Adonis Ecology Ltd.

Preliminary Ecological Appraisal of Land by Old Wood, Skellingthorpe to Support a Planning Application

Project Ref: 1689

Prepared on behalf of:

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Quality Assurance

The findings outlined within this report and the data we have provided are to our knowledge true, and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute for Ecology and Environmental Management (CIEEM) Code of Professional Conduct and the British Standard BS 42020:2013 which provides a code of practice for biodiversity in planning and development (BSI, 2013). This standard also recommends compliance with CIEEM Guidelines for Preliminary Ecological Appraisals (CIEEM, 2013) and Guidelines for Ecological Report Writing (CIEEM, 2017) which includes model formats for Preliminary Ecological Appraisal and Ecological Impact Assessment.

As far as the author and report checker are aware, the only differences that occur in this report from the recommended layouts are:

- to enable greater clarity and reduce repetition (e.g. the report author is listed once on the quality assurance page in this report rather than on the front page, quality assurance page and introduction as in the CIEEM model formats);
- where there are inconsistencies in the guideline documents (e.g. the list of what should be included in the summary of an ecological report highlighted in the CIEEM Guidelines for Ecological Report Writing is different to that shown in the model formats in the same document); and
- to retain a proportionate approach in accordance with BS 42020:2013.

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Therefore, we cannot guarantee that this assessment completely defines the degree or extent of the occurrence of various species or habitats on the site, or the effectiveness of recommended actions as described in the report. In addition, as the ecological situation of a site is dynamic, this assessment pertains only to the conditions noted during the site visit. Therefore, to achieve the objectives of assessment as stated in this report, the conclusions are based on the information that was available during the time of the assessment and within the limits prescribed by our client in the agreement.

	Name	**Signature**
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Date of survey:	6th August 2022	

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0 SUMMARY

0.1 Adonis Ecology Ltd. was commissioned by GSC Solicitors to undertake a Preliminary Ecological Appraisal (PEA) of land south of Old Wood, Skellingthorpe, Lincolnshire, LN6 5UA, grid reference SK 910 719. It was understood that it is proposed to build a dwelling.

0.2 A desk study was undertaken, in addition to a UKHab habitat survey which was conducted on the 6th August 2022. The site was also checked for preferred habitat types, and signs or evidence of protected species and NERC Act 2006 Section 41 species and habitats.

0.3 The proposed works were considered to pose a potentially significant risk of impact on the following protected and/or Section 41 species/species groups:

low to very low risk of direct impact to potential roosting bats in trees;

low risk of indirect impact to likely low numbers of foraging and/or commuting bats from additional lighting;

low risk of impact to any badger *Meles meles* setts that may occur on site;

low risk of impact to great crested newts *Triturus cristatus* in the event they breed in nearby ponds;

low risk of impact to reptiles, and low risk of harm to individual badgers and hedgehogs *Erinaceous europaeus* during site clearance works;

high risk of impact to common and Section 41 nesting birds, and very low risk of impact to Schedule 1 nesting birds in trees and dense scrub if site clearance works are undertaken between March and end August.

0.4 A large part of the site could not be accessed at the time of the survey due to it consisting of dense scrub. A further survey of the site should be conducted by an ecologist as the scrub is cleared, to check for badger setts and trees with potential for roosting bats.

0.5 Nearby ponds should be assessed for potential to support breeding great crested newts, and if necessary, further surveys should be undertaken to determine presence/absence of great crested newts in the local area. If present, a Natural England European Protected Species Mitigation Licence (EPSM) or District Level Licence would likely be required for site clearance works to proceed lawfully

0.6 Lighting precautions are provided to reduce risk of impact to foraging/ commuting bats to negligible. Impact avoidance measures are described to reduce impact to reptile, nesting birds and hedgehogs to negligible.

0.7 With the further surveys completed and impact avoidance/mitigation measures designed and implemented, in addition to the impact avoidance measures provided in this report, it was considered the proposed development could proceed with minimal risk of impact to protected or Section 41 species, Section 41 habitats or local biodiversity.

1 INTRODUCTION

1.1 Background

1.1.1 Adonis Ecology Ltd. was commissioned by GSC Solicitors to undertake a Preliminary Ecological Appraisal (PEA) of land south of Old Wood, Skellingthorpe, Lincolnshire, LN6 5UA, grid reference SK 910 719.

Development Description

1.1.2 The plans used to determine the boundaries of the site and the likely impacts from the proposed development were:

> "Official Copy of Title Plan", title number LL228215, issued on 25 May 2022 by HM Land Registry, Kingston Upon Hull Office; and
>
> "Site Layout Plan", drawing nu. 26/22/03 A, dated August 2022, provided by the client.

1.1.3 The site was approximately 1.9ha in size consisting of broadleaved woodland, bramble and bracken scrub, and an area of tall herb with patches of scrub to the north. It was understood that it is proposed to build a single dwelling within the northern area of the site, with the majority of the woodland to remain.

1.1.4 It was further understood that the Local Planning Authority (LPA) are likely to require a PEA to accompany the planning application for the site.

Aim and Objectives

1.1.5 The aim of this report is to determine the potential impacts of the proposed development of the site on significant local biodiversity, taking into account the species and habitats that may be affected, positively or negatively, and the potential for impact avoidance, mitigation and enhancement measures on the site.

1.1.6 To achieve this aim, the report has the following objectives:

> to identify and describe potentially significant ecological impact risks relevant to planning associated with the proposed development;
>
> to identify ways in which any significant risk of deleterious impacts could be avoided, wherever reasonably possible;
>
> for any significant ecological risks that could not reasonably be avoided, to describe surveys that would be required to confirm presence/absence and severity of impact, and outline likely mitigation options;
>
> to identify and describe ways in which the proposed change in use could enhance local biodiversity.

1.2 Planning Policy and Legislation

1.2.1 Planning policy and guidance considered for this report included:

National Planning Policy Framework (NPPF);

National Planning Practice Guidance (NPPG) – Natural Environment.

1.2.2 Legislation considered for this report included:

Protection of Badgers Act 1992;

Wildlife and Countryside Act 1981, as amended;

Countryside and Rights of Way Act 2000;

Natural Environment and Rural Communities (NERC) Act 2006;

Conservation of Habitat and Species Regulations 2017, as amended.

1.2.3 Key considerations from the NPPF and NPPG related to ecology and development include that impacts on legally protected species and habitats, as well as NERC Act (2006) Section 41 species and habitats, are a material consideration for individual planning consents (MHCLG, 2021).

1.2.4 The NPPF also promotes the enhancement of natural and local environments through planning, and states that opportunities to improve biodiversity in and around developments should be integrated into development design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate (MHCLG, 2021).

2 METHODOLOGY

2.1 Desk Study

2.1.1 On behalf of Adonis Ecology Ltd., Lincolnshire Environmental Records Centre (LERC) undertook a search for records of protected, Section 41 and rare species, as well as non-statutory wildlife sites within 2km of the proposed development site.

2.1.2 Ordnance Survey maps, Google Earth and the Multi-agency Geographic Information for the Countryside (MAGIC) interactive map were used to locate ponds and ancient woodland within a 500m radius of the site, as well as to assess the general surroundings of the site. The MAGIC map was also used to determine whether any Local Nature Reserves or National Nature Reserves occurred within 2km of the site, and whether the site falls within any relevant Impact Risk Zones of Sites of Special Scientific Interest (SSSIs) and internationally designated sites such as Special Protection Areas (SPAs), Ramsars and Special Areas of Conservation (SACs).

2.1.3 Where a proposed development site does fall within an Impact Risk Zone relevant to the type of development proposed, the MAGIC map was used to determine statutory wildlife sites within 2km of the proposed development and the closest Natura 2000 site where this falls further than 2km from the site.

2.1.4 These results were then combined with the findings of the site survey in order to assess the risk of ecology issues relevant to planning occurring on site.

2.2 Site Survey

Habitats, Plants and Surroundings

2.2.1 The site was visited on the 6th August 2022 to survey for ecology issues. This included the following:

a UKHab habitat assessment recording dominant and higher plant species present on site, and a survey for Japanese knotweed *Fallopia japonica*, giant hogweed *Heracleum mantegazzianum* and other non-native, invasive plant species as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended);

an assessment of the suitability of habitats present on site for widespread reptiles, bats, great crested newts *Triturus cristatus* and other protected or Section 41 species;

an assessment of the habitats surrounding the site and in the local area;

a direct survey for evidence of protected species as far as possible within seasonal constraints, e.g. for bats and badgers *Meles meles*.

Survey Constraints

2.2.2 The survey was undertaken during the peak time of year to survey the ecological value of a site, which is taken to be between April and September. It was considered that sufficient plant species would be visible and could be identified at this time of year to determine habitat types on site, and to assess the likely value of these habitats for local wildlife. However, some early flowering species in particular may not have been visible above ground or identifiable to species level.

2.2.3 Dense scrub covered a large part of the site which hindered access, particularly to the southern part of the site. In addition, the northern half of the site had numerous piles of building rubble, such as bricks and broken cement slabs, some of which were very loose and treacherous to walk on, which also hindered access. This was not considered to be a significant constraint to identifying habitats, but was a constraint to accessing areas that could contain protected species signs (see details following).

2.2.4 The woodland on site continued to the west and east of the site, at times without any distinguishable features of where the site boundary was.

Species

2.2.5 The evaluation for protected and Section 41 species is divided into two parts:

1. the number of that species that the zone of influence could intrinsically support (i.e. carrying capacity) and;

2. the likelihood of the species actually occurring in the zone of influence, which is dependent upon both the intrinsic value of the habitat parcel and also extrinsic factors such as connectivity to other suitable habitat.

2.2.6 It should be noted that the zone of influence may include only parts of the site and/or may extend off site, depending upon the scale and form of development and the ecology of the species concerned.

2.2.7 The likelihood of a species occurring on site is currently determined by the ecologist making a judgement based on the following factors:

The intrinsic value of habitats in the zone of influence to the species, presuming that areas that are able to potentially support larger populations are more likely to have the species present;

whether the species has been recorded locally, and how far from the site, taking into account that some species tend to be better recorded than others in certain environments;

whether signs of species were observed within the zone of influence during the survey or surveys, taking into account season of survey and that some species and signs are much less likely to be observed during a UKHab Habitat Survey than others;

the degree to which the site is considered to be connected to suitable habitat, taking into account the quantity, suitability and distance of nearby suitable habitat. Habitat out to 500m from the site is taken into account when considering this connectivity.

Bats – Survey Methodology

2.2.8 A Preliminary Roost Assessment (PRA) was conducted in daylight, on the trees on and adjacent to the site during the site visit, as access allowed. The assessment was conducted by an ecologist who is accredited under a Natural England Level 2 Class licence for bats (2015-11578-CLS-CLS).

2.2.9 Trees were checked for any gaps, holes, cracks or crevices suitable for roosting bats, as well as any signs or evidence of bats, in accordance with Natural England (2004) and BCT (Collins, 2016) guidelines.

2.2.10 Inspection survey is a suitable method at any time of year for determining presence or likely absence of bats, according to Natural England guidelines (Natural England, 2004).

2.2.11 A large part of the southern part of the site was inaccessible so not all trees were surveyed.

Badgers

2.2.12 The badger assessment, also conducted during the site visit consisted of a thorough search of the proposed development site for signs and evidence of badgers and badger setts.

2.2.13 Definite signs of badger activity were taken to be:

badgers themselves;

badger latrines;

badger paw prints;

badger hairs.

2.2.14 Signs of possible badger presence were taken to be:

well trampled animal paths;

snuffle holes;

small piles of dry grass and similar on paths;

any further signs.

2.2.15 A large part of the site was dense scrub which could not be checked thoroughly for badger setts or signs/evidence of badger activity.

Great Crested Newt Assessment

2.2.16 Two ponds and two drains were checked for suitability and likelihood of presence of great crested newts by applying the Habitat Suitability Index (HSI) assessment as developed by Oldham et al. (2000). The assessment was based on factors which may influence the likely presence of breeding great crested newts including for example:

potential for excessive shading;

presence of fish;

suitability of pond vegetation;

pollution or other degradation;

local habitat context within the landscape.

2.2.17 The site itself was checked at the same time for terrestrial habitats and features suitable for foraging and sheltering great crested newts.

2.2.18 The two ponds on site had heavy macrophyte cover and no visible water, therefore the water quality could not be assessed for these ponds.

2.2.19 There were an additional five ponds within a 250m radius of the site which could not be accessed at the time of the survey.

Habitats

2.2.20 Habitats were assigned according the UK Habitat Classification Habitat Definitions 1.1 dated September 2020 (Butcher *et al*., 2020[1]), and the UK Habitat Classification User Manual 1.1 dated September 2020 (Butcher *et al*., 2020[2]). Survey for PEA aims to take the habitats to level 4 (as available and identifiable) as this includes identification of Section 41 Habitats. Slight modifications from the UK Habitat method have been undertaken to enable extra clarity on the habitat figure. These include:

The minimum mappable unit (MMU) default is 25m^2, or 5m length for linear features (Butcher et al., 2020[2]); however, where the extent and shape of a feature smaller than the MMU is considered relevant to the site, for example because of relative ecological importance, potential impact, or locating other features, that feature is also mapped.

In addition to the location of the base of the trunks being given for individual trees as per the UK Habitat Classification User Manual (Butcher *et al*., 2020[2]), circles are also drawn giving an indication of approximate extent of their canopies.

While if a secondary characteristic occurs frequently on site, the full habitat and secondary code would be shown and the code given in the key as per the UK Habitat Classification User Manual (Butcher *et al*., 2020[2]), if the characteristic is infrequent the information will be simply labelled over the habitat for ease of interpreting the figure.

Other information on habitats for which there are not currently UKHab codes available may be added as labels or included in accompanying text and tables.

3 RESULTS AND EVALUATION

3.1 Site Location and Surroundings

3.1.1 The site was located within a woodland area approximately 1.2km west of the village of Skellingthorpe and 6km west of Lincoln (Google Earth, 2022).

3.1.2 The site was bordered to the east and south-west by continuous woodland. To the north and north-west were dwellings and businesses between gardens and paddocks, with woodland continuing 150-250m north. South was a public footpath with one row of dwellings with large gardens, beyond which were farmland and woodland (Google Earth, 2022).

3.1.3 Further out, the landscape was dominated to the north, west and south-west by woodland, with arable farmland beyond. The landscape south and east was dominated by arable farmland, small patches of woodland and the village of Skellingthorpe (Google Earth, 2022).

3.1.4 The key habitats and features surrounding the site are summarised in Table 1 following.

Table 1: Key Habitat Features Surrounding Site

Feature	Value
Percentage deciduous tree cover within 500m of site	38%
Percentage non-illuminated tree/tall shrub cover (over 4m) within 50m of the site	75%
Number of non-illuminated tree/tall shrub lines within 50m of the site	6
Distance to nearest medium-large pond, lake, river or open stream	150m

Percentage of rough grassland within 500m of the site	20%
Degree to which surrounding 500m is built up (rural, suburban, urban)	Rural

Waterbodies within 500m

3.1.5 Table 2 following shows waterbodies within 500m of the site as indicated on Ordnance Survey maps provided by Promap (2022). Nearby waterbodies can be significant with regard to particularly amphibians (within 500m), otters (within 200m), water voles (within 5m) and water birds (several kilometres). Minor hindrances to amphibian dispersal are considered to include features such as minor roads, slow-flowing small rivers and streams, arable land and extensive areas lacking in potential amphibian refuges. Major hindrances to amphibian dispersal are considered to include features such as busy roads, built up areas and wide or fast-flowing rivers and streams.

Table 2: Waterbodies within 500m of the Site

	Location relative to Site		**Hindrances to Amphibian Dispersal**	
Waterbody Type	**Distance**	**Direction**	**Minor**	**Major**
Drain (99% dry)	1m	North	None	None
Catchwater Drain	5m	South	None	None
Drain 75m (dry)	75m	West	None	None
Pond	95m	North	None	None
Pond	150m	Northwest	None	None
Pond	160m	South	None	None
Pond	180m	Northwest	None	None
Drain (dry)	190m	North	None	None
Pond	190m	Northeast	None	None
Pond	220m	Northeast	None	None
Pond	248m	Northeast	None	None
Pond	270m	Northwest	None	None
Pond	325m	West	None	None
Pond	360m	South	None	None
Pond	480m	North	None	None

3.1.6 There was no other significant wetland habitat or features within 500m of the site, although a number of drains were shown.

3.1.7 At the time of the survey, there had been a long dry spell so that the water levels in the two ponds which were assessed were so low that no water could be seen between the dense macrophyte cover, therefore the water quality was presumed for the HSI calculation to be “moderate”. The HSI scored the pond 95m north of the site as ‘Average’ and the pond 180m northwest of the site as ‘Good’ for supporting breeding great crested newts.

3.1.8 Local residents informed the surveyor that usually the Catchwater Drain ran dry every year, and other drains in the area were also dry usually. They also informed that the night before the survey there had been heavy rain, which could be why there were a

few centimetres of water in the Catchwater Drain and in the drain just north of the site. It was, though, considered that the drains would not hold enough water to sustain a breeding population of great crested newts, even in less dry years. The HSI scored the Catchwater Drain as 'Below Average' and the drain just north of the site as 'Poor' for supporting breeding great crested newts.

3.1.9 The full result of the HSIs of the nearby waterbodies are given in Table 7 in Appendix 3.

Ancient Woodlands within 500m

3.1.10 The Old Hag Wood lay just across a track to the west of the site and extended west and north of the site. Old Hag Wood is a large mainly 'Ancient Replanted Woodland', with four separate segments of 'Ancient and Semi-natural Woodland' within 500m of the site, with the closest being approximately 60m west of the site boundary (MAGIC, 2022).

Statutory Designated Sites

3.1.11 There was one statutory designated site with a 2km radius of the site, the Doddington Clay Woods Site of Special Scientific Interest (SSSI), approximately 740m southwest of the site.

3.1.12 However, while the proposed development site falls within Impact Risk Zones for designated sites, there was no requirement for the Local Planning Authority (LPA) to consult Natural England on a single residential development in this location (MAGIC, 2021). This means that Natural England consider that developments of the type proposed in this area are unlikely to potentially affect SSSIs or internationally designated sites, and these sites are thus considered no further in this report.

Non-Statutory Designated Sites

3.1.13 Table 3 following summarises the non-statutory designated sites, such as County Wildlife Sites (CWSs), Local Wildlife Sites (LWSs), Sites of Interest to Nature Conservation (SINCs) and Roadside Nature Reserves (RNRs), that occur within 2km of the proposed development site and meet at least one of the following criteria:

occur within 500m of the proposed development site;

are strongly connected by habitat to the proposed development site (e.g. by a river or continuous woodland);

are cited for particularly mobile species such as birds, bats or highly mobile invertebrates (e.g. from Lepidoptera, Hymenoptera and Odonata).

Table 3: Nearby Non-statutory Designated Sites

	Location from Site		**Cited Features**
Site Name	**Distance**	**Direction**	**Key Habitats and/or Species**
Skellingthorpe Big Wood - Old Wood House LWS	3m	West	Main habitat: Mature ancient woodland. This shady ancient woodland is part of a much larger wooded complex to the west and north-west of Skellingthorpe. In contrast to much of the

			neighbouring woodland, there are no rides and there has been no felling, replanting or other disturbance for many years; as a result, the flora is rich.
Old Wood, Skellingthorpe LWS	180m	West	Main habitats: Mature ancient woodland; Non-native plantation on ancient woodland; Non-native plantation on new woodland. Most of this large site is replanted ancient woodland; part of the remainder is semi-natural ancient woodland and the rest is non-ancient woodland. Divided up by a network of rides, drains and streams, some parts have a low density of mature trees, but elsewhere the canopy is closed. A highly diverse flora reflects the variety of vegetation structure and mostly ancient origin
Skellingthorpe Big Wood - South-East LWS	310m	South	Main habitat: Ancient semi-natural woodland. The majority of this site supports ancient semi-natural woodland bordered to the south by a straight section of old railway line.

3.1.14 Information in Table 3 is from LERC (2022).

3.2 Habitats and Significant Species Signs on Site

3.2.1 A UKHab habitat plan showing the habitats on site and highlighting the key features found in the area of impact is provided in Figure 1 in Appendix 1.

3.2.2 The northern area of the site where the new house is to be built was covered in tall herb (UKhab g3 – sec.code 16) (see Photographs 1 and 2 in Appendix 2), predominantly common nettle *Urtica dioica*, Yorkshire fog *Holcus lanatus*, teasel *Dipsacus fullonum*, dock *Rumex obtusifolius*, and rosebay willowherb *Chamaenerion angustifolium*. The average height was 50-70cm, with a low species diversity of 5.5 species per square meter on average, with moderate levels of tussocks, thatch, holes and cracks. There were patches of bramble *Rubus fruticosus* agg. and bracken *Pteridium aquilinum*, and two semi-mature crack willow *Salix fragilis* trees. Outside the fence along the northern boundary to the road was a ditch, predominantly dry though with a small puddle of oily water at one end, overgrown with tall herbs of similar species and composition as above (see Photograph 3 in Appendix 2). There were also a semi-mature silver birch *Betula pendula* and two mature oak trees *Quercus robur*, all of which are understood to remain, though potentially with some lower branches pruned to allow access to the site.

3.2.3 Through the middle of the site was a large area of dense, impenetrable scrub (UKhab h3) consisting of a mosaic of areas of bramble and bracken scrub, with common nettles in a few places as well (see Photographs 4 and 5 in Appendix 2). The scrub was around 1.5-2m in height with several clear animal tracks leading into it. The scrub surrounded several trees, including some fallen trees.

3.2.4 The rest of the site was broadleaved woodland (UKhab w1g) (see Photographs 6, 7 and 8 in Appendix 2) with oak being the main species, and silver birch abundant. Other species which were found on site were crack willow, small-leaved lime *Tilia cordata*, holly *Ilex aquifolium* and hazel *Corylus avellana*, as well as some rowan

Sorbus aucuparia in the southern part of the site. The sizes and age ranges varied, from small saplings to large mature trees. Under the canopy were large areas of bare earth and a thick leaf litter, and in other places a thick cover of bracken. The woodland was at times mixed with the scrub making for ill-defined boundaries of each habitat. None of the trees which could be observed were found to have any woodpecker holes or other suitable holes or crevices for roosting bats. However, a woodpecker was heard on site so it could be imagined that some un-reached trees could have some potential for roosting bats.

3.2.5 All over the northern part of the site were piles of rubbish and building rubble, such as paint cans, tyres and large piles of bricks and cement slabs. A lot of the piles were overgrown with scrub, grass and herbs, and were filled with crevices suitable for smaller animals to seek shelter.

3.2.6 The northern and at least part of the western site boundaries had wood and chicken wire fencing. The southern boundary was open to a public footpath, and the eastern boundary was open to continuous woodland/scrub.

3.2.7 No specific signs or evidence of any protected or Section 41 species were found within the site. No Schedule 9, non-native, invasive plant species were found on the site.

3.3 Evaluation – Species and Habitats

3.3.1 Table 4 below summarises the site evaluation for protected species (some of which are also Section 41 species) where the legal protection is relevant to the proposed development and Table 5 summarises the site evaluation for Section 41 species.

3.3.2 Where the likelihood of presence of any protected species or species group in Table 4 was considered to be greater than negligible (highlighted in red), the legislation surrounding such species and the risk are detailed in the following section. Where the risk was considered to be negligible but further discussion was considered necessary, this is highlighted in green and also detailed in the following section.

Table 4: Evaluation of Protected Species Likelihood on Site

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
Roosting bats – trees	Common pipistrelle, soprano pipistrelle, brown long-eared, Daubenton's, Natterer's, noctule, Barbastelle, whiskered bat and myotis bat species	None, but not all of the trees could be assessed	High	Low	**Low**
Foraging/ commuting bats		None		High	**High**
Badger setts	Yes	Trails into the scrub	High	Low	**Low**
Badger foraging/ dispersing		None		Low	**Moderate**
Dormouse	No	None*	High	Low	**Negligible**
Otter	Yes	None	None	None	None

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
Water vole	Yes	None	None	None	None
Great crested newts - breeding	Yes (950m to nearest record)	None*	Moderate	None	None
Great crested newts – dispersing and refuges		None*		Moderate	**Moderate**
Reptiles	Common lizard, slowworm, grass snake and adder (950m to nearest record for all four species)	None*	High	Low	**Low**
Schedule 1 nesting birds	Barn owl, bittern, black redstart, black tern, brambling, corncrake, crossbill, fieldfare, goldeneye, great northern diver, sandpiper, greylag goose, hobby, kingfisher, lapland bunting, little bittern, little egret, long-tailed duck, marsh harrier, Mediterranean gull, merlin, osprey, peregrine, pintail, red kite, redwing, Savi's warbler, scaup, Slavonian grebe, tundra swan, whimbrel and whooper swan	None	High	Low	**Very Low**
Common nesting birds	Numerous	Nests found	High	Moderate	**High**
Protected plants/fungi	No	None	Low	Negligible	Negligible
Protected invertebrates	Brown hairstreak, chequered skipper, marsh fritillary, pearl-bordered fritillary, silver-studded blue and white-letter hairstreak	None*	Low	Very Low	Negligible
Other protected species relevant to development	Red Squirrel (last record from 1976)	None*	None	None	None

* Denotes where signs and evidence are unlikely to be found in a single survey visit, even if species present.

3.3.3 For Section 41 species and species groups in Table 5, the impact risk is detailed in the following section only where it is considered the proposed development could have a potentially significant risk of impact on the local population (highlighted in red), i.e. where one of the following conditions is met:

more than negligible likelihood of a high estimated zone of influence carrying capacity;

more than very low likelihood of a moderate estimated zone of influence carrying capacity;

more than low likelihood of a low estimated zone of influence carrying capacity;

high likelihood of a very low estimated zone of influence carrying capacity.

Table 5: Evaluation of Section 41 Species Likelihood on Site

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
Hedgehog	Yes	None*	High	**Moderate**	**Moderate**
Brown hare	Yes	None	Very Low	Very low	Negligible
Polecat	No	None*	Very Low	Negligible	Negligible
Harvest mouse	No	None*	Very Low	Very low	Negligible
Common toad	Yes	None*	Very Low	Low	Low
Section 41 plants and fungi	Cornflower and tubular water-dropwort	None	Very Low	Negligible	Negligible
Section 41 breeding birds	Bullfinch, corn bunting, cuckoo, curlew, grasshopper warbler, grey partridge, hawfinch, house sparrow, lapwing, lesser redpoll, nightjar, reed bunting, ring ouzel, skylark, snipe, song thrush, spotted flycatcher, starling, tree pipit, tree sparrow, turtle dove, wood warbler, yellow wagtail and yellowhammer	Nests found	High	**High**	**High**
Section 41 invertebrates	Mud pond snail Dingy skipper, grizzled skipper, mall heath, small pearl-bordered fritillary, wall and white admiral butterflies and 17 moth species	None*	Low	Very Low	Low
Section 41 fish	No	None*	None	None	None

Species or species group	Species present in data search	Signs found	Connectivity of site to other suitable habitat	Estimated zone of influence carrying capacity	Likelihood of presence in zone of influence
Other Section 41 species	No	None	None	None	None

*Denotes where signs and evidence are unlikely to be found in a single survey visit, even if species present.

3.3.4 Table 6 below lists the Section 41 habitats that are most likely to be encountered inland in lowland England, their occurrence on site and the amount of each habitat considered likely to be impacted by the proposed development. Habitats on site were assessed against JNCC criteria for UK BAP habitats (JNCC, 2016), which are those habitats listed for Section 41.

Table 6: Section 41 Habitats and Amounts Expected to be Impacted by Proposed Development of Site

Section 41 Habitats	Approximate Amount on site (ha unless otherwise stated)	Comments	Likely amount of impact (ha/m)
Rivers	0	No similar habitat on site	0
Ponds	0	No similar habitat on site	0
Eutrophic Standing Waters	0	No similar habitat on site	0
Arable Field Margins	0	No similar habitat on site	0
Hedgerows	0	No similar habitat on site	0
Traditional Orchards	0	No similar habitat on site	0
Wood Pasture & Parkland	0	No similar habitat on site	0
Lowland Beech & Yew Woodland	0	No similar habitat on site	0
Wet Woodland	0	No similar habitat on site	0
Lowland Mixed Deciduous Woodland	0	Particular mix of species does not meet the NVC types included in Lowland Mixed Deciduous woodland	0
Lowland Dry Acid Grassland	0	No acid grassland indicator species found on site	0
Lowland Calcareous Grassland	0	No calcareous grassland indicator species found on site	0
Lowland Meadows	0	Insufficient number or abundance of unimproved neutral grassland indicator species to meet S41 criteria	0
Coastal and Flood Plain Grazing Marsh	0	No similar habitat on site	0
Lowland Heathland	0	No similar habitat on site	0
Purple Moor-grass and Rush Pastures	0	No similar habitat on site	0
Lowland Fens	0	No similar habitat on site	0

Section 41 Habitats	Approximate Amount on site (ha unless otherwise stated)	Comments	Likely amount of impact (ha/m)
Reedbeds	0	No similar habitat on site	0
Lowland Raised Bog	0	No similar habitat on site	0
Open Mosaic Habitats on Previously Developed Land	0	No similar habitat on site	0

3.4 Overall Ecological Value of the Site

3.4.1 Overall, the site was considered to be of likely moderate value for wildlife at a local level, with the majority of this value from the size of the site, the mature woodland and the natural/overgrown scrub habitat. This can be seen from evaluation of the site using the criteria as set out in Table 8 in Appendix 3.

4 LEGISLATION AND IMPACT RISK ASSESSMENT

4.1 Bats

Summary of Relevant Legislation

4.1.1 Bats are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as well as the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000. Offences likely to be relevant to development are to:

deliberately capture, injure or kill a bat;

deliberately disturb a bat in a way that would affect its ability to survive, breed, rear young, hibernate or migrate or significantly affect the local distribution or abundance of the species;

damage or destroy a roost;

intentionally or recklessly disturb a bat at a roost;

intentionally or recklessly obstruct access to a roost.

Roosting Bats in Trees – Impact Assessment

4.1.2 As it was not possible to access the entire site due to the dense scrub covering large parts of the site, part of the site was not surveyed. In addition, due to the open boundaries and the continuous woodland, it was very difficult to determine what trees were on site and what trees were not. While no suitable woodpecker holes or crevices were found in the parts that was surveyed, a woodpecker was heard while on site, and it was considered likely that at least some trees on site, given the maturity of many of the trees, would have suitable holes or crevices for roosting bats. As it was understood that the majority of the woodland would remain intact, the likelihood of any

trees required to be removed for the development would have any bat roosting potential was considered unlikely, and therefore any risk to roosting bats from the development were considered to be low to very low. To reduce this risk to negligible, the further survey as described in Section 5 of this report should be conducted to establish if any of the trees that would require to be removed for the development have any potential for roosting bats.

Foraging and Commuting Bats – Impact Assessment

4.1.3 The scrub and tall herb habitats, as well as the woodland edges around the scrub habitat, are likely to provide a moderate amount of moderate value foraging and commuting habitat for bats. As the site is well connected to other high value bat habitats it was considered likely that at least a small number of bats would regularly use the site for foraging and/or commuting. As the majority of the woodland would remain and the site was well connected to other habitats of high foraging value for bats, it was considered that the risk of direct impact to foraging and commuting bats would be negligible.

4.1.4 However, any significant increase in lighting on the site could pose a risk of indirect impact to foraging and/or commuting bats, by rendering retained habitat unsuitable for bats. Impact avoidance measures described in Section 5 of this report should be undertaken to reduce this risk to negligible.

4.2 Badgers

Summary of Relevant Legislation

4.2.1 Badgers are not considered rare but are protected, along with their setts, under the Protection of Badgers Act 1992, and Schedule 6 of the Wildlife and Countryside Act (1981 as amended) for animal welfare reasons. The following are offences under the Protection of Badgers Act 1992:

wilfully kill, injure, take or attempt to kill, injure, possess or take a badger;

cruelly ill-treat a badger;

dig for a badger;

disturb a badger while it is occupying a sett, or cause a dog to enter a sett;

interfere with a badger sett by e.g. damaging, destroying or obstructing a sett or any part of it.

4.2.2 The Protection of Badgers Act 1992 defines a badger sett as “any structure or place which displays signs indicating current use by a badger” (OPSI, 2007).

4.2.3 More recent guidance (Natural England, 2009) states that badgers are relatively tolerant of moderate levels of disturbance, however, any activity that is likely to cause interference (such as damaging a sett tunnel or chamber or obstructing access to a sett entrance) would require a licence.

Impact Assessment

4.2.4 No badger setts were found within the parts of the site that could be accessed, though several animal tracks were found to lead into the scrub habitat. There were records of badgers within the 2km radius data search (LERC, 2022) and there were large parts of the site, particularly the scrub habitats and the middle part of the site, which could not be checked thoroughly for signs/evidence of badgers or badger setts. Therefore, there was considered to be a low likelihood that a badger sett could occur within parts of the site that could not be checked. To reduce any low risk of impact to badger setts from the proposed works to negligible, further assessment and impact avoidance measures as described in Section 5 of this report should be undertaken.

4.2.5 If a badger sett was present either on site or in the nearby surroundings, it would be likely that badgers would forage on and pass through the site. Given the lack of any significant foraging signs, it was considered unlikely that the site would act as a significant resource for badgers, and the risk of significant impact to any local badger population would be negligible. However, there would be considered to be a low risk of impact to individual badgers during the works on site, and the general precautions described in Section 5 of this report should be adhered to.

4.3 Hazel Dormouse

Summary of Relevant Legislation

4.3.1 The hazel dormouse, which has been recorded locally, is protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as well as the Wildlife and Countryside Act 1981 as amended by the Countryside Rights of Way Act 2000. Offences likely to be relevant to development are to:

damage or destroy a nest or breeding site;

deliberately capture, injure or kill a hazel dormouse;

deliberately disturb a hazel dormouse in a way that would affect its ability to survive, breed, rear/nurture young, hibernate or significantly affect the local distribution or abundance of the species;

intentionally or recklessly disturb a hazel dormouse at a nest or breeding site;

intentionally or recklessly obstruct access to a nest or breeding site.

4.3.2 They are also Section 41 species.

Impact Assessment

4.3.3 The woodland area of the site has low potential for hazel dormice. However, the woodlands directly adjacent to the west of site, and with unhindered connection to the site, were LWS and as such it could be expected that if hazel dormice occurred in these LWS, it would have been recorded. However, the citations of these LWS did not mention hazel dormice, neither were there any hazel dormice recorded in the 2km radius data search (LERC, 2022). Therefore, it was considered that despite the

suitability of the site for hazel dormice, the likelihood of any actually occurring on site was negligible.

4.4 Great Crested Newts

Summary of Relevant Legislation

4.4.1 Great crested newts are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), as well as the Wildlife and Countryside Act 1981 as amended by the Countryside Rights of Way Act 2000. Offences likely to be relevant to development are to:

damage or destroy a breeding site or resting place;

intentionally or deliberately capture or kill;

intentionally injure;

deliberately disturb, or intentionally or recklessly disturb in a place of shelter or protection;

intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.

Impact Assessment

4.4.2 The scrub and tall herb habitats as well as the numerous piles of refuse were considered to provide some moderate value habitat on the site for sheltering and foraging great crested newts. It was considered that if great crested newts were breeding in nearby waterbodies, they could occur in terrestrial habitats on site and could be at risk of impact from the proposed development of the site.

4.4.3 A rapid risk assessment (Natural England, 2020) gave the result of 0.4 – 'Offence Likely' for ponds within 250m of the site. According to Promap (2022) there were seven ponds and numerous drains within this radius of the site. The drains were dry or nearly dry at the time of the survey, and local residents confirmed that even in years with more rainfall they were still drying out every year. Of the seven ponds, only two could be viewed and be assessed to potential for great crested newts; the rest were inaccessible at the time of the survey. The two that could be assessed scored 0.73 and 0.64, corresponding to a 'good' and 'average' suitability for breeding great crested newts respectively (see Table 7 in Appendix 3 for full results).

4.4.4 Therefore, if any of the nearby ponds support breeding great crested newts, it was considered the risk of impact to great crested newts from the proposed development would be high. Further assessment of the nearby ponds as described in Section 5 of this report should be undertaken to determine the likelihood of great crested newts being present and whether subsequent surveys to determine population class size or application to join the local District Level Licence (DLL) would be required to allow the works to proceed in compliance with wildlife legislation.

4.4.5 Please note, no further site clearance, nor any other works that would require clearance of habitats on site such as ground investigation works should be undertaken

prior to the further assessment/surveys being undertaken, unless an ecologist confirms that any specific works can be undertaken without risk of impact to great crested newt.

4.5 Reptiles

Summary of Relevant Legislation

4.5.1 Widespread reptile species, adder *Vipera berus*, common lizard *Zootoca vivipar*a, grass snake *Natrix helvetica* and slow-worm *Anguis fragilis*, are protected under the Wildlife and Countryside Act 1981 from intentional killing and injuring. They are also all Section 41 species.

Impact Assessment

4.5.2 The scrub and tall herb habitats with the numerous piles of rubbish and moderate level of thatch and holes, providing opportunities for sun-bathing and shelter, were considered to be have some low potential for widespread reptiles.

4.5.3 Given that only a relatively small area of suitable habitat would be affected and that there were much more extensive areas of other habitats in the near vicinity of the site that were considered to be of equal, if not higher, value to reptiles, it was considered that the loss of habitat from any development on site would pose a negligible risk of impact on the local reptile population.

4.5.4 However, if present on site, there would be a risk of harm to individual reptiles during site clearance, so the impact avoidance measures provided in Section 5 of this report should be followed to reduce this risk to negligible.

4.6 Nesting Birds

Summary of Relevant Legislation

4.6.1 Wild birds are protected under the Wildlife and Countryside Act 1981 and, with certain exceptions (where certain species are causing a public health risk), it is an offence to intentionally:

kill or injure any wild bird;

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

take or destroy the egg of any wild bird.

4.6.2 Furthermore, for Schedule 1 bird species of which the barn owl *Tyto alba* is one, it is an offence under the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 to intentionally or recklessly;

disturb a wild bird while it is building a nest or is in, on or near a nest containing eggs or young;

disturb dependent young of such a bird.

4.6.3 Many bird species are also NERC Act 2006 Section 41 species.

Impact Assessment

4.6.4 Trees and areas of dense scrub on the site were considered suitable for a variety of nesting birds, and numerous old nests were found on site. While no nest found were specifically considered to be suitable for Schedule 1 nesting birds, it was considered possible, given the maturity and height of many of the trees on site, that a nest of a Schedule 1 bird, such as a bird of prey for instance, could be present in the tree canopy.

4.6.5 Given that it was understood that most of the trees were to remain on site, any risk of impact to any Schedule 1 nesting birds was considered very low at the most, whereas the risk to common and Section 41 nesting birds was considered to be high.

4.6.6 Therefore, the removal of or cutting back of trees or dense scrub, if undertaken between March and the end of August (i.e. during the nesting season) would pose a risk of harm to nesting birds on the site. Therefore, impact avoidance measures described in Section 5 of this report should be undertaken to reduce this to negligible.

4.7 Section 41 Species

Summary of Relevant Legislation

4.7.1 Hedgehogs *Erinaceous europaeus* and common toads *Bufo bufo* are NERC Act 2006 Section 41 species, as are a number of bird and invertebrate species. The local conservation of any Section 41 species is a material consideration for any planning application.

Impact Assessment – Hedgehogs

4.7.2 The dense scrub and tall herb habitats on site were considered to provide some suitable habitat for sheltering and foraging hedgehogs. Piles of refuse materials also provide further potential shelter habitat. No signs or evidence of hedgehogs were found on the site, though a number of records of hedgehogs occurred in the local area (LERC, 2022) and it was therefore considered moderately likely that they would be present on site. Given that only a relatively small area of suitable habitat would be affected and as the surrounding habitats all were suitable for hedgehogs, it was considered that the risk of impact to any local population of hedgehogs from loss of habitat was negligible, especially if hedgehogs were able to access a future garden on site. However, the impact avoidance measures described in Section 5 of this report should be undertaken to ensure any risk of harm is reduced to negligible and that hedgehogs could access the proposed garden.

4.8 Non-Statutory Designated Sites

4.8.1 There were three LWS within close proximity of the site, all of them being various forms of woodland, mainly mature ancient woodland, and two of them having habitat connections to the site. The site shares many similar characteristics and habitats as these LWS and it could be expected that the site would act as a supporting habitat for some species on these LWS. However, no ancient woodland herbaceous indicator species were found on site nor any rare flora, and it was understood that the woodland

on site was to remain, with the new dwelling being built where the tall herb and some scrub habitat currently is in the northern part of the site. Therefore, it was considered the risk of impact to the interest features of these LWS from the proposed development would be negligible. In addition, the building of a single dwelling is not considered to be adding any significant visitor pressure on these LWS. Therefore, the risk of impact to any non-statutory wildlife sites from the proposed development was considered to be negligible.

5 RECOMMENDATIONS

5.1 Further Surveys

Further Survey for Badger Setts and Potential for Roosting Bats in Trees

5.1.1 As a large part of the site was inaccessible due to the impenetrable, dense scrub and as it was unclear where exactly the site boundary was, an ecologist should oversee the clearance of the scrub on site prior to other groundworks.

5.1.2 The ecologist should check any trees that are due to be impacted by the development for any signs or evidence of potential for roosting bats. If any trees which are to be impacted by the development are found to have potential for roosting bats, the ecologist will advise on how to proceed lawfully. This may include further surveys and, if necessary, an application to Natural England for a European Protected Species Mitigation (EPSM) licence, or for trees with a low risk it may include soft felling techniques where the tree is cut in sections which are gently lowered to the ground where a suitably licenced ecologist will examine them for signs or evidence of bats.

5.1.3 The ecologist should check for any signs/evidence of badgers and determine whether, if any potential sett entrances are found, these are likely to be in ‘current use’ by badgers. If any sett is found that is considered could be in ‘current use’ and that will be impacted by the proposed works, further surveys may be required and a Natural England EPSM licence would be necessary to allow the lawful closure of any the sett

5.1.4 It should be noted that no other site clearance works should be undertaken until the assessments for bats and badgers as described above have been completed and further advice has been provided by an ecologist unless specifically approved in writing by an ecologist.

Great Crested Newts – HSI

5.1.5 Despite a thorough effort by the surveyor, only two of the seven ponds within 250m of the site could be assessed for suitability for breeding great crested newts at the time of the survey, and due to the dry weather and dense macrophyte cover, no water could be seen to assess the water quality. Therefore, Habitat Suitability Index (HSI) assessments should be undertaken, as owner permission allows, on all seven ponds within 250m of the site. Any of the waterbodies which are found to have more than ‘poor’ potential for breeding great crested newts should then be subject to presence/absence surveys or an application made to join the local District Level Licencing scheme.

Other Surveys

5.1.6 No surveys for any other protected or Section 41 species were considered necessary as the impact avoidance measures outlined below were considered sufficient to prevent significant risk of impact to all other protected and/or Section 41 species from the proposed development of the site.

Validity of PEA

5.1.7 If site works do not commence for more than 18 months from the date of the survey undertaken for this report, the ecology of the site should be re-assessed as the ecological situation may have changed in the intervening time.

5.2 Impact Avoidance Measures

5.2.1 It is recommended that, if the Local Planning Authority are minded to grant planning consent, the impact avoidance measures described below should be conditioned.

Foraging and Commuting Bats

5.2.2 In order to reduce the risk of indirect disturbance to bats that may on occasion forage and/or commute through the site, both during and post-development, sensitive lighting of the site should be used and the guidelines below should be followed:

- minimise lighting on site so far as possible;
- use hoods or directional lighting to avoid light directed at surrounding trees and hedgerows or the sky;
- have external lighting on as short a timer as possible so that lights are turned off when not in use.

5.2.3 Further, it is recommended that where possible, warm spectrum LED lights (ideally less than 2700K) are used, as LED bulbs produce the least amount of UV light possible. Lighting should also feature peak wavelengths higher than 550nm to avoid the light components that are most disturbing to bats. The brightness of the lamps should also be kept as low as feasibly possible, with significant impacts shown on bats at 3.6 lux, with bats shown to peak in foraging levels at 0.45 lux. Lighting should also be kept at as low a height level as possible, using low level bollards or down lights where possible. Lighting which emit an ultraviolet component or that have a blue spectral content have high attraction effects on insects and should be avoided (ILP, 2018).

5.2.4 It is also recommended that the development works should not take place between sunset and sunrise between April and September (the main season of bat activity), and any security or spot lighting required should be kept to a minimum, and where possible be placed on a short timer to reduce the extent of lighting on site during development.

Reptiles

5.2.5 In order to reduce the risk of harm to reptiles during site clearance and site works to negligible, the tall herb should be cleared using a brush cutter. The work should be undertaken in the following two stages:

> Stage 1: Cut vegetation carefully, working in one direction, to approximately 15-20cm in height, with the cut vegetation being removed immediately;
>
> Stage 2: Final cut of vegetation working in same direction, as low to the ground as possible, working very slowly. The cut vegetation should then also be removed immediately.

5.2.6 Any vegetation waste created should ideally be removed from the site immediately to avoid attracting wildlife into harm's way.

5.2.7 These works should be undertaken during the reptile active season (taken to be March to mid-October, in suitable weather conditions for reptiles to be active (above 14^{o}C, dry and with little wind). In the unlikely event that any reptiles are found during this process, they should be left alone and allowed to make their own way to safety.

5.2.8 Any piles of earth created during other works on site should not be allowed to become vegetated unless the intention is for them to become permanent. If any earth piles are to be left on site for more than a few days, they should be compacted so far as possible to reduce holes and cracks which may attract small animals, or the soil should be placed in skips where it is inaccessible to wildlife.

Nesting Birds

5.2.9 To prevent risk of harm to active bird nests, the clearance or cutting back of any trees or scrub should be undertaken between September and the end of February, i.e. outside of the bird nesting season.

5.2.10 Where this is not possible, trees or scrub to be removed should be checked by an ecologist for active bird nests no more than seven days before works begin. This could be done by the ecologist(s) who will be present when the site is cleared, as described above under 'further surveys'. However, if an active bird nest was found, then the nest must remain undisturbed until an ecologist confirms the birds have finished nesting.

Hedgehogs

5.2.11 To prevent risk of harm to hedgehogs, any site clearance should be undertaken with care, using light machinery and not by pulling/dragging out the vegetation or rubbish piles with a digger. If any hedgehogs are found during the works, they should be picked up using sturdy gloves and be moved to a nearby hedgerow or area of scrub that is not being impacted, out of harm's way, and be allowed to make their own escape to safety. If a hedgehog is found with young, the hedgehog and young must be moved together to a place of safety.

5.2.12 In order to allow continued access for hedgehogs, any fencing provided on the site or on the site boundaries should either be of a type that allows free access for wildlife

such as post and rail fencing, or have access provided in the form of 13cm diameter, semi-circular holes cut at 10m intervals in the base of the fences.

General Precautions

5.2.13 To prevent risk of harm to badgers and any other small animals that may occasionally be present on the site, the following general precautions should be undertaken:

any trenches or holes which will be left overnight should either be fully covered, or have a wooden plank placed in them in such a way that any wildlife that falls in can climb out safely. Alternatively, one end of the trench should be sloped or stepped to allow animals to climb out;

materials brought to the site for the construction works should be kept off the ground on pallets, so as to prevent small animals seeking refuge within them and coming into harm's way;

rubbish and waste should be removed off site immediately or placed in a skip, to prevent small animals using the waste as a refuge, and thus coming into harm's way.

5.3 Enhancement Recommendations

5.3.1 The following are recommendations for how the developer may achieve the NPPF requirement to incorporate opportunities to improve biodiversity in and around the proposed development. These are not considered to be necessary for mitigation or compensation of impacts on protected species or sites, but will be beneficial to local wildlife.

5.3.2 It is recommended that, if the Local Planning Authority are minded to grant planning consent, a Biodiversity Enhancement Strategy based on the following recommendations be conditioned.

Bat and Bird Boxes

5.3.3 The addition of bat and bird boxes on the new building or retained trees would significantly increase the potential roosting and nesting sites for bats and birds. Installing multiple and varied bat and bird boxes could attract a larger diversity of species to the site. Installing integrated boxes will ensure the boxes are not removed by future tenants and thereby ensuring their long-term survival.

5.3.4 Recommended integrated bat and bird boxes, installed in the house and garage to be built:

2 x Ibstock Enclosed Bat Box B or Schwegler 1FE Bat Boxes (fitted with optional back plate), or as approved in writing by an ecologist. These are suitable for most common bat species and require no maintenance and there are no diseases known to be associated with bat droppings. Each bat box should be positioned at a height of at least 4m above ground level, not above windows or doors, away from external lighting, and where there is a clear path of flight to the boxes. The bat boxes should each face a different aspect,

allowing the bats to choose the box which provides the most suitable conditions each day; and

2 x Schwegler 1SP Sparrow Terraces or Vivara Pro WoodStone House Sparrow Nest Boxes or as approved in writing by an ecologist. These are specifically suited for the red-listed BoCC and Section 41 species house sparrow *Passer domesticus*. The boxes should be installed under eaves, out of reach of predatory cats, not south facing, and should not be in direct sunlight to avoid nestlings overheating and dying.

5.3.5 Recommended bird boxes to be installed on retained trees:

2 x Vivara Pro Seville 28mm WoodStone Nest Box or 2GR Schwegler Nest Box or as approved in writing by an ecologist, with a smaller entrance hole making them suitable for blue tits *Cyanistes caeruleus*, great tits *Parus major*, coal tits *Periparus ater* and house sparrows *Passer domesticus*. The boxes should in general be installed above 3m, out of the reach of predatory cats, not south facing, and should not be in direct sunlight, to avoid nestlings overheating and dying;

2 x 1B Schwegler Nest Boxes or as approved in writing by an ecologist with a 32mm entrance hole, suitable for great tits, blue tits, coal tits, nuthatches *Sitta europaea*, tree sparrows *Passer montanus* and house sparrows as well as bats. The boxes should in general be installed above 3m, out of the reach of predatory cats, not south facing, and should not be in direct sunlight, to avoid nestlings overheating and dying; and

2 x Vivara Pro Barcelona WoodStone Open Nest Box or 2H Schwegler Robin Box, or as approved in writing by an ecologist, suitable for robins *Erithacus rubecula*, wrens *Troglodytes troglodytes*, spotted flycatchers *Muscicapa striata*, pied wagtails *Motacilla alba*, grey wagtails *Motacilla cinerea*, song thrushes *Turdus philomelos* and blackbirds *Turdus merula*. The boxes should in general be installed at a height of 1.5-3m, within vegetation, not south facing, and should not be in direct sunlight, to avoid nestlings overheating and dying.

Bee Boxes/Insect Nesting Aid

5.3.6 Schwegler Clay and Reed Insect Nests or as approved in writing by an ecologist could be provided to benefit native bees. The nesting boxes should be installed firmly (not allowed to swing) in sheltered and sunny positions on trees, buildings or fences (above 2m) on site, preferably near planted or lawn areas. These nests are designed to attract only harmless insects, including solitary bees which are useful pollinators.

Habitat Piles

5.3.7 Habitat piles could be created on site and comprise vegetation and logs piled to a minimum height of 50cm, each covering an area of at least 1m^2. These could provide potential hibernation sites for a variety of wildlife, including reptiles and hedgehogs. Vegetation and logs from site maintenance activities could continue to be added to these piles and used to create additional habitats. Allowing log piles to naturally decay

and break down would also create potential habitat for invertebrates, and in turn, food for birds and bats.

Native Planting

5.3.8 As practical, native trees, shrubs and flowers could be planted in appropriate areas on site, increasing the structural diversity of the site and attract a greater number and diversity of animal species. The planting of nectar rich species would particularly benefit native invertebrates. Nectar-producing climbing plants could be planted along walls or fences, increasing the structural diversity of the site and attract a greater number of flying insects upon which bats, birds and other wildlife feed.

5.3.9 If possible, plants of local provenance should be sourced, as these have a better chance of thriving. For bio-security purposes, only UK-grown species should be planted.

Flowering Lawn

5.3.10 Any area of the site which is to be laid to lawn should be planted with a species rich lawn mixture to become a low-maintenance lawn. This would provide a valuable resource for bees and other insects, which in turn provides food for other wildlife such as bats and nesting birds. Pausing the mowing of the lawns in May and June to allow the wildflowers to bloom will be of particular value to invertebrates and other wildlife.

6 CONCLUSION

6.1 Overall, the site was considered to be of moderate local value for wildlife. As described, an ecologist should be present at the time of the site clearance to conduct a thorough surveys of the site for trees with bat roosting potential and for any sign or evidence of badger setts; and all ponds within 250m of the site should be assessed for their suitability for supporting breeding great crested newts. With these recommended further assessments completed and appropriate impact avoidance, mitigation and/or compensation measures designed and implemented as necessary and with the other impact avoidance measures described in this report implemented, the risk of impact to protected and or Section 41 species, Section 41 habitats or local biodiversity from the proposed development would be reduced to negligible

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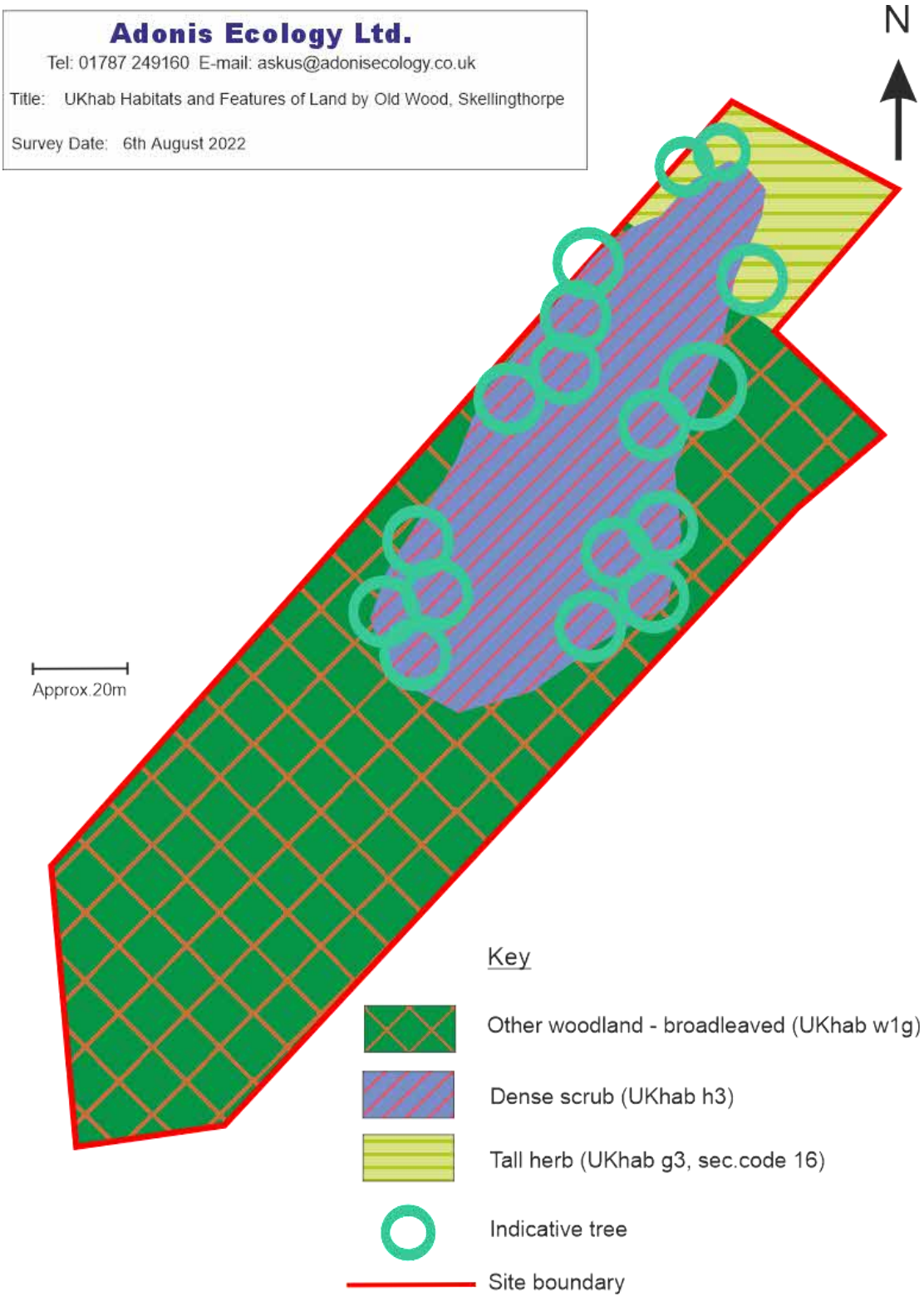
8 APPENDICES

8.1 Appendix 1: Figure

Figure 1: UKhab Habitats and Features of Land by Old Wood, Skellingthorpe. 6th August 2022



8.2 Appendix 2: Photographs

All photographs taken by Marguerite Ravn (surveyor) at of land south of Old Wood, Skellingthorpe, Lincolnshire, LN6 5UA, grid reference SK 910 719 on 6th August 2022

Photograph 1: Tall herb habitat, northern part of site

Photograph 2: Tall herb habitat, northern part of site

Photograph 3: Drain by northern site boundary, mostly dry

Photograph 4: Dense bramble scrub

Photograph 5: Bracken scrub habitat

Photograph 6: Woodland habitat, north-eastern part of site

Photograph 7: Woodland habitat, towards the middle of site

Photograph 8: Woodland, northern part of site

8.3 Appendix 3: Result and Evaluation Tables

Table 7: Habitat Suitability Index (HSI) Score for Ponds

Habitat Suitability Criteria	Score			
	Drain 1m north	Catchwater Drain	Pond 95m north	Pond 180m northeast
Map Location	1	1	1	1
Pond Area	0.05	0.20	0.05	0.20
Desiccation Rate	0.10	0.10	0.50	0.5
Water Quality	0.01	0.33	-	-
% Shade	0.60	0.60	1	0.60
Presence of Water Fowl	1	1	1	1
Presence of Fish	1	1	1	1
No. Ponds within 1km	1	1	1	1
Terrestrial Habitat Quality	1	1	1	1
% Macrophyte Cover	0.40	0.40	0.8	1
HSI Score Following Calculation	**0.32** (Poor)	**0.52** (Below Average)	**0.65** (Average)	**0.73** (Good)

Table 8: Site Evaluation Score

Criteria	Rating/ Value	Example Levels	Score	Site Score
Size/Extent	Very High	>50 hectares	5	
	High	>10 but <50 hectares	4	
	Medium	>3 but <10 hectares	3	
	Low	>1 but <3 hectares	2	X
	Very Low	<1 hectare	1	
Diversity –	Very High	150 or more native plant species found/expected on site.	15	

Criteria	Rating/ Value	Example Levels	Score	Site Score
Species	High	Between 100 – 149 native plant species found/expected on site.	10	
	Medium	Between 60 – 99 native plant species found/expected on site.	6	
	Low	Between 30 – 59 native plant species found/expected on site.	3	X
	Very Low	Less than 30 native plant species found/expected on site.	1	
Diversity – Habitats	Very High	More than 10 habitat types present on site with a mix of terrestrial and aquatic habitats present.	15	
	High	Between 5 – 10 different habitat types on site with a mix of terrestrial and aquatic habitat types.	10	
	Medium	>3 terrestrial habitats on site but either none or very limited aquatic habitat present.	6	
	Low	>2 habitat types present on site but with a predominance of one terrestrial habitat type covering over 60% of the total area and no aquatic habitats.	3	X
	Very Low	Only 1 or 2 habitat types present on site with a predominance of one terrestrial habitat type which covers over 90% of the total area.	1	
Naturalness	Very High	Predominant habitats unmanaged, slow developing and difficult to recreate, such as ancient woodland, species rich hedgerows. If known, land that has been unmanaged for more than 25 years.	10	
	High	Habitats largely unmanaged or traditionally managed in line with historic management of the site, if known, this may include derelict land that has been unmanaged for between 10 and 25 years.	8	X
	Medium	Over 40% of the site consisting of natural features as opposed to hardstanding/buildings. Some degree of management may occur on a rotational or at a significantly low level. If known, land that has been derelict and unmanaged for no more than 10 years.	5	
	Low	Limited area of natural habitats on site and/or these are predominantly well managed/maintained e.g. garden beds, intensively grazed pasture. If known, this may include derelict land that has been unmanaged for no more than 3 years.	3	
	Very Low	Few natural habitats found on site (hardstanding, intensive one crop agricultural land, short cut amenity grassland. If land is derelict/unmanaged, this must have been for no more than one year.	1	
Rare or Exceptional Features	Very High	Species or habitat present in quantity that is considered very rare and important at national and local levels.	20	
	High	Species or habitat present in quantity that is considered rare and of high importance at a local level, e.g. large population of a Section 41 species.	16	
	Medium	Species or habitat present that is considered moderately important at a local level.	10	X
	Low	Species or habitats present in quantity not considered to be particularly rare or important at a local level.	4	
	Very Low	Species or habitats present considered to be widespread and common at both a local and national level or very common at a local level	1	
Fragility	Very High	Habitat unable to be recreated within a reasonable timescale (<50 years) if lost such as ancient woodland/trees, unimproved grassland etc.	10	
	High	Habitat difficult to recreate to the same standard within a reasonable timescale (<50 years) such as species-rich hedgerows	8	X
	Medium	Habitats likely to be recreated to the same or close degree of similarity within 25 years such as semi-improved grasslands	5	
	Low	Habitats relatively easy to recreate within 2-10 years such as improved grassland, non species-rich hedgerows	3	
	Very Low	Habitats easy to recreate and likely to establish within 1-2 years such as amenity grassland.	1	
Typicalness	Very High	Habitats on site rare at a national and/or regional level and/or considered to be very rare within the local context.	5	

Criteria	Rating/ Value	Example Levels	Score	Site Score
	High	Habitats largely different to those nearby but with some similar areas known within the region.	4	
	Medium	Some habitats on site both similar and differing from those within a local context.	3	X
	Low	Habitats on site largely the same as surrounding and regional habitats but some minor areas of different or significant habitat at a local level.	2	
	Very Low	Habitats on site largely the same as surrounding and regional habitats.	1	
Connectivity	Very High	More than 10 hedgerows, waterways and/or tree lines linking site to other potential habitat. Linking habitat generally of high quality (hedgerows with no gaps, woodland, mature gardens) and linking to many and/or large areas of similar and/or diverse habitats.	15	
	High	6 – 9 hedgerows, tree lines or waterways linking site to other potential habitat. Connective habitat medium-high quality linking to areas of similar and/or diverse habitats.	10	X
	Medium	Between 3 – 5 hedgerows, treelines and/or waterways connecting site to other potential habitat. Site usually linked to small areas of high quality habitat or large areas of poorer quality habitat.	6	
	Low	1 – 2 linking features such as hedgerows, waterways and/or tree lines to other potential habitat. Linking habitat generally of poor quality and linking to only small areas of similar habitat.	3	
	Very Low	Site surrounded by hardstanding, roads and/or other significant barriers to wildlife dispersal. No hedgerows, waterways or tree lines to link site to potential habitat.	1	
Value for Appreciation of Nature	Very High	Public Rights of Access on site and habitats providing screening of industrial/commercial areas from residential.	5	
	High	Public Rights of Access to the site and a reasonable number of local residents that may appreciate the visual appearance of the site.	4	
	Medium	Site occasionally used by local public and provides some positive visual impact for local residents.	3	
	Low	No public rights of access to the site although site provides some positive visual impact for low numbers of local residents	2	X
	Very Low	No public rights of access to the site, site not visible from any residential or commercial properties and/or site not considered to provide positive visual impact.	1	
Site Score and Rating	49 – moderate			

Site Value Scores: 9-19 = Very Low; 20-39 = Low; 40-59 = Moderate; 60-79 = High; 80-100 = Very High