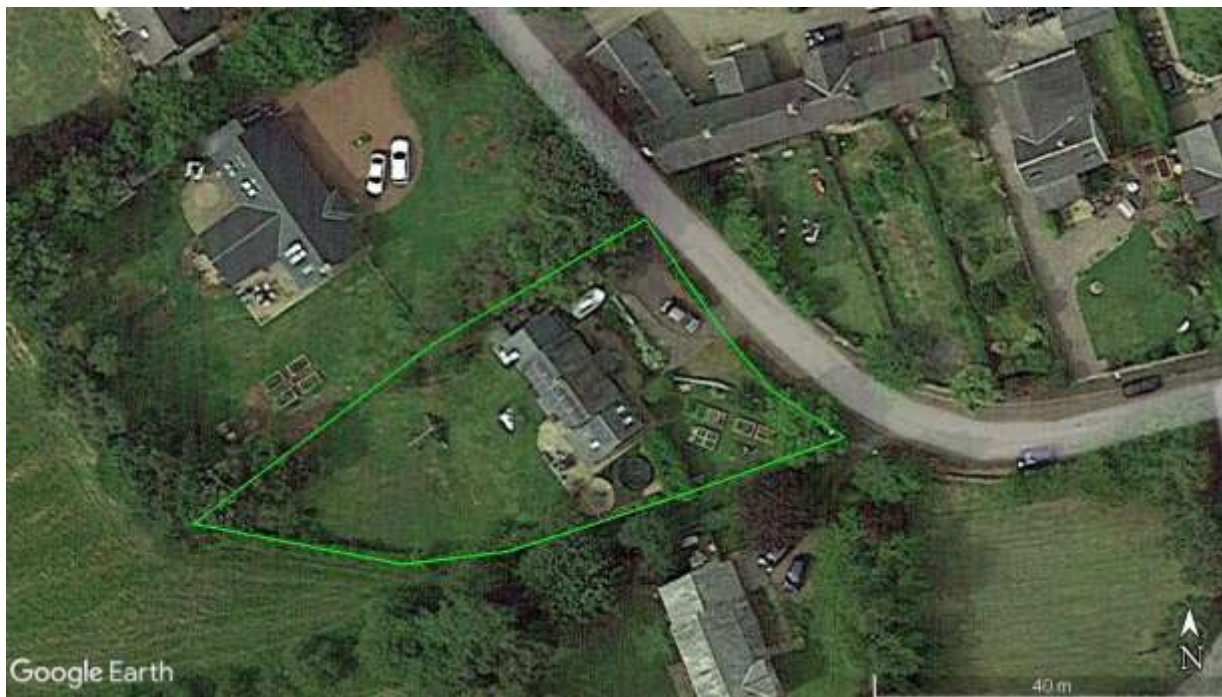


BAT SURVEYS

THE OLD POLICE HOUSE, KIRKWHELPINGTON



DATE: September 2021
CLIENT: R&K Wood
PROJECT NUMBER: 6374
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DOCUMENT & QUALITY CONTROL

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ENVIRONMENTAL RECORDS DATA

Unless requested otherwise, the information below can be used by the Local Environmental Records Centre. E3 has an agreement with the Environment Records Centre North East whereby any information included in the below table can be added to their records.

Species	Recorder	Date	Location	Abundance	Comment
Common pipistrelle	E3 Ecology Ltd	July 2021	NY 995 845	3	Roost
Soprano pipistrelle	E3 Ecology Ltd	July 2021	NY 995 845	1	Roost
Myotis	E3 Ecology Ltd	July 2021	NY 995 845	1	Anabat ID
BLE	E3 Ecology Ltd	July 2020	NY 995 845	1	Anabat ID
Noctule	E3 Ecology Ltd	July 2020	NY 995 845	1	Anabat ID
Barn owl	E3 Ecology Ltd	July 2021	NY 995 845	1	Foraging

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A. SUMMARY

E3 Ecology Ltd was commissioned to undertake a bat survey of the Old Police House, in Kirkwhelpington, where it is proposed to build an extension onto the south west aspect of the house. A desk study was completed, including consultation with DEFRA's MAGIC website and Environmental Records Information Centre North East (ERIC NE), and a preliminary roost assessment was undertaken on 11th August 2020 in order to inform this survey report. Three subsequent dusk surveys were undertaken, to detect bat usage of the building.

The results of the desk study indicate that there are no internationally and nationally statutorily designated sites for bats within 2km. The site does not lie within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for this type of development. There are no records of granted European Protected Species (EPS) mitigation licences affecting bats within 2km. There are no SPA's or SAC's within 10km of the site. Survey by E3 of the site around 10 years ago recorded a roost used by small numbers of common pipistrelle bats at the eaves on the south western elevation. The site lies within a network expansion zone. There are no ponds evident nearby from the OS mapping and no nearby records of great crested newts from MAGIC. Habitats in the wider setting are of good quality for hedgehog, though none have been seen in the garden in recent years. It is understood that crayfish remains have been found in the garden

The land surrounding the site comprises primarily agricultural land with a smaller network of fields associated with the village. The village of Kirkwhelpington lies east of the site, and the River Wansbeck is south of the site and around 100m away at the closest point. The river, along with several small patches of woodland, make the area of moderate to high suitability for commuting and foraging bats.

There is one property on site which was subjected to detailed external inspections. Internal inspection were not carried out due to COVID-19 restrictions. The building is of brick construction and generally well pointed, with two cedar clad extensions on the north western and south eastern gable ends. The roof is constructed of slate, and is generally well sealed. There are several gaps where the cedar cladding meets the brick walls of the main house or the roofline, possibly providing roosting potential for bats. Overall, the building is considered to be of low to moderate suitability to support roosting bats. Bat droppings were found on one window but not eDNA tested as emergence data identified to bats to species.

Surveys recorded a number of roosts used by individual or small numbers of common and soprano pipistrelle bats, primarily at the eaves where pointing has failed, but also in one window surround.

A barn owl was seen flying over the site during one dusk survey.

The following potential impacts have been identified:

- Risk of disturbing/harming bats and damage/destruction of roosts present within the building, including hibernating bats if works commence during winter.
- Increased lighting which could impact on bat foraging and commuting habitat within the adjacent area.

A detailed avoidance, mitigation and compensation strategy is provided within this report. Key measures include:

- Works will be undertaken under a Natural England licence.

-
- Works will not commence during the hibernation period (November to February).
 - Retention of roosts not affected by the works.
 - Exclusion of bats from roosts prior to the start of works.
 - Recreation of alternative roosting sites for bats close to the location of those roosts to be lost.
 - Sensitive design of external lighting to avoid light levels above 2lux within the main body of the garden.
 - Timing restrictions for certain work activities to outside of the bat hibernation period (November to end Feb inclusive).
 - Works will be completed in accordance with a detailed method statement with key demolition works undertaken under ecological supervision.
 - Timber treatments that are toxic to mammals will be avoided. If required, timber treatment will be carried out in the spring or autumn. Both pre-treated timbers and timber treatments will use chemicals classed as safe for use where bats may be present (see <https://data.jncc.gov.uk/data/e5888ae1-3306-4f17-9441-51a5f4dc416a/Batwork-manual-3rd-edn.pdf> - Chapter 10).

The following additional enhancement measures are recommended in order to further enhance the site for biodiversity:

- Provision of two bat and two bird boxes with the curtilage of the property.

The Local Planning Authority is likely to require the means of delivery of the mitigation to be identified. It is recommended that mitigation and enhancement proposals are incorporated into the master-planning documents.

If you are assessing this report for a local planning authority and have any difficulties interpreting plans and figures from a scanned version of the report, E3 Ecology Ltd would be happy to email a PDF copy to you. Please contact us on 01434 230982.

B. INTRODUCTION

E3 Ecology Ltd was commissioned by Mr and Mrs Wood to undertake a bat survey of a proposed development site at Kirkwhelpington. The survey comprised a desk study and daytime preliminary roost assessment. Subsequent dawn/dusk bat activity surveys were conducted to inform this report.

B.1 AUTHOR, SURVEYORS & QUALIFICATIONS

The author's professional qualifications and survey licences are detailed in the table below, as well as those of additional lead surveyors who completed survey work at the proposed development site:

Name	Position	Professional Qualifications	Natural England Survey Licence Numbers
Dr Tony Martin	Director	BSc PhD MLI MCIEEM	2015-10138 CLS-CLS (Bats)

Further details of experience and qualifications are available at www.e3ecology.co.uk.

All surveyors have the knowledge, skills and experience identified within the relevant CIEEM Competencies for Species Survey guidance, or were under the supervision of a surveyor with the required competencies.

B.2 OBJECTIVES

The objectives of the assessment are to:

- Establish the bat roosting suitability of any buildings, structures or trees which may be present on site and at risk of impact by the development
- Undertake appropriate survey work to assess roost presence and the nature of the roosts.
- Set out the mitigation, compensation and enhancement measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects
- Identify how these measures could be secured
- Identify any requirements for post-construction monitoring of the site

B.3 PROPOSED DEVELOPMENT SITE

The site is located in Kirkwhelpington, at an approximate central grid reference of NY 9955 8448.

The figures below illustrate firstly the site boundary and secondly the broad habitats present on site and within an approximate 500m buffer zone.



FIGURE 1: SITE BOUNDARY
(Reproduced under licence from Google Earth Pro.)

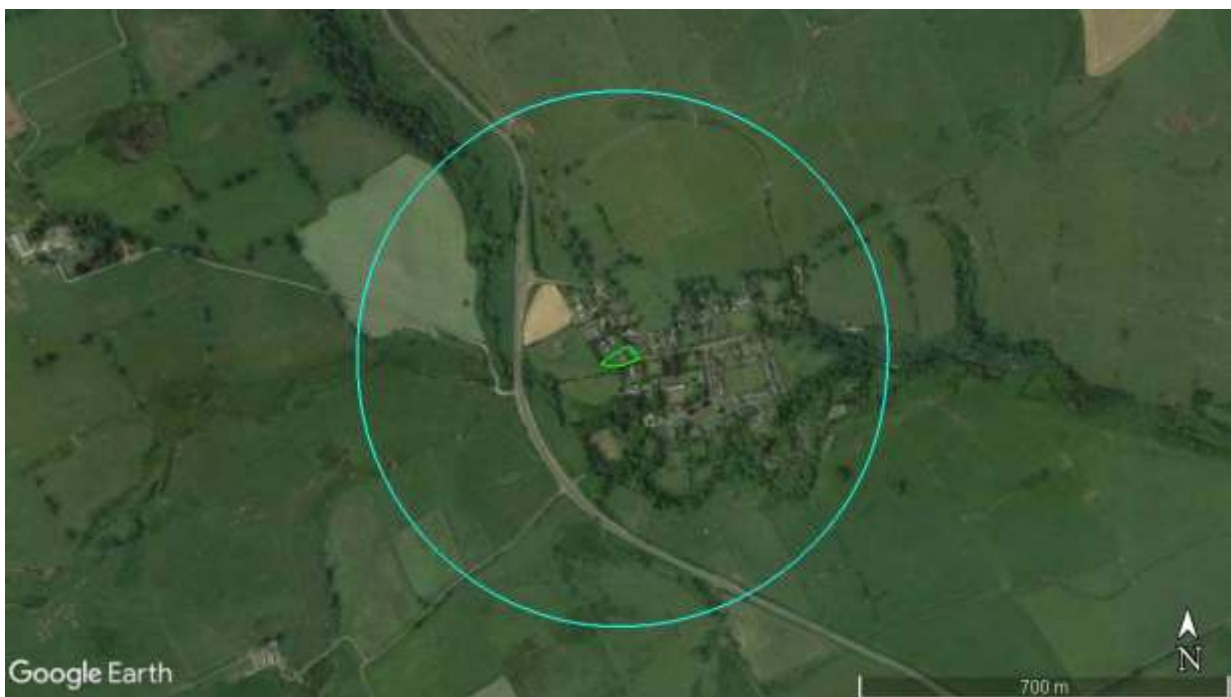


FIGURE 2: SITE AND SETTING
(Reproduced under licence from Google Earth Pro.)

B.4 DEVELOPMENT PROPOSALS

It is proposed to extend the south western elevation, creating an extension. Detailed development proposals are below, note the extension is on the south western (garden) elevation.



FIGURE 3: DEVELOPMENT PROPOSALS
(top shows existing, bottom shows proposed)

C. METHODOLOGY

C.1 SCOPE OF STUDY

The scope of the study, in terms of the survey area and the desk study area, is based on professional judgement. The scope has been determined based on the site's characteristics, the nature of the surrounding area, the development proposed at the time of reporting and the likely associated zone of influence. Consideration has been given to potential effects both during the construction and operational phases of the development.

For this site the survey area comprised the green line boundary as defined within the figure in Section B. The survey area considered potential roost sites within and adjacent to the survey area, which may be affected by the proposed development. No trees would be lost to the proposals.

The desk study included an assessment of land-use in the surrounding area and a data search covering a 2km buffer zone (see below for further detail).

The level of survey effort employed at the site has taken account of the recommendations within the Bat Conservation Trust (BCT) Good Practice Survey Guidelines¹.

C.2 DESK STUDY

Initially, the site was assessed from aerial photographs and 1:25,000 Ordnance Survey maps.

Following this, a data search was submitted to the local records centre in September 2021, requesting data relating to bats within 2km of site. In addition, a search was made of the MAGIC website² for any granted bat licences within 2km and other relevant ecological data.

C.3 PRELIMINARY ASSESSMENTS

C.3.1 FORAGING/COMMUTING HABITAT ASSESSMENT

The potential suitability of the habitats within the survey area and surrounding landscape in relation to commuting and foraging bats was classified as negligible, low, moderate or high, based on BCT guidelines and using the surveyor's professional judgement.

C.3.2 PRELIMINARY ROOST ASSESSMENT (BUILDINGS/STRUCTURES)

A daytime assessment was made of all structures affected by the proposed development, in order to evaluate their suitability to support bat roosts, and, where present, to record field signs of use by bats.

Buildings/structures were inspected externally only, as internal access was not available due to COVID-19 restrictions. Binoculars were used to assist with the inspection for potential roosting features and bat field signs, such as droppings, feeding remains, grease/urine staining, or bats themselves.

Where possible, species identification was either confirmed visually, through DNA analysis of droppings or acoustically through further survey work at dusk or dawn. If endoscope use or

¹ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

² Multi Agency Geographic Information for the Countryside (www.magic.gov.uk)

handling of bats were required to identify particularly cryptic species or to assess roost type, this was completed by appropriately licensed individuals and minimised where possible to reduce disturbance.

Structures were categorised as having negligible, low, moderate or high suitability to be used by roosting bats, based on guidelines provided by the Bat Conservation Trust³ and detailed within the table below.

TABLE 2: ASSESSMENT OF BAT ROOSTING SUITABILITY OF BUILDINGS/STRUCTURES & TREES (TO BE APPLIED USING PROFESSIONAL JUDGEMENT, TAKEN FROM TABLE 4.1 OF BCT'S BAT SURVEY GUIDELINES)	
Suitability	Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure 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 by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A building/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 status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A building/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.

Note that any comments within this report on the state or condition of buildings/structures relate solely to their potential use by bats and must not be taken as a professional assessment of the structural integrity or safety of the structures.

C.3.3 SURVEY EQUIPMENT

- High-powered torch
- Binoculars
- Camera
- Extendable ladders
- Endoscope
- Eppendorf dropping sample tubes

C.3.4 SURVEY DATES & ENVIRONMENTAL CONDITIONS

The table below details the environmental conditions during the preliminary assessment survey.

TABLE 3: PRELIMINARY ASSESSMENT SURVEY CONDITIONS				
Date	Temperature (°C)	Cloud Cover (%)	Precipitation	Wind Conditions (Beaufort scale)
11/08/2020	17	~50	Dry	2

³ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

C.3.5 PRESENCE/ABSENCE SURVEY

C.3.5.1 SURVEY EFFORT

The level of survey effort employed has taken account of the guidance provided by the Bat Conservation Trust (BCT)⁴ and summarised within the table below.

TABLE 4: RECOMMENDED NUMBER AND TIMING OF PRESENCE/ABSENCE SURVEY VISITS REQUIRED TO PROVIDE CONFIDENCE IN NEGATIVE PRELIMINARY ROOST ASSESSMENT RESULTS (FROM TABLE 7.1 AND TABLE 7.3 BCT GUIDELINES)			
	Low Roost Suitability*	Moderate Roost Suitability	High Roost Suitability
Recommended minimum number of survey visits for presence/absence survey to give confidence in a negative result	One survey visit. One dusk emergence or dawn re-entry survey (structures). For trees with low roost suitability, no further surveys required.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.
Recommended timings for presence/absence surveys	May to August	May to September with at least one of the surveys between May and August	May to September with at least two of the surveys between May and August
* If a structure is classified as having low suitability for bats an ecologist should make a professional judgement on how to proceed based on all of the evidence available. If sufficient areas of a structure have been inspected and no evidence found (and is unlikely to have been removed by weather or cleaning or be hidden), then further surveys may not be appropriate.			
Note: Where a roost is confirmed as being present, further surveys may be required to fully characterise the roost			

The recommendations provided above are guidelines and it is recognised by BCT that ‘the number of visits could be adjusted (up or down) if necessary by the ecologist, bearing in mind the site-specific circumstances’.

Details of dates, timings, weather, and surveyor numbers and names are provided in the results section.

C.3.5.2 SURVEY METHODS

Activity surveys were undertaken in suitably mild conditions when bats are active. Surveyors were positioned to ensure coverage of all high-risk areas of the site, including any potential flight-lines from structures within the site to adjacent cover such as woodland blocks. If bats were recorded within the site before bats were seen in the wider area, or seen flying into the site, it is assumed that roosts are present within the site.

All surveyors used both Batbox Duet bat detectors to listen for bats and Anabat Express detectors, at each surveyor location, to record and better identify bat species.

Timings for observations of key bat activity such as emergence, first records of each species and commuting routes were recorded. All data were recorded using the Anabat Express for future reference and to allow confirmation of species identification through call analysis (using Analook software), and to capture brief echolocation calls that could not be reliably identified

⁴ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

in the field⁵. Field survey recorded numbers of bats detected, feeding activity, flight paths, species (as far as is practicable), and social calls.

Remote monitoring was undertaken with an Anabat Express detector. This technique helps to record both emerging or flying bats and their echolocation calls without any disturbance from the presence of people. By cross-referencing times and external light levels, the likelihood of recorded bats roosting within the structures can be assessed.

A total of 5 person-nights work was undertaken and direct observation was reinforced by remote recording of bat activity adding 2 monitoring points. In addition, surveyor coverage of the site was supplemented with the use of an infra-red / thermal camera to aid observation of bat activity in lower light levels, which is particularly useful for later emerging species. Figures provided within the results section of this report illustrate the approximate location of each surveyor, monitoring point and camera.

C.3.5.3 SURVEY EQUIPMENT

- Duet bat detectors
- Anabat Expresses
- Light meter
- Infra-red video camera
- Infra-red torches and floodlights

C.3.6 DATA ANALYSIS

All bat calls were analysed using Analook with calls identified to species where possible, referencing call parameters as detailed within Russ (2012)⁶ and Middleton et al (2014)⁷.

If identification to species is not practicable, then where possible calls are identified to genus.

C.4 SURVEY CONSTRAINTS

The survey completed at the site will provide reasonably typical data for the season in which it was undertaken, and internal field signs are likely to reflect activity over the preceding active season. Assessment of the bat use of the site at other times of year and the potential impacts of the proposed development is based on professional judgement. This is an approach supported by the Bat Conservation Trust Good Practice Guidelines⁸.

Internal inspection of the property was not possible due to COVID-19 restrictions. It is not thought that this significantly impacted the results or their interpretation given the field surveys undertaken.

⁵ Reviewing data recorded by surveyors using Duet detectors and the Anabat data indicated that reliable *Myotis* records increased through Anabat use, particularly once conditions were too dark for visual cues to assist in identification, when there was a lot of bat activity, and with bats in clutter. It also reduces errors where pipistrelles in clutter can be mis-identified as *Myotis* bats.

⁶ Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing

⁷ Middleton, N., Froud, A. and French, K. (2014) Social Calls of the Bats of Britain and Ireland. Pelagic Publishing

⁸ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

C.5 ASSESSMENT OF VALUE

The relative value of the ecological receptors (habitats, species and designated sites) was assessed using a geographical frame of reference. For designated sites this is generally a straightforward process with the assigned designation generally being indicative of a particular value, e.g. Sites of Special Scientific Interest are designated under national legislation and are therefore generally considered to be receptors of national value. The assignment of value to non-designated receptors is less straightforward and as recognised by the Guidelines for Ecological Impact Assessment⁹, is a complex and subjective process and requires the application of professional judgement.

When assessing the value of species and habitats, relevant documents and legislation are considered including the lists of species and habitat of principal importance annexed to the NERC Act (2006) and those provided within relevant local Biodiversity Action Plans. Data provided through consultation is also considered. These data sources can provide context at a local, regional and national scale.

The table below provides examples of receptors of value at different geographical scales.

Level of Value	Examples
International	An internationally designated site or candidate site.
	A site meeting criteria for international designation.
	The site is of functional importance* to a species population with internationally important numbers (i.e. >1% of the biogeographic population)
National	A nationally designated site.
	The site is of functional importance* to a species population with nationally important numbers (i.e. >1% of the national population)
Regional	The site is of functional importance* to a species population with regionally important numbers (i.e. >1% of the regional population)
County	A Local Wildlife Site (LWS) or equivalent, designated at a County level
	The site is of functional importance* to a species population of county value (i.e. >1% of the county population)
District	A Local Wildlife Site (LWS) or equivalent, designated at a District level
	The site is of functional importance* to a species population of district value (i.e. >1% of the district population)
Parish	A species population considered to appreciably enrich the nature conservation resource within the context of the parish.
	Local Nature Reserves
Local	A species population that contributes to local biodiversity but are not exceptional in the context of the parish.
Low	Habitats that are unexceptional and common to the local area.

** Functional importance defined as 'a feature which, based on professional judgement, is of importance to the day to day functioning of the population, the loss of which would have a detectable adverse effect on that population'.*

The site lies within Kirkwhelpington Civil Parish which covers approximately 4800ha and is mainly pasture with some arable land, and small settlements. There are also some areas of heathland and moors to the north west of the parish. There are many good quality resources for bats within the Parish, though woodland cover is localised and dominated by conifer plantations to the north west.

9 Chartered Institute for Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal

D. RESULTS

D.1 DESKTOP STUDY

D.1.1 PRE-EXISTING INFORMATION

D.1.1.1 ORDNANCE SURVEY MAPPING AND AERIAL PHOTOGRAPHY

The most recent aerial photograph of the site (2021) indicates that habitats on site are dominated by the building and hardstanding, along with a large garden. Historic imagery suggests that extensions were added to the gable ends on the building in at least 10 years ago, with no changes made to the land in the last 10 years.

Aerial photography shows that the general land use in the surrounding area is predominantly farmland, with Kirkwhelpington lying to the east, and the river within 100m. There is no evidence for the presence of ponds nearby.

D.1.1.2 MAGIC WEBSITE¹⁰

PROTECTED SITES

There are no internationally and nationally statutorily designated sites for bats within 2km.

The site does not fall within a SSSI impact risk zone for this type of development.

The site does not lie within 10km of any SPA's or SAC's. No direct development impacts are envisaged on this or any other nearby protected sites.

SPECIES

There are no records of granted European Protected Species (EPS) mitigation licences for works affecting bats within 2km.

There are no nearby great crested newt records on MAGIC.

The site lies within a network enhancement area.

D.1.1.3 PREVIOUS SURVEY WORK BY E3

Survey by E3 of the site around 10 years ago recorded a roost used by small numbers of common pipistrelle bats at the eaves on the south western elevation.

D.1.1.4 LOCAL KNOWLEDGE

The building owners were aware of the likely presence of roosting bats and reported finding crayfish remains within the garden. They had not seen hedgehog in the garden in recent years.

D.1.2 CONSULTATION

D.1.2.1 LOCAL RECORDS CENTRE

ERIC NE has provided the following notable records within 2km of site:

¹⁰ MAGIC Website: www.magic.gov.uk

TABLE 6: CONSULTATION RECORDS

Species	No. of Records	Closest distance (m – if sufficient record resolution provided)	Most recent date
Bats	2	78	04/07/1905
Common Pipistrelle	18	29	14/07/2017
Natterer's Bat	3	1164	28/04/2017
Noctule Bat	2	1764	24/08/2012
Pipistrelle Bat species	8	94	26/06/1986
Soprano Pipistrelle	14	356	08/08/2017
Unidentified Bat	1	547	01/09/2016
Whiskered Bat	1		29/05/2014

Full data sets are available on request.

D.2 OVERVIEW OF SITE SUITABILITY

TABLE 7: OVERVIEW OF HABITATS AND SETTING¹¹

	NEGLIGIBLE	LOW	MODERATE	HIGH
HABITATS AND COVER WITHIN 200M	City Centre	Open, exposed arable or pasture with no hedges, amenity grassland, or relatively built up	Hedges and trees linking site to wider countryside, mature linked gardens	Excellent cover with mature trees/ woodland and/or good hedges
HABITATS WITHIN 1KM	City Centre	Little tree cover, few hedges, arable dominated, scattered green spaces	Semi-natural habitats e.g. trees, hedgerows	Good network of woods, wetland and hedges
ALTERNATIVE ROOSTS WITHIN 1KM	City centre	Numerous alternative roosting opportunities of a similar nature	A number of similar buildings in the local area	Few alternative buildings and site of good quality for roosts
SETTING	Inner city	Urban with little green space	Built development with green-space, wetland, trees	Rural Lowland with woodland and trees.
DISTANCE TO WATER/ MARSH	>1km	500m-1000m	200m-500m	<200m
DISTANCE TO WOODLAND/ SCRUB	>1km	500m-1000m	200m-500m	<200m
COMMUTING ROUTES	Isolated by development, major roads, large scale agriculture	No direct potential flyways linking site to wider countryside	Some potential commuting routes to and from site	Site is well connected to surrounding area with multiple flyways

¹¹ Building and habitat risk assessment technique audited in a research project with York University which compared the risk assessment scoring with the results of detailed field assessment for over 100 sites. Statistically significant associations were found between habitat setting and building features and the presence of absence of different bat species. For example habitat connections and nearby woodland were significant for brown long-eared bats and the presence of species-rich grassland is important for many species.

TABLE 8: OVERVIEW OF BUILDING/STRUCTURES ²				
	NEGLECTIBLE	LOW	MODERATE	HIGH
AGE (APPROX.)	Modern	Post 1940's	1900-1940	Pre 20 th C
BUILDING/ COMPLEX TYPE	Industrial complex of modern design	Single, small building	Several smaller buildings, larger single structures	Traditional farm buildings, large country house, large hospital/school
BUILDING - STOREYS	N/A	Single storey	Multiple storeys	Multiple storeys with large roof voids
STONE/BRICK WORK	No detectable crevices	Well pointed, limited or superficial gaps	Some cracks and crevices	Poor condition, many deep crevices, thick walls
FRAMEWORK – TIMBERS/STEEL	Modern metal frame with sheet cladding	Timber purlins, sheet asbestos, modern trusses	Timbers kingpost or similar	Large timbers traditional joints
ROOF VOID	NA – was not surveyed	Small, cluttered void	Medium, relatively open	Large, open, interconnected
ROOF COVERING	Modern sheet materials, tightly sealed, very well sealed roof tiles	Good condition or very open, not weatherproof, modern sheet materials, generally well sealed roof tiles	Some potential access routes e.g. raised, slipped or missing slates or tiles, low number of gaps in bedding/end mortar	Numerous gaps, not too open, e.g. uneven stone slates, many gaps in mortar
ADDITIONAL FEATURES	No	Very limited features with potential access	Some features with low number of potential access points	Numerous or good quality gaps in features such as hanging tiles, cladding, barge boards, soffits
EXTERNAL LIGHTING	Extensive security lights covering much of the site	Widespread areas above 2 lux at night	Intermittent lights of low intensity	Minimal
BUILDING USE	Very noisy, dusty	Regular use	Intermittent use	Disused

Overall, the site is situated in an area of moderate suitability for bats.

Based on the assessment table, the buildings are considered of low to moderate suitability for roosting bats.

D.3 PRELIMINARY ROOST ASSESSMENT

D.3.1 HABITATS

FORAGING HABITATS & COMMUTING ROUTES

The site is surrounded by Kirkwhelpington village to the south east, River Wansbeck to the south, and agricultural land (a mix of arable and grazing pasture). The small scale field pattern and gardens provide good though small scale foraging and commuting routes.

SHELTERED FLIGHT AREAS

There are no sheltered flight areas on site for foul weather foraging or light sampling on site. However, trees surrounding the river 100m to the south may be appropriate.

ALTERNATIVE ROOST LOCATIONS

There are numerous alternative roosting opportunities in the nearby residential dwellings.

D.3.2 BUILDINGS/STRUCTURES

Description of the building is detailed below.

Where recorded, field signs that confirm bat use are in bold.

BUILDING 1:

External

- Brick-built with slate roof
- Brickwork is tightly sealed
- Ridge tiles and windows are also generally well sealed
- Some of the windows of the original house have gaps to the side, potentially providing access to the brickwork cavity – **droppings found here on another visit**
- Eaves are boxed in, with gaps associated with the junction between the eave box and brickwork at each corner of the main house
- Timber fascia boards on the extensions are tightly fitted with occasional gaps, that are most likely too narrow to be used by bats
- Additional occasional crevices or potential access routes are associated with the gable elevations and extensions where, in a small number of locations, cement torching has been displaced
- Two extensions, one to the north and one to the south, are cedar clad, and were built ~10 years ago
- Cedar cladding is tightly fitted with no potential access routes in the main sections of cladding.
- No external field signs of bats recorded on the first visit, however **some droppings were found on the wall by the south-western ground floor window of the original house on a later visit to the property**



Rear of the house



South East gable end



Front of the house



South East end of the front of the house

Internal

- Due to COVID-19 restrictions, internal loft surveys were not undertaken. It is understood that the roof is on modern fink truss construction.

Overall the building is considered to be of low/moderate suitability for roosting bats. The majority is tightly sealed but there are some suitable access routes that may be used by small numbers of bats.

D.4 PRESENCE/ABSENCE SURVEY

D.4.1 DUSK /DAWN SURVEY SURVEYORS, TIMINGS & CONDITIONS

Date	Start	End	Sunset	Start Temp (°C)	End Temp (°C)	Cloud (%)	Precipitation	Wind (Beaufort)
11/08/2020	19:40	21:30	20:50	20	17.5	40	Dry	Still
01/09/2020	18:50	20:30	20:01	18	13	100	Dry - drizzle	0-2SW
28/07/2021	21:05	22:40	21:19	16	12	100	Dry	Still

Date	Lead Surveyor	Assistant surveyors
11/08/2020	Tony Martin	P Grecis
01/09/2020	Tony Martin	
28/07/2021	Tony Martin	P Grecis

D.4.2 11TH AUGUST 2020 DUSK SURVEY RESULTS

A dusk emergence survey was undertaken on 11th August 2020 with two surveyors and two remote monitoring points. The weather was mild and still, with temperatures falling from 20°C to 17.5°C over the course of the survey, 40% cloud and with distant lightning towards the end of the survey.

Bat activity started early, around 130 lux, with common pipistrelles flying in from the east, and a likely pipistrelle bat seen foraging over the neighbouring garden to the north. Three possible roost emergence points were recorded, with common pipistrelle from the south eastern gable and soprano pipistrelle from the rear porch and the north western end of the boxed in eaves. Intense activity over a short period led to some uncertainty.

The first *Myotis* record was at 15 lux, suggesting a roost nearby, though there was no evidence of emergence from this site. Occasional brown long eared bat passes were recorded, also likely to be roosting nearby, and there were occasional noctule bat passes.

Once light levels were below 3 lux common pipistrelle activity reduced greatly, probably as they dispersed to forage in the wider local area and river corridor. *Myotis* bats were occasionally foraging around the garden hedgerows.

A barn owl was recorded flying south to north at dusk.

No roosts and limited bat activity was recorded by the observer to the north of the site.

The figure below provides a summary of the results of dusk emergence survey. More detailed data are available on request.

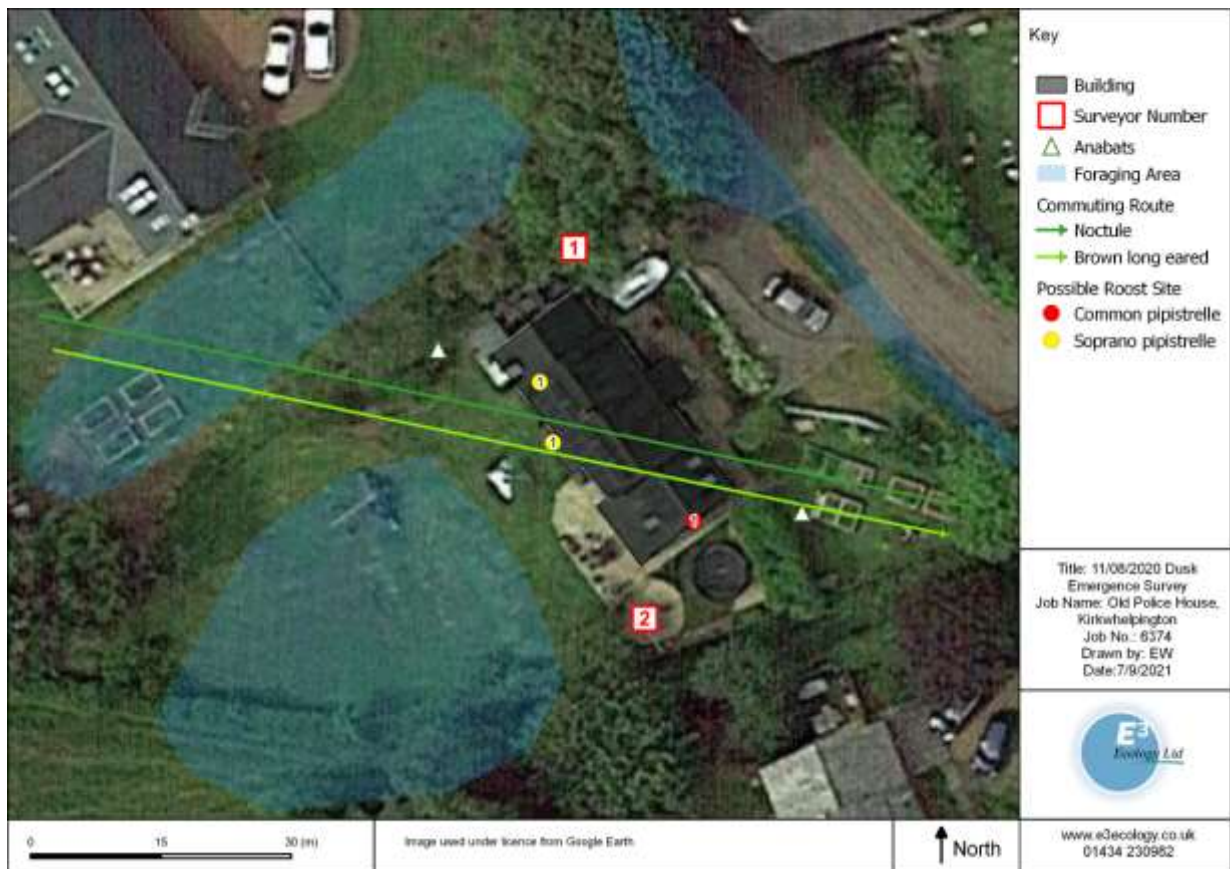


FIGURE 4: SUMMARY OF DUSK SURVEY RESULTS

D.4.3 1ST SEPTEMBER 2020 DUSK SURVEY RESULTS

A dawn survey was scheduled for 2nd September 2020, however due to unfavourable weather forecasts, this was moved to a dusk survey. This was conducted on the 1st September 2020, focusing on the south west aspect of the building where roosts had been found. One surveyor observed the elevation, utilising additional anabats and cameras to aid in identifying species and points of emergence from the building. This survey was used to confirm roost locations and possible numbers.

Both common and soprano pipistrelle bats emerged from the property 8 minutes before sunset, with the first *Myotis* record, not seen to emerge, 17 minutes after sunset. This confirmed the presence of roosts in the window frame and porch, with two common pipistrelles emerging from the window frame and one from the porch.

The figure below provides a summary of positioning of the surveyor and the anabats during this survey. Roost emergence points are illustrated in figure 7.



FIGURE 5: RECORDING LOCATIONS

D.4.4 28TH JUL 2021 DUSK SURVEY RESULTS

A dusk emergence survey was undertaken on 28th July 2021 with two surveyors and three remote detectors, and an infra-red camera recording the known roost locations. The weather was mild with 100% cloud, negligible wind, dry and temperature falling from 16°C to 12°C during the course of the survey.

Bat roosts were recorded in a number of locations:

- On the southern gable, one common pipistrelle emerging.
- From the western porch, one soprano pipistrelle emerging from the lowest section of wall top.
- From the western porch two common pipistrelles emerging from the northern side of the porch.

Early bat activity was recorded to the north of the site, with bats active at 176 lux and with flight lines used by small numbers of bats southwards across the garden towards the tree line that links with the river Wansbeck. Regular foraging activity by common pipistrelle was recorded along the adjacent road and in the south eastern corner of the garden.

There were very occasional *Myotis* passes late in the evening with the first record at 3 lux at the north west corner of the site.

No other species of conservation interest were recorded.

The figure below provides a summary of the results of dusk emergence survey. More detailed data is available on request.



FIGURE 6: SUMMARY OF DUSK SURVEY RESULTS

The locations of roosts are shown in photographs below.



Common pipistrelle roost on southern end of the building.



Common and soprano pipistrelle roosts on the south west aspect of the building.

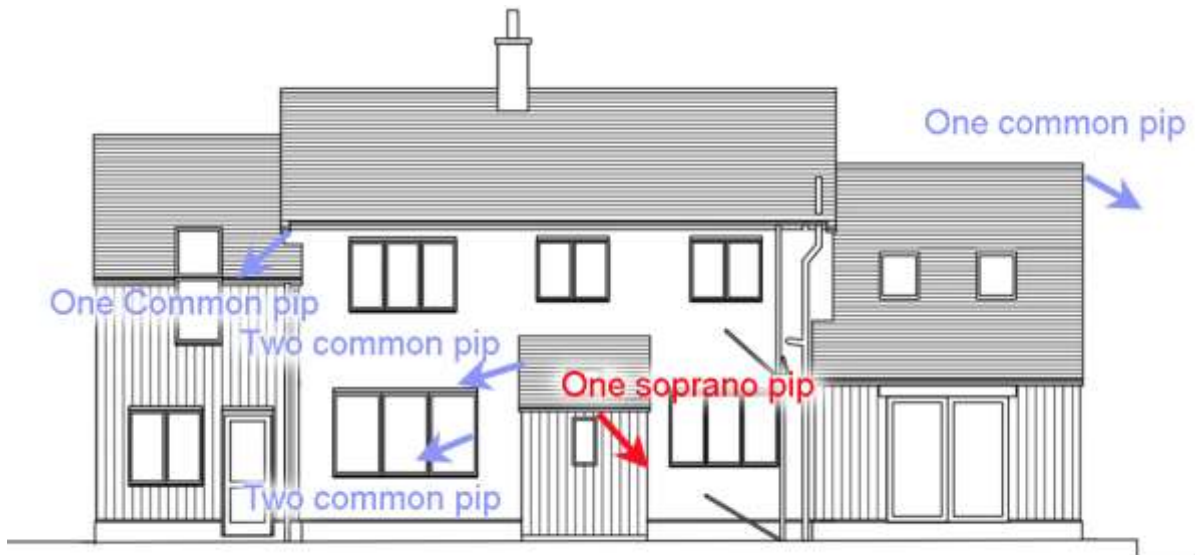


FIGURE 7: PEAK COUNTS AND ROOST LOCATIONS

D.5 ADDITIONAL SPECIES GROUPS

During the September 2020 survey, a barn owl was seen commuting northwards across the site. No other species of conservation interest were recorded.

E. SITE ASSESSMENT

E.1 ASSESSMENT OF SURVEY FINDINGS

The habitats on site are considered to be of local value to foraging and commuting bats.

The building is considered to support roosts used by small numbers of common and soprano pipistrelle bat at times through the year. The window roost is likely to have access to the wall cavity and hence could be used by hibernating bats. Bats are likely to move between roosts both on-site and off-site. There is no evidence to indicate maternity use.

E.2 POPULATION SIZE CLASS ASSESSMENT

Up to 5 common pipistrelle bats and one soprano pipistrelle.

F. IMPACT ASSESSMENT

The likely effects of the proposed development, without appropriate targeted mitigation and/or compensation, are detailed below. Impacts have been considered in both the construction phase and operational phase of the development.

F.1 DIRECT DEVELOPMENT IMPACTS

- Risk of disturbing/harming bats and damage/destruction of roosts present within the building, including hibernating bats if works commence during winter.
- Increased lighting which could impact on bat foraging and commuting habitat within the adjacent area.

F.2 INDIRECT IMPACTS ON LOCAL POPULATIONS

- None anticipated.

G. RECOMMENDATIONS

G.1 FURTHER SURVEY

If development does not happen within 12 months of the last survey, an updating survey will be required, ideally to be undertaken between May and July. An absence of bats during the maternity season should not be taken to indicate an absence of roosts.

A Natural England licence will be required for demolition of the house, which will require a site visit within the 3 months prior to the application submission. If this is later than May 2022, this should be in the form of a dusk emergence survey.

G.2 AVOIDANCE, MITIGATION AND COMPENSATION STRATEGY

The following strategy is proposed:

G.2.1 SITE DESIGN

- External lighting that may reduce bat use of retained or new potential roost sites will be avoided. High intensity security lights will be avoided as far as practical, and any external lighting will be low level (2m) and low lumen. Light spillage to areas used by foraging or commuting bats should be less than 2 lux. Where security lights are required, these will be of minimum practicable brightness, be set on a short timer and will be motion sensitive only to larger objects.
- Construction drawings to include the compensatory roost locations described below.

G.2.2 TIMING OF WORKS

- **Natural England licence will be obtained prior to works that may affect bat roosts commencing.**
- **Works to the buildings which may cause disturbance to bats or which may impact on roosts will not be undertaken until a Natural England development licence has been obtained.**
- Compensatory bat boxes will be in place before the start of works.
- The following key elements of work will not be completed during the bat hibernation period (November to end Feb inclusive) as a precaution to avoid disturbance and harm during this sensitive period:
 - Demolition of stone/brickwork
 - Re-structuring/re-pointing of existing stone/brickwork
 - Keying in of new build to existing stone/brickwork
 - Removal of ridge tiles and slates
 - Removal of roof timbers
 - Exposing of the wall tops via roof stripping works

G.2.3 WORKING METHODS AND BEST PRACTICE

- Works will be undertaken in accordance with the approved licence method statement and the mitigation measures included in this document, which include:
 - Pre-commencement site induction / toolbox talk for key contractors on site carrying out work which may affect bats
 - A concrete-type bat box will be erected on a suitably mature tree (or if not available, mounted on a pole or fitted to a retained undisturbed section of building on site) prior to the commencement of works to act as interim roosting

habitat during construction and will be retained in situ following completion of the development. The box will be used as a receptor for translocated bats (see below).

- Pre-commencement inspection of confirmed and potential roosting areas by the ecologist, such as gaps under slates, ridge tiles, coping stones, barge boards and in stone/brickwork. Installation of one-way valves where appropriate. These will be fitted by, or under supervision of, the ecologist and will remain in place for a minimum of five consecutive nights of suitable weather, in accordance with the most up to date edition of the Bat Workers Manual¹². No exclusion will take place during the hibernation period (November to end Feb inclusive).
- Sensitive dismantling of these roosting areas under ecological supervision, taking care not to harm bats in the process. If bats are found, the ecologist will capture the bat by hand, check the health of the bat and transport it to the aforementioned bat box.
- In the event that bats are found during works, works will stop in that area and the ecological consultant will be contacted immediately. If it is necessary to move the bats for their safety, this will be undertaken by a licensed bat handler.
- Timber treatments that are toxic to mammals will be avoided. If required, timber treatment will be carried out in the spring or autumn. Both pre-treated timbers and timber treatments will use chemicals classed as safe for use where bats may be present (see <https://data.jncc.gov.uk/data/e5888ae1-3306-4f17-9441-51a5f4dc416a/Batwork-manual-3rd-edn.pdf> - Chapter 10).

G.3 COMPENSATION STRATEGY

Three roosting locations will be created within the new build, replicating the roost sites to be lost as far as practicable.

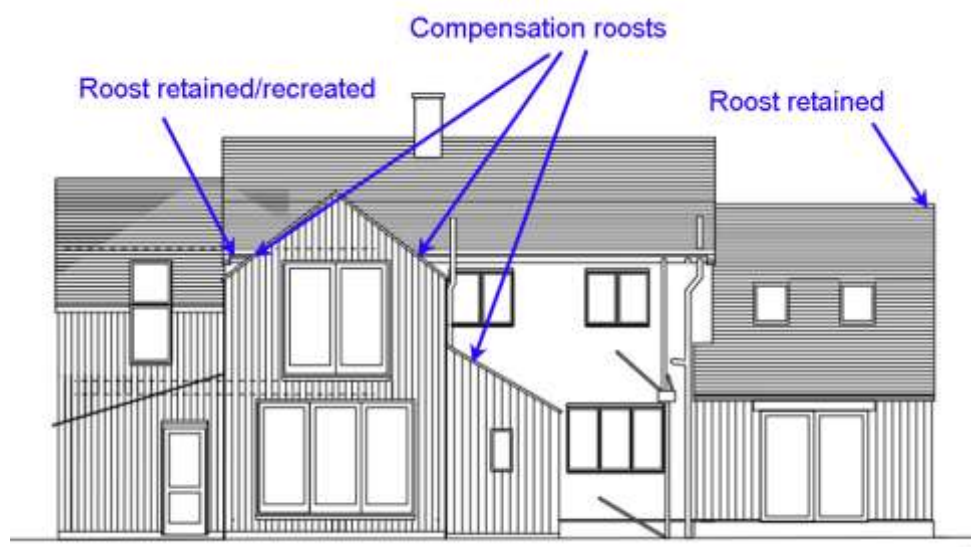


FIGURE 8 ROOSTS POST WORKS

The following additional enhancement measures are recommended in order to further enhance the site for biodiversity:

¹² At the time of issue of this report, the latest version is: Mitchell-Jones, A.J. & McLeish, A.P. (2012) The Bat Workers' Manual (3rd Edition). Pelagic Publishing, Exeter.

- Provision of two bat and two bird boxes within the curtilage of the property.

G.4 MONITORING

Given the results of the survey, no monitoring is proposed.

H. CONCLUSIONS

Provided that the recommendations in this report are implemented, it is anticipated that proposals may proceed with no significant impacts with regard to bats. The proposals provide an opportunity for ecological benefit through increased roost provision and two bird boxes.

APPENDIX 1. LEGISLATION

NATIONAL PLANNING POLICY

The table below details the key paragraphs from the National Planning Policy Framework (NPPF)¹³ relating to the natural environment:

TABLE 9: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT	
Statement	Paragraph
<p>Planning policies and decisions should contribute to and enhance the natural and local environment by:</p> <ul style="list-style-type: none"> a) 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); b) 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; c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; e) 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 f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate 	174
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 ¹⁴ ; 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.	175
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 ¹⁵ . The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.	176
When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development ¹⁶ 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: <ul style="list-style-type: none"> a) 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; b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated 	177
Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the	178

¹³ National Planning Policy Framework (July 2021), Department for Communities and Local Government,

¹⁴ Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

¹⁵ English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.

¹⁶ For the purposes of paragraphs 177 and 178, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

TABLE 9: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT	
Statement	Paragraph
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: <ul style="list-style-type: none"> a) 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 biodiversity¹⁷; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation¹⁸; and b) 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. 	179
When determining planning applications, local planning authorities should apply the following principles: <ul style="list-style-type: none"> a) 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; b) 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; c) 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 reasons⁶³ and a suitable compensation strategy exists; and d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate. 	180
The following should be given the same protection as habitats sites: <ul style="list-style-type: none"> a) potential Special Protection Areas and possible Special Areas of Conservation; b) listed or proposed Ramsar sites¹⁹; and c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites. 	181
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.	182

Section 40 of the Natural Environment and Rural Communities Act 2006, places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

Planning Practice Guidance²⁰ states:

¹⁷ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

¹⁸ Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

¹⁹ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

²⁰ Planning Practice Guidance: Natural Environment (www.planningguidance.communities.gov) Updated July 2019 2021

- Planning authorities need to consider the potential impacts of development on protected and priority species, and the scope to avoid or mitigate any impacts when considering site allocations or planning applications. (para. 016)
- Information on biodiversity and geodiversity impacts and opportunities needs to inform all stages of development (including site selection and design, pre-application consultation and the application itself). An ecological survey will be necessary in advance of a planning application if the type and location of development could have a significant impact on biodiversity and existing information is lacking or inadequate. (para. 018)
- Even where an Environmental Impact Assessment is not needed, it might still be appropriate to undertake an ecological survey, for example, where protected species may be present or where biodiverse habitats may be lost. (para. 018)
- As with other supporting information, local planning authorities should require ecological surveys only where clearly justified. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity. (para. 018)
- The National Planning Policy Framework encourages net gains for biodiversity to be sought through planning policies and decisions. Biodiversity net gain delivers measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-site, off-site or through a combination of on-site and off-site measures. (para. 022)

RELEVANT LEGISLATION

Within England all bat species are specially protected under the Conservation of Habitats and Species Regulations 2017 (as amended).

As a result there is a requirement to consult with Natural England before undertaking any works that may disturb bats or their roost, and under the Conservation of Habitats and Species Regulations it is illegal to.

- Deliberately kill, injure or capture bats.
- Deliberately obstruct access to a bat roost.
- Damage or destroy a bat roost.
- Deliberately disturb bats; in particular any disturbance which is likely to impair their ability:
 - (i) to survive, to breed or reproduce, or to rear or nurture their young; or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - (iii) to affect significantly the local distribution or abundance of the species to which they belong.

Under the Wildlife and Countryside Act (1981) the above offence of disturbing bats includes low level disturbance and as such under this act it is also an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a roost.
- Intentionally or recklessly obstruct access to a roost.

Under the above legal protection, only the offences under the Conservation of Habitats and Species Regulations 2017 (as amended) are strict liability offences; the remaining offences, under the Wildlife and Countryside Act (1981), are offences only where they are carried out "intentionally or recklessly".

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the Wildlife and Countryside Act 1981 of disturbing bats is extended to cover reckless damage or disturbance.

The Hedgerow Regulations 1997 provide for the conservation of important hedgerows and their constituent trees. The presence of a protected species such as bats is a relevant consideration when assessing whether a hedgerow is important and may influence a local planning authority's decision on whether to approve removal of such hedges.

PRIORITY SPECIES

Although not afforded any legal protection, national priority species (species of principal importance, as listed in Section 41 of the NERC Act (2006)), and local and regional priority species, as detailed within the relevant biodiversity action plans, are material considerations in the planning process and as such have been assessed accordingly within this report.

The following bat species are listed as national priority species: Barbastelle bat, Bechstein's bat, noctule, soprano pipistrelle, brown long-eared bat, greater horseshoe bat and lesser horseshoe bat. 'Bats' as a species group is also listed on the relevant local biodiversity action plan for this site.