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Land at Further Lane/Woodfold Park

Preliminary Ecological Appraisal Report
With Recommendations for Planning

V 1.2

Owing to the historical presence of Badgers, the findings of this survey should not be disclosed outside of the intended purpose of this report

Date: 21/11/2022

By: Dominic Rigby MCIEEM

Ref: JE 7810-22

Client: Shaw and Jagger

Owing to the historical presence of Badgers, the findings of this survey should not be disclosed outside of the intended purpose of this report

[redacted]

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The results and any advice contained here is based on the information available during the agreed period of study and within the resources available. All reasonable effort has been taken to ensure that an accurate assessment of the subject is provided at the time of the survey. However, the absence of recorded evidence should not be taken as an absolute guarantee that the site was not being used by a particular species.

Any future readers should note that both the physical state of the site and the relevant environmental legislation may have changed since this report.

Revision Schedule				
Version	Date	Prepared by	For Comment	Checked by
Initial	**19/02/2021**	**D Rigby** Senior Ecologist	Shaw and Jagger	**G Lowe** CCNW Director
1.1 (New Red-line)	**18/11/2022**	**D Rigby**	Shaw and Jagger	**G Lowe** CCNW Director
1.2 (additional Map of neighbouring Priority Habitats)	**21/11/2022**	**DR**		

[redacted]

[redacted]

Land Adjacent to Woodfold Park

Preliminary Ecological Appraisal Report V1.2

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Conservation Contracts Northwest Ltd.

November, 2022

CONTENTS

ABBREVIATIONS AND GLOSSARY

BAP Biodiversity Action Plan

BCT Bat Conservation Trust

BNG Biodiversity Net Gain

BoCC Birds of Conservation Concern

BSBI Botanical Society of Britain & Ireland

CCNW Conservation Contracts North West

CIEEM Chartered Institute of Ecology and Environmental Management

EPS European Protected Species

GCN Great crested newt

ha Hectare

HSI Habitat Suitability Index

km Kilometres

LBAP Local Biodiversity Action Plan

LERN Lancashire Environmental Records Centre

m Metres

MCIEEM Full member, Chartered Institute of Ecology and Environmental Management

NERC Natural Environment and Rural Communities (Act 2006)

NGR National Grid Reference

NVC National Vegetation Classification

prf Potential roost feature (for bats)

UKHab UK Habitats Classification

> < more than/less than

[redacted]

1. SUMMARY

In 2022 Conservation Contracts Northwest Ltd. (CCNW) were contracted by Shaw and Jagger Architects to undertake a preliminary ecological appraisal (PEA) of several fields between Further Lane and Woodfold Park, Mellor Brook, Lancashire. The appraisal was to identify any ecological constraints and opportunities arising from a proposed private dwelling and parkland development on the land. In February 2021 a PEA covering a smaller area of the same land had been undertaken by CCNW. This current report updated that survey and extended its scope to cover the proposed parkland area and was undertaken following industry guidelines and this was reported using the standard report template.

For the study, the site was divided into several parcels and their boundary features. Using the UK Habitat Classification, the fields were identified as neutral and modified grasslands, these fields contained four mature oak trees; some areas of the fields were able to be compartmentalised further into different sub-divisions of neutral grassland: none were UK Priority Habitat. The boundary features on site were hedgerow, tree lines and agricultural/estate fencing. Off-site boundaries were composed of deciduous woodland and lines of trees. A wooden stable block was at the centre of the site and agricultural units were positioned at the western corner.

Regarding protected species, on- and off-site boundary features could host nesting birds and ground-nesting birds could occur on the site's fields. Barn owl was using the site, but the proximity of a nesting site was unknown. Badger evidence had been found in the 2021 survey in one of the fields and a sett discovered within 30m of the site; there was no badger evidence on the 2022 visit. Agricultural buildings at the west end of the site had moderate bat roost potential and trees on and bounding the site contained potential roost features; desk study records revealed a small bat-roost nearby. Great crested newts were using ponds within 2km of the site but there were no ponds on site, however the terrestrial habitat on site could host a range of amphibians, as well as hedgehog.

The following was recommended:

- Condition assessments of the habitats on site during late spring/summer.
- Bat emergence surveys would be required if the agricultural buildings were to be demolished.
- Breeding bird surveys for barn owl and potential, red-listed breeding birds that could be affected by development.
- Further bat roost surveys/inspections would be required if any of the mature trees were to be affected (by lighting or felling).
- Method statements should be prepared regarding timing of site clearance for nesting birds, great crested newt, toads and hedgehog to ensure that no offence in law was committed.
- Regarding bats, a dark corridor should be maintained along the treed boundaries and on-site trees.
- A 30m disturbance-exclusion buffer would be required around any badger setts, with checks for new setts undertaken immediately prior to development.
- Additional gaps and light-spill onto the Further Lane hedge to be minimised to reduce the need for bat activity surveys and mitigation.
- Any hedgerow removal would need to be compensated by replacement elsewhere on site; a more species-rich replacement would provide net gain.
- A Biodiversity Net Gain Report should be produced following the habitat condition assessments and any habitat-based species mitigation designs.
- Enhancements such as a wildlife pond/marsh, more sensitive grassland management and additional hedging/tree planting to increase on- and off-site habitat connectivity, should be designed into the landscape plan.

It was concluded that sensitive development to this site could result in a net gain for wildlife and habitats.

2. INTRODUCTION

2.1 Principal Author

This report was compiled by Dominic Rigby MCIEEM, Senior Ecologist at CCNW. He had 35 years' professional experience in the ecology sector and held survey/disturbance licences in England and Wales for great crested newts, bats and barn owls. He was up to date with the latest developments in ecological assessment having attended Chartered Institute of Ecology and Environmental Management (CIEEM) courses on UK Habitat Classification, Biodiversity Net Gain and Calculating and Using Biodiversity Units with Defra Metric 2.0/3.0 in the last two years.

2.2 Guidelines

- The Report followed Chartered Institute of Ecology and Environmental Management Guidelines on Ecological Report Writing (CIEEM 2017a; Dean, 2021), where a Preliminary Ecological Appraisal Report was defined as "a report that aims to provide general advice on ecological constraints associated with any site/development and includes recommendations for further survey."
- The process followed during this Preliminary Ecological Appraisal was that set out in the Guidelines for Preliminary Ecological Appraisal (CIEEM 2017b).

2.3 Site Description

2.3.1 Location

The 5.8ha site was adjacent to Further Lane and Woodfold Park, Mellor Brook. The central grid reference was SD6359129578.

County: Lancashire

Borough: Ribble Valley

Parish: Mellor Parish

Figures One and Two (p7, p8) mapped the location and provided a geographical sectioning of the site.

2.3.2 Description

The site was composed of several improved and semi-improved horse-grazed grassland fields. The south-western corner contained agricultural stables, storage and office buildings. A smaller stable was in the centre of the site. The eastern fields had been neglected and a semi-natural neutral grassy mosaic was developing; the western part of the site was still actively managed for horses and was composed of intensively grazed improved rye pastures and grazed neutral grasslands. Standard native trees occurred in some of the grassland parcels.

- **Site Boundaries**

The fields were divided by post and rail fencing, temporary electric fencing and estate fencing. This fencing continued along most boundaries, with metal estate fencing along the eastern boundary and sheep netting along the site's hedgerow and gappy mortared stone walls along some SW boundaries.

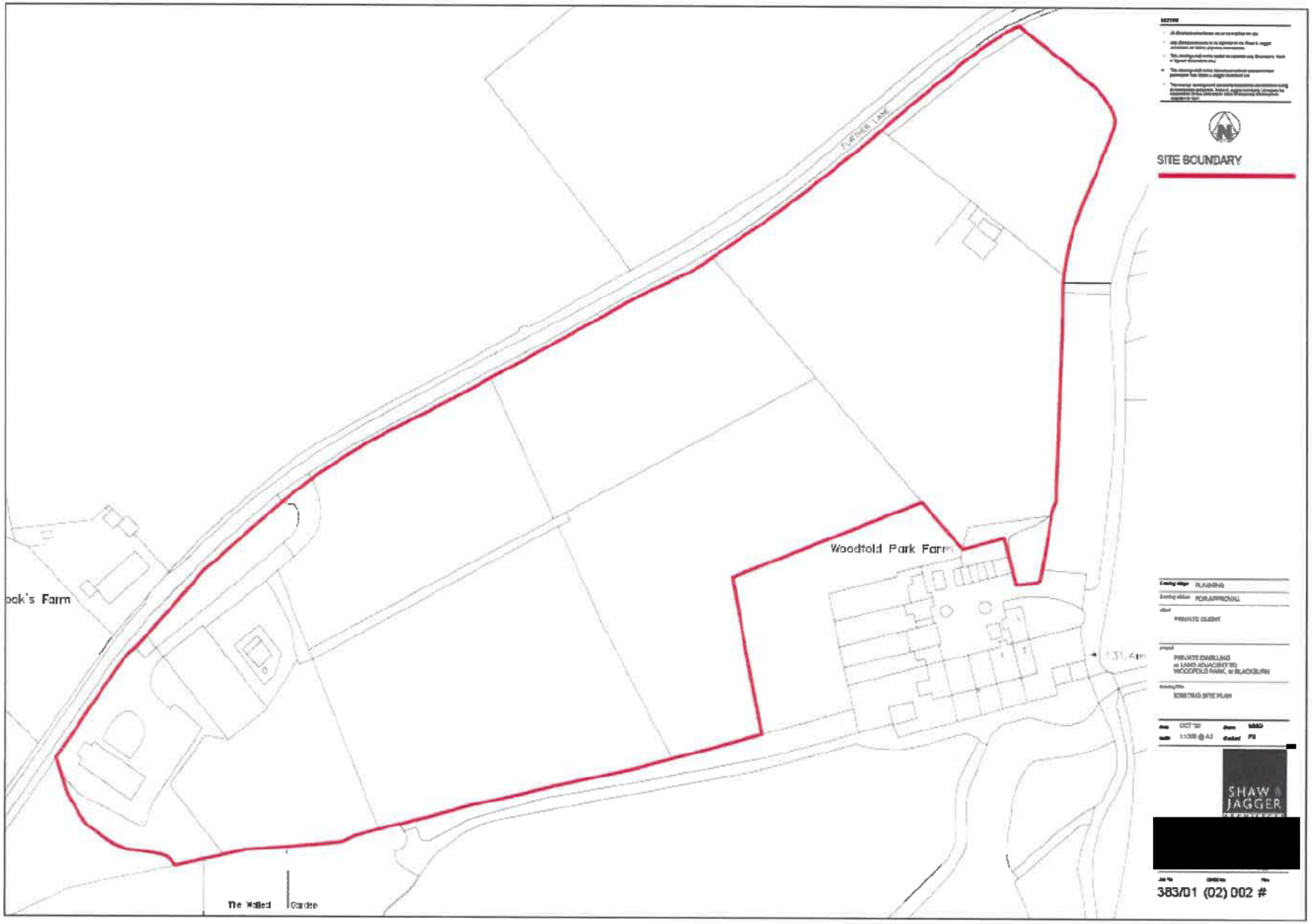
The roadside hedgerow was a heavily flailed hawthorn hedge which ran parallel to Further Lane, along the northern boundary of the site. The western most boundary along Further Lane was hedged from a former line of deciduous trees. The north east boundary hedge ran parallel with a seasonally flooded drainage ditch. Over the eastern boundary there was a wide line of mixed deciduous trees. These overhung and occasionally straddled, the site. The tree line widened on the northern-eastern and southern boundaries, forming small, off-site mixed-deciduous woods.

Figure One: Site Location and Surrounding Landscape

Redline: PEA site boundary

[redacted]

Figure Two: Red Line Boundary Site Map (courtesy of Shaw and Jagger Architects)



2.4 Purpose and Scope of Report

2.4.1 Purpose of a PEA

The key objectives of a PEA were defined (CIEEM, 2017a) as:

- Identification of the likely ecological constraints associated with a project;
- Identification of any mitigation measures likely to be required;
- Identification of any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and,
- Identification of opportunities to offer ecological enhancement.

This PEA was produced to inform the client of any detailed further-surveys required, to inform any potential Biodiversity Net Gain and EcIA requirements and, within the context of the proposed project, would reference relevant legislation and planning policies.

2.4.2 Scope of this PEA

This assessment comprised a desk study and a field study. The desk study was supplied by CCNW using the Lancashire Environmental Records Centre (LERN) data.

The field study comprised of:

- Mapping habitats within the red-line boundary, and beyond where any development may impact those;
- Assessment of possible presence of protected or priority species and the likely importance of habitat features for such species;
- Noting of any invasive non-native species (INNS); and,
- Recording of incidental sightings or field signs of priority/protected species

2.4.3 Constraints and Deviations from PEA Guidelines

The following limitations were noted:
The PEA commissioned and undertaken in November 2022, with an earlier iteration done in February 2021. This was outside the optimal period for gathering specific details to inform comprehensive nesting bird information and bat activity surveying.

It was not considered a constraint to habitat classification, but robust condition monitoring of the grassland parcels could not be made. Section 4.3 itemised the constraints in more detail (p22). The implications of these constraints are discussed in Section 6 Ecological Constraints and Opportunities (p44).

2.4.4 Limitations

The appraisal focussed on ecology only. It did not make assessment or evaluation based on landscape or heritage features. For example, trees on site were assessed for their biodiversity potential only and no assessment or recommendations were made regarding their potential veteran status or tree preservation orders, neither of which were ecological designations.

3. LEGISLATION AND POLICY

3.1 Legislation

The following pieces of legislation and guidance may have been relevant to the site, with respect to habitats, plants and animal species that could be present. Consequently, any changes to the site would need to adhere to the legislation and consider any guidance.

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

Formerly The Conservation of Habitats and Species Regulations 2017, these provided safeguards for European Protected Sites and Species (as listed in the Habitats Directive). This had recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 which continued the same provision for European protected species, licensing requirements, and protected areas after Brexit.

During the implementation period the 2017 Regulations would continue to be in force unamended. At the end of the implementation period the 2017 Regulations would continue to be in force but will be amended to make certain areas of the 2017 Regulations operate.

These regulations provided legal protection for European Protected Species (those listed under Annex IV of the EU Habitats Directive - Council Directive 92/43/EEC). With regards to European Protected Species, this made it an offence to:

Deliberately capture, injure or kill an EPS.

Deliberately disturb an EPS in a way that would affect its ability to survive, breed or rear young, hibernate or significantly affect the local distribution or abundance of the species.

Damage or destroy a roost/resting place [this is an 'absolute' offence and need not be deliberate or intentional].

Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead, or any part of an EPS.

- ***On this site potential EPS were great crested newt (Triturus cristatus) and any bat species.***

[redacted]

The Wildlife & Countryside Act 1981 (as amended)

The following parts of this Act could be relevant to this site:

Section 9 (Protected Species):

"9 (1) Subject to the provisions of this Part, if any person intentionally kills, injures or takes any wild animal included in Schedule 5, he shall be guilty of an offence. [No longer applies to EPS – see below]

9 (2) Subject to the provisions of this Part, if any person has in his possession or control any live or dead wild animal included in Schedule 5 or any part of, or anything derived from, such an animal, he shall be guilty of an offence. [No longer applies to EPS – see below]

9 (4) Subject to the provisions of this Part, a person is guilty of an offence if intentionally or recklessly—

(a) he damages or destroys any structure or place which any wild animal specified in Schedule 5 uses for shelter or protection; [No longer applies to EPS – see below]

(b) he disturbs any such animal while it is occupying a structure or place which it uses for shelter or protection; or

(c) he obstructs access to any structure or place which any such animal uses for shelter or protection."

"9 (5) Subject to the provisions of this Part, if any person—

(a) sells, offers or exposes for sale, or has in his possession or transports for the purpose of sale, any live or dead wild animal included in Schedule 5, or any part of, or anything derived from, such an animal; or

(b) publishes or causes to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things,

he shall be guilty of an offence."

Former (post-Brexit) EPS are covered by 9 (4) b, c, and 5 only.

Schedule 5 covered the following species potentially relevant to this site:

- ***Great crested newt, bats, water vole (Arvicola amphibious), Slow worm (Anguis fragilis), Grass Snake (Natrix natrix), Adder (Vipera berus), Common Lizard (Zootoca vivipara).***

Part One: Birds

It was an offence to

"Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built".

Additionally, the word "Disturbance" was added to those species listed under Schedule One.

Barn Owl (Tyto alba) was potentially relevant to the site

[redacted]

The Natural Environment and Rural Communities Act 2006

Section 40 of this Act required that local and regional authorities had regard to the conservation of biodiversity in England, when carrying out their normal functions.

Habitats and species of principal importance for nature conservation in England were listed in Section 41 of The Natural Environment and Rural Communities (NERC) Act 2006.

Habitats potentially relevant to this site were:

- ***Lowland Meadows, Hedgerows, Lowland mixed deciduous woodland***

Species of principal importance for nature conservation in England in Section 41, potentially relevant to this site were:

- ***Common toad (Bufo bufo), Hedgehog (Erinaceus europaeus) ,several species of plant, bat and bird.***

The Invasive Alien Species (Enforcement and Permitting) Order 2019

These classified as controlled waste any soil and waste containing propagules of a plant species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Potentially relevant to this site were:

Himalayan balsam (*Impatiens glandulifera*)

Japanese knotweed (*Reynoutria japonica*)

Giant hogweed (*Heracleum mantegazzianum*)

Variegated yellow archangel (*Lamium galeobdolon* subsp. *argentatum*)

Cotoneaster spp.

Rhododendron ponticum

Montbretia (*Crocosmia* × *crocosmiiflora*)

The Environment Protection Act 1990

This classified as controlled waste any soil and waste containing propagules of a plant species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), including Giant hogweed, Japanese knotweed and Himalayan balsam.

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 made it an offence to wilfully take, kill, injure or ill-treat a badger, possess a dead badger or any part of a badger. Sett interference included damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it was occupying a sett. The Act defined a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England took this definition to include seasonally used setts.

Work that may disturb badgers or their setts was illegal without a development licence from the relevant statutory body.

[redacted]

Birds of Conservation Concern (BoCC)

This list was used in the ecological consultancy industry to inform ecological valuation as part of the impact assessment process. All species on the red and amber lists would be considered in the same way as those on the s41 list (see NERC Act above). The 5th edition of this publication was published at the end of 2021 (Stanbury *et al*, 2021).

The following species whose status on site (for example "breeding") could coincide with the criteria for inclusion on the red or amber list (for example long-term UK breeding decline) could be present on the site:

Red list:

Swift, lapwing, skylark, house martin, starling, mistle thrush, house sparrow, greenfinch, linnet, lesser repoll and yellowhammer.

Amber list:

Stock dove, woodpigeon, tawny owl, sparrowhawk, kestrel, willow warbler, wren, song thrush, dunnock, bullfinch and reed bunting.

Wild Mammals (Protection) Act 1996

This Act aimed to protect wild mammals from deliberate acts of cruelty. Prior knowledge of the presence of mammals, or negligence through lack of survey, followed by works that could harm mammals, could come under this Act.

[redacted]

3.2 Planning Policy

3.2.1 Core Strategy 2008-2028: A Local Plan for Ribble Valley, (Adopted December 2014)

KEY STATEMENT EN4: BIODIVERSITY AND GEODIVERSITY

Negative impacts on biodiversity through development proposals should be avoided. Development proposals that adversely affect a site of recognised environmental or ecological importance will only be permitted where a developer can demonstrate that the negative effects of a proposed development can be mitigated, or as a last resort, compensated for. It will be the developer's responsibility to identify and agree an acceptable scheme, accompanied by appropriate survey information, before an application is determined. There should, as a principle be a net enhancement of biodiversity.

Among the sites listed relevant to this statement were:

- *Lancashire Biodiversity Action Plan priority habitats and species*
- *European Directive on Protected Species and Habitats - Annexe 1 Habitats and Annexe II Species*
- *Habitats and Species of Principal Importance in England*

ENVIRONMENT POLICY DME1: PROTECTING TREES AND WOODLANDS

Veteran and ancient trees

the borough council will take measures through appropriate planning conditions, legislation and management regimes to ensure that any tree classified identified as veteran/ancient tree is afforded sufficient level of protection and appropriate management in order to ensure its long-term survivability.

Hedgerows

the borough council will use the hedgerow regulations to protect hedgerows considered to be under threat and use planning conditions to protect and enhance hedgerows through the use of traditional management regimes and planting with appropriate hedgerow species mix

POLICY DME2: LANDSCAPE AND TOWNSCAPE PROTECTION

Development proposals will be refused which significantly harm important landscape or landscape features including: 1. traditional stone walls. 2. ponds. 3. characteristic herb rich meadows and pastures. 4. woodlands. 5. copses. 6. hedgerows and individual trees (other than in exceptional circumstances where satisfactory works of mitigation or enhancement would be achieved, including rebuilding, replanting and landscape management).

POLICY DME3: SITE AND SPECIES PROTECTION AND CONSERVATION

Development proposals that are likely to adversely affect the following will not be granted planning permission:

list includes: *Any acknowledged nature conservation value of sites or species.*

3.2.2 Ribble Valley Planning Advice: Protected Species – Bats

Additional guidance was provided on the Ribble Valley website, potentially relevant to this site. The italics were added as they could have relevance to the current report:

Floodlighting	We will require an appropriate bat survey to accompany proposals for the floodlighting of any of the following: • Churches, listed buildings, green space (e.g., sports pitches) *within 50m of woodland*, water, *hedgerows, or lines of trees with connectivity to woodland* or water. • Any building meeting the criteria laid out in 'Buildings' above.
Felling, removal, or lopping of:	We will require and appropriate bat survey to be submitted with applications which propose any work to the following: • *Woodland* • *Hedgerows and/or lines of trees with connectivity to woodland* or water bodies • *Ancient and/or Veteran trees, and/or trees over 100 years old* • *Mature trees with obvious holes, cracks or cavities, or ivy covered (including large dead trees)*

From: https://www.ribblevalley.gov.uk/info/200361/planning_applications/1420/protected_species

[redacted]

3.2.3 National Planning Policy Framework

The National Planning Policy Framework (Gov.uk, 2021 section: Conserving and enhancing the natural environment, 7/2021 revision) set out the framework for planning decisions regarding ecological considerations. The relevant sections on the natural environment were paragraphs 174-188.

Of particular significance in the 7/2021 amendment, para 180(d) of the NPPF (2021) required opportunities to incorporate biodiversity improvements in and around development, rather than simply making them optional.

3.2.4 The British Standard for Biodiversity 42020:2013

British Standards Institution (2013) defined the requirements for ecological input in the planning process and illustrated how that fitted with the Royal Institute of British Architects (RIBA) Plan of Work guidance stages. It also included suitable wording for planning conditions and other controls (e.g., Section 106 Agreements for maintenance of a building as a bat roost, or conservation agreements under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006).

3.2.5 Spring Statement, 2019; Environment Act, 2021

Biodiversity Net Gain (BNG)

In the 2019 Spring Statement the Chancellor delivered the following statement: "to ensure that wildlife isn't compromised in delivering necessary infrastructure and housing, the government will Mandate (*sic*) net gains for biodiversity on new developments in England to deliver an overall increase in biodiversity". This concept of biodiversity net gain was then incorporated into the Environment Act 2021, the secondary legislation to enforce this was expected to be in November 2023. BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years.

[redacted]

4. METHODOLOGY

4.1 Desk Study

The objective of the desk study was to review the existing information, available from the local records centre (LERN) and in the public domain, concerning species and habitats to identify the following:

- Relevant designated sites for wildlife or geology on or neighbouring the site, using LERN database and the Multi Agency Geographic Information for the Countryside (MAGIC) website (Defra, updated 2022);
- Protected and locally significant species records using local searches of reliable, up to date data. Protected Species distributions were checked using the NBN Atlas (NBN Atlas Partnership, 2017, updated 2022), LERN and Lancashire and Cheshire Fauna Society (bird records);
- Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify features of ecological interest surrounding the Site, nearby areas of ecological interest and features connecting these habitats (hedgerows, watercourses, railway lines, ponds); and,
- Ecological and Arboricultural reports relating to neighbouring planning applications from the previous ten years were studied and information was incorporated as necessary.

4.2 Field Survey

These were conducted on 10th November 2022, a still, dry day. Earlier the eastern side of the site had been surveyed for an earlier iteration of the PEA on 5th February 2021.

4.2.1 Habitat Survey

4.2.1.1 UK Habitat Classification (UKHab)

The habitats were surveyed using the UKHab. The surveys were undertaken by Dominic Rigby (DR) on 10th November 2022 (see 2.1, p6).

The following metadata was collected, as recommended in UK Habitat Classification User Manual version 1.1 (Butcher *et al*, 2020).

- **Survey Scope**

  The habitat classification was applied to the redline boundary as defined in the Figure Two (p8). Boundary features potentially affecting or affected by the site were surveyed.

- **UKHab Edition**

  The Professional Edition (v1.1) was used to maximise the future value of the habitat data. Thus, habitat compartments were keyed out to Primary Code Level 5, where this level was appropriate.

- **Minimum Mapping Unit (MMU)**

  The finer scale 25m^2 polygon/5m length MMU was used to determine habitat compartments for classification and condition assessments.

  - **Secondary Codes**

Secondary Codes 10-200 were used alongside the primary codes. Habitat mosaic (codes 10-18), habitat complex (19-32), origins (33- 49), management (51-85) and environmental qualifiers (117-138) were treated as mandatory (where relevant).

The in-use secondary codes used were displayed in Table One (p19).

- **Habitat Transitions**

A compartment was assigned a habitat code when it was covered by 70% of the ground; a well-used convention recommended in the UKHab User Manual.

- **Recording**

Data was collected in the field, following the UKHab Field Key v2.1 (UK Habitat Classification Working Group, 2020).

Field data was collected by writing over a 1:1250 paper map, provided by the client (see Figure Two, p8). This map had been cross-referenced with current Google Earth view prior to the field visits. The new field data were then transferred onto fair-copy versions at the desk, checked (see below) and digitised using QGIS v3.16.

- **Mapping**

The habitat maps were digitised using QGIS v3.16 at a minimum scale of 1:125.

The habitat polygons were depicted using the suggested symbology for UKHab Basic Edition and additional priority habitats (UK Habitat Classification Working Group, 2018). This iteration of the symbology treated linear habitats as polygons (see 4.3, p22).

Table One: Secondary Codes Used During Project

Code	Label	Group
10	Scattered scrub	Habitat Mosaic
11	Scattered trees	Habitat Mosaic
14	Scattered rushes	Habitat Mosaic
15	Rushes dominant	Habitat Mosaic
16	Tall herb	Habitat Mosaic
17	Ruderal/ ephemeral	Habitat Mosaic
61	Horse grazed	Management
64	Mown	Management
66	Frequently mown	Management
68	Mortared wall	Management
69	Fence	Management
73	Bare Ground	Management
77	Neglected	Management
81	Flailed hedgerow	Management
82	Laid hedgerow	Management
88	Barn	Land use
89	Car Park	Land use
90	Commercial building	Land use
117	Dry	Environmental Qualifier
118	Mesic	Environmental Qualifier
119	Seasonally wet	Environmental Qualifier
120	Wet	Environmental Qualifier
121	Waterlogged	Environmental Qualifier
191	Ditch (more permanent)	Species Feature

4.2.1.2 Condition Assessments

The habitat condition of each compartment was assessed using the appropriate area-habitat type as set down by Natural England (Panks et al, 2021). However, the following was noted

"Habitat surveys can be undertaken year-round, though it is important to note that the optimal survey season is April to September inclusive for most habitat types. Surveys outside of the optimal survey period should use a precautionary approach to assessing condition criteria which are not measurable at the time of year the survey is undertaken."

From: The Biodiversity Metric 3.0 Technical Supplement Para 1.6

In the light of this statement only the Lines of Trees and Hedgerows on site were subject of Condition Assessments, with a recommendation that all Condition Assessments are undertaken/reviewed in May/June next year as part of a Biodiversity Net Gain report.

[redacted]

4.2.2 Species Surveys

4.2.2.1 Plants

All plants were listed to enable correct UKHabs classification; any notable plants seen during the UKHabs survey were recorded.

4.2.2.2 Amphibians

Terrestrial habitat was checked for suitability for foraging, dispersal and hibernation.

4.2.2.3 Birds

Birds detected by sight/call were noted and habitat assessed for potential nesting species.

4.2.2.4 Water Vole

The ditch running parallel to Further Lane was checked for water vole suitability/evidence.

4.2.2.5 Bats

- **Potential Roost Features in Trees**

As part of the habitat surveys consideration was given to trees and tree-groups with potential roost features using criteria in BTHK (2018) and Collins (2016). Trees within the red-line boundary were assessed for potential roost features (prf).

- **Stables (Compartment 21)**

The stable block was subject to a potential roost assessment (following Collins, 2016), using high-powered torch and endoscope. Detailed examination of the inside was undertaken searching for droppings, urine stains and smoothed surfaces.

- **Agricultural Buildings (SW corner)**

These were assigned a bat roost potential suitability from an external inspection.

- **Bat Activity**

Potential for the site to provide bat commuting/foraging was assessed by habitat provision.

4.2.2.6 Badgers

The site was checked for badger signs and a search for setts around a 50m buffer around the site was undertaken.

4.2.2.8 Other Protected Species

Habitat suitability for hedgehogs and reptiles was noted during the habitat surveys.

4.2.2.9 Invertebrates

The potential importance of the site for invertebrates was assessed via the habitat classification and provisional condition assessments.

4.2.2.10 Invasive Non-native Species (INNS)

Any species relevant to INNS legislation (see 3.1, p12-13) was noted during the habitat survey and assessment.

[redacted]

4.3 Constraints and Implications

The following constraints, conventions and deviations from national guidelines were noted.

4.3.1 Time of Year

The survey took place in November. This led to the following constraints:

- **Plants and habitats**

Few plants were in flower at the time of the survey. However, the surveyor was able to identify grasses at the vegetative stage (although some species were known to be hard to detect in winter, particularly *Cynosurus cristatus* which can be characteristic of some neutral grasslands, thus its absence was not considered as diagnostic). Most of the perennial wild flowers present were identifiable at their rosette stage. The time of year was not considered a material constraint habitat categorisation; however, condition assessments of the grassland habitats was deferred to spring/summer.

- **Nesting Birds**

The survey was done out-of-season for most species, consequently a comprehensive understanding of the importance of the site was not be attained by field survey data alone. However, desk study records coupled with field observation were used but further field surveys recommended.

- **Bats**

The importance of the site for bats could be assessed by the suitability of habitat and site-structure only, as these mammals were likely to be in hibernation at the time of the survey. The presence of some features, such as droppings, were less likely to be encountered in winter. Desk study records coupled with field observation were deemed adequate for the PEA.

- **Reptiles, Hedgehog and Invertebrates**

The likelihood of the site to host these species/species groups was derived from habitat suitability and known local status only, as there would be no activity during winter. This was deemed adequate for the PEA.

4.3.2 UKHab

- **Mapping**

The QGIS symbology used for UKHab (UKHab, 2018) was a polygon-only file. Thus, linear habitat (smaller ditches and hedgerows) was mapped as polygons. Should a BNG assessment be required later these would need to be redrawn as line files.

- **Condition Assessment**

Should a BNG assessment be required later these would need to be reassessed using the latest BNG Defra metric (see 4.2.1.2, p20).

[redacted]

5. BASELINE ECOLOGICAL CONDITIONS

5.1 Designated Sites

There were eight county wildlife sites (known as Biological Heritage Sites – BHS, in Lancashire) within 2km of the site (Figure Three, p24). All were designated for their semi-natural woodland. Only Woodfold and Jeffrey Woods and Mammon Wood and Carter Fold Wood lay within Ribble Valley Borough.

5.1.1 BHS Within 250m of the Site

None

5.1.2 Sites Within 500m 1km of the Site

Woodfold and Jeffery Woods 62NW17

This 50ha BHS was 445m SE from the site with a ground flora indicative of ancient woodland. The site adjoined Alum House Wood Biological Heritage Site (BHS 62NW16) and along with Wild Bottom's Wood (BHS 62NW12) formed a large, contiguous area of woodland occupying 94.6 ha.

Hoolster Wood 63SW14

This 4.4ha site comprised of ancient semi-natural woodland. The wood was situated along the banks of a small brook. The site was 800m NW of the project site.

5.1.3 BHS Within 1km and 2km of the Site

Heatley Wood 62NW13

This 11ha semi-natural ancient woodland was 1035m SW from the project site.

Alum House Wood 62NW16

This site was a continuation of 62NW17, and was abutting its southerly boundary.

Wild Bottom's Wood 62NW12

This site was a further continuation of 62NW16 and 17, SW of the project site.

Mammon Wood and Carter Fold Wood 63SW20

This 6.9ha semi-natural woodland was 1710m due north of the project site.

Darwen River Section Woods (Including Sharples Wood and Kiln Wood) 62NW07

1815m due west of the project site and continuing further west along the River Darwin was this series of woodlands, fields and riverbanks.

Crook Hey Wood 62NW11

This 5.7ha site comprised ancient, semi-natural woodland situated alongside a tributary of the River Darwen. It was 1985m SSW of the project site at its nearest point.

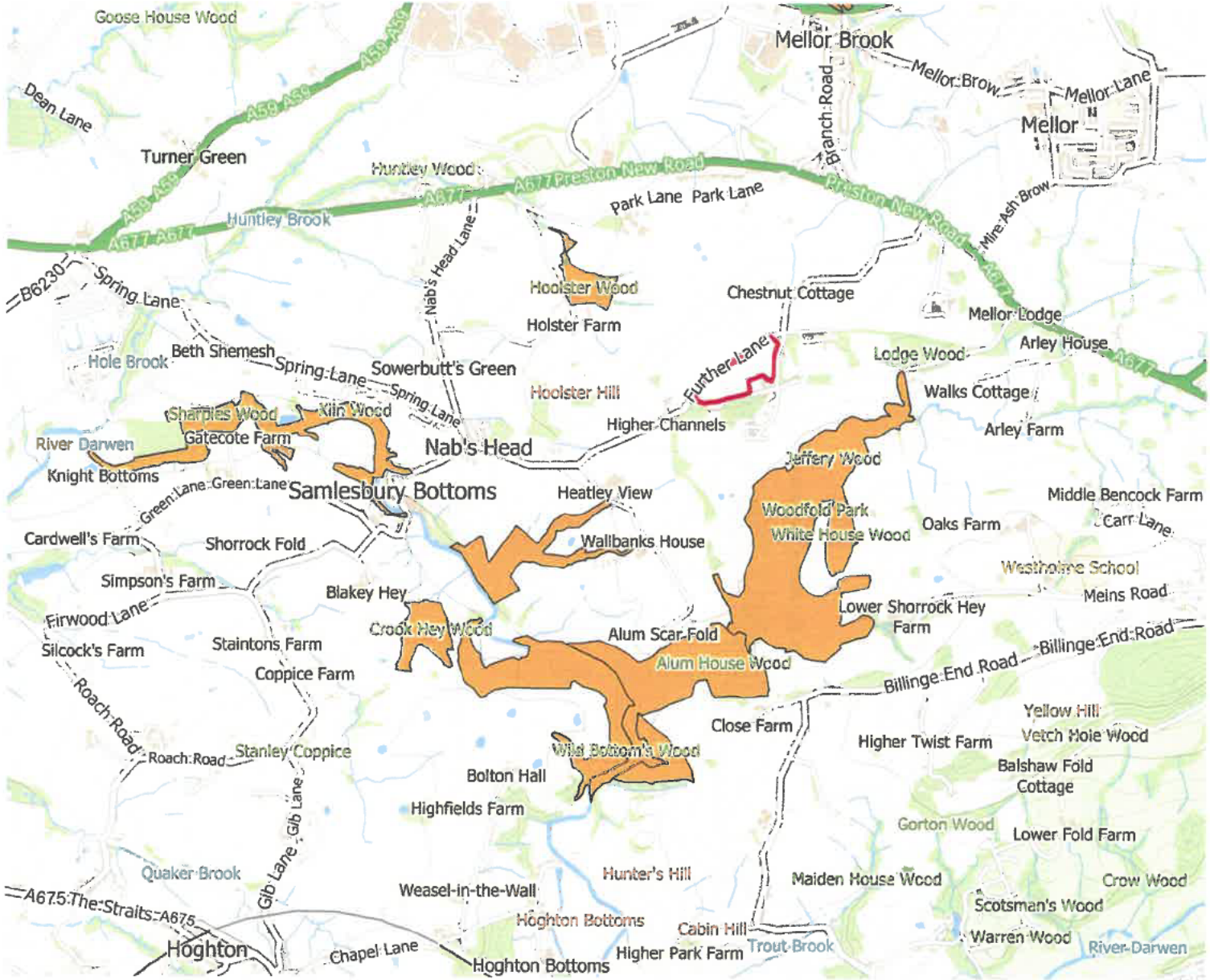


Figure Three: Protected Sites

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5.2 Habitats

The habitats present on site were divided into UKHab Primary levels.

The habitat polygon attributes (Tables A1 and A2, p58-60) broke down the individual habitat polygons showing polygon associations (habitat compartments), primary and secondary codes, relevant condition assessments, INNS, prfs and additional notes.

The habitat polygons were mapped at a minimum scale of 1:125 and the map displayed in Figure Four (p26).

None of the habitats on-site were listed as Priority Habitats, as recognised by s41 of the NERC Act (see 3.1, p12).

5.2.1 UKHab Primary Classification Hierarchy Level One Label

All habitats were "Terrestrial".

5.2.2 Level Two Label

The habitats were presented below in Level Two area order, highest to lowest. Levels Four and Five (as appropriate) and reference to any Priority Habitats, were then described under each relevant Level Two label.

Table Two: UKHab Level 2 Habitats by Area (within red line)

Level 2 Label	Code	Total Area in ha (2 dec. places)
Grassland	g	5.19
Urban	u	0.43
Line of Trees	w	0.03
Heathland and Scrub	h	0.01

The habitats were presented in Figure Four below.

[redacted]

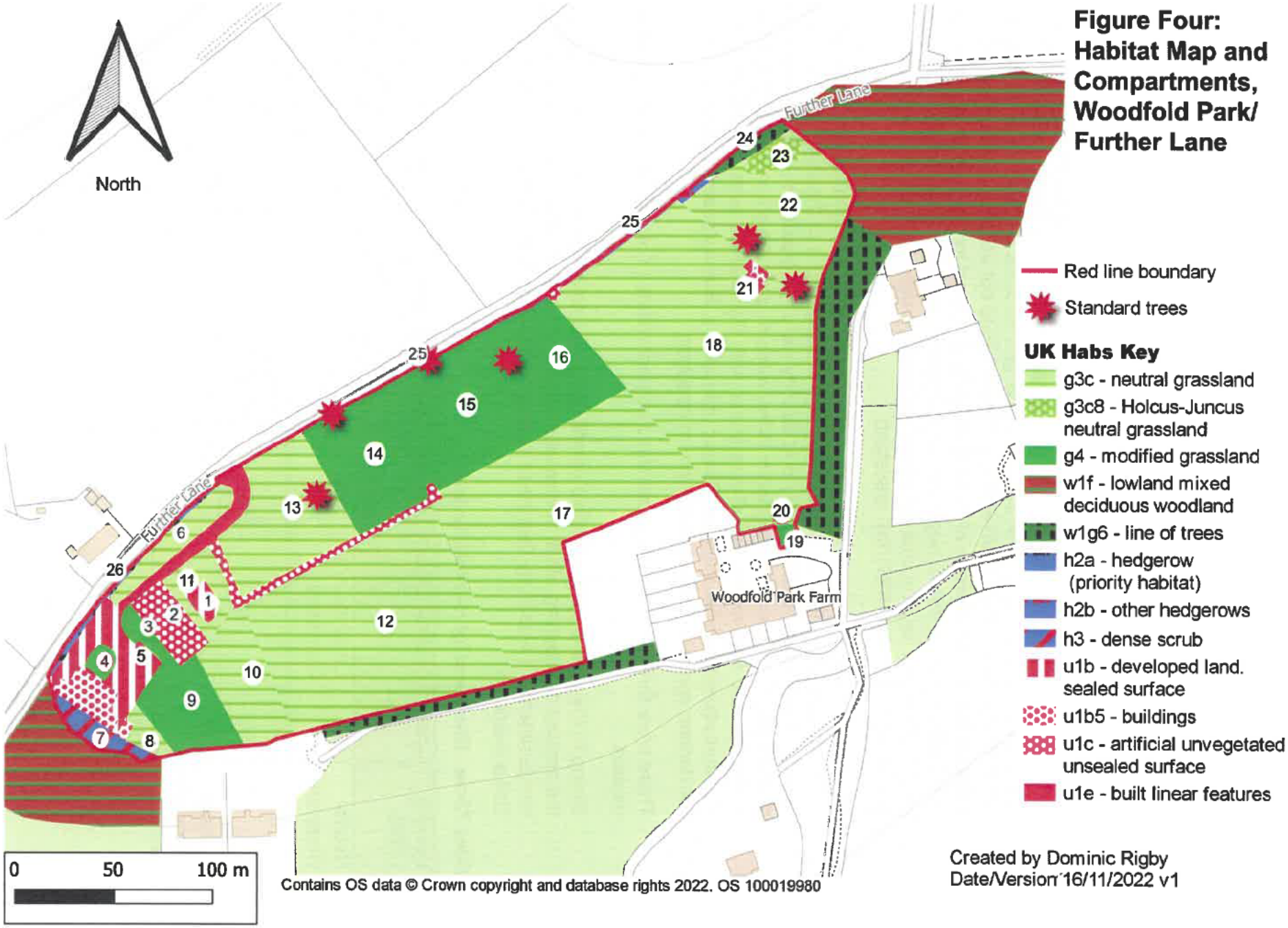

Figure Four: Habitat Map and Compartments, Woodfold Park/ Further Lane

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5.2.2.1 Grassland

The project site was essentially grassland and used primarily for horse grazing. The grassland fell into two Level Three labels: Neutral Grassland and Modified Grassland. The Neutral Grasslands comprised most of the area, and these were further divided at Level Four and some, but not all, were characteristic of grasslands assigned Level Five labels. None were Priority Habitats.

Compartments Nine to Twenty and Twenty-two to -three were grassland. Compartments 20-23 were at the east of the site and comprised of neglected grazing pasture. Compartments (Cp) 22/23 had not been cut or grazed since 2016, and Cp. 18 had not been cut or grazed since 2020. These compartments keyed out as g3c neutral grassland, although the recent absence of mowing or grazing had led to a progression toward g3c5 (NVC MG1 evolving from a neglected MG6/7 type) grassland. A seasonally wet corner in the NE of the site had the characteristics of a species poor *Holcus-Juncus* neutral grassland (g3c8, NVC MG10b)) grassland.

To the west, Compartments 9-18 were horse grazed and cut when grazing pressure was reduced. Subsequently these field were close-cropped. Four of these compartments (9, 14-16) were classed as modified grassland as they were rye-grass rich, with fewer than nine species per m^2. In the remaining fields in the western part, rye grass was largely absent and a slightly more species-rich sward was found, with *Ranunculus acris, Ranunculus repens, Trifolium repens, Stellaria media, Rumex obtusifolius, Rumex acetosa, Taraxacum spp, Cardamine spp. and Cerastium fontanum* constant.

There were three lawn/amenity grassland compartments (3, 4, 19) that were regularly mowed.

Owing to the time of year a reliable condition assessment was not made. However, given the amount of poaching, dock species and uniformity of short-sward in the grazed compartments, it was likely that these compartments would be classed as "poor" using the Defra metric.

Table Three: Grassland (g) Habitats by Area

Level 3 Label	Code	Level 4 Label	Code	Level 5 Label	Code	Area (ha) (2 dec. places)
Neutral Grassland	g3	Other Neutral Grassland	g3c		g3c	4.09
				Holcus-Juncus neutral grassland	g3c8	0.03
Modified Grassland	g4					1.08

Other Neutral Grassland (g3c)

Compartments 6, 8, 10, 11-13, 17-18, 20, 22

The following species were found in all these sub-compartments:

Grasses*: Lolium perenne, Holcus lanatus, Agrostis stolonifera*

Forbs*: Ranunculus acris, Ranunculus repens, Trifolium repens, Stellaria media, Rumex obtusifolius, Rumex acetosa, Cardamine spp. and Cerastium fontanum.*

Photograph One: Compartment 18 g3c (taken from hard-standing field entrance)

Photograph Two: Compartment 12 g3c

***Holcus-Juncus* neutral grassland (g3c8)**

Grasses/Rushes: *Holcus lanatus, Juncus effusus, Agrostis stolnifera*

Forbs: *Rumex acetosa*, *Rumex obtusifolius, Ranunculus repens, Cerastium fontanum, Cardamine spp*

Where the *Juncus* was less dense *Rumex obtusifolius, Stellaria media* and *Jacobaea vulgaris* occurred.

Photograph Three: Compartment 23 g3c8

[redacted]

Modified Grassland (g4)

There were two types of modified grassland: regularly mown lawn areas (Compartments 3, 5, 19)

Grasses: *Lolium perenne, Festuca spp.*

Forbes*: Trifolium repens, Bellis perennis*

and heavily grazed re-seeded grasslands (9, 14-16)

Photograph Four: Compartments 3 and 5 (foreground) g4

Photograph Five: Compartment 15 g4

[redacted]

5.2.2.2 Scrub

Scrub occurred as a secondary code in several of the grassland sub-compartments in the neglected eastern compartments.

The only areas where it was recorded as the primary habitat were the hedgerows along Further Lane and at the rear of the agricultural building (Compartment 7). The latter was an abandoned area that had formed a tangled mixed woody scrub, since 2020. Prior to that it was an unsealed, unvegetated surface, used for storage.

- **Hedgerows: Non-Priority Habitat (Cp25)**

The hedgerow adjacent to Compartments 18 and 22 was a heavily flailed hawthorn hedge with single *Quercus robur* (oak) and two *Sambucus nigra* (elder) left as standards within. At the eastern end was a seasonally wet ditch on the field side. The base of the hedge was dominated by grasses indicative of nutrient enrichment and largely devoid of forbs, but one specimen of *Primula vulgaris* had been noted during the February 2021 visit, and several *Dryopteris dilatate* were recorded. In the NE corner of the plot, where the hedge merged from the neighbouring woodland/tree line, the species composition was notably different with hazel *Corylus avellana* and flailed oak *Qurcus robur* dominating, indicating its woodland origins. This wooded section only accounted for 10m and was considered an ecotone from the Line of Trees of Compartment 24. The Condition Assessment gave a score of "2 - Moderate". The breakdown of the assessment was presented in Appendix Two, Table A3, p63. The hedge continued in this character adjacent to Compartments 13-16, with two standard trees (ash, alder).

Photograph Five: Compartment 25 h2b (adjacent to Cps 14-16)

- **Hedgerows: Priority Habitat**

The hedge of Compartment 26, to the west of the site (adjacent to Compartments 5 and 6) was different in character. It was probably previously a line of trees planted to mark a boundary but had been flailed heavily for several years to form a more species-rich hedge composed ash, elm spp. and oak. Historically laid hawthorn was present adjacent to Compartment 6. The Condition Assessment gave a score of 1- "Poor". The breakdown of the assessment was presented in Appendix Two, Table A4, p64.

Photograph Six: Compartment 26 h2a

5.2.2.3 Line of Trees

Two Lines of Trees were mapped on site. The eastern boundary was composed of a broad line of mature, mixed deciduous trees. Although these were largely off-site, a short length of these straddled the site boundary (Cps 18, 20), with some specimens growing within the site fence. Condition "Good".

A 50m line of trees (Cp24), mostly *Salix* (willow) species, with some oak and elder connected to the off-site woodland bounding the northern corner of Cps 22/23. That gappy line was assessed a "Moderate".

The southern boundary (adjacent to Cps 10 and 17) was similar in character to that of the eastern boundary but this entire line of trees was outside the red-line boundary.

[redacted]

Photograph Seven: Line of trees straddling boundary fence, adjacent to Compartment 18

Photograph Eight: A seasonally wet ditch, recorded as a secondary code in Cps 24 and 25 (east)

The ditch extended for 50m from bank to bank and was up to 1.5m wide. It was a grassy ditch composed of a dense sword of *Agrostis stolonifera;* the absence of characteristic wetland plants indicated that it was often dry. Several scattered trees (oak, grey willow, elder) lay between the ditch and hedge. The ditch had both an inlet and outlet.

[redacted]

5.2.2.5 Urban Habitats

The urban habitats on site all related to agricultural practices. To the east of the site was a small stables and vegetating hardstanding around it (Compartment 21).

Photographs Nine and Ten: Stable Block, front and rear (U1b5)

Photograph Eleven: Hard standing at Further Lane (east) Entrance (u1c)

At the western end of the site was a large stables/tack/storage building (built in 2014), with adjacent/rear office accommodation built around 2020 (see photographs below).

Photograph Twelve: Agricultural buildings (u1b5) at the west of the site, with Compartments 4 (g4) and 5 (u1b) in the foreground

Compartment 2 was a floodlit menage, with an unvegetated artificial surface.

Photograph Thirteen: Compartment 2, Menage (u1c)

[redacted]

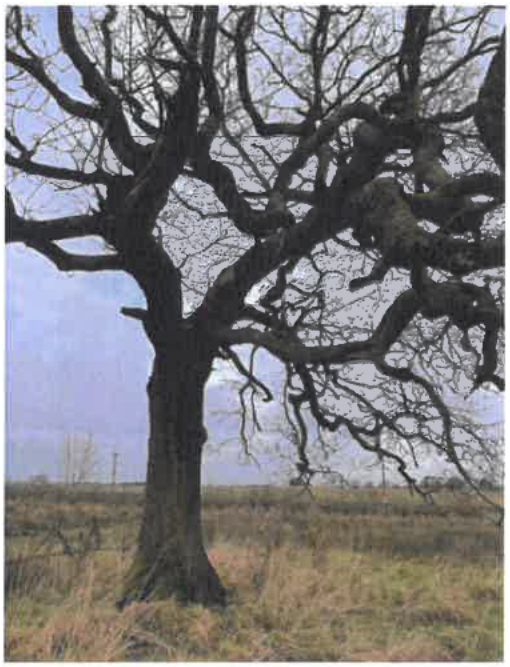
5.3 Species

5.3.1 Plants

Any plant species that helped define individual sub-compartments/polygons were listed in the Attribute Table (Table Six, p51). There were no plants species of note, however some lone-standing trees were highlighted for their potential veteran status and bat roost potential.

Four mature pedunculate oaks in Compartments 12, 16, and 22 were noted as important site features.

Photograph Fourteen and Fifteen: One of two open-growing oaks in Compartment 22, this tree contained several bat prfs (2/21); and an oak in Cp16 (11/22)



5.3.2 Amphibians

The LERN database contained several records of great crested newt (GCN) within 2km of the site. All were to the north and north west of the site. The closest was 1km from the centre of the project site and separated by the busy Preston New Road. However, there were several suitable ponds closer than this for which no data was available and could have hosted the species. The closest pond to the site was 330m to the east.

The closest toad record was 600m to the south within the Woodfold and Jeffery Woods BHS.

The on-site ditch (Photograph Eight, Cp 24/25) was deemed unsuitable for great crested newt (GCN) and toads owing to its inlet and large outlet. The seasonally waterlogged element of Compartment 23 was deemed too ephemeral to host GCN or toad.

Although the site was largely open, both the hedgerow and the trees and woodlands that bounded the site provided hibernation opportunities for GCN and toad; moreover, a pile of brash close to the stables formed an excellent hibernaculum suitable for amphibians as well as other animals (see Photograph Twenty-seven, p42).

5.3.3 Birds

Meadow pipit and kestrel were recorded on the site during the 2022 field survey, none were recorded on the winter 2021 visit. Starling, dunnock, nuthatch and wren were noted in the tree line between the site and the drive to Woodfold Park.

Barn owl pellets were found in the small stables of Compartment 21 (in both 2021 and again in 2022). Some were fresh, other several months old. Barn owl was listed in Schedule One of the Wildlife and Countryside Act (see 3.1, p11). No barn owls were present in the building at the time and there was no evidence of nesting and no suitable nesting ledges in the building.

Photograph Sixteen: Barn owl pellet from the Stable building;

Photograph Seventeen: Several Barn owl pellets of different ages within the Stable

The stable block did not contain nests or nest remnants of any bird species. There were cobwebs and debris present that indicated there had been no clearing of nest-evidence prior to the survey visit.

5.3.4 Water Vole

No water vole signs were recorded during the ditch survey, which was assessed as having negligible potential for the species and there were no records on the LERN database within 2km of the site. *This species would not be considered further in this report.*

[redacted]

5.3.5 Bats

5.3.5.1 Roost Potential

Agricultural Buildings

The buildings (depicted in Photograph Twelve, p35) were dominated by a wooden clad, concrete and metal framed building, with a symmetrically pitched corrugated roof. The office building/tack/changing rooms adjacent and behind was of similar construction with flashing forming the eaves.

From an external examination these were assessed as having *moderate bat roost potential*, when considered as part of the wider, connected landscape.

Small Stables

Investigation of the small stable block (Compartment 21) concluded that the building had negligible bat roost potential.

Trees

All the trees growing within the red-line boundary were assessed for potential bat roost features (prf).

- *Compartment 20*

An ash and a birch were in this compartment. They were assessed as having low-negligible bat roost potential.

Photograph Eighteen: Ash tree in Cp20: negligible bat roost potential (left)

Photograph Nineteen: Birch in Cp20: low bat roost potential (right)

- *Compartment 22*

Two oaks were in this compartment. Both contained potential roost features (prf) and were assessed as having medium bat roost potential. Photograph Fourteen (p36) displayed the westerly tree, showing damage prfs and peeling bark. The eastly tree was depicted below.

Photograph Twenty: Oak in Cp22, Photograph Twenty-one: PRFs in same tree

The oaks in Compartments 12 and 16 (see Photograph 15, p36) contained prfs. It was also noted that a mature alder and (diseased) ash in the hedgerow compartment 26 contained bat prfs.

Photograph Twenty-two Ash with Stage 3 dieback in the Cp 26 hedgerow contained bat prfs

[redacted]

- *Boundary Features (Bats /cont)*

Several of the trees along the tree line that formed the site's eastern and southern boundaries had potential roost features. As did the small woodland at the northern corner of the site from which the eastern tree line ran.

Photograph Twenty-three: Trees with prfs at entrance to Woodfold Park, 30m from site boundary

5.3.5.2 Bat Activity

- The LERN database contained a sight record of a pipistrelle (species not assigned) bat 300m to the west of the site.
- A previous bat roost emergence survey, related to a planning application for 3 Huntsman's Cottages, Woodfold Park in 2013, confirmed a common pipistrelle roost (not on the LERN database). The latter property neighboured the project site (see Photograph Seven, p33, with properties in background); the treeline between the known roost and the project site formed a near-continuous wooded corridor to the 94.6ha woodland BHS of Woodfold and Jeffery Woods and its neighbouring protected sites (see 5.1.2, p23; Figure Three p24).

Bat-commuting and -foraging was highly likely along the tree lines running along the eastern and southern boundary of the project site, and the linear hedge line of Cps 25 and 26 was potentially used.

5.3.6 Badgers

The LERN database held no badger records within 1km of site.

[redacted]

However, the November 2022 site survey found no recent evidence of badger activity and the sett entrances previously recorded had become vegetated over.

Photographs Twenty-four to Twenty-six Badger evidence from 2021, no longer present in 2022

[redacted]

[redacted]

5.3.7 Hedgehog

Hedgehogs were recorded within 2km of the site (LERN data). Habitat existed on site for both nesting and hibernating. The tree-lined boundaries and the habitat pile close to the stable provided suitable refuges.

Photograph Twenty-seven: Habitat pile suitable for hibernating hedgehog and reptiles (Cp21)

5.3.8 Other Mammals

- The scent of fox was detected close to the eastern edge of the site.
- Roe deer droppings were found in Compartments 20 and 22.
- Mole hills were found in Compartment 18.

5.3.9 Reptiles

There were no reptiles recorded in the area on the LERN database.

This species group would not been specifically considered further in this report.

5.3.10 Invertebrates

There were no invertebrate key species records from the project site. The shortage of nectar-providing wildflowers among the grasslands reduced the likelihood of the site hosting protected or significant invertebrate populations.

This species group would not be specifically considered further in this report.

5.3.11 INNS

Himalayan balsam was noted at the rear of Compartment Ten. Several *Rhododendron ponticum* were noted outside the boundary under the line of trees that formed the eastern boundary.

Photograph Twenty-eight: Himalayan balsam in Cp10, close to the southern boundary

6. ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

The following constraints and opportunities were based on the general project outcomes aims:

- Introduction of a residential dwelling with accompanying infra-structure, including lighting and access.

PEA was designed as a process to flag up potential constraints and opportunities. CIEEM (2017a) suggested the following headings: constraints to design, other mitigation requirements, further surveys required and opportunities for enhancement. Opportunities for enhancement were discussed in Section 6.3 (p42).

The project outcomes could have impacts at both construction and operational stages.

Note:

- *this section was not an ecological impact assessment on the proposals.*
- *heritage and landscape elements were outside the scope of a PEA.*
- *References to Condition Assessments were only relevant to those habitats that could be assessed robustly in November and February.*

6.1 Protected Sites

Development on this site would not have a direct effect on any of the protected sites in the area.

However, the line of trees/woodland that bounded the eastern and northern sides of the site formed an almost continuous treed link to Jeffrey Wood (and from here to over 90ha of protected woodland). As such, activities related to the project site should not disturb or damage the woodland corridor or diminish this connectivity.

6.2 Habitats

6.2.1 Priority Habitats

The only Priority Habitat within the red-line boundary was the hedgerow running along Further Lane at the western end of the site (Compartment 26). This was assessed as being in "Poor" condition (see Table A4, p63).

However, deciduous wood and parkland/wood pasture priority habitats were found immediately south of the site (Figure Five, p46).

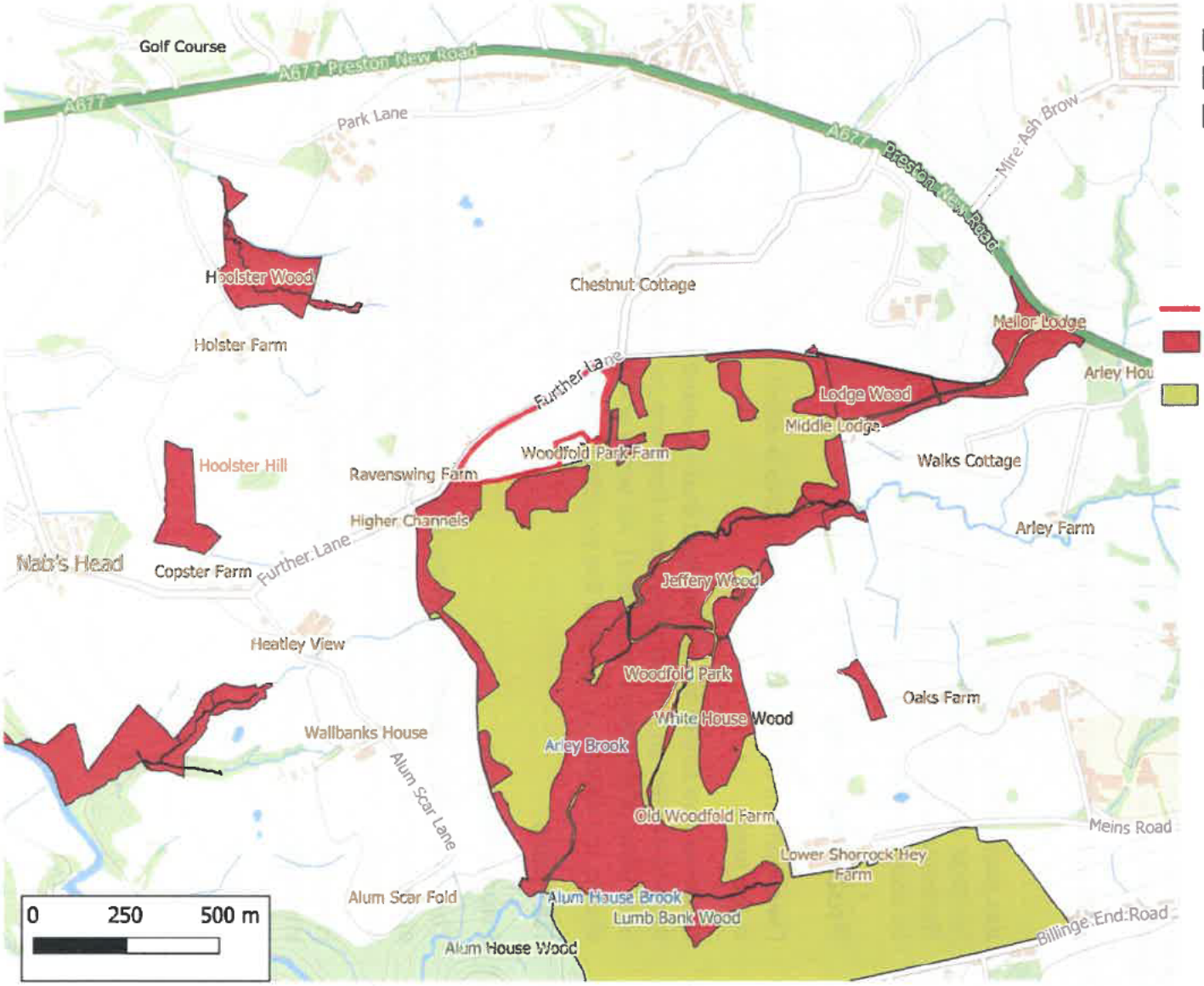


Figure Five: Neighbouring Priority Habitats

Red line boundary
Priority Habitat_Inventory Deciduous Woodland
Priority Habitat_Inventory Wood Pasture and Parkland

North

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6.2.2 Other Notable Habitats

There were no other priority habitats on site as listed in the NERC Act. However, Ribble Valley Borough Council planning guidance (see 3.2, p14) specifically mentioned lines of trees and hedgerows in relation to potential bat disturbance. As such, activities related to the project site should not disturb or damage the woodland corridor or reduce the ecological functioning of the lines of trees.

6.2.2.1 Abutting Woodland/Parkland

The woodlands that abutted the western and eastern boundaries of the site were lowland mixed broadleaved woodland (a priority habitat) and Parkland was mapped immediately south (see Figure Five, p45).

6.2.2.2 Non-Priority Hedgerows

The hedgerow along Further Lane (Compartment 25) was primarily a heavily flailed, single-species habitat. However, it ran along an unlit road which could provide a bat commuting/foraging corridor. Any removal of hedge would require mitigation to ensure unlit habitat continuity, as well as compensatory hedge planting elsewhere on site (see Section 6.5, p53). Failing this, bat activity surveys would need to be undertaken and plans designed around the survey outcomes.

The hedgerow was assessed as being in "Moderate Condition" (detailed in Table A3, p63). Increased gappiness to >10% of total length and/or creating further gaps >5m (i.e., wider than an average farm gate entrance) would reduce the condition to "Low". (Panks *et al*, 2021).

6.2.2.3 Lines of Trees

The lines of trees along the southern and eastern boundaries formed unlit corridors of native habitat that could be used by bats.

6.3 Species

6.3.1 Plants

The standard, oak trees growing within the grassland compartments on site were of an age and condition whereby they could provide niches for nesting and wintering birds, roosting bats and habitat for a suite of invertebrates, including those dependent on oak. Their retention and incorporation into complementary landscaping plans could provide biodiversity enhancement.

6.3.2 Amphibians

The site did not provide habitat for breeding toads or great crested newts. However, it did provide foraging and hibernating opportunities and could be used as a commuting route for animals seasonally moving between sites. Retention of hedgerows and tree lines coupled with a Method Statement outlining timings and methodology for any grassland site clearance would be adequate to ensure no offence in law was committed. Any removal of hedgerow would require a great crested newt specific reference in a Protected Species Method Statement and ecological supervision of the works (via an Ecological Clerk of Works – ECoW).

6.3.3 Birds

- **General**

A Nesting Bird Method Statement would be required to ensure a buffer around the site's boundaries was in place, to ensure no offence in law regarding nesting birds along the tree lines, abutting woodland and hedgerow. The careful timing of works would reduce the risk of disturbance.

No nesting activity was detected in the small stable block, but this structure would require specific mention in any Nesting Bird Method Statement given its potential for some nesting species likely to be in the area.

Any site clearance within the grassland habitats and the scrub behind the agricultural buildings during the nesting season (nesting season usually mid-Feb to end of Aug) would require a Method Statement incorporating nesting bird checks by a competent authority.

- **Schedule One Species: Barn Owl**

There was no evidence of barn owl breeding on the site. However, although most often considered a building nester, they traditionally nested in tree holes. A wider search of the site and its surrounding trees in the nesting season would be necessary to confirm the status of the species within the zone of influence of any potential development.

- **Birds of Conservation Concern**

In addition to the above precautions, consideration was given to potential ground nesting birds species in respect of s41 of the NERC Act. All the fields provided habitat for ground-nesting birds, with skylark and lapwing recorded locally. However, predation pressure from the confirmed presence of barn owl, (badger in 2021) and fox may preclude successful breeding. However, concurrent with the barn owl survey (see bullet above) a breeding bird survey of a minimum of three visits should be undertaken to survey for potential s41 nesting species across the site.

6.3.4 Bats

- **Demolition of Agricultural Buildings**

The agricultural buildings at the western end of the site were assessed as having moderate bat roost potential. This would trigger a requirement for two emergence/re-entry surveys if they were to be demolished. Should the presence of a roost be confirmed from these surveys, a protected species mitigation licence would be required prior for demolition, accompanied by any binding avoidance/mitigation and compensation works related to the licence.

- **Lighting**

Bat activity should be assumed along the western, southern and eastern boundary habitat. As such, lighting (both external and potential light spread from internal fixtures in the proposed dwelling) should not project into a dark buffer of a minimum of 20m from the internal edge of the northern and eastern boundaries. Additionally, in the dark buffer zone 20-30m from the internal edge lighting should not be more than 1lux (equivalent of twilight) (BCT/ILM, 2018).

A principle of bollard-lighting only, away from any property should be followed; there should be no vertical or horizontal light-spill from artificial lighting introduced on the site.

Should any of the above lighting principles not be considered - or should any hedgerow removal be planned along Further Lane without the continuation of habitat (e.g., via a planted archway) designed in - bat activity surveys (as different from emergence/re-entry surveys of the buildings) would be required to assess the impacts of the design and inform mitigation and potential licencing as appropriate.

- **Trees**

Any works to mature trees on- or off-site would require pre-inspection by a licenced bat ecologist. Any mature trees retained on site would require a lighting buffer around them unless surveys had been undertaken to provide assurance of the absence of roosts or regular foraging.

6.3.5 Badger

A 30m buffer around any badger sett would be required. The 20-30m buffer of the 2021sett fell within the red line boundary. However, the absence of an active sett and badger activity evidence in November 2022 meant that only a precautionary note need be raised. Prior to works starting a repeat badger survey would be required to ascertain if the species had re-colonised the site.

To aid developers in planning work Natural England's predecessor English Nature (2002) published guidelines on the types of activity which it considered *should* be licensed within certain distances of sett entrances:

- *using very heavy machinery (generally tracked vehicles) within 30 metres of any entrance to an active sett;*
- *using lighter machinery (generally wheeled vehicles), particularly for any digging operation, within 20 metres; and,*
- *light work such as hand digging or scrub clearance within 10 metres.*

6.3.6 Hedgehog

A Method Statement should be prepared regarding site clearance, mowing and excavating (including specific reference to the habitat pile by the stables, Cp21, depicted in Photograph Twenty-seven, p42 and the area behind the agricultural building (Cp7). Some of the clearing work would likely require ecological supervision, as would be stated in any Protected Species Method Statement.

6.3.7 Moles

The humane removal of any moles from the site would be required before ground works could proceed.

6.3.8 INNS

If any ground disturbance was planned within 8m of Himalayan balsam (currently recorded in Compartment 10 only) a Method Statement would be required to ensure that any works do not cause the spread of the species. An updated INNS survey/walk-over would be recommended immediately prior to works starting on site, and an INNS Method Statement updated as appropriate.

6.4 Constraints and Opportunities Plan Summary

Table Four below summarised the project's ecological constraints and opportunities and suggested where data was insufficient.

(Note: in some instances, data was only insufficient depending on the extent of adoption of recommended avoidance/mitigation measures).

Table Four: Constraints, Opportunities, Further Surveys and Mitigation (1/3)

Feature/Protection	Constraint	Survey Data	Action/Mitigation options
Designated Sites (Planning Policy)	Potential severance of habitat corridor to Woodfold and Jeffery Woods BHS	Adequate	Retention of line of trees/woodland on north and east boundary, including no disturbance during construction phase.
Habitats (Planning Policy/ NERC Act)	A. Potential damage or disturbance to Priority Habitat **woodland** abutting north end of site	Adequate	A. Avoidance; No disturbance or damage to woodland, including during construction phase.
	B. Maintenance of **hedgerows**	Adequate	B. 1.No canopy gaps >5m, cumulative gaps comprise <10% of hedge. 2. New hedge planting to increase current connectivity;3. 3. Bat activity surveys to assess impact of any hedge loss more than Point 1 above.
	C. Condition assessment of **grassland** habitats to inform BNG	Inadequate	C. Survey grasslands during growing season (April-Sept)
Plants	Oaks in centre of site	Adequate if trees are to be retained	Avoidance of damage/ light spill
Amphibians: Toads (Planning Policy/NERC Act)	Disturbance/destruction of individuals or their habitation	Adequate	Timing of works; with Method Statement, and Ecological Clerk of Works (ECoW)
Great Crested Newt (The Conservation of Habitats and Species Regulations 2019)	Disturbance/destruction of individuals or their habitation	Adequate	Timing of works w/Method Statement w/ECoW.

Table Four: Constraints, Opportunities, Further Surveys and Mitigation (continued) (2 of 3)

Feature/Protection	Constraint	Survey Data	Action/Mitigation options
Nesting Birds (Wildlife and Countryside Act, NERC Act)	Nesting birds	Inadequate	1. Nesting surveys for barn owl and ground nesting birds across site. 2. Timing of works; 3.Method Statement w/ECoW 4. Potential landscaping re-design to ensure red listed nesting birds are unaffected.
Birds (Schedule 1) (Wildlife and Countryside Act)	Barn Owl	Inadequate (nesting season survey required)	1. Nesting surveys for barn owl and ground nesting birds across site 2. Avoidance of disturbance/retention of nesting habitat/Mitigation 3.Timing of works 4.. Method Statement w/ECoW
Badgers Protection of Badgers Act	Disturbance/obstruction/ destruction of setts	Adequate, but repeat survey required prior to start of construction	1.Avoidance (30m buffer); 2.Construction Methods/ Method Statement; 3.Licence if present and avoidance is not possible
Hedgehogs Planning Policy/NERC Act	Disturbance/destruction of breeding/hibernating individuals or their hibernation sites	Adequate for Method Statement	Timing of Works and Method statement w/ECoW
Moles Wild Mammals (Protection) Act 1996	Potential cruelty	Adequate	Humane removal prior to earth works
INNS Wildlife and Countryside Act, Environmental Protection Act *et al*	Potential spread of an INNS	Adequate, but repeat survey required prior to start of construction	INNS Method Statement if disturbance within 8m likely.

Table Four: Constraints, Opportunities, Further Surveys and Mitigation (continued) (3 of 3)

Feature/Protection	Constraint	Survey Data	Action/Mitigation options
Bats (The Conservation of Habitats and Species Regulations 2019)			
Bats Buildings	Offence in law if roost is destroyed	None	1.Minimum two emergence/re-entry surveys 2. Licensed mitigation *if* roost found and demolition to go ahead.
Bats Trees	Disturbance/destruction of individuals or their roosts or key foraging area (see also "Activity" below re: lighting)	Incomplete (only if disturbance likely)	1.Avoidance; 2. Pre-works inspection and w/Method Statement; 3. Emergence surveys if disturbance (lighting/felling) cannot be avoided. 4. Protected Species Licence if roost/key foraging site confirmed and works still to proceed.
Bats Activity	Disturbance of individuals or potentially their roosts	A. Adequate OR	Lighting strategy, no light spill within 10m of north and east boundary, including internal lighting; cowls, filters, bollard lighting on access roads.
		B. None	*Activity surveys will be required if above cannot be accommodated*, to better inform impacts/ mitigation/avoidance options. (see also Habitats B (3) above- concurrent survey)

NOTE: numbered points in mitigation column referred to hierarchy, where lowest number was most desirable/urgent

6.5 Enhancements

There would be many opportunities for enhancements. Most of the existing site made little contribution the area's biodiversity. It was thought likely that the incorporation of the following into the landscape plan would enable a biodiversity net gain more than 10%

- Sensitive, native planting could complement the existing tree lines and the mature trees on site
- Over time the landscaping within the red-line boundary could extend the area of Parkland Priority Habitat that existed immediately south.
- The retention of dark corridors and planting to reduce light spill could maintain and create bat flight ways.
- Introduction of a wetland feature, e.g., pond or marsh, would further enhance the site, attracting invertebrates, amphibians as well as birds and bats.
- Management of retained grasslands to better condition.
- The widening and sensitive management of the Further Lane hedgerow and its extension along the new features, such as pond, meadow etc. would further increase the ecological connectivity of the site.

7. CONCLUSIONS AND RECOMMENDATIONS

I. The project site was largely composed of neutral grassland of poor to moderate condition. The constituent parts of the grassland were insignificant from a botanical and conservation perspective. However, to ensure a robust condition assessment (*essential if a Biodiversity Net Gain calculation was to be done*) a survey would need to be undertaken between April and September (as recommended in Panks *et al*, 2021).

Recommendation: Condition assessments of grassland compartments at optimal time of year (May/June).

II. The site was bounded on three of its four sides by woodland, treelines and native hedgerow. Together these formed important habitat corridors connecting to more extensive and regionally significant woodland habitat.

Recommendation: Retention of, and minimal disturbance during construction activities to, boundary features (including lighting) to maintain connectivity; and,

Recommendation: Hedgerow along Further Lane should aim to not have additional canopy gaps of >5m or cumulative gaps totalling >10% of length

(bat activity surveys and compensatory planting would be required if either of these criteria could not be met).

III. Nesting birds and foraging/commuting bats would use the wooded and scrub boundary features and as such, disturbance through clearing, construction activities and post-construction lighting would need to be avoided along those features.

Recommendation: Nesting Birds Method Statement; and,

Recommendation: Retention of 20m dark buffer around north and east boundary features; no more than 1lux light-spill within a further 20-30m buffer.

IV. Four, large, open-grown oak trees grew in the centre of the site and were characteristic of the Parkland landscape to the south. They contained several potential bat roost features, many niches for nesting birds and would provide habitat for a wide variety of invertebrates

Recommendation: Retention of open-grown oaks and complementary parkland planting,

Recommendation: Bat activity surveys of the oaks if tree works/light-spill likely.

V. Locally distributed protected species (great crested newt, toad, hedgehog) could be using grassland/boundary features of the site at any time of year.

Recommendation: Reasonable avoidance measures, through a Protected Species Method Statement, to ensure they were not affected by construction activities.

continued over/

/Recommendations continued

VI. More information was required regarding the breeding status of barn owl on or adjacent to the site and of the potential ground-nesting nesting of birds covered by s41 NERC Act/BoCC.

Recommendation: Barn owl and breeding bird survey prior to final plans.

VII. Bat emergence/re-entry surveys and nesting bird surveys would be required prior to demolition of agricultural buildings at the western end of the site.

Recommendation: Bat emergence/nesting bird surveys of the western buildings set to be demolished

VIII. In 2021 there was an active badger sett within 30m of the site, this was not present 2022

Recommendation: Continued monitoring of and for badger setts prior to and throughout any construction period; and,

Recommendation: An appropriate graded disturbance-buffer would be required around any known badger sett discovered.

IX. Moles hills were present in two of the fields.

Recommendation: The humane removal of moles from the site before any earth works proceeded.

X. Sensitive development on the site could provide an opportunity to increase site connectivity and on-site native biodiversity through appropriate planting, habitat creation and nest/roost site provision.

Recommendation: Monitored landscape plan to have ecological input to ensure appropriate net-gain from the development.

Table Five: Further Ecological Surveys/Reports Required

Species	Survey Season	Survey days	Report
Breeding barn owl/birds	March-August	3	From August
Grassland Condition Assessments	April-September	1	From June
Bat emergence surveys	May-September	2	From July
Biodiversity Net Gain Report			Following finalisation of landscape plans and grassland surveys
Ecological Impact Assessment			Following finalisation of species and habitat survey reports

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APPENDICES

APPENDIX ONE

Habitat Survey Attributes

A 1. Habitat Polygon Attributes

Table A1 below (p58) summarised the characteristics of each habitat sub-compartment on the site. Less detail was afforded to the off-site habitats.

- Secondary Codes were listed in Table One, p19.
- *On-site* habitat compartments containing tree groups/buildings with bat potential roost features/roost suitability were blocked in orange.

Table A1 On-site Habitat Compartment Attributes

Compartment	UKHabs	Area m^2	Secondary Code	Notes	Notes2
1	u1b	204.53		Agricultural structure	
2	u1c	778.95	69	horse menage, artificial surface	Post and rail fence
3	g4	290.82	66	lawn area with picnic table	
4	g4	181.42	66	lawn	
5	u1b	1313.1	89	Road, car park	
6	g3c	820.77	17, 69	Used as storage area	Post and rail along drive
7	h3h	492.42	16	Nettle, Rosebay willowherb	
8	g3c	302.23	16	MG1-type vegetation present w/nettle	May key out as g3c5 in summer
9	g4	1556.3	61, 64, 68, 69	species poor, rye grass, poached, horses currently	mortared stone wall rear, gappy, with rest post and rail
10	g3c	1778.9	10, 16, 61, 69	Himalayan balsam, nettle, grey willow	wood panel fence rear, pr 4/5
11	g3c	701.34	61, 64, 69	>9 spp (see 5.2.2.1)	Post and rail
12	g3c	9105.9	61,64, 68, 69	horses currently, poached	mortared wall with and post and rail in gasps at rear, sheep netting elsewhere
13	g3c	3147.4	11,61, 64, 69	single oak standard (veteran?) with bat prf	Post and rail by drive, rest sheep netting
14	g4	2453.7	61, 64	few spp., rye grass	
15	g4	3677.3	11,61, 64	Ash btw field and hedge, rye grass	temporary fence btw 15/16
16	g4	2487.4	11,61, 64	Oak standard (veteran?) with bat prf	
17	g3c	8942.6	61, 64, 68, 69	Poached, horses currently	Mortared wall at rear, with post and rail and sheep netting
18	g3c	11738	14, 16, 69, 77,103, 118	Previously horse grazed and mown; not for last 3 years	Sheep netting and post and rail

Compartment	UKHabs	Area m^2	Secondary	Notes	Notes2
19	g4	108.95	66, 75, 118	Lawn area	
20	g3c	505.87	16, 77, 119	Same field as Cp 18	Wetter with *Alopecurus geniculatus*
21	u1b	127.13	17, 88	Small horse stable; barn owl pellets and fresh urine staining	establishing vegetation on hardstanding
22	g3c	3829.6	11,14, 69, 77, 118	Two oak standards (veteran?), bast prfs on both. Previously horse grazed and mown; not for last 3 years	Sheep netting, post and rail and metal estate fencing *Deschampsia cespitosa, Plantago lanceolata*
23	g3c8	312.35	69, 77, 119	Previously horse grazed and mown; not for last 3 years	As above
24	w1g6	275.26	130	Oak, ash, hazel; *Condition score:2*	Ecotone btw hedge (25) and off-site woodland
25	h2b	373.79	81, 191	*Condition score:2*	Seasonal ditch in east section only (40m)
26	h2a	262.72	81	Former line of trees, heavily flailed. Historical laying evidence (hawthorn). *Condition: 1*	sycamore, ash, elm, oak
Unlabelled parcels (small urban compartments)	UKHabs	Area	Secondary	Notes	Notes2
	u1b5	520.06	88,90	Stables and office building at rear	Moderate bat roost potential
	u1b5	42.38		Caravan next to agricultural buildings	
	u1e	631.99		Driveway, largely unsealed	
	u1c	612.46		Unsealed track/corals	
	u1c	<40	68	Gated entrance	

Table A2 Table of Attributes for Off-site, Neighbouring Compartments

Unlabelled parcels (off-site)	UKHabs	Area	Secondary	Notes	Notes2
	w1f		37	Abutting red line, off-site,	Historic badger sett; All off site but branches overhung site; Sycamore, oak, ash; UK Priority Habitat (s41 NERC Act)
	w1g6			Abutting red line, off site, opposite 18/22	Largely off site, but some straddled site boundary (Cp. 18); oak, sycamore, ash, lime, horse chestnut, birch
	w1g6			Abutting red line, all off site	oak, sycamore, ash, birch
	w1f		38	Abutting red line, all off site	All off site. Sycamore, oak, ash; UK Priority Habitat (s41 NERC Act)

APPENDIX TWO

Hedgerow Assessments

Table A3 Hedgerow Assessment (Compartment 25, east of main gate)

Attribute	Criteria	Description
A1 Height	>1.5m average along length	Yes
A2 Width	>1.5m average along width	No
B1 Gap Hedge Base	Gap btw. ground and canopy base <0.5m for >90% of length	Yes
B2 Gap- Hedge canopy continuity	• Gaps make up <10% of total length And • No canopy gaps >5m	Yes
C1 Undisturbed ground/perennial vegetation	>1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length, is present on 1 side of hedge	Yes
C2 Undesirable Perennial vegetation	Plants indicative of nutrient enrichment dominate <20% cover of area of undisturbed ground	No
D1 Invasive and Neophyte species	>90% of hedgerow and undisturbed ground is free of INNS and neophyte species	Yes
D2 Current Damage	>90% of feature is free of damage caused by human activities	No

Table A4 Hedgerow Assessment (Compartment 26, west of main gate)

Attribute	Criteria	Description
A1 Height	>1.5m average along length	Yes
A2 Width	>1.5m average along width	No (laid element >4 years ago)
B1 Gap Hedge Base	Gap btw. ground and canopy base <0.5m for >90% of length	No
B2 Gap- Hedge canopy continuity	• Gaps make up <10% of total length And • No canopy gaps >5m	Yes
C1 Undisturbed ground/perennial vegetation	>1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length, is present on 1 side of hedge	No
C2 Undesirable Perennial vegetation	Plants indicative of nutrient enrichment dominate <20% cover of area of undisturbed ground	Yes
D1 Invasive and Neophyte species	>90% of hedgerow and undisturbed ground is free of INNS and neophyte species	Yes
D2 Current Damage	>90% of feature is free of damage caused by human activities	No

Based on Panks et al, 2021

APPENDIX THREE

Protected Species Constraints Surveys Calendar

Table A5 Protected Species Constraints Calendar

This Calendar related to this specific site.
The following calendar related only to areas of the site where and if protected species/species group were *confirmed*; elsewhere, a precautionary approach/method statement may suffice.

Species	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Nesting Birds												
Badger												
Bat roosts (not hibernation)												
Great crested newt (and toad)												
Hedgehog												

Key:

Work could proceed but with a precautionary approach (for example, woodpigeon and collared dove nest at any time of year):

Work could usually proceed, but only after checks (and go-ahead) by an experienced ecologist:

If the species was present work could not (or - if licensable - would be unlikely to be licenced to) go ahead in this period:

A protected species licence would be required to proceed at this time (and cannot be guaranteed to be issued):

A protected species licence would be required to proceed at this time.