.9**. Specific mitigation is also recommended at this stage, if appropriate.

3.4.4 A conclusion is then determined based on any 'residual' effects remaining on Biodiversity Features following the implementation of mitigation measures. This conclusion is determined based on a qualitative assessment that relies on professional experience and judgement. Factors considered to inform the conclusions include the effectiveness of mitigation proposed, the nature of the impacts described (e.g. duration, frequency and magnitude) and the susceptibility of Biodiversity Receptors to these potential impacts. The appraisal considers the ecological zone of influence (EZoI). For the Proposed Development, the maximum ZoI is considered to be The Site and the surrounding 750 m from the Red Line Boundary (RLB) in recognition of the historic presence of lekking black grouse. The appraisal will then conclude either:

- no effects of the Proposed Development on the Biodiversity Feature(s);
- adverse effects of the Proposed Development on the Biodiversity Feature/s; and
- beneficial effects of the Proposed Development on the Biodiversity Feature/s.

3.5 Survey Limitations

3.5.1 Full details of all survey limitations can be found in in each baseline technical report referenced below. A limitation specific to the habitats surveys is detailed here as it has relevance to **Section 3.8** Recommendations and Mitigation.

3.5.2 At the time of the update survey in August 2024, the RLB was fixed following design freeze. In response to feedback from the public consultation event held in August 2024, the RLB was subsequently extended, to allow space for landscape planting around the substation site. The RLB was then updated in October 2025, extending slightly at the north/north-eastern end of the 2024 boundary of The Site. The site boundary amendments were finalised outwith the optimum survey season for habitats (considered March to October inclusive) and therefore targeted NVC survey of the final RLB was not recommended prior to Environmental Appraisal (EA) submission. Habitats with the potential to be GWDTE have therefore been identified based on the 2022 NVC habitat data, and 2024 update habitat data where available.

3.5.3 The use of 2022 NVC data as part of this assessment is not considered to represent a significant limitation considering that areas within the extended RLB would be used for tree planting with hand tools only and no construction work would be undertaken.

3.6 Baseline Environment

3.6.1 This section provides a summary of the baseline biodiversity conditions of the Proposed Development and surrounding area. Full details of baseline conditions are provided in the Habitats Technical Report (**Appendix 3.1**), Protected Species Technical Report (**Appendix 3.2**), Ornithology Technical Report (**Appendix 3.3**), BNG Technical Report (**Appendix 3.4**) and Galloway Fisheries Trust Report[9].

[9] Galloway Fisheries Trust. November 2019. Fish and Fresh Water Pearl Mussel Surveys for Lorg and Longburn Wind Farm Grid Connection Project Galloway Fisheries Trust Report No. – JRAD111119

Environmental Designations

3.6.2 **Figure 3.1** illustrates the location of environmental designations beyond the Proposed Development, and **Table 3.1** give details of these sites. Environmental designations of European Importance within 10 km of the Proposed Development include a Special Area of Conservation (SAC). There are no Special Protection Areas (SPAs) and Ramsar sites within 10 km of the Proposed Development. Environmental designations of national importance including Sites of Special Scientific Interest (SSSI), Important Bird Areas (IBA) and National Nature Reserves (NNR) as well as local designations including Local Nature Reserves (LNR), Sites of Importance for Nature Conservation (SINC), ancient woodland and woodland listed in the Native Woodland Survey of Scotland (NWSS) were searched for up to 2 km from the Proposed Development. Designated sites of ecological interest within the respective search buffers are listed below.

3.6.3 The Site is just within the recommended search area of 20 km[10] for an additional SPA which has geese as a qualifying species. Loch Ken and River Dee Marshes Special Protection Area are approximately 19.5 km from the Proposed Development. This SPA is an internationally important site for wintering Greenland white-fronted goose Anser *albifrons flavirostris* and greylag goose *Anser Anser*.

3.6.4 However, considering the distance from the designated site, towards the upper limit of the recommended search area, and the localised scale and nature of the Proposed Development, no effect pathways are anticipated. Therefore, Loch Ken and River Dee Marshes Special Protection Area will not be considered further in this appraisal.

Table 3.1 Designated Sites up to 10 km from The Site

Site Name & Designation	Broad Qualifying Interest	Approximate Distance & Direction From Site
Galloway and Southern Ayrshire Biosphere Reserve[11]	Covering almost 9,800 km² of south-west Scotland's land and sea, the Galloway & Southern Ayrshire UNESCO Biosphere follows the rivers that flow out of the Galloway Hills: through forests and farmland, historic villages and towns, all the way to a ruggedly scenic coast. The UNESCO Biosphere includes iconic wildlife and natural habitats which are recognised as being of international importance. It encompasses communities with distinct cultural identities, as well as historic landmarks and heritage sites that need to be protected for the generations to come.	Site is within biosphere
Red Squirrel Priority Woodland[12].	Priority Areas for Red Squirrel Conservation (PARCs) were first introduced by Saving Scotland's Red Squirrels in 2014, as a way of focussing the project's limited resources on some of the healthier red squirrel populations in the south of Scotland.	Adjacent to the north/north-western boundary (assumed to be reduced after felling of plantation areas)

[10] SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs) https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf

[11] Galloway and Southern Ayrshire Biosphere Reserve (2025). Website. Available at: https://www.gsabiosphere.org.uk/ (online)

[12] Saving Scotland's Red Squirrel (2020). Priority Areas for Red Squirrel Conservation (PARCs) in South Scotland

Frequently asked question. Available at: https://scottishsquirrels.org.uk/wp-content/uploads/2020/07/SSRS-Priority-Areas-for-Red-Squirrel-Conservation-in-South-Scotland.pdf

Site Name & Designation	Broad Qualifying Interest	Approximate Distance & Direction From Site
Galloway Forest Park Important Bird Area (IBA)[13].	Galloway Forest Park Important Bird Area (IBA). A large non-statutory designated area (58,295 ha). The IBA designation process was originally triggered due to the importance of the area for black grouse, peregrine and short-eared owl. The IBA comprises lochs, forest, moorland, and mountain habitats that mostly aligns with the boundary of the Galloway Forest Park.	Approximately 2.5 km south.
Merrick Kells SAC[14]	Annex I habitats that are a primary reason for selection of this site: • **4010Northern Atlantic wet heaths with Erica tetralix** [15] • Merrick Kells in south-west Scotland is representative of the typical western upland forms of M15 *Scirpus cespitosus – Erica tetralix* wet heath, including forms rich in deergrass *Trichophorum cespitosum* and those with purple moor-grass *Molinia caerulea*. This is the most extensive representation of wet heath in the UK on an upland site south of the Scottish Highlands. • **6150 Siliceous alpine and boreal grasslands**[16] • Merrick Kells holds the best developed areas of **Siliceous alpine and boreal grasslands** in the Southern Uplands of Scotland. This is the largest area of the habitat type south of the Highlands within the SAC series. Species-poor U10 *Carex bigelowii – Racomitrium lanuginosum* moss-heath is the main sub-type and is well-developed, with a high cover of woolly fringe-moss *Racomitrium lanuginosum*. The accompanying U7 *Nardus stricta – Carex bigelowii* grass-heath is one of the best representations south of the Highlands in terms of vegetation structure and floristics, although small in area. This occurrence of the	Approximately 5.7 km south-west.

[13] Birdlife Data Zone https://datazone.birdlife.org/site/factsheet/galloway-forest-park-iba-united-kingdom

[14] JNCC (2025). Merrik Kells. Available at: https://sac.jncc.gov.uk/site/UK0019841 (online)

[15] JNCC (2025). 4010 Northern Atlantic wet heaths with Erica tetralix. Available at: https://sac.jncc.gov.uk/habitat/H4010/

[16] JNCC (2025): 6150 Siliceous alpine and boreal grasslands Available at: https://sac.jncc.gov.uk/habitat/H6150/

Site Name & Designation	Broad Qualifying Interest	Approximate Distance & Direction From Site
	habitat type is comparable with southern outliers on the hills of England and Wales. • **7130 Blanket bogs (* if active bog) * Priority feature**[17] • Merrick Kells is the most southerly of the characteristic oceanic **Blanket bogs** in the west of Scotland. It has an exceptionally wet climate, reflected in the range of pool patterns, from watershed mire to valleyside flow, and in the vegetation. There is a relatively high cover of bog-mosses *Sphagnum* spp., particularly *S. papillosum*, but *S. magellanicum* is also abundant and the site is noted for its frequent sward of *S. pulchrum*. Bog-rosemary *Andromeda polifolia* occurs infrequently. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • 3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea • 3160 Natural dystrophic lakes and ponds • 4030 European dry heaths • 7150 Depressions on peat substrates of the Rhynchosporion • 8110 Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) • 8220 Siliceous rocky slopes with chasmophytic vegetation	

3.6.5 No ancient woodlands are present within 2 km of The Site.

[17] JNCC (2025): 7130 Blanket bogs Available at: https://sac.jncc.gov.uk/habitat/H7130/

3.7 Ecological Baseline

Habitats

3.7.1 The UKHab survey results are illustrated in **Figure 3.1.1**, accompanying Technical **Appendix 3.1 Habitats Baseline Report**.

3.7.2 The UKHab survey results showed that The Site mainly comprised f2b purple moor grass and rush pastures. During the 2024 update habitat surveys it was noted in the north western and north eastern limits that young plantation woodland had been planted on top of the f2b purple moor grass and rush pastures. These were estimated to have been planted between 2021 and 2023 (via review of aerial mapping) and were dominated by deciduous trees in the western area and non-native coniferous trees in the eastern extent. Further habitat types in approximate descending order of area from largest to smallest were: g3c other neutral grassland, u1e built linear features, h1b upland heathland, g1c bracken, g4 modified grassland, and u1c artificial unvegetated unsealed surface.

3.7.3 The NVC communities are illustrated in **Figure 3.1.2** accompanying **Technical Appendix 3.1 Habitats Baseline Report**.

3.7.4 NVC survey results showed that the Survey Area was dominated by M25 Molinia caerulea - Potentilla erecta mire, as described above, also making up a significant proportion of the Survey Area. Also of conservation interest was a small area of M15 Trichchophorum germanicum -Erica tetralix wet heath /M25 Molina caerulea – Pontentilla erecta near the east of The Site. M25 Molinia caerulea - Potentilla erecta is classified as blanket bog when located on deep peat. Peat survey results have shown that there is no peat to consider within the footprint of the Proposed Development. Therefore, there is no consideration required for priority peatland of national interest within the footprint of the Proposed Development. The small area of M15 Trichchophorum germanicum -Erica tetralix wet heath alongside The Site has the potential to be classed as blanket bog dependent on the depth of peat present. Peat depth surveys were not undertaken in this part of The Site because changes to The Site RLB to accommodate landscape planting occurred after completion of the peat surveys and therefore this area was outside the required survey area for peat depths. For further details on peat surveys and appraisal please refer to **Chapter 5: Hydrology, Hydrogeology and Geology**.

3.7.5 Due to the uncertainty over the depth of peat associated with the area of M15 Trichchophorum germanicum -Erica tetralix wet heath, a precautionary approach has been taken in this appraisal whereby this habitat has been classed as blanket bog an Annex I habitat under the Habitats Regulations[18] and therefore assigned National importance. Classing this habitat as blanket bog also assumes the depth of peat is sufficient for this area to form priority peatland[19] of national interest although based on the peat depth recorded elsewhere within The Site this is unlikely. Further to this, the area of M15 is small and isolated which also contributes to the low likelihood of the areas of M15 meeting the requirement for priority peatland. Annex I habitats are used to form the basis of designations for protected areas, and it is a requirement of EU Member States that such habitats are maintained in 'favourable conservation status' and are therefore afforded due consideration within the planning process. Whilst Scotland is no longer part of the EU, it is still a requirement under Scottish legislation in line with the European Union (Continuity) (Scotland) Act 2021. The same habitat is also listed as a priority under the Scottish Biodiversity List (SBL).

3.7.6 UKHab classifications mapped from the Survey Area and of conservation interest include those listed in **Table 3.2** and shown on **Figure 3.1.1 of Appendix 3.1: Habitats Baseline Report**.

[18] NatureScot website https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/legal-framework/habitats-directive-and-habitats-regulations

[19] NatureScot details their approach to defining priority peatland in guidance that aligns with the National Planning Framework 4 (NPF4). https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management

Table 3.2 UKHab Classifications of Conservation Interest within the Survey Area

UKHab Classification	Location/Context	Species Composition	Priority Habitat
f2b Purple moor grass and rush pastures	Covers most (55%) of The Site	Purple moor-grass *Molinia caerulea,* Isolated Sphagnum, marsh violet *Viola palustris*, soft rush *Juncus effusus*, sharp flowered rush *Juncus acutiflorus*, marsh thistle *Cirsium palustre*, buttercup *Ranunculus sp.*, tormentil *Potentilla erecta*, *polytrichtum*, Yorkshire fog *Holcus lanatus*, ling heather *Calluna vulgaris,* tufted hairgrass *Deschampsia cespitosa*, blaeberry *Vaccinium myrtillus,*	SBL Dumfries and Galloway LBAP

Groundwater Dependent Terrestrial Ecosystems.

3.7.7 Field surveys identified two habitats with moderate potential to support GWDTEs, as defined by SEPA[15]. Each of these habitats with moderate GWDTE potential have been mapped and are detailed in **Table 3.3** and shown on **Figure 3.1.2 of Appendix 3.1: Habitats Baseline Report**. However, an update to SEPA GWDTE guidance in 2024 no longer classes M25 Molinia caerulea - Potentilla erecta mire has having GWDTE potential[20]. This habitat covers most of The Site and Survey Area.

Table 3.3 UKHab Classifications with GWDTE Potential

UKHab Classification	Corresponding NVC Community	GWDTE Potential	Location/Context	Species Composition
f2b Purple moor grass and rush pastures.	M25 *Molinia caerulea - Potentilla erecta* mire	**Moderate**[21]	As **Table 3.2** above.	As **Table 3.2** above.
g3c - other neutral grassland	MG10/MG6 *Holcus lanatus – Juncus effusus rush-pasture/Lolium perenne - Cynosurus cristatus* grassland	**Moderate**	Within The Site.	Tufted hair-grass *Deschampsia cespitosa* (D), cock's-foot *Dactylis glomerata* (D), creeping bent *Agrostis stolonifera* (D), broom (F), common hogweed *Heracleum sphondylium* (F), Scots pine (O), bramble *Rubus fruticosus* (O), creeping thistle *Cirsium arvense* (O), common knapweed *Centaurea nigra* (O), *Sphagnum sp.* (O), *Ptilium Crista-castrensis* (O), St John's-wort *Hypericum sp.* (O), cross-leaved heath (R) and heather (R). Sections of bare ground are present.

3.7.8 The potential for impacts on GWDTEs is considered within **Chapter 5: Hydrology, Hydrogeology and Geology** and is not discussed further here.

20 Scottish Environmental Protection Agency (2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems https://www.sepa.org.uk/environment/land/planning/guidance-and-advice-notes/

[21] This habitat is not classed as having GWDTE potential under new SEPA guidance.

Invasive non-native species

3.7.9 The following INNS were identified within the Survey Area:

- A single Butterfly Bush *Buddleia davidii* was recorded west of the Survey Area, approximately 50 m from The Site boundary. The location of the INNS is shown on **Figure 3.2.1** accompanying **Appendix 3.2: Protected Species Baseline Report**.

Protected/priority species

3.7.10 The following sections discuss the protected or priority species which were either directly recorded within their respective survey areas or those which could potentially utilise the area based on habitats present. Results are shown in **Figure 3.2.1** and full details of the Protected Species baseline are presented in **Appendix 3.2: Protected Species Baseline Report**.

3.8 Protected Species Importance Value

Otter

3.8.1 Otters are a European Protected Species (EPS) and are listed on the UK Biodiversity Action Plan (UKBAP[22]), and a priority species on the Dumfries and Galloway SBL (Dumfries and Galloway Council, 2009[23]).

3.8.2 No confirmed otter resting sites were identified within the Survey Area. The closest confirmed resting site to the Survey Area is approximately 1.4 km away (Lorg Wind Farm Grid Connection Surveys, 2023). Otters may commute across The Site.

3.8.3 Otters are assigned Local importance.

Badger

3.8.4 Badgers are protected under the Protection of Badgers Act 1992[24] as amended by the Wildlife and Natural Environment (Scotland) Act 2011[25].

3.8.5 No evidence of badger was identified within the Survey Area. Largely, The Site and surrounding Survey Area were unsuitable for badger sett creation due to the flat terrain and wet areas of grassland. However, The Site was suitable for foraging and commuting with no natural or manmade barriers preventing access to The Site. The closest verified record was approximately 430 m from The Site involving a badger latrine (dung).

3.8.6 Badgers are assigned Local importance.

Water vole

3.8.7 Water voles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)[26] and are listed as a priority species on the Dumfries and Galloway SBL.

3.8.8 Suitable water vole habitat was identified within the Survey Area, including rough grassland, marshy grassland and swamp. However, no water vole evidence was recorded along the watercourses in the Survey Area. An abundance of field vole evidence was identified including latrines and feeding stations.

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[22] The UK BAP was replaced by the 'UK Post-2010 Biodiversity Framework' (July 2012) which covers the period 2011-2020. This framework is implemented individually by each of the four UK countries. Following the publication of the new framework the UK BAP partnership no longer operates but many of the tools and resources originally developed under the UK BAP still remain in use and reference to UKBAP is still valid in terms of identifying notable species throughout the UK including Scotland.

[23] Dumfries and Galloway Local Biodiversity Action Plan – Part 1 Available at: https://swseic.org.uk/wp-content/uploads/2018/06/DGLBAP2009-part4.pdf

[24] UK Government (1992). Badgers Act 1992. Available at https://www.legislation.gov.uk/ukpga/1992/51/contents

[25] Scottish Government (2011). Wildlife and Natural Environment (Scotland) Act 2011. Available at: https://www.legislation.gov.uk/asp/2011/6/contents

[26] UK Government (1981). Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents

3.8.9 Water vole are assigned less than Local importance.

Pine marten

3.8.10 Pine martens are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed as priority species the Dumfries and Galloway SBL.

3.8.11 No evidence of pine marten was recorded within the Survey Area, with the nearest evidence being scats recorded in 2022 during a protected species survey for the overlapping project Lorg Wind Farm Grid Connection, approximately 5 km from The Site. No evidence of pine marten was recorded in a non-targeted survey in 2023. However, given the extensive home ranges used by pine martens, they may commute across The Site. The Site is located alongside a large forestry plantation, which is ideal habitat for pine martens. Felling has recently commenced in this forestry, and it is unclear how much would be retained in the coming years.

3.8.12 Pine marten are assigned Local importance.

Red squirrel

3.8.13 Red squirrels and their dreys (resting places) receive full protection under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended) and are listed as priority species in the Dumfries and Galloway SBL.

3.8.14 Feeding evidence was identified approximately 230 m north-east of The Site during the 2021 Quantans Hill surveys, although no evidence was found in the 2023 Lorg Wind Farm Grid Connection surveys.

3.8.15 The Site is alongside a priority area for red squirrel conservation. A small block of woodland within The Site indicated on mapping has been felled between 2016 and 2018 from review of aerial mapping. A new broadleaved plantation was planted on the north-western side of The Site, 2021 and 2023 (via review of aerial mapping) although these plants are too young to support red squirrel populations at the time of writing. Red squirrel may commute across The Site to reach other areas of suitable habitat.

3.8.16 Red squirrel are assigned Local importance.

Bats

3.8.17 All bat species in the UK are EPS. Brandt's bat *Myotis brandtii*, Daubenton's bat *Myotis daubentonii*, whiskered bat *Myotis mystacinus*, Natterer's bat *Myotis nattereri*, noctule *Nyctalus noctula*, Nathusius's pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmeus* and brown long-eared bats *Plecotus auratus* are all listed as priority species in the SBL. Additionally, brown long-eared bat, Natterer's bat, Daubenton's bat, Whiskered Bat, common pipistrelle and soprano pipistrelle are all listed as priority species in the Dumfries and Galloway SBL. Bats are assigned less than local importance.

3.8.18 Bat roosting habitat was limited within the Survey Area, due to the absence of buildings and suitable mature deciduous woodland habitat. However, it is likely that bats may use The Site and surrounding area for foraging and commuting.

3.8.19 Bats are assigned Local importance.

Fish

3.8.20 The closest watercourse to The Site with suitability for fish is the Water of Deugh, approximately 1 km to the North and East. This was surveyed as part of the overlapping Lorg Wind Farm Grid Connection surveys in 2019 and found very low density of trout fry, and low density of trout parr, with Minnows and Stone Loach also recorded (Lorg Wind Farm Grid Connection Project Galloway Fisheries Trust Report No. – JRAD111119. Galloway Fisheries Trust. November 2019).

3.8.21 Fish are assigned Local importance.

Reptiles and Amphibians

3.8.22 The wet and waterlogged nature of the habitat provides suitable habitat for amphibians such as common frog *Rana temporaria* and common toad *Bufo bufo*. However, no water bodies or ponds are present to support breeding newts.

3.8.23 Additionally, with specific reference to great crested newt *Triturus cristatus*, The Site falls within a zone of habitat suitability categorised as unsuitable for this species[27].

3.8.24 Reptiles and Amphibians are assigned Less than Local importance.

Ornithology

3.8.25 Most species recorded within the Survey Area during the Breeding Bird Survey were typical passerines (songbirds) of open moorland/grassland and plantation forestry.

3.8.26 The most frequently occurring species was meadow pipit, with an estimated total of 20 territories, followed by willow warbler with an estimated total of ten territories. Both species are amber listed within BoCC 5. Apart from these two species, all other species of elevated conservation concern recorded under five territories. Three red listed species were recorded: skylark *Alauda arvensis*, tree pipit *Anthus trivialis* and whinchat *Saxicola rubetra* with three, one and two territories respectively. One wader territory was recorded involving common snipe *Gallinago gallinago*.

3.8.27 No signs of schedule 1 raptor species were recorded within the EZoI of the Proposed Development in any of the overlapping Lorg Wind Farm Grid Connection surveys based on predicted disturbance distances from studies[28]. There was a single lekking male black grouse recorded in a 2017 within the maximum predicted disturbance distance[28]. There were no signs of this lek, or any others within the EZoI during an updated survey in 2021.

3.8.28 The breeding bird assemblage has been assigned Local importance.

3.9 Potential Effects

3.9.1 This appraisal is undertaken with consideration of the design details (including embedded mitigation) and construction methodology of the Proposed Development (**Chapter 2: Proposed Development**) and baseline biodiversity conditions of the Proposed Development and surrounding area (**Section 3.6**).

Environmental Designations

3.9.2 The appraisal in relation to designated sites assumes that potential for degradation of designated habitat due to pollution (chemical or sediment) released during construction and operation would be wholly mitigated by embedded mitigation.

3.9.3 The embedded mitigation measures include implementing The Applicant's Outline Construction Environmental Management Plan (CEMP) (including oil storage and refuelling, soil management, waste management, working in or near water and working in sensitive habitats) as well as key elements of the Proposed Development from a hydrological perspective including the protection of watercourses and pollution prevention (see **Chapter 5: Hydrology, Hydrogeology and Geology**).These measures are outlined in the submitted Outline CEMP and would be further developed in the Detailed CEMP, which the Principal Contractor would prepare following consent of the Proposed Development.

3.9.4 Given the size of the Proposed Development, it is unlikely that it would have an **adverse** residual effect on any of the relevant designated sites.

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[27] Amphibian and Reptile Groups of the United Kingdom ARG UK Advice Note 5 (2010). Great Crested Newt Habitat Suitability Index. https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file

[28] NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species | NatureScot

3.9.5 The effect of habitat loss/fragmentation is not considered to be significant due to the relatively small scale of the Proposed Development. Further to this, although priority habitats are present within The Site these are still typical and widespread habitats in the Dumfries and Galloway region.

3.9.6 Due to the uncertainty over the depth of peat associated with a small area of M15 Trichchophorum germanicum -Erica tetralix wet heath, a precautionary approach has been taken in this appraisal whereby this habitat has been classed as blanket bog an Annex I habitat under the Habitats Regulations and therefore assigned National importance. Classing this habitat as blanket bog also assumes the depth of peat is sufficient for this area to form priority peatland of national interest, although based on the peat depth recorded elsewhere within The Site this is unlikely.

3.9.7 The area of M15 would not be lost within the footprint of the Proposed Development but forms part of the wider Site boundary for landscape planting, with tree planting proposed in this area. As a precaution, it is recommended that tree planting is not undertaken in M15 habitat. This has been included as additional mitigation in Table 3.5: Additional Mitigation Measures (ECO_02).

3.9.8 Indirect impacts on priority habitats because of pollution during construction would be mitigated through implementation of a CEMP which would be prepared by the Principal Contractor. The CEMP would build on the Outline CEMP submitted as part of this Application and would detail protocols on waste management and pollution prevention in line with the SEPA's pollution prevention guidance. Therefore, there would be no effect from the Proposed Development.

Invasive Non-Native Species

3.9.9 A single Butterfly Bush was recorded approximately 50 m from The Site boundary. This area has recently been felled, and it is not known if the butterfly bush was retained after the felling/removal of trees.

3.9.10 Works within The Site are unlikely to disturb this area, nonetheless mitigation has been recommended in case works enter this area (Table 3.5 – ECO_01). The WANE Act 2011 (as amended) sets out several offences relating to INNS, which states that it is an offence to plant or otherwise cause to grow any plant in the wild outwith its native range[6]. The spread of these species could also be anticipated regardless of works in the area, because of natural growth (in the absence of management). Overall, if mitigation is followed **adverse** effects are unlikely on The Site as a result of INNS.

Protected Species

3.9.11 This section details the potential impacts of the Proposed Development on protected or priority species or species groups identified in **Section 3.4**. Some species or species groups are appraised together based on their similar ecology and habitat requirements and overlap in potential effect pathways from the Proposed Development. Impact avoidance and mitigation measures detailed typically include:

- Pre-construction surveys and monitoring undertaken by an Environmental Clerk of Works (ECoW);
- Sensitive working methods and avoidance of sensitive areas (such as resting sites) or supervision of works near such sites; and
- Application for the relevant Protected Species Development Licence from NatureScot if impacts on certain protected species cannot be avoided. Works would then proceed under the conditions of the licence issued.

3.9.12 The potential effects of the Proposed Development on protected or otherwise notable species are detailed in **Table 3.4**, below.

Table 3.4 Potential Effects on Protected or Otherwise Notable Species

Species or Species Group	Appraisal
Otter	No evidence of otter has been identified within the Protected Species Survey Area. However, there is potential for new or unidentified resting sites to be present, which could be damaged/destroyed as a result of construction. As detailed within the Outline CEMP, an Ecological clerk of Works (ECoW) would be present at all times on Site during the construction period and would ensure that any

Species or Species Group	Appraisal
	newly constructed holts or resting places are identified and a suitable standoff is established in which no construction activities can occur. Where the relevant standoff distance would not be achievable, otters have the potential to be disturbed or displaced, potentially reducing their population in the area. Considering habitat loss and degradation in the context of otter foraging habitat (water courses) and commuting habitat, mitigation within the Outline CEMP e.g., the pollution prevention plan, would reduce these effects. Further to this, the suitable habitat for otter is very extensive beyond The Site. Otters have the potential to be injured or killed while commuting across construction areas as a result of collisions with vehicles, however the implementation of measures such as Site vehicle speed restrictions and the provision of a toolbox talk to ensure all Site operatives are aware of the potential presence of otter would reduce this risk to a negligible level. Should the above impacts occur, they are not predicted to **adversely** affect the species' conservation status, considering the extensive suitable habitat available to otter in the wider area beyond the Proposed Development and this species status in the Dumfries and Galloway: otter is considered widespread within Dumfries and Galloway, the region is thought to have one of the largest populations in Scotland. Considering all the above, with the inclusion of embedded mitigation, the Proposed Development would result in **negligible adverse** residual effects on otters.
Badger	Whilst the habitat was largely unsuitable for sett creation, the Protected Species Survey Area provides suitable foraging and commuting habitat for badger. As detailed within the Outline CEMP, an ECoW would be present at all times during the construction period and would ensure that in the unlikely event any newly established badger setts dens are identified and a suitable standoff distance is applied from construction activities until any further mitigation measures can be developed and employed. Considering habitat loss and degradation in the context of badger foraging habitat and commuting habitat, mitigation within the Outline CEMP e.g., the pollution prevention plan, would reduce these effects. Further to this, suitable foraging habitat for badger is very extensive beyond The Site. There is limited potential for badger to be injured or killed while commuting across construction areas as a result of collisions with vehicles. This risk would be reduced through the implementation of Site speed limits, as detailed within the CEMP. Considering all the above, with the inclusion of embedded mitigation, the Proposed Development would result in **negligible adverse** residual effects on badgers.
Water vole	There is suitable habitat to support water vole within the Protected Species Survey Area, however no evidence of water vole was found, and therefore **no effects** of the Proposed Development on water vole are anticipated.
Pine marten and red squirrel	The Protected Species Survey Area has a small amount of suitable habitat to support red squirrel, however no evidence of red squirrel was detected. Additionally, connectivity of the woodland throughout the Protected Species Survey Area away from the development ensures both species can move away from any disturbance caused by the Proposed Development and associated works. Any disturbance and displacement of foraging individuals that could potentially occur during construction would be temporary in duration. Considering habitat loss and degradation in the context of red squirrel foraging habitat and commuting habitat, mitigation within the Outline CEMP, e.g., the pollution prevention plan, would reduce these effects. As detailed within the Outline CEMP, an ECoW would be present at all times during the construction period and would ensure

Species or Species Group	Appraisal
	that in the unlikely event any newly established dreys or dens are identified and a suitable standoff distance is applied from construction activities until any further mitigation measures can be developed and employed. Further to this, suitable foraging habitat for red squirrel is very extensive beyond The Site with only limited areas within The Site. Red squirrels and pine martens have the potential to be injured or killed while commuting across construction areas as a result of collisions with vehicles. The likelihood of killing and injury would be reduced through measures such as pre-construction surveys, vehicle speed restrictions and making construction personnel aware of the species potentially present, as required by the Outline CEMP. Should the above impacts occur, they are not predicted to **adversely** affect the species' conservation integrity, considering the extensive suitable habitat available outwith The Site, the limited evidence of this species' presence within The Site and immediate surrounding area, and the relatively large Dumfries and Galloway population. Considering all the above, with the inclusion of embedded mitigation, the Proposed Development would result in **negligible adverse** residual effects on pine marten and red squirrel.
Bats	Bat roosting habitat was limited within the Survey Area, due to the absence of buildings and suitable mature deciduous woodland habitat. However, it is likely that bats may use The Site and surrounding Survey Area for foraging and commuting. Considering habitat loss and degradation in the context of bat foraging habitat and commuting habitat, mitigation within the Outline CEMP e.g., the pollution prevention plan, would reduce these effects. Further to this, suitable foraging habitat for bats is very extensive beyond The Site. Considering the killing and injury of bats while commuting across active construction areas, there is a low likelihood of occurrence, as construction working hours would mainly be out with the peak time of occurrence for bats, which are nocturnal species. Should the above impacts occur, they are not predicted to **adversely** affect the species' conservation integrity, considering limited opportunities for roosting bats have been identified and these have been mainly out with the Proposed Developments EZoI. Considering all the above, with the inclusion of embedded mitigation, the Proposed Development would result in **negligible adverse** residual effects on bats.
Fish	Suitable habitat to support fish is present to the north/east of the Site. The Proposed Development is unlikely to have an **adverse** impact on the closest watercourse to The Site with fish presence confirmed from surveys for the overlapping Lorg Wind Farm Grid Connection project. This is because of the significant distance from The Site of approximately 1 km. Mitigation outlined in the CEMP includes protocols on waste management and pollution prevention in line with SEPA's guidance[29]. Considering all the above, with the inclusion of embedded mitigation, the Proposed Development would result in **negligible adverse** residual effects on fish.
Reptiles and Amphibians	Suitable habitat was identified for reptiles and amphibians during the Protected Species Survey although no evidence of individuals was recorded. If present, the Proposed Development could affect these species.

[29] SEPA (2019). Aquaculture. Available at: https://www.sepa.org.uk/regulations/water/aquaculture/

Species or Species Group	Appraisal
	Monitoring by the ECoW would ensure any reptiles or amphibians are removed from the Proposed Development and therefore **no adverse** residual effects on these species are anticipated from the Proposed Development.
Breeding Bird Assemblage	The breeding bird assemblage mainly comprised typical upland passerines (songbirds). No breeding species highly sensitive to disturbance and displacement effects e.g., Schedule 1 raptors and lekking black grouse, were recorded within the Proposed Developments EZoI. Considering habitat loss and degradation in the context of breeding bird foraging habitat and commuting habitat, mitigation within the Outline CEMP e.g., the pollution prevention plan, would reduce these effects. Further to this, suitable foraging habitat for breeding birds is very extensive beyond The Site. Embedded mitigation would include nest checks undertaken by the ECoW ahead of works and protection zones for active nests. Considering all the above, with the inclusion of embedded mitigation, the Proposed Development would result in **negligible adverse** residual effects on breeding birds.

3.10 Recommendations and Mitigation

3.10.1 Based on the information provided in this appraisal several additional mitigation measures have been identified to ensure the Proposed Development does not result in any significant effects on Biodiversity Features (**Table 3.5**).

Table 3.5 Additional mitigation measures

Reference	Title	Description
ECO1	INNS	The Code of Practice on Non-Native Species[30] sets out guidance on how developments should act responsibly within the law to help ensure that INNS do not cause harm to the environment. The Code of Practice on Non-Native Species must be adhered to. If INNS are identified within The Site prior to construction, the Code of Practice on Non-Native Species must be strictly adhered to. This should be carried out via a specialist INNS Contractor. As a result of the specific mitigation proposed, the Proposed Development would not result in the spread of invasive non-native plant species.
ECO2	NVC M15 habitat	Planting in this habitat to have an open structure to retain the current understorey habitat. This is a precaution due to uncertainty over peat depths. No tree planting to occur in this area.

[30] Scottish Government (2012). Non-native species: code of practice. Available online at: https://www.gov.scot/publications/non-native-species-code-practice/

Reference	Title	Description
ECO3	Artificial Lighting	Artificial lighting would not directly illuminate watercourses, natural linear features and adjacent habitat within the Proposed Development except when required during the operational phase in line with guidance[31], to avoid discouraging otters and bats and other foraging wildlife from using the Proposed Development.

3.11 Conclusion

3.11.1 Overall, the impacts of the Proposed Development can be mitigated to ensure there are no significant effects on the surrounding habitats and species. Works would be overseen by an ECoW to ensure any updated ecological baseline information (identified through pre-construction surveys and any other site observations) is accounted for and any consequential predicted **adverse** impacts fully mitigated.

[31] Institution of Lighting Professionals (ILP) (2018). Bats and artificial lighting in the UK. Bats and the Built Environment series, Guidance Note 08/18

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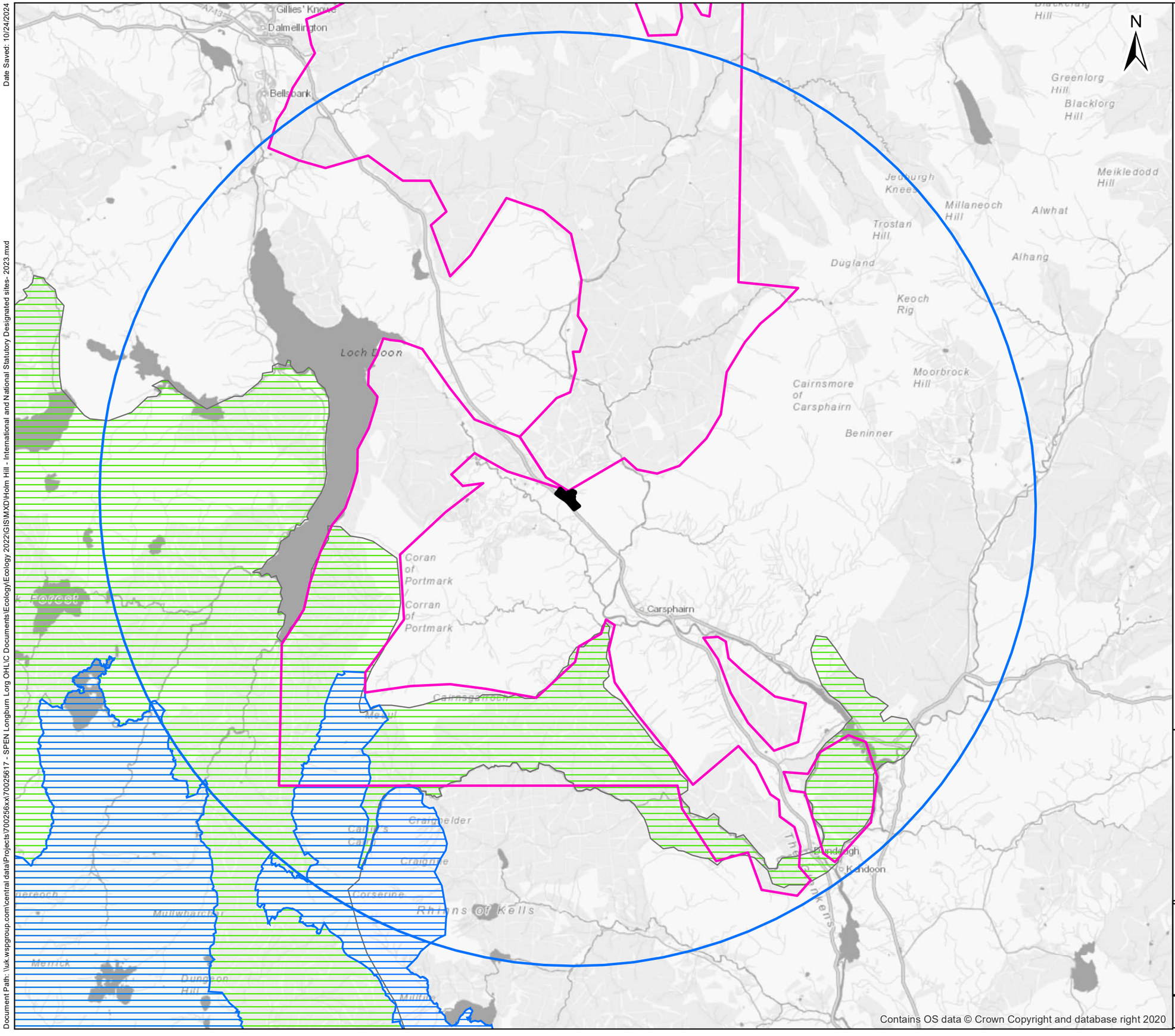

Key

- Proposed Development
- 10km buffer
- Merrick Kells Special Area of Conservation (SAC).
- Red Squirrel Priority Woodland
- Galloway Forest Park Important Bird Area (IBA)

NOTE: Galloway and Southern Ayrshire Biosphere Reserve is also present, encompassing the whole buffer area and beyond.

Kilometers

0 1.25 2.5 5

SP Energy Networks

Holm Hill Substation
Figure 3.1: Relevant Designated Sites

Date:	10/24/2024			Scale:	80,000 @ A3
Drawn:	GS	Checked:	AH	Approved:	KH

Holm Hill Substation

Environmental Appraisal

Appendix 3.1: Habitats Baseline Report

November 25

Land & Planning

Contents

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1 INTRODUCTION

1.1 Background

1.1.1 The Proposed Development is in Dumfries and Galloway, Scotland, approximately 2.5 km to the north-east of Carsphairn and 7.5 km south-east of Dalmellington.

1.1.2 The Site is located in a rural area that comprises open moorland and rough grazing with areas of plantation forestry/woodland grassland to the north-west of The Site boundary. Being located on the south-western slope of Holm Hill, The Site slopes downwards toward the A713 between elevations 242 m and 220 m Above Ordnance Datum (AOD).

1.1.3 The Proposed Development would connect to the A713 (Ayr to Castle Douglas). The A713 is the main route through the Glenkens and is promoted as the Galloway Tourist Route. The Proposed Development is also immediately adjacent to the DE Route electricity transmission network, which it would connect to via underground cabling to the existing overhead line tower (number 68).

1.2 Information Sources

1.2.1 The objective of the surveys was:

- Identify habitats which are potentially groundwater dependent (i.e. Groundwater Dependent Terrestrial Ecosystems [GWDTEs]) and which may be affected by the Proposed Development. This is to ensure the requirements of the Scottish Environmental Protection Agency (SEPA), under implementation of the Water Framework Directive, are met (refer to **Annex A: Legislation** for details); and
- Identify habitats considered to have nature conservation importance under the European Union Habitats Directive and Nature Conservation (Scotland) Act 2004 (refer to **Annex A: Legislation** for detail).

1.2.2 The findings are intended to inform the Environmental Assessment (EA) for the Proposed Development.

1.2.3 The report is linked to **Technical Appendix 3.4 : Biodiversity Net Gain (BNG) Report** of this Environmental Appraisal**,** which considers the condition, distinctiveness and spatial extent of habitats to identify the baseline and post-construction biodiversity value of The Site. The overall aim of the BNG Report is to identify the overall change in biodiversity value associated with the Proposed Development and any requirements for additional habitat enhancement or creation to achieve positive effects for biodiversity.

1.3 Nomenclature

1.3.1 Nomenclature for the plant species' names used in this report follows that of New Flora of the British Isles[1] and Mosses and Liverworts of the British Isles[2]. Common names are provided within the Species List in **Annex C: Plant Species List**.

[1] Stace C. A. (2019). New Flora of the British Isles. Fourth Edition. C&M Floristics, Suffolk

[2] Atherton, I., Bosanquet, S., Lawley, M. eds. (2010). Mosses and Liverworts of the British Isles: a field guide. British Bryological Society.

2 METHODOLOGY

2.1 Methodology Background

2.1.1 Habitat surveys of The Site have been undertaken over several years (2017-2025) in relation to the related Lorg Wind Farm Grid Connection project, which has an overlapping Survey Area with The Site. Initially, an extended Phase 1 habitat survey was undertaken in August and September 2017, followed by a National Vegetation Classification (NVC) survey in 2018, covering the preferred route corridor at the time of survey, plus a 100 m buffer, which extended out to 250 m in locations for excavations greater than 1 m deep were anticipated.

2.1.2 Update surveys were undertaken in September 2022, during which the NVC data were updated and again in August 2024, during which the Phase 1 habitat and UK Habitat classification (UKHab) data were collected and converted to NVC for areas of potential priority peatland and GWDTE.

2.1.3 The update surveys in 2024 were undertaken within The Site boundary of the Proposed Development and 100 m buffer. This reflected the design freeze stage of the Proposed Development at the time of survey, i.e., there was certainty over the extent of permanent land take by the Proposed Development footprint within The Site boundary and a full understanding of all elements of the Proposed Development, including landscaping proposals. A further update study was completed in 2025 as part of the Lorg Wind Farm Grid Connection project, of which the western extent overlapped with the north-eastern limit of The Site.

2.2 Field surveys

2.2.1 Surveys were undertaken between:

- August 2017 – September 2017;
- September 2018;
- 20 – 22 April 2022;
- 3 – 6 May 2022;
- 16 - 19 August 2022; and
- 14 August 2024

2.2.2 Surveys were undertaken by WSP Ecologists (in pairs for health and safety reasons) who each possess varying membership levels with the Chartered Institute of Ecology and Environmental Management (CIEEM), with each lead surveyor holding relevant experience and meeting the CIEEM Competency for Species Survey (CSS) requirements for the species likely to be present on Site[3].

[3] CIEEM Competencies for Species Survey (CSS) guidance: http://www.cieem.net/competencies-for-species-survey-css: Accessed August 2018.

2.3 Habitat Survey Methods

Extended phase 1 habitat survey 2017

2.3.1 An extended Phase 1 habitat survey was undertaken by two WSP ecologists. The survey was completed in late August/early September 2017, following Joint Nature Conservation Committee (JNCC) [4] survey methodology (2016), described below.

2.3.2 Phase 1 habitat survey is a standard technique for classifying and mapping British habitats, using a series of prescribed habitat types based on the frequency of species and structure of the vegetation. Habitats were mapped in the standard Phase 1 habitat survey format, and where applicable, dominant plant species were recorded.

2.3.3 Features of interest and species composition of habitats were recorded as Target Notes (TNs) with OS grid references obtained using a handheld Global Positioning System (GPS) device.

2.3.4 The survey was extended to include consideration of the likely presence of protected or otherwise notable species in line with CIEEM guidelines (2016) [5]. Incidental records of notable flora/fauna were recorded as TNs where appropriate.

NVC 2017-2018

2.3.5 The NVC survey was undertaken by two surveyors, one of whom has seven years professional survey experience, including extensive plant identification training in upland habitats similar to those present within the Survey Area. NVC surveys were completed in September 2017 and August 2018 in line with NVC survey guidelines[6], classifying communities in accordance with the NVC system[7]. The NVC survey method provides a standardised system for classifying and mapping plant communities and enables surveys to be carried out to a consistent level of detail and accuracy.

2.3.6 OS and aerial mapping at a scale of 1:5000 OS was used to map the community types. Mapping available from the extended Phase 1 habitat survey was also used to evaluate the extent of habitats within the Survey Area. Target notes were taken to assist characterisation of areas and for those habitat communities not easily classified under the NVC system.

2.3.7 Homogenous stands and mosaics of vegetation were identified and mapped as polygons using field survey maps; these polygons were surveyed qualitatively to record dominant and constant species, sub-dominant species and other species present. In practice, the vegetation was mapped progressively across the Survey Area to ensure that no areas were missed and that mapping was accurate. NVC communities were attributed to the mapped polygons using surveyor experience and matching field data against published floristic tables (Rodwell, 1991 – 2000).

2.3.8 Wherever possible, communities were classified to sub-community level, although in many cases a community level classification was completed due to species-richness not being sufficient to allow meaningful sub-community determination.

[4] JNCC. (2016). *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. Joint Nature Conservation Committee.

[5] CIEEM (2016). Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management. Hampshire.

[6] Rodwell J. (2006). National Vegetation Classification Users Handbook. JNCC, Peterborough

[7] Rodwell, J.S. (ed.) 1991. British Plant Communities. Volume 2. Mires and heath. Cambridge University Press.

2.3.9 Quadrat sampling was not used in this survey, as it is not always necessary if vegetation types can be reliably identified in the field using sufficient qualitative data, as most NVC communities and sub-communities are defined by inter-stand frequency, not by the abundance of the constituent species. It is better in many cases to record several qualitative samples than one quantitative sample; furthermore, qualitative information can be vital for understanding the dynamics and trends in vegetation patterns (Rodwell, 2006).

2022 verification studies

2.3.10 Update surveys were undertaken in September 2022, whereby the NVC survey data were updated to capture any changes in habitat communities since the previous 2017-2018 surveys. The Phase 1 habitat survey 2017 was updated and converted to UKHab[8].

2.3.11 The UKHab system classifies habitats according to their vegetation types and structure, following a principal hierarchy of 'Primary Habitats'. Primary Habitats include ecosystems (level 1), broad habitat types (level 2 and 3); defined habitats, including UK Biodiversity Action Plan Priority Habitats (level 4); and further defined habitats, including EU Habitats Directive Annex 1 habitats (level 5). Each Primary Habitat has an alpha-numeric code, unique to UKHab (i.e., different to other habitat survey methods such as Phase 1 and NVC).

2024 Verification studies

2.3.12 Update surveys were undertaken in August 2024, whereby the Phase 1 and UKHab data was updated to capture any changes in habitat communities since the previous 2022 surveys.

2.3.13 Concurrently to the above, a Habitat Condition Assessment (HCA) was undertaken following the current methodology at the time of survey, HCA version 1.0.2. HCA results are reported within and used to inform the BNG assessment (**Appendix 3.4: Biodiversity Net Gain Assessment**).

2.3.14 Habitat data from the August 2024 update surveys were converted to NVC classifications to identify potential priority peatland and GWDTE.

2.3.15 UKHab and HCA surveys were led by an ecologist who is experienced at a ‘capable’ level of surveying similar habitat types encountered in the geographical region and land-use setting and accredited with the Botanical Society of Britain and Ireland (BSBI) Field Identification Skills Certificate[9] (FISC) Level 3.

2025 updates

2.3.16 Since the most recent 2024 habitat surveys, surveys have been undertaken in 2025 for the adjacent Lorg OHL submission. In discussions between the project ecologists and hydrologists, a review of the existing Proposed Development habitat data has been undertaken. These discussions included utilising the updated 2025 Lorg NVC and UKHab dataset that overlaps with the Holm Hill project, where relevant, alongside the application of professional judgement and knowledge of The Sites, in combination with a review of recent aerial imagery.

[8] UKHab Ltd. (2020). UK Habitat Classification, Version 1.1. Available at: https://www.ukhab.org

[9] Field Identification Skills Certificate – Botanical Society of Britain & Ireland (bsbi.org)

2.4 Limitations

Extended Phase 1 habitat survey 2017

2.4.1 The extended Phase 1 habitat survey was undertaken in late August and early September towards the end of the optimal season for identifying botanical species in Scotland (late April to October[4]). This is not considered to significantly limit the findings of the survey because it was still possible to classify the habitat types based on the broad composition of plant types and the structure of communities, together with surveyor experience of such habitats.

2.4.2 Access was granted across the entire Survey Area, however amongst plantation forestry access was generally restricted to tracks. Habitats recorded within inaccessible plantation rides were therefore observed from nearby tracks and assumed to be homogenous. This does not negatively impact the findings of the extended Phase 1 habitat survey because such habitats were small relative to the scale of the Survey Area and likely to be of limited value amongst actively managed areas. Furthermore, from collective experience of the wider Survey area, this information was sufficient to assess the value of the habitat itself as well as its likelihood for supporting protected species.

NVC 2017-2018

2.4.3 The optimal time of year to undertake botanical surveys is taken to be April – September. Part of the NVC survey was undertaken at the end of September in 2017, and when plants were starting to die-back over winter. The two surveyors had extensive knowledge of the habitat types and species present within the Survey Area, enabling accurate species identification and habitat classification during the late stages of the optimal survey season. Additionally, habitat survey data from the Phase 1 2017 survey undertaken earlier in the year provided additional information where required. Surveyor experience and availability of supporting Phase 1 habitat survey data from the optimal survey season ensured that the quality of data collected is considered sufficient for the purpose of informing this report. Updated NVC surveys undertaken the following year, in 2018, were conducted earlier in August during the optimal survey season, and were not subject to these limitations.

2.4.4 It should be noted that the results from this survey, and the corresponding community descriptions, represent a current community evaluation (as opposed to one seeking to describe what the community was before any human interference or may become in the future). In light of this, a clear constraint of the process is that it offers only a snapshot of the vegetation communities present and should not be used as a long-term reference.

2.4.5 Conifer woodland was not surveyed in detail as this habitat type is not a GWDTE, not considered to be of high ecological value, nor likely to support protected species. With an understanding of the communities found across the Survey Area, woodland rides could be confidently assumed to contain a combination of mire and grassland communities.

NVC Survey limitations

2.4.6 At the time of the 2024 update survey in August 2024 The Site Red Line Boundary (RLB) was fixed following design freeze. In response to feedback from the public consultation event held in August 2024, the RLB was subsequently extended, to allow space for landscape mitigation planting around the substation site.

2.4.7 Following the survey, The Site boundary was amended and extended outwith the 2024 survey buffer, resulting in no update NVC survey of some areas of The Site boundary and 250 m GWDTE Survey Area being undertaken since 2022. The site boundary amendments were finalised outwith the optimum survey season for habitats (considered March to October inclusive) and therefore targeted NVC survey of the final Site RLB was not recommended prior to EA submission. Habitats with the potential to be GWDTE have therefore been identified based on the 2022 NVC habitat data, and 2024 update habitat data where available. The use of 2022 NVC data as part of this assessment is not considered to represent a significant limitation, given the extensive knowledge of habitats within The Site and surroundings.

2.4.8 The new boundary of The Site, updated in November 2024, no longer includes some of the GWDTE habitat identified in the NVC surveys, and is therefore excluded.

2.4.9 The further design update in 2025 saw a slight increase in the extent of The Site along the north and north-eastern boundary, which was largely covered by earlier surveys, and does not represent a gap in habitat data.

3 RESULTS

3.1 Phase 1 habitat survey

3.1.1 Due to the age of the survey (2017), the survey results are not discussed here. These survey findings were superseded by NVC survey data in 2017-2018 and verification survey data in 2022 and 2024 which included conversion of Extended Phase 1 habitat survey data to UKHab.

3.2 UKHab Summary of Results

3.2.1 The UKHab survey results are illustrated in **Figure 3.1.1** in **Annex B: Figures**. The UKHab survey results showed that The Site and Survey Area mainly comprised of f2b purple moor grass and rush pastures, with occasional scattered young trees (secondary code 11). Within the north-western and north-eastern edges of The Site the purple moor grass and rush pasture had been planted with young, trees, approximately 10-15 years old. These were composed of young broadleaved tree species in the north-west, and young non-native coniferous species in the north-east. The baseline habitat type has not changed, instead, secondary codes are applied to denote Plantation (origin) (36), young trees-planted (Management) (56), and coniferous – labelled as non-native (48) as applicable.

3.2.2 Further habitat types were: g3c other neutral grassland, u1e built linear features, g1c bracken, g4 modified grassland, and u1c Artificial unvegetated unsealed surface.

3.3 NVC Results Summary

3.3.1 The NVC results are illustrated in **Figure 3.1.2** in **Annex B: Figures**. NVC survey results showed that the Survey Area was dominated by M25 *Molinia caerulea - Potentilla erecta* mire with areas of young, planted trees (not classified under NVC), as described above, also making up a significant proportion of the northern part of the Survey Area. These are labelled in **Figure 3.1.2** in **Annex B: Figures** as BP to denote broadleaved trees of plantation origin and CP to denote coniferous trees of plantation origin.

3.3.2 M25 *Molinia caerulea - Potentilla erecta* is classified as blanket bog when located on deep peat. Peat survey results have shown that while there is peat present within the Proposed Development, it is not deep enough to classify this habitat as blanket bog. Therefore, there is no consideration required for priority peatland of national interest within the footprint of the Proposed Development.

3.3.3 The small area of M25/M15 *Molinia caerulea – Potentilla erecta/ Trichophorum-Erica,* has the potential to be classed as blanket bog dependent on the depth of peat present. Peat depth surveys were not undertaken in this part of The Site because changes to The Site boundary to accommodate landscaping occurred after completion of the peat survey. For further details of peat surveys and appraisal please refer to **Chapter 5: Hydrology, Hydrogeology and Geology**.

3.3.4 Other habitats recorded include mosaics of MG6c/MG6d largely in the eastern side of the Survey Area, with some areas of young planted broadleaved and coniferous trees in the north; MG10 / MG6 was recorded in a small area in the eastern edge of the Survey Area adjacent to U20 which was recorded predominantly in the southern and eastern limits of the Survey Area.

3.4 Discussion

3.4.1 The communities found during the NVC survey have been evaluated in relation to the protection afforded to them (see **Annex A: Legislation** for further details) in **Table 3.1** below.

3.4.2 Where a community is a potential GWDTE, they have been highlighted in a similar style to SEPA Guidance[10]. Those NVC communities which may have a limited dependency on groundwater in certain settings have been highlighted in yellow; and those that are likely to be sensitive are marked in red (not applicable for the Survey Area).

3.4.3 Where these communities have been identified as potentially an Annex I habitat or as a Scottish SBL habitat, the corresponding habitat description for these designations has been provided in **Table 4-1**. Where a conservation designation is not applicable 'N/A' has been inserted.

Table 3.1 NVC Communities of Conservation Importance

NVC Community	Annex I	SBL
M25 - *Molinia caerulea-Potentilla erecta* mire	Blanket bog/ Degraded raised bog	Coastal and floodplain grazing marsh/ Fens/ Purple moor-grass and rush pasture
U20 - *Pteridium aquilinum* – Galium saxatile community	N/A	N/A
M15 - *Scirpus cespitosus* – Erica tetralix wet heath	Blanket bog	Blanket bog

3.4.4 No habitats that are likely to be sensitive were recorded during the surveys.

[10] SEPA (2024) guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems. Available at: [Accessed November 2025]. https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf

ANNEX A: LEGISLATION

GWDTE

GWDTEs have specific protection originating under the European Union (EU) Water Framework Directive (WFD) (Council Directive 2000/60/EC), transposed and implemented in Scotland through the Water Environment and Water Services (Scotland) Act 2003 (WEWS Act) and The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR). The purpose of this legislation is to prevent further deterioration of terrestrial ecosystems in regard to their water needs. In Scotland this is regulated through CAR, which controls activities affecting the water environment.

Annex I habitats

Certain habitats also have protection under the EU Habitats Directive (Council Directive 92/43/EEC), transposed in Scotland as the Conservation (Natural Habitats, &c.) Regulations 1994. The Act provides for the identification of sites which are important for habitats (listed as Annex I habitats of the Habitats Directive), known as Special Areas of Conservation (SACs).

SBL habitats

Habitats have protection under the Nature Conservation (Scotland) Act 2004. Under section 1 of the Act it is:

'the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions'

The Act requires Scottish Ministers to produce a Scottish Biodiversity Strategy, including providing a published list of habitats considered to be of principal importance for the purpose of the conservation of biodiversity (referred to as the Scottish Biodiversity List). This list is to be used to assist public bodies to meet section 1 of the Act.

National Planning Policy Framework 4 (NPF4)

NPF4 replaces NPF3 and sets out the national spatial strategy for Scotland. Several Policies within NPF4 requires that nature networks are enhanced, strengthened and/or created which will "enable opportunities for achieving ecological connectivity that meet local priorities for biodiversity and nature; whilst building and strengthening an evolving regional and national connectivity."

Scottish Biodiversity Strategy

The Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland, was published in December 2022 and following a period of consultation, the final version was issued in September 2023 . The Strategy aims for Scotland to be Nature Positive by 2030, and to have restored and regenerated biodiversity across the country by 2045. The Scottish Government's stated vision is:

- "*By 2045, Scotland will have restored and regenerated biodiversity across our land, freshwater and seas*."
- Our natural environment, our habitats, ecosystems and species, will be diverse, thriving, resilient and adapting to climate change.
- Regenerated biodiversity will drive a sustainable economy and support thriving communities, and people will play their part in the stewardship of nature for future generations."

The Nature Conservation (Scotland) Act 2004 imposes three-year reporting cycles for the strategy which ensure that progress is recorded, and necessary action taken. The Scottish Biodiversity List is a list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland and the list helps public bodies carry out their biodiversity duty by clarifying which species and habitats require priority action.

Nature Networks and 30x30

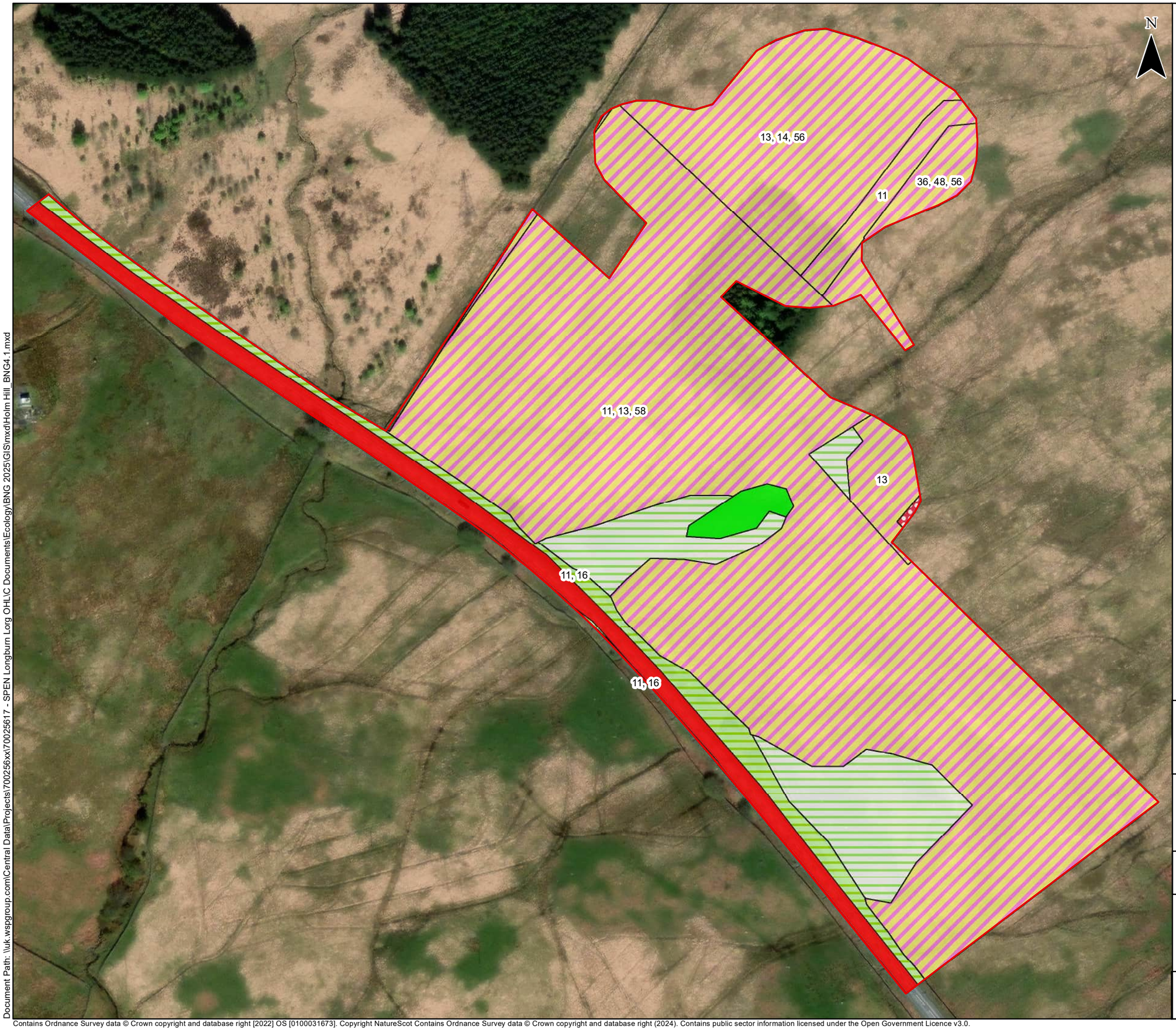
The Scottish Government Scottish Biodiversity Strategy outlines the commitment to protect at least 30% of our land and sea for nature by 2030 (30x30 Target). The 2021 and 2022 Programme for Government committed to the deployment of Nature Networks. These two are key components for increasing ecological connectivity and

the restoration of nature more widely, helping to deliver the Scottish Biodiversity Strategy. Both the Nature Networks and 30x30 strategies are out for consultation as part of the SBS.

In relation to 30x30, Target 3 in the Global Biodiversity Framework aims to “Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories”. For Scotland, 30x30 sites are made up of Protected Areas and Other Effective Area-based Conservation Measures.

In relation to Nature Networks, Scotland aims to “have evolving, flexible and resilient Nature Networks connecting nature-rich areas, allowing wildlife and natural processes to move and adapt to land use and climate change pressures. The networks will help build people’s connection to nature, providing biodiversity-rich spaces that deliver local benefits, and meet the priorities of local communities for nature.

ANNEX B: FIGURES



Legend

Holm Hill Red Line Boundary

UKHab Primary Habitat

- f2b - purple moor grass and rush pastures
- g1c - bracken
- g3c - other neutral grassland
- g4 - modified grassland
- u1c - artificial unvegetated unsealed surface
- u1e - built linear features

00 - UKHab Secondary Habitat

0 25 50 75 100

Meters

Client: SP Energy Networks

Project: Holm Hill Substation

Title: Figure 3.1.1
UKHab Survey Results

Date: 11/17/2025 Scale: 1:1,600 @A3

Drawn: AG Checked: LW Approved: SB

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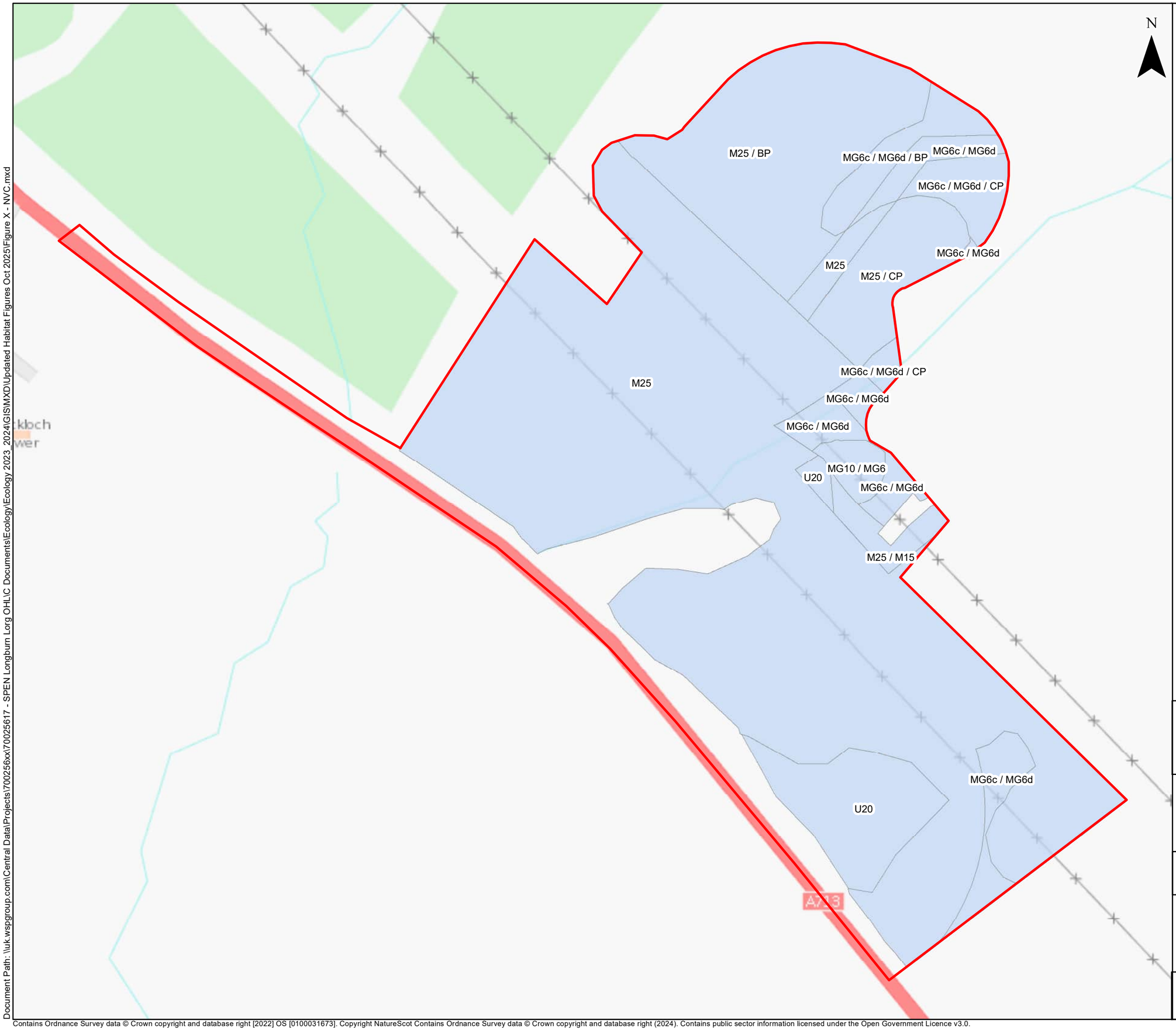

Legend

- Holm Hill Red Line Boundary
- National Vegetation Classification

0 50 100

Metres

Client: SP Energy Networks

Project: Holm Hill Substation

Title: Figure 3.1.2 NVC Classification

Date: 10/23/2025 Scale: 1:1,700 @A3

Drawn: AG Checked: SB Approved: GS

Document Path: \\uk.wspgroup.com\Central Data\Projects\700256xx\70025617 - SPEN Longburn Lorg OHL\C Documents\Ecology\Ecology 2023_2024\GIS\MXD\Updated Habitat Figures Oct 2025\Figure X - NVC.mxd

ANNEX C: PLANT SPECIES LIST

Common name	Latin name
Alder	*Alnus glutinosa*
Aspen	*Populus tremula*
Bell heather	*Erica cinerea*
Blaeberry	*Vaccinium mytillus*
Bog asphodel	*Narthecium ossifragum*
Bog myrtle	*Myrica gale*
Bracken	*Pteriduim aquilinum*
Bramble	*Rubus fruticosus*
Buttercup	*Ranunculus sp*
Cock's-foot	*Dactylis glomerata*
Common haircap moss	*Polytrichtum commune*
Common nettle	*Urtica dioica*
Creeping buttercup	*Ranunculas repens*
Creeping willow	*Salix repens*
Cross-leaved heath	*Erica tetralix*
Elder	*Sambucus nigra*
Foxglove	*Digitalis purpurea*
Goat willow	*Salix caprea*
Greater stitchwort	*Stellaria holostea*
Hard fern	*Blechnum spicant*
Hawthorn	*Crataegus monogyna*
Heather	*Calluna vulgaris*
Hornbeam	*Carpinus betulus*
Marsh thistle	*Cirsium palustre*
Marsh violet	*Viola palustris*
Purple moor-grass	*Molinia caerulea*
Ribwort plantain	*Plantago lanceolata*
Rosebay willowherb	*Chamerion angustifolium*
Rowan	*Sorbus aucuparia*
Sessile oak	*Quercus petraea*
Sharp-flowered rush	*Juncus acutiflorus*
Silver birch	*Betula pendula*
Sitka spruce	*Picea sitchensis*
Soft rush	*Juncus effusus*
Sycamore	*Acer pseudoplatanus*
Tormentil	*Potentilla erecta*
Tufted hair-grass	*Deschampsia caespitosa*
Whitebeam	*Sorbus aria* agg.
Yorkshire-fog	*Holcus lanatus*

Holm Hill Substation

Environmental Appraisal

Appendix 3.2: Protected Species Baseline Report

November 25

Land & Planning

Contents

Page

1 INTRODUCTION

1.1 Background

1.1.1 The Holm Hill Substation (hereby referred to as the 'Proposed Development') would be in Dumfries and Galloway, Scotland, approximately 2.5 km to the north-east of Carsphairn and 7.5 km south-east of Dalmellington.

1.1.2 The Site is in a rural area that comprises open moorland and rough grazing with areas of plantation forestry/woodland grassland to the north-west of The Site boundary. Being located on the south-western slope of Holm Hill, The Site slopes downwards toward the A713 between elevations 242 m and 220 m Above Ordnance Datum (AOD).

1.1.3 Access to the Proposed Development will be provided via the existing A713 (Ayr to Castle Douglas). The A713 is the main route through the Glenkens and is promoted as the Galloway Tourist Route. The Proposed Development is also immediately adjacent to the DE Route electricity transmission network, which it would connect to via underground cabling to the existing overhead line (OHL) tower (number 68).

1.2 Purpose of Report

1.2.1 The objective of the surveys was:

- to identify the presence (or potential presence) of protected species constraints to the Proposed Development, thus establishing the baseline to inform the Environmental Appraisal (EA);
- to assess the presence or potential presence of protected species within the Study Area (i.e. The Site and 250 m radius from The Site boundary); and
- to assess these species' use of features within the Study Area.

1.2.2 This report describes the methods, results of protected species surveys relating to otter *Lutra lutra*, water vole *Arvicola amphibious*, badger *Meles meles*, red squirrel *Sciurus vulgaris*, pine marten *Martes martes* and provides an appraisal of the suitability of habitats within the Study Area to support bats, fish, reptiles, and amphibians. In addition, The Site was also assessed for its suitability to support other legally protected[1] or notable species such as those listed on the UK Biodiversity Action Plan[2], Scottish Biodiversity List (SBL)[3] and Dumfries and Galloway Local Biodiversity Action Plan (LBAP)[4].

[1] The Conservation (Natural Habitats & c.) Regulations 1994 (as amended); The Wildlife and Countryside Act 1981 (as amended); Nature Conservation (Scotland) Act 2004; Wildlife and Natural Environment (Scotland) Act 2011; and Protection of Badgers Act 1992 (as amended).

[2] The UK BAP was replaced by the 'UK Post-2010 Biodiversity Framework' (July 2012) which covers the period 2011-2020. This framework is implemented individually by each of the four UK countries. Following the publication of the new framework the UK BAP partnership no longer operates but many of the tools and resources originally developed under the UK BAP still remain in use and reference to UKBAP is still valid in terms of identifying notable species throughout the UK including Scotland.

[3] NatureScot (2020). Scottish Biodiversity List. Available at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list

[4] Dumfries and Galloway Council (2009). Dumfries and Galloway Local Biodiversity Action Plan (LBAP). Available at: https://www.dumfriesandgalloway.gov.uk/sites/default/files/2024-08/Local_Biodiversity_Action_Plan.pdf

2 METHODS

2.1 Desk Study

2.1.1 The desk study was undertaken during January 2023 to review existing ecological baseline information available in the public domain. For the purpose of the desk study exercise, records were collated within various radii around The Site. This approach is consistent with current good practice guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) 2017[5] and 2024[6] .

2.1.2 Freely downloadable datasets (including those available from NatureScot were consulted for information regarding the presence of the following features:

- European sites within 10 km of The Site.
- areas statutorily designated of local or national conservation importance within 2 km of The Site;
- Non-statutory designated sites of local importance within 1 km of The Site; and
- woodland listed on the Ancient Woodland Inventory (AWI) and Native Woodland Survey of Scotland (NWSS), within or connected to The Site.

2.1.3 The ecological desk study was carried out by a 'capable' (as defined by CIEEM)[7] WSP Ecologist, who has completed numerous ecological desk studies within the last year.

2.2 Field surveys

2.2.1 Field surveys were undertaken for the related project, Lorg Wind Farm Grid connection, which has complete overlap with the Proposed Development.

2.2.2 The Site and the surrounding Study Area are shown on **Figure 3.2.1** in **Annex A: Figures.** Surveys were undertaken between:

- 20 – 22 April 2022;
- 3 – 6 May 2022; and
- 16 - 19 August 2022;
- 30 August – 1 September 2023; and
- 5 – 8 September 2023.

2.2.3 Surveys were undertaken by WSP Ecologists (in pairs for health and safety reasons) who each possess varying membership levels with the CIEEM, with each lead surveyor holding relevant experience and meeting the CIEEM Competency for Species Survey (CSS) requirements for the species likely to be present on-site[8].

2.2.4 The surveys in 2023 focused on otter and badger, as these surveys were informed by previous results and are the species with the highest likelihood to pose a constraint to the Proposed Development.

[5] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

[6] CIEEM (2024). Guidelines for Ecological Impact Assessment in the U.K and Ireland. Version 1.3.

[7] CIEEM Website. https://cieem.net/i-am/continuing-professional-development/competency-framework/the-different-levels-of-competence/

[8] CIEEM Competencies for Species Survey (CSS) guidance: http://www.cieem.net/competencies-for-species-survey-css: Accessed August 2018.

Otter

2.2.5 An otter survey was conducted of all watercourses and water bodies within the Study Area. Standard survey methods for otter were followed, whereby the banks of watercourses were inspected for signs of otter and for potential resting sites[9]. Evidence for otter presence includes spraints (faeces) – which are often located on prominent features within the channel or on the bank (including weirs, bridges, rocks, tree roots, confluences of burns and other riverside features); boneless spraints; slides; and footprints – located in soft mud, silt or sand banks. This methodology conforms to NatureScot guidance[10]. Terminology used is as follows:

- resting site – collective term for holts and couches used in the Habitats Regulations;
- potential resting site – a site considered to provide suitable resting habitat together with inconclusive signs of use or potential use;
- holt – an underground, resting site, often underneath heather root matrices or within tree roots;
- couch – an above ground resting site that can be used for sleeping or grooming;
- breeding site – a term used to identify an area of land in which otters breed, within which a natal holt (see below) is located;
- natal holt - a discrete holt that is used by the female to birth the cubs and where they can remain for up to three months; and
- nursery area - an area within a breeding site with high levels of activity associated with cubs. Holts within these areas are considered unlikely to be the primary natal holts where cubs are born.

2.2.6 Notes on general habitat suitability for otter were also recorded. Suitable otter habitat provides access to freshwater, sufficient prey, and resting and breeding sites that are secure from direct disturbance. In terms of resting sites, otters can utilise a range of above and below-ground structures in their home range and in freshwater habitat, can often sleep above ground and in open areas[11]. In terms of a potential breeding sites (within which a natal holt is located), data tend to be sparse and in some instances contradictory, which may reflect the fact that females tend to choose remote and secretive locations, often some distance away from the watercourse, upstream along small tributaries, within reedbeds, scrub/woodland and sometimes in open ground (e.g. on peatland sites in Shetland and other upland areas in Scotland)[12]. It is considered likely that a breeding site would be adjacent to a good supply of food, be free from significant disturbance and be at **low** potential of flooding. Surveys were restricted to watercourses except where adjacent (within ~10 m of bank tops) suitable habitats for resting sites were present, such as woodland, scrub or coarse grassland.

Badger

2.2.7 A badger survey was conducted within the Study Area, involving a search for the following signs according to standard guidance[13]; Scottish Natural Heritage:

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[9] Chanin, P. (2003). Monitoring the otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10. English Nature, Peterborough.

[10] NatureScot (n.D.). Protected Species Advice for Developers. Available at: https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20otter.pdf

[11] Kruuk, H., Carss, D.N., Conroy, J.W.H. and Gaywood, M.J., 1998, November. 8-Habitat use and conservation of otters (Lutra lutra) in Britain: A review.

[12] Liles, G., 2003. Otter (Lutra lutra) activity and habitat availability on the Pembrokeshire coast and Milford Haven waterway, within the Pembrokeshire marine candidate special area of conservation.

[13] Harris S, Cresswell P and Jefferies D (1989). Surveying Badgers. Mammal Society

- faeces: badgers usually deposit faeces in characteristic excavated pits, concentrations of which (latrine sites) are typically found at home range boundaries;
- setts, comprising either single isolated holes or a series of holes, likely to be interconnected underground;
- paths between setts, under fence lines or leading to feeding areas;
- scratching posts at the base of tree trunks;
- snuffle holes (small scrapes in the ground where badgers have searched for insects, earthworms and plant tubers);
- day nests (bundles of grass and other vegetation where badgers may sleep above ground);
- hair traces; and
- footprints.

2.2.8 The Protection of Badgers Act 1992 defines a badger sett as *"any structure or place which displays signs indicating current use by a badger'*. NatureScot advice states that: *'the presence of field signs such as bedding, fresh spoil heaps, signs of recent digging, hair, latrines, or footprints in or around the potential sett or evidence of badgers entering or exiting the structure or place in question would indicate current use of the structure / place by a badger*"[14].

2.2.9 Accordingly, if found, activity levels / current use at setts were assessed using the following criteria:

- number of well-used holes (with one or more of the following features: well-worn entrance; freshly excavated soil; bedding material);
- number of partially used holes (leaves or twigs in entrance, presence of bedding materials and/or mosses and other plants growing in or around entrance); and
- number of disused holes (partially or completely blocked, with considerable amount of excavation required for reoccupation).

2.2.10 If a badger sett was identified, classification of the structure was undertaken according to the following criteria as defined in survey guidance and in cognisance of advice presented in CIEEM's In Practice[15] relating to possible limitations in classification of badger setts beyond two main categories: breeding (i.e. main sett) and non-breeding (all other setts):

- Main setts: These are in continuous use; they are large, well-established, often extensive and may have large spoil heaps outside the entrances. There are likely to be well-worn paths leading to the sett. The main sett is where the cubs are most likely to be born. There is generally only one main sett per social group of badgers. Main setts are usually built in very specific positions, where there is the right combination of soil (to facilitate drainage and ease of digging), aspect, slope and cover. Since suitable sett sites are at some premium, main setts are usually long-established, and may have been in use for decades or even centuries. The average number of holes in a main sett is 15.
- Annexe setts: These occur in close association with the main sett (usually within 150 m), and are linked to the main sett by clear, well-used paths. Annexe setts consist of six holes on average, but they are not necessarily in use all the time, even if the main sett is very active. If a second litter of cubs is born, this may be where they are reared.

[14] NatureScot (2025). Guidance Licensing – Badgers – What is a Badger sett? Available at: https://www.nature.scot/doc/guidance-licensing-badgers-what-badger-sett

[15] Andrews, R. (2013). The classification of badger (Meles meles) setts in the UK: a review and guidance for surveyors. CIEEM In Practice Issue 82 December 2013.

- Subsidiary setts: These comprise five holes on average but are not in continuous use and are usually some distance from the main sett (50 m or more). There is no obvious path connecting them to the main sett and their 'ownership' can often only be determined by bait marking.
- Outlier setts: These consist of only one or two holes. They can be found anywhere within the territory and usually have small spoil heaps, indicating that they are not very extensive underground. There are no obvious paths connecting them to other setts, they are only used sporadically and often used by foxes or rabbits when not occupied by badgers.

Pine Marten

2.2.11 Surveys involved an initial appraisal of the general suitability of habitats, buildings, structures, woodlands and shelterbelts to support pine marten. Surveys included a systematic search for signs of pine marten presence and potential den sites with reference to survey guidance[16]. Pine martens are elusive and largely nocturnal, which makes them difficult to see, but their scats are often quite distinctive (in structure, smell and content) and are the most encountered field sign. Scats are most abundant during the period of June – August. Other signs, such as footprints, were also recorded. Additional incidental sightings were also recorded by WSP Ecologists whilst undertaking habitat surveys in August and October 2018.

Red Squirrel

2.2.12 Surveys involved an initial appraisal of the general suitability of woodlands and shelterbelts to support red squirrel. In addition to visual observations of the species, field signs were also searched for, including dreys (distinctive bundles of twigs in trees that are usually 15 years or older and can be conifer or broadleaf species) and chewed pinecones, which are often discarded on prominent features at feeding stations. The surveyors walked transects (approximately 10-15 m apart) throughout woodland blocks and treelines, stopping every 50 m to look up for signs of dreys and/or red squirrels (in accordance with survey guidance for initial non-intrusive visual surveys)[17]. Incidental sightings of grey squirrel *Sciuris caroliensis* were also recorded.

Bats

2.2.13 Each building, built structure, tree and section of woodland was subject to a Preliminary Roost Assessment as described in the Bat Conservation Trust (BCT) Guidelines (hereafter the 'BCT Guidelines') to assess suitability for roosting bats[18]. The focus of this assessment was to assess the suitability of these features during the bats' active season (referred to as 'summer roosts'), i.e. during the period when transitional, maternity, satellite and/or mating roosts are occupied/active (May to August inclusive). However, where a feature appeared to be suitable for hibernating bats this was also recorded.

2.2.14 The Preliminary Roost Assessment involved a non–intrusive, external, visual inspection of all buildings, trees and structures to identify/record Potential Roost Features (PRF's). PRFs are defined in the BCT Guidelines, as "*features that bats could use for roosting".* PRF's include gaps in brickwork/stonework, cavity walls and/or raised tiles/slates/fascia/lead flashing, tree rot holes/peeling bark with the potential to support roosting bats. Potential entry/exit points to PRFs were also recorded. The surveyors looked for evidence of bat activity associated with the above features, for example scratch marks, staining, droppings and absence of cobwebs at potential roost access points. An assessment was also undertaken of connectivity with adjacent habitats to determine their suitability for bat commuting and/or foraging.

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[16] Heritage, S.N., 2014. Distribution of the pine marten (Martes martes) in southern Scotland in 2013.

[17] NatureScot Website. Standing advice for planning consultations - Red Squirrel. https://www.nature.scot/doc/standing-advice-planning-consultations-red squirrels#:~:text=Surveys%20of%20squirrel%20activity%20should%20start%20as%20soon,red%20squirrels%20are%20less%20likely%20to%20be%20active.

[18] Collins, J. (2023). Bat Surveys: Good Practice Guidelines. 4th edition. Bat Conservation Trust. London.

2.2.15 The aim of the Preliminary Roost Assessment was to determine the actual or potential presence of bats. A rating of **high, moderate, low** or **negligible** bat roost potential was assigned to each building, tree or structure recorded in accordance with the BCT Guidelines as defined in **Table 2.1**.

2.2.16 The potential of the Study Area to provide foraging and commuting habitat was also assessed.

Table 2.1 Guidelines for assessing the potential suitability of proposed development sites for bats (reproduced from Collins 2016)

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on-site likely to be used by 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 larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). 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 a and surrounding habitat but 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 roosts 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.

Water Vole

2.2.17 A water vole survey was conducted of all watercourses and water bodies within the Study Area. Standard survey methods for water voles were followed, whereby watercourses were inspected for signs of water vole, i.e. droppings – including those deposited in well-used territorial latrines – footprints; feeding stations with characteristic cut vegetation close to the water's edge; runways in vegetation; and burrows. Notes were taken on the general suitability of watercourses to support water vole, including details of burn geomorphology and riparian and emergent vegetation[19].

2.2.18 Habitats were classed as being unsuitable if they were heavily modified either by bankside engineering works or grazing; if they lacked suitable food plants such as a range of grasses, rushes and herbs; or if the banks were overly rocky or otherwise unsuitable for burrowing (including in heavily shaded forestry plantations). In addition, watercourses were searched for signs of the presence of American mink *Neovison vison,* which is a non-native species and a predator of water vole.

Other Species

2.2.19 Habitats on-site were assessed for the potential to support other protected and notable species, and information gathered comprised the following:

- Amphibians: The suitability of habitats (including ponds and water bodies) was assessed for amphibians such as the European protected species, great crested newt *Triturus cristatus* and the UK BAP species common toad *Bufo bufo,* along with the quality and accessibility of surrounding terrestrial habitats.
- Reptiles: The general suitability of terrestrial habitats to support reptiles, e.g. embankments, slopes, potential natural and artificial refugia, interface or edge habitats, and shade free areas near dense

[19] Strachan, R., Moorhouse, T. and Gelling, M. (2011) The water vole conservation handbook. 3rd Edition. WildCRU, Oxford.

vegetation. In addition, linkages to off-site habitats were assessed in respect of these species, such as adder *Vipera berus* and common lizard *Zootoca vivipara*.

- Notes were taken on incidental sightings of habitat to support other UKBAP species such as west European hedgehog *Erinaceus europaeus*, brown hare *Lepus europeaus*, mountain hare *Lepus timidus* and wild cat *Felis silvestris*.

2.3 Survey Limitations

2.3.1 Otters are known to range across terrestrial areas to access freshwater habitats in their range and are not restricted to watercourses. The whole Survey Area was not systematically searched for otter, however, signs of otter away from watercourses would have been identified during badger surveys. Additionally, where mammal paths were recorded extending from a watercourse edge, these paths were followed as far as possible. As such, it is not considered that these factors affect the validity of otter data gathered.

2.3.2 Overall, the above limitations are not considered to have affected the robustness of the data presented in this report.

3 RESULTS

3.1 Desk Study

3.1.1 No European, nationally or locally designated sites were identified within The Site. Furthermore, no nationally designated sites were identified within 2 km of The Site.

3.1.2 The desk study identified one European designated site within 10 km of The Site: Merrick Kells Special Area of Conservation (SAC), located c.5.7 km southwest of The Site. Qualifying features of Merrick Kells SAC include freshwater habitats, upland habitats, and the presence of otter.

3.1.3 An Extended Phase 1 survey undertaken for the adjacent project Quantans Hill Wind Farm connection, found that approximately 100 m north of the western boundary of the access road for the Proposed Development was suitable habitat for both badger and red squirrel. No presence of badgers was detected; evidence of red squirrel feeding was found within the northern boundary of the Survey Area (**Annex A: Figures - Figure 3.2.1**). All construction activities should be mindful of the possible presence. There was no evidence of presence or potential places of shelter identified for bats, pine marten, and otters within the species' respective Survey Areas extending to a maximum of 250 m beyond The Site.

3.2 Otter

3.2.1 Watercourses throughout the Survey Area provide suitable foraging, resting and commuting habitat for otter. However, no confirmed otter resting sites were identified within the Survey Area. The closest records of confirmed resting sites from wider surveys for the related Lorg Wind Farm Grid connection project were 1.4 km away. Otters may commute across The Site, given their presence in the wider area.

3.3 Badger

3.3.1 Largely, The Site and surrounding Survey Area were unsuitable for badger sett creation due to the abundance of marshy areas of grassland. However, suitable badger habitat was found just northwest of The Site (**Annex A: Figures - Figure 3.2.1**) within the forestry plantation. Felling of this plantation has begun in recent months, although it is unclear how much of the forestry would be removed.

3.3.2 In general, The Site was suitable for foraging and commuting with no natural or manmade barriers preventing access to The Site. The closest verified record from surveys to inform the overlapping Lorg Wind Farm Grid Connection Project was approximately 430 m from The Site, involving a badger latrine (dung).

3.4 Pine Marten

3.4.1 No evidence of pine marten was recorded within the Survey Area, with the nearest evidence being scats recorded in 2022 during a protected species survey for the overlapping project Lorg Wind Farm Grid Connection, approximately 5 km from The Site. No evidence of pine marten was recorded in a non-targeted survey in 2023. However, given the extensive home ranges used by pine martens, they may commute across The Site. The Site is alongside a large forestry plantation, which is an ideal habitat for pine martens. Felling has recently commenced in this forest, and it is unclear how much would be retained in the coming years.

3.5 Red Squirrel

3.5.1 Feeding evidence was identified approximately 230 m north-east of The Site during the 2021 Quantans Hill Wind Farm Connection surveys, although no evidence was found in the 2023 Lorg Wind Farm Grid Connection surveys.

3.5.2 The Site is alongside a priority area for red squirrel conservation. A small block of woodland within The Site indicated on mapping has been felled in recent years. A new broadleaved plantation has recently been planted on the western side of The Site, although these plants are too young to support red squirrel populations at the time of writing. Red squirrel may commute across The Site to reach other areas of suitable habitat.

3.6 Bat

3.6.1 Bat roosting habitat was limited within the Survey Area due to the absence of buildings and suitable mature deciduous woodland habitat. However, it is likely that bats may use The Site and the surrounding Survey Area for foraging and commuting.

3.7 Water Vole

3.7.1 Suitable water vole habitat was identified within the Survey Area, including rough grassland, marshy grassland and swamp. However, no water vole evidence was recorded along the watercourses in the Survey Area. An abundance of field vole evidence was identified, including latrines and feeding stations.

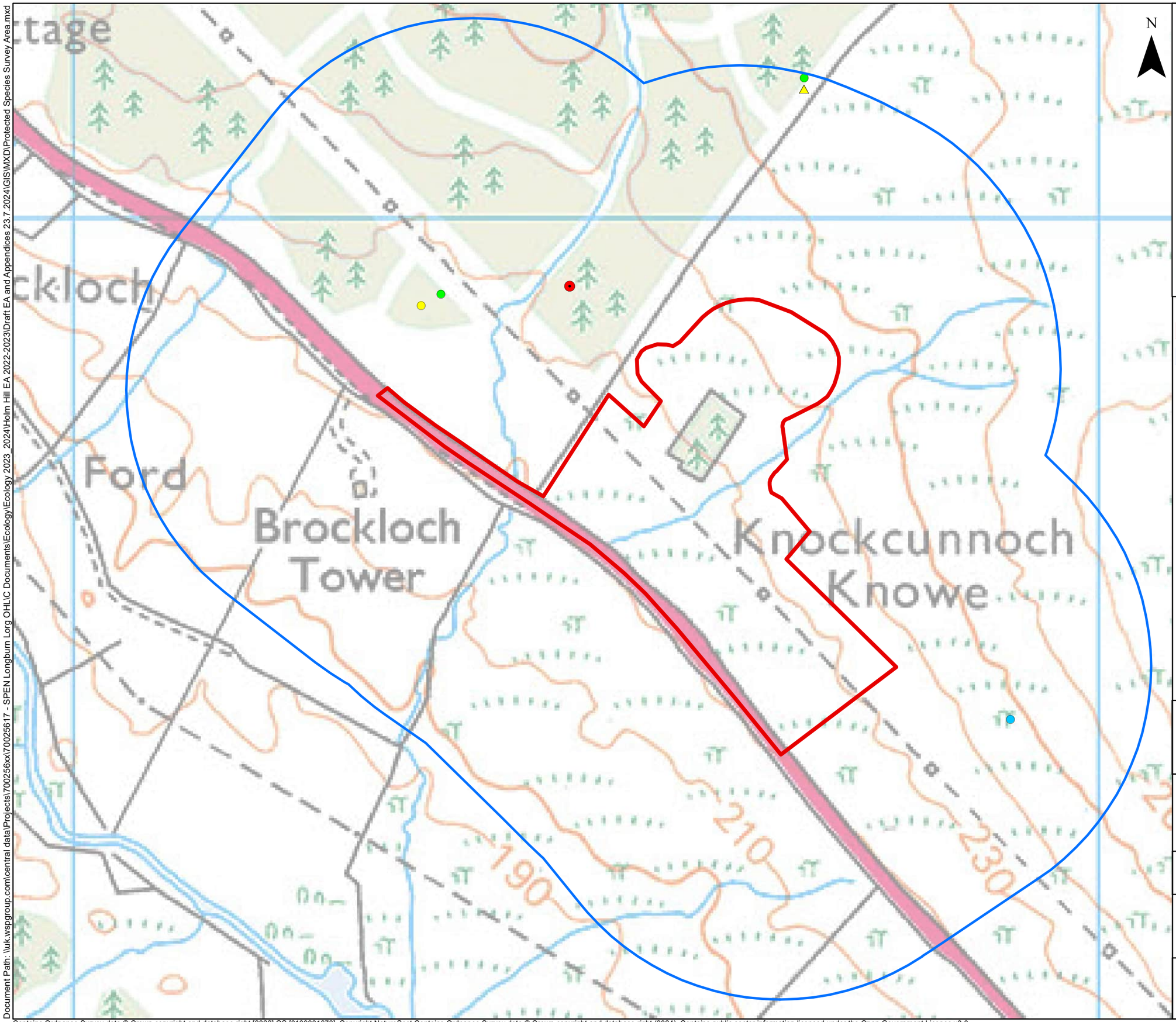
3.8 Other Species

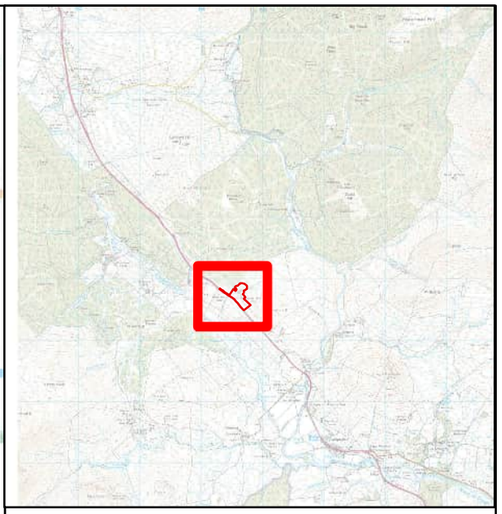
3.8.1 Suitable habitat for reptiles was identified in the Survey Area approximately 150 m to the southeast.

3.9 Invasive Non-Native Species (INNS)

3.9.1 A single Butterfly Bush *Buddleia davidii* was recorded in the west of the Survey Area, approximately 100 m from The Site boundary. The location of the INNS is shown in **Annex A: Figures - Figure 3.2.1.**

ANNEX A: FIGURES





Key

- Holm Hill Red Line Boundary
- 250m Buffer

Invasive Non-Native Species (INNS)

- Butterfly bush

Evidence of Protected Species or Suitable Habitat

- Badger, Suitable Habitat
- Red Squirrel, Feeding evidence
- Red Squirrel, Suitable Habitat
- Reptiles, Suitable Habitat

Note : The above data is from Quantans Hill Wind Farm Grid Connection Extended Phase 1 Habitat Report (2021).No protected species evidence was recorded within 250m of the Site during surveys for Lorg WindFarm Connection in 2023

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SP Energy Networks

Title:
Holm Hill Substation

Title:
Figure 3.2.1 Protected Species Survey Data and INNS from Overlapping Projects

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Holm Hill Substation

Environmental Appraisal

Appendix 3.3: Ornithology Report

November 25

Land & Planning

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1 INTRODUCTION

1.1.1 WSP was commissioned by Scottish Power Transmission (SPT) (hereby referred to as 'The Applicant') to undertake a Breeding Bird Survey (BBS) to inform proposals for construction of a substation (hereafter referred to as the 'Proposed Development') on an area of land defined by the Red Line Boundary (RLB) of the Proposed Development, near Carsphairn, Dumfries and Galloway (hereafter referred to as The 'Site').

1.1.2 The Proposed Development forms part of the infrastructure for the proposed Overhead Line (OHL) connection to Lorg Wind Farm.

2 METHODS

2.1.1 Three survey visits were undertaken in 2020 on 25 June, 2 July and 10 July, within The Site and an additional 500 m buffer (collectively the Survey Area). All species present within the Survey Area were recorded, but only species of elevated conservation importance (target species) were considered for the territory mapping process outlined below. Species were defined as of elevated conservation importance if they fell into at least one of the following categories:

- birds listed on Annex I of the EU Birds Directive[1];
- birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)[2];
- birds that are qualifying features of European designated sites of nature conservation importance for birds (i.e. Special Protection Areas (SPAs) and Wetlands of International Importance (Ramsar Sites) in proximity or potentially connected to The Site; and
- red-listed and amber listed Birds of Conservation Concern (BoCC 5)[3].

2.1.2 Survey methods followed a modified version of the Brown and Shepherd methodology[4] as summarised in Gilbert et al. (1998)[5]. During each visit, the surveyors followed transect routes covering the Survey Area to within at least 250 m of all parts of open moorland. This distance was considered sufficient to detect most species expected to occur on the open moorland habitats of the Survey Area, particularly breeding waders of conservation concern such as golden plover, curlew or lapwing. Where parts of the Survey Area comprised coniferous forestry, the surveyors utilised forest rides to access these.

2.1.3 The behaviour of all birds seen or heard during the surveys was recorded on large-scale maps using standard BTO coding and notation. Survey visits were undertaken in good, clear weather conditions (wind less than Beaufort force 5).

2.1.4 All breeding bird survey records were entered into ArcView Geographic Information System (GIS) software. These were then analysed in order to identify the minimum number of probable or confirmed breeding territories for all target species. For wading birds, this was done following the methods of Brown and Shepherd (1993)[4] whereby breeding territories were assigned on the basis of at least one registration of birds engaging in territorial behaviour, including displaying, singing or alarm calling, distraction displays, territorial disputes or the detection of eggs, nests or young. Where possible, simultaneous registrations of birds displaying such behaviour were used to identify different territories. Where this was not possible, such registrations which were from the same survey visit and were within 500 m of each other (200 m for dunlin) were assumed to be associated with the same territory, while registrations beyond this distance from one another were considered to be from separate, neighbouring territories. For registrations from different survey visits, birds within 1000 m of each other (500 m for dunlin) were assumed to be from with the same territory.

[1] EU Birds Directive: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147

[2] Schedule 1-listed species of the Wildlife and Countryside Act 1981: https://www.legislation.gov.uk/ukpga/1981/69/schedule/1

[3] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain

[4] Brown, A.F. and Shepherd, K, B. (1993). A method for censusing upland breeding waders. Bird Study, 40: 189-195

[5] Gilbert, G., Gibbons D.W., and Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.

2.1.5 For all other species, territories were assigned following the CBC methods described in Gilbert et al. (1998)[5] and Bibby et al. (2007)[6]. This either involves the identification of clusters of registrations of birds of the same species displaying breeding characteristics (e.g. singing, alarm calling, nest building, mating) or food provisioning in the same general area over successive survey visits (probable breeding), or the discovery of an active nest (e.g. containing eggs or chicks) (confirmed breeding). Given that the surveys comprised three visits over the breeding season, the minimum requirement for a cluster, and hence a probable breeding territory, to be defined was at least two registrations conforming to the above criteria recorded on separate survey visits conducted at least ten days apart.

2.1.6 Based on the territory analysis procedure detailed above, the estimated number of breeding territories held by target species was identified within the Survey Area.

[6] Bibby C., Burgess N., Hill D. and Mustoe S. (2007). Bird Census Techniques, 2nd Edition, Academic Press, London.

3 DESK STUDY

3.1.1 Desktop study to obtain baseline and historical data including the following:

- a search for designated sites up to a maximum of 20 km from the Proposed Development; and
- given the relatively recent ornithological dataset and extensive overlap with the Study Area for the Proposed Development, ornithological survey results were used to inform the Quantans Hill Wind Farm EIA Report[7] and the Ornithology Baseline report[8] are discussed in more detail in **Section 5.**

[7] Vattenfall Wind Power Ltd (2022). Quantans Hill Wind Farm Environmental Impact Assessment. Volume 3 - Part 1 Technical Appendices. https://group.vattenfall.com/uk/what-we-do/our-projects/south-west-scotland/quantans-hill-wind-farm

8 WSP (2025). Appendix 8.3 Lorg Ornithology Baseline Report

4 SURVEY LIMITATIONS

4.1.1 Due to late commissioning, three survey visits were undertaken, SNH[9] (2017) guidance requires four visits for BBS. SNH guidance also states that the visits should cover the whole breeding season from mid-April to mid-July.

4.1.2 The first survey visit was undertaken at the end of June; therefore, all survey visits were undertaken in the late breeding season. The reduced number of survey visits (by one) and lateness of the first survey visit may have reduced the detectability of certain species. However, the range of species recorded and their estimated territory numbers were considered representative of the habitats present based on professional experience of similar habitats. Furthermore, comparisons could be made with breeding bird survey results from the surveys undertaken for the Lorg Wind Farm Grid Connection, and this is discussed further within **Section 5.1.6**.

[9] SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. Available at: https://web.archive.org/web/20240304053917/www.nature.scot/sites/default/files/2018-06/Guidance%20Note%20-%20Recommended%20bird%20survey%20methods%20to%20inform%20impact%20assessment%20of%20onshore%20windfarms.pdf [Accessed November 2025] (SNH known as NatureScot as of 2020).

5 RESULTS

Desk study

5.1.1 The following designated sites with ornithological interests were identified within the search area:

- Galloway Forest Park Important Bird Area (IBA). Approximately 2.5 km south of the Proposed Development. A large non-statutory designated area (58,295 ha). The IBA designation process was originally triggered due to the importance of the area for black grouse, peregrine and short-eared owl. The IBA comprises lochs, forest, moorland, and mountain habitats that mostly align with the boundary of the Galloway Forest Park.
- Loch Ken and River Dee Marshes Special Protection Area (SPA) is approximately 19.5 km from the Proposed Development. This SPA is an internationally important site for wintering Greenland white-fronted goose *Anser albifrons flavirostris* and greylag goose *Anser Anser*.

2020 Breeding Bird Survey

5.1.2 A total of 24 species were recorded during the BBS; of these species, eight were of elevated conservation importance using the criteria described in **Section 1.1.2**, with these shown in **Table 5.1** below, and the distribution of their estimated territory centre points is illustrated in Annex A: Figures **- Figure 3.3.1**. A full list of all species recorded is provided in Annex B: Complete List of Species Recorded 2020.

Table 5.1 2020 BBS Results

Species	Schedule 1	Annex 1	BoCC5	Estimated number of Territories
Crossbill	Y	-		1
Meadow pipit	-	-		20
Reed bunting	-	-		2
Skylark	-	-		3
Snipe	-	-		1
Tree pipit	-	-		1
Whinchat	-	-		2
Willow warbler	-	-		10

Survey Results From Overlapping Project

5.1.3 Bird survey results from the related Lorg Wind Farm Grid Connection are discussed below, where relevant. The related project has a complete overlap with the Proposed Development but is a linear OHL which extends beyond The Site for several kilometres. Therefore, only some records would be relevant to the Proposed Development where they fall within the Proposed Development's Ecological Zone of Influence (EZoI) based on studies and guidance for individual species.

5.1.4 During the original breeding bird surveys in 2017 and during update surveys in 2022, there were no records of breeding Schedule 1 raptors within the Proposed Developments EZoI for potential disturbance and displacement effects based on guidance[10].

5.1.5 A black grouse lek was recorded approximately 600 m from The Site in 2017 involving a single lekking male. This distance is within the maximum predicted disturbance distance[8] for the species from the Proposed Development. There were no observations of this lek, or any additional leks within the Proposed Developments EZoI during an updated black grouse survey in 2021.

[10] NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species | NatureScot

5.1.6 Considering another species of elevated conservation importance, curlew, the nearest territory was approximately 2.7 km away in 2017. There were no confirmed territories recorded during update surveys in 2022.

6 DISCUSSION AND CONCLUSIONS

6.1.1 Most species recorded within the Survey Area during the BBS were typical passerines (songbirds) of open moorland/grassland and plantation forestry.

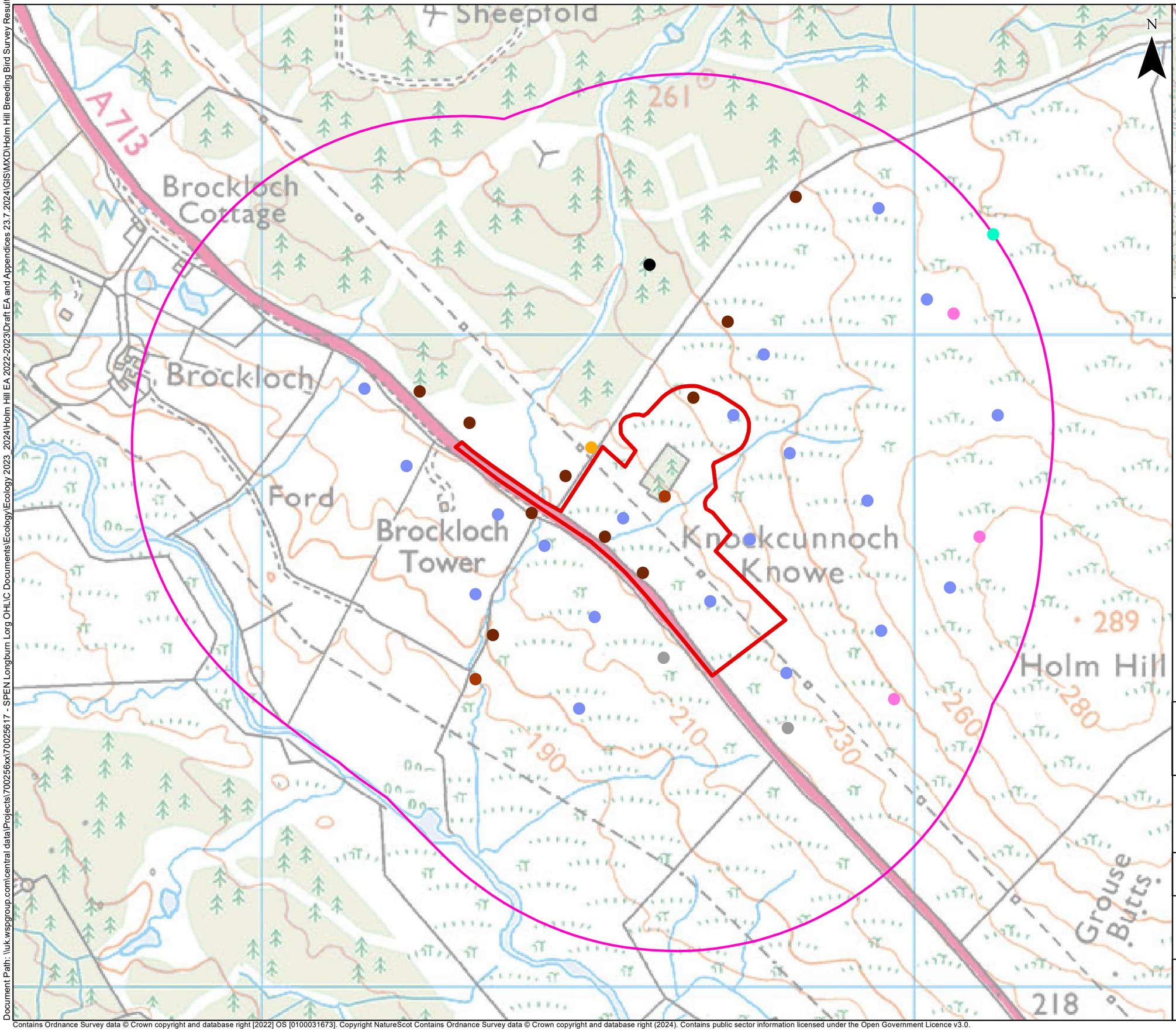
6.1.2 The most frequently occurring species was meadow pipit, with an estimated total of 20 territories, followed by willow warbler with an estimated total of ten territories. Both species are amber listed within BoCC 5. Apart from these two species, all other species of elevated conservation concern recorded under five territories.

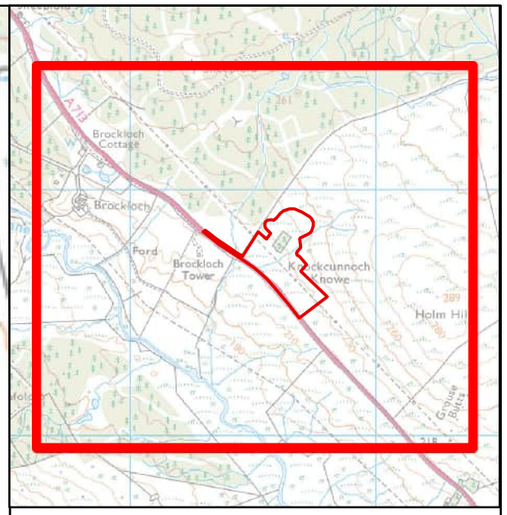
6.1.3 The only species of wader recorded was snipe, with one estimated territory on the periphery of the Survey Area. As discussed in **Section 4**, there was potential for certain species to be overlooked due to the late season commencement of surveys and a reduction in the number of recommended survey visits by one. This would most likely apply to waders such as snipe due to their less conspicuous behaviour and relatively limited period of territorial display.

6.1.4 However, a comparison with survey data from the BBS carried out for the overlapping project Lorg Wind Farm Grid connection, within a Survey Area that extensively overlapped with the one under discussion here, shows that no snipe territories (or any other wader species) were recorded within the Survey Area for the Proposed Development with the closest snipe territory being approximately 1.2 km from the red line boundary of The Site. The findings from the 2017 survey for the Lorg Wind Farm Grid Connection route represent four survey visits spread evenly across the breeding season from April to July. This indicates that the findings of the BBS to inform the Proposed Development are representative of wader activity in the Survey Area.

6.1.5 Records from the overlapping project Lorg Wind Farm Grid connection showed there were no nest sites or territories for sensitive species (Schedule 1 raptors, curlew) within an EZoI of the Proposed Development. A black grouse lek comprising a single lekking male was recorded in 2017 within the Proposed Developments EZoI for disturbance and displacement based on studies[10]. However, no lekking black grouse were recorded during update surveys in 2021. The record in 2017 was approximately 600 m from The Site, towards the upper limit predicted for disturbance, upper limit for black grouse is predicted to be 750 m[10].

ANNEX A: FIGURES





Key

- 500m Buffer
- Holm Hill Red Line Boundary

Estimated Territories

Species

- Willow Warbler (10)
- Snipe (1)
- Whinchat (2)
- Tree pipit (1)
- Skylark (3)
- Meadow Pipit (20)
- Reed bunting (2)
- Crossbill (1)

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SP Energy Networks

Title: Holm Hill Substation

Title: Figure 3.3.1 Holm Hill Breeding Bird Survey Results 2020

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ANNEX B: COMPLETE LIST OF SPECIES RECORDED 2020

SPECIES	SCHEDULE 1	ANNEX 1	BOCC5
Blackcap	-	-	
Blue tit	-	-	
Buzzard	-	-	
Chaffinch	-	-	
Crossbill	Y	-	
Coal tit	-	-	
Goldcrest	-	-	
Great spotted woodpecker	-	-	
Great tit	-	-	
Meadow pipit	-	-	
Robin	-	-	
Reed bunting	-	-	
Raven	-	-	
Skylark	-	-	
Stonechat	-	-	
Siskin	-	-	
Swallow	-	-	
Sand martin	-	-	
Snipe	-	-	
Tree pipit	-	-	
Wheatear	-	-	
Whinchat	-	-	
Wren	-	-	
Willow warbler	-	-	

Holm Hill Substation

Environmental Appraisal

Appendix 3.4: Biodiversity Net Gain Assessment

November 25

Land & Planning

Contents

Page

1 INTRODUCTION

1.1 Background information

1.1.1 WSP UK Ltd. (WSP) was commissioned by Scottish Power Transmission (SPT) (hereby referred to as 'The Applicant') to undertake a baseline Biodiversity Net Gain (BNG) Assessment in support of the proposed Holm Hill Substation (hereinafter referred to as the 'Proposed Development'). The Proposed Development is located near Carsphairn in Dumfries and Galloway, approximately 7.5 miles south-east of Dalmellington.

1.1.2 The Site, which comprises all permanent and temporary aspects of the Proposed Development, is located in a rural area that comprises open moorland and rough grazing with areas of plantation forestry/woodland grassland to the north-west of The Site boundary. Being located on the south-western slope of Holm Hill, The Site slopes downwards toward the A713 between elevations 242 m and 220 m Above Ordnance Datum (AOD).

1.1.3 This BNG assessment quantifies the baseline biodiversity value of the Proposed Development. The baseline BNG assessment has been undertaken in line with SPEN BNG Baseline Data Collection Guidance[1] and the Scottish and Southern Electricity Networks (SSEN) Transmission Biodiversity Net Gain Toolkit User Guide V2.0[2].

1.1.4 The assessment was based upon the findings of habitat surveys most recently updated in August 2024. Habitat Condition Assessment (HCA) data were also gathered during the survey. The biodiversity on-site was quantified using the SSEN Biodiversity Toolkit[3] (herein referred to as 'the toolkit'), which provides a biodiversity baseline value for the Site, and can also be used to predict post-development value. This information will be used to determine the biodiversity units (BUs) required for the Proposed Development to achieve a net gain.

1.2 Biodiversity Net Gain

1.2.1 National Planning Framework 4 (NPF4)[4] to protect biodiversity from development, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks. Policy 3 of NPF4 states: *"Development proposals for national or major development, or for development that requires an Environmental Impact Assessment will only be supported where it can be* ***demonstrated that the proposal will conserve, restore and enhance biodiversity****, including nature networks so they are in a* ***demonstrably better state than without intervention****. This will include* ***future management****. To inform this,* ***best practice assessment methods should be used****."*

1.2.2 SPT consider that taking a BNG approach is considered to be a valid method to demonstrate positive effects for biodiversity via NPF4.

1.2.3 In addition to the above, the Dumfries and Galloway Local Development Plan (LDP)[5] states a requirement to include net biodiversity gain as a broad principle in all development proposals.

[1] LUC (2023). Approach to BNG Baseline Data Collection Note Version 4

[2] SSEN Transmission (2022). Biodiversity Toolkit User Guide V2.0. SSEN, Perth

[3] SSENT (2023) SSE Biodiversity Project Toolkit V3.0. SSEN Transmission, Perth.

[4] Scottish Government (2023). National Planning Framework 4. Available: https://www.gov.scot/publications/national-planning-framework-4/documents/ [Accessed August 2025].

[5] Dumfries and Galloway Council (2019). Local Development Plan 2. Available at: https://new.dumgal.gov.uk/sites/default/files/2024-07/Adopted_LDP2_OCTOBER_2019_web_version.pdf [Accessed August 2025].

2 SPT'S BIODIVERSITY AMBITION

2.1.1 SPT is committed to achieving 'No Net Loss' of biodiversity across all its projects at a business-wide level and to achieving BNG based on the relevant legislation and policy under which projects are delivered across its license area in Scotland

2.1.2 SPT's Action Plan for Nature[6] sets out their goals with regards to biodiversity, to "*achieve 'No Net Loss' of biodiversity by 2028 ".*

2.2 Scope of Report

2.2.1 The purpose of this report is to present the baseline BNG assessment for The Site. This includes:

- a baseline BNG assessment of the Proposed Development in alignment with the SPEN Sustainability Strategy[7], and accordance with SPEN BNG Baseline Data Collection Guidance[1] and the SSEN Biodiversity Net Gain Toolkit User Guide[2]; and
- assessing the potential biodiversity impacts resulting from changes to the habitats within the Biodiversity Study Area, which will be permanently affected by the Proposed Development.

2.2.2 Recommendations are provided in line with the Construction Industry Research and Information Association (CIRIA), Chartered Institute of Ecology and Environmental Management (CIEEM) and the Institute of Sustainability and Environmental Professionals)[8] BNG Good Practice Principles[9] (hereafter referred to as 'Good Practice Principles') and the published UK guidance[10].

[6] SP Energy Networks (2023). Action Plan for Nature. Online. Available at: https://www.spenergynetworks.co.uk/userfiles/file/SP_Energy_Networks_Action_Plan_for_Nature.pdf [Accessed November 2025]

[7] SP Energy Networks (2020). Sustainable Business Strategy. Available at: 202003_SPEN_Sustainable_Business_Strategy_2020 (spenergynetworks.co.uk) SPEN_Sustainable_Business_Strategy_2020.pdf&usg=AOvVaw0I8Z5_TiZdKMhu4dKlVGlu [Accessed August 2025].

8 Formally referred to as IEMA the Institute of Environmental Management and Assessment. Please refer to https://www.isepglobal.org/ https://www.isepglobal.org/

[9] CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain – Good practice principles for development. Available: https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/ [Accessed August 2025]

[10] CIEEM, CIRIA, IEMA (2019) Biodiversity Net Gain – Good practice principles for development. A Practical Guide. Available: http://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/ [Accessed August 2025]

3 METHODOLOGY

3.1.1 A summary of the BNG assessment methodology and Proposed Development specific data sources, assessment limitations and assumptions are provided in this Methodology Section.

3.2 Desk Study

3.2.1 Freely downloadable datasets were searched for information on statutory and non-statutory designated sites within 2 km of the Proposed Development. The search results were restricted to those designated sites with qualifying ecological/biological interest (i.e., not solely geological). Designated sites of interest are as follows:

- Local Nature Conservation Sites (LNCS)
- Local Nature Reserves (LNR)
- National Nature Reserves (NNR)
- Sites of Special Scientific Interest (SSSI)
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA), and
- Ramsar sites.

3.2.2 Qualifying features of the designated sites were obtained from the NatureScot Site Link[11]. Where measurements are presented in the findings, these provide the distance of the designated site from the closest point of the Proposed Development.

3.2.3 Publicly available Native Woodland Survey of Scotland[12] data were reviewed to identify the presence of Ancient Woodland within 1 km of the Proposed Development, and to acquire details on woodland habitat composition and connectivity. Also, 1st Edition maps (1843-1882) were reviewed on Past Map[13].

3.2.4 Information from Dumfries and Galloway Local Biodiversity Action Plan (LBAP)[14] was obtained to assess the strategic significance scores. This considers all UK Priority Habitats to be of local priority and, as such, any UK Priority Habitats recorded have been assigned a high strategic significance score.

[11] NatureScot (2024). NatureScot Map Search Tool. Available: https://sitelink.nature.scot/map [Accessed August 2025]

[12] Forestry.Gov (2021). Native Woodlands Survey Scotland. Available: https://forestry.gov.scot/forests-environment/biodiversity/native-woodlands/native-woodland-survey-of-scotland-nwss [Accessed August 2025].

[13] Past Map (2024). 1st Edition maps (1843-1882). Available: https://pastmap.org.uk/map [Accessed August 2025].

[14] Dumfries and Galloway Council (2009) Dumfries and Galloway Local Biodiversity Action Plan. Available at: https://www.dumgal.gov.uk/media/19945/Local-Biodiversity-Action-Plan/pdf/Local_Biodiversity_Action_Plan.pdf?m=636561914667330000 [Accessed August 2025]

3.3 Biodiversity Assessment Area and Surveys

3.3.1 Habitat surveys of The Site have been undertaken over a number of years. Initially, an extended Phase 1 habitat survey was undertaken in August and September 2017, followed by a National Vegetation Classification (NVC) survey in August 2018. Update surveys were undertaken in September 2022 and August 2024, during which the NVC survey data was updated to capture any changes in habitat, and the Phase 1 habitat survey was converted to UKHab. Subsequent to this translation, The Applicant confirmed that their approach to BNG toolkits would follow the use of Phase 1 Habitat classification, and accordingly the updated 2024 Phase 1 data is used as a basis for the BNG Habitat types. With the results section, both the UKHab and Phase 1 habitat typologies are given. Concurrently, an HCA was undertaken following the current methodology at the time of survey (Statutory Biodiversity Metric 2024[15]).

3.3.2 Since the most recent 2024 habitat surveys, surveys have been undertaken in April to July 2025 for the proposed Lorg Overhead Line Wind Farm Connection located adjacent to The Site. In discussions between the project ecologists and hydrologists, a review of the existing Holm Hill habitat data has been undertaken. These discussions included utilising the updated 2025 Lorg NVC and UKHab dataset that overlaps with the Proposed Development, where relevant, alongside the application of professional judgement and knowledge of The Sites, in combination with a review of recent aerial imagery.

3.4 Irreplaceable Habitat

3.4.1 To aid understanding of the value of the irreplaceable habitats, where present, these are quantified in terms of BU within a separate toolkit. Woodland listed on the Ancient Woodland Inventory (AWI) and blanket bog in moderate condition or above are considered to be irreplaceable habitats.

3.4.2 In these situations, compensation offered to address impacts on irreplaceable habitats should be agreed directly with NatureScot.

3.4.3 Unavoidable impacts on irreplaceable habitats should not undermine the BNG process for the other habitats. Projects in this situation should aim to a Net Gain (NG) in non-irreplaceable habitats.

3.5 Biodiversity Calculations

3.5.1 The calculations were completed using the toolkit following guidance from SSEN Transmission BNG Toolkit User Guide[2].

3.5.2 The BNG Study Area for the Proposed Development is defined as the habitats in which a change is anticipated as a result of the Proposed Development. The biodiversity of the BNG Study Area habitats within the Proposed Development were quantified in terms of Biodiversity Units (BU). This included the assessment of the area of habitat, distinctiveness, condition, connectivity and strategic significance. This data was then input into the toolkit to calculate BU for the baseline of the BNG Study Area.

3.5.3 To assess strategic significance, the Dumfries and Galloway Local Biodiversity Plan[16] was consulted to determine a strategic significance score. Habitats are assigned a high strategic significance score if they are specifically listed in the Local Biodiversity Plan. All habitats which are not formally identified but ecologically desirable were assigned medium strategic significance. All habitats which are neither formally identified nor ecologically desirable such as plantation woodland were assigned the category of **low** strategic significance.

[15] Gov.uk (2024). The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology. Available: https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides [Accessed August 2024]

[16] Dumfries and Galloway Council (n.d). Local Biodiversity Plan. Available at: https://www.dumfriesandgalloway.gov.uk/sites/default/files/2024-08/Local_Biodiversity_Action_Plan.pdf

3.5.4 Connectivity followed the 2019 Natural England (NE) guidance[17], meaning all habitats of **high** distinctiveness were assumed to be of **moderate** connectivity; and all others assumed to be **low** connectivity.

3.6 Limitations and Assumptions

3.6.1 The following assumptions have been made for the baseline BU calculations for the Proposed Development:

- The BNG Study Area comprises habitats that would be permanently changed as a result of the Proposed Development, e.g. the Substation and Switchgear Platforms, Access tracks, Sustainable Urban Drainage Systems (SuDS) and soakaway.
- Temporary impacts to habitats during the construction period will be reversed, with any habitats affected predicted to return to the baseline habitat type and condition within two years of impact[18]. Temporary impacts are applicable to the contractors' compounds 1 and 2, all earthworks and drainage works. The following habitats, which coincide with temporary works, have therefore been excluded from the BNG Study Area, and are not included within the toolkit or figures:
    - g4 modified grassland (UKHab Classification) / B4 improved grassland (Phase 1 habitat classification),
    - g1c bracken (UKHab Classification) / C1.1 bracken (Phase 1 habitat classification),
    - g3c Other neutral grassland (UKHab Classification) / C3.1 Tall ruderal vegetation (Phase 1 habitat classification) and
    - u1c artificial unvegetated unsealed surface and u1e built linear feature (UKHab Classification) / J5 Other habitat (hardstanding), (Phase 1 habitat classification).
- Where the temporary works areas coincide with the following habitat type, they have been included within BNG Study Area: f2b purple moor-grass and rush pastures (UKHab Classification) / B5 marshy grassland (Phase 1 habitat classification). For these design elements, although the impacts are temporary - i.e. for a duration of two years or less, this habitat type *cannot* be reinstated back to the same habitat type, species' composition and / or habitat condition, within the two year 'temporary' period. These are therefore included within the BNG Study Area and are included within the toolkit and figures.
- Watercourses have been excluded from the calculations as the Proposed Development will span any watercourses, and any temporary impacts during the construction phase will be reversed within two years of impact[18].
- Area calculations are based on areas being rounded to two decimal places before being entered into the biodiversity toolkit. Therefore, there may be a difference of 0.01 hectares (ha) between The Site area and the total baseline habitat area based on rounding up or down of values. Additionally, areas smaller than 0.01ha appear as 0.00 in the toolkit. The BU achieved from these small areas is **negligible**, and therefore, this does not affect the BNG calculations.

[17] Natural England (2019). The Biodiversity Metric 2.0 Connectivity Tool User Guidance. Available at: https://assets.publishing.service.gov.uk/media/669e45fba3c2a28abb50d426/The_Statutory_Biodiversity_Metric_-_User_Guide__23.07.24_.pdf [Accessed August 2024]

[18] Gov.uk (2024) Irreplaceable Habitat. Available at: https://www.gov.uk/guidance/irreplaceable-habitats [Accessed August 2025]

- All calculations were completed using the SSEN Transmission V3.0 toolkit, with habitats mapped and classified using Phase 1 Habitat Classification.

4 RESULTS

4.1 Biodiversity Baseline

4.1.1 This Section provides a summary of the calculations derived using the toolkit.

4.1.2 The biodiversity baseline value for habitats within the BNG Study Area is 25.03 BU, based upon the habitat types, their distinctiveness and condition scores, the area of the habitats, and the number of BU each type of habitat contributes. The baseline habitat figure showing the habitats (recorded in Phase 1) considered within this BNG assessment is shown in **ANNEX A**; **Figure 1**.

4.1.3 The total extent of the BNG Study Area is 3.14 ha, dominated by f2b purple moor-grass and rush pastures (UKHab Classification) / B5 marshy grassland (Phase 1 habitat classification), which accounts for around 2.91 ha (~ 92.42%) of the total baseline BNG Study Area. Of this 0.14 ha was in **good** condition; the remaining 2.77 ha was in **poor** condition.

4.1.4 Smaller areas of the BNG Study Area comprised of 0.15 ha or ~4.60% of g1c bracken (UKHab Classification) / C1.1 bracken (Phase 1 habitat classification), 0.05 ha or ~1.53% of g4 modified grassland (UKHab Classification) / B4 improved grassland (Phase 1 habitat classification), and 0.02 ha or ~0.62% g3c Other neutral grassland (UKHab Classification) / C3.1 Tall ruderal vegetation (Phase 1 habitat classification), along with **minor** areas totalling 0.02ha or ~ 0.76% of urban (other habitat- u1c artificial unvegetated unsealed surface and u1e built linear feature (UKHab Classification) / J5 Other habitat (hardstanding), (Phase 1 habitat classification) that are of **low or negligible** biodiversity value.

4.1.5 No irreplaceable habitats are present within the BNG Study Area.

4.1.6 **Table 4.1** below provides full details of habitat extent and biodiversity values for the baseline data:

Table 4.1 Baseline Habitat Data

Broad Habitat Type	Condition	Baseline Area - Ha	Baseline BUs	Proposed Development design element
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Good	0.07	1.59	132 kV Proposed Substation Platform
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Good	0.07	1.59	Earthworks
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.32	2.43	132 kV Proposed Substation Platform
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.09	0.68	Switchgear Platform
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.19	1.44	New Access Tracks

Broad Habitat Type	Condition	Baseline Area - Ha	Baseline BUs	Proposed Development design element
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.06	0.46	SuDS Pond and associated drainage
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.01	0.08	Soakaway and associated drainage
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	1.73	13.13	Earthworks
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.27	2.05	Temporary Construction Compound 1
UKHab: f2b wetland - purple moor grass and rush pastures **Phase 1: B5 marshy grassland**	Poor	0.11	0.83	Temporary Construction Compound 2
UKHab: g1c Grassland - Bracken **Phase 1: C1.1 Bracken - continuous**	Poor	0.00	0.00	Switchgear Platform
UKHab: g1c Grassland - Bracken	Poor	0.02	0.08	New Access Tracks
Phase 1: C1.1 Bracken - continuous	Poor	0.06	0.24	Earthworks
UKHab: g1c Grassland - Bracken	Poor	0.07	0.28	Temporary Construction Compound 2
UKHab: Grassland – g3c Other neutral grassland **Phase 1: C3.1 Other tall herb and fern - ruderal**	Poor	0.01	0.02	New Access Tracks
UKHab: Grassland – g3c Other neutral grassland **Phase 1: C3.1 Other tall herb and fern - ruderal**	Poor	0.01	0.02	Earthworks
UKHab: Grassland – g4 Modified grassland	Poor	0.03	0.06	Earthworks

Broad Habitat Type	Condition	Baseline Area - Ha	Baseline BUs	Proposed Development design element
Phase 1: B4 Improved grassland				
UKHab: Grassland – g4 Modified grassland **Phase 1: B4 Improved grassland**	Poor	0.02	0.04	Temporary Construction Compound 2
UKHab: u1c Urban - Artificial unvegetated, unsealed surface **Phase 1: J5 Other habitat**	N/A - No biodiversity value	0.00	0.00	Earthworks
UKHab: u1c Urban - Artificial unvegetated, unsealed surface **Phase 1: J5 Other habitat**	N/A - No biodiversity value	• 0.00	0.00	Switchgear Platform
UKHab: u1e Urban – Built linear features **Phase 1: J5Other habitat**	N/A - No biodiversity value	0.02	0.00	New Access Tracks
UKHab: u1e Urban - Built linear features **Phase 1: J5 Other habitat**	N/A - No biodiversity value	0.00	0.00	Earthworks

5 DISCUSSION

5.1.1 A total of approximately 3.14 ha of habitat has been included in the BNG baseline assessment. The biodiversity baseline value for habitats within the BNG Study Area is 25.03 BU.

5.1.2 Of this, approximately 0.79 ha represents permanent habitat loss associated with the substation and switchgear platforms, access tracks, SuDS ponds, and soakaway, where existing habitats would be permanently replaced by built or sealed infrastructure or an alternative habitat type.

5.1.3 The remaining 2.36 ha relates to areas situated beneath earthworks totalling 1.9 ha and 0.46 ha of temporary construction compounds / access areas, and associated drainage. Although these areas are described as temporary within the design documentation, they have been included within the BNG baseline, as the affected habitats are not expected to recover to their original type or condition within two years of construction without active restoration or management intervention. At the time of reporting, it is not possible to confirm that this management/restoration can be implemented.

5.1.4 No post-development or reinstated habitats have been included at this stage, in line with SPEN BNG requirements. The current results therefore, represent the baseline biodiversity value only, providing a foundation for any future assessment of post-development or offsetting opportunities once design details are finalised.

6 CONCLUSIONS

6.1.1 The biodiversity baseline assessment undertaken using the SSEN Biodiversity Net Gain Toolkit (Version 3.0) indicates that the habitats within the Biodiversity Study Area, which will be permanently affected by the Proposed Development, have a total baseline value of 25.03 BUs.

6.1.2 These habitats are expected to be permanently lost or substantially altered as a result of the construction of the substation platform, access tracks, switchgear platform, earthworks and associated infrastructure.

6.1.3 Post-development habitats, including any landscaping or reinstatement, have been excluded from the current scope of assessment. Consequently, the present results represent the baseline biodiversity value only, and do not include any calculations of post-development biodiversity value or potential offsetting.

6.1.4 In line with the requirements of NPF4 Policy 3, SPT will deliver any biodiversity enhancement requirements to meet 10% Net Gain over the baseline in line with SPT policy. Details of on-site mitigation and off-site enhancement will be set out in a Biodiversity Enhancement Plan (BEP).

Annex A Figures

Figure 1. Phase 1 Survey Baseline

N

Legend

- BNG Site Boundary

Phase 1 Habitats

- B4 - Improved grassland
- B5 - Marshy grassland
- C1.1 - Bracken
- C3.1 - Tall ruderal herb
- J5 - Other habitat

0 12.5 25 50 Meters

wsp

Client: SP Energy Networks

Project: Holm Hill Substation

Title: Figure 1
Phase 1 Survey Baseline

Date: 11/13/2025 Scale: 1:1,092 @A3

Drawn: US Checked: LW Approved: SB

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