

LINDSAY CARRINGTON ECOLOGICAL SERVICES LTD

BARN OWL AND PHASE 1 & 2 BAT SURVEY
MOORGREEN FARM
BURNETTS LANE
SOUTHAMPTON
SO30 2HH

JUNE 2014

ON BEHALF OF BPS DESIGN CONSULTANTS LTD



LINDSAY CARRINGTON ECOLOGICAL SERVICES LIMITED

The Old Squash Court
Rempstone Hall
Rempstone
Corfe Castle
Wareham
Dorset
BH20 5JQ
www.ecological-services.co.uk

Tel: 01929 477115
Mobile: 07746221905
E-mail: richard@ecological-services.co.uk

Authorisation

	Name	Date	Signature
Report prepared by:	Richard Bates	23.06.14	
Report checked and authorised by:	Jenny Sutch	25.06.14	

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SUMMARY

1. Lindsay Carrington Ecological Services Ltd was commissioned by BPS Design Consultants Ltd to undertake a Phase 1 bat and barn owl survey of Moorgreen Farm, Burnetts Lane, Southampton, Hampshire. This survey was conducted to support a planning application to convert an existing barn and attached coach house into three residential properties.

2. An internal inspection of the barn and coach house was conducted on the 12th March 2014 and evidence of long-eared bats was recorded in the disused hay loft within the barn.

3. DNA analysis of the droppings found in the disused hay loft confirms that brown long-eared bats have been roosting within the building.

4. Phase 2 surveys were conducted during the peak survey season, with two of the required three surveys being conducted between mid-May and August.

5. The phase 2 surveys identified that the roof of the barn and coach house are used by common pipistrelle and soprano pipistrelle bats. One long-eared bat was also recorded emerging from the coach house.

6. As DNA analysis confirms the presence of brown long-eared bats within the disused hay loft. The low number of droppings recorded in this area indicates that the hay loft is used as a non-breeding summer roost by a small number of brown long-eared bats.

7. A mitigation strategy has been provided and will include temporary and permanent replacement bat roosts for common and soprano pipistrelle and brown long-eared bat species, a pre-works check and supervision of certain activities by a licensed bat worker.

8. A European Protected Species licence will be required to facilitate the works once full planning consent has been granted.

9. The buildings were surveyed for evidence of use by barn owls. No evidence of barn owl activity was recorded. Anecdotal evidence suggests that barn owls are present in the area but have not inhabited the barns for approximately 25 years. As barn owls are known to be in the area, it is recommended that a pre-works inspection of the barns and coach house is undertaken immediately prior to works commencing.

10. Two bird nests characteristic of swallows were recorded in the coach house. One bird nest was recorded in the barn and starlings were noted returning with nesting material to the coach house. It is likely that these starlings are roosting in a gap between the wall top and roof in the coach house gable end.

11. As nesting birds are present the proposed conversion of the barn and coach house should be undertaken outside of the bird nesting season, which is widely regarded as being March – September, where possible.

12. Should the proposed works coincide with the bird nesting season a pre-works inspection of the barn and coach house by a suitably qualified ecologist should be undertaken immediately prior to works commencing. Where nesting birds are encountered the proposed works must be postponed until the nestlings have fledged.
13. As the proposed works are adjacent to two Sites of Importance for Nature Conservation, the grassland north of the barn was assessed for reptile potential. The grassland consists of horse paddock with a very low sward height. It is considered unsuitable as foraging habitat for reptiles.
14. A large wood pile is present in the paddock. This wood pile provides a potential refuge location for reptiles, although it is isolated from any suitable foraging habitat. It is recommended that this wood pile is dismantled by hand under an ecological watching brief prior as a precautionary measure. This should be undertaken immediately prior to works commencing.
15. Recommendations for ecological enhancements within the design of the conversion and for the site in general have been made in Section 4.5.

1.0 INTRODUCTION

Lindsay Carrington Ecological Services Limited were commissioned by BPS Design Consultants Ltd to conduct a Phase 1 bat and barn owl survey of Moorgreen Farm, Burnetts Lane, Southampton (Grid reference: SU 478 157). This survey was conducted to support a planning application to convert an existing barn and attached coach house into three residential dwellings. A site plan has been provided as Appendix I and a site plan of the proposed works has been provided as Appendix II. As the site is adjacent to two Sites of Importance for Nature Conservation (SINC) with records of reptiles, an assessment of the habitats due to be affected by the proposals was also undertaken to determine their suitability to support reptiles.

2.0 METHODOLOGY

2.1 Policy

The following legislation may be of relevance to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DEFRA Circular 01/2005.

- **The Conservation of Habitats and Species Regulations 2010:** This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The Regulations provide protection for a number of species including:
    - All species of bat;
    - Dormouse;
    - Otter; and
    - Great crested newt.

  This legislation makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect: (i) the ability of any significant group of the species to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of the species[1];

  This legal protection means that where development has the potential to impact on bats, or other European protected species, the results of a protected species survey must be submitted with a planning application.[2]

- **The Wildlife and Countryside Act 1981 (and amendments):** Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species likely to be of relevance include:

[1] The Conservation of Habitats and Species Regulations 2010 consolidates the numerous amendments that were
[2] DEFRA Circular 01/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.

- All species of **bat**. It is an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost;
- **Barn Owls.** It is illegal to kill or injure the birds, take or destroy their eggs, damage or destroy their nests whilst in use and to disturb nesting birds or their young.
- All species of **British reptile** (in particular grass snake, common lizard, adder and slow-worm). It is illegal to kill or injure these species; and

This Act also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). In addition, it is an offence to disturb any nesting bird listed on Schedule 1 or their young.

The following policy is of relevance to the proposed works:

- **Biodiversity Action Plans (BAPs):** BAPs set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets was strengthened through the Countryside and Rights of Way Act 2000. Habitat and Species Action Plans that are likely to be of relevance include:

    - Brown long-eared bat (UK BAP).
    - Soprano pipistrelle (UK BAP).
    - Noctule (UK BAP).

Section 3 of the report provides an account of the survey results. Section 4 provides information on the relevance of the results to the proposed development and presents appropriate measures of best practice.

2.1 Desk study

The Multi-Agency Geographical Information for the Countryside (MAGIC) website and records collected from personal records made by staff of Lindsay Carrington Ecological Services (LCES) were used to provide information on protected species within 10 km and designated sites within 5 km of the proposed development.

2.2 Field study

Habitats and features were assessed for their potential to support protected species. In many cases determining the presence, distribution and population size of protected species will require additional, specialist surveys.

Bats

Bats roost in a wide variety of sites within buildings, with many species roosting in cracks and crevices, within rubble stone or cavity walls, under slates and within timber beam joints where they are difficult to see. Bats often access buildings at key areas such as the gable end, soffits, barge boards, ridge tiles, between double lintels or around window frames.

The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings or bat droppings and staining around potential entrance and exit points. The absence of these cannot, however, be treated as conclusive evidence that bats are not using the buildings. An assessment was therefore also made of the potential of the building to support bats based on the following scale:

Confirmed Roost	Evidence of bat occupation found
High Roosting Potential	With significant roosting potential, either because they contain a large number of suitable features or those features present appear optimal
Medium Roosting Potential	Features with moderate roosting potential, with roosting features appearing less suitable
Low or Negligible Roosting Potential	Buildings with few, if any, features suitable for roosting

A direct search for evidence of bats was therefore conducted on both internal and external features of the buildings. A ladder was used to access and inspect suitable roosting features within the building and where access by ladder was restricted due to height, close focusing binoculars were used.

Barn Owls

A direct search for evidence of barn owl (*Tyto alba*) was conducted. Signs may include droppings, pellets, feathers and suitable nest sites.

Droppings are most likely to be found under perch sites and appear as large white splashes on a hard surface or smaller white patches on old hay or straw.

Pellets are the regurgitated indigestible parts of the barn owl's prey. An accumulation of these can often be found around the preferred roosting sites of barn owls. Many birds produce these pellets, but the barn owls are particularly distinctive, being black and glossy when fresh, containing fur and small mammal bones and are often up to two inches long.

Barn owl feathers are variable but generally they are white grading to a pale, golden colour.

Reptiles

Reptiles are widespread in habitats that provide both cover, in the form of scrub or tall vegetation, and basking areas such as areas of hard standing or short grassland communities. Piles of debris or rubble also provide excellent cover and hibernation sites for reptiles. Habitats due to be affected by the proposed works were therefore assessed for their potential to support reptiles and recommendations for further action made where appropriate.

3.0 RESULTS

3.1 Desk study

Statutory and non-statutory sites

Table 1 below lists sites designated for nature conservation located within 5 km of the site.

Table 1: Statutory designated sites within a 5 km radius of Moorgreen Farm.

Site name	Conservation status	Distance from site	Size (Ha)	Habitat description
Solent & Southampton Water	RAMSAR[3], SPA[4]	4.1km W	5401.31	Solent and Southampton Water regularly supports 50000 + waterfowl.
River Itchen	SAC[5], SSSI[6]	1.6km NW	748.5	This site is notified for its classic chalk stream and river, fen meadow, flood pasture and swamp habitats, in-channel vegetation is dominated by water crowfoot (*Ranunculus spp*.), riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches associated with the main river and former water meadows. The site supports significant populations of the nationally-rare southern damselfly (*Coenagrion mercuriale*).
Solent Maritime	SAC	4.9km SE	11243.18	The Solent incorporates a major estuarine system on the south coast of England with four coastal plain estuaries and four bar-built estuaries.
Moorgreen Meadows	SSSI	890m S	14.32	Neutral meadows and alder (*Alnus sp*.) wood lie adjacent to a small tributary of the River Hamble. The sward comprises at least 17 codominant herbs and grasses and is of exceptional scientific importance for its populations of marsh orchids (*Dactylorhiza sp*.).

[3] RAMSAR: Wetland site designated under the Ramsar Convention
[4] SPA: Special Protection Area
[5] SAC: Special Area of Conservation
[6] SSSI: Site of Special Scientific Interest

Site name	Conservation status	Distance from site	Size (Ha)	Habitat description
Upper Hamble estuary and woods	SSSI	4.1km SE	150.97	Upper Hamble Estuary and Woods Site of Special Scientific Interest comprises the uppermost section of the estuary of the River Hamble and associated saltmarsh, reedswamp and ancient semi-natural woodland habitats.
Lee-on-the Solent to Itchen estuary	SSSI	4.9km SW	585.79	The Site of Special Scientific Interest extends along the eastern shore of Southampton Water from Lee-on-the-Solent to the mid-Itchen estuary and includes the lower estuary of the River Hamble. The site comprises extensive intertidal muds with a littoral fringe of vegetated shingle, saltmarsh, reedbed, marshy grasslands and deciduous woodland on alluvium, valley gravels (Hamble Common), and Bracklesham Beds (Hook Links).
Netley Common	LNR	3.9km S	12.75	It is the city's last remaining piece of open heathland including grassland with islands of scrub and gorse, surrounded by a mixed woodland fringe.
Manor Farm	LNR	4.1km SE	144.06	The site is located south of a stretch of the River Erewash and contains woodland and grassland habitats.
Chessel Bay	LNR[7]	4.6km SW	12.92	The Bay is the only remaining long stretch of undeveloped, natural shoreline in the lower Itchen river. Habitats present comprise a narrow strip of woodland, with oak, beech, brambles and hawthorn, runs along the edge of the reserve which is bounded by a railway line to the north east. A parallel strip of shingle and salt-marsh contain iris, sea club rush, reeds and sea asters. The site provided feeding grounds for wading birds and wildfowl.

[7] LNR: Local Nature Reserve

Due to the small scale development proposed on site, it is considered that there will be no impacts to the designated sites, and therefore no further action is required.

Protected species

Table 2 below provides protected species records within the 10 km grid square around the site.

Table 2: Bat species within a 10 km grid square of Moorgreen Farm, Southampton

Common Name	Scientific name	Status	Location
Myotis species	*Myotis sp.*	Schedule 2, Habs Regs[8], Schedule 5, WCA[9]	One record is located within 10 km of the site dated 2010.
Common pipistrelle	*Pipistrellus pipistrellus*	Schedule 2, Habs Regs, Schedule 5, WCA	One record is located within 10 km of the site dated 2010.
Soprano pipistrelle	*Pipistrellus pygmaeus*	Schedule 2, Habs Regs, Schedule 5, WCA, UK BAP[10]	One record is located within 10 km of the site dated 2010.
Long-eared bat	*Plecotus sp.*	Schedule 2, Habs Regs, Schedule 5, WCA, UK BAP	One record is located within 10 km of the site dated 2010.

These records of bat species in the vicinity of the site increase the likelihood of them being present within Moorgreen Farm.

[8] Habs Regs: The Conservation of Habitats and Species Regulations 2010
[9] WCA: The Wildlife and Countryside Act 1981 (as amended)
[10] UK BAP: UK Biodiversity Action Plan

3.2 Field study

The field survey was conducted by Richard Bates on 12th March 2014.

3.2.1 Phase 1 bat survey

Descriptions of buildings

A description of the barn and attached coach house affected by the proposed works is provided below whilst a series of photographs have been provided as Appendix III to this report.

Barn

- The barn is two storey and of brick construction with a pitched roof.
- The barn has a vaulted interior with a small, wooden walled disused hay loft at the eastern end.
- The barn has slate roof tiles, many of which have slipped or are missing. These provide multiple access points to the barn interior.
- There is a small overhanging roof extension on the southern aspect of the barn.
- There are multiple gaps beneath the tiles and ridge tiles on the barn.
- A wooden soffit is present on all sides of the barn. There are large gaps on the northern and southern sides where parts of the soffits are missing.
- There are two wooden doorways in the northern aspect of the barn. Bat access into the barn is possible around one of these doorways as the door is ill-fitting, with gaps between the door and frame.
- There are multiple ventilation bricks on all aspects of the building.
- The roof is supported by nine trusses with queen beam supports and a ridge beam.
- There is no bituminous felt present in the barn.
- The tiles are supported with batons.
- The barn measures approximately 45 metres by 8 metres.
- The disused hay loft measures approximately 8 metres by 8 metres.
- There are two wooden windows and window frames on the ground floor of the eastern gable end.
- There is a second storey hay loft door in the eastern gable end.
- There is a wooden winch post above the hay loft door.
- The western gable end has a wooden lean-to stable attached to it.

Coach house

- The coach house is a two storey brick construction attached to the western end of the barn. It has a pitched roof.
- The coach house measures approximately 9 metres by 5 metres.
- The coach house is roofed with clay tiles, a few of which have slipped or are missing.
- There are multiple gaps beneath the tiles.
- There is wooden soffit on the coach house.

- Access for bats to the upper storey of the coach house is possible through a low wall joining the coach house to the barn and through gaps around an ill-fitting hay loft door on the southern end.
- There is no bituminous felt present and the tiles are supported by batons.
- A ridge beam is present.
- There are several large gaps between the wall top and roof on the southern end.
- There are several ventilation bricks in the gable end of the coach house

Immediate surroundings

The barn and coach house are situated in a rural location north of the village of Moorgreen. The site is close to small areas of woodland and surrounded by arable and pasture grassland. Hedgerows are present around the site and provide good connectivity to the wider area, including to nearby water-bodies and additional woodland. The M27 motorway runs northwest-southeast approximately 750 metres southwest of the site.

Bat survey results

Internal survey: evidence of bats

Evidence of long-eared bats (*Plecotus* sp.) was recorded in the form of droppings and discarded feeding remains as illustrated in Appendix IV. A summary is provided below:

Barn

- A scattered pile of approximately 25 droppings of varying ages were recorded beneath the ridge beam in the disused hay loft, close to the eastern gable end. These droppings are characteristic of long-eared bats.
- Four discarded peacock butterfly wings were recorded on the floor beneath the ridge beam in the disused hay loft. The grouped nature of the wings and their location on the floor suggest that these are discarded feeding remains from bat activity rather than feeding remains from other creatures, such as spiders.

External survey: evidence of bats

Despite a thorough and detailed external survey of the property, no evidence of bats was encountered.

Potential for bats

Multiple roosting opportunities and access points were available for bats within the buildings and these are described in Table 3 below. The barn is confirmed as supporting long-eared bat roosts, most likely for a small numbers of bats.

Table 3: Potential for bats within the buildings on site

Location	Potential access points for bats	Potential roosting opportunities for bats	Overall suitability
Barn	• Large gaps in the soffit box on the northern and southern aspect of the barn. • Through a large gap between the top of the stable door and the roof. • Through a gap in the wooden door on the northern aspect of the barn. • Through a hole in the hay loft door. • Several large gaps from missing/slipped tiles. • Through ventilation bricks.	• Beneath loose tiles. • On wall top of brickwork at gable end of disused hay loft. • Hanging from rafters/ridge beam in disused hay loft. • Within missing, broken and loose brickwork of barn, particularly at eastern end.	Due to the presence of droppings and feeding remains, it is possible to **confirm** the presence of bats (long-eared) using the site.
Coach House	• Through gaps between roof and wall top at gable end. • Through ventilation bricks. • Beneath loose tiles on roof.	• Beneath loose tiles. • On top of brickwork at gable end. • Hanging from rafters/beam in upper storey. • Within loose brickwork at gable end, particularly around the hay loft doorframe.	**High** potential.

3.2.2 Phase 2 bat surveys

The full results of the evening emergence and dawn re-entry surveys are provided as Appendix VII whilst a summary has been provided below.

Dusk survey – 6th May 2014

Barn & Coach House

- A total of seven bats were recorded emerging from the various points on the barn. The bats comprised of four common pipistrelles and three soprano pipistrelles.

General Activity

- Common and soprano pipistrelles were recorded regularly throughout the survey period foraging and commuting around the barn and coach house.
- One noctule bat was recorded commuting south to north over the building at 21:04
- A serotine bat was recorded foraging east of the barn at 21:06
- A Brandt's bat was recorded commuting west to east past the barn at 21:12

Dusk survey – 3rd June 2014

Barn and Coach House

- One brown long-eared bat was observed emerging from the eastern pitch of the coach house roof at 21:37.
- One common pipistrelle was recorded emerging from the eaves on the northern aspect of the barn at 21:37.

General Activity

- Common and soprano pipistrelles were recorded regularly throughout the survey foraging and commuting around the barn and coach house, particularly in the paddock and grassland north and east of the barn.
- Common and soprano pipistrelles were recorded entering the barn on several occasions through the eastern gable end and large doorways on the southern aspect.
- Brown long-eared bats were recorded on two occasions commuting across the site at 22:04 and 22:15.
- A *Nyctalus sp*. bat was recorded briefly at 21:30 and 22:07.
- A serotine bat was recorded briefly at 22:29

Dawn survey – 5th June 2014

Barn and Coach House

- No bats were recorded re-entering the barn or coach house during this survey.

General Activity

- Soprano pipistrelle bats were recorded foraging around the western end of the barn at 03:37 and 03:41.
- Common pipistrelle bats were recorded foraging close to the apex of the eastern gable end at 03:56.
- A pipistrelle sp. bat was recorded commuting past the barn at 04:10.

3.2.3 Barn owls and nesting birds

Barn Owls

Despite a thorough and detailed internal and external search, no evidence of barn owls was recorded. Anecdotal evidence from the current owner (Mrs. Brown *pers.comm.*) suggests that barn owls are present in the area but have not been seen at the barn for over 25 years.

As barn owls are known to be present in the area, recommendations have been made in Section 4.2 to prevent disturbance to this species.

Nesting birds

During the survey starlings (*Sturnus vulgaris*) were noted returning with nest building material and entering the coach house via the gaps between the wall top and roof. No nests were recorded within the upper storey, suggesting that these birds are nesting on the wall tops.

Two bird nests were recorded on the ground floor of the coach house, located in the gap between the wall top and ceiling on the northern wall. These nests are characteristic of swallows (*Hirundo rustica*). In addition, one nest was recorded on a truss in the barn between the two stable doors. The species of bird using this particular nest could not be identified from the nest characteristics.

Recommendations for a mitigation strategy have been made in Section 4.2.

3.2.4 Reptiles

The current proposals include converting the area of grassland north of the barn into amenity grassland (i.e. gardens). These gardens will extend to approximately 2 metres from the site boundary, allowing any boundary margins to be unaffected by the development. The rest of the northern area was assessed for its potential to support reptiles. The area is currently used as horse paddock and has a very low sward height due to frequent grazing. This area is therefore unsuitable for reptile foraging, although it may have limited use for basking along the northern field margin. The area also contains a large wood pile that presents potential refuge and hibernation opportunities for reptiles.

Recommendations have been made for reptiles in Section 4.4.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Bats

4.1.1 Summary of bat survey findings

Evidence to confirm that the barn supports a brown long-eared bat roost was recorded during the initial survey with evidence of droppings and the emergence of one brown long-eared bat. The barn can therefore be confirmed as supporting a non-breeding summer roost by small numbers of brown long-eared bats. In addition a peak count of four common pipistrelle bats and three soprano pipistrelle bats were recorded emerging from various locations on the barn. The level of evidence confirms that the barn is used by a small number of common pipistrelle and soprano pipistrelle bats as a non-breeding summer roost.

Although no evidence of bats was recorded within the coach house, a single brown long-eared bats was recorded emerging, indicating that this building supports a non-breeding summer roost used by low number of males or non-breeding female brown long-eared bats.

4.1.2 Implications of survey results and recommendations for further action

Due to the presence of a non-breeding summer roost for common and soprano pipistrelles and brown long-eared bats, a mitigation strategy has been devised and is provided below:

Permanent roost

- As the proposed development will result in the loss of the two brown long-eared bat roost and the pipistrelle sp. roosts, permanent alternative roosts will need to be provided.
- Suitable roosting provision for brown long-eared bats will be provided within the roof void of the proposed new garage (highlighted in Appendix II). This will be at least 4 by 5 metres in width and length respectively and 2 metres in height to comply with the minimum roost size required by long-eared bats as illustrated in Appendix VI.
- This void will be enhanced through creating 2 metres of ridge beam roosting opportunities (Appendix VI).
- Access into the void will be provided via two ridge tile access points, as illustrated in Appendix V.
- Suitable roosting provision for pipistrelle sp. bats will be provided within the roof void of the proposed new garage. This will consist of two squeeze boxes installed on rafters within the roof void. The details of the squeeze box are depicted on the diagrams provided as Appendix VI.

Temporary roosting provision

- Two Schwegler bat boxes of varying designs including 1FF and 2F will be erected on mature trees bordering the site prior to works commencing. These will provide suitable alternative temporary roosting opportunities for both long-eared and pipistrelle bats.

Timing of works

- The buildings are utilised as non-breeding summer roosts by common species of bats. Due to the presence of these bats, timing of the works should be restricted to September – May. However if works take place during the winter period, night time lows must be constant above 4◦C to ensure no hibernating bats are disturbed during works.

Pre-works survey and ecological watching brief

- The pre-works survey of the barn and coach house will be undertaken by a licensed bat worker to check for presence of bats. If bats are encountered during the survey, a licensed bat worker wearing gloves will capture the bat(s) by hand or using a hand net and a cloth bag and relocate the bat(s) to one of the temporary bat boxes. Once the area is clear of bats then 'soft' dismantling works will proceed.

- The tiles will be dismantled by hand, whilst checking for roosting bats, under the supervision of a licensed bat worker, until it is no longer suitable for roosting bats.

The tiles will be removed by hand gently in a vertical rather than horizontal sliding motion. If any bats are encountered during dismantling of the roof, works will be halted until the bat(s) vacate the house or a licensed bat handler removes the bat(s) using gloves and a cloth bag. Once the area is clear of bats then works will proceed. The bats will be relocated to one of the temporary bat boxes. Injured bats will be taken immediately into care (as directed by the Batworker's Manual, s.7.3, pp. 64-66; 3rd ed.2004).

- If a bat is discovered at other, unsupervised times, work will cease immediately and the licensed ecologist will be called for advice. This advice will include leaving the bat to disperse of its own accord, or wait for the licensed handler to appear and move the bat. Builders and contractors are explicitly forbidden from handling bats.

External lighting

- External lighting will be sensitive to foraging bats through being kept to minimum. Sodium lights will be used and will be hooded or cowled in order to avoid light spill and to direct light to where it is needed. These external security lights will be fitted with a movement sensor on a short timer that is only triggered by large objects moving at around waist height.

Post-development monitoring

- Post-development monitoring for bats will be undertaken for two years following the completion of the replacement roost. This will comprise one combined building and evening emergence survey between May and September.

4.1.3 Licence Application

Once full planning permission has been granted, a licence from Natural England will be required. The mitigation measures outlined above will need to be incorporated into a detailed mitigation scheme for submission with the licence application. It should be noted that Natural England take at least six weeks to determine licence applications and a licence will only be granted once full planning permission has been received.

Licenses will only be issued where the application is considered to meet the requirements of the following three tests:

1. The development is in the interests of public health and safety or is required for other imperative reasons of overriding public interest.

2. There is no satisfactory alternative to the development.

3. The development will not be detrimental to the maintenance of the bat populations concerned at a favourable conservation status in their natural range.

The Mitigation Strategy set out above is considered to satisfy the requirements of Test 3. However, recent case law (*R (on the application of Simon Woolley) v Cheshire East Borough*

Council, June 2009) has established that planning authorities now need to consider all three tests before planning permission affecting bats can be granted. As such, additional information aimed at satisfying tests 1 and 2 are provided below.

Imperative reasons of overriding public interest

The barn complex is of quite a considerable age (1850s) and is now falling into disrepair. The farm needs to convert the unused property into an economically viable option and without the proposed works the current owners would be unable to keep the farm profitable and in the long term the property may be re-sold and repairs to the roof may result in the loss of the bat roosts. If repairs were not made then it is likely to result in further deterioration of the building which would eventually result in the loss of the bat roosts.

No satisfactory alternative

The applicant does not own other suitable plots of land and therefore there is not an option to develop a different site.

An alternative would be to demolish and rebuild the existing properties which would also impact upon the bat roosts. However this would not be feasible for the current owners and a conversion project would be more suitable.

4.2 Nesting birds

Bird nests were identified in the barn, coach house ground floor and are suspected to be present on the wall tops of the coach house. As the proposed works would affect these nests and nesting birds are protected by legislation (Wildlife and Countryside Act 1981), the following precautions should be undertaken to negate the risk of harming nesting birds:

- The proposed conversion of the barn and coach house should be undertaken outside of the bird nesting season, which is widely regarded as being March – September, where possible.
- Should the proposed works coincide with the bird nesting season a pre-works inspection of the barn and coach house by a suitably qualified ecologist should be undertaken immediately prior to works commencing. Where nesting birds are encountered the proposed works must be postponed until the nestlings have fledged.
- Bird boxes designed for swallows and starlings including one starling nest box and two No.10 Schwegler swallow nests will be installed on site to provide replacement nesting opportunities.
- Ecological enhancement measures described in Section 4.5 will provide foraging and nesting opportunities for birds.

4.3 Barn owls

As barn owls are known to be in the area, it is recommended that a pre-works inspection of the barns and coach house is undertaken immediately prior to works commencing. A suitably

qualified ecologist will conduct a barn owl survey to ensure that no barn owls have taken up residence prior to works commencing. Should barn owls or evidence of barn owls be identified during the survey, works will cease and a suitable mitigation strategy will be required.

4.4 Reptiles

The large wood pile just north of the barn presents potential refuge and hibernation opportunities for reptiles. Although the habitat immediately surrounding the wood pile is unsuitable for foraging reptiles, the proximity of the adjacent SINCs with suitable reptile habitat suggests that a precautionary approach should be adopted at this site. The wood pile will therefore be dismantled by hand under a watching brief. This will be undertaken during the reptile active season (April – September) as disturbance of reptiles outside of the active season can often be fatal for the animals. The dismantling of the wood pile will be undertaken immediately prior to works commencing and the wood pile will be removed from the construction area. If possible, it will be reconstructed elsewhere on site, preferably closer to the adjacent SINC sites.

4.5 Ecological Enhancements

A few suggestions for incorporation within the design of the conversion and for the site in general have been made below:

- Provision of nest boxes for bird species such as swift (*Apus apus*), house martin (*Delichon urbica*) and house sparrow (*Passer domesticus*) on the walls of the buildings or trees. Bird boxes can be purchased from websites such as www.nhbs.com and www.livingwithbirds.co.uk, and their provision on site would enhance the habitat for the local bird population.

- Sowing amenity grassland, such as any gardens associated with the conversion, with a wildflower lawn mix would provide better nectar sources for invertebrates and hence is of greater value for foraging birds.

- The provision of a barn owl nesting box may encourage this species to return to the area. Nesting boxes can be incorporated into the design of the conversion or erected in nearby trees. More information on the sizes, construction and help with choosing the best nest box for the site is available from the Barn Owl Trust website http://www.barnowltrust.org.uk.

5.0 REFERENCES

Barn Owl Trust (2012). *Barn Owl Conservation Handbook – A comprehensive guide for ecologists, surveyors, land managers and ornithologists.* Pelagic Publishing.

Hundt (2012). 2nd ed, *Bat Surveys – Good Practice Guidelines.* Bat Conservation Trust, London.

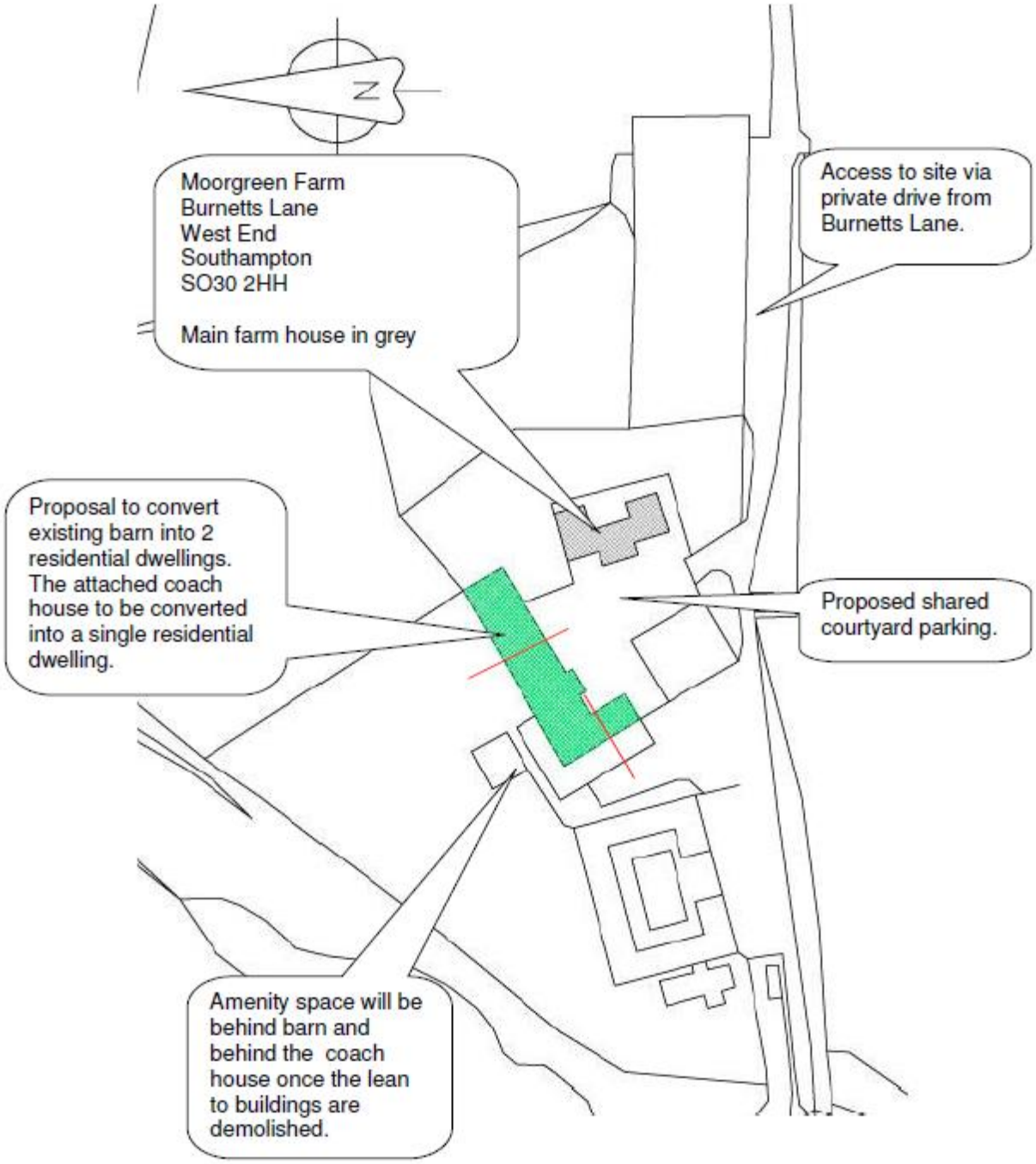
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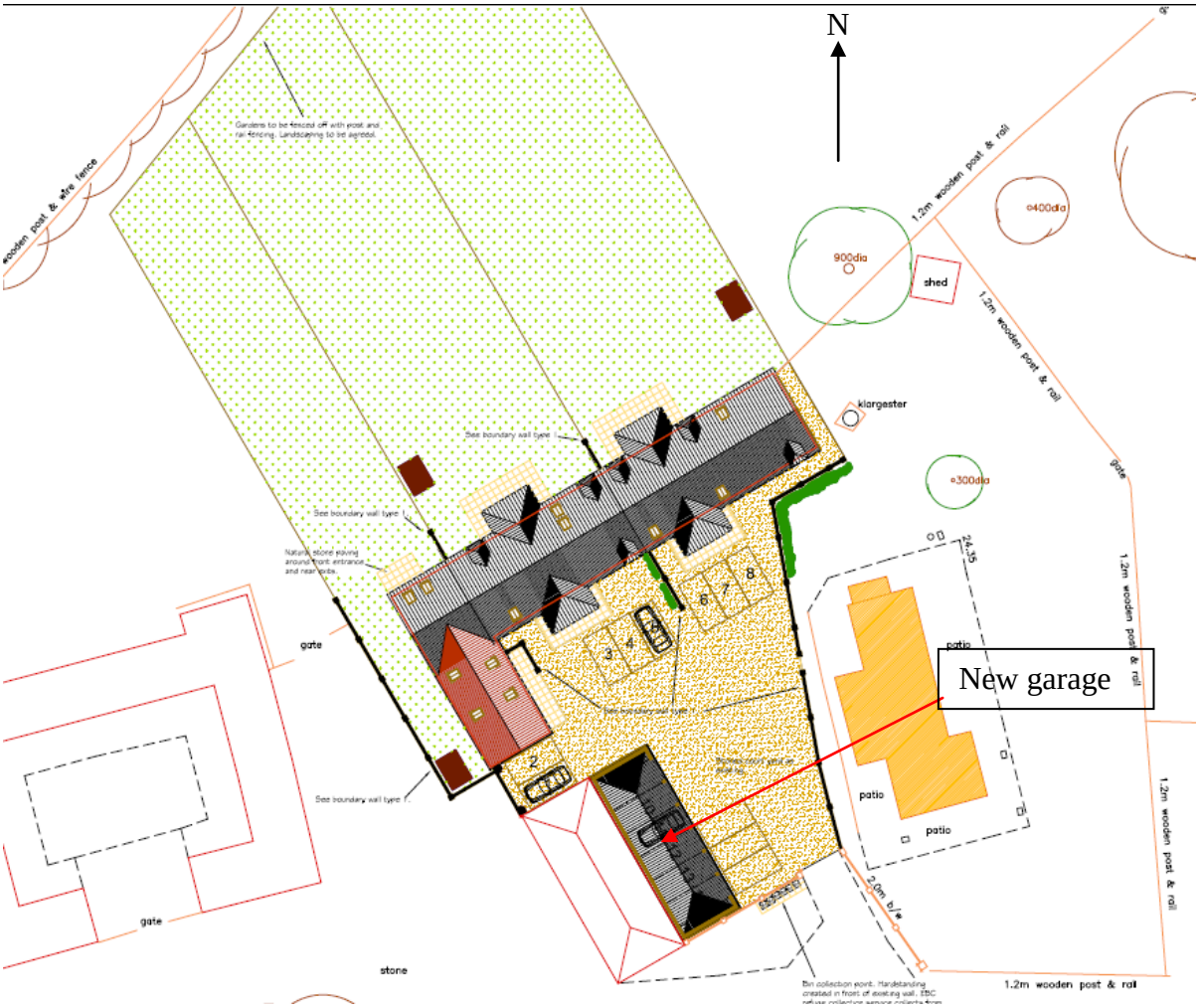
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Office of the Deputy Prime Minister (2005). *Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.*

APPENDIX I: Site plan



APPENDIX II: Proposed site plan



APPENDIX III: Photographs



Southern view of barn (right) and coach house (left), with the small roof extension visible above the stable door. The large gap between the stable door and roof is in view



Southern view of eastern end of barn. The second stable door is in view. Ventilation bricks are visible in the wall and many of the roof tiles have slipped or are missing.



Internal view of the disused hay loft in the barn.



Collection of discarded feeding remains in disused hay loft.



Internal view of the barn. The holes in the roof are from missing tiles.



Internal upper storey view of coach house. The low wall dividing the barn and coach house is visible.



Internal view of coach house upper storey with hay loft door. Large gaps are visible around the door and between the wall top and roof on the right.



Close up view of damaged brickwork on southern aspect of barn. These holes provide potential roosting opportunities for bats.

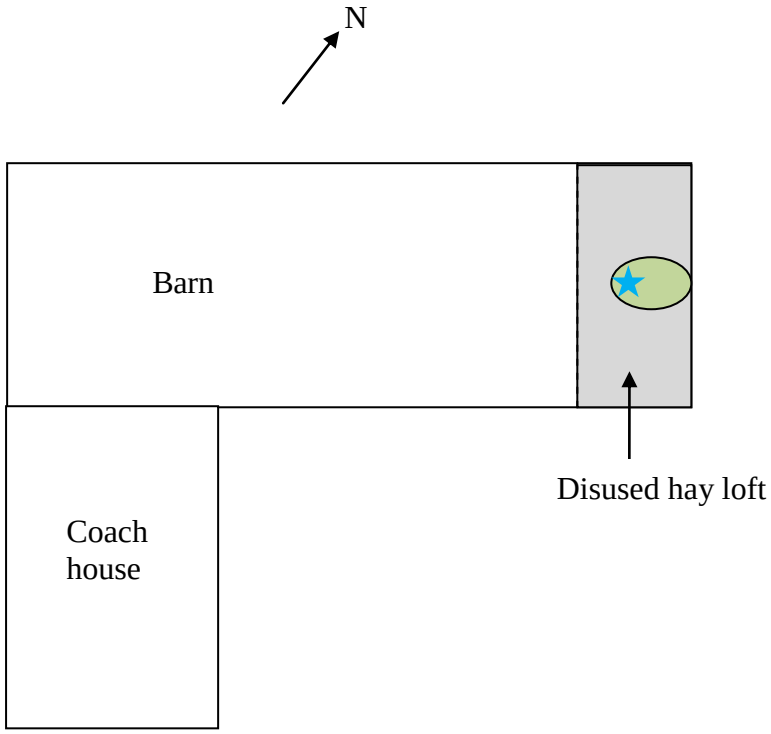


View of two bird nests characteristic of swallows. These are located on the ground floor of the coach house.



View of the eastern gable end of barn. Access into the disused hay loft is available through the hole in the hay loft door. Additional roosting features are available in loose/damaged brickwork above the windows and around the wooden winch post.

APPENDIX IV: Location of phase 1 bat survey evidence

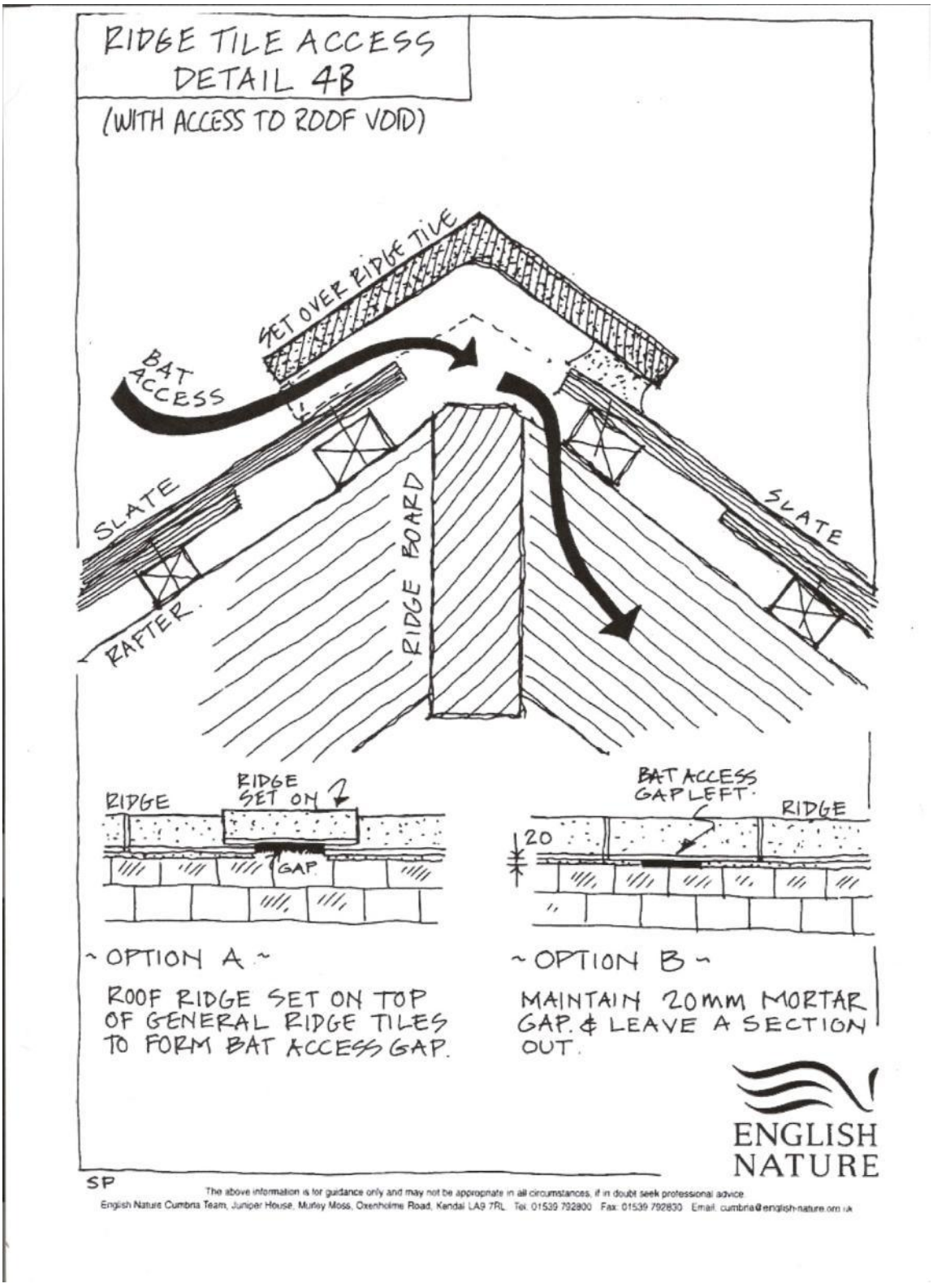


Key

	Area of approximately 25 scattered droppings beneath ridge beam
★	Location of discarded feeding remains

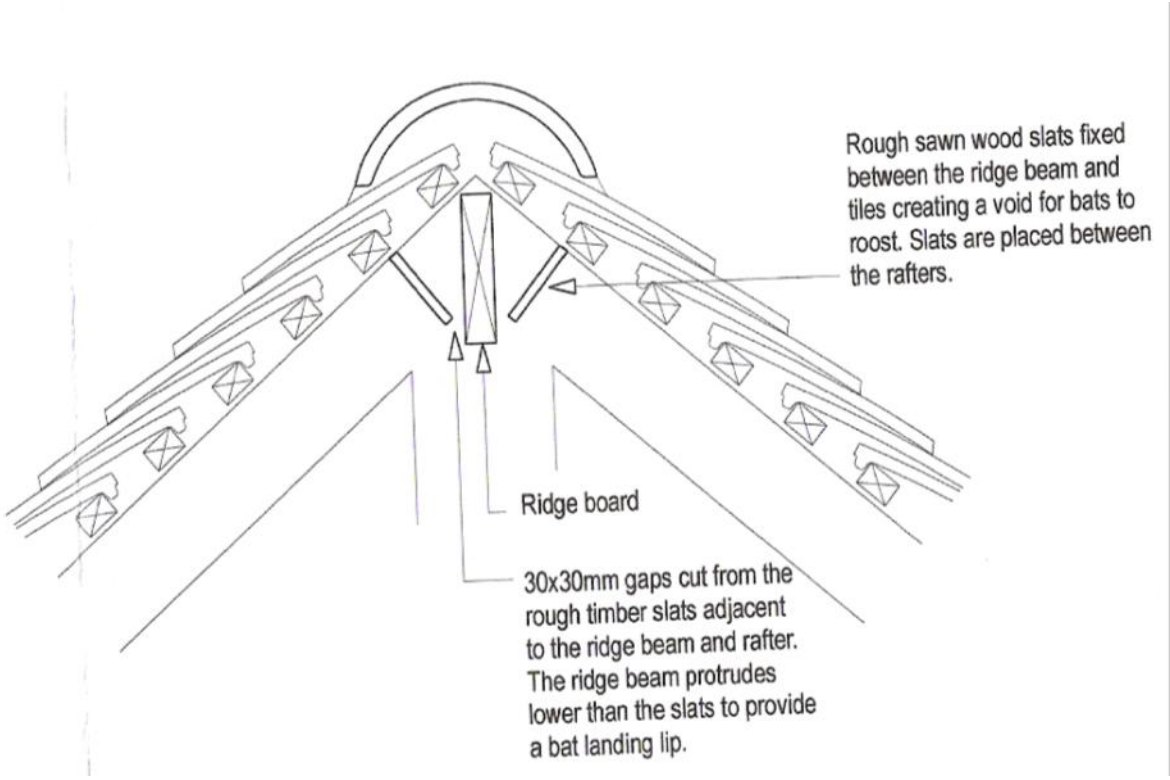
APPENDIX V: Replacement roost access provision

Ridge tile access details

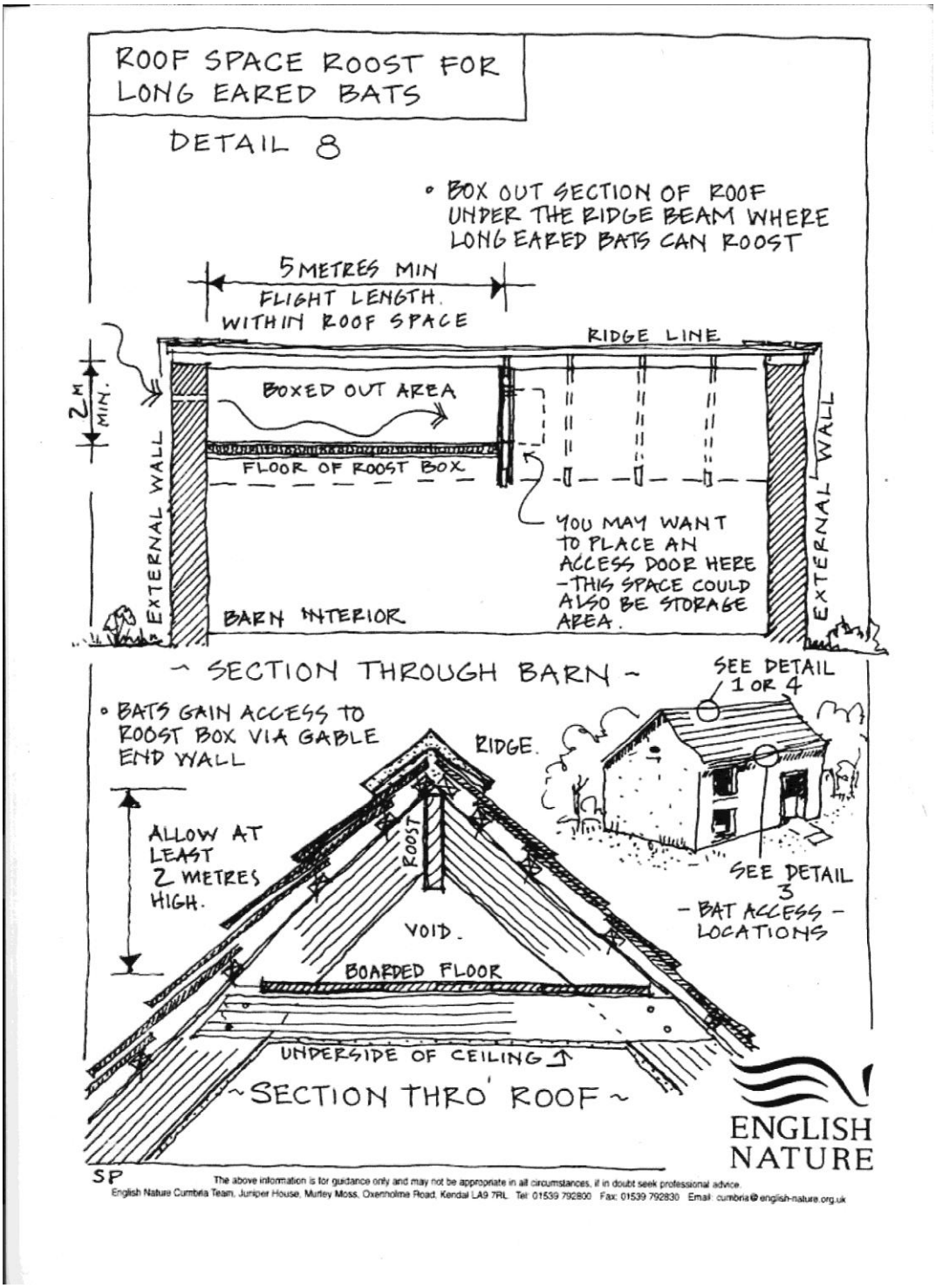


APPENDIX VI: Replacement roost provisions and roosting opportunities

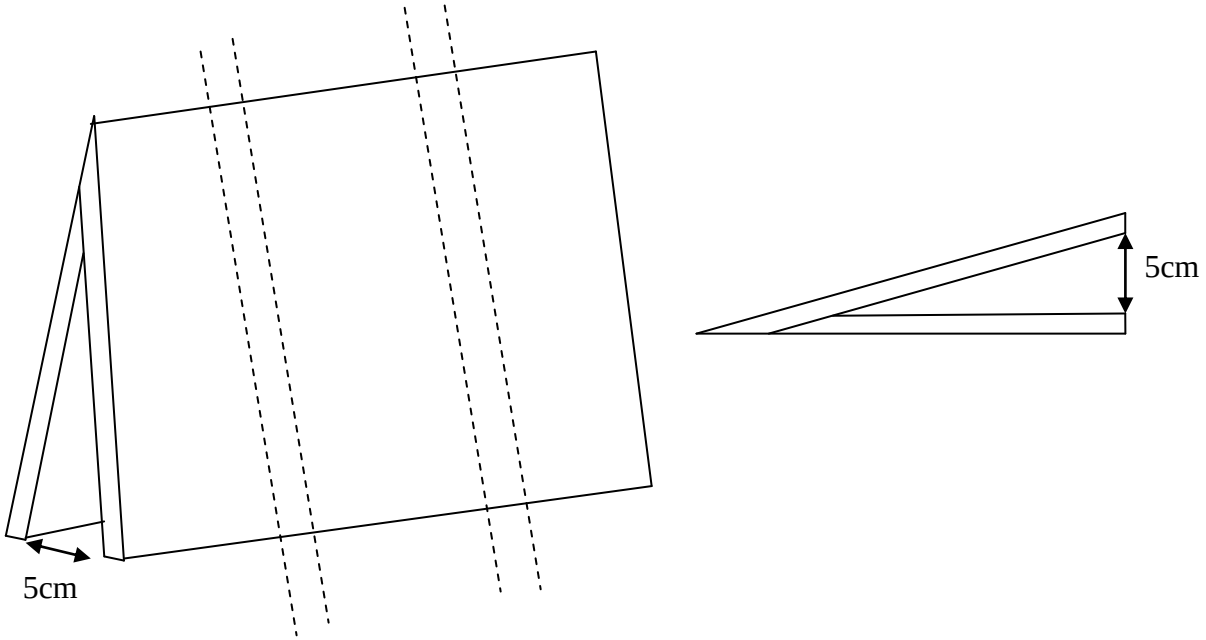
Ridge beam design



Long-eared replacement roost



Pipistrelle squeeze box design



APPENDIX VII: Phase 2 bat survey results

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Moorgreen farm	**SURVEYORS:**	Ed, Becci, Russel, Louisa	**DATE:**	6/5/14
TEMP AT START:	14	**SUNSET:**	20:34	**START TIME:**	20:24
TEMP AT END:	11	**CLOUD COVER (oktas):**	8/8	**END TIME:**	22:10
WIND (bft):	2/4	**RAINFALL:**	None	**WEATHER:**	Clement
EDIROL NO:	Batbox duet without recorder	**EDIROL TIME:**		**ADDITIONAL INFO:**	
TIME	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.		
20:46	Pipistrelle sp.	1	Foraged to south of the building, not seen		
20:49	Soprano pipistrelle	1	**Emerged** from beneath tile half way up roof on northern pitch of barn. No echolocation calls. Commuted north to woodland.		
20:55	Bat sp.	2	Foraged within the building, seen through doorway, not heard		
20:57	Common pipistrelle	1	**Emerged** from beneath tile half way up roof on northern pitch of barn. Separate bat to 20:49, but similar location. Commuted north to woodland.		
20:49	Common pipistrelle	1	**Emerged** from door of eastern aspect, commuted west.		
20:55	Soprano pipistrelle	2	**Emerged**, one from each box on gable end, commuted east.		
20:59	Common pipistrelle	1	**Emerged** from a slipped tile just west of the large opening to the barn on its southern elevation then headed south briefly before heading north over the building		
21:01	Common pipistrelle	1	Foraging, heard not seen		
21:03	Common pipistrelle	1	Brief pass, not seen		
21:04	Noctule	1	Commuted from south to north over the building at great height		
21:05	Common	1	**Emerged** from the doorway on the		

	pipistrelle		southern elevation of the building then headed east
21:05	Common pipistrelle	1	Commuted south to north past eastern gable end.
21:06	Serotine	1	Foraging east of eastern gable end
21:11	Serotine	1	Brief pass, heard not seen
21:12	Brandt's	1	Commuted west to east south of the barn.
21:20	Common pipistrelle	1	Commuted south to north on eastern side of barn
21:24	Common pipistrelle	1	Brief pass, heard not seen.
21:31 – 21:37	Common pipistrelle	1	Continuous foraging east of barn then commuted west.
21:40	Common pipistrelle	1	Commuted north to south east of barn
21:45	Common pipistrelle	1	Foraged to south of building, not seen
21:47	Common pipistrelle	1	Brief pass, heard not seen
21:52	Soprano pipistrelle	1	Commuted from east to west just south of the building
22:00	Bat sp.	1	Commuted from south to north over the building
22:03	Soprano pipistrelle	1	Brief pass, heard not seen
22:04	Soprano pipistrelle	1	Brief pass, heard not seen
22:05	Common pipistrelle	1	Brief pass, heard not seen

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Moorgreen Farm	**SURVEYORS:**	Lisa, Alex, Louisa, Oli	**DATE:**	03.06.14
TEMP AT START:	13.5	**SUNSET:**	21:10	**START TIME:**	20:40
TEMP AT END:	15.5	**CLOUD COVER (oktas):**	7/8	**END TIME:**	23:10
WIND (bft):	0	**RAINFALL:**	None	**WEATHER:**	Cloudy
EDIROL NO:		**EDIROL TIME:**		**ADDITIONAL INFO:**	
TIME	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.		
21:15	Bat sp.	1	Brief commute above oak tree east of barn		
21:30	Pipistrelle sp.	2	Commuting and foraging		
21:30	Nyctalus sp.	1	Brief pass, heard not seen		
21:32	Common pipistrelle	1	Brief foraging with feeding buzz, heard not seen.		
21:34	Common pipistrelle	1	Foraging inside barn		
21:35	Pipistrelle sp.	3	Emerged from oak tree east of barn, foraging around oak tree.		
21:35	Soprano pipistrelle	2	Commuting south to north across western end of barn.		
21:37	Brown long-eared	1	**Emerged** from eastern pitch of coach house, flew over the top of coach house then north over barn. Seen and heard.		
21:37	Common pipistrelle	1	**Emerged** from barn eaves on northern side of barn.		
21:37	Common pipistrelle	1	Entered and exited eastern gable end of barn through open window		
21:39	Common pipistrelle	2	Foraging along northern side of barn and in horse paddock		
21:40	Common pipistrelle	1	Brief pass, heard not seen		
21:41	Soprano pipistrelle	1	Foraging around southern side of barn, including inside barn.		
21:41	Common pipistrelle	1	Foraging around southern side of barn with Soprano pipistrelle, including inside barn.		
21:45 – 21:50	Common pipistrelle	5	Foraging around oak tree east of barn		
21:47	Common	2	Foraging along northern side of barn and		

	pipistrelle		within wooden horse stables on western end of barn.
21:49	Common pipistrelle	1	Brief foraging with feeding buzz at southern side of barn
21:50	Common pipistrelle	1	Brief foraging with feeding buzz at southern side of barn
21:52 – 22:00	Common pipistrelle	2/3	Constant foraging with feeding at southern side of barn including inside. Brief foraging around eastern aspect of barn
21:58	Soprano pipistrelle	1	Commuted east to west over coach house
22:00	Common pipistrelle	1	Commuted north to south over barn.
22:03	Long-eared bat	1	Possible emergence from air brick on right hand side of eastern gable end
22:04	Long-eared bat	1	Commuted south to north past western side of coach house.
22:05	Common pipistrelle	1	Brief pass, heard not seen
22:07	Nyctalus sp.	1	Brief pass, heard not seen
22:11	Common pipistrelle	1	Brief pass, heard not seen
22:15	Long-eared bat	1	Very faint call, brief pass, heard not seen
22:21	Common pipistrelle	1	Brief pass, heard not seen
22:27	Soprano pipistrelle	1	Commuting, heard not seen
22:29	Serotine	1	Brief pass, heard not seen
22:35	Common pipistrelle	1	Brief pass, heard not seen
22:44	Common pipistrelle	1	Brief pass, heard not seen
22:48	Common pipistrelle	1	Brief pass, heard not seen

BAT DETECTOR / EMERGENCE & ACTIVITY SURVEY					
SURVEY LOCATION:	Moorgreen Farm	**SURVEYORS:**	Alex, Andy, Louisa, Russell	**DATE:**	05.06.14
TEMP AT START:	9	**SUNRISE:**	04:50	**START TIME:**	03:15
TEMP AT END:	10	**CLOUD COVER (oktas):**	3	**END TIME:**	04:50
WIND (bft):	1	**RAINFALL:**	None	**WEATHER:**	Calm, dry
EDIROL NO:		**EDIROL TIME:**		**ADDITIONAL INFO:**	
TIME	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.		
03:37	Soprano pipistrelle	1	Foraging near wooden stables at western end of barn, heard and seen.		
03:41	Soprano pipistrelle	1	Foraging around western end of barn then commuted north past barn		
03:55	Common pipistrelle	1	Brief pass, heard not seen		
03.56	Common pipistrelle	1	Foraging with feeding buzz close to apex of eastern gable end		
04:10	Pipistrelle sp.	1	Commuting past eastern end of barn		