



**Land Adjacent Cotefield House,
Oxford Road, Bodicote**

Preliminary Ecological Appraisal

March 2021

on behalf of AssetMax Design

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	Signed	Name	Position	Date
Prepared by		Reuben Hayden <i>MSc QCIEEM</i>	Ecologist	19/03/2021
Reviewed by		Robbie Birkett <i>MSci</i>	Senior Ecologist	25/03/2021

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1 Executive Summary

Site Details	The Land Adjacent to Cotefield House is located to the south western side of Oxford Road (A4260), on the south eastern edge of the village of Bodicote, in Oxfordshire. The approximate Ordnance Survey grid reference for the site is SP 468 373.
Proposals	There is a proposal to construct five attached two-bedroom houses within the site, with associated hard and soft landscaping including a car park to the south.
Methodology	<p>The extended Phase 1 Habitat survey and initial badger survey were undertaken on 24th February 2021 by professional ecologist Reuben Hayden <i>MSc QCIEEM</i>.</p> <p>A further badger survey was undertaken on 10th March 2021 by professional ecologists Reuben Hayden <i>MSc QCIEEM</i> and Robbie Birkett <i>MSci</i>.</p>
Results	<ul style="list-style-type: none"> • Habitats within the site comprise improved grassland, scrub, trees, a hedgerow and hardstanding. • The improved grassland and scrub are of low ecological value at Site level. The trees are of moderate ecological value at Site level and the hedgerow is of high ecological value at Site level. • The hedgerow is considered to meet the criteria for the priority habitat 'Hedgerows', as listed within Section 41 of the NERC Act 2006. <div style="background-color: black; width: 100%; height: 20px; margin-top: 10px;"></div>
Impact Assessment	<ul style="list-style-type: none"> • The proposed development will result in the loss of improved grassland, scrub and young trees. This loss is unlikely to result in a significant ecological impact. • With the proposed retention of the boundary hedgerow, there are no foreseeable impacts on habitats of 'principal importance', as listed within Section 41 of the NERC Act 2006. • There is scope to achieve a biodiversity net gain through the enhancement of the habitats within the wider landholding. • The proposals are not predicted to result in the damage, destruction or disturbance of the local active badger setts.
Recommendations	<p>Mitigation measures are recommended in regard to birds, hedgehogs and badgers to minimise impacts on these species.</p> <p>Recommendations are made for habitat compensation and enhancement.</p> <p>Recommendations are made for species-specific enhancement measures such as bat and bird boxes.</p>

2 Introduction

2.1 Site Description & Context

The land adjacent to Cotefield House, referred to as the 'site' for the purpose of this report, is located to the south western side of Oxford Road (A4260), on the south eastern edge of the village of Bodicote, in Oxfordshire. The approximate Ordnance Survey grid reference for the site is SP 468 373.

The site comprises an area of disused land that currently forms part of the curtilage of Cotefield House. Within the site there are habitats of improved grassland, scrub, trees, a hedgerow and hardstanding. The majority of the site appears to be unmanaged, allowing for the development of tussocky grassland and areas of scrub.

Cotefield House is bound to the north by farm buildings and commercial units with associated hardstanding. To the west is a recently built housing estate, whilst to the south and east lies a woodland strip with agricultural land extending beyond.

Habitats within the wider landscape are dominated by agricultural land, largely arable farmland and improved pasture, interspersed by a network of roads and hedgerows. A number of settlements are present within this landscape including Bodicote and Banbury to the north and Adderbury to the south. Woodland is relatively infrequent in the surrounding landscape and there are no ancient woodlands located within a 2km radius of the site. The M40 motorway is located approximately 1.1km east of the site.

2.2 Proposals

There is a proposal to construct five attached two-bedroom houses within the site, with associated hard and soft landscaping including a car park to the south. Proposal plans can be seen in Appendix 5.

2.3 Aims of Study

The aims of this study are to describe and evaluate the habitats present within the site and to assess the potential for the site to support protected and notable species. The report discusses the likely impacts of the proposed development on the ecology of the site, on valued habitats and on protected/notable species. The study also makes recommendations for appropriate mitigation measures and habitat enhancement with regard to habitats and species. The need for further ecological survey work is discussed in light of the impact assessment.

- The two badger setts within close proximity to the site are also assessed and discussed in light of the legal protection afforded to this species under the Protection of Badgers Act 1992.

2.4 Badger Ecology

Badgers live in family or social groups of related mature and young adults and cubs, often referred known as 'clans'. Badgers live in an underground home called a sett which comprises a network of subterranean tunnels and chambers. Their home ranges consist of feeding grounds and one or more setts. Setts are usually situated within undisturbed areas where there is good vegetation cover, such as small woodlands, areas of dense scrub or copses.

A simple sett is made up of a single tunnel with a sleeping chamber at the end. However, most setts have several entrance holes with a series of tunnels which link up with each other underground. Well-established main setts can have many entrances, some in use and some disused, with large and substantial spoil heaps outside the entrances from years of digging and removal of soil. Badgers tend to create setts in soils which are friable and easy to excavate. Sandy soils tend to be favoured as they are easy to dig and stay relatively dry. Slopes and banks are also favourite burrowing sites. Badger setts have been categorised into four broad types, depending on their size and use:

- Main setts
- Annex setts
- Subsidiary setts
- Outlier setts

Main Setts

Main setts tend to be where the badger clan breeds and they can be made up of a large number of entrances with significant spoil heaps. Bedding (vegetation, straw, hay etc.) is often present outside the sett entrances, indicating the presence of breeding chambers underground. The entrances are usually linked by well-used paths which lead to and from the sett and between sett entrances. Main setts can be used for many years and are often made up of a number of active and inactive entrances.

Annex Setts

Annex setts tend to be close to the main sett (usually less than 100m away) and are often strongly connected to the main sett by one or more obvious, well-worn paths. The sett can be linked by paths overground, as well as tunnels underground. They tend to consist of a small number of entrances (less than the main sett) and are not necessarily in use all the time, even if the main sett is very active.

Subsidiary Setts

Subsidiary setts can often be made up of a single hole, or a very small number of entrances. They tend to be further away from the main sett (>50-100m), although are often linked to the main sett (and other subsidiary setts) by obvious trackways. Subsidiary setts can be used infrequently, becoming active according to the season or according to the availability of a local food resource.

Outlier Setts

Outlier setts usually comprise only one or two entrances and have little spoil or other signs of activity. They tend to be used sporadically and often have no pathways or tracks leading to the entrances or linking them with other setts.

It should be noted that these categories are based on a very generalised model of badger activity and do not always reflect the nature of setts in the wild. In areas of low badger density, main setts may be relatively small, with only a few holes. Main setts do not always have annexes and in areas of poor badger habitat, a clan may have a very large home range with a single associated main sett. These factors must be taken into account when classifying a sett, and it is important to have an overall view of all the setts in an area before making a decision on the status of each sett.

Badger family groups usually remain loyal to their main setts unless they are frequently disturbed. Opening up new setts and maintaining and extending old setts is a constant occupation, with bursts of digging activity at certain times of the year. Activity and use of setts can change steadily over the years, or very quickly in response to short-term changes such as flooding or a food crop ripening nearby. In general, badgers are creatures of habit. They tend to use the same pathways to foraging areas and will continue to try to do so despite any obstacles that are placed in their way. New fences may be broken down and new roads crossed despite any difficulty or danger presented.

Badgers mate throughout the year but pregnancy starts around the end of November, or early December, when the previously fertilised embryos implant within the sow's uterus. Often only the most dominant sow in a family group will produce cubs, usually two or three per litter. These are born underground, usually towards the end of January or beginning of February, emerging for the first time after about 8 weeks. The cubs remain dependent upon the sow for a further few weeks while they are weaned and learn how to fend for themselves.

3 Methodology

3.1 Desk Study

The Thames Valley Environmental Records Centre (TVERC) was contacted in February 2021 to collate records that it holds for protected/notable species and non-statutory sites of nature conservation importance within a 1km radius of the site.

The Multi-Agency Geographic Information for the Countryside (www.magic.gov.uk) website was searched for information regarding internationally protected sites (e.g. Special Areas of Conservation) within 5km of the survey area and statutory sites of nature conservation importance (e.g. Sites of Special Scientific Interest) within a 1km radius of the site. Other Internet resources interrogated as part of the desk study include:

- Bing Maps - www.bing.com/maps
- Google Earth - www.earth.google.co.uk
- Google maps - www.google.co.uk/maps

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and the Oxfordshire Biodiversity Action Plan (BAP) were also consulted to gather information pertaining to priority habitats and species for conservation action at the national and local level.

Aerial photography interpretation is used to place the site into an ecological context and to provide information on the nature of the habitats beyond the site boundary. The information gathered is used to provide a baseline to the habitat assessment.

3.2 Field Surveys

3.2.1 *Weather conditions*

An extended Phase 1 Habitat Survey and badger survey were undertaken on the 24th February 2021. The weather on the day was warm and dry (15°C) with moderate cloud cover (60% cloud cover) and a moderate breeze (Beaufort scale 4).

A further badger survey was undertaken on the 10^h March 2021. The weather on the day was mild and wet (8°C) with heavy cloud cover (90% cloud cover) and a fresh breeze (Beaufort scale 5).

3.2.2 *Personnel*

The extended Phase 1 Habitat survey and initial badger survey were undertaken by professional ecologist Reuben Hayden *MSc QCIEEM*.

The further badger survey was undertaken by professional ecologists Reuben Hayden *MSc QCIEEM* and Robbie Birkett *MSci*.

3.2.3 *Extended Phase 1 Habitat Survey*

A walkover of the site was conducted, and a description of the habitats present was prepared using standard Phase 1 Habitat Survey methodology (JNCC, 2010).

Target notes were also prepared on features of particular ecological interest and an assessment was made of the site's potential to support protected and notable species (such as species listed under Section 41 of the NERC Act 2006).

3.2.4 *Assessment for Roosting Bats*

Trees were assessed for their potential to offer shelter to roosting bats in accordance with best practice guidelines published by the Bat Conservation Trust (Collins, 2016). The trees were assessed

from ground level (using binoculars) as either having high, moderate, low or negligible potential to shelter roosting bats according to the criteria shown in Table 1.

Table 1. Criteria for the assessment of buildings and trees for roosting bats (Collins, 2016)

Potential	Features
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation significance.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

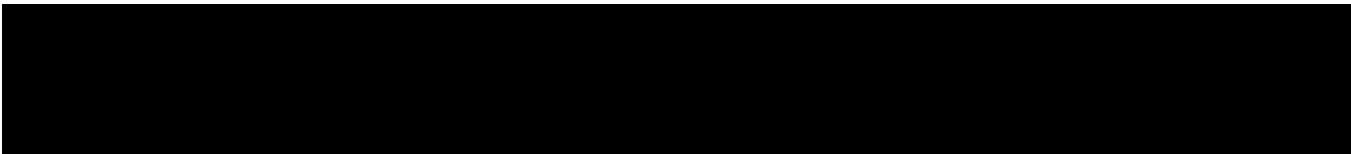
Potential roost features (PRFs) in trees that may be used by bats include (Collins, 2016):

- woodpecker holes;
- rot holes;
- hazard beams;
- other vertical or horizontal cracks and splits (such as frost cracks) in stems or branches;
- partially detached bark;
- knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;
- man-made holes (e.g. cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems;
- cankers (caused by localised bark death) in which cavities have developed;
- other hollows or cavities, including butt-rots;
- double leaders forming compression forks with included bark and potential cavities;
- gaps between overlapping stems or branches;
- partially detached ivy with stem diameters in excess of 50mm; and bat, bird or dormouse boxes

3.2.5 Badger Surveys

The site was surveyed for evidence of badger activity in accordance with standard methodology (Harris, Creswell & Jeffries, 1989).

The surveys involved a walkover of the site and surrounding areas to look for active and inactive badger sett entrances and evidence of badger activity including trackways, footprints, latrines/dung pits, badger hairs and foraging scrapes.



3.3 Limitations on Survey Data

As with any survey undertaken on a certain date, the data presented within this report provide information at particular points in time and present a 'snap-shot' of the ecological status of the site. Ecosystems and species behaviour/activity are dynamic and can change over time. Whilst this report presents a characterisation and evaluation of habitat and species status at the time of the study, it should not be taken as an exhaustive representation of the ecological status of the site either at present or into the future.

4 Results

4.1 Ecological Context

4.1.1 Sites of Nature Conservation Importance

4.1.1.1 Statutory Sites

There are no statutory sites of national nature conservation importance within a 1km radius of the site, nor are there any statutory sites of international nature conservation importance within a 5km radius of the site.

4.1.1.2 Non-statutory Sites

There is one non-statutory site of nature conservation within a 1km radius of the site, namely, the Northern Valleys CTA (Conservation Target Area).

The Northern Valleys CTA comprises the valleys of the Sor Brook and North Newington Stream. These areas comprise wooded pasture and valley slopes with small areas of pasture hills. Key habitats for biodiversity present within the CTA are lowland meadow and acid grassland as well as scattered flushes of fen and some swamp. There is also the potential for limestone grassland within the CTA.

None of the key habitats for the Northern Valleys CTA are present within the study site.

4.2 Species Records

The following sections summarise pertinent information on species gathered from the Local Records Centre, given the nature of the habitats that are present within the site. Records analysed are from 1990 onwards.

4.2.1 Reptiles

The records centre holds five records of reptiles from a 1km radius of the site. All these records pertain to grass snake *Natrix helvetica* recorded from between 2000 and 2003. All grass snake records were made at locations beyond 500m of the site.

4.2.2 Amphibians

The records centre holds ten amphibian records from a 1km radius of the site, with species represented including smooth newt *Lissotriton vulgaris*, common frog *Rana temporaria* and common toad *Bufo bufo*.

None of the amphibian records were made at locations within 500m of the site, with all records pertaining to locations within Bodicote to the northwest. Amphibian records date from 2000 to 2004.

4.2.3 Birds

A number of bird species have been recorded from the area surrounding the site. Species that may be relevant to habitats within the site, include barn owl *Tyto alba*, bullfinch *Pyrrhula pyrrhula*, corn

bunting *Emberiza calandra*, dunnoek *Prunella modularis*, kestrel *Falco tinnunculus*, linnet *Linaria cannabina*, marsh tit *Poecile palustris*, mistle thrush *Turdus viscivorus*, red kite *Milvus milvus*, song thrush *Turdus philomelos*, tree sparrow *Passer montanus* and yellowhammer *Emberiza citrinella*.

Bird species records date from 1995 to 2019.

4.2.4 Bats

The records centre holds records of common pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctula*, brown long-eared bat *Plecotus auritus* and soprano pipistrelle *Pipistrellus pygmaeus* from a 1km radius surrounding the site. Bat records date from 2009 to 2018.

There are no bat records from within a 500m radius of the site. Bat species records are largely confined to locations within Bodicote to the northwest.

4.2.5 Other Mammals

Other mammals recorded within 1km of the site include hedgehog *Erinaceus europaeus*, badger *Meles meles* and European otter *Lutra lutra*.

4.2.6 Plants

Plant species recorded from within a 1km radius comprise common valerian *Valerina officinalis*, field scabious *Knautia arvensis* and ragged-robin *Silene flos-cuculi*, with each species having been recorded on one occasion. Plant records date from 2016 to 2018.

4.2.7 Invertebrates

The records centre holds a limited number of invertebrate records from a 1km radius of the site. These records are of small heath butterfly *Coenonympha pamphilus*, wall butterfly *Lasiommata megera*, fine-lined pea mussel *Pisidium tenuilineatum* and large black slug *Arion ater*. There are no invertebrate records from within a 500m radius of the site. Invertebrate records date from 1992 to 2014.

4.3 Habitats

4.3.1 Overview

The site comprises an area of disused land, surrounding Cotefield House. Within the site, there are habitats of improved grassland, scrub, trees, a hedgerow and hardstanding. The majority of the site appears to be largely unmanaged and has developed grassland of a tussocky structure with areas of developing scrub.

A Phase 1 Habitat Plan can be seen in Appendix 3.

4.3.2 Improved Grassland & Tall Ruderal

There is improved grassland found throughout the site, with the largest areas being located in the southwest and northeast. The grassland has been left unmanaged and has, in its majority, developed a dense thatch (sward height ranging from 10-40cm) with emerging tall ruderal and scrub. An area of

grassland adjacent to the south eastern corner of Cotefield House appears to be managed more frequently and is of a shorter sward height (approximately 5cm).

The grassland is dominated by rough grasses including cock's-foot *Dactylis glomerata* and perennial ryegrass *Lolium perenne*. Herbs are present in low abundance and include hogweed *Heracleum sphondylium*, cow parsley *Anthriscus sylvestris*, common mugwort *Artemisia vulgaris*, creeping buttercup *Ranunculus repens*, lesser celandine *Ficaria verna*, cleavers *Galium aparine*, creeping thistle *Cirsium arvense*, nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, green alkanet *Pentaglottis sempervirens*, ribwort plantain *Plantago lanceolata*, common snowdrop *Galanthus nivalis* and great willowherb *Epilobium hirsutum*.

The grassland is species-poor in nature, with a dominance of common grass species that are typical of neglected lawns. The improved grassland habitat is not considered to meet the criteria for a grassland habitat of 'principal importance', as listed within Section 41 of the NERC Act 2006. The grassland is considered to be of low ecological value within the context of the site only.

4.3.3 Scrub

In the north eastern area of the site patches of bramble scrub and young trees have begun to establish, forming dense thickets in areas to the west and east. The areas of scrub are dominated by bramble *Rubus fruticosus*, blackthorn *Prunus spinosa*, sycamore *Acer pseudoplatanus* and elder *Sambucus nigra*.

The areas of scrub are considered to be of low ecological value within the context of the site only.

4.3.4 Trees

Within the north eastern area of the site there are three lines of young, planted sycamore trees. Adjacent to the south eastern boundary there is also a line of sycamore trees, ranging from young to semi-mature.

The trees present are predominately young, which no specimens of a notable size or maturity. They are considered to be of moderate ecological value within the context of the site only.

4.3.5 Hedgerows

Adjacent to the north western boundary, there is a wild privet *Ligustrum vulgare* hedgerow. The hedgerow is approximately 27m in length and comprises mostly of wild privet but includes a sycamore tree. The hedgerow is approximately 3.5m in height.

The hedgerow is considered to meet the criteria for 'Hedgerow' habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006. This is due to the hedgerow being more than 20m in length and being comprised of over 80% UK native woody species.

The hedgerow is considered to be of high ecological value within the context of the site only.

4.3.6 Hard-standing

Within the western area of the site, there is hardstanding that forms an access road to Cotefield House. This hardstanding follows a path around the periphery of the building.

The hardstanding is considered of negligible ecological value.

4.4 Species

4.4.1 Reptiles

The tussocky improved grassland present possesses a vegetative structure suitable for common reptile species such as grass snake *Natrix helvetica* and slow worm *Anguis fragilis*. There is also a brash pile within the north eastern area of the site and a brash pile adjacent to the eastern boundary which provide suitable sheltering habitat for reptiles.

However, even collectively these suitable habitats occupy a limited footprint that is considered insufficiently large to support reptile populations in isolation. The habitats which surround the site are comprised largely of either built development or cultivated arable land, both of which are considered unsuitable for reptiles. There are no habitat parcels within the close environs of the site that appear to be of high suitability for reptiles and might support a potential source population. It is therefore deemed unlikely that reptiles will have colonised the habitat fragment within the site from surrounding areas.

It is considered the most likely scenario that reptiles are absent from all areas of the site due to the lack of suitable surrounding habitat.

4.4.2 Amphibians

There are no ponds or standing open waterbodies within the site that amphibians could use for breeding. Likewise, an examination of Ordnance Survey maps indicates the absence of ponds or standing open waterbodies within a 500m radius of the site.

The Local Records Centre holds no records of great crested newt *Triturus cristatus* from within a 1km radius of the site and no records of any amphibians from within a 500m radius.

Given there are no ponds within a 500m radius of the site, it is considered highly unlikely that individual amphibians will migrate onto the site during their terrestrial phase. In light of the above discussion, amphibians, including great crested newts, are considered absent.

4.4.3 Birds

The hedgerow and trees present offer potential nest sites to breeding birds, as does the bramble scrub within areas of improved grassland. The local breeding bird assemblage is likely to include species of 'principal importance' as listed within Section 41 of the NERC Act 2006 such as dunnock *Prunella modularis* and song thrush *Turdus philomelos*.

A bird nest was noted within a young tree (grid reference: SP4689837351) at the time of the survey; please see Figure 1.



Figure 1. Bird nest within the site, indicated by the yellow circle.

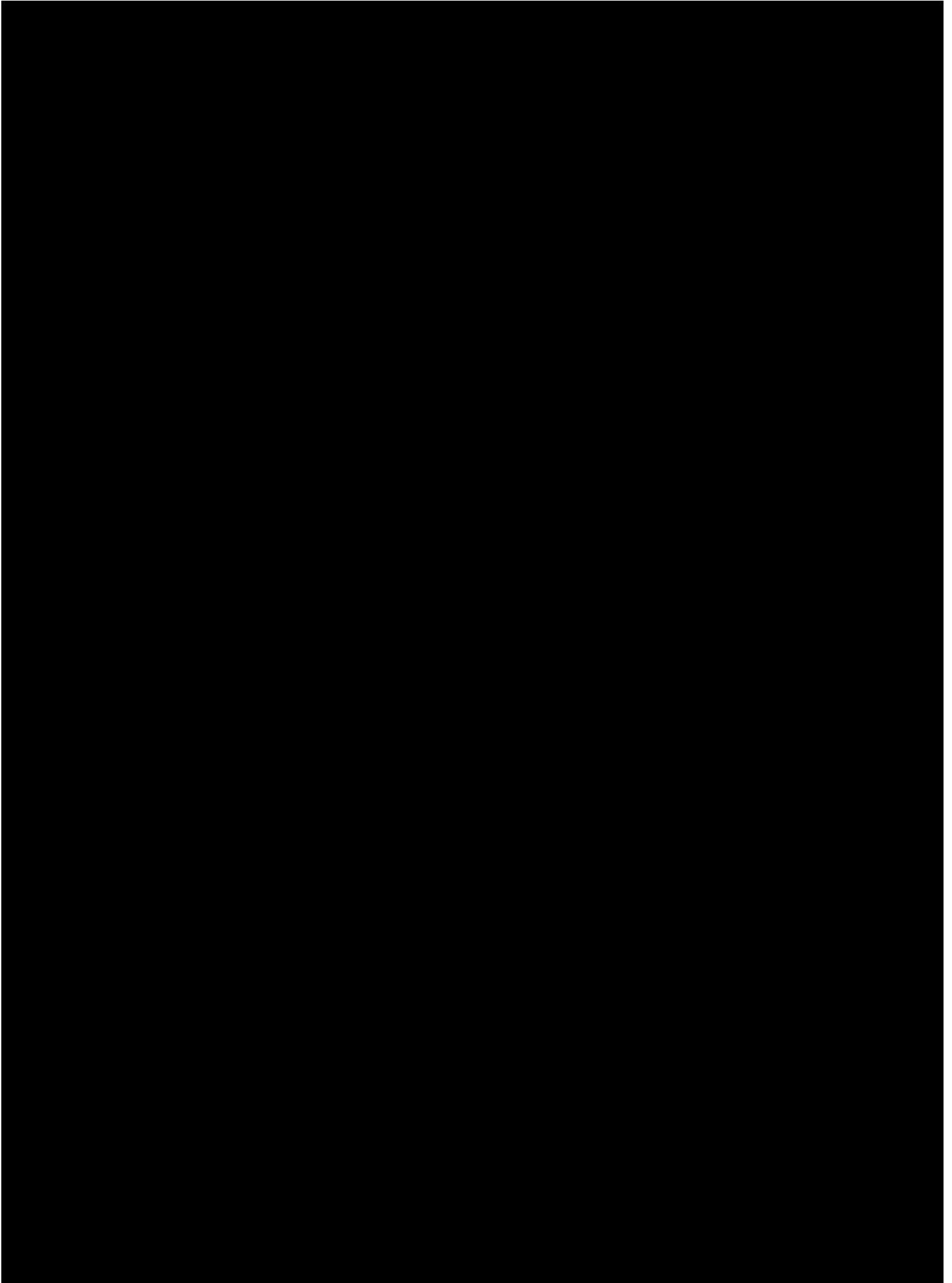
The site is considered to be unsuitable for ground-nesting species, including skylark and grey partridge. Whilst the improved grassland is unmanaged, scrub is abundant and a woodland comprised of mature and semi-mature trees is in close proximity to the south east of the site. It is likely that skylarks will avoid nesting within the site due to the danger posed by perching predators within proximate scrub and trees.

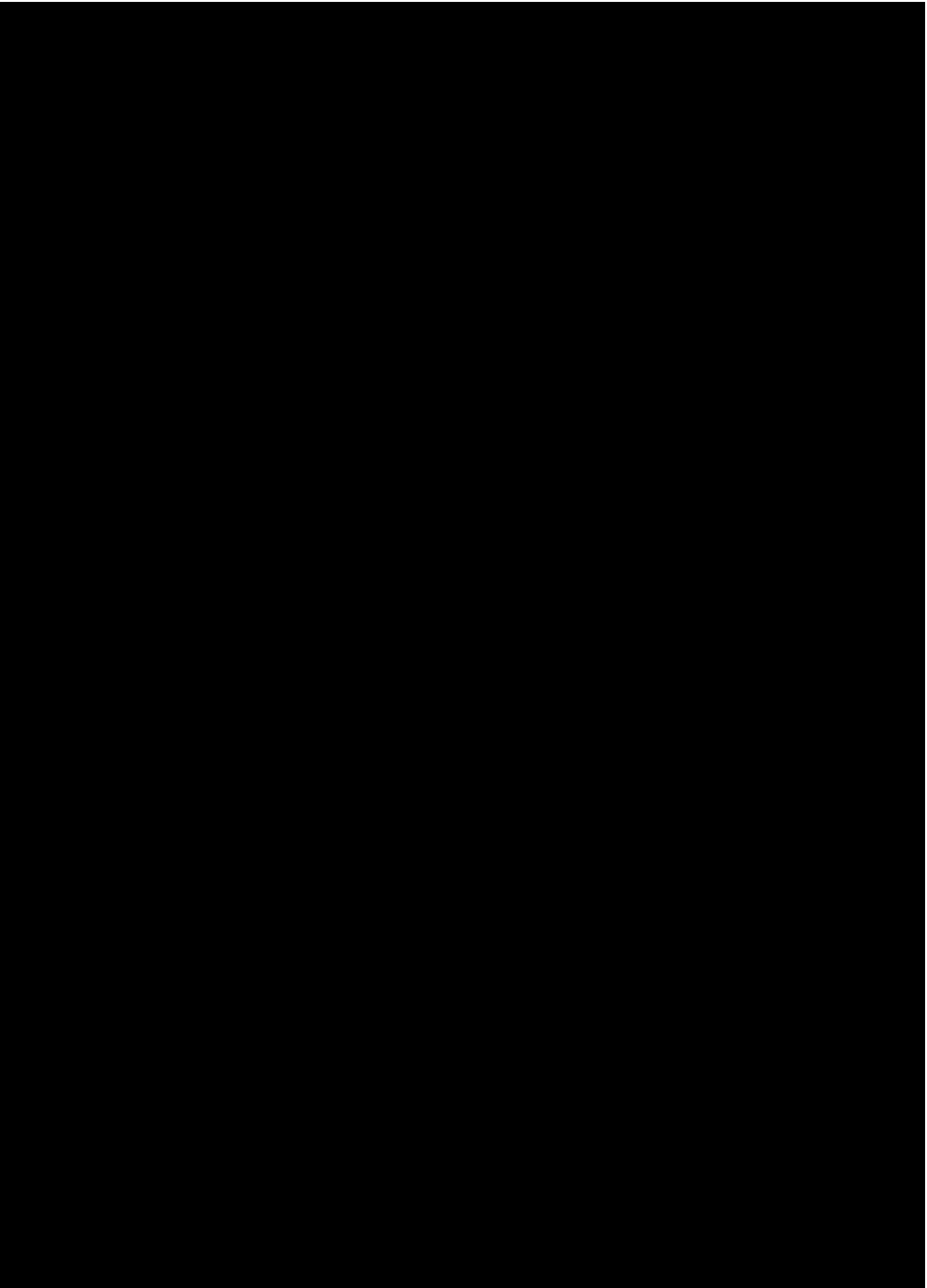
4.4.4 Bats

There are no buildings or structures within the site that could offer shelter to roosting bats.

The trees within the site are young in age and are considered to possess 'negligible' potential (Collins, 2016) to offer shelter to roosting bats.

The grassland habitat which dominates the site is species-poor and is likely to support only a limited diversity and abundance of invertebrate fauna. It is accordingly unlikely to provide a key foraging resource for local bat populations. The boundary hedgerow could provide a potential movement route for bats.





4.4.6 *Hedgehogs*

The hedgerow and brash piles may provide shelter and habitat for hedgehogs, and the species can utilise improved grassland and scrub for foraging habitat.

4.4.7 *Invertebrates*

The grassland habitats are not suitable for the small heath and wall butterflies but could support the large black slug. The habitats within the site are unsuitable for the fine-lined pea mussel.

The boundary hedgerow provides suitable habitat for a range of invertebrate species, which may include moth species listed within Section 41 of the NERC Act 2006. It is however not considered to be of notable significance for invertebrates given the dominance of a single woody species.

4.4.8 *Other Species*

The site is not considered to offer suitable habitat to other species, such as rare plants or otters.

5 Discussion

5.1 Legislative & Policy Guidance

5.1.1 *Nesting Birds*

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August inclusive.

5.1.2 *Wild Mammals (Protection) Act 1996*

This Act makes it an offence for any person to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

5.1.3 *Bats*

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in landuse and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017. Taken together, these make it an offence to:

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

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

5.1.4 *Badgers*

Badgers and their setts are protected under the Protection of Badgers Act 1992, which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. The term 'badger sett' is normally understood to mean the system of tunnels and chambers, in which badgers live, and their entrances and immediate surrounds. Under the Act it is an offence to:

- wilfully kill, injure, take or attempt to kill, injure or take a badger
- cruelly ill-treat a badger
- interfere with a badger sett by:
 - damaging a sett or any part thereof;
 - destroying a sett;
 - obstructing access to a sett;
 - causing a dog to enter a sett; and
 - disturbing a badger while occupying a sett.

The Act specifically defines a sett as "any structure or place which displays signs indicating current use by a badger". Interference with a sett includes blocking tunnels, infilling of the sett and/or damaging the sett in any way.

There is, however, provision within the legislation to permit activities affecting badgers or their setts where there is suitable justification and a problem cannot be resolved by alternative means. Such activities are authorised under licences issued by Natural England. Licences can be issued with regard to development as well as damage to property.

5.1.5 *The Natural Environment and Rural Communities Act 2006*

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity. It also requires the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organisms and habitats. This is important in the context of planning decisions as the National Planning Policy Framework (paragraph 117) affords planning policy protection to the habitats of species listed by virtue of Section 41.

Habitats listed within Section 41 of the NERC Act 2006 that are considered relevant to the site are:

- Hedgerows

Species listed within Section 41 of the NERC Act 2006 that are considered relevant to the site.

- Certain common and widespread bird species such as dunnock and song thrush
- Hedgehog

5.1.6 *The National Planning Policy Framework*

The revised National Planning Policy Framework was updated in February 2019 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012 and revised in July 2018.

The NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of

protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- The cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

To protect and enhance biodiversity and geodiversity, plans should:

- Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The following should be given the same protection as habitats sites:

- ❖ Potential Special Protection Areas and possible Special Areas of Conservation;

- ❖ Listed or proposed Ramsar sites; and
- ❖ Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

5.2 Impact Assessment

5.2.1 Sites of Nature Conservation Importance

There are no foreseeable direct or indirect impacts on sites of nature conservation importance as a result of the proposals. This is due to the distance of such sites from the study site and the nature of the proposed development.

5.2.2 Habitats

With the retention and protection of the western boundary hedgerow, there are no foreseeable impacts on habitats of 'principal importance' as listed within Section 41 of the NERC Act 2006.

There is a proposal to construct five attached two-bedroom houses within the site, with associated hard and soft landscaping including a car park to the south. The existing site access will be used and there are no proposals to remove sections of hedgerow.

Proposals will result in loss of areas of improved grassland, young planted trees and scrub, with these habitats considered to be of either low to moderate ecological value at Site level. The NPPF (revised February 2019) states that planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts to existing habitats and providing net gains for biodiversity. Although proposals will only result in the loss of habitats considered to be of ecological value within the context of the site, some compensation may be required to ensure the proposals deliver a net gain in biodiversity. It is considered that, if required, this could be achieved within existing areas surrounding the site (under the same ownership) through appropriate habitat management and habitat creation.

5.2.3 Species

5.2.3.1 Amphibians

Amphibians are considered likely absent from the site given the absence of nearby waterbodies. Works are therefore considered unlikely to result in the killing or injury of great crested newts or other amphibians.

5.2.3.2 Reptiles

Habitats that could support reptiles such as brash piles and improved grassland are present within the site, however these habitats occupy only a limited footprint and there is a scarcity of habitat suitable for reptiles within the surrounding landscape. It is therefore considered likely that reptiles are absent. Works are not predicted to result in the killing or injury of reptiles.

5.2.4 Birds

There are no foreseeable impacts with regard to birds nesting in the boundary hedgerow, as this habitat is to be retained.

Management or removal of scrub and trees within the areas of improved grassland, if it is undertaken during the bird breeding period, has the potential to result in the damage or destruction of active bird nests, and the killing/injury of young/eggs.

There are no foreseeable impacts on ground-nesting bird species.

5.2.4.1 Bats

All trees to be affected are of young age and are considered to possess 'negligible' bat roost potential. Given this, there are no foreseeable impacts on roosting bats, or trees that bats may use for shelter.

External lighting could have an impact on bats by affecting their activity and behaviour. Certain species of bat have been shown to be attracted to mercury vapour lamps which emit light over a very broad-spectrum including UV light to which insects are particularly sensitive.

Furthermore, insects can be attracted in large numbers to mercury lamps and so can bats of the genera *Nyctalus* and *Pipistrellus*, including noctules *N. noctula* and common pipistrelles *P. pipistrellus* (Rydell and Racey, 1993). Lighting has shown to have an opposite effect on certain other species, such as the lesser horseshoe bat *Rhinolophus hipposideros*, which have been shown to avoid areas of artificial light (Stone *et al.* 2009).

New external lighting could therefore affect the behaviour of bats within the locality of the site. The woodland to the south of the site may be particularly sensitive in this regard.

5.2.4.2 Hedgehogs

Without careful working methods, clearance of scrub and brash piles may result in the killing or injury of hedgehogs. Recommendations are made to avoid this impact.

The erection of fences associated with new dwellings and their gardens could decrease the site's permeability to mammal species such as hedgehogs. The proposals may result in the loss of potential foraging habitat for hedgehogs. It is however considered unlikely that this will result in a significant loss with regard to the local hedgehog population.

5.2.4.4 Other Species

Rabbit warrens are present along the northern boundary of the site and approximately 5m east of the eastern site boundary. Without reasonable avoidance measures, the works could result in the breach of the Wild Mammals (protection) Act 1996, which protects wild mammals, including rabbits against unnecessary suffering.

There are no foreseeable impacts on invertebrates, or other protected species.

6 Recommendations

6.1 Further Surveys

No further surveys are considered necessary.

6.2 Habitats

The retained hedgerow and any retained trees should be protected in accordance with British Standard 5837:2012, through the establishment of an appropriate root protection zone.

It is recommended that proposed landscape planting is designed, planted and managed to maximise its value to wildlife. One key element of this would be the species used within the planting, which should comprise native species where possible, as well as ornamental plants of known value to wildlife. The key will be to provide a variety of flowers and fruits throughout the year in order to provide food for insects and birds, as well as providing potential nest sites through the planting of trees and shrubs.

Appendix 6 recommends a number of suitable species for landscape and garden planting schemes, including non-native species for more formal areas, although the species mix should by no means be limited to this list. Planting should aim to provide ground cover for animals such as hedgehogs and invertebrates, and so low-growing ground cover should be encouraged. Native species such as bugle, ivy and periwinkle could be used for this purpose, or ornamental species such as lady's mantle, elephant's ears or perennial geraniums may also be suitable for formal areas of ornamental planting. A diversity of structure should also be encouraged through the planting of small trees, with shrubs and herbaceous plants species established below.

Ecological enhancement of habitats within the wider landholding is recommended to retain and enhance their value to biodiversity. These areas comprise unmanaged, improved grassland with species-poor scrub, a hedgerow with trees to the east and broadleaved woodland to the south and west. It is considered that appropriate management, as well as habitat creation, could result in a biodiversity net gain for the site overall. Options for habitat management and creation could include:

- Creation of species-rich grassland
- Management of grassland to promote botanical diversity
- Planting of native shrub species
- Management of the woodland to promote its existing biodiversity value
- Creation of log piles
- Erection of bat and bird boxes

6.3 Species

6.3.1 *Amphibians*

It is considered unlikely that amphibians are present within site, however, should a great crested newt be found at any point, works should cease, and advice sought from a suitably qualified ecologist.

6.3.2 *Reptiles*

It is considered unlikely that reptiles are using the site, however, should reptiles be found at any point, works should cease, and advice sought from a suitably qualified ecologist.

6.3.3 *Birds*

Removal of trees, shrubs and bramble scrub should be undertaken outside of the bird breeding season (avoiding March to August, inclusive) so as to avoid any impacts on active birds' nests.

Alternatively, if this is not possible, and vegetation clearance is required between March and August, an ecologist should be appointed to assess if there are any risks to breeding birds to ensure compliance with the legal protection afforded to nesting birds under the Wildlife and Countryside Act 1981. This may require a survey for nesting birds by the ecologist immediately prior to the vegetation clearance works (usually recommended within 24 hours). If nesting birds were present within the tree, work would need to be delayed in the vicinity of the nest to avoid damage or destruction of the nest until the young have fledged.

The erection of bird nesting boxes is recommended as an enhancement in order to provide suitable nest sites for species within the local area. Nest boxes can be excellent substitutes for the nesting potential of trees. Over 60 species are known to adopt nest boxes including blue tits, great tits, starlings, robins and sparrows.

The location and nature of the nest box depends on the species it is designed for; boxes for tits, sparrows or starlings should be fixed two to four metres up a tree or a wall; open-fronted boxes for robins and wrens need to be low down, below 2m, and well-hidden in vegetation. Unless there are trees or buildings which shade the box during the day, boxes should be faced between north and east, thus avoiding strong sunlight and the wettest winds.

Recommended boxes are:

- 1MR Avianex Schwegler Nest Box
- 1B Schwegler Nest Box
- 2H Schwegler Robin Box

As an enhancement it is also recommended that integrated bird nesting features are incorporated into the fabric of the proposed new buildings. This would benefit declining urbanised bird species such as house sparrows. It is preferable that bird boxes for sparrows be installed on northern or eastern aspects, under the eaves of buildings.

Recommended integrated boxes are:

- 1SP Schwegler Sparrow Terrace
- Bird Brick Houses: Standard Box

6.3.4 *Bats*

6.3.4.1 *Bat Roosting Opportunities*

Although it is not necessary from a legal perspective, consideration should be given to the erection of bat boxes on the new dwellings and/or retained trees.

Bat brick (sometimes also referred to as 'bat tubes') features can be obtained pre-fabricated and integrated directly into the fabric of the exterior walls of a building. The bricks/tubes have an external entrance slot which leads to an internal cavity for roosting (e.g. the Schwegler 1FR bat tube).

The brick/tube can be concealed behind external cladding, brickwork, stonework or render. For example, bat bricks/bat tubes can easily be installed into traditional or modern buildings with external wooden weatherboarding, with the brick/tube being concealed behind the overlapping wooden boards with access via a gap under a lifted board which leads to the entrance slot of the brick/tube. Bats can fit through very small gaps so a crevice of 2-2.5cm should be sufficient to allow access to the slot of the bat brick/tube.

Alternatively, conventional bat boxes could be installed; these could be traditional wooden boxes, or longer lasting woodcrete boxes (e.g. Schwegler boxes) specifically designed for buildings and houses (e.g. the Schwegler 1FQ or 1WQ bat boxes). If these boxes are adopted, it is recommended that they are installed as high as possible on the exterior walls, just under the eaves. South-facing façades should be favoured. Bat boxes can also be erected on trees.

6.3.4.2 External Lighting

It is recommended that external lighting should be avoided within the site, unless it is necessary for reasons of security and safety. In particular, light spillage around any new bat roosting features and along the site boundaries should be avoided, so that a dark corridor is created around the peripheries of the site in order to facilitate the movement of bats, as well as other nocturnal wildlife.

Where external lighting is required, it should be kept at low level and a low intensity, with hoods and baffles used to direct the light to where it is required (Bat Conservation Trust, 2018; Emery, 2008). To minimise the impact on bats, the use of low pressured sodium lamps is recommended in preference to mercury or metal halide lamps which have a UV element that can affect the distribution of insects and attract bats to the area, affecting their natural behaviour (Bat Conservation Trust, 2018).

The key principals for choosing a suitable type of lamp are:

- Avoid blue-white short wavelength lights: these have a significant negative impact on the insect prey of bats. Use alternatives such as warm-white (long wavelength) lights as this will reduce the impact on insects and therefore bats.
- Avoid lights with high UV content: (e.g. metal halide or mercury light sources) or reduce/completely remove the UV content of the light. Use UV filters or glass housings on lamps which filter out a lot of the UV content.

Selecting an appropriate lamp unit that is designed to be environmentally friendly will minimise light spill, but further controls can be imposed by installing directional accessories such as baffles, hoods and louvres on lamps to direct light away from ecologically sensitive areas, such as the boundary hedgerows and associate mature trees.

LED (Light Emitting Diode) units are an effective way to direct the light into small target areas and are recommended for lighting parking and turning areas. Composite LEDs can be switched off to reduce/direct the light beam to specific areas.

6.3.5 Hedgehogs

Hedgehogs are known within the local area and suitable habitat such as scrub and brash piles are present within the site that could be utilised by foraging, sheltering and hibernating hedgehogs.

To avoid impacts on hedgehogs a precautionary approach should be adopted:

If required, it is recommended that the brash piles are removed outside the hedgehog hibernation period (avoiding November to March, inclusive) in order to avoid the killing and/or injury of hibernating animals.

The construction site should be made safe for ground-dwelling animals with hazards such as open holes, pits, ditches and drains covered over or fitted with ramps to allow for escape.

It is recommended that any garden fences or walls erected within the development (that could act as a barrier to hedgehog movement) are made permeable for hedgehogs. This can be achieved by cutting or leaving a 13cm by 13cm hole within the fence or wall; this is sufficient for any hedgehog to pass through and this is too small for nearly all pets (see Figure 3).



Figure 3. An example of a hole cut within a fence, creating a 'hedgehog highway' Source: <https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/>

6.3.7 Rabbits

It is recommended that any rabbits found to be inhabiting burrows within the proposed area of construction are humanely removed prior to the commencement of ground works. This is recommended to avoid the potential of groundworks resulting in the cruel killing of rabbits whilst they are underground.

7 References

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Natural England, 2010. *Badgers and Development. A Guide to Best Practice and Licensing*. Natural England.

8 Appendix 1. Photographs



Photograph 1. The access driveway into the site, found at the north boundary.



Photograph 2. The wild privet hedgerow along the north western boundary.



Photograph 3. The southern section of the site.



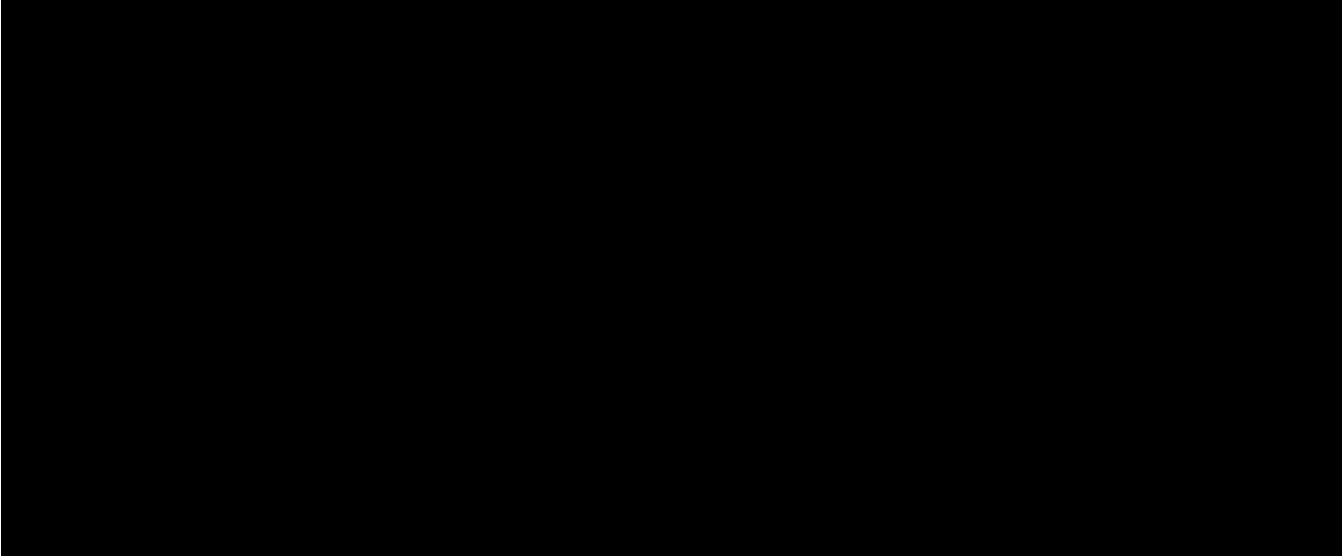
Photograph 4. Detail of the improved grassland found to the south of the site.



Photograph 5. Inactive badger sett entrance found south of the site.



Photograph 6. The central eastern area of the site.



Photograph 9. Brush pile found east of the site.



Photograph 10. The north eastern area of the site, showing patches of scrub and improved grassland.



Photograph 11. Brush pile found within the north eastern area of the site.



Photograph 12. The lines of planted sycamore trees found in the north eastern area of the site.



Photograph 13. Rabbit burrow entrance found along the north eastern boundary of the site.



Photograph 14. The north eastern area of the site, showing improved grassland and tall ruderal.



Photograph 15. Rabbit burrow entrance found east of the site.



Photograph 16. View of badger Sett 2 from the north eastern fence.



Photograph 17. The southern area of the site, with a view of the woodland to the south east.

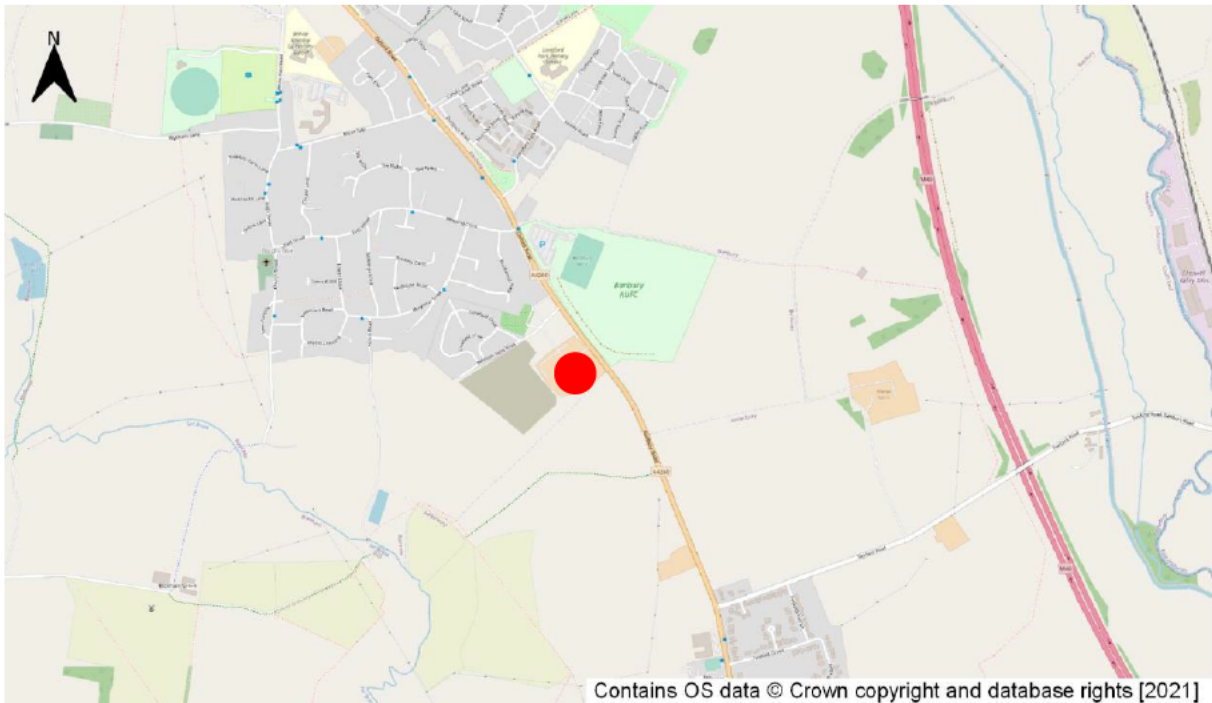


Photograph 18. Footpath leading from the southern woodland to south of the site.

9 Appendix 2. Site Location Plans



Aerial photograph showing the location of the land adjacent to Cotefield House, outlined in red. Source: Google Satellite



Ordnance Survey map showing the approximate location of the site (indicated by the red circle) within the local area. Source: OSM Standard

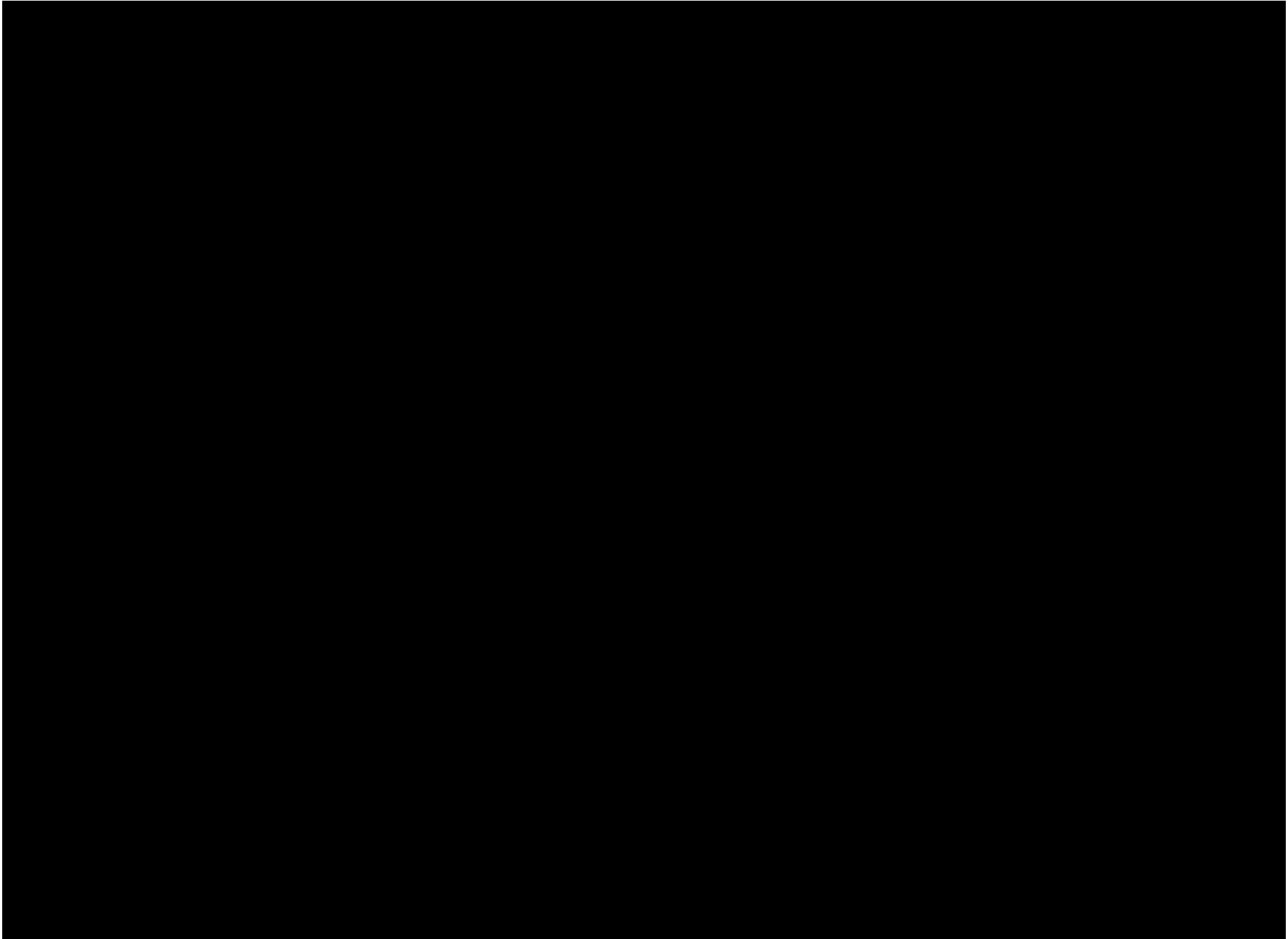
10 Appendix 3. Phase 1 Habitat Plan



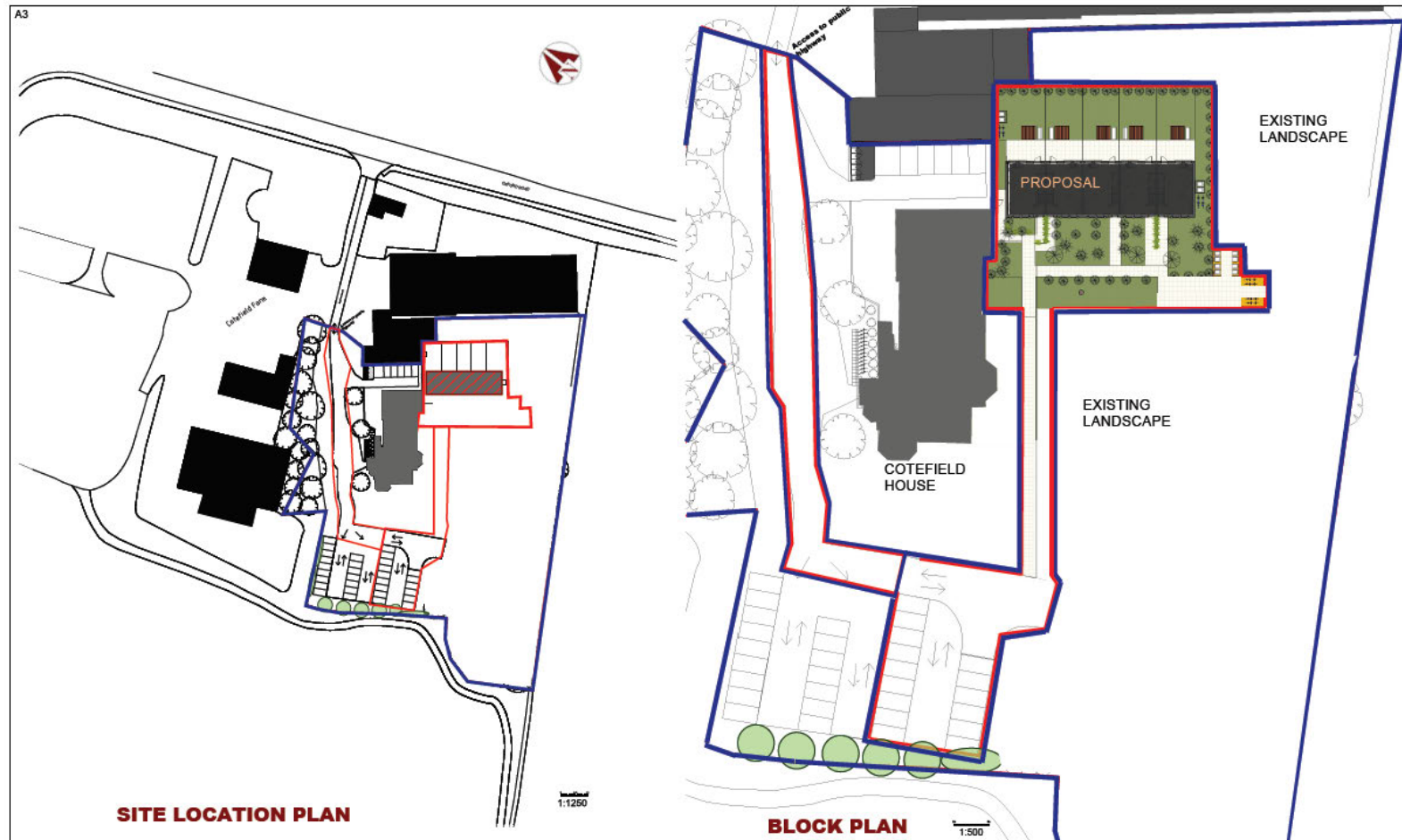
Phase 1 Habitat Survey Target Notes:

1. Brash pile
2. Rabbit burrow
3. Rabbit burrow
4. Fox dung on top of styrofoam slab
5. Bird nest in tree
6. Badger Sett 1 with two entrances (considered active)
7. Brash pile





12 Appendix 5. Proposal Plan



154 Cowley Road
Oxford
OX4 1JF
01865 308088
design@assetmax.co.uk

LAND ADJACENT COTEFIELD HOUSE OXFORD ROAD BODICOTE

SITE LOCATION AND BLOCK PLAN

Scale @ A3 Drawn
1:1250/1:500 " " Checked
Project BOCO-030-AA

Drawing No. A-030-01 Date FEB 2021

13 Appendix 6. Species for Landscape and Ornamental Planting

Common Name	Botanical Name
Trees	
Field maple*	<i>Acer campestre</i>
Beech*	<i>Fagus sylvatica</i>
Hornbeam*	<i>Carpinus betulus</i>
Willow*	<i>Salix sp.</i>
Silver birch*	<i>Betula pendula</i>
Rowan*	<i>Sorbus aucuparia</i>
Whitebeam*	<i>Sorbus aria</i>
Alder*	<i>Alnus glutinosa</i>
Wild cherry*	<i>Prunus avium</i>
Flowering cherry	<i>Prunus sp.</i>
Flowering pear	<i>Pyrus calleryana</i>
Crab apple*	<i>Malus sylvestris</i>
Fruiting apple	<i>Malus sp.</i>
English oak*	<i>Quercus robur</i>
Small-leaved lime*	<i>Tilia cordata</i>
Shrubs	
Holly*	<i>Ilex aquifolium</i>
Hazel*	<i>Corylus avellana</i>
Wayfaring tree*	<i>Viburnum lantana</i>
Wild service tree*	<i>Sorbus torminalis</i>
Buckthorn*	<i>Rhamnus cathartica</i>
Guelder rose*	<i>Viburnum opulus</i>
Hawthorn*	<i>Crataegus monogyna</i>
Hebe	<i>Hebe sp.</i>
Rosemary	<i>Rosmarinus</i>
Ceanothus	<i>Ceanothus sp.</i>
Weigela	<i>Weigela sp.</i>
Dog rose	<i>Rosa canina</i>
Dogwood*	<i>Cornus sanguinea/alba</i>
Rose (single flowered varieties)	<i>Rosa sp.</i>
Wild privet*	<i>Ligustrum vulgare</i>
Garden privet	<i>Ligustrum ovalifolium</i>
Lilac	<i>Syringa vulgaris</i>
Escallonia	<i>Escallonia sp.</i>
Lavender	<i>Lavandula sp.</i>
Flowering currant	<i>Ribes sp.</i>
Honeysuckle*	<i>Lonicera periclymenum</i>
Mexican orange blossom	<i>Choisya sp.</i>
Spiraea	<i>Spiraea sp.</i>
Amelanchier	<i>Amelanchier lamarckii/canadensis</i>
Cotoneaster	<i>Cotoneaster sp.</i>
Yew*	<i>Taxus baccata</i>
Broom	<i>Cytisus sp.</i>
Rose of Sharon	<i>Hypericum calycinum</i>

Common Name	Botanical Name
Firethorn	<i>Pyracantha sp.</i>
Butterfly bush	<i>Buddleia davidii</i>
Clematis	<i>Clematis sp.</i>
Perennials	
Elephant's ears	<i>Bergenia cordifolia</i>
Sage	<i>Salvia sp.</i>
Lamb's ears	<i>Stachys byzantia</i>
Periwinkle*	<i>Vinca major & Vinca minor</i>
Ivy*	<i>Hedera helix</i>
Bugle*	<i>Ajuga reptans</i>
Lady's mantle	<i>Alchemilla mollis</i>
Geraniums	<i>Geranium sp.</i>
Globe thistle	<i>Echinops ritro</i>
Monk's hood	<i>Aconitum sp.</i>
Yarrow*	<i>Achillea millefolium</i>
Teasel*	<i>Dipsacus fullonum</i>
Oriental poppy	<i>Papaver orientalis</i>
Michaelmas daisy	<i>Aster sp.</i>
Bear's breeches	<i>Acanthus spinosus</i>
Montbretia	<i>Crocsmia sp.</i>
Purple coneflower	<i>Echinacea purpurea</i>
Ornamental onion	<i>Allium sp.</i>
Catmint	<i>Nepeta sp.</i>
Verbena	<i>Verbena sp., Verbena bonariensis</i>
Marjoram	<i>Origanum majorana</i>
Thyme	<i>Thymus sp.</i>
Crocus	<i>Crocus sp.</i>
Daffodil	<i>Narcissus sp.</i>
Snowdrop	<i>Galanthus nivalis</i>
Winter aconite	<i>Eranthis sp.</i>
Bluebell*	<i>Hyacinthoides non-scripta</i>
Primrose*	<i>Primula veris</i>
Forget-me-not*	<i>Myosotis sp.</i>
Grape hyacinth	<i>Muscari botryoides</i>
Hollyhock	<i>Althaea rosea</i>
Lenten rose	<i>Helleborus orientalis</i>
Foxglove*	<i>Digitalis purpurea</i>
Greater knapweed*	<i>Centaurea scabiosa</i>
Great mullein*	<i>Verbascum thapsus</i>
Toadflax*	<i>Linaria vulgaris</i>
Meadow crane's-bill*	<i>Geranium pratense</i>
*indicates native species	