STRIDE TREGLOWN

Appendix 7.1 – Ecology: Preliminary Ecological Appraisal and Great Crested Newt Assessment

Environmental Statement

Ellel Holiday Village, Lancaster

Haycock & Jay Associates Ltd

CONSULTANT ECOLOGISTS

Land at Home Farm, Ellel, Lancaster, Lancashire

Preliminary Ecological Appraisal and Great Crested Newt Assessment

Submitted to:

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SUMMARY

A preliminary ecological appraisal (PEA) and great crested newt (*Triturus cristatus*) (GCN) assessment was undertaken at land at Home Farm, Ellel, Lancashire, to identify any opportunity for protected species and assess the value of the site to inform a constraints plan for its proposed development for residential, commercial and industrial use.

This report details the methodology, results and conclusions of a PEA and a GCN assessment undertaken on the 14th and 21st of June respectively. It includes a review of desk study information provided by Lancashire Environment Records Network (LERN). Conclusions and recommendations for progressing the design stage of the proposed development are also provided.

The approximately 70ha site comprises woodland, running water, buildings, trees, hedgerows, swamp, scrub, grassland, cliff, bare ground, walls and ponds, with a canal present immediately adjacent to the site boundary.

Two non-statutory designated sites comprising Ellel Grange Woods Biological Heritage Site (BHS) and Lancaster Canal BHS are present within the site and immediately adjacent to the site. Due to their close proximity the potential impact of development of the Home Farm site on the BHSs has been considered. It is recommended that these sites of nature conservation are retained and safeguarded in the site design.

Further ecological assessment of the habitats within the site is required in order to determine the ecological constraints and a review of the site design should be undertaken to assess the levels of impact upon features of ecological value.

GCN assessment of the eight ponds identified in the site confirmed the absence of GCN, through eDNA sample analysis, at these waterbodies.

The potential for protected species to be present within the Home Farm site has been considered and suitability for bats, badger, nesting birds, otter and water vole has been identified. It is recommended that habitats with suitability for these species be retained and safeguarded throughout the works. Where this is not possible further ecological assessment is required in order to determine the presence or likely absence of these protected species and assess the levels of impact upon them.

1.0 INTRODUCTION

1.1 Background

1.1.1 Haycock and Jay Associates Ltd was commissioned by M Capital Investment Partners LLP to undertake a preliminary ecological appraisal (PEA) and great crested newt (*Triturus cristatus*) (GCN) assessment of land at Home Farm, Ellel, Lancaster, Lancashire in June 2017.

1.1.2 The surveys are required in order to record habitats and provide an assessment of the ecological value of the site, and determine the presence or likely absence of GCN, prior to its proposed development for residential, commercial and industrial use.

1.1.3 This survey encompasses land inside the red line boundary, hereafter referred to as 'the site', and as indicated on Figure 1. Where access was possible habitats immediately adjacent to the red line boundary were also included.

1.1.4 This report details the methodology, results and conclusions of a PEA carried out on 14th June 2017 and GCN assessment undertaken on 21st June 2017 and includes a review of desk study information provided by the Lancashire Environment Record Network (LERN). Conclusions and recommendations for development of the site in the future with consideration to ecological constraints are also provided.

1.2 Site Context

1.2.1 The site is located 1km to the south-west of the village of Galgate and 7km to the south of the city of Lancaster, Lancashire. The Ordnance Survey (OS) grid reference for the centre of site is SD 480 540.

1.2.2 The approximately 70ha site comprises woodland, running water, buildings, trees, hedgerows, swamp, scrub, grassland, cliff, bare ground, walls and ponds, with a canal present immediately adjacent to the site boundary.

1.2.3 The site is bounded by the Preston Lancaster Road (A6) to the east and the Glasson Branch of the Lancaster Canal to the north, with pastoral farmland surrounding the site to the south and west. A large country house, Ellel Grange, with associated grounds is present to the immediate south as are buildings associated with Cragg Hall Farm.

1.2.4 The M6 motorway, running north to south, is present 350m to the east of the site boundary. The River Cocker and River Conder are present 50m to the south and 30m to the north respectively.

1.2.5 The wider area comprises almost exclusively open countryside; a mosaic of arable and pastoral fields intersected by hedgerows, with frequent blocks of woodland and waterbodies.

1.3 Proposed Works

1.3.1 No detailed designs have been submitted to Haycock and Jay Associates Ltd and it is understood that this report will inform a constraints plan and will guide the design process to limit the ecological impact of any development at the site.

2.0 LEGISLATION AND POLICY

2.1 Hedgerows

2.1.1 Hedgerows are protected under the Hedgerows Regulations 1997, which outlines criteria for which 'countryside' and 'important' hedgerows are designated. Contravention of this legislation, notably the damage or removal of a protected hedgerow, can result in penalties of up to £5,000.

2.1.2 Most hedgerows in rural settings satisfy the criteria for 'countryside' hedgerow status, which only requires them to be of a certain length and/or located adjacent to a feature.

2.1.3 For a hedgerow to achieve 'important' status it must be of a particular age and satisfy other qualifying criteria, which includes historical importance, ecological importance or the number of native hedgerow species it contains.

2.1.4 The UK Biodiversity Action Plan (UKBAP) sets out habitats and species action plans for conservation. Although now succeeded by the 'UK Post-2010 Biodiversity Framework', the UKBAP priorities and targets are retained under Section 41 of the NERC Act and as such are considered during the planning process.

2.1.5 Local priority species and habitats are set out in Local Biodiversity Action Plans (LBAPs). Information relating to local priority species and habitats for Lancashire are detailed on the Lancashire LBAP.

2.1.6 Hedgerows are listed on the UKBAP.

2.2 Plants

2.2.1 With certain exceptions, plants listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) are protected from:

- Deliberately picking, collection, cutting, uprooting or destroying a plant; or,

- Being in possession or control, transporting, selling or exchanging or offer to sell or exchange any live or dead plants or any part of them or their derivatives.

2.2.2 The UKBAP lists 396 species of priority flowering plant (including bryophytes, fungi and lichen, but excluding alga and bryozoans).

2.2.3 The Lancashire LBAP provides action plans for eleven (11) plant species and twenty five (25) habitats. Plant species include rare examples of orchid, tree and coastal species, with natural habitats including arable farmland, species-rich grassland, woodland and habitats associated with water and the coast.

2.3 Bats

2.3.1 All species of bats are legally protected, and as such there is a requirement that measures be taken to ensure that contravention of the relevant legislation is avoided. This may include the adoption of mitigation, including a Natural England licence where appropriate.

2.3.2 Relevant legislation in England is the Wildlife and Countryside Act 1981 (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act 2006 (NERC Act); and the Conservation of Habitats and Species (Amendment) Regulations 2012.

2.3.3 The law makes it an offence, *inter alia*, to:

- Disturb a bat or groups of bats in their roost;

- Damage or destroy a bat roosting place, even if there are no bats present at the time;

- Obstruct access to a bat roost; or,

- To capture, injure or kill a bat or possess, advertise, sell or exchange a bat, or part of a bat dead or alive.

2.3.4 Seven species of British bats are listed on the UKBAP and these are: barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus*

auritus), greater horseshoe (*Rhinolophus ferrumequinum*) and lesser horseshoe (*Rhinolophus hipposideros*).

2.3.5 Eight British bat species are listed as priority species on the Lancashire LBAP. These are noctule, Daubenton's (*Myotis daubentonii*), Natterer's bat, whiskered bat (*Myotis mystacinus*), Brandt's bat (*Myotis brandtii*), brown long-eared bat and common pipistrelle (*Pipistrellus pipistrellus*).

2.4 Badger (*Meles meles*)

2.4.1 The Protection of Badgers Act 1992 consolidates previous legislation (including the Badgers (Further Protection) Act 1991). It makes it a serious offence to intentionally or recklessly:

- Kill, injure or take, or attempt to kill, injure or take a badger;
- To damage, destroy or obstruct access to a sett; or,
- To disturb a badger when it is occupying a sett.

2.4.2 Any activities that may lead to violation of legislative laws will require a licence to be obtained from Natural England. Licensing would be required for the following actions which are directly applicable to the proposed development:

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

2.5 Birds

2.5.1 With certain exceptions[1], all wild birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, *inter alia*, to:

[1] Some species, such as game birds, are exempt in certain circumstances.

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

- Take or destroy the egg of any wild bird.

2.5.2 Bird species listed on Schedule 1 of the Act receive a higher level of protection under the Wildlife and Countryside Act 1981 (as amended), thus for these species it is also an offence to:

- Disturb any bird while it is nest building, or is at a nest containing eggs or young; or,

- Disturb the dependent young of any such bird.

2.5.3 A number of birds frequently associated with nesting in woodland, trees, hedgerows, scrub, grassland, waterbodies and buildings are also listed on the UK BAP and Lancashire LBAP with the conservation statuses of bird species in the UK classified in the Birds of Conservation Concern (BoCC) publication[2] as either Red, Amber or Green and are consequently also listed as Species of Principal Importance on Section 41 of NERC Act.

2.6 Otter

2.6.1 Otters are legally protected, and as such there is a requirement for measures to be taken to ensure that contravention of the relevant legislation is avoided. This may require a Natural England licence to authorise otherwise unlawful activity, which would include the adoption of agreed mitigation.

2.6.2 The otter is fully protected under Conservation of Habitats and Species (Amendment) Regulations (2012). The regulations make it illegal, inter alia, to:

- Deliberately capture, injure or kill an otter;

- Deliberately disturb an otter in such a way as to be likely to significantly affect the local distribution or abundance of otters or the ability of any significant group of otters to survive, breed, rear or nurture their young; or,

[2] Eaton, M.A., N.J. Aebischer, A.F. Brown, R.D. Hearn, L. Lock, A.J. Musgrove, D.G. Noble, D.A. Stroud & R.D. Gregory (2015) 'Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man'. British Birds 108: 708-746.

- Damage or destroy an otter holt[3].

2.6.3 The otter is also protected under Section 9(4)(b) of the Wildlife and Countryside Act 1981 meaning that it is also illegal to:

- Intentionally or recklessly disturb any otter whilst it is occupying a holt; or,
- Intentionally or recklessly obstruct access to a holt.

2.6.4 The otter is listed as priority species on the UKBAP and has a species action plan within the Lancashire LBAP.

2.7 Water Vole (*Arvicola amphibius*)

2.7.1 The water vole is fully protected (as of April 2008) through its inclusion under Section 9 of the Wildlife & Countryside Act 1981 (as amended) including on the UKBAP.

2.7.2 Legal protection makes it an offence to:

- intentionally kill, injure or take (capture) a water vole;
- possess or control a live or dead water vole, or any part of a water vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place; or,
- sell, offer for sale or advertise for live or dead water voles.

2.7.3 Offences under Section 9 carry a maximum penalty of a fine not exceeding Level 5 on the standard scale (currently £5,000), imprisonment for up to six months, or both. In addition, the courts may order the forfeiture of any vehicle or other thing that was used to commit the offence.

2.7.4 Water vole is a priority species on the UKBAP and also has a species action plan within the Lancashire LBAP.

[3] In this instance an 'otter holt' includes resting sites above ground, as well as those below ground.

2.8 Reptiles

2.8.1 Grass snake (*Natrix natrix*), adder (*Vipera berus*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*) are afforded a measure of protection under the Wildlife and Countryside Act 1981 (as amended). As a result it is an offence to:

- intentionally, or recklessly kill a grass snake, adder, common lizard or slow worm;
- intentionally or recklessly injure a grass snake, adder, common lizard or slow worm; or,
- sell a grass snake, adder, common lizard or slow worm.

2.8.2 Grass snake, adder, common lizard and slow worm are also listed as priority species on the UK BAP, in addition to being Species of Principle Importance under the Natural Environment and Rural Communities Act 2006.

2.8.3 Where work could result in the killing and/or injury of any reptiles appropriate mitigation should be devised and implemented with agreement from the local planning authority or Natural England. However, mitigation for these species is not subject to licensing by Natural England.

2.8.4 The habitat of these reptiles is not legally protected from damaged or destruction, and the licensing system does not, therefore, include a requirement to provide replacement habitats in compensation for habitat loss associated with a development.

2.9 Hedgehog (*Erinaceus europaeus*) and Brown Hare (*Lepus europaeus*)

2.9.1 Both hedgehog and brown hare are listed as Priority Species in the UK BAP and as Species of Principal Importance under the NERC Act 2006. This places a duty on all government departments to have regard for their conservation and on the Secretary of State to further, or promote others to further, their conservation.

2.9.2 Hedgehog and brown hare are also included in the West Yorkshire BAP (WYBAP).

2.10 Great Crested Newt (*Triturus cristatus*)

2.10.1 Great crested newts are listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. They are protected under Schedule 2 of The Conservation of Habitats and Species (Amendment) Regulations 2012, and Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

2.10.2 Great crested newt are priority species on the UKBAP and are also listed on the Lancashire LBAP.

2.10.3 Taken together, this legislation makes it an offence to:

- Deliberately capture or intentionally take a great crested newt;
- Deliberately or intentionally kill or injure a great crested newt;
- To be in possession or control of any live or dead great crested newt or any part of, or anything derived from a great crested newt;
- Damage or destroy a breeding site or resting place of a great crested newt;
- Intentionally or recklessly obstruct access to any place that a great crested newt uses for shelter or protection;
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place that it uses for shelter or protection; or,
- Deliberately disturb any great crested newt, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 Desk studies are important as they can indicate the presence or potential presence of legally protected and/or other notable species that could occur within the site or surrounding area, remain undetected during a single site visit, and which could impose a constraint to the planned development.

3.1.2 A desk study was undertaken in order to gather information relating to statutory and non-statutory nature conservation sites and records of species that are afforded legal protection or are otherwise of notable nature conservation value (see Box 1).

3.1.3 The search extends to a 2.5km radius from the centre of the proposed development and while all species records were considered, records older than 15 years were, in the main, discounted as being out of date.

3.1.4 The following sources of information were consulted:

- LERN;
- National Biodiversity Network (NBN Gateway) at www.nbn.org.uk; and,
- Multi Agency Geographic Information for the Countryside (MAGIC) at www.magic.gov.uk.

3.1.5 A search was also undertaken to identify potential great crested newt breeding sites/ponds situated within 500m of the site using 1:10,000 OS maps. This search area reflects the fact that great crested newt spend much of their life within terrestrial habitats, typically remaining within 500m of their breeding ponds[4], however, they are commonly concentrated within 250m of these ponds.

[4] English Nature (2001). '*Great Crested Newt Mitigation Guidelines*'. English Nature.

Box 1 Designated Wildlife Sites and Protected and Notable Species

Statutory nature conservation sites

Internationally important sites: Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs) and proposed SPAs, Sites of Community Importance (SCI), Ramsar sites and European offshore marine sites.

Nationally important sites: Sites of Special Scientific Interest (SSSIs) that are not subject to international designations and National Nature Reserves (NNRs)

Local Nature Reserves (LNRs) are statutory sites that are of importance for recreation and education as well as nature conservation. Their level of importance is defined by their other statutory or any non-statutory designation (e.g. if an LNR is also an SSSI but is not an internationally important site, it will be of national importance). If an LNR has no other statutory or non-statutory designation it should be treated as being of borough-level importance for biodiversity.

Non-statutory nature conservation sites

Non-statutory nature conservation sites in Lancashire are known as Biological Heritage Sites (BHS). BHSs contain valuable habitats such as ancient woodland, species-rich grassland and bogs. Many provide a refuge for rare and threatened plants and animals. BHSs form an irreplaceable part of the environment and are a major part of the strategy to conserve the biological richness of Lancashire, are of county wide importance and may be identified in local Biodiversity Action Plans.

In Lancashire there are at present over 1100 Biological Heritage Sites covering 25000ha this represents 8% of the County area.

Legally protected species

Many species of animal and plant receive some degree of legal protection. For the purposes of this study, legal protection refers to:

- species included on Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended), excluding species that are only protected in relation to their sale (see Section 9[5] and 13[2]), reflecting the fact that the proposed development does not include any proposals relating to the sale of species;
- species included on Schedules 2 and 4 of The Conservation of Habitats and Species (Amendment) Regulations 2012; and
- badgers, which are protected under the Protection of Badgers Act 1992.

Notable habitats and species

There are a number of habitats and species, which, whilst not receiving statutory protection, are of importance to nature conservation. These are referred to as notable, and include:

- Habitats and species of principal importance for the conservation of biological diversity in England; these are listed in accordance with Section 41 of the NERC Act 2006;
- National importance: Habitats and species of principal importance for the conservation of biological diversity in England. These include those UKBAP priority habitats and species that occur in England;
- National importance: Species listed as being of conservation concern in the relevant UK Red Data Book (RDB) or the Birds of Conservation Concern Red List (Eaton et al, 2009);
- National importance: Nationally Scarce species, which are species recorded from 16- 100 10 x 10km squares of the national grid;
- National importance: Ancient woodland (i.e. areas that have been under continuous woodland cover since at least 1600).

It should be noted that although the UKBAP is now succeeded by the 'UK Post-2010 Biodiversity Framework', UKBAP and LBAP priorities and targets are still retained under the NERC Act and considered during the planning process.

Legal control

Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) lists species of animal that it is an offence to release or allow to escape into the wild and species of plant that it is an offence to plant or otherwise cause to grow in the wild.

3.2 Preliminary Ecological Appraisal

3.2.1 A preliminary ecological appraisal was carried out on 14th June 2017 by Ecologist Karl Harrison BSc (Hons) ACIEEM. The survey area comprised land inside the red line boundary as shown on Figure 1 and, where access was possible, immediately adjacent to the site boundary.

3.2.2 The survey method was based on the Phase 1 habitat survey methodology[5]. Phase 1 habitat survey is a standard technique for obtaining baseline ecological information for areas of land. It is primarily a mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present.

3.2.3 Within the survey area, distinct habitats were identified and mapped. As the Phase 1 habitat survey methodology is concerned only with vegetation communities the method was extended to include the collection of information on other features of potential nature conservation value, particularly to identify the presence/potential presence of legally protected species. The survey area was assessed for:

- The potential presence of previously unrecorded areas or features of ecological interest;
- Evidence of the presence of legally protected species and other species of notable nature conservation value;
- The presence of habitats that could support legally protected or notable species; and,
- The presence of invasive plant species.

3.3 GCN Assessment

Pond Assessment

3.3.1 In order to assess their potential to support GCN and to determine the requirement for further targeted species surveys, where ponds were recorded within or adjacent to the site they were 'screened' using the Habitat Suitability Index[6] (HSI).

3.3.2 The HSI is a quantitative figure indicating a pond's suitability for supporting GCN, ranging from excellent to poor. The HSI is calculated by allocating indices to a number of different features of the pond and surrounding area, including the number

[5] JNCC (revised 2010). '*Handbook for Phase 1 habitat survey – a technique for environmental audit*'. JNCC.
[6] Oldham, R. S., Keeble, J., Swan, M. J. S. and Jeffcote, M. (2000). '*Evaluating the suitability of habitat for the great crested newt (Triturus cristatus)*'. Herpetological Journal Vol 10 pp143-155.

of ponds within 1km, percentage shade, water quality, presence of waterfowl, presence of fish, surrounding terrestrial habitats and macrophyte cover.

eDNA Sampling

3.3.3 Due to the presence of ponds within the site it was necessary to undertake environmental DNA (eDNA) sampling and analysis at these waterbodies.

3.3.4 eDNA sampling and analysis is a method of testing for the presence of species' DNA within the water. It requires a single visit to a waterbody between mid-April and June (inclusive) to collect water samples for laboratory analysis.

3.3.5 A total of 20 individual samples were taken from around the perimeter of each pond following the methodology outlined within current guidance[7] approved by Natural England.

3.3.6 eDNA sampling was undertaken by GCN Class Licence Holder Karl Harrison BSc (Hons) ACIEEM (Licence no. 2015-18693-CLS-CLS) with the assistance of Will Steele MZool (Hons) and Clare Cashon BSc (Hons).

3.3.7 The laboratory analysis was undertaken by Food and Environmental Research Agency (Fera) under the current guidance[8] for laboratory procedure approved by Natural England, whereby a sample can test positive, negative or inconclusive for the presence of GCN eDNA.

[7] Biggs J et al. (September 2014). '*Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA'*. Freshwater Habitats Trust, Oxford.
[8] Biggs J et al. (2014)

4.0 RESULTS

4.1 Desk Study

Sites of Nature Conservation Value

4.1.1 No statutory sites and ten (10) non-statutory sites of nature conservation value, were identified within 2km of the site during the desk study.

4.1.2 Three sensitive bird areas, allocated for pink-footed geese, were also identified within 2km from the site, and were located approximately 1080m, 1310m and 1790m to the east and south-east of site.

4.1.3 Sites are summarised in order of the distance they occur from the site in Table 4.1 below. Full details of the site designations and a plan showing the locations of the sites of nature conservation value are provided at Appendix 1.

Table 4.1 – Records of Sites of Nature Conservation

Site Name/ Designation	OS Grid Reference	Description	Approximate distance from site boundary
Ellel Grange Wood, BHS (Biological Heritage Site)	SD482537	Ellel Grange Woods comprise deciduous woodland (UK BAP Priority Habitat) bordered by pasture.	Located within the site and directly to the south.
Lancaster Canal, including the Glasson Branch, BHS	SD481545	Lancaster Canal is the largest water body in Lancaster and supports a diverse range of plant and animal species. The canal supports breeding birds, invertebrates and bats.	Adjacent to the site boundary
Berry's Farm and Sellerley Farm Ponds, Conder Green, BHS	SD471552	This site comprises a small number of scattered ponds amongst pasture.	550m to the north
Back Wood, BHS	SD465543	Back Wood is an area of deciduous woodland (UK BAP Priority Habitat) bordered by pasture.	690m to the north-west
Centre Wood, BHS	SD478526	Centre wood is an area of deciduous woodland (UK BAP Priority Habitat) bordered by farmland.	760m to the south
Forerigg Wood, BHS	SD474557	Forerigg Wood is an area of deciduous woodland (UK BAP Priority Habitat) bordered by pasture.	1280m to the north

Site Name/ Designation	OS Grid Reference	Description	Approximate distance from site boundary
Cockshades Wood, BHS	SD490557	Ancient & semi-natural deciduous woodland (UK BAP Priority Habitat) bordered by pasture.	1320m to the north west
Little Cockshades Wood, BHS	SD493556	Ancient & semi-natural deciduous woodland (UK BAP Priority Habitat) bordered by pasture.	1360m to the north west
Old Park Wood, BHS	SD472561	Ancient & semi-natural deciduous woodland (UK BAP Priority Habitat) bordered by pasture.	1710m to the north west
Brunstow North Wood, BHS	SD500552	Ancient & Semi-Natural Woodland, Deciduous woodland (Priority Habitat Inventory)	1730m to the north east

Protected and Notable Species

4.1.4 One hundred and seventy-one (171) records of protected and notable species from the last 15 years were returned from LERN during the desk study.

4.1.5 A full list of species records and a plan showing the location of protected and notable species is provided at Appendix 1, with records summarised below.

4.1.6 Seventy-eight (78) records of flowering plant and six (6) records of conifers were returned from the desk study, comprising twenty-two (22) species. These include six (6) non-native invasive plants; Nuttall's waterweed (*Elodea nuttallii*), Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), fringed water-lily (*Nymphoides peltata*) and rhododendron (*Rhododendron ponticum*). Of the invasive plant species only Rhododendron was detected within the site.

4.1.7 Twelve (12) records of English bluebell (*Hyacinthoides non-scripta*), a Schedule 8 species, including two records from within the site boundary were returned from the desk study.

4.1.8 Eighteen (18) records of bats and bat activity were returned from the desk study. Records include those of roosts, injured bats and field records with species records comprising nine (9) common pipistrelle, one (1) soprano pipistrelle, two (2) unidentified pipistrelle (*Pipistrellus* species), two (2) noctule bats, one (1) soprano pipistrelle, three (3) brown long-eared, one (1) Daubenton's and one (1) whiskered bats. The nearest record comprised a hibernation roost of an individual Daubenton's bat at the Ellel Grange Ice house, which appears to be located within the site.

Records of a possible soprano pipistrelle roost immediately adjacent to the site boundary and a possible brown long-eared roost in the Ellel Grange Bay House (within approximately 100m of the site) were also returned.

4.1.9 Twelve (12) records of other mammals were returned from the desk study. Records comprise six (6) brown hare (*Lepus europaeus*), two (2) European otter (*Lutra lutra*), two (2) Eurasian badger (*Meles meles*) and two (2) west European hedgehog (*Erinaceus europaeus*).

4.1.10 The records of badger were observed within the site boundary. Two otters have been observed within 110m of the site, to the north west, along Lancaster Canal.

4.1.11 Thirteen (13) records of birds were returned from the desk study. These comprised records of four (4) UKBAP species, seven (7) Lancashire BAP species, and two (2) Schedule 1 protected species. Schedule one species comprise a record of a barn owl (*Tyto alba*) located 781m to the west of the site and three records of kingfisher (*Alcedo atthis*) located along Lancaster Canal and in Ellel Woods, within 100m of site. Other bird species recorded include kestrel (*Falco tinnunculus*), linnet (*Linaria cannabina*), starling (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*).

4.1.12 Two (2) reptile records were returned from the data search, a common lizard (*Zootoca vivipara*), 1450m to the south west of the site and a red-eared terrapin (*Trachemys scripta subsp. elegans*), an invasive non-native species, located 980m to the south of the site.

4.1.13 Twenty-three (23) records of amphibians were returned from the desk study, comprising five (5) common frog (*Rana temporaria*), two (2) common toad (*Bufo bufo*), seven (7) great crested newt, seven (7) smooth newt (*Lissotriton vulgaris*) and two (2) palmate newt (*Lissotriton helveticus*). The nearest records to the site were two common toads, located at Ellel Ministries, within 100m of the site. The great crested newt records are located both to the north and south of the site, the nearest being 980m to the north.

4.1.14 Nineteen (19) records of moths were returned from the desk study, comprising 12 species. Of these records the UK BAP species small phoenix (*Ecliptopera silaceata*), oblique carpet (*Orthonama vittata*) and white ermine (*Spilosoma lubricipeda*) were recorded within the site.

Ponds

4.1.15 Following review of OS maps six (6) ponds were identified within the site and a further sixteen (16) ponds were identified beyond the site boundary but within 500m of the site.

4.1.16 Pond descriptions and details of the HSI assessment are provided Table 4.4 in Section 4.3.

4.2 Preliminary Ecological Appraisal

Habitats

4.2.1 The site is approximately 70ha in size and comprises broad-leaved semi-natural woodland, mixed semi-natural woodland, running water, buildings, scattered trees, hedgerows, swamp, scrub, neutral semi-improved grassland, improved grassland, inland cliff, bare ground, walls and ponds.

4.2.2 A description of the habitats recorded during the survey is given below with their distribution, including Target Notes (Tn) indicating the location of features of ecological interest, annotated on Figure 1. Site photos are provided at Appendix 2.

Broad-leaved Semi-natural Woodland

4.2.3 Three blocks of semi-natural broad-leaved woodland (Photo 1) are present within the site, with further blocks found adjacent to and in close proximity to the site. Broad-leaved woodland within the site includes Carter Wood, Flat Wood and the wood to the south of Home Farm (hereafter referred to as 'Home Farm Wood').

4.2.4 Carter Wood is a small linear block of woodland approximately 0.7ha in size located along the north boundary of site adjacent to the canal. It comprises mature woodland with oak (*Quercus* sp.), alder (*Alnus glutinosa*), willow (*Salix* sp.), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*) recorded. Hawthorn (*Crataegus monogyna*), holly (*Ilex aquifolium*), and blackthorn (*Prunus spinosa*) were also recorded. Notable ground flora included English bluebell (*Hyacinthoides non-scripta*), wood-sorrel (*Oxalis acetosella*) and dog's-mercury (*Mercurialis perennis*).

4.2.5 Flat Wood is a rectangular block of woodland approximately 1.4ha in size, located at the west boundary of site. It comprises mature woodland with oak, ash, sycamore and beech recorded. The ground flora was less established and appeared to be grazed, with two roe deer (*Capreolus capreolus*) observed in the woodland and sheep-grazed

pasture present surrounding the woodland. Dog's mercury and English bluebell were noted.

4.2.6 Home Farm Wood is a block of woodland approximately 3.2ha in size located to the south-west of Home Farm. It comprises mature woodland on a shallow gradient, with oak, ash, elm (*Ulmus* sp.) and lime (*Tilia* sp.) recorded. Elder (*Sambucus nigra*), yew (*Taxus baccata*) and hawthorn were also recorded. The woodland was dominated by rhododendron, however English bluebell, and dog's mercury were still present.

Mixed Semi-natural Woodland

4.2.7 Seven blocks of mixed semi-natural woodland (Photo 2) are present, predominantly in the eastern half of the site, including Quarry Wood.

4.2.8 The mixed woodland in the site comprises mature blocks of woodland of which some trees may have originated as ornamental planting but are predominantly semi-natural, with frequent mature and potentially veteran specimens. Tree species include oak, Scots pine (*Pinus sylvestris*), beech, sycamore, spruce (*Picea* sp.) horse-chestnut (*Aesculus hippocastanum*) and rowan (*Sorbus aucuparia*). Hawthorn, holly and elder were also recorded. Notable ground flora comprised English bluebell.

Running Water

4.2.9 Five drains are present within the site, descriptions of these waterbodies are provided in Table 4.2 below and their locations are outlined on Figure 1.

Table 4.2 – Drain Details

Drain No.	OS Grid Reference	Description
D1	SD 4724 5394 to SD 4741 5373	A ditch flowing for approximately 200m along the west site boundary, passing through Flat Wood, it flows from south-east to north-west. The ditch channel is approximately 2m wide and 3m deep. The water is dominated by watercress with a minimum depth of 10cm. The water is clear and the banks comprise grassland and tall ruderal vegetation. A hedgerow is present at the south-west bank.
D2	SD 4821 5416 to SD 4827 5383	A static drain situated adjacent the canal towpath. The banks are dominated by grassland, scrub and trees. The ditch channel is 2m wide and 1.5m deep. The water runs clear and is 10-20cm deep. The section of drain within the site is approximately 320m long and flows north to south. Macrophytes present include marsh marigold (*Caltha palustris*), floating sweet-grass (*Glyceria fluitans*) and yellow flag-iris (*Iris pseudacorus*).
D3	SD 4814 5427	The northern half of the drain comprises a shallow waterlogged area of grassland with no discernible ditch. It flows from north to south and is approximately 50cm deep.

Drain No.	OS Grid Reference	Description
	to SD 4824 5406	The southern half of the drain flows from west to east and is a more defined ditch with a channel 2m wide and 1m deep. The water is 20-30cm deep and static. Vegetation includes bittersweet (*Solanum dulcamara*), brooklime (*Veronica beccabunga*) and hemlock water-dropwort (*Oenanthe crocata*).
D4	SD 4813 5425 to SD 4819 5419	Similar to the northern section of D3; a shallow waterlogged area of grassland with no discernible ditch. It flows from north to south-east and is approximately 50cm deep.
D5	SD 4838 5363 to SD 4851 5366	A field drain along the south boundary in the south of site. It is located at the boundary of a grazed field and is heavily cattle-poached. The ditch channel is 1m wide and there is around 5cm standing water. The drain is culverted under the canal.
D6	SD 4831 5413 to SD 4827 4541	A small drain which flows from pond P3 in Quarry Wood to the canal adjacent to site. It is approximately 50cm wide and less than 10cm deep. Vegetation included yellow flag-iris.

Buildings

4.2.10 Numerous buildings are present within the site. All are located at Home Farm (Photo 3), situated in the centre of site, with the exception of three buildings in the south of Home Farm Wood.

4.2.11 Buildings at Home Farm comprise the main Home Farm residential buildings, constructed of brick with slate-tiled roofs, and associated farm buildings including stables, barns and sheds. Farm buildings comprise a variety of constructions, including brick, stone, breeze block and timber walls with slate, corrugated metal and felt-lined roofs.

4.2.12 The buildings within Home Farm Wood appear to be derelict sawmills, two are constructed of brick with a tiled roof and one of timber with a corrugated metal roof.

4.2.13 A collapsed stone building is also present within Home Farm Wood (T1) all that remains of the building is a gable and one external wall.

Scattered Trees

4.2.14 Numerous scattered trees (Photo 4) were recorded throughout the site. These are located along field boundaries, within fields and around waterbodies. Specimens included a variety of age classes, with the majority being mature; semi-mature and immature trees were also recorded as were possible veteran trees.

4.2.15 Species include oak, alder, sycamore, lime beech, ash, cherry (*Prunus* sp.) and poplar (*Populus* sp.).

Hedgerows

4.2.16 Numerous hedgerows (Photo 5) are present within the site, including defunct and intact examples with a variety of species richness. They are predominantly present at field boundaries and most appear to be managed for stock enclosure. Many also have post and wire fences to maintain stock-proofing. However post and wire fencing which supports hedgerow boundaries has not been included within this report or detailed on Figure 1.

4.2.17 Hedgerows are mostly dominated by hawthorn with a variety of other woody species.

4.2.18 Descriptions of the hedgerows within the site is provided in Table 4.3 below, with their locations outlined on Figure 1.

Table 4.3 – Hedgerow Details

Hedgerow Number	Height (m)	Width (m)	Length (m)	Species	Notes
H1	2.5	2.5	220	Dominant hawthorn, with sycamore, ash and elder	Stock-proof, with trees
H2	2	1.5	150	Dominant hawthorn with sycamore	Stock-proof, with trees
H3	1.5	1	60	Dominant hawthorn, with elder	Small defunct hedge
H4	2	1.5	80	Dominant hawthorn and blackthorn with elder and hazel (Corylus avellana)	Stock-proof, with trees
H4a	2	1.5	50	Dominant hawthorn and blackthorn with elder and hazel - continuation of H4 after a >20m gap	Stock-proof, with trees
H5	7	5	205	Dominant hawthorn with elder, poplar, ash oak and blackthorn	Defunct, with trees
H6	1.5	2	160	Dominant hawthorn with elder, hazel and sycamore and oak	Stock-proof, with trees
H7	2	1.5	390	Dominant hawthorn with hazel, ash, elder and holly	Defunct, with trees

Hedgerow Number	Height (m)	Width (m)	Length (m)	Species	Notes
H8	1.5	1.5	60	Dominant hawthorn with blackthorn	Stock-proof, with trees
H9	1.5 and 4	1.5 and 3	120	Dominant hawthorn with oak and sycamore	Stock-proof, with trees
H10	4.5	4	80	Dominant hawthorn with hazel, elder and dog-rose (Rosa canina)	Stock-proof, with trees
H11	1.5	1	110	Beech	Ornamental hedge
H12	2	1.5	210	Hawthorn	Defunct, with trees
H13	7	5	260	Hawthorn	Defunct, with trees
H14	10	7	180	Dominant hawthorn with blackthorn, elder sycamore and hazel	Defunct
H15	10	7	150	Dominant hawthorn with blackthorn, elder and hazel	Defunct, with trees
H16	3	3	65	Dominant hawthorn with blackthorn, elder, sycamore and hazel	Defunct, with trees
H17	10	7	75	Dominant hawthorn with silver birch (Betula pendula), hazel, blackthorn, alder and dog-rose	Stock-proof, with trees
H18	2.5	2.5	115	Dominant blackthorn with hawthorn, elder and hazel	Stock-proof
H19	2	1	65	Beech	Ornamental beech hedge
H20	4	2	130	Dominant hawthorn with blackthorn	Defunct
H21	2	1.5	215	Dominant hawthorn with blackthorn	Defunct
H22	7	4	110	Dominant hawthorn with blackthorn	Defunct

Swamp

4.2.19 A large waterlogged area of swamp (Photo 6) is present in the centre of site. This is characterised by dominant lesser pond sedge (*Carex acutiformis*), with tussock sedge (*Carex* sp.), rushes (*Juncus* sp.), hemp-agrimony (*Eupatorium cannabinum*), ragged-robin (*Lychnis flos-cuculi*), marsh thistle (*Cirsium palustre*), common figwort (*Schrophularia nodosa*) and hemlock water-dropwort.

4.2.20 This area is in a basin and is likely to receive water from the surrounding improved fields, with drain D3 also flowing across the swamp.

4.2.21 Although this area was not inundated at the time of survey, it is believed that this is due to recent dry conditions and this area is likely to be more waterlogged, with the flora also suggesting this.

4.2.22 Towards the edges of the swamp more grass species are present as this habitat grades to marshy grassland and then improved grassland. Species include meadowsweet (*Filipendula ulmaria*), soft rush (*Juncus effusus*), Yorkshire-fog (*Holcus lanatus*), foxtail (*Alopecurus* sp.), creeping thistle (*Cirsium arvense*), bent-grass (*Agrostis* sp.) and willowherb (*Epilobium* sp.).

Scrub

4.2.23 Scattered scrub is present throughout the site with the majority being situated around ponds, at field boundaries and in the area of marshy grassland in the centre of site. Scrub species include hawthorn, blackthorn, dog-rose, elder, willow (*Salix* sp.) and bramble.

4.2.24 Two areas of dense scrub are present within the site, one to the west of a block of woodland in the east of site the other within the area of marshy grassland in the centre of site. Both areas of dense scrub comprise dense hawthorn with elder and blackthorn. The vegetation is approximately 5m tall. Tall ruderal species such as common nettle (*Urtica dioica*) and rosebay willowherb (*Chamerion angustifolium*).

Neutral Semi-improved Grassland

4.2.25 Areas of the site which have been subject to less intensive grazing regimes are evidenced by a more diverse floristic sward (Photo 7). Sward heights varied throughout the site and were influenced by grazing, however grazing was evident at all areas.

4.2.26 Species present comprised Yorkshire-fog, false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), perennial rye-grass (*Lolium perenne*), sweet vernal-grass (*Anthoxanthum odoratum*), fescue (*Festuca* sp.), crested dog's-tail (*Cynosurus cristatus*) and foxtail. Flora also included buttercup (*Ranunculus* spp.), common sorrel (*Rumex acetosa*), common nettle, broad-leaved dock (*Rumex obtusifolius*), creeping thistle, soft rush, foxglove (*Digitalis purpurea*), cinquefoil (*Potentilla* sp.), ribwort plantain (*Plantago lanceolata*), bedstraw (*Galium* sp.), stitchwort (*Stellaria* sp.), white clover (*Trifolium repens*), spear thistle (*Cirsium vulgare*), cuckooflower (*Cardamine*

pratensis), hogweed (*Heracleum sphondylium*), herb-Robert (*Geranium robertianum*), cow parsley (*Anthriscus sylvestris*) and greater plantain (*Plantago major*).

Improved Grassland

4.2.27 The majority of grassland in the site is intensively grazed, by cattle and sheep, and it comprises improved grassland (Photo 8), sward height is on average 10-20cm.

4.2.28 Floristic diversity is low and the grassland is dominated by perennial rye-grass, with Yorkshire-fog, fescue and bent-grass also present.

Inland Cliff

4.2.29 Two exposed rock cliffs are present within the site, both are located in plantation woodland and are likely to have been created by historic quarrying activities.

Bare Ground

4.2.30 Limited areas of bare ground, comprising compacted gravel and tarmac hard standing, are present along vehicle access tracks and around the Home Farm buildings

Walls

4.2.31 Stone walls are present along the east site boundary and enclosing the gardens of the Home Farm buildings. These are 1-2m high.

Ponds

4.2.32 Eight ponds were confirmed present within the site during the survey.

4.2.33 Details of the eight ponds found within the site, including their descriptions, have been provided in Table 4.4 (Section 4.3) below. Their locations are also annotated on Figure 1.

Notable Habitats Adjacent to the Site - Lancaster Canal

4.2.34 Immediately adjacent to the site boundary in the north and passing through the centre of site is the Lancaster Canal (Photo 9). It is a well-used canal with adjacent towpaths, the banks are earth and reinforced, with backwaters and lock gates. The banks are dominated by emergent vegetation including: sedges, common reed

(*Phragmites australis*), hemlock water-dropwort, meadowsweet, yellow flag-iris and rushes. Aquatic vegetation includes pondweed (*Potamogeton* sp.), starwort and water lily (*Nymphaea* sp.).

Fauna

4.2.35 The potential for the presence of legally protected and other notable species to occur within or adjacent to the site is assessed below.

Bats

4.2.36 The buildings within the site, located at Home Farm and within Home Farm Wood were not subject to a detailed inspection, however it was observed that numerous buildings within the site provide roosting opportunities, due to their construction types and condition, and are likely to have bat roost suitability.

4.2.37 Individual trees, including those within blocks of woodland and scattered throughout the site, were not subject to a detailed inspection, however it was noted that numerous trees provide roosting opportunities, due to their age class and condition and are likely to have bat roost suitability.

4.2.38 The inland cliffs may also provide features which offer opportunities for roosting bats.

4.2.39 The habitats within the site, such as woodland, drains, trees, hedgerows, swamp, scrub, grassland, and ponds provide high quality foraging and commuting opportunities for bats, with good connectivity to similar habitats within the local area.

Badger

4.2.40 Badger setts were identified within the site during the survey, however due to the risk of badger persecution the locations of badger activity and setts has not been provided within this report but has been submitted separately, in confidence.

4.2.41 Habitats within the site, such as woodland, scrub and hedgerows provide high quality sett building opportunities, whilst woodland, scrub, hedgerow and grassland habitats also provide foraging opportunities.

Birds

4.2.42 Several swallows (*Hirundo rustica*) were observed nesting within buildings at Home Farm, notably the open fronted barns.

4.2.43 A woodpecker (*Dendrocopos* sp.) was heard 'drumming' within Home Farm Wood.

4.2.44 Two common buzzards (*Buteo buteo*) were observed circling over the site.

4.2.45 Habitats within the site, such as woodland, running water, buildings, trees, hedgerows, swamp, scrub, cliffs and ponds provide high quality foraging and nesting opportunities for birds.

Otter

4.2.46 The aquatic habitats within the site, including drains and ponds, and the Lancaster Canal adjacent to the site provide foraging opportunities.

4.2.47 Although a targeted otter survey was not undertaken it was noted that habitats in close proximity to the aquatic habitats, such as woodland, scrub, swamp and grassland, within the site can provide suitable cover for otter resting places or holts.

Water Vole

4.2.48 Six drains are present within the site and the Lancaster Canal is present immediately adjacent to the site. The watercourses have earth banks which provide opportunity for burrowing, whilst the adjacent swamp and grassland habitats also provide high quality foraging for water vole.

Reptiles

4.2.49 The area of swamp in the centre of site, with associated aquatic habitats and scrub provides a mosaic of habitats with foraging, basking and refuging opportunities for reptiles,

4.2.50 Other habitats within the site such as woodland, scrub, hedgerows and rough grassland although suitable for reptiles are predominantly uniform in structure and isolated and therefore are considered to be suboptimal.

European Hedgehog

4.2.51 Habitats within the site such as woodland, scrub, hedgerows, and grassland provide high quality foraging opportunities and refuge for hedgehog.

Brown Hare

4.2.52 Habitats within the site, such as woodland, grassland and hedgerows, provide opportunities for resting brown hare.

4.3 Great Crested Newt Assessment

Pond Assessment

4.3.1 Eight ponds were identified as present within the site during the survey and a further sixteen ponds were identified outside the site but within 500m, totalling twenty-four ponds.

4.3.2 Details of the eight ponds found within the site, including their descriptions, have been provided in Table 4.4 below. Their locations are shown on Figure 1. Details of the sixteen ponds within 500m of the site boundary, including their locations and distance from the site have also been provided in Table 4.4, however as these ponds were not accessed no HSI or assessment has been provided.

Table 4.4 – Pond Details

Pond	OS Grid Reference	Description	HSI Score	Approximate distance from site boundary
P1	SD 47879 54364	Woodland edge pond, appears to be shallow and is turbid. No aquatic vegetation is present, marginal vegetation is dominated by sweet-grass (*Glyceria* sp.).	0.65 (Average)	Within the site
P2	SD 48404 54198	A field pond surrounded by scrub and trees. Marginal vegetation includes watercress (*Rorippa nasturtium-aquaticum*), sweet-grass, reedmace (*Typha latifolia*), sedges (*Carex* sp.) and hemlock water-dropwort (*Oenanthe crocata*). A male smooth newt (*Lissotriton vulgaris*) and dragonfly larvae (*Odonata* sp.) were observed in the pond during the survey. The pond margins are cattle-poached.	0.64 (Average)	Within the site
P3	SD 48314 54162	A woodland pond at the base of a quarry it covers a large area and is very shallow. There is little standing water and this it is dominated by sweet-grass and duckweed (Lemna sp.). Yellow flag-iris (Iris pseudacorus) is also present.	0.57 (Below Average)	Within the site
P4	SD 47910 54017	A large field pond surrounded by trees and scrub. It appears to be approximately 50cm deep and the water is slightly turbid. No aquatic vegetation is present and marginal vegetation includes sweet-grass and brooklime (*Veronica beccabunga*). The pond margins are also cattle-poached.	0.82 (Excellent)	Within the site
P5	SD 48019 54161	A large field pond, the western half is surrounded by scrub and trees and the eastern grassland, comprising predominantly rushes (*Juncus* sp.). The water appears to be 50cm deep and turbid. No aquatic vegetation is present and marginal vegetation is dominated by sweet-grass, hemlock water-dropwort and rushes.	0.81 (Excellent)	Within the site

Pond	OS Grid Reference	Description	HSI Score	Approximate distance from site boundary
P6	SD 47830 53915	A small pond, it is overgrown and dominated by sweet-grass and duckweed, with very little standing water. It is surrounded by scrub and yellow flag-iris.	0.73 (Good)	Within the site
P7	SD 47707 54067	A field pond surrounded by trees and scrub. The pond covers a large area however it is shallow with little standing water. Aquatic vegetation includes water starwort (Callitriche sp.) and duckweed. Marginal vegetation comprises brooklime, sweet-grass and hemlock water-dropwort. The pond margins are also cattle-poached.	0.75 (Good)	Within the site
P8	SD 47655 54155	A large field pond surrounded by trees and scrub. The bank is cattle-poached and there is no aquatic vegetation. The water appears to be at least 50cm deep and slightly turbid.	0.64 (Average)	Within the site
P9	SD 48270 53832	This pond did not exist at the time of survey.	N/a	~10m to the south
P10	SD 48310 53626	N/a	N/a	~32m to the south
P11	SD 48137 53797	N/a	N/a	~38m to the south
P12	SD 48306 54329	N/a	N/a	~50m to the north-east
P13	SD 48409 54349	N/a	N/a	~76m to the north-east
P14	SD 47142 53839	N/a	N/a	~120m to the west
P15	SD 47108 54029	N/a	N/a	~151m to the west
P16	SD 47302 53498	N/a	N/a	~235m to the west
P17	SD 47143 53558	N/a	N/a	~298m to the west
P18	SD 46959 53796	N/a	N/a	~306m to the west
P19	SD 46821 53733	N/a	N/a	~454m to the west
P20	SD 47181 53320	N/a	N/a	~455m to the west
P21	SD 47262 54675	Beyond the River Conder, a significant barrier to movement.	N/a	~457m to the north
P22	SD 49072 53664	Beyond the M6 motorway, a significant barrier to movement	N/a	~476m to the east
P23	SD 46977 53460	N/a	N/a	~485m to the west
P24	SD 49108 54012	Beyond the M6 motorway, a significant barrier to movement	N/a	~493m to the east

4.3.3 The HSI assessment of the eight ponds in the site, identified: two Excellent, two Good, three average and one below average suitability.

4.3.4 Habitats within the site such as woodland, scrub, hedgerows, swamp and rough grassland provide high quality foraging, refuging and hibernating opportunities for GCN.

eDNA Sampling

4.3.5 The results of the eDNA sampling at the eight ponds within the site is provided in Table 4.5 below.

Table 4.5 – eDNA results

Pond	Result of GCN eDNA Sample Analysis	Inhibition	Degradation
P1	Negative	No	No
P2	Negative	No	No
P3	Negative	No	No
P4	Negative	No	No
P5	Negative	No	No
P6	Negative	No	No
P7	Negative	No	No
P8	Negative	No	No

4.3.6 None of the eight ponds within the Home Farm site identified the presence of GCN following eDNA sampling and analysis. Laboratory controls for inhibition and degradation were also negative for all samples confirming that the negative results are conclusive. As such GCN are not considered present within any of the ponds within the Home Farm Site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Sites of Nature Conservation Value

5.1.1 No statutory sites were identified within 2km of the site.

5.1.2 Ten (10) non-statutory sites of nature conservation value comprising BHSs, including Ellel Grange Wood BHS (located within and adjacent to site) and Lancaster Canal BHS (located adjacent to the site) were identified within 2km of the site during the desk study.

5.1.3 Ellel Grange Wood BHS is an area of deciduous woodland. Two areas of mixed semi-natural woodland present in the Home Farm site are also within the boundary of this BHS. As areas of woodland forming part of this BHS are situated within the Home Farm site and much of the BHS is also adjacent to the site there is potential for impacts due to development of the Home Farm site.

5.1.4 The Lancaster Canal BHS, passes through the centre of the Home Farm site and is also present along the north site boundary. The site is predominantly designated for its aquatic flora and fauna, as such development within close proximity to this BHS has the potential to impact canal itself, or the flora and fauna which utilise it.

5.1.5 Due to the distance between the Home Farm site and the further eight BHSs identified during the desk study, all being over 500m from the site and designated for their habitats, it is considered that any ecological impact upon these BHSs will be negligible.

5.1.6 Three sensitive bird areas, allocated for pink-footed geese, were identified within 2km from the site, and were located approximately 1080m, 1310m and 1790m to the east and south-east of site. As pink-footed geese frequently forage on improved grassland, such as that found within the site, this species may utilise grassland on the site at times. However, pasture is common and widespread within the wider area, and the defined sensitive bird areas are over 1km from the Home Farm site, it is therefore considered that the loss of potential foraging opportunities due to development of the Home Farm site is likely to result in a negligible impact upon this species.

5.1.7 As development of the Home Farm site has the potential to impact upon two BHSs Lancaster Canal and Ellel Grange Woods, it is recommended that the site design retains these BHSs, provides a significant buffer from them and incorporates their safeguarding into the long-term management of the site. In order to assess the levels of impact upon these sites of nature conservation and to determine an appropriate buffer the proposed site design should be reviewed by a suitably qualified ecologist.

5.2 Habitats

5.2.1 Habitats within the site comprise broad-leaved semi-natural woodland, mixed semi-natural woodland, running water, buildings, scattered trees, hedgerows, swamp, scrub, neutral semi-improved grassland, improved grassland, inland cliff, bare ground, walls and ponds.

<u>Woodland</u>

5.2.2 Woodland habitat within the site, both broad-leaved and mixed, is mature and ground flora recorded included ancient woodland indicator species. As such the woodland is considered likely to be of enhanced ecological value.

5.2.3 Several semi-natural woodland habitats are listed as priority habitats on the UKBAP and as such local planning authorities should consider their safeguarding when assessing planning applications.

5.2.4 Due to its ecological value woodland should be retained within the site design and where development will occur in close proximity to woodland an arboricultural impact assessment (AIA) should be undertaken. An AIA will inform of any potential impacts to individual trees and will provide recommendations for safeguarding these important features.

5.2.5 Where any woodland is to be lost or disturbed it is recommended that a full botanical (National Vegetation Classification) survey is undertaken, this will inform recommendations for compensation and a woodland management plan for the wider site.

Running Water

5.2.6 Six drains are present within the site. Due to the quality of the habitat and their association with adjacent wetland habitats D2, D3 and D4 are considered likely to be of high ecological value and should be retained within the site design. D1, D5 and D6 are considered likely to be of moderate ecological value and should also be retained within the site design.

5.2.7 Where impacts on any of the ditches are predicted, a further, targeted survey is recommended.

Trees

5.2.8 Trees within the site include mature and veteran specimens. Although trees are common and widespread within the wider area, mature and veteran trees within the site are considered to be of ecological value.

5.2.9 It is recommended that mature and veteran trees should be retained in the site design and safeguarded. An AIA should be undertaken which will list any tree preservation orders and assess potential impacts to individual trees and will provide recommendations for safeguarding these important features.

Hedgerows

5.2.10 Twenty-two hedgerows were present at field boundaries throughout the site, some containing several woody species. The majority of hedgerows within the site are of UKBAP priority habitat status and are classed as countryside hedgerows. Several hedgerows are also likely to be considered important under the Hedgerow Regulations. As such hedgerows within the site are considered to be of enhanced ecological value.

5.2.11 Hedgerows should be retained in the site design and safeguarded wherever possible. Where hedgerows are to be removed or damaged it is recommended that a hedgerow survey is undertaken in order to ascertain whether they classify as important under the Hedgerow Regulations.

5.2.12 Where access roads or footpaths are planned these should intersect hedgerows perpendicularly thereby reducing the length of any gaps required.

Scrub

5.2.13 Two areas of dense scrub and areas of scattered scrub are present within the site. Although typically of limited ecological value on its own, scrub within the site is considered to be of enhanced ecological value due to association with other habitats, boundaries and ponds.

5.2.14 Scrub within the site should be retained within the site design, notably at field boundaries and where associated with other features such as ponds and woodland, within the site design. Where scrub is to be lost it should be compensated for with native species of local provenance and similar structure.

Swamp

5.2.15 The large area of swamp vegetation in the centre of site is considered to be of enhanced ecological value within the context of the site due to its connectivity with adjacent habitats such as the Lancaster Canal, woodland scrub and ponds in the local area.

5.2.16 This habitat should be retained within the site design and safeguarded. The impact of the change in local hydrology upon this wetland habitat should also be considered. In order to inform management of this habitat, it is recommended that further botanical survey is undertaken to ascertain the nature and extent of the vegetation communities present.

Neutral Semi-improved Grassland

5.2.17 Semi-improved grassland is considered to be of low ecological value due to the intensity of grazing within the site and therefore limited floristic diversity. It is also widespread and common in the wider area.

Improved Grassland

5.2.18 Improved grassland within the site is considered to be of low ecological value, also being common and widespread locally.

Buildings

5.2.19 Buildings within the site have bat roost potential and potential for nesting birds, as such all buildings should be retained where further surveys (as per Section 5.3) have not been undertaken to confirm the absence of these species.

Inland Cliff

5.2.20 The cliffs within the site may provide opportunities for roosting bats or nesting birds and should be retained within the design as features considered to have ecological value. If inland cliff is to be modified, then a further assessment of ecological value is recommended.

Bare Ground and Walls

5.2.21 These habitats are considered to be of negligible ecological value and no recommendations have been made.

Ponds

5.2.22 Ponds are considered to be of enhanced ecological value and are also a UK BAP habitat, therefore they should be retained within any site design and safeguarded.

Notable Habitats Adjacent to the Site - Lancaster Canal

5.2.23 The Lancaster Canal, located adjacent to the site boundary is of high ecological value, and recommendations have been made in Section 5.1 aimed at safeguarding its integrity.

5.3 Fauna

Bats

5.3.1 Eighteen records of bats, including roosts, were identified from within 2km following the desk study, with records of a roost within the site and bat activity adjacent to the site. Although the grid reference provided for the roost falls within the site, it is believed that the location is inaccurate as no Ice House was found within the site, and the Ellel Grange buildings are located beyond the south site boundary.

5.3.2 Buildings and trees within the site were observed to have bat roost suitability and the cliffs may also support suitable features, however a targeted survey was not undertaken. It is therefore recommended that prior to development of the site a targeted preliminary roost assessment is undertaken at buildings, trees and/or cliffs to be impacted; to determine their bat roost suitability and to prevent any impact to roosting bats.

5.3.3 Where bat roost suitability is identified bat activity surveys to determine the presence or likely absence of roosting bats at a building, tree and/or cliff will be required prior to the commencement of works at these features.

5.3.4 Due to the availability of high quality habitat for foraging and commuting bats throughout the site and good connectivity with similar habitats within the wider area it is recommended that bat activity surveys are undertaken. Bat activity surveys should incorporate walked transects in combination with static detector monitoring throughout Spring, Summer and Autumn. The number of survey visits and transects required will be informed by the area of and habitat types to be impacted. Bat activity surveys will identify important foraging and commuting features and will also provide recommendations for landscaping and lighting plans.

Badger

5.3.5 Several badger sett entrances were identified during the survey and records of badger activity were provided following the desk study. It was not clear at the time of survey whether badgers were currently using the site. As the use of the site is not known at this stage it is not possible to determine the level of impact on badger as a result of its development.

5.3.6 It is recommended that a badger survey is undertaken, to identify the locations of badger activity, classify setts present and inform any constraints to development.

Birds

5.3.7 A breeding bird survey is recommended to record bird species using the site to inform design and mitigation.

5.3.8 Swallows were observed nesting within buildings at Home Farm. The desk study returned records of Schedule 1, UKBAP and Lancashire BAP species within 2km of the site, including barn owl and kingfisher.

5.3.9 Habitats within the site, such as woodland, trees, hedgerows, scrub, swamp, grassland and waterbodies provide opportunities for foraging and nesting birds, whilst buildings at Home Farm provide opportunity for nesting birds, including barn owl. Cliffs within the site may also support features with suitable for nesting.

5.3.10 The loss or disturbance of these habitats has the potential to directly impact on nesting birds and indirectly impact birds through the loss of foraging habitat. It is therefore recommended that the site design considers the value of habitats listed above to nesting bird and aims to retain high quality habitat.

5.3.11 The final design should be reviewed by a suitably qualified ecologist and, based upon the size of development, the habitats types and the features to be impacted, the requirement for breeding bird surveys should be considered.

5.3.12 A targeted barn owl survey should be undertaken at any building within the site to be impacted, to determine the presence or likely absence of, and assess any impact to, this species.

5.3.13 It is recommended that where works will take place within the bird nesting season (typically March to September inclusive) an inspection of habitats, buildings and/or cliffs is required. Where bird besting activity is observed works will be delayed until after dependent young have left the nest.

Otter

5.3.14 Two records of otter were returned following the desk study, both were located on the Lancaster Canal, around 100m from the site. It is assumed that otter are present along the extent of Lancaster Canal and therefore may be found within the site.

5.3.15 Otter may also utilise waterbodies, including drains and ponds, within the site for foraging and associated dense vegetation for potential resting sites and holts.

5.3.16 Due to the likely presence of otter within the site development has the potential to impact upon this species directly through destruction of holts and habitat and through increased disturbance.

5.3.17 It is recommended that an otter survey is undertaken, comprising a walkover of the site searching for signs of otter activity and identifying features with potential for use as otter holts. This will inform any constraints and provide recommendations for safeguarding this species.

Water Vole

5.3.18 Waterbodies within the site, including drains and ponds, have suitability for water vole. The loss of these waterbodies or change in their vegetation and hydrology has the potential to impact on water vole, where present. In addition Lancaster Canal, with its associated vegetation, is suitable for water vole and works in close proximity also have the potential to impact on water vole.

5.3.19 It is recommended that development avoids the aquatic habitats listed above, and these habitats are buffered by at least 5m to safeguard water vole, which may be present. Where this is not possible a targeted water vole survey should be undertaken to determine the presence/or likely absence prior to the commencement of any works.

Reptiles

5.3.20 A single record of a common lizard was returned following the desk study, located around 1km to the south of site.

5.3.21 The area of swamp in the centre of site, with associated aquatic habitats and scrub provides a mosaic of habitats with potential foraging, basking and refuging opportunities for reptiles.

5.3.22 Other habitats within the site such as woodland, scrub, hedgerows and rough grassland although suitable for reptiles are predominantly uniform in structure and isolated and therefore are considered to be suboptimal.

5.3.23 Due to the lack of records locally and the suboptimal nature of the majority of habitats within the site it is considered unlikely that reptiles will be present. It is therefore considered that development of the site will have negligible impact upon reptiles and no survey is recommended.

Hedgehog

5.3.24 Two records of hedgehog were identified during the desk study and habitats within the site, such as woodland, hedgerows, scrub and grassland are of suitability for this species.

5.3.25 It is recommended that woodland, hedgerows, scrub and grassland should be retained and any vegetation removal is undertaken outside of the hedgehog hibernation season (November to mid-March) and with consideration to this UKBAP species.

Brown Hare

5.3.26 Habitats within the site, such as woodland, grassland and hedgerows, provide opportunities for brown hare.

5.3.27 Due to the availability of an abundance of brown hare habitat in the wider area it is considered that the viability of the brown hare population locally will not be unduly impacted by development of the site.

5.4 GCN Assessment

5.4.1 Records of GCN in the wider area were returned following the desk study.

5.4.2 eDNA sampling of the eight ponds (P1-8) within the site indicated absence of GCN at these waterbodies.

5.4.3 A further sixteen ponds were identified within 500m of the site boundary, however, as the nearest record is approximately 900m away, then no further recommendations for GCN are considered necessary.

5.4.4 As GCN are a mobile species where works are not undertaken within 2 years further GCN surveys will be required to determine the continued absence of this species within ponds at the Home Farm site.

6.0 SUMMARY OF CONSTRAINTS

6.1 The following tables summarise ecological constraints based on information gathered to inform this Preliminary Ecological Assessment.

6.2 In a number of cases the way to manage these constraints is to undertake further ecological survey and assessment to understand the nature of ecological constraint, allowing a more accurate ecological value to be assigned to the habitat or species.

6.3 In some cases potential constraints described below may well prove to be absent on further investigation, and consequently further ecological survey and assessment should allow a more accurate and focussed constraints plan to be drawn up.

Table 6.1 – Summary of Constraints - Ecological Features

Ecological Feature	Likely Constraint	Recommendation
Ellel Grange Wood BHS	Retain and safeguard this feature.	Create a buffer around the feature. If impacts are considered likely undertake further botanical assessment to inform woodland management plan.
Lancaster Canal BHS	Retain and safeguard this feature.	Consider impacts on this feature. Create a significant buffer between development and the BHS.
Broad-leaved Semi-natural Woodland: Carter Wood, Flat Wood and Home Farm Wood	Retain these features.	If impacts are considered likely undertake Arboricultural Impact Assessment. If parts of feature to be lost, further ecological survey needed to inform mitigation. The importance of these features for protected species, notably bats, badger and nesting birds, should also be assessed.
Mixed Semi-natural woodland	Retain these features.	If impacts are considered likely undertake Arboricultural Impact Assessment. If parts of feature to be lost, further ecological survey needed to inform mitigation. The importance of these features for protected species, notably bats, badger and nesting birds, should also be assessed.
Running Water	Retain these features.	If impacts are considered likely undertake a targeted survey, to assess the value of this habitat. The importance of these features for protected species, notably nesting birds,

Ecological Feature	Likely Constraint	Recommendation
		otter and water vole, should also be assessed.
Scattered Trees	Retain these features, notably mature and veteran trees.	If impacts are considered likely undertake Arboricultural Impact Assessment. If trees are to be felled or damaged, further ecological survey needed to inform mitigation. The importance of these features for protected species, notably bats and nesting birds, should also be assessed.
Hedgerows	Retain these features.	If impacts are considered likely undertake a Hedgerow Assessment to ascertain whether hedgerows to be impacted are 'important' according to the Hedgerow Regulations 1997. The importance of these features for protected species, notably bats, badger and nesting birds, should also be assessed.
Scrub	Retain these features or compensate for the loss of this habitat with native species of local provenance and similar structure.	The importance of this feature for protected species, notably bats, badger, nesting birds, and otter should be assessed.
Swamp	Retain this feature	If impacts are considered likely undertake further botanical assessment to fully ascertain this habitats ecological value. The importance of this feature for protected species, notably bats, nesting birds, otter and water vole, should also be assessed.
Neutral Semi-improved Grassland	Where necessary compensate for the loss of this habitat with grasslands planted with native species of local provenance.	The importance of this feature for protected species, notably, badger and nesting birds, should be assessed.
Improved Grassland	N/a	The importance of this feature for protected species, notably, bats, badger and nesting birds, should be assessed.
Buildings	Retain these features.	The importance of these features for protected species, notably bats and nesting birds, should be assessed.
Inland Cliff	Retain these features.	The importance of these features for protected species, notably bats and nesting birds, should be assessed.
Ponds	Retain these features. Habitat connectivity between ponds and other watercourses should be considered in the design.	The importance of these features for protected species, notably bats, nesting birds, otter and water vole, should be assessed.

Table 6.2 – Summary of Constraints - Protected Species

Species	Likely Constraint	Recommendation
Bats - Roosting	Retain features suitable for roosting bats (trees, buildings and cliffs). Where these are not to be retained further ecological assessment is required.	If impacts are considered to trees, buildings and/or cliffs then a preliminary roost assessment should be undertaken at these features. If bat roost suitability is identified at trees, buildings and/or cliffs to be impacted then bat activity surveys should be undertaken at these features. If a bat roost is identified at any trees, buildings and/or cliffs to be impacted then a Natural England protected species licence should be sought to allow for the damage/destruction/disturbance of a roost.
Bats - Foraging and/or Commuting	Further assessment required to identify important ecological features for foraging and/or commuting bats.	Bat activity surveys, comprising walked transects and static detector monitoring should be undertaken.
Badger	Further assessment required to determine the presence/absence of this species and its distribution.	Badger survey should be undertaken to understand where setts are and usage of the site.
Birds	Further assessment required to understand potential constraints.	Breeding bird survey should be undertaken. Barn owl survey of buildings and trees should be undertaken.
Otter	Further assessment required to understand potential constraints.	Otter survey of water bodies, and associated vegetation, should be undertaken.
Water Vole	Retain ecological features suitable for this species or further assessment required.	Water vole survey should be undertaken where watercourses and ditches are to be modified or works are to take place nearby.
Reptiles	N/a	N/a
Great Crested Newt	N/a	If works are not undertaken within two years further ecological assessment will be necessary.

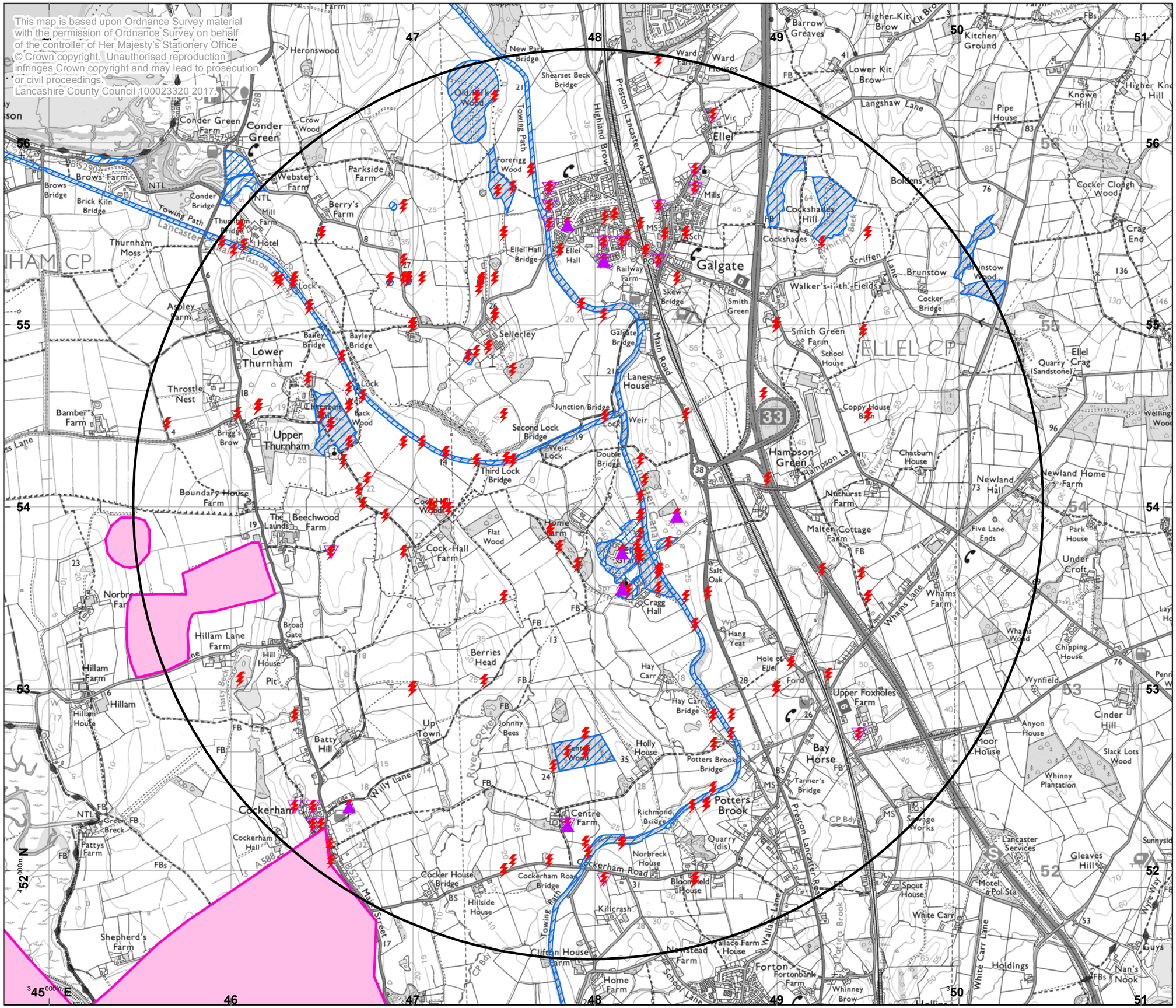
FIGURE 1
PHASE 1 HABITAT PLAN

SUPPLIED AS A SEPARATE PDF DOCUMENT

APPENDIX 1
DESK STUDY DATA

SUPPLIED AS SEPARATE PDF DOCUMENTS

APPENDIX 2
PHOTOGRAPHS



Project:

JWP032 Home Farm Ellel

Client:

Haycock and Jay Associates

Grid Ref: 0 0

Legend

▭ Search Site

▲ Bat Roost or Possible Roost

▽ Other Bat Record

ϟ Lancashire Key Species

▨ Biological Heritage Sites

Sensitive Bird Areas

Species, Class

🟪 Pink-footed Goose, used

N.B. THIS IS AN INTERACTIVE PDF LAYERS CAN BE TURNED ON OR OFF TO AID CLARITY.

N

Metres

0 1,250

1:19,658

"Boundaries of statutory designations (Natura 2000, SSSI etc) are included for information only. *Definitive, information for these designations should be obtained from Natural England."*

Lancashire Key Species records are plotted at the centre of the area to which they relate (the precision of each record is given in the accompanying attribute data and spreadsheet).

Lancashire Environment Record Network
C/O Planning Group
Environment Directorate,
Lancashire County Council,
PO Box 100,
County Hall,
Preston. PR1 0LD

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TaxonName	CommonName	TxGroup	GridRef	Year	SampDate	ObsComment	ObsType	ObsAbund
Lissotriton vulgaris	Smooth Newt	amphibian	SD46975524	2003	2003		None	
Triturus cristatus	Great Crested Newt	amphibian	SD47375524	2003	2003		None	
Triturus cristatus	Great Crested Newt	amphibian	SD46975524	2003	2003		None	
Triturus cristatus	Great Crested Newt	amphibian	SD46975524	2003	2003		None	
Triturus cristatus	Great Crested Newt	amphibian	SD47375523	2003	2003		None	
Triturus cristatus	Great Crested Newt	amphibian	SD48615236	2006	18/05/2006	Eggs	None	
Triturus cristatus	Great Crested Newt	amphibian	SD48615236	2006	19/06/2006- 20/06/2006		None	2 Count of Adult Female
Lissotriton vulgaris	Smooth Newt	amphibian	SD48615236	2006	07/06/2006- 08/06/2006		None	5 Count of Adult Male
Lissotriton helveticus	Palmate Newt	amphibian	SD48615236	2006	07/06/2006- 08/06/2006		None	1 Count of Adult Female
Lissotriton vulgaris	Smooth Newt	amphibian	SD48615236	2006	19/06/2006- 20/06/2006		None	1 Count of Adult Female; 16 Count of Juvenile
Lissotriton vulgaris	Smooth Newt	amphibian	SD48615236	2006	07/06/2006- 08/06/2006		None	6 Count of Adult Female
Rana temporaria	Common Frog	amphibian	SD48615236	2006	18/05/2006	Tadpoles	None	
Lissotriton vulgaris	Smooth Newt	amphibian	SD48615236	2006	07/06/2006- 08/06/2006		None	3 Count of Adult Female
Triturus cristatus	Great Crested Newt	amphibian	SD48615236	2006	24/05/2006	Eggs	None	
Lissotriton vulgaris	Smooth Newt	amphibian	SD48615236	2006	19/06/2006- 20/06/2006		None	16 Count of juvenile
Lissotriton vulgaris	Smooth Newt	amphibian	SD48615236	2006	24/05/2006		None	3 Count of Adult Female
Rana temporaria	Common Frog	amphibian	SD466545	2007	29/04/2007	Juvenile Visual	field record	1 Count of -
Rana temporaria	Common Frog	amphibian	SD466545	2007	29/04/2007	1 immature	field record	
Rana temporaria	Common Frog	amphibian	SD466545	2007	29/04/2007	Juvenile	field record	
Bufo bufo	Common Toad	amphibian	SD481537	2011	08/05/2011	Tadpole	field record	
Bufo bufo	Common Toad	amphibian	SD481537	2011	08/05/2011	Tadpole	field record	
Lissotriton helveticus	Palmate Newt	amphibian	SD4947554961	2011	07/05/2011	Adult	field record	
Rana temporaria	Common Frog	amphibian	SD4649452246	2012	03/03/2012	Spawnunknown(optional)	field record	Present Count of -
Alcedo atthis	Kingfisher	bird	SD481537	2005	18/10/2005		None	1 Count
Alcedo atthis	Kingfisher	bird	SD48535235	2006	March 2006 - June 2006		None	
Passer domesticus	House Sparrow	bird	SD478555	2007	15/08/2007	Used Nest	field record	
Tyto alba	Barn Owl	bird	SD465537	2012	20/07/2012	Pellets	field record	
Sturnus vulgaris	Starling	bird	SD4954	2014	14/03/2014		field record	P DAFOR of -
Passer domesticus	House Sparrow	bird	SD4855	2014	19/03/2014		field record	P DAFOR of -
Linaria cannabina	Linnet	bird	SD460530	2015	31/07/2015		N	3 Count of -; Male Count of juvenile
Linaria cannabina	Linnet	bird	SD460530	2015	31/07/2015		N	1 Count of Male; 3 Count of -
Passer domesticus	House Sparrow	bird	SD4654452139	2015	01/10/2015		None	
Alcedo atthis	Kingfisher	bird	SD4796352092	2015	01/10/2015	1	None	
Passer domesticus	House Sparrow	bird	SD4805655586	2015	26/09/2015		None	
Falco tinnunculus	Kestrel	bird	SD492536	2016	07/02/2016		field record	1 Count of -; 1 Count of in flight
Falco tinnunculus	Kestrel	bird	SD4892854617	2017	01/06/2017		None	
Pinus sylvestris	Scots Pine	conifer	SD481537	2005	18/10/2005		None	1 Count
Pinus sylvestris	Scots Pine	conifer	SD481537	2005	18/10/2005		None	1 Count
Pinus sylvestris	Scots Pine	conifer	SD45R	2014	15/05/2014	Ellel Grange etc.	field record	
Pinus sylvestris	Scots Pine	conifer	SD4953	2014	14/03/2014		field record	P DAFOR of -
Pinus sylvestris	Scots Pine	conifer	SD4827554145	2014	17/08/2014		None	

Pinus sylvestris	Scots Pine	conifer	SD4840453795	2014	11/09/2014		None	
Veronica anagallis-aquatica	Blue Water-Speedwell	flowering plant	SD46875524	2003	2003		None	1 Count
Hyacinthoides non-scripta	Bluebell	flowering plant	SD481537	2005	18/10/2005		None	1 Count
Rhododendron ponticum	Rhododendron	flowering plant	SD481537	2005	18/10/2005		None	1 Count
Hyacinthoides non-scripta	Bluebell	flowering plant	SD48185353	2005	18/10/2005		None	1 Count
Rhododendron ponticum	Rhododendron	flowering plant	SD48185353	2005	18/10/2005		None	1 Count
Catabrosa aquatica	Whorl-grass	flowering plant	SD48535235	2006	March 2006 - June 2006		None	1 Count
Hyacinthoides non-scripta	Bluebell	flowering plant	SD4750052000	2006	17/05/2006		field record	O DAFOR of -
Hyacinthoides non-scripta	Bluebell	flowering plant	SD4861953519	2006	17/05/2006		field record	O DAFOR of -
Hyacinthoides non-scripta	Bluebell	flowering plant	SD4907853138	2006	03/05/2006		field record	O DAFOR of -
Hyacinthoides non-scripta	Bluebell	flowering plant	SD4861953519	2006	17/05/2006		field record	O DAFOR of -
Hyacinthoides non-scripta	Bluebell	flowering plant	SD4654	2007	29/04/2007	Back Wood	field record	Not Count of present; Present DAFOR of -
Impatiens noli-tangere	Touch-me-not Balsam	flowering plant	SD4824753720	2007	12/09/2007	A few colonies dotted around woodland grounds of Ellel Grange	field record	1000 DAFOR of -; Flowering / Count of fruiting
Hyacinthoides non-scripta	Bluebell	flowering plant	SD465544	2010	2010		None	
Hippuris vulgaris	Mare's-tail	flowering plant	SD45S	2011	28/06/2011		field record	Not Count of present; Present DAFOR of -
Nymphoides peltata	Fringed Water-lily	flowering plant	SD45S	2011	28/06/2011		field record	Not Count of present; Present DAFOR of -
Catabrosa aquatica	Whorl-grass	flowering plant	SD45S	2011	28/06/2011		field record	Not Count of present; Present DAFOR of -
Potamogeton alpinus	Red Pondweed	flowering plant	SD45S	2011	28/06/2011		field record	Not Count of present; Present DAFOR of -
Catabrosa aquatica	Whorl-grass	flowering plant	SD45S	2011	01/01/2011		field record	Not Count of present; Present DAFOR of -
Impatiens glandulifera	Indian Balsam	flowering plant	SD45S	2011	28/06/2011		field record	Not Count of present; Present DAFOR of -
Elodea nuttallii	Nuttall's Waterweed	flowering plant	SD45S	2011	28/06/2011		field record	Not Count of present; Present DAFOR of -
Catabrosa aquatica	Whorl-grass	flowering plant	SD46015540	2011	01/08/2011	By the mill	field record	P DAFOR of Absent
Catabrosa aquatica	Whorl-grass	flowering plant	SD46725460	2011	28/06/2011		field record	P DAFOR of Absent
Buddleja davidii	Butterfly-bush	flowering plant	SD4855	2013	07/03/2013		field record	
Meconopsis cambrica	Welsh Poppy	flowering plant	SD4855	2013	25/06/2013		field record	
Lamiastrum galeobdolon subsp. argentatum	Yellow Archangel	flowering plant	SD4955	2013	20/08/2013		field record	
Lamiastrum galeobdolon subsp. argentatum	Yellow Archangel	flowering plant	SD45S	2014	15/05/2014	Ellel Grange etc.	field record	
Fallopia japonica	Japanese Knotweed	flowering plant	SD45S	2014	15/05/2014	Ellel Grange etc.	field record	
Meconopsis cambrica	Welsh Poppy	flowering plant	SD45S	2014	15/05/2014	Ellel Grange etc.	field record	
Rhododendron ponticum	Rhododendron	flowering plant	SD45R	2014	15/05/2014	Ellel Grange etc	field record	
Hyacinthoides non-scripta	Bluebell	flowering plant	SD45R	2014	15/05/2014	Ellel Grange etc	field record	
Narcissus pseudonarcissus subsp. pseudonarcissus	Daffodil	flowering plant	SD4953	2014	14/03/2014		field record	R DAFOR of -
Lamiastrum galeobdolon subsp. argentatum	Yellow Archangel	flowering plant	SD4954	2014	14/03/2014		field record	P DAFOR of -
Narcissus pseudonarcissus	Daffodil	flowering plant	SD4953	2014	14/03/2014		field record	R DAFOR of -
Lamiastrum galeobdolon subsp. argentatum	Yellow Archangel	flowering plant	SD4953	2014	14/03/2014		field record	P DAFOR of -
Hyacinthoides non-scripta	Bluebell	flowering plant	SD4955	2014	25/04/2014		field record	P DAFOR of -
Puccinellia distans	Reflexed Saltmarsh-Grass	flowering plant	SD4853	2014	11/09/2014		field record	P DAFOR of -

Hyacinthoides non-scripta	Bluebell	flowering plant	SD4953	2014	14/03/2014		field record	P DAFOR of -
Carex riparia	Greater Pond-sedge	flowering plant	SD483536	2014	11/09/2014	Lancaster Canal, Ellel. @ SD483536	field record	
Hippuris vulgaris	Mare's-tail	flowering plant	SD483536	2014	11/09/2014	Lancaster Canal, Ellel. @ SD483536	field record	
Hyacinthoides non-scripta	Bluebell	flowering plant	SD47805377	2014	17/08/2014		None	
Hippuris vulgaris	Mare's-tail	flowering plant	SD4835553642	2014	11/09/2014		None	
Nymphoides peltata	Fringed Water-lily	flowering plant	SD4607055433	2014	17/08/2014		None	A DAFOR of present
Catabrosa aquatica	Whorl-grass	flowering plant	SD4643055099	2014	17/08/2014		None	
Hippuris vulgaris	Mare's-tail	flowering plant	SD4751454260	2014	17/08/2014		None	
Elodea nuttallii	Nuttall's Waterweed	flowering plant	SD4643055099	2014	17/08/2014		None	
Impatiens noli-tangere	Touch-me-not Balsam	flowering plant	SD4823353778	2014	11/09/2014		None	A DAFOR of present
Elodea nuttallii	Nuttall's Waterweed	flowering plant	SD4634255228	2014	17/08/2014		None	
Veronica anagallis-aquatica	Blue Water-Speedwell	flowering plant	SD4719653983	2014	17/08/2014		None	
Fallopia japonica	Japanese Knotweed	flowering plant	SD4670354087	2014	17/08/2014		None	
Potamogeton alpinus	Red Pondweed	flowering plant	SD4643055099	2014	17/08/2014		None	
Potamogeton alpinus	Red Pondweed	flowering plant	SD4751454260	2014	17/08/2014		None	
Hippuris vulgaris	Mare's-tail	flowering plant	SD4718054291	2014	17/08/2014		None	
Impatiens noli-tangere	Touch-me-not Balsam	flowering plant	SD4825153722	2014	11/09/2014	Flowering	None	O-LA DAFOR of present
Rhododendron ponticum	Rhododendron	flowering plant	SD4790553680	2014	17/08/2014		None	
Spirodela polyrhiza	Greater Duckweed	flowering plant	SD4643055099	2014	17/08/2014		None	R DAFOR of present
Callitriche hermaphroditica	Autumnal Water-starwort	flowering plant	SD4751454260	2014	17/08/2014		None	
Impatiens noli-tangere	Touch-me-not Balsam	flowering plant	SD4823853737	2014	11/09/2014		None	O-LA DAFOR of present
Catabrosa aquatica	Whorl-grass	flowering plant	SD4718054291	2014	17/08/2014		None	
Veronica anagallis-aquatica	Blue Water-Speedwell	flowering plant	SD4717254005	2014	17/08/2014		None	
Impatiens glandulifera	Indian Balsam	flowering plant	SD4643055099	2014	17/08/2014		None	
Rhododendron ponticum	Rhododendron	flowering plant	SD4840453795	2014	11/09/2014		None	
Elodea nuttallii	Nuttall's Waterweed	flowering plant	SD4805754496	2014	17/08/2014		None	
Carex riparia	Greater Pond-sedge	flowering plant	SD4835553642	2014	11/09/2014		None	
Lamiastrum galeobdolon subsp. argentatum	Yellow Archangel	flowering plant	SD4672654012	2014	17/08/2014		None	
Impatiens glandulifera	Indian Balsam	flowering plant	SD4605255539	2014	17/08/2014		None	
Potamogeton alpinus	Red Pondweed	flowering plant	SD4718054291	2014	17/08/2014		None	
Callitriche obtusangula	Blunt-fruited Water-starwort	flowering plant	SD4717254005	2014	17/08/2014		None	
Potamogeton alpinus	Red Pondweed	flowering plant	SD4660954820	2014	17/08/2014		None	
Potamogeton alpinus	Red Pondweed	flowering plant	SD4634255228	2014	17/08/2014		None	
Rhododendron ponticum	Rhododendron	flowering plant	SD481537	2015	26/09/2015		None	
Buddleja davidii	Butterfly-bush	flowering plant	SD4817955482	2015	26/09/2015		None	
Meconopsis cambrica	Welsh Poppy	flowering plant	SD4827955404	2015	26/09/2015		None	
Impatiens noli-tangere	Touch-me-not Balsam	flowering plant	SD4824553721	2015	26/09/2015		None	
Fumaria capreolata	White Ramping-fumitory	flowering plant	SD4810755603	2015	26/09/2015	garden weed	None	
Impatiens glandulifera	Indian Balsam	flowering plant	SD4827955404	2015	26/09/2015		None	
Meconopsis cambrica	Welsh Poppy	flowering plant	SD4781055409	2015	26/09/2015		None	
Impatiens glandulifera	Indian Balsam	flowering plant	SD4792455106	2015	26/09/2015		None	
Valerianella locusta	Common Cornsalad	flowering plant	SD4838555495	2017	18/05/2017		None	
Hydraecia micacea	Rosy Rustic	insect - moth	SD474550	2003	17/08/2003		field record	1 Count of Adult; 3 Count of -
Ecliptopera silaceata	Small Phoenix	insect - moth	SD474550	2003	02/06/2003		field record	1 Count of Adult; 1 Count of -
Atethmia centrago	Centre-barred Sallow	insect - moth	SD474550	2003	17/08/2003		field record	3 Count of -
Melanchra persicariae	Dot Moth	insect - moth	SD474550	2003	16/07/2003		field record	1 Count of Adult; 1 Count of -
Autographa bractea	Gold Spangle	insect - moth	SD474550	2003	16/07/2003		field record	2 Count of -
Diarsia rubi	Small Square-spot	insect - moth	SD474550	2003	02/06/2003		field record	1 Count of Adult; 2 Count of -

Hoplodrina blanda	Rustic	insect - moth	SD474550	2003	16/07/2003		field record	1 Count of Adult; 1 Count of -
Hydraecia micacea	Rosy Rustic	insect - moth	SD474550	2003	17/08/2003		field record	1 Count of Adult; 3 Count of -
Spilosoma lubricipeda	White Ermine	insect - moth	SD474550	2003	02/06/2003		field record	1 Count of Adult; 5 Count of -
Spilosoma luteum	Buff Ermine	insect - moth	SD474550	2003	02/06/2003		field record	1 Count of Adult; 6 Count of -
Apamea remissa	Dusky Brocade	insect - moth	SD474550	2003	16/07/2003		field record	2 Count of -
Hoplodrina blanda	Rustic	insect - moth	SD474550	2003	16/07/2003		field record	1 Count of Adult; 1 Count of -
Ecliptopera silaceata	Small Phoenix	insect - moth	SD474550	2003	17/08/2003		field record	1 Count of Adult; 2 Count of -
Orthosia gracilis	Powdered Quaker	insect - moth	SD474550	2003	14/05/2003		field record	1 Count of -; 1 Count of Adult
Diarsia rubi	Small Square-spot	insect - moth	SD474550	2003	17/08/2003		field record	1 Count of Adult; 4 Count of -
Orthonama vittata	Oblique Carpet	insect - moth	SD482539	2007	03/06/2007		field record	1 Count of Adult; 3 Count of -
Spilosoma lubricipeda	White Ermine	insect - moth	SD479521	2007	05/06/2007		field record	1 Count of Adult; 2 Count of -
Spilosoma lubricipeda	White Ermine	insect - moth	SD482539	2007	03/06/2007		field record	1 Count of Adult; 6 Count of -
Ecliptopera silaceata	Small Phoenix	insect - moth	SD482539	2010	12/08/2010		field record	1 Count of Adult; 1 Count of -
Zootoca vivipara	Common Lizard	reptile	SD463528	2011	Apr-11		field record	
Trachemys scripta subsp. elegans	Red-eared Terrapin	reptile	SD48655269	2016	11/04/2016	Mature adult, sunning itself on an exposed, partially-submerged tree root adjacent to the northern bank of the Lancaster Canal	None	1 Count of adult
Myotis mystacinus	Whiskered Bat	terrestrial mammal	SD494527	2005	25/06/2005	Grounded bat	field record	1 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD477555	2005	26/06/2005	Grounded bat	field record	1 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD486561	2005	25/06/2005	Grounded bat	field record	1 Count of -
Plecotus auritus	Brown Long-eared Bat	terrestrial mammal	SD481537	2006	05/09/2006	In tower	field record	30 Count of -
Pipistrellus	Pipistrelle Bat species	terrestrial mammal	SD480553	2006	23/06/2006	Roost emergence count	field record	169 Count of -
Pipistrellus	Pipistrelle Bat species	terrestrial mammal	SD480553	2006	23/06/2006	Roost emergence count	field record	169 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD478555	2007	15/08/2007	Roosting	field record	3 Count of present
Plecotus auritus	Brown Long-eared Bat	terrestrial mammal	SD478522	2008	23/05/2008	Reroofing proposed	field record	40 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD485558	2008	03/07/2008	Feeding	field record	1 Count of present
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD466523	2008	27/06/2008	Bats indoors, roost found near chimney	field record	2 Count of -
Lepus europaeus	Brown Hare	terrestrial mammal	SD468539	2008	22/11/2008	Young hare noted in pasture field	field record	1 Count of -
Lepus europaeus	Brown Hare	terrestrial mammal	SD469537	2009	19/03/2009	In pasture field with sheep and lambs (reaction of lambs to hare was to run away similar to a dog)	field record	1 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD485557	2009	16/10/2009	Grounded	field record	1 Count of -
Plecotus auritus	Brown Long-eared Bat	terrestrial mammal	SD478522	2009	11/05/2009		field record	5 Count of -
Lepus europaeus	Brown Hare	terrestrial mammal	SD467541	2009	09/04/2009		field record	2 Count of -
Lepus europaeus	Brown Hare	terrestrial mammal	SD456544	2009	11/04/2009	Sitting alone and stationary in field.	field record	1 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD483556	2010	30/08/2010	Died	field record	1 Count of -
Pipistrellus pygmaeus	Soprano Pipistrelle	terrestrial mammal	SD481535	2011	06/09/2011	Emerging/Foraging	field record	4 Count of present
Nyctalus noctula	Noctule Bat	terrestrial mammal	SD465537	2012	20/07/2012	Foraging	field record	2 Count of present
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD483553	2012	31/08/2012	Foraging	field record	3 Count of present
Myotis daubentonii	Daubenton's Bat	terrestrial mammal	SD484539	2012	11/02/2012	Internal hibernation counts	field record	1 Count of -
Pipistrellus pipistrellus	Pipistrelle	terrestrial mammal	SD465537	2012	20/07/2012	Commuting/Foraging	field record	3 Count of present
Erinaceus europaeus	West European Hedgehog	terrestrial mammal	SD489541	2013	24/06/2013	Verified	field record	

Lutra lutra	European Otter	terrestrial mammal	SD473542	2014	04/08/2014	10:30 2 adults alive, on the tow path of the canal on stretch that goes through locks to Glasson Dock, near lock no. 3, then they went into the canal, the water here is very clean and you can see the bottom of the canal, the canal at that point is next t	field record	2 Count of present
Lepus europaeus	Brown Hare	terrestrial mammal	SD4627255236	2014	26/05/2014		None	1 Count of Adult
Lutra lutra	European Otter	terrestrial mammal	SD4643055099	2014	17/08/2014	Remains of fish head suggest otter present	None	
Lepus europaeus	Brown Hare	terrestrial mammal	SD4790553680	2014	17/08/2014		None	
Erinaceus europaeus	West European Hedgehog	terrestrial mammal	SD46035450	2016	06/03/2016		field record	1 Count of -

Photo 1 – The north aspect of Carter Wood, broad-leaved semi-natural woodland, along the north site boundary.

Photo 2 – Mixed broad-leaved woodland along the site boundary adjacent to the Lancaster Canal

Photo 3 – Residential buildings and outbuildings at Home Farm.

Photo 4 – Numerous scattered mature and possibly veteran trees were present within the site.

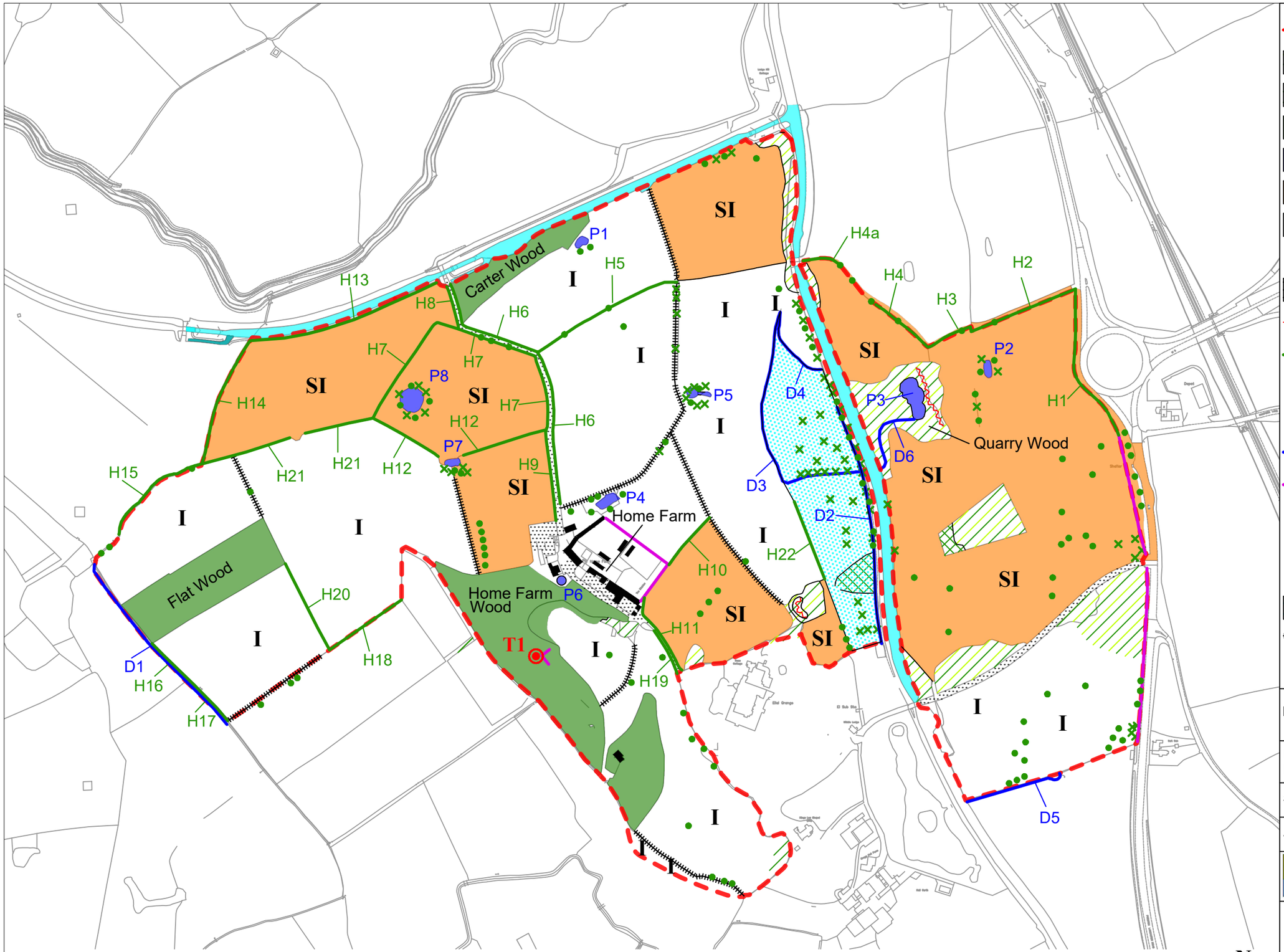
Photo 5 – Hedgerows are present at the majority of field boundaries.

Photo 6 – An area of swamp was present in the centre of site.

Photo 7 – Neutral semi-improved grassland in the north of site.

Photo 8 – The majority of the site comprised improved grassland which was grazed by cattle or sheep.

Photo 9 – Lancaster Canal biological heritage site is present adjacent to the site boundary in the north and centre of site.



- Site boundary
- Mixed semi-natural woodland
- Dense scrub
- Broad-leaved semi-natural woodland
- Standing water
- SI Neutral semi-improved grassland
- I Improved grassland
- Building
- Bare ground
- Natural inland cliff
- Hedge
- Scattered trees
- Scattered scrub
- Running water
- Wall
- Pn Pond number
- Hn Hedge number
- Dn Drain number
- Swamp
- Fence
- Tn Target note

Home Farm, Ellel

Figure 1
Phase 1 Habitat Map

Scale	1:5000 @ A3
Job No: JWP032	Ref: bk/JWP032/m393/01

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