Highfield Farm, Cumbria

on behalf of Axis PED

Preliminary Ecological Appraisal

avian ecology

Report Verification and Declaration of Compliance

This report has been prepared with reference to best practice guidelines for Ecological Impact Assessment in the UK and Ireland, as defined by CIEEM (2022) and is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of practice for planning and development and BS 8683:2021 Process for Designing and Implementing Biodiversity Net Gain - Specification.

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1. INTRODUCTION

1.1 Background and Scope

1.1.1 Avian Ecology Ltd. (AEL) was commissioned by Axis PED to undertake a Preliminary Ecological Appraisal in relation to the proposed re-powering of a single wind turbine at Highfield Farm, Cumbria CA22 2TY ('the Proposed Development'). The study area comprised the planning application red line boundary, at central grid ref: NX 98923 12785 ('the Site'), shown in **Figure 1**, unless otherwise stated. The extended habitat survey also covered the Landowner Boundary, shown in **Figure 1**.

1.1.2 This report provides baseline information and an appraisal of potential ecological effects of the Proposed Development.

1.1.3 The objectives of the appraisal are to:

- Provide baseline information on the current habitats and ecological features both within the Site and in the immediately surrounding area;
- Identify the proximity of any designated sites for nature conservation interest and provide a preliminary overview of any potential effects the Proposed Development may have on these;
- Identify the presence or potential presence of any protected species or habitats and provide a preliminary overview of any potential effects the Proposed Development may have on these; and,
- Outline recommendations for further survey works (where required), pre-construction checks and / or mitigation measures, if required as well as providing an outline of proposed habitat enhancements.

1.1.4 The appraisal has been informed by desk-based review of relevant ecological information and an extended habitat survey; and refers to relevant legislation, planning policy and guidance as appropriate.

1.1.5 Consideration has been given to the potential presence of rare, protected, or notable habitats and species, and the location of nearby features including designated sites for nature conservation.

1.1.6 Throughout this report, common names for species are favoured over scientific names unless there is potential for confusion and in which case scientific names are also presented.

1.2 Site Overview

1.2.1 The Site is located approximately 1.65km northeast of St Bee's and 3km northwest of Egremont in Cumbria. The Site principally comprises an area of approximately 0.81 hectares (ha) and consists of an existing wind turbine with substation, sheep grazed modified grassland, hedgerow, access track and other neutral grassland road verge. The Site is located within the wider Highfield Farm site, comprising additional grazed grassland fields, bounded by dry stone walls and hedgerows.

1.2.2 In the wider context, the Site is surrounded predominantly by pastoral and arable fields to all aspects, interspersed with small parcels of woodland. Two ponds lie to the east and southeast of the landowner boundary, with an area of scrub beyond that.

1.2.3 The Site location is illustrated in **Figure 1**.

1.3 Proposed Development

1.3.1 The Proposed Development on Site is to replace the existing 45.5m high wind turbine with a new, larger turbine. This is in order to increase the energy production as a result of improved wind to energy conversion efficiency, heighted reliability, increased wind speeds at taller height, and a larger swept area of wind capture.

1.3.2 Key maximum parameters of the Proposed Development repower turbine are as follows:

i) Output: 225kW.
ii) Hub height: 50m.
iii) Blade length: 26m.
iv) Blade diameter: 52m.
v) Maximum height to blade tip: 76m.
vi) Number of blades: three.

1.3.3 In order to facilitate the Proposed Development, a road corner is required to be widened. The 'road corner' lies within the main Highfield Farm where it meets the offsite road and marks the beginning of the farm track leading up to the turbine.

1.4 Legislative Framework, Planning Policy and Guidance

1.4.1 The key legislation, planning policy and guidance relating to ecology and ornithology which have been considered in the preparation of this report are listed in **Table 1.1**.

Table 1.1: Key legislation.

International
• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the 'the Ramsar Convention)[1]; • Convention on the Conservation of European Wildlife and Natural Habitats 1979 (hereafter referred to as the 'the Bern Convention'[2]; • UNESCO convention on the protection of the World Cultural and Natural Heritage (1972)[3]; • The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora); and • The Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds).
National
• The Wildlife and Countryside Act 1981 (as amended). • Countryside and Rights of Way Act 2000; • Hedgerow Regulations 1997; • Infrastructure Act 2015;

[1] https://www.ramsar.org/

[2] https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104

[3] https://whc.unesco.org/en/convention/

- Natural Environment and Rural Communities (NERC) Act (2006);
- Protection of Badgers Act 1992;
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[4];
- The Environment Act 2021[5];
- The Invasive Alien Species (Enforcement and Permitting) Order 2019[6]; and,
- The Town and Country Planning Act 1990.

1.4.2 The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place following the United Kingdom's withdrawal from the European Union with only relatively minor changes coming into force on 31st December 2020, with the 2017 regulations being transposed into national (England and Wales) legislation via the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 which came into force on 31st December 2020. They are hereafter referred to as the 'Habitats Regulations'.

Policy and Guidance

1.4.3 Reference has been made to the following key pieces of policy and guidance, listed in **Table 1.2**.

Table 1.2: Policy and guidance.

National
• Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Natural England, 2022)[7]; • Biodiversity Net Gain. Good practice principles for development[8]; • BS 42020:2013 Biodiversity – Code of Practice for Planning and Development; • BS 8683:2021 Process for designing and implementing Biodiversity Net Gain; • European protected species policies for mitigation licences (Natural England, 2022)[9]; • Natural England European Protected Species Policies[10] • The National Planning Policy Framework 2 (NPPF2, 2023)[11]; • The United Kingdom Biodiversity Action Plan (UK BAP); and, • Wildlife licensing: comment on new policies for European protected species licence (Natural England, 2016)[12].

[4] https://www.legislation.gov.uk/uksi/2019/579/contents/made
[5] https://services.parliament.uk/Bills/2019-21/environment.html
[6] https://www.legislation.gov.uk/uksi/2019/527/introduction/made
[7] https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions
[8] https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/
[9] https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences
[10] https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences
[11] https://www.gov.uk/government/publications/national-planning-policy-framework--2
[12] https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-new-policies-for-european-protected-species-licences

Local
• Cumbria Biodiversity Action Plan (LBAP)[13]; • Copeland Borough Council Local Plan 2013-2028[14]; and • Copeland Brough Council Local Plan 2021-2038 (in examination)[15].

1.4.4 The 'UK Post-2010 Biodiversity Framework' succeeds the UK BAP and 'Conserving Biodiversity – the UK Approach'. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report in the context of the objectives of the Biodiversity Framework. BAPs identify habitats and species of nature conservation priority on a UK (UK BAP) and Local (LBAP) scale. UK BAPs formed the basis for statutory lists of priority species and habitats in England under Section 41 (England) of the NERC Act 2006, and so are also relevant in the context of this legislation.

1.4.5 This report is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of Practice for Planning and Development.

[13] https://www.cumbriawildlifetrust.org.uk/sites/default/files/2018-05/cumbria-biodiversity-action-plan-species-updated-list-2009.pdf

[14] https://www.copeland.gov.uk/sites/default/files/attachments/copeland_local_plan_2013_2028.pdf

[15] https://www.copeland.gov.uk/content/copeland-local-plan

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected and notable species and habitats within proximity to the Site as follows:

- Statutory designated sites for nature conservation, within 5km of the Site, extending to 10km for internationally protected sites;
- Non-statutory designated sites for nature conservation within 2km of the Site; and,
- Existing records of priority habitats and protected and notable faunal species (dated within the last 10 years), within 2km of the Site.

2.1.2 The following key sources were consulted:

- Natural England and Joint Nature Conservation Committee (JNCC) websites[16];
- The Multi Agency Geographic Information for the Countryside (MAGIC) website[17];
- District Level Licencing Data[18];
- The Natural England Open Data Geoportal[19];
- The Woodland Trust Ancient Tree Inventory website[20]; and,
- Cumbria Biodiversity Data Centre (CBDC)[21].

2.1.3 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area, including potential ponds and watercourses.

Desk Study Limitations

2.1.4 A desk study does not identify a comprehensive account of all species and features of ecological importance within the study area, however it improves the understanding of the Site's ecological value and the likely species and habitats within the area.

2.2 Field Surveys

Extended Habitat Survey

2.2.1 An extended habitat survey was undertaken on 5th March 2024 by L. Quarton *BSc MSc (Hons)* and A. Littlechild *BSc (Hons)*, a suitably experienced and qualified ecologist holding a FISC level 3 certificate

[16] http://jncc.defra.gov.uk/

[17] https://magic.defra.gov.uk/MagicMap.aspx

[18] https://naturalengland-defra.opendata.arcgis.com/datasets/great-crested-newts-edna-pond-surveys-for-district-level-licensing-england?geometry=-1.451%2C51.749%2C-1.002%2C51.823

[19] https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::peaty-soils-location-england/explore?location=53.163227%2C-0.801927%2C10.71

[20] https://ati.woodlandtrust.org.uk/

[21] http://cbdc.org.uk

(Field Identification Skills Certificate[22]). The survey followed the 2.0 UKHab Methodology[23] with reference to the CIEEM, guidance (2017)[24].

2.2.2 A follow up habitat survey was undertaken on 21st May 2024 by ecologist A. Littlechild BSc (Hons). The purpose of this Site visit was to update survey data following minor red line boundary changes with regards to the road widening corner. Update habitat survey and condition assessments were only undertaken at this Proposed access point, not the wider Site or Landowner Boundary.

2.2.3 The surveys covered the Site and the wider Landowner Boundary, as presented in Figure 1. The extent of the Site and habitats as surveyed is shown on Figure 4 with accompanying photographs in Appendix 1.

2.2.4 All habitats were mapped and described using a series of 'target notes' (TNs) to the highest level of UK habitat classification as possible, with each individual habitat feature being assigned to a primary habitat and then described with secondary codes if applicable. The survey was also extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance.

2.2.5 On-Site trees were assessed from ground level for their suitability to support roosting bats by way of ground level tree assessment (GLTA) in accordance with Bat Conservation Trust guidance (Collins, 2023, Table 6.2[25]): Suitability for roosting bats was classified as follows:

- None: No Potential Roost Feature's (PRF's) present, or very unlikely to be.
- FAR: Further assessment required to identify any PRF's.
- PRF- I: Potential Roost Feature (PRF) is only suitable for individual bats or very small numbers of bats due to size or lack of suitable surrounding habitats.
- PRF- M: PRF is suitable for multiple bats and may therefore be used by a maternity colony. Ground Level Tree Assessment for Bats.

Field Survey Limitations

2.2.6 An extended habitat survey does not constitute a detailed botanical survey, faunal species list or provide a full protected species survey, but enables competent ecologists to ascertain an understanding of the ecology of a site in order to:

- Broadly identify the nature conservation value of a site and assess the significance of any potential impacts on habitat/species recorded; and/or,
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site (if any).

2.2.7 The survey initial visit was undertaken in early March, and therefore was outside the optimal period for botanical surveys (approximately April to September inclusive). Considering the current land use

[22] http://www.bsbi.org/field-skills

[23] http://www.ukhab.org

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

[25] Collins et al. (ed) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th edition, BCT: London.

and the predominantly agricultural habitat types on Site however, this is not considered a significant limitation to the survey.

2.2.8 Condition assessments for the majority of habitats on Site were also undertaken just outside the optimal survey season. As above, considering the type of habitats and management practices in place, this is not considered a significant limitation. Where it was considered a condition assessment criterion was unable to be accurately determined due to seasonal constraints a precautionary approach was taken and the criterion assumed to have been passed. An update survey was undertaken of the Site's proposed access point in May (as described above in 2.2.2), and as such, there is no limitation on this area.

2.2.9 GLTA surveys were undertaken in early March, the optimal time of year where tree growth is limited and allows for better inspection to potential tree features.

2.2.10 During the initial extended habitat survey, some areas within the Landowner Boundary and Site buffer were inaccessible. These areas primarily included built structures, which may have been pertinent relative to preliminary roost assessment (PRA) of bat habitat; due to limited access, these features were broadly assessed, although suitability cannot be ascertained with certainty without a comprehensive assessment of both external and internal features. However, relative to the proposed repower installation, these structures are located beyond 200m of the proposed turbine location, and thus lie outside the established impact buffer, relative to significant roost features.

3 BASELINE

3.1 Designated Sites for Nature Conservation

Statutory Designated Sites

3.1.1 A review of the Natural England, JNCC and MAGIC websites confirmed that the Site is not located within any statutory designated site for nature conservation.

3.1.2 Three internationally designated sites lie within 10km of the Site, including one with mobile qualifying species. These are described in **Table 3.1** and locations shown in **Figure 2**.

Table 3.1: Internationally designated sites for nature conservation within 10km.

Designated site	Distance	Designated Interest(s)
River Ehen SAC	2.19km east	Supports the largest freshwater pearl mussel population in England (primary qualifying feature) whilst also supporting Atlantic salmon.
Lake District High Fells SAC	9.80km northeast	Blanket bogs (priority feature), northern Atlantic wet heaths, European dry heaths, Alpine and boreal heaths, juniper communis formations on heaths or calcareous grasslands, siliceous alpine and boreal grasslands, oligotrophic to mesotrophic standing waters with associated vegetation, old sessile oak woodland and more.

Designated site	Distance	Designated Interest(s)
Solway Firth SPA	5.2km northwest	• Qualifying criteria include the presence of several non-breeding bird assemblages, which include whooper swan, pink-footed goose, barnacle goose, northern pintail, scaup, oystercatcher, golden plover, red knot, bar-tailed godwit, curlew and redshank. Additional qualifying features include the presence of non-breeding red-throated diver, cormorant, common scoter, goosander, ringer plover, lapwing, black-headed gull, common gull and herring gull.

Key

SAC: Special Area of Conservation

SPA: Special Protection Area

3.1.3 The search identified six statutory designated sites within a 5km radius of the survey boundary, described in **Table 3.2** and locations shown in **Figure 2**.

3.1.4 It must be noted however, that only five of the statutory designated sites are designated for ecology purposes, one (Florence Mine SSSI) is designated for geology purposes and as such, will not be discussed further in this appraisal.

Table 3.2: Statutory designated sites within 5km.

Designated site	Distance	Designated Interest(s)
Clints Quarry SSSI	1.56km east	Rich limestone flora, a rare type in Cumbria. Species rich neutral and calcareous grasslands, woodland and shrub communities. Supports two locally uncommon orchids, bee orchid and pyramidal orchid.
River Ehen (Ennerdale Water to Keekle Confluence) SSSI	2.19km east	Supports outstanding populations of freshwater pearl mussel, the largest population in England and the only one showing recent recruitment.
St Bees Head SSSI	2.39km southwest	Supports the only breeding site on the coast of Cumbria for colony forming seabirds including 2,000 pairs of guillemots and lesser numbers of fulmar, kittiwake, razorbill, cormorant, puffin, shag and herring gull.
Florence Mine SSSI	3.57km southeast	Has the largest 'flat' type iron ore replacement body in the West Cumbria iron ore field. This site will not be considered further in this report as it is not designated for ecology purposes.
Black Moss SSSI	4.20km southeast	Lowland raised bog, the only example of this rare habitat in the locality and the most westerly in England.

Designated site	Distance	Designated Interest(s)
Haile Great Wood SSSI	4.95km southeast	Ancient woodland comprising a variety of woodland habitat types which reflect the complex geology of the area.

Key

SSSI: Site of Special Scientific Interest

3.1.5 The Site lies within SSSI Impact Risk Zone (IRZ) relating to River Ehen (Ennerdale Water to Keekle Confluence) SSSI, whereby the Local Planning Authority should consult Natural England on any developments involving: airports, helipads and other aviation proposals, landfill, industrial/agricultural developments that could cause air pollution and general combustion processes >20MW energy output'. It is considered that this application falls outside the scope of an IRZ.

Non-statutory designated sites

3.1.6 A review of the 2km data search supplied by CBDC identified that the Site is not located within any non-statutory designated sites. Four non-statutory designated sites are located within 2km as described in **Table 3.3** and shown on **Figure 3**.

Table 3.3: Non-statutory designated sites for nature conservation within 2km.

Designated Site	Distance	Designated Interest(s)
Orebank House Quarry LGS	1.55km east	This site will not be considered further in this report as it is not designated for ecology purposes.
Clints Quarry LGS	1.56km east	Whilst designated for geology purposes, this site is also identified as a site of invertebrate significance.
Stanley Pond LWS	1.44km northwest	Pond supporting priority habitat reedbeds and identified as a site of invertebrate significance.
Roska Park and Bellhouse Gill Wood LWS	1.9km northwest	Ancient semi-natural broadleaved woodland.

Key:

LWS: Local Wildlife Site

LGS: Local Geological Site

3.2 Priority Habitats – Existing Records

3.2.1 There was one habitat of Principal Importance (also known as priority habitat) under Section 41 of the NERC Act 2006 (NERC) and/or listed on the UKBAP is located within the Site, this being hedgerow which forms the Site boundary.

3.2.2 Review of the MAGIC website, together with information sourced from the 2km data search supplied by CBDC and the extended habitat survey, identified a further seven priority habitats within 2km of the Site boundary. All relevant priority habitats within 2km are presented in **Table 3.4** below. Where

numerous records of a particular habitat were recorded, only the closest record to the Site has been provided, to provide context for the Site and surrounding area.

Table 3.4: Priority habitats – on Site and existing records

Priority Habitat Name	Designation	Distance from Site
Native Hedgerow	NERC S.41, UKBAP, LBAP	On site boundary feature
Open mosaic habitat		240m east
Coastal and floodplain grazing marsh		600m northwest
Deciduous woodland		600m northwest
Lowland fens		900m southwest
Reedbeds		1.45km northwest
Woodpasture and parkland		1.53km southeast
Ancient (semi natural and replanted)	AWI, LBAP	500m north

Key:

NERC S.41: Natural Environment and Rural Communities (NERC) Act (2006)

UKBAP: UK Biodiversity Action Plan Priority Habitat

LBAP: Local Biodiversity Action Plan habitat

AWI: Ancient Woodland Inventory

3.3 Ancient and Irreplaceable Habitats

3.3.1 No ancient woodland, veteran trees, or other potentially irreplaceable habitats were identified on Site, in reference to the Ancient Woodland Inventory, Ancient Tree Inventory, or Natural England Open Data Geoportal

3.4 Habitats and Vegetation

3.4.1 This section describes the Site as shown in **Figure 1** and should be read in conjunction with the **UK Habitats Plan** presented as **Figure 4**. Descriptions for the Site are provided in **Table 3.5**, whilst descriptions for the Landowner Boundary are provided in **Table 3.6**. Target Notes (TN's) are also provided in **Table 3.7**.

3.4.2 Accompanying photographs from the extended habitat survey are presented in **Appendix 1**.

3.4.3 The Site is dominated by an existing access road/track leading to the wind farm and sheep grazed modified grassland fields. Other habitats present in small quantities comprise native hedgerow on bank, earth bank, scattered scrub, other neutral grassland road verges and modified grassland access track.

3.4.4 The 2km data search supplied by CBDC provided several plant records of interest, though none were recorded on Site or within 700m of the Site.

Red Line Boundary

Table 3.5: UKhab habitats summary of Red Line Boundary

Habitat Code	Descriptions	Photo No.
u1c	**Artificial unvegetated, unsealed surface:** *Artificial unvegetated, unsealed surface (scattered grass, track)* (**u1c.532.839**): Land with the Site's northern parcel includes a compacted gravel access track, connecting directly from the field's entry point to the current wind turbine and associate substation location. Much of the access track comprises compacted gravel and exposed earth substrate, but also includes scatted and marginal grasses and short herbs associated with the adjacent modified grassland parcel. Grass species present include perennial rye grass and annual meadow grass, whilst short herbs include creeping buttercup, white clover, chickweed, and taraxacum spp. And moss. *Artificial unvegetated, unsealed surface (bare ground, scattered grass, track)* (**u1c.510.532.839**) A bare earth access track running approximately 4m in width, running northeast adjacent to the Site's southern grassland parcel. Limited scattered perennial rye grass scattered distributed in association with adjacent grassland margins.	**P1-P3**
u1b	**Developed land, sealed surface:** *Developed land, sealed surface (wind turbine)* (**u1b6.84**)**:** A single wind turbine enclosed within modified grassland habitat and found in association with both an access track and an adjacent substation is present within the northern land parcel. *Developed land, sealed surface (industrial buildings)* (**u1b5.817**)**:** Two substations are present within the application boundary, with one being located within the northern land parcel in association with the existing wind turbine, and another located in southern land parcel.	**P4-P6; P9**
g4	**Modified grassland:** *Modified grassland (sheep grazed)* (**g4.102**) Two sheep grazed, modified grassland areas are present within the application boundary, located in both the northern and southern land parcels. Both parcels are intensively grazed and feature a uniformly short sward of relatively poor species diversity, although diversity and structure is noted to be somewhat improved at field margins and hedge boundaries (although still indicative of enriched soil conditions). Both parcels are dominated by perennial rye grass and fescue, with some marginal annual meadow grass and cocksfoot also present. Short herbs also present include white clover, creeping buttercup, chickweed and mouse-ear, sorrel and taraxacum sp. *Modified grassland (bare ground, track)* (**g4.510.838**) A narrow strip of modified grassland which also functions as an access track bisects the application boundary, found in association with both a hedgerow to the south and earthbank to the north.	**P7-P8**

Habitat Code	Descriptions	Photo No.
	The strip is mostly covered by grasses of short sward, and is relatively species poor. Perennial rye grass is noted to be dominant, with occasional cocksfoot and fescue sp. also present (mostly distributed in association with earth/hedge bank margins). Short herbs present also include white clover, creeping buttercup, mouse ear chickweed, ribwort plantain, sorrel and taraxacum, whilst Rumex sp., nettle and cleaver are also found in association with margins. Exposed bare earth marking use as a track is also present where ground disturbance has persisted.	
u1e	**Built linear feature:** *Built linear feature (earth bank, scattered grass, scattered scrub)* (**u1e.10.112.532**) A linear feature, approximately 1.5m in width, found adjacent to an area of modified grassland/access track and forming a boundary feature between adjacent modified grassland habitats. Western end of feature bisects the Site boundary (area noted for denser bramble assemblage). The feature forms a vegetated earth bank but is likely based upon the remnants of a dry-stone wall (as observed elsewhere within the survey area). The feature includes occasional bramble and bilberry scrub of various density along its length, in addition to a rare distribution of gorse. Grass assemblage present includes a dominant cover of perennial rye grass, and frequent fescues sp. A moss sp. is also frequently distributed along the feature's length. Additional forbs include occasionally distributed sheep sorrel, nettle, foxglove, chickweed and smooth rush, in addition to creeping buttercup, white clover and cleaver in association with earth mound margins. Areas of bare earth featuring exposed stone are also present along the feature's northern bank. Presence of several indicators suggests possible acidic conditions localised to bank feature, relative to adjacent modified habitats. *Built linear feature* (*earth bank, scattered grass, scattered scrub, fenced*) (**u1e.10.112.532.612**) A linear feature, approximately 1m in width, access track and forming a boundary feature between adjacent Site access track and modified grassland habitat. The feature likely includes the base of a constructed dry-stone wall, now capped in earth and vegetated, as well as being fenced (possibly the remains of a previous hedge from scattered scrub present). The feature includes a northern portion (located above an associated substation **TN7**), which features a higher proportion of acidic indictors. Vegetation in association with both the earth bank and immediate margins includes abundant perennial rye grass, and frequent fescue and moss spp. Occasional species include bramble, nettle, Rumex, sorrel, creeping buttercup, and foxglove. Hawthorn scrub, ragwort and polypoid fern are also rarely distributed. Additionally, a southern portion of this feature located below the associated substation **(TN7)** is noted to be structurally similar, although the vegetation assemblage present is increasing modified, with perennial rye grass being dominant, and fescue sp. and sorrel and bramble being rarely distributed.	**P10-P12**
h2a	**Native hedgerow:** *Native hedgerow (hedge bank, fenced)* (**h2a.111.612**) A defunct but fenced, species-poor native hedgerow currently bisects the application boundary. The feature is also based upon a hedge bank (likely the remains of a dry stone wall, but now vegetated).	**P13-P14**

Habitat Code	Descriptions	Photo No.
	Hedge species are limited to gorse, although frequent bramble is also present. Notably, the hedge contains gaps ranging from 1-5m throughout its length, and features a hedge base gap of 30-50cm, although still functions as a boundary feature due to associated fencing. The hedgerow understory and margins are primarily composed of a modified grassland assemblage to both the north and south (i.e., perennial rye, cocksfoot, annual meadow grass, creeping buttercup, white clover, cleaver, chickweed and taraxacum), although fescue sp., sorrel, bilberry and polypoid fern sp. and moss are also found occasionally in close association with the hedge bank, in addition to tall herbs such as Rumex, nettle and foxglove.	
Individual scrub	**Hawthorn scrub:** A single stand of hawthorn scrub in association with an earth bank. No PRFs present and no bat roost potential.	**P15**
g3c	**Other neutral grassland:** A thin strip of other neutral grassland road verge was present adjacent to the dry-stone wall at the southern road corner. This was approximately 1m wide and species comprised frequent rough meadow grass, false oat grass, creeping buttercup, ribwort plantain and cow parsley; occasional soft brome, meadow buttercup, cocksfoot, red fescue, white clover, tufted vetch and dandelion; with rare silverweed, meadow foxtail, bramble, broad leaved plantain, timothy, bulbous buttercup, red campion and broad-leaved dock.	**P38**

Landowner Boundary

Table 3.6: UKhab habitats summary of Landowner Boundary.

Habitat Code	Descriptions	Photo No.
g4	**Modified grassland:** *Modified grassland (sheep grazed)* (**g4.102**) As discussed, two modified grassland parcels are present within the application boundary, which also extend to encompass the wider landowner boundary (see Table 3.5 for full descriptions). *Modified grassland (garden)* (**g4.827**) An area of modified grassland (i.e., a garden area) found in association with the residential property is present within the southeast corner of the landowner boundary. Whilst access was limited, the species assemblage appeared to be relatively species poor, and primarily comprised of short sward (possible mown) grasses dominated by perennial rye grass, with occasional annual meadow grass. Short herbs associated with enriched conditions were also occasionally present, including creeping buttercup, white clover and taraxacum sp. Moss sp. are also occasionally included within the general ground cover. *Modified grassland (tall or tussocky sward, track)* (**g4.128.839**) A continuation of a narrow strip of modified grassland which also functions as an access track, but is subject to less disturbance, is located within the wider landowner boundary; this parcel runs parallel to native hedgerows and associated margins to the north and south. Ground cover is primarily composed of grasses and is of relatively taller sward height in comparison to other modified grassland areas on-site (although still species poor). Perennial rye grass is noted to still be dominant, with a rare distribution of fescue sp., cocksfoot within the sward. A short herb assemblage which ranges from a rare to occasional distribution is also present, and includes creeping buttercup, white clover, sorrel, and chickweed, with a marginal presence of Rumex and nettle. Exposed bare ground is minimal in comparison to adjacent track area. Grassland edges also begin to merge with adjacent hedgerow margins, where species assemblage begins to show more variation.	**P16-P18**
g3c	**Other neutral grassland** *Other neutral grassland (tall or tussocky sward, tall forbs)* (**g3c.16.128**) A small area of unmanaged grassland located within the Site's main farm complex. Appears to comprise tall/tussocky sward of grasses and herbs. Limited access, broad observation made from distance. Observed species assemblage appears to include perennial rye grass, cocksfoot and false oat grass. Tall herbs include Rumex sp., willowherb, ragwort and cow parsley.	-

u1c	**Native hedgerows:** *Native hedgerow (hedge bank, fenced)* **(h2a. 111.612)** Several native hedgerows of mostly similar characteristics are present within the landowner boundary, although some variations do exist between hedges. <u>Northern Parcel</u> Two native hedgerows are present within the Site's northern parcel, both of which include partially vegetated hedge banks based on dry-stone walls (exposed in areas). Both hedges are noted to be species poor, being comprised of gorse, in addition to frequent bramble scrub. Both hedges are defunct, featuring gaps of 1 - ≥ 5m gaps, although associated fencing functions to form boundary features. Base gaps are also noted to be ≤30cm between scrub and Associated marginal and understory vegetation varies, with a marginal species assemblage comprised of adjacent modified grassland assemblage; however, understory and exposed hedge bank areas include additional species indicative of acid conditions, which include frequent fescue sp. and moss sp., and occasional sorrel, bilberry and fern sp. <u>Central Access Track</u> In addition to an aforementioned hedge partially included within the application boundary (see **Table 3.5**), two additional hedgerows are located parallel to a central strip of modified grassland/access track. Both hedgerows include hedge banks based on dry stone walls and similar understory/marginal vegetation, but vary in shrub species composition. The north adjacent hedge is dominated by gorse, but includes occasional broom, and frequent bramble. However, the south adjacent hedgerow is dominated by gorse and frequent bramble only. In both instances, hedge gaps of 1 – 5m are present, and hedgerow base gaps average 30cm per length. Marginal vegetation is comprised of a similar assemblage as described for adjacent modified grassland habitat (g4.128.612; see above), in addition to occasional tall herbs which include nettle, Rumex sp., foxglove and cow parsley. Likewise, species assemblages in association with hedge banks are of a similar assemblage as described for aforementioned hedge banks (i.e., include potential acid indicators). <u>Southern Parcel</u> A segment of native hedgerow is present along the Site's southern border, also based upon a hedge bank, is dominated by gorse, but includes frequent bramble and rarely distributed hawthorn. The hedge is defunct, featuring gaps between 10 – 10m in width, although still functions as a boundary feature due to associated fencing, in addition to including base gaps of ≤30cm on average. Like aforementioned hedgerows, the hedge features a modified grassland margin, but includes acid indicators (with the exception of bilberry) in association with the hedge bank, or exposed segments. An additional hedgerow segment is also present along the Site's south south-west boundary, adjacent an off-site road; the segment is also based upon a hedge bank and is dominated by gorse and occasional bramble, but is intact before succeeding into a defunct west-southwest segment. Margins are comprised of modified grassland assemblage (g4.102) in addition to occasional tall forbs including foxglove, cow parsley, cleaver and nettle, in addition to bracken. Hedge bank vegetation includes occasional fescue sp. but is notably more modified in character than other hedge banks present on-Site. The west-southwest hedge segment is noted to be defunct, featuring gaps of >10m, and is limited to rarely distributed gorse and hawthorn scrub, and occasional bramble. Marginal	**P19-P24**

	vegetation is also comprised of an identical modified grassland and tall herb assemblage as noted in the adjourning hedge section, although the associated hedge bank is noted be of increasing modified character, with a rare distribution of fescue sp. in comparison.	
u1e	**Artificial unvegetated, unsealed surface:** *Artificial unvegetated, unsealed surface (track, residential premises open space)* (**u1c.819.839**) A compacted gravel driveway/access area is located in association with both residential and industrial buildings located within the farm complex to the south of the landowner boundary.	-
u1b	**Built linear features:** *Built linear features (fencing)* (**u1e.612**) Wire and wooden fencing are distributed throughout the Site, forming boundaries features between grazing pastures and the main farm complex. Fencing is also found in association with hedgerows, dry stone walls and earth banks throughout the Site. *Built linear feature (dry stone wall, scattered grass, fence)* (**u1e.114.532.612**) Dry stone wall in association with fencing, forming a boundary feature to the Site's northern grassland parcel. The wall is noted to feature scattered grasses and forbs distributed along its length. Grass cover is primarily comprised of abundant fescue sp. and occasional perennial rye grass. Additional forbs include occasional acid indicators, including sorrel, bilberry, moss and lichen and polypoid fern, in addition to cleavers and foxglove.	**P25**
u1b	**Buildings:** *Building (residential building)* (**u1b5. 818**) A residential building present within the landowner boundary, located within the Site's southern farm complex. Accessed limited, assumed **Negligible-PRF-I BRP (TN9).** *Buildings (Industrial buildings)* (**u1b5.817**) A series of buildings, primarily metal corrugated shelters/storages areas forming the main farm complex. Access limited, assumed **Negligible BRP (TN10).** **Developed land; sealed surface:** *Developed land; sealed surface (Residential premises open space)* (**u1b6.819**) A small area of paved ground encompassing the residential building located within the farm complex area to the south of landowner boundary.	-

Table 3.7: Target notes (TN)

Target Note	Description	Photo No.
TN1	Hawthorn scrub. No PRFs present. **No BRP**.	**P26**
TN2	Mammal scrapings, possible indicator of foraging activity.	**P27**
TN3	Abandoned corrugated sheeting, possible refugia feature.	**P28**
TN4	Snuffle holes, possible indicator of foraging activity.	**P29**
TN5	Rock mound, possible hibernacula feature.	**P30**

Target Note	Description	Photo No.
TN6	Substation in association with wind turbine. **No BRP**.	**P31**
TN7	Substation in association with access track. **No BRP**.	**P32**
TN8	Farm complex; multiple industrial buildings. Access limited, likely **Negligible BRP**.	**P33**
TN9	Residential building. Access limited, likely **Negligible-PRF-I BRP.**	**P34**
TN10	Industrial farm building located outside the landowner boundary, but adjacent to Site within buffer zone. No access, likely **Negligible BRP**.	**P35**
TN11	Area to be cleared in relation to construction access.	**P36**
TN12	Off-site pond habitat, located outside of the Landowner Boundary.	**P36**

3.5 Protected and Notable Species

3.5.1 Species relevant to the Proposed Development are referenced in the sections below.

Birds

3.5.2 A total of 3001 records accounting for 123 different species of bird were provided by the 2km data search supplied by CBDC. The nearest records of interest to Site are 16 records of skylark only 200m away, but date from 2008. Records also include nine Cumbria LBAP species located only 200m from Site such as curlew, lapwing, yellowhammer, house sparrow and grasshopper warbler, however all these records predate are over 14 years old.

3.5.3 No recent (i.e., within the previous 10 years) records of Sch.1 WCA listed birds were returned in the search.

3.5.4 The survey area does not lie within or adjacent to an 'Important Bird Area' as defined on the MAGIC interactive website.

3.5.5 No protected or notable bird species were within the survey area during the extended habitat survey.

3.5.6 Open grassland habitats within the Site and Landowner Boundary are considered to be of limited suitability for ground nesting bird species as a consequence of intensive grazing. Likewise, the majority of hedgerow and earth bank boundary habitats are similarly considered to have limited potential as nesting habitat, being subject to similar grazing pressures, or frequent disturbance relative to associated road, access tracks and agricultural use of the Site.

3.5.7 Open habitat within the Site and Landowner Boundaries may have some potential to support wintering birds, however suitability is limited by the presence of grazing livestock.

3.5.8 However, hedgerows present within the survey area could provide viable habitats for foraging bird assemblages within the local landscape.

3.5.9 Consequently, habitats within the application boundary are considered to be largely unsuitable for species typically considered as sensitive to wind energy developments (as defined in NatureScot

guidance, 2018[26]), although some potential does exist within the Site and occasional use by local species, i.e. passing raptors, cannot be precluded.

Bats

3.5.10 The 2km data search supplied by CBDC revealed 12 bat records across four species: common pipistrelle, soprano pipistrelle, brown long-eared and noctule, in addition to two records where species was unidentified.

3.5.11 The records are generally field records that signify these species are present and roosting in surrounding landscape; however the closest record was from a common pipistrelle bat rescue 800m from Site in 2012 (not identified as a roost).

3.5.12 One European Protected Species (EPS) licence was required for bats within 2km of Site, a licence for common pipistrelle (EPSM2010-2371) which permitted the destruction of a resting place. This licence was located 830m northeast from Site, although this dates from 2010-2011.

Roosting Bats

3.5.13 Roosting opportunities within the immediate application boundary are absent, with no habitat features that could support maternity roosts or significant hibernation and/or swarming sites present within 200m plus rotor radius of the boundary of the Proposed Development. Additionally, no natural features (e.g., semi-mature or mature trees) are present within the Site with the potential to support roosting bats, whilst both artificial structures (**TN6-TN7**) were assessed as having **No** roosting potential.

3.5.14 Additional artificial structures present within the wider landowner boundary include several industrial buildings which form the main farm complex (**TN6**), in addition to a single residential property (**TN7**). Access to these areas was limited and so a comprehensive PRA of roosting suitability was not possible.

3.5.15 However, a broad external observation of the general farm complex would suggest these structures are collectively of **Negligible** roosting potential given their design and function. Likewise, a broad appraisal of the residential property from a limited viewpoint would suggest the structure is of **Negligible-PRF-I** roosting potential, being of relatively modern construction with a lack of visual PRFs in association with visible roofing or flashing.

3.5.16 Additionally, a single industrial structure (**TN10**) located adjacent to the Landowner boundary, but within the Site buffer zone, was non-accessible. Broad observation of this structure would suggest it is of **Negligible** bat roost potential, being of similar design and function to other industrial structures present within the landowner boundary (**TN6**). However, as stated above, comprehensive PRA would be required to confirm roosting potential.

3.5.17 Whilst a broad assessment has been made of structures within areas of restricted access, no buildings in the landowner boundary will be directly or indirectly impacted by the Proposed Development and

[26] NatureScot (2018). Guidance - Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

as such, further assessments are not required and roosting bats are not considered a constraint to the development.

Foraging and Commuting Bats

3.5.18 Open habitats located within the Site offer negligible opportunities for foraging or commuting bats being limited to artificial surfaces and heavily grazed open grassland habitats. Likewise, linear features are limited to small sections of native hedgerow or earth banks with little scrub or cover which might encourage commuting behaviour.

3.5.19 No fully vegetated linear features are to be removed, only a small section of earth bank with scattered scrub and grasses related to the road corner. This loss will not have a significant impact on foraging bats nor sever potential flightlines.

3.5.20 The wider Landowner Boundary features larger areas of open grassland habitats, and several linear features which likely form viable commuting features in conjunction with the local landscape. However, open habitat (being also intensively grazed, species-poor and of limited structural diversity) is still considered to be of low foraging suitability for bats. Likewise, linear features offer some foraging and commuting potential, being of increased diversity, but are exposed and provide relatively poor cover in their majority. Closed or edge habitat opportunities are noted to be absent within and adjacent to the survey area.

3.5.21 Dry stone walls bounding the northern-most survey area could also offer suitable commuting features, however are considered to offer negligible to low suitability flight lines in accordance with Collins (2023). The hedgerows and dry-stone wall present are noted to provide connectivity with habitat parcels within the local area, but form a relatively exposed commuting route. Optimal bat habitat is present approximately 300m east and 500m northwest of Site.

3.5.22 Additionally, whilst the Site and wider landowner boundary may fall with the Core Sustenance Zones (CSZ) of species referenced in aforementioned roost records, the survey area as a whole is unlikely to be a significant component relative to the conservation status of local populations, given the low suitability of habitats present and small areas to be removed.

3.5.23 Higher value habitats are located within the local landscape (e.g., woodland blocks and watercourses), but with the exception of grassland found northeast adjacent, lie outside the development footprint (i.e., the Site buffer).

3.5.24 Overall, the habitats within the Site and wider landowner boundary were considered to most closely fit the description for land of '**Low**' suitability for foraging and commuting bats in accordance with Bat Conservation Trust (BCT) guidance.

Badger

3.5.25 The data search supplied by CBDC does not reveal any recent badger records located on-Site or within a 2km radius.

3.5.26 No evidence specifically diagnostic of badger was found within the Site, or within the wider Landowner Boundary during the extended habitat survey. However, potential foraging signs (i.e., TN2, TN4) were observed, although these cannot be confirmed to be expressly indicative of badger in the absence of other field signs.

3.5.27 Both open grassland and linear hedgerow habitats present within the Site and Landowner Boundary provide some habitat opportunities for foraging and commuting for badger. However, the Site is considerate to be of negligible suitability for sett creation, with linear habitats providing poor cover, and subject to regular disturbance.

3.5.28 Habitats present within the wider landscape are likely to provide foraging, commuting and sett creation opportunities which might support local badger populations.

Otter and Water Vole

3.5.29 The 2km data search supplied by CBDC provided eight records of otter, although only one from the last decade, a 2018 record *c.*2km from Site. No records of water vole were returned from the data search.

3.5.30 No field signs indicative of either otter or water vole were identified within the Site boundary, or within the wider Landowner Boundary during the extended habitat survey.

3.5.31 No waterbodies or watercourses are located within the Site, Landowner boundary or immediate vicinity; as such, there exists no suitable aquatic habitats or subsequent habitat opportunities applicable to either otter or water, within the immediate development footprint. Consequently, both otter and water vole are considered to be absent from the Site and will not be discussed further.

Amphibians

3.5.32 A review of Ordnance Survey mapping and aerial imagery identified two ponds within 500m of Site as shown in **Figure 5**. Only one pond (**TN12**) lies within 250m of the Site, c.110m east of the Site boundary. One priority habitat pond also lies c.340m southeast of the application boundary, as discussed above. No further ponds or waterbodies are present within 500m of Site.

3.5.33 The 2km data search supplied by CBDC identified four records of common toad, five records of common frog and two records relating to palmate newt from within the last decade, the closest of which was located 1.4km from Site. A total of six records for Great Crested Newt (GCN), although the closest and most recent record of these was 1.9km away from 2011. There were also four historic records for smooth newt, most recently from 2009 located 1.9km away.

3.5.34 These records highlight that five native UK amphibian species are present within the search area, albeit at likely low numbers, and from historical fragmented populations.

3.5.35 MAGIC Maps shows no granted EPS licences for GCN within 2km of the Site, however there is one 'present' record from the licence returns data, a 2016 record relating to the pond approximately 110m east of Site (**TN12**). Additionally, GCN pond survey data on MAGIC Maps shows three 'absent' records within 2km but one 'present' 2019 record from eDNA surveys at the pond located 340m southeast of Site.

3.5.36 No standing water bodies or features (e.g., wet ditches), are present either on-Site or within the Landowner Boundary. Consequently, there is no suitable aquatic habitat present directly within the development area which might support protected and/or notable amphibians.

3.5.37 Regarding terrestrial habitats, open habitats are largely of negligible habitat suitability, being intensively grazed and or limited structural diversity, with exception of other neutral grassland road

verge which is isolated from other suitable habitats. As such, this area offers negligible foraging, commuting or sheltering opportunities.

3.5.38 However, linear habitats such as hedgerows and dry stone walls with associated vegetation offer viable habitats, such as hibernacula and refugia, or opportunistic foraging or commuting opportunities for amphibians.

3.5.39 Consequently, whilst habitats found in direct association with the application boundary are of poor suitability, opportunities exist relative to linear features within the general survey area. Moreover, the presence of ponds within 500m of the Site (which include positive GCN status) means the presence of these amphibian species is likely.

Red Squirrel

3.5.40 The 2km data search supplied by CBDC identified a total of fifty-nine records for Eurasian red squirrel, however only three are from within the past decade. These are field records dating from 2015 to 2017, *c.*2km from Site and detail a peak count of two individuals. The closest records to Site are *c.*800m away but date from 2008.

3.5.41 No observations or field signs indicative of red squirrel were noted to be present within the survey area during the extended habitat survey.

3.5.42 Habitats on-Site and within the landowner boundary are of negligible suitability for red squirrel, nor is suitable habitat located in proximity to the Site and therefore red squirrel are considered absent from the Site and not discussed further.

Reptiles

3.5.43 The 2km data search supplied by CBDC provided twenty-four reptile records however these all predate 2011 and none within 1.5km from site. Reptiles are often under-recorded species though, and low numbers of records should never be solely relied upon during an ecological appraisal process.

3.5.44 No observations or field signs relating to reptile species were noted on-Site, or within the wider Landowner boundary, during the extended habitat survey.

3.5.45 Open habitat suitability within the survey area is considered to be negligible, being comprised artificial bare surfaces or intensively grazed and structurally unsuitable grassland. However, limited foraging and commuting potential is associated with linear features such as hedgerows and earth banks given the relatively improves structural and species diversity associated with said features.

3.5.46 Likewise, linear habitats might offer some basking and refugia opportunities for local reptile species (e.g., TN3), particularly given the presence of dry stone walls in association with these boundary features.

Other Protected and Notable Species

<u>Notable Mammals</u>

3.5.47 In relation to other notable mammal species, a total of twenty-three records for hedgehog were returned within the past ten years, the closest of which were field records from roadkill, located

between 0.8km and 1km from Site. An additional two records for polecat were also returned, although the closest to the Site was 1.7km away dated 2012.

3.5.48 Whilst unobserved during the extended habitat survey, there is potential for presence of other notable species (as defined under Section 41 of the NERC Act 2006 or Cumbria LBAP), including hedgehog and brown hare.

Invertebrates

3.5.49 A total of 359 biological records were provided in the 2km data search supplied by CBDC in relation to invertebrates. This included twenty-three BAP species from the past decade, including dingy skipper, small heath, ghost moth, white ermine and rosy rustic. The closest to Site however, are records of cinnabar moth and wall butterfly 1.7km away.

3.5.50 Habitats both within the Site and the wider Landowner boundary, are representative of habitats within the local landscape and not considered particularly suitable for notable invertebrate assemblages due to intensive grazing, with opportunities limited to linear features and associated species assemblages.

3.5.51 Likewise, the majority of habitats adjacent to the Site are not considered to be of sufficient floristic or structural quality which might support significant assemblages, with the exception of an area of pond and associated grassland habitat located northeast adjacent.

3.6 Invasive Non-native Species

3.6.1 Four invasive non-native species (INNS) were highlighted by the data search supplied by CBDC, Himalayan balsam, Japanese knotweed and Montbretia. The closest record to Site was Japanese knotweed located 0.4km away, however this was dated from 1999.

3.6.2 No INNS were observed within either the application or landowner boundary during the extended habitat survey.

4 APPRAISAL

4.1 Overview

4.1.1 This section seeks to identify the potential for effects to occur on habitats and protected and notable species which could be considered as reasonably likely to occur as a result of the Proposed Development. The Site's proximity to statutory and non-statutory designated sites and potential effects on their qualifying interests is considered. Measures are proposed for the protection of sensitive habitats and species, and recommendations are made for further pre-construction surveys and/or mitigation, if required.

4.1.2 The existing turbine was granted planning permission for a term of 20 years on 22nd July 2013 by Copeland Borough Council (4/13/2157/0F1). The Proposed Development is likely to be for a longer term and as such, it is acknowledged that impacts will last longer than those currently in place.

4.2 Designated Sites

Statutory Designated Sites

4.2.1 The Site does not form part of any statutory designated site for nature conservation, nor is it directly adjacent any statutory designated sites.

4.2.2 Six national statutory designated sites are located within 5km of the Site, the closest (i.e., Clints Quarry SSSI) of which is located approximately 1.56km east. The Proposed Development type however, falls outside the scope of IRZ's associated with these stator protected sites.

4.2.3 Likewise, three internationally designated Sites are present within a 10km radius of the Site boundary, the closest of which is the River Ehen SAC, located approximately 2.19km east of the Site boundary. The Solway Firth SPA (5.2km northwest) and the St Bees Head SSSI (2.39km west) are both designated for bird assemblages, of which some species are noted to have been recorded within 2km of the Site.

4.2.4 Habitats within the Site are not considered to provide optimal habitat for the species either site is designated for.

4.2.5 The Proposed Development will not result in any direct or indirect effect on habitats of any statutory designated sites due to the separation distance between the Site and statutory designated sites and the small-scale nature of the works.

4.2.6 In addition, standard good practice drainage management and measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development. With such measures in place, no indirect effects are anticipated on statutory designated sites and protected habitats in the wider area (e.g., adjacent pond habitats).

Non-statutory Designated Sites

4.2.7 The Site does not include, nor is it adjacent, to any non-statutory designated sites. Four non-statutory designated sites are situated within 2km of the Site boundary, the closest of which is the Stanley Pond LWS located approximately 1.44km northwest.

4.2.8 The Proposed Development will not result in any direct or indirect effect on habitats of non-statutory designated sites due to the separation distance and the small-scale nature of the works.

4.2.9 Standard good practice construction measures to ensure runoff control and pollution prevention will be implemented during construction. These measures will safeguard boundary and off-site habitats, as well as any associated species. With such measures in place, no indirect effects are anticipated on non-statutory designated sites in the wider area.

4.3 Habitats

4.3.1 The Site is dominated by artificially unvegetated, unsealed surfaces (i.e., access tracks) and modified grassland, being bordered by vegetated linear features and encroached by native hedgerow.

4.3.2 Open habitats within the Application Boundary due to be impacted by the Proposed Development largely have low ecological value, and are not recognised as priority habitat types of any local significance. However, hedgerows, earth banks and other neutral grassland verge which border the Application Boundary are considered to be of moderate value to biodiversity, with hedgerows recognised as a priority habitat type.

4.3.3 Hedgerow present on Site will be retained. The primary impact to habitats on-Site are the small loss of grassland habitats.

4.3.4 Modified grassland around the existing turbine will be permanently lost, to facilitate the construction of the new turbine, crane pads and associated infrastructure.

4.3.5 Modified grassland and other neutral grassland road verge at the road corner will also be permanently lost to facilitate a new, wider access track for the turbine construction. The loss of grassland in small areas are not considered to have a significant impact on Site biodiversity.

4.3.6 Other impacts at these road corners to enable construction activities, will also include the temporary clearance of an earth mound with scattered scrub and grass, which represents negligible biodiversity value.

4.3.7 Additional ground disturbance to the pre-existing access track during works is predicted, although this represents habitat of negligible biodiversity value, and which will be a temporary and short-term in nature. Overall, due to the small size of the areas scheduled to be impacted, the relatively small scale of the project and localised zone of impact on-Site, the direct loss of habitat is considered to be small and will primarily comprise of low ecological value land, common and widespread within the surrounding area. Likewise, whilst pond habitat is found in relative proximity to the Site, it does not lie within the Site itself; as such, the Proposed Development is unlikely to directly impact the areas of this habitat adjacent to the Site.

4.3.8 Standard measures to ensure runoff control and pollution prevention (such as dust mitigation measures) will be implemented; these measures will safeguard habitats on and adjacent to the Site, including running water).

4.3.9 In terms of biodiversity net gain, the Proposed Development results in a loss of 0.32 habitat units, and no loss of hedgerow units. The deficit of units required to reach 10% net gain post development are 0.45 habitat units and 0.01 hedgerow units, which will be met following a hierarchy and biodiversity

metric principles. Units required will be sought by achieving them first within the wider landowner boundary, second within the same planning authority or lastly by an offsite provider (such as habitat bank). A biodiversity net gain will be secured via the general biodiversity net gain condition.

4.4 Protected and Notable Species

Birds

4.4.1 All wild birds, their nests and eggs are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Species listed under Schedule 1 of the Act, have special protection with increased penalties for offences committed towards these birds. Additional protection is provided to species listed under Directive 2009/147/EC on the conservation of wild bird (the 'Birds Directive'). Over eighty species or groups of species are listed under Schedule 1 of the Act, which confers special protection with increased penalties for offences committed.

4.4.2 Depending on the time of work, there is potential for breeding birds present on or adjacent to the Site which could be affected by the construction of the development through direct habitat loss or indirect disturbance. However, this would reasonably only impact a very small number of breeding birds given the restricted areas of works and habitats present.

Construction

Protecting Active Nest Sites

4.4.3 In order to avoid impacts on nesting birds and to ensure compliance with the provisions of the Wildlife and Countryside Act 1981 (as amended), it is recommended that any vegetation removal required (if necessary at all) takes place outside of the bird breeding season (March-August inclusive).

4.4.4 If vegetation works are necessary during the breeding season, suitable nesting habitat should be hand-searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed.

Operation

4.4.5 Operational effects (displacement or collision mortality) caused by the repower wind turbine are likely to be similar to those already in place from the operational turbine. Given the small increase in turbine blade length, no measurable change in effects beyond existing impacts is anticipated.

Bats

4.4.6 All species of British bat are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are further protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The Regulations make it an offence to:

- kill, injure or take any wild bat;
- damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection; and,
- intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection.

4.4.7 Seven bat species in the UK are also listed as species of Principal Importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006, with seven species also listed under the Cumbria LBAP.

4.4.8 Following the extended habitat survey, the overall survey area is considered to be of '**Low**' habitat suitability, with open habitats being of negligible suitability for foraging, although limited commuting and foraging opportunities are present relative to linear features present within the survey area (i.e., hedgerows).

4.4.9 No trees or buildings with bat roost potential are proposed to be removed and as such, there will be no loss in roosting habitat. The only linear feature to be removed is a section of earth bank with scattered grass. This will have a negligible impact on commuting bats in the area, as they are small in extent and will not sever potential flightlines.

4.4.10 The removal of modified grassland and other neutral grassland is expected to have a negligible impact on foraging bats in locality, as areas of removal are small in size and there is an abundance of more suitable foraging areas surrounding site in terms of areas of standing water and deciduous woodland in the wider area.

4.4.11 Any lighting required during construction will be restricted and directed away from retained boundary habitats to maintain dark corridors for foraging and commuting. Light spill can be avoided in a number of ways, including the use of low-level lighting and use of hoods and careful selection of lighting; further information is available in *Bats and Lighting in the UK, Bats and the Built Environment Series, Bat Conservation Trust and Institute for Lighting Engineers*[27]. As long as lighting is designed and implemented in a sensitive manner, no discernible effects are anticipated on foraging/commuting bats.

4.4.12 Overall, construction impacts are unlikely as a result of the repower project.

4.4.13 Operational effects (displacement or collision mortality) caused by the repower wind turbine are likely to be similar to those already in place from the operational turbine. Surveys are unlikely to lead to any measurable change in predicted impacts.

Badger

4.4.14 Badgers are afforded legislative protection under the Protection of Badgers Act 1992. Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. It is not illegal, and therefore a licence is not required, to carry out disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or destroyed. Where an activity is likely to result in an offence under the Protection of Badgers Act 1992 a licence from Natural England is required.

4.4.15 No recent records or field signs specifically diagnostic of badger were recorded within the survey area, although habitats present do offer limited foraging and commuting potential. Whilst currently absent from the survey area, habitats found adjacent and within the local landscape are considered to provide increased habitat opportunities for badger, with populations likely to be present within the wider area.

[27] Institution of Lighting Professionals & the Bat Conservation Trust. (2023). *Guidance Note 08/23: Bats and artificial lighting at Night.*

4.4.16 As badgers are highly mobile, as a precaution a pre-construction survey should be undertaken to confirm continued absence of badger setts within and adjacent to the Site prior to the commencement of works. The survey should check for any newly constructed setts in and surrounding the Site (i.e., up to 30m from the application boundary). If a sett is found, suitable advice should be sought from the project ecologist to ensure necessary protection, avoidance or mitigation measures are in place before works proceed such as a licence from Natural England or works under a Reasonable Avoidance Measures (RAMs) Method Statement.

Amphibians and Reptiles

4.4.17 GCN and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations. The Act and Regulations make it an offence to:

- kill, injure or take a GCN;
- damage, destroy or obstruct access to any place that a great crested newt uses for shelter or protection; and,
- intentionally or recklessly disturb a GCN while it is occupying a structure or place that it uses for shelter or protection.

4.4.18 Additionally, common reptile species namely the common lizard, slow-worm, grass snake and adder are protected against killing, injuring and sale under the Wildlife & Countryside Act 1981 (as amended).

4.4.19 GCN, common toad and natterjack toad, in addition to all reptile species are further designated under Section 41 41 (England) of the NERC Act 2006 and UK BAP, whilst GCN, common toad, natterjack toad, common lizard, slow worm, grass snake and adder are also listed as priority species under the Cumbria LBAP. As such, the species listed are consequently a material consideration within the planning process.

4.4.20 In relation to amphibians, no aquatic habitat is located within the survey area; however, an off-Site pond present within a 250m buffer of the Site has existing records of GCN, whilst an additional pond previously confirmed to hold GCN is present within a wider 500m buffer. As such, presence of the species on Site is possible.

4.4.21 Terrestrial habitats present within the Site and Landowner Boundary are largely considered to be sub-optimal for amphibians and reptiles, with opportunities for foraging, commuting and shelter limited to linear features and localised areas of grassland margins.

4.4.22 Potential direct impacts stemming from the construction phase of the project primarily relate to clearance of relatively small areas of sub-optimal habitats and temporary disturbance during works. Reasonable Avoidance Measures (RAMs) will be implemented during the construction phase to safeguard amphibians and reptiles. This will be relevant for the removal of suitable habitats (other neutral grassland road verge and earth bank with scattered grass) and involve a hand-search by a suitably qualified and licenced ecologist.

4.4.23 Indirect impacts could also occur as a result of construction unless control measures are undertaken. The implementation of standard good practice pollution prevention and runoff control measures will suitably protect nearby watercourses and associated downstream habitats and species.

4.4.24 No impacts to protected and/or priority amphibian or reptile species are predicted following construction, with the operational phase of the development considered to be of negligible impact to local populations.

Other Species

4.4.25 The Site and wider area may support notable mammal species such as brown hare, hedgehog, and polecat although no records or observations were identified via either a desk study or field survey on Site.

4.4.26 Brown hare, hedgehog and polecat are listed as a priority species under NERC S.41 and and UK BAP, whilst brown hare is also Cumbria LBAP species, and consequently a material consideration within the planning process.

4.4.27 The potential presence of these species are not considered to be a significant constraint in terms of the Proposed Development. Whilst works will result in the small scale, permanent loss of other neutral grassland, modified grassland and earth bank, this is unlikely to negatively affect local populations of these species given extensive availability of suitable habitats in the wider area.

4.4.28 The loss of a small area of grassland and above linear features associated with the Proposed Development is not considered to affect local population of these species, especially when considered in the context of the availability of suitable habitats in the wider area.

4.4.29 However, the risk of morality or injury during the construction phase is a possibility; as such, implementing RAMs will also safeguard small mammals, during the works; including the removal of suitable habitat within the Site.

4.5 Invasive Non-native Species

4.5.1 No invasive non-native species listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) or the EU Invasive Alien Species Regulation (1143/2014) were recorded onsite during the habitat survey. It is an offence to plant or otherwise cause to grow in the wild species listed within Schedule 9; this includes allowing the species to grow/spread, spreading the species or transferring polluted ground material from one area to another. Any waste containing these species can only be removed from site under appropriate waste management documentation (under the Environmental Protection Act 1990).

4.5.2 If any such invasive species be encountered within or immediately surrounding the Site during construction, the advice of a suitably qualified ecologist should be sought and the appropriate measures taken to prevent the inadvertent introduction or spread of such plants.

5 SUMMARY - ECOLOGY PRIORITY MATRIX

5.1.1 **Table 5.1** summarises the ecological constraints and opportunities associated with the Proposed Development and makes recommendations for pre-construction survey work and/or mitigation measures as required.

Table 5.1: Ecological Constraints and Opportunities

Feature		Details
Statutory and Non-statutory designated sites for Nature Conservation	Constraints & Opportunities	a. The survey area does not form part of any statutory or non-statutory designated sites. b. No direct or indirect impacts on statutory designated sites for nature conservation are anticipated by virtue of separation distance, the restricted scale and nature of the proposed development, limited habitats on Site and lack of functionally linked land.
	Protection Measures	c. The implementation of standard good practice pollution prevention and runoff control measures will suitably protect the designated sites, including water bodies and adjacent habitats.
Habitats & Flora	Constraints & Opportunities	d. The majority of the Site is modified grassland and artificial unsealed surface, bordered by linear earth banks, hedgerow and other neutral grassland road verge. e. Grazed modified grassland to be removed is small in size and of limited biodiversity value or significance. The small loss of other neutral grassland at the road corner is not considered to be a significant impact to biodiversity above site level. f. Small areas of earth bank will be required to be removed to permit Site access, but this has negligible ecological value. g. The habitat to be lost to development are considered to be of low to moderate biodiversity value, but small in size and extent which will not have significant impacts on biodiversity across Site. h. In terms of BNG, the Proposed Development results in a loss of 0.32 habitat units, and no loss of hedgerow units. The deficit of units required to reach 10% net gain post development are 0.45 habitat units and 0.01 hedgerow units, which will be met following a hierarchy and biodiversity metric principles.
	Protection Measures	i. Standard measures to protect retained trees, ensure runoff control and pollution prevention will be implemented; these measures will safeguard habitats on and immediately surrounding the Site.
Amphibians	Constraints & Opportunities	j. Records of GCN are known in ponds within 250m of the Site. k. Modified grassland located within the Site offers limited opportunities for amphibians. l. No ponds will be affected by the proposals. Hedgerows and earth banks will be largely retained, however small areas of earth bank, modified grassland and other neutral grassland clearance is required to enable access.
	Legislative Compliance - WCA*, HR**	m. Reasonable Avoidance Measures (RAMs) will be implemented to include a 'toolbox talk' and hand search of suitable habitats to minimise risk of accidental harm. n. The implementation of standard good practice pollution prevention and runoff control measures will suitably protect nearby watercourses and associated downstream habitats and species.
Reptiles	Constraints & Opportunities	o. Habitats within the Site offers limited opportunities for reptile species. p. Hedgerows and earth banks will be largely retained, with the exception of small areas of linear habitat clearance to enable access.

Feature		Details
	Legislative Compliance - WCA*, HR**	q. RAMs will be implemented to include a 'toolbox talk' and hand search of suitable habitats to minimise risk of accidental harm.
Bats	Constraints & Opportunities	r. No roosting habitat will be directly affected by the Proposed Development. s. Modified grassland being lost to the Proposed Development is of negligible value to foraging or commuting bats. Small loss of other neutral grassland and earth bank will not significantly impact foraging bats. More valuable boundary habitats such as hedgerow will be retained.
	Legislative Compliance – WCA**, HR***	t. Any lighting required during construction and/or operation of the repower should be directed away from boundary features (further information is provided in Bats and Artificial Lighting at Night Guidance Note GN08/23, Bat Conservation Trust and Institute for Lighting Engineers, 2023).
Birds	Constraints & Opportunities	u. Modified grassland land being lost to the proposals poses no risk of significant impact to any Sch.1 WCA listed bird species or more common species. Small areas of linear features to be removed are also unlikely to pose any significant impact. v. Construction of the proposed development may result in minor disturbance to bird species.
	Legislative Compliance – WCA**	w. Vegetation works should be undertaken outside of the bird breeding season (01 March to 31 August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be inspected by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed.
Badger	Constraints & Opportunities	x. No setts were identified within or immediately adjacent to the Site. However, the surrounding habitats are considered suitable to support foraging badgers and potentially sett excavation.
	Legislative Compliance – PBA****	y. A pre-construction badger survey should be completed by a suitably qualified ecologist immediately prior to the commencement of development to check for any newly constructed setts surrounding the Site. z. If an active badger sett if identified within proximity to development, then a mitigation strategy will be produced and if necessary, works in proximity to a sett will only proceed under a licence from Natural England.
Other Species	Constraints & Opportunities	aa. Field boundary habitats could be used by notable mammals (e.g., hedgehogs), though these habitats will be largely retained and protected during construction. The small areas of vegetation removal should be done under RAMS. bb. The loss of modified grassland centrally is considered inconsequential based on its low suitability for hedgehog and prevalence in the local landscape. cc. The site will remain largely open and not impede mammal movements.
Invasive Non-native Species	Constraints & Opportunities	dd. No invasive non-native plant species listed under Schedule 9 of The Wildlife & Countryside Act 1981 (as amended) were recorded on the Site.
	Legislative Compliance – WCA**	ee. Should any invasive species encountered on the Site prior to or during construction, the advice of a suitably qualified ecologist should be sort and the appropriate measures taken.

Legislative Compliance Key

* The Hedgerows Regulations 1997

**Wildlife & Countryside Act 1981 (as amended)

***The Conservation of Habitats and Species Regulations 2017 (as amended)

****Protection of Badgers Act 1992

Figure 1: Site Location Plan

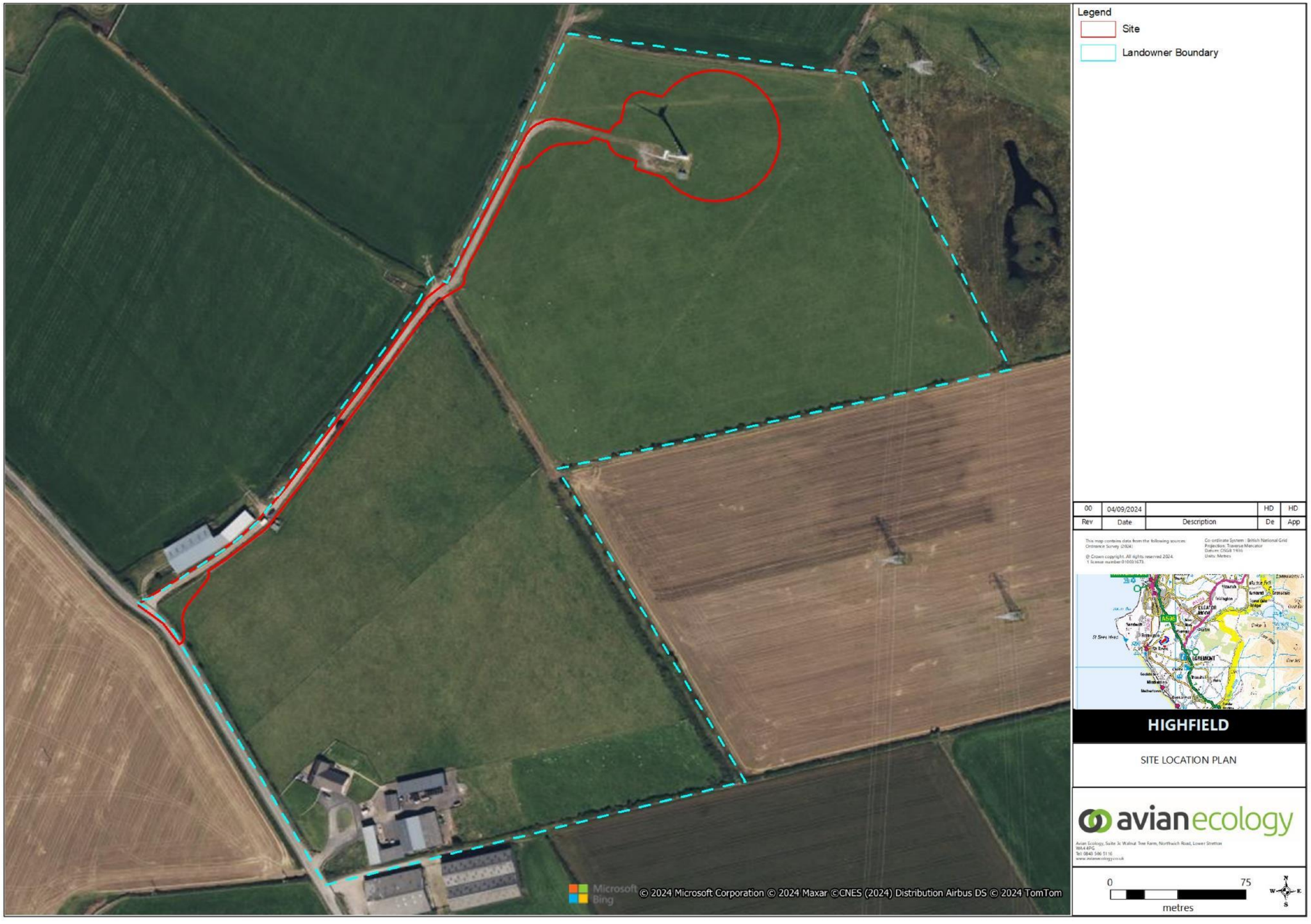


Figure 2: Statutory Designated Site Plan

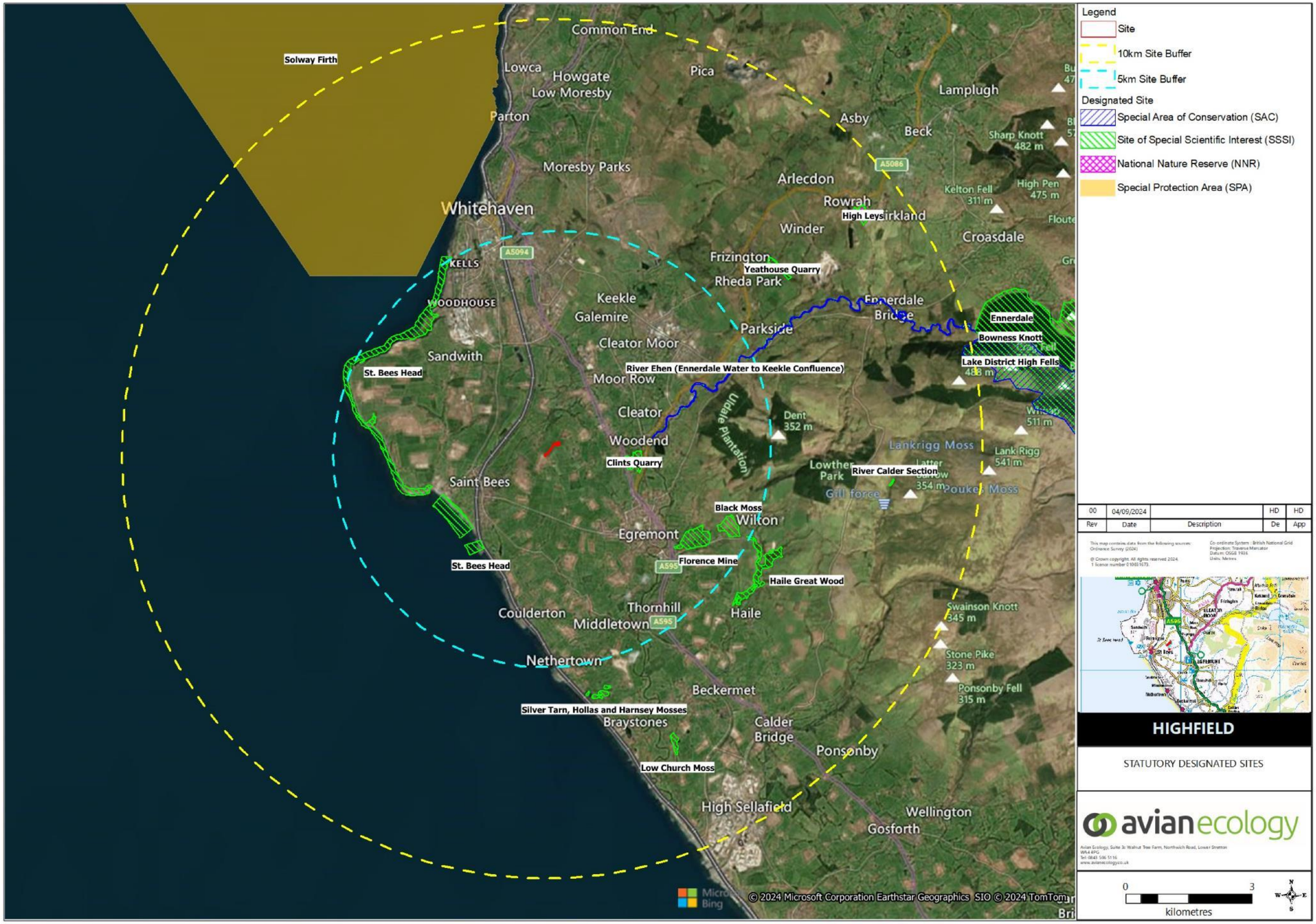


Figure 3: Non-Statutory Designated Site Plan

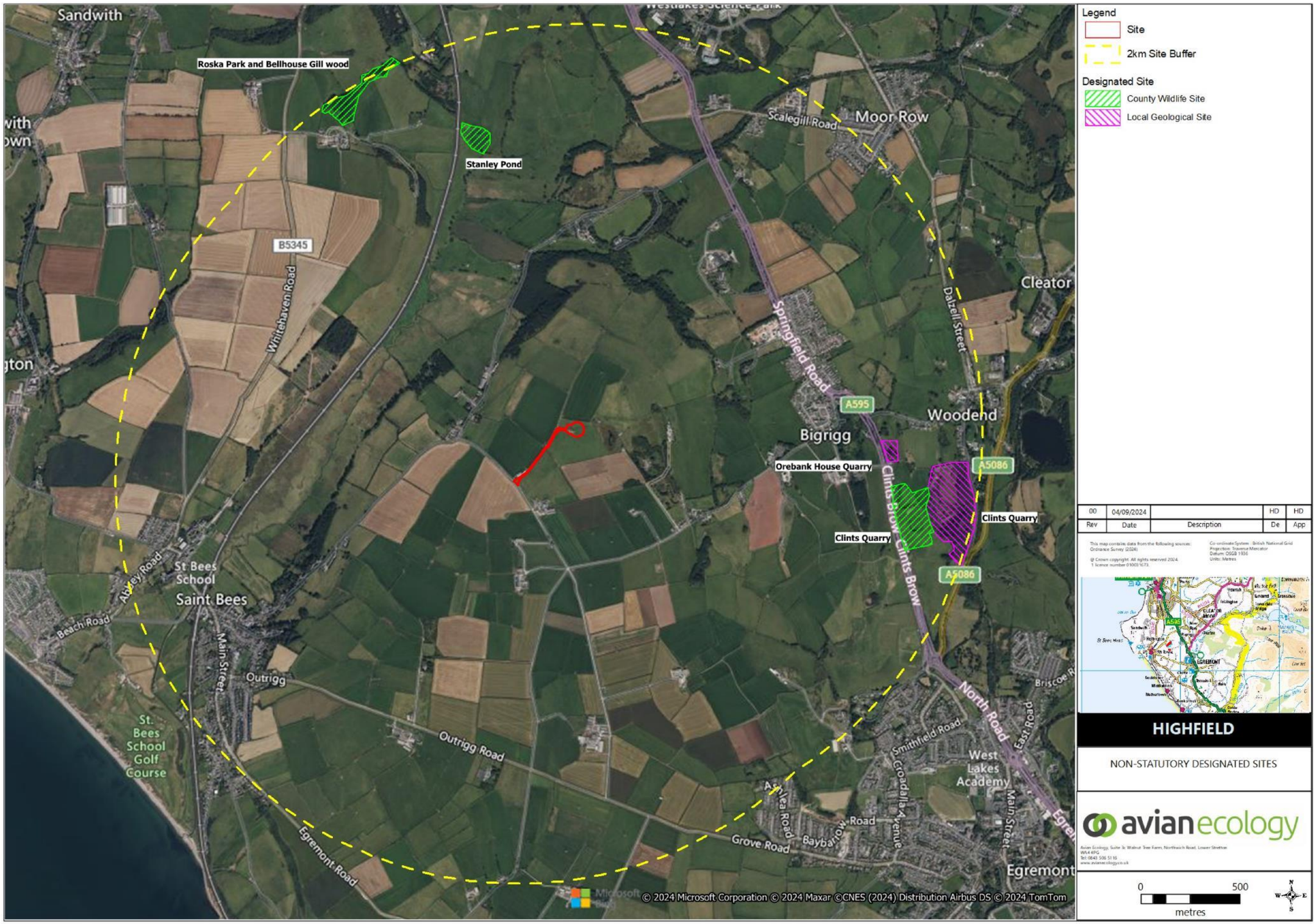
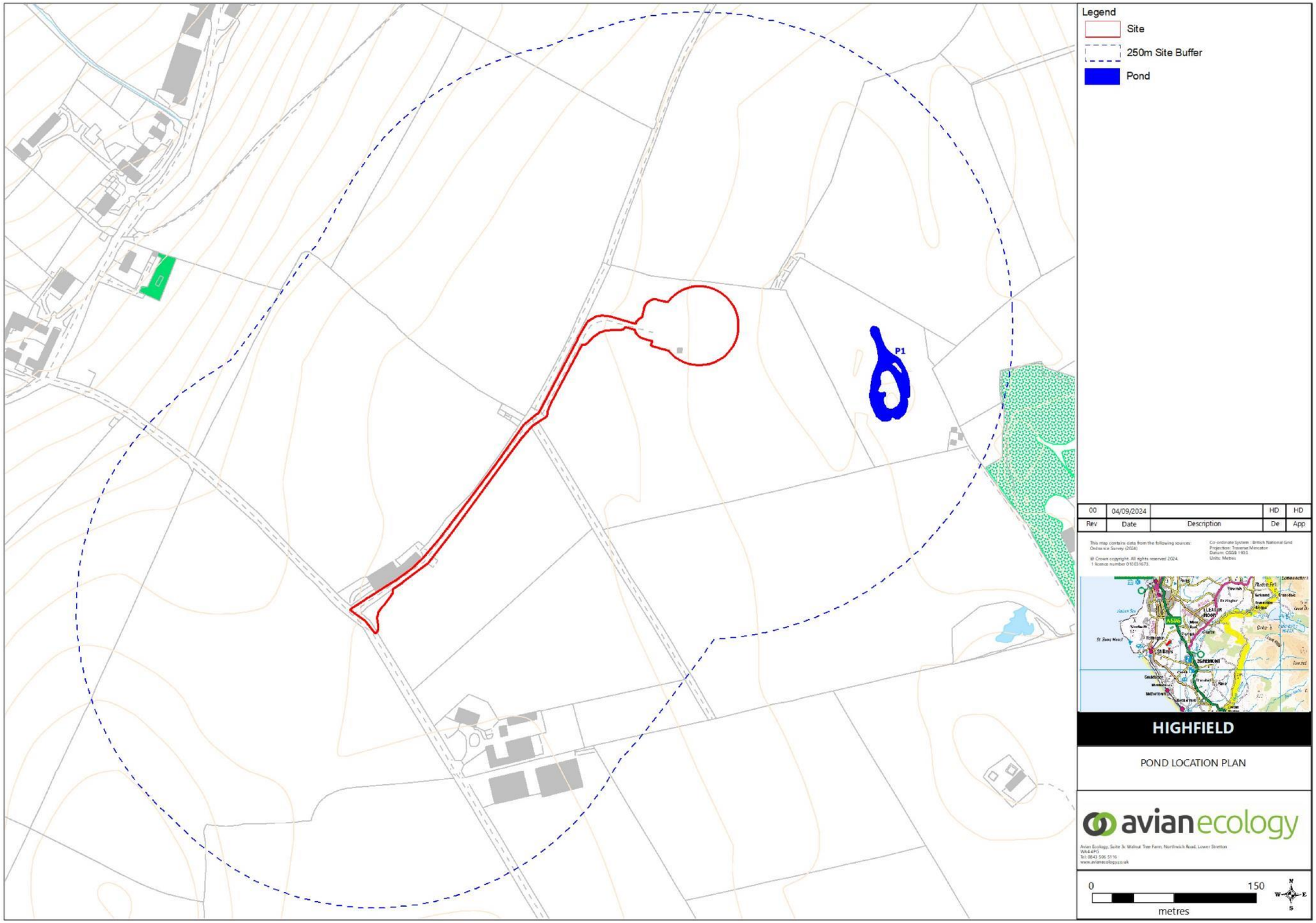


Figure 4: Habitat Plan

Figure 5: Pond Plan



Appendix 1: Photograph Panel

A1.1: Application Boundary Habitats.

Photo No.	Photographs	Description
1		Artificial unvegetated, unsealed surface (scattered grass, track) (**u1c.532.839**)
2		Artificial unvegetated, unsealed surface (bare ground, scattered grass, track) (**u1c.510.532.839)**
3		Artificial unvegetated, unsealed surface (track) **(u1c. 839**)

Photo No.	Photographs	Description
4		Developed land, sealed surface (wind turbine) (**u1b6.84**)
5		Developed land, sealed surface (industrial buildings) **(u1b5.817).** Included as TN6.
6		Developed land, sealed surface (industrial buildings***)*** **(u1b5.817).** Included as TN7.
7		Modified grassland (sheep grazed**) (g4.102)**

Photo No.	Photographs	Description
8		Modified grassland (bare ground, track) (**g4.510.838**)
9		Developed land; sealed surface (road) (**u1b6.800**) / Built linear features (dry stone wall) **(u12.114)**
10		Built linear feature (earth bank, scattered grass, scattered scrub, fenced) **(u1e.10.112.532.612)**
11		Built linear feature (earth bank, scattered grass, scattered scrub, fenced) **(u1e.10.112.532.612)**

Photo No.	Photographs	Description
12		Built linear feature (earth bank, scattered grass, scattered scrub) (**u1e.10.112.532**)
13		Native hedgerow (hedge bank, fenced) **(h2a.111.612)**
14		Native hedgerow (hedge bank, fenced) **(h2a.111.612)**

Photo No.	Photographs	Description
15		Individual hawthorn scrub (TN1).
38		Taken during the update May survey- Road widening corner, showing other neutral grassland road verge.

A1.2: Landowner Boundary Habitats.

Photo No.	Photograph	Description
16		Modified grassland (tall or tussocky sward, track***)*** **(g4.128.612)**
17		Modified grassland (sheep grazed) **(g4.102)**
18		Modified grassland (garden) **(g4.827)**

19		Native hedgerow (hedge bank, fenced) **(h2a. 111.612)**
20		Native hedgerow (hedge bank, fenced) **(h2a. 111.612)**
21		Native hedgerow (hedge bank, fenced) **(h2a. 111.612)**
22		Native hedgerow (hedge bank, fenced) **(h2a. 111.612)**

23		Native hedgerow (hedge bank, fenced) **(h2a. 111.612)**
24		Native hedgerow (hedge bank, fenced) **(h2a. 111.612)**
25		Built linear feature (dry stone wall, scattered grass, fence***)*** **(u1e.114.532.612)**

A1.3: Target Notes.

TN No.	Photograph	TN Reference
26		TN1: Hawthorn scrub. No PRFs present. No BRP.
27		TN2: Mammal scrapings, possible indicator of foraging activity.
28		TN3: Abandoned corrugated sheeting, possible refugia feature.
29		TN4: Snuffle holes, possible indicator of foraging activity.

30		TN5: Rock mound, possible hibernacula feature.
31		TN6: Substation in association with wind turbine. No BRP.
32		TN7: Substation in association with access track. No BRP.
33		TN8: Farm complex; multiple industrial buildings. Access limited, likely Negligible BRP.

34		TN9: Residential building. Access limited, likely Negligible-PRF-I BRP.
35		TN10: Industrial farm building located outside the landowner boundary, but adjacent to Site within buffer zone. No access, likely Negligible BRP.
36		TN11: Area to be cleared in relation to construction access.
37		TN12: Off-site pond habitat, located outside of the Landowner Boundary.