

Preliminary Ecological Appraisal

BE-584.1

Knabbs Hall Farm



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Executive Summary

Bagshaw Ecology Ltd have been requested by Paul Matthews Architectural to undertake a Preliminary Ecological Appraisal of the building at Knabbs Hall Farm, Silkstone Common S75 4RD, in relation to an application for planning. The development proposals are to convert three existing buildings into residential dwellings and construct a new residential dwelling on the site, with a new road to provide access.

The survey found the habitats on the site to be of low ecological value, consisting of hard standing surfaces, improved grassland, scattered trees, ephemeral and tall ruderal vegetation.

An inspection of the site found five buildings. Buildings 1 and 2 were both barns with features suitable for cavity roosting bats, including cracks in the interior and exterior walls, and holes in the roof enabling access into the building. No evidence of roosting bats was observed in either building. The output from the Bat Roost Trigger Index indicated that both buildings had low potential for roosting bats.

Buildings 3, 4 and 5 were considered to have negligible potential for roosting bat, therefore no further surveys are recommended for these buildings.

An inspection of a pond 60m from the site found it to provide average potential habitat for great crested newts *Triturus cristatus*. Due to the distance of the pond from the site and the size of the development, it is anticipated that if great crested newts are present in the pond, the chances of an offence being committed due to the development are likely. It is recommended that further surveys are carried out between March and June 2018 to establish the presence or likely absence of great crested newts.

The trees on site provide suitable habitat for nesting birds and evidence of swallows *Hirundo rustica* previously nesting in building 1 was observed. It is recommended that no works are carried out to the trees or building 1 within bird nesting season (1st March – 31st August), unless a further survey can confirm that the nests are no longer occupied.

1. Introduction

1.1. Background

1.1.1. Bagshaw Ecology Ltd have been requested by Paul Matthews Architectural to undertake a Preliminary Ecological Appraisal of the building at Knabbs Hall Farm, Silkstone Common S75 4RD, hereafter referred to as 'the site'.

1.1.2. The purpose of the report is to identify the habitat types on the site, along with the presence or absence of any protected or notable species. The ecological impact of any proposed development is assessed, and mitigation, management and aftercare proposals are suggested when appropriate.

1.2. Site Details

1.2.1. The site is located at grid reference SE 28802 03817, and is accessed via a private farm track off the west of Knabbs Lane in Silkstone Common.

1.2.2. The site comprises a two barns and a derelict farm house along with several outbuildings.



Figure 1. Aerial imagery of site and surrounding area (Google Earth Pro, 2017)

1.3. Development Proposals

1.3.1. The development proposals are to convert three of the buildings into residential buildings and to construct a new residential dwelling on the site, with a new road to provide access.

2. Legislative Context

2.1. Legislation

- 2.1.1. The Wildlife and Countryside Act 1981 (as amended), makes it an offence to:
- 2.1.2. Deliberately or recklessly injure, kill or capture any animal species protected under Schedule 5 of the act.
- 2.1.3. Deliberately or recklessly kill, injure or take any wild bird; to take, damage or destroy the nest of any wild bird while occupied or being built, or to take or destroy the egg of a wild bird. Additional protection is afforded to bird species listed under Schedule 1 of the Act.
- 2.1.4. Intentionally pick, uproot or destroy any wild plant included in Schedule 8 of the act.
- 2.1.5. The Conservation of Habitats and Species Regulations 2010 makes it an offence to deliberately capture, kill or disturb any animal protected under Schedule 2 of the regulations. It is also an offence to damage or destroy a breeding site or resting place of an animal, even if the animal is not present at the time.

2.2. Policy

- 2.2.1. The UK Biodiversity Action Plan (UKBAP) includes a list of 943 national priority species and 56 habitats of principal importance, with all species and habitats having specific action plans defining the measures required to ensure their conservation. Although the UKBAP has since been superseded by County Biodiversity Plans, it remains a useful point of reference.
- 2.2.2. Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006 requires that any public bodies take into consideration any species and habitats listed in the UKBAP when implementing their duty and exercising any normal functions.
- 2.2.3. The National Planning Policy Framework (NPPF) states that planning decisions should aim to protect or enhance biodiversity and conservation interests, and where possible any development should aim to increase net gains in biodiversity.

3. Methods

3.1. Ecological Data Search

- 3.1.1. The local biological record centre, Sheffield Biological Records Centre (SBRC), was consulted as to any protected/notable species within 1km of the site.
- 3.1.2. The Department for Environment, Food and Rural Affairs' (DEFRA) Magic Maps website was consulted as to any land based designations within 1km of the site.
- 3.1.3. Aerial imagery was assessed to give an appraisal of the surrounding land use.

3.2. Phase 1 Habitat Survey

- 3.2.1. The habitat survey and mapping exercise was carried out on 10th October 2017.
- 3.2.2. The survey was undertaken by Amy Reddick BSc (Hons) a graduate ecologist and licenced bat surveyor (Class Licence 2017-32206-CLS-CLS) with experience carrying out habitat surveys.
- 3.2.3. The study area was surveyed in accordance with JNCC (2010) guidelines. Habitat types were assigned an alphanumeric code, and target notes were made identifying important species, along with the presence of potential habitats for any protected or notable species.
- 3.2.4. Habitats and species present on or adjacent to the site were assessed using CIEEM's (2016) guidelines. Ecological features were classed as being of either international, national, regional, district, local, low or of negligible importance (see table 3.1).

Table 3.1 Importance of Ecological Features

Value of feature	Key examples
International	Internationally designated sites (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site, Biogenetic Reserve, or an area which meets designation for such sites. Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive. Any regularly occurring, globally threatened species. A regularly occurring population of an internationally important species, which is threatened or rare in the UK.
National	A nationally designated site (SSSI, NNR), or an area which has met the published selection criteria. A regularly occurring significant number/population of a nationally important species (e.g. listed on the Wildlife and Countryside Act 1981 (as amended)). A feature identified as being of critical importance in the UK BAP.
Regional/County	Viable areas of key habitat identified in the regional or county BAP. A regularly occurring significant population/number of any important species important at regional/county level. Sites of conservation importance which exceed the district selection criteria but which fall short of SSSI selection guidelines.

Value of feature	Key examples
District	Areas of habitat identified in District/City/Borough BAP. Sites that the designating authority has determined meet the published ecological selection criteria for designation. Sites/features which are scarce within the District/City/Borough. A regularly occurring significant population/number of any important species important at District/City/Borough level.
Local	Areas identified in a Local BAP. Sites/features which are scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context (e.g. species-rich hedgerows). Local Nature Reserves. Any populations, species or habitats of local importance.
Low/Site	Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.
Negligible	Habitats of no ecological value, the removal of which requires no mitigation.

3.3. Bat Scoping Survey

- 3.3.1. The bat scoping survey of the buildings on the site was based upon methodologies prescribed by Collins (2016), Mitchell-Jones (2004) and Mitchell-Jones and McLeish (2004). This involved an inspection of the exterior and interior of the building. Any structural features with potential for use by roosting bats were recorded and any suitable access points were identified. Any direct evidence of bats, such as scratch marks, oil stains, droppings and feeding remains were also identified.
- 3.3.2. Taking account of the structural features of the buildings, and the surrounding habitat, the buildings were assigned a level of roost suitability based upon professional judgement (see table 3.2) and evaluation using the Bat Roost Trigger Index (TI) (Underhill-Day, 2017).
- 3.3.3. The Bat Roost Trigger Index (TI) is a tool that assesses the features known to influence roost selection to assign a roost suitability class to a building or structure. The list includes 28 features that reflect A) the location and environment around the building, B) the exterior features such as roof materials, and C) the interior features particularly those within the roof void. By summarising the condition of each feature and assigning it a numerical score between a maximum of 1 and a minimum of 0.2, a geometric mean TI score between 0 and 1 is generated automatically. This score corresponds to one of the four bat roost suitability classes given in the Bat Conservation Trust guidelines (see table 3.2).

Table 3.2 Bat roost suitability classes, the corresponding TI scores and the percentage of structures found to have evidence of bats during the testing phase.

Bat Roost Suitability Class	Description	Corresponding TI score	Percentage of structures found to contain evidence of bats
High	Buildings that have many areas suitable for roosting with a large number of potential access points.	>0.7	98%

Bat Roost Suitability Class	Description	Corresponding TI score	Percentage of structures found to contain evidence of bats
Medium	Buildings with a smaller number of areas suitable for roosting, but still supporting features that could be attractive to bats and potentially support maternity roosts.	0.6 – 0.7	56%
Low	Buildings with limited roosting opportunities but which could be used on a sporadic or occasional basis which are unsuitable for maternity roosts.	0.5 – 0.6	31%
Negligible	Buildings which appear unsuitable for roosting bats due to a clear lack of roosting spaces such as voids etc. and/or absence of suitable access points.	<0.5	3%

3.4. Great Crested Newts

3.4.1. Ponds were assessed for great crested newt potential using the great crested newt Habitat Suitability Index (HSI) (Oldham *et al*, 2000). The HSI scores the suitability of ponds for great crested newts on ten indices, scored 0.1-1. These are multiplied together, and the tenth root is taken, giving a score of between 0.1 and 1. This figure then gives an indication of pond suitability, with higher scores indicating increased likelihood of great crested newt presence.

Table 3.3 Great crested newt HSI Categorisation

HSI score	Pond suitability	Predicted presence*
<0.5	Poor	0.3%
0.5-0.59	Below average	2%
0.6-0.69	Average	55%
0.7-0.79	Good	79%
>0.8	Excellent	93%
*Based on surveys of 248 pods in southeast England (Oldham, <i>et al</i> , 2000)		

4. Results

4.1. Constraints

4.1.1. The site survey was conducted inside the optimum period for Phase 1 Habitat surveys. Some species are only visible at certain times of the year, and may not have been present during the survey.

4.2. Designated Sites

4.2.1. A search on Magic Maps (DEFRA, 2017) found several designated and notable habitats within 1km of the site, including:

- Twenty-three Deciduous Woodland Priority Habitats, the closest of which is approximately 20m north of the site.
- Five Ancient Woodland Priority Habitats, Calfhall Wood, Coates Great Wood, Hall Royd Wood, Icicle Wood and Stubbin Wood which was the closest to the site at 321m southwest.

4.2.2. SBRC hold no records of designated sites within the survey area, but do hold records of one designated site adjacent to the site, Royd, Vicar, Lindley and Coates Great Woods, a Local Wildlife Site (LWS) consisting of a number of interconnected ancient woodlands.

4.3. Habitats

4.3.1. The land use in the nearby surrounding area is a mixture of agricultural and woodland, with intermediate levels of tree cover, and good terrestrial connectivity to and from the site.

4.3.2. The site consists of hard standing areas, ephemeral vegetation, tall ruderal vegetation and improved grassland. A line of trees is located towards the west of the site along with several other trees scattered throughout the site. The habitats on the site are of low importance. Table 4.1, below, summarises the habitat types found on the site. A map of the habitats can be viewed in the appendices.

Table 4.1 Habitats as defined by JNCC (2010) on the site

JNCC Habitat Type	Description	Ecological Value
A3 Scattered trees	A line of trees located along the western border of the site. Species include sessile oak <i>Quercus petraea</i> , ash <i>Fraxinus excelsior</i> , wild cherry, bramble <i>Rubus fruticosus</i> , common nettle <i>Urtica dioica</i> , sheep's sorrel <i>Rumex acetosella</i> , milk thistle <i>Silybum marianum</i> and hedge bind weed <i>Calystegia sepium</i> . A stand of sycamore <i>Acer pseudoplatanus</i> is located towards the northwest of the site and several young eared willow <i>Salix aurita</i> , ash, sycamore and butterfly bush <i>Buddleia davidii</i> . are located adjacent to building 3.	Low

JNCC Habitat Type	Description	Ecological Value
B4 Improved grassland	Several areas of improved grassland are located northwest and southwest of the site. Dominant grass species are cock's foot <i>Dactylis glomerata</i> , perennial ryegrass <i>Lolium perenne</i> , common bent <i>Agrostis capillaris</i> and false oat-grass <i>Arrhenatherum elatius</i> . Other species include red clover <i>Trifolium pratense</i> , common dandelion <i>Taraxacum officinale</i> , star thistle <i>Centaurea solstitialis</i> , ragwort <i>Jacobaea vulgaris</i> , lesser trefoil <i>Trifolium dubium</i> and creeping buttercup <i>Ranunculus repens</i> . An overgrown farm track runs parallel to building 1 before curving towards the east.	Low
C3.1 Tall ruderal	Towards the southwest of the site is an area of tall vegetation consisting of common nettle and rosebay willowherb <i>Chamerion angustifolium</i> .	Low
J1.3 Ephemeral vegetation	Located in the centre of buildings 1, 2 and 3 adjacent to hardstanding. Species include yarrow <i>Achillea millefolium</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle and tall melilot <i>Melilotus latissimus</i> .	Low
J4 Bare ground	Areas of hard standing located adjacent to the buildings and within a fenced area west of the stable block.	Negligible

4.4. Bats

4.4.1. DEFRA (2017) holds no records of granted European Protected Species Licences for bats within 1km of the site.

4.4.2. SBRC hold records of bat species within the site or within 1km of the site, including:

- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *Pipistrellus pygmaeus*
- Brown long eared bat *Plecotus auritus*
- Noctule *Nyctalus noctula*
- Natter's bat *Myotis nattereri*

4.4.3. The scoping survey found five buildings on site with the potential to be affected by the development. Table 4.2, below, shows a summary of the building descriptions and their potential for roosting bats.

Table 4.2 Summary of building descriptions and potential for roosting bats

Building number	Description	Bat roost trigger index score
Building 1	A large single-storey barn located in the centre of the site. The barn was of stone construction and was divided into two sections with the south section being in worse condition. The main section of the barn had a pitched English slate tile roof, several lifted tiles and gaps under the ridge tiles were observed. The south section had a pitched corrugated metal roof. The exterior stonework had numerous cracks and gaps particularly on the south section. There were numerous ventilation slits in the north and south gables. A lean-to with a corrugated roof was adjoined to the east aspect of the south section. This had open sides and no features suitable for roosting bats. The interior of the barn open to the roof. The interior of the building was also divided into two sections. The south section roof was supported by large purlins. Numerous cracks were observed and the ventilation slits on the south gable and two doors on the east and west aspects provided access into the building. It was divided from the main section of the barn by plastic sheeting. The main barn interior had a queen strut roof construction and the roof was unlined. Several gaps under lifted tiles were observed. A swallow nest <i>Hirundo rustica</i> with a large aggregate of old droppings was observed in the south section of the barn.	0.60 (low)
Building 2	A two-storey barn located towards the north of the site. It was of stone construction with a pitched English slate tile roof. There was a large hole at the top of the roof. The stonework was on good condition however some cracks were observed on the west gable along with a large pigeon hole into the second storey. There was a large wooden lintel above the door on the south aspect which also contained numerous cracks. The interior of the building was plastered and no gaps or cracks were observed in the walls. There were numerous holes in the wooden floor of the second-storey. There was no roof void and the roof was unlined. The upper floor gables contained numerous gaps and cracks. No signs of bats were observed within the building.	0.60 (low)
Building 3	A small stone building with a pitched English slate tile roof located towards the northeast of the site. The building was a ruin with a collapsed roof which had suffered from fire damage. The exterior stonework of the building was in good condition. The interior of the building was exposed due to the collapsed roof and thick brambles were found within. No features suitable for roosting bats were observed.	0.49 (negligible)
Building 4	A disused corrugated metal shelter was located at the south of the site. This showed evidence of being previously used a kennel. The building was open sided with no roof void and no features suitable for roosting bats.	0.45 (negligible)
Building 5	A stable block towards the east of the site which was divided into three stables. It had a pitched felt roof and a wooden exterior. The interior of the building had no separate roof void and no features suitable for roosting bats.	0.48 (negligible)

4.4.4. There were no trees on site with potential for roosting bats.

4.5. Other Mammals

4.5.1. SBRC hold records of brown hare *Lepus europaeus*, European badger *Meles meles*, stoat *Mustela erminea* and field vole within *Microtus agrestis* within 1km of the site.

4.5.2. No signs or habitats suitable for any protected or notable mammal species were observed on the site.

4.6. Reptiles and Amphibians

4.6.1. DEFRA (2017) holds no records of granted European Protected Species Licences for great crested newts within 1km of the site.

4.6.2. SBRC hold records of common frog *Rana temporaria* within 1km of the site.

4.6.3. The site provides areas of suitable habitat for reptiles and amphibians including areas of grassland and tall ruderal vegetation.

4.6.4. A search on aerial imagery (Google Earth Pro, 2017) revealed one pond within 100m of the site, located 60m southeast of the site. An assessment using the HSI found the pond to provide average habitat for great crested newts, indicating a 55% chance of great crested newts being present.

Table 4.3 HSI Calculation for pond 60m east of the site

HSI Indices	
Sl ₁ Location	Optimal (1)
Sl ₂ Pond area	425m ² (1)
Sl ₃ Pond drying	Sometimes dries (0.5)
Sl ₄ Water quality	Poor (0.33)
Sl ₅ Shade	65% (0.8)
Sl ₆ Fowl	Minor (0.67)
Sl ₇ Fish	Possible (0.67)
Sl ₈ Pond count	1.9/km ² (0.67)
Sl ₉ Terrestrial habitat	Moderate (0.67)
Sl ₁₀ Macrophytes	85% (0.9)
HSI Score	0.69 (Average)

4.6.5. The proposed development has a footprint of approximately 600m² (rounded to 0.06ha), which is within the footprint of the existing buildings. A new access road will be constructed over an existing farm track to provide access to the new dwellings. 450m² of the farm track is within an area of improved grassland which is suitable habitat for great crested newts. An assessment using the Natural England Rapid Risk Assessment Calculator (Natural England, 2013), found that if newts were present in the pond 60m from the site, then the risk of an offence resulting from the proposed development is likely.

Table 4.4 Natural England rapid risk assessment for the pond (Natural England, 2013)

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.3
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
Maximum:		0.3
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

4.7. Bird Species

4.7.1. SBRC hold records of brambling *Fringilla montifringilla* within 1km of the site.

4.7.2. The trees on site provide suitable habitat for nesting birds. Evidence of nesting swallows *Hirundo rustica* was observed within building 1.

4.8. Invertebrates

4.8.1. The site provides suitable habitat for invertebrates consisting of areas of improved grassland and ephemeral vegetation.

Assessment

- 5.1.1. The habitats on the site are considered to be of low ecological importance, and their removal will result in minimal ecological impact. Although the habitats on site provide suitable pollination opportunities for invertebrates they are only suitable for generalist species for which there is an abundance of suitable habitat in the surrounding landscape.
- 5.1.2. Building 1 and Building 2 both had low potential for roosting bats, indicating a 31% chance of a roost being present.
- 5.1.3. Buildings 3, 4 and 5 had no features suitable for roosting bats and are therefore considered to have negligible potential.
- 5.1.4. Due to the average potential habitat of the pond for great crested newts; the size of the development and its distance from the pond, it is anticipated that then the risk of an offence resulting from the proposed development is likely if they are present.
- 5.1.5. The trees on site provide suitable habitat for nesting birds and building 1 has previously been used by nesting swallows. All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended).

6. Conclusion and Recommendations

- 6.1.1. As buildings 1 and 2 are considered to have low potential for roosting bats, in accordance with Collins (2016) recommendations, one further survey will be required to determine presence or absence of bats. This should consist of a dusk emergence survey, carried out in suitable weather conditions, between May and August 2018.
- 6.1.2. If the further survey identifies bats to be roosting within either building, a Natural England European protected Species Licence (EPSL) will be required before works can commence. Further activity surveys may be necessary in order to inform the population status of the roost.
- 6.1.3. As buildings 3, 4 and 5 are considered to have negligible potential for roosting bats, there are no further considerations in regard to bats concerning these buildings.
- 6.1.4. To determine the presence or absence of great crested newts within the pond located 60m from the site it is recommended further surveys are undertaken. This should consist of a single Environmental DNA (eDNA) test between 15th April and 30th June, to establish presence or likely absence. Alternatively this may also be established by carrying out four surveys between mid-March and mid-June using three methods, preferably bottle-trapping, egg searching and torch surveying.
- 6.1.5. If great crested newts are found to be present, a Natural England EPSL (EPSL) will be required prior to the commencement of works. Further surveys may be required to inform the population assessment for the EPSL.
- 6.1.6. No tree removals or work on building 1 should be undertaken during bird nesting season (1st March – 31st August). If this is not possible, a nesting bird check should be carried out within 48 hours prior to removal, and works should only commence if it has been established that no nesting birds are present.
- 6.1.7. The site provides suitable opportunities for further mitigation and ecological enhancement. This should be informed by the recommended surveys.

7. References

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Wildlife and Countryside Act 1981 Ch. 69

Appendices

Appendix 1: Photographs



Plate 1: East aspect of building 1



Plate 2: East aspect of building 1



Plate 3: West aspect of building 1



Plate 4: West aspect of building 1



Plate 5: South gable of building 1 and improved grassland on site



Plate 6: East aspect of building 1 and adjacent hard standing and ephemeral vegetation



Plate 7: Interior of building 1



Plate 8: Interior of building 1



Plate 9: Aggregate of swallow droppings in building 1



Plate 10: Detail of interior roof of building 1



Plate 11: Interior of building 1



Plate 12: Interior of building 1



Plate 13: South aspect of building 2



Plate 14: Northwest aspect of building 2



Plate 15: West aspect of building 2



Plate 16: Interior of building 2



Plate 17: Detail of ceiling in building 2



Plate 18: South aspect of building 3



Plate 19: East aspect of building 3



Plate 20: North aspect of building 3



Plate 21: Interior of building 3



Plate 22: Building 4



Plate 23: Building 5



Plate 24: Detail of the roof of building 5



Plate 25: Improved grassland on north of the site



Plate 26: Line of trees to the west of the site



Plate 27: Grassland and tall ruderal vegetation



Plate 28: Pond adjacent to the site

Appendix 2: Bat Roost Trigger Index for buildings 1 and 2

TRIGGER INDICES	CATEGORY	TI VALUE
A) Location, habitat and environmental context of structure		
T1: General location	Rural	1
T2: Foraging opportunities within 250 m	Good	1
T3: Foraging opportunities within 5 km	Good	1
T4: Commuting opportunities	Good	1
T5: Cover in vicinity of structure	Moderate	0.67
T6: External lighting in vicinity of structure	Low level	0.67
T7: Number and character of nearby buildings	Good variety of old buildings	1
T8: Structure/building exposure	Low	1
B) Exterior features and characteristics of structure or building		
T9: Structure/building age	Old	1
T10: Size of Building	Intermediate size	0.67
T11: Main wall construction material	Old	1
T12: Condition of wall/roof pointing/render	Some gaps, cracks or crevices noted	0.67
T13: Condition of lintel/door frame features	Tightly sealed	0.33
T14: Condition of eaves/soffits/bargeboards	Tightly sealed	0.33
T15: Condition of weatherboarding/cladding	No boarding present	0.2
T16: Condition of lead flashing	No flashing	0.2
T17: Roofing material	Older style tiling	1
T18: Bat access potential	Several small gaps noted	0.67
C) Interior features and characteristics of structure or building		
T19: Character of roof void/roof space	No void or very limited roof space	0.2
T20: Character and condition of roof supports	Some gaps or cracks noted	0.67
T21: Presence and extent of cobwebbing	Some cobwebs	0.67
T22: Presence and condition of roof lining	Unlined or cavity filled with insulation	0.2
T23: Light levels in roof void/space	Intermediate	0.67
T24: Protection from weather/wind	Intermediate protection	0.67
T25: Temperature regime	Intermediate	0.67
T26: Level of (human, animal) disturbance	High	0.33
T27: Flight Space	Good	1
T28: Flying Access (Horseshoe bats)	Potential	0.67
TRIGGER INDEX SCORE =		0.60
BAT ROOST SUITABILITY =		LOW

Appendix 3: Bat Roost Trigger Index for building 3

TRIGGER INDICES	CATEGORY	TI VALUE
A) Location, habitat and environmental context of structure		
T1: General location	Rural	1
T2: Foraging opportunities within 250 m	Good	1
T3: Foraging opportunities within 5 km	Good	1
T4: Commuting opportunities	Good	1
T5: Cover in vicinity of structure	Moderate	0.67
T6: External lighting in vicinity of structure	Low level	0.67
T7: Number and character of nearby buildings	Good variety of old buildings	1
T8: Structure/building exposure	Low	1
B) Exterior features and characteristics of structure or building		
T9: Structure/building age	Old	1
T10: Size of Building	Small size	0.33
T11: Main wall construction material	Old	1
T12: Condition of wall/roof pointing/render	Tightly sealed	0.33
T13: Condition of lintel/door frame features	Tightly sealed	0.33
T14: Condition of eaves/soffits/bargeboards	Tightly sealed	0.33
T15: Condition of weatherboarding/cladding	No boarding present	0.2
T16: Condition of lead flashing	No flashing	0.2
T17: Roofing material	Older style tiling	1
T18: Bat access potential	Substantial holes or collapsed roof	0.2
C) Interior features and characteristics of structure or building		
T19: Character of roof void/roof space	No void or very limited roof space	0.2
T20: Character and condition of roof supports	No apparent supports or flat roof	0.2
T21: Presence and extent of cobwebbing	Some cobwebs	0.67
T22: Presence and condition of roof lining	Unlined or cavity filled with insulation	0.2
T23: Light levels in roof void/space	Light	0.33
T24: Protection from weather/wind	Draughty and exposed	0.33
T25: Temperature regime	Cold, north-facing or too hot	0.33
T26: Level of (human, animal) disturbance	High	0.33
T27: Flight Space	Good	1
T28: Flying Access (Horseshoe bats)	Good	1
TRIGGER INDEX SCORE =		0.49
BAT ROOST SUITABILITY =		NEGLIGIBLE

Appendix 4: Bat Roost Trigger Index for building 4

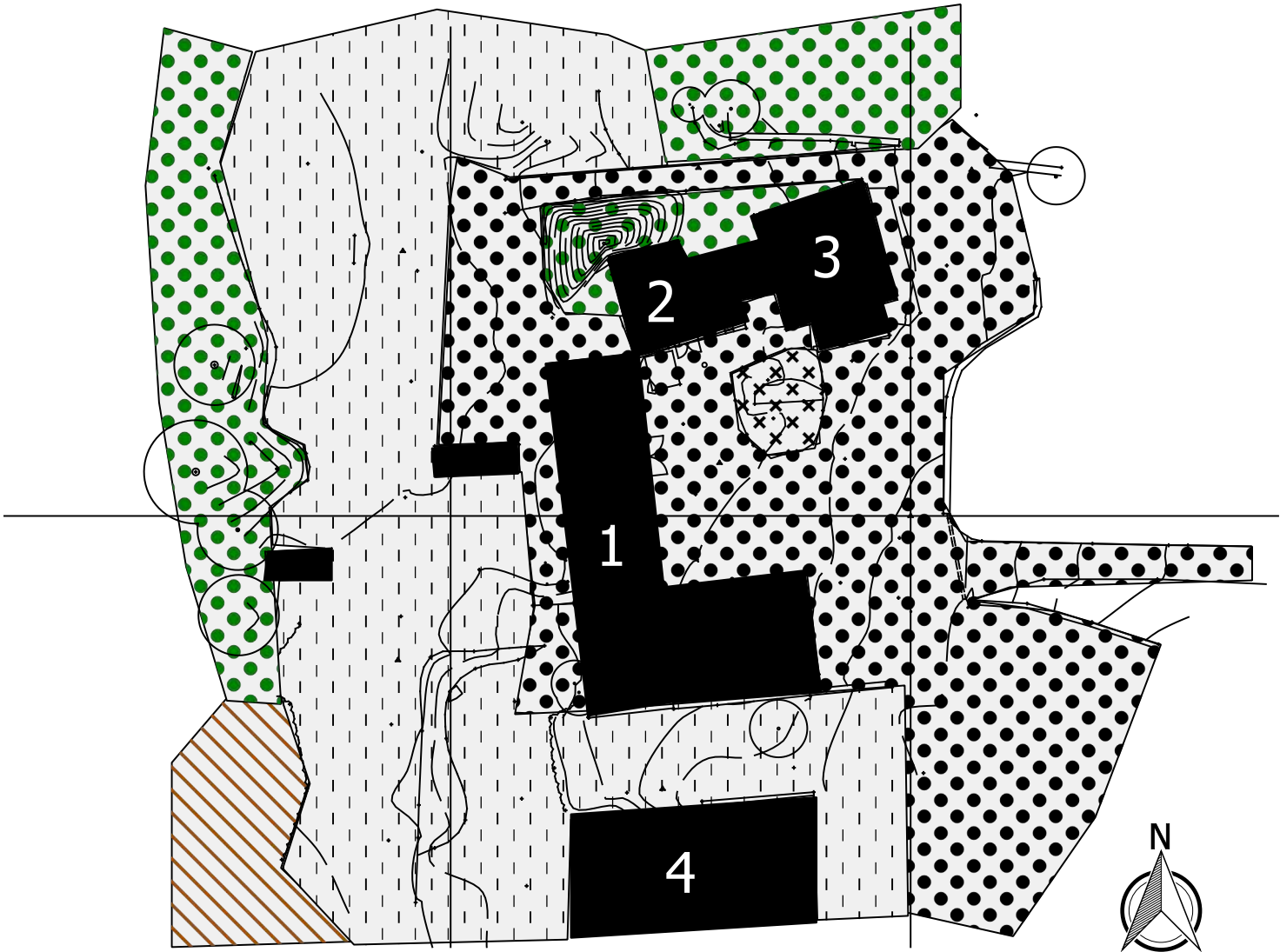
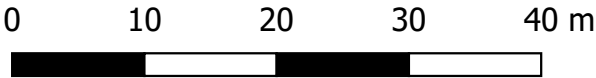
TRIGGER INDICES	CATEGORY	TI VALUE
A) Location, habitat and environmental context of structure		
T1: General location	Rural	1
T2: Foraging opportunities within 250 m	Good	1
T3: Foraging opportunities within 5 km	Good	1
T4: Commuting opportunities	Good	1
T5: Cover in vicinity of structure	Poor	0.33
T6: External lighting in vicinity of structure	Low level	0.67
T7: Number and character of nearby buildings	Good variety of old buildings	1
T8: Structure/building exposure	Low	1
B) Exterior features and characteristics of structure or building		
T9: Structure/building age	Less than 50 years	0.33
T10: Size of Building	Small size	0.33
T11: Main wall construction material	Modern	0.33
T12: Condition of wall/roof pointing/render	Tightly sealed	0.33
T13: Condition of lintel/door frame features	Tightly sealed	0.33
T14: Condition of eaves/soffits/bargeboards	Tightly sealed	0.33
T15: Condition of weatherboarding/cladding	No boarding present	0.2
T16: Condition of lead flashing	No flashing	0.2
T17: Roofing material	Corrugated metal/asbestos/similar	0.33
T18: Bat access potential	Numerous gaps or open-sided structure	1
C) Interior features and characteristics of structure or building		
T19: Character of roof void/roof space	No void or very limited roof space	0.2
T20: Character and condition of roof supports	No apparent supports or flat roof	0.2
T21: Presence and extent of cobwebbing	Some cobwebs	0.67
T22: Presence and condition of roof lining	Unlined or cavity filled with insulation	0.2
T23: Light levels in roof void/space	Light	0.33
T24: Protection from weather/wind	Draughty and exposed	0.33
T25: Temperature regime	Cold, north-facing or too hot	0.33
T26: Level of (human, animal) disturbance	Moderate	0.67
T27: Flight Space	Moderate	0.67
T28: Flying Access (Horseshoe bats)	Potential	0.67
TRIGGER INDEX SCORE =		0.45
BAT ROOST SUITABILITY =		NEGLIGIBLE

Appendix 5: Bat Roost Trigger Index for building 5

TRIGGER INDICES	CATEGORY	TI VALUE
A) Location, habitat and environmental context of structure		
T1: General location	Rural	1
T2: Foraging opportunities within 250 m	Good	1
T3: Foraging opportunities within 5 km	Good	1
T4: Commuting opportunities	Good	1
T5: Cover in vicinity of structure	Poor	0.33
T6: External lighting in vicinity of structure	Low level	0.67
T7: Number and character of nearby buildings	Good variety of old buildings	1
T8: Structure/building exposure	Low	1
B) Exterior features and characteristics of structure or building		
T9: Structure/building age	Less than 50 years	0.33
T10: Size of Building	Small size	0.33
T11: Main wall construction material	Mixture of materials	0.67
T12: Condition of wall/roof pointing/render	Tightly sealed	0.33
T13: Condition of lintel/door frame features	Tightly sealed	0.33
T14: Condition of eaves/soffits/bargeboards	Tightly sealed	0.33
T15: Condition of weatherboarding/cladding	Tightly sealed	0.33
T16: Condition of lead flashing	No flashing	0.2
T17: Roofing material	Modern tiling or mixture	0.67
T18: Bat access potential	Numerous gaps or open-sided structure	1
C) Interior features and characteristics of structure or building		
T19: Character of roof void/roof space	No void or very limited roof space	0.2
T20: Character and condition of roof supports	No apparent supports or flat roof	0.2
T21: Presence and extent of cobwebbing	Numerous cobwebs in roof space	0.33
T22: Presence and condition of roof lining	Unlined or cavity filled with insulation	0.2
T23: Light levels in roof void/space	Light	0.33
T24: Protection from weather/wind	Intermediate protection	0.67
T25: Temperature regime	Cold, north-facing or too hot	0.33
T26: Level of (human, animal) disturbance	Moderate	0.67
T27: Flight Space	Moderate	0.67
T28: Flying Access (Horseshoe bats)	Potential	0.67
TRIGGER INDEX SCORE =		0.48
BAT ROOST SUITABILITY =		NEGLIGIBLE

Appendix 4: Phase 1 Habitat Map

Site name:	Knabbs Hall Farm
Client:	Paul Matthews Architectural
Drawn by:	Amy Reddick
Date:	24th October 2017



Key

Phase 1 Habitats:

- A3.1 - Scattered trees
- B4 - Improved grassland
- C3.1 - Tall ruderal
- J1.3 - Ephemeral vegetation
- J3.6 - Buildings
- J4 - Bare ground