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Ecological Survey of Proposed conversion of barns at Upton Court Farm, Upton Bishop, Herefordshire

Countryside Consultants Ltd
Ecological Surveys

DOCUMENT HISTORY

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http://www.natureonthemap.org
http://www.multimap.com
http://www.nbn.org.uk/

Biological Records Centre Data Search Received 17/07/09

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Overall site assessment LOCAL CONSERVATION IMPORTANCE

An Ecological (Protected Species) Survey of proposed barn conversions, Upton Court Farm, Upton Bishop, Herefordshire

NONTECHNICAL SUMMARY

This ecological survey has been produced to assess the impact of the proposed conversion of two barns at Upton Court Farm close to Upton Bishop in south Herefordshire. The plans involve the conversion of a stable barn to three bedroom holiday accommodation and a single storey barn to agricultural accommodation and farm office. Plans also exist to erect a new building to house a biomass heat system although this proposal does not form part of this ecological assessment. The building is however linked to the recommendations of this report.

Countryside Consultants Ltd were commissioned to provide an ecological assessment of the development proposals. Surveys to best practice guidelines were carried out by experienced surveyors to determine the use of the two buildings by bats and birds. A pond located approximately 150m to the south of the proposed development was also assessed to determine to likelihood of great crested newts and whether these would be impacted by the proposals.

These surveys identified at least one bat roost within the stable barn although this was assessed as being of a low conservation status associated with one or possibly two bats using the barn during the summer months. No evidence of significant bat roosts was found on any of the buildings at the farm and overall levels of activity were low which was probably indicative of the poor quality foraging habitat around the arable fields and fragmented hedgerows surrounding the farm.

There was no evidence of roosting bats within the single storey cart shed barn and we recommend only that the conversion of this building avoids the period when bats might be using the wall crevices inside this structure for hibernation. Also recommended is the replacement of house sparrow nesting habitat on this barn given the high priority attached to this species which will be achieved by placing specialist bird boxes on the gable end of the converted barn.

The stable barn is being used by bats, swallows and a little owl. All of these uses will need to be replaced in line with planning policies and wildlife legislation. There is little or no scope for incorporating replacement habitat within the converted barn. In its place, we recommend the inclusion of a replacement bat loft above the proposed biomass boiler-room. This will enable a sizeable area dedicated for bats and birds with the additional benefit that it is in a better position for bats to exploit being closer to vegetation preferred by roosting bats to forage along. The extra heat generated by the boiler will be of particular benefit to bats whilst the bat loft will be connected to a covered garage building which will provide a bat loft suitable for a range of species likely to be present in the area but which are currently not roosting on the farm.

Additional bird boxes will however be fitted to the converted stable barn to replace and enhance this building for birds. Raised ridge tiles and retained wall crevices will conserve and enhance crevice roosting opportunities on both barns.

Despite the presence of a pond within the considered 'buffer' in which great crested newts can move, no detailed surveys for great crested newts have been undertaken as part of this study. However we do not think is a limitation given that the pond is of a sub-optimal quality for breeding

newts. Additionally, the scope of the development has only a very small potential impact on newts and this may be adequately dealt with through the careful and supervised restoration of a section of stone wall on the cart shed where this potential risk exists.

Sensitive timing and sympathetic working practises will be employed on the stable barn conversion to ensure that disturbance to nesting birds and roosting bats is kept to an acceptable minimum.

A European Protected Species Mitigation Licence will however be required before any disturbance works to the stable barn take place. This will be prepared under planning condition by a licensed ecologist who will oversee the development and monitor the effectiveness of the mitigation scheme during its two year course.

Provided that the recommendations made within this report are followed, we consider that whilst some short term disturbance to protected and notable species will occur, the proposals will, on balance, conserve the wildlife functionality of the site and result in a positive impact on wildlife in line with planning policies.

CONTENTS

1. INTRODUCTION

1.1 Purpose and scope of this report

1.1.1 This ecological survey and report has been prepared to help inform plans to develop two agricultural barns at Upton Court Farm known as the cart shed and stables. A further planning application for the erection of a new building to house a biomass fuelled-boiler with 3-bay open garage will also be submitted although this does not directly form part of the scope of this ecological survey.

1.1.2 The report has been commissioned and prepared in accordance with best practice guidelines as set out in the Bat Workers' Manual (A.J. Mitchell-Jones 2004), the Bat Mitigation Guidelines (Joint Nature Conservation Committee 2004), the Bat Conservation Trust (BCT) Bat Surveys Good Practice Guidelines (BCT 2007), Herefordshire Council's Guidelines for Ecological Surveys required in support of planning applications for building developments (Herefordshire Council 2005) and Planning for Biodiversity and Geological Conservation – A guide to good practice (Office of the Deputy Prime Minister 2005).

1.1.3 Following preliminary assessment of the proposals, Ordnance Survey maps and aerial photographs, the scope of the survey was determined as an assessment of the building for roosting bats and nesting birds.

1.1.4 A small pond is shown on maps within 150m of the farm buildings with potential connectivity to the site along a ditch line. This was investigated for the potential for great crested newts by carrying out a baseline assessment although the scope of the development proposals and conditions of the buildings present very limited potential impacts on this protected species. A further pond within 250m of the proposed development was not investigated for reasons of poor connectivity to the site being located on the other side of a tarmacadum road with no connective linear features such as hedgerows or ditches across arable farmland.

1.2 Commissioning brief and aims of the survey

1.2.1 Countryside Consultants Ltd were instructed by the applicant's agent on the 19th May 2009. The commissioning brief was as follows:

i. to consult with Herefordshire Biological Records Centre and any other relevant data sources to determine a context for the proposed land and to inform or appraise survey requirements;

ii. to undertake a detailed inspection of the proposed building for evidence of: nesting birds; bats; and, a bat activity survey, in accordance with the Bat Workers' Manual (A. J. Mitchell-Jones 2004), the Bat Mitigation Guidelines (Joint Nature Conservation Committee 2004) and the Bat Conservation Trust (BCT) Bat Surveys Good Practice Guidelines (BCT 2007);

iii. to undertake a minimum of two bat activity surveys with further use of static bat detectors under optimal conditions;

iv. to undertake an assessment of the suitability of the pond to the south of the farm for breeding great crested newts based upon Oldham, Keeble, Swan & Jeffcote (2000);

v. to identify and assess the impact of development proposals where possible and to make recommendation for measures to avoid, mitigate and compensate for the these impacts making further recommendation for enhancement where appropriate in accordance with Planning Policy Statement 9 *Biological and Geological Conservation.*

1.2.3 The aims of the survey were to:

i. determine the presence or absence of bats and any nesting birds;

ii. where appropriate, to determine the pattern of use, species, population size, location and conservation status of any bat roost present;

iii. determine the suitability of the pond to support breeding great crested newts and the probability of newts being present in the proposed development area.

1.3 Site location

1.3.1 The two barns proposed for conversion are located at Upton Court Farm approximately 1km north-east of the village of Upton Bishop in southern Herefordshire close to Ross on Wye.

1.3.2 The Ordnance Survey Grid Reference for the site is SO 6579 28134 with access off a rural lane running to the south-west of the farm.

1.4 Summary of the development proposals

1.4.1 The proposals are for conversion and change of use of two agricultural buildings into residential and live-work accommodation. A stable block building is proposed for conversion to a three-bedroom holiday let and cart shed proposed for conversion to a single bedroom agricultural dwelling with separate farm office. These proposals are likely to include:

Stables

i. retention of existing roof and lined ceiling boards;

ii. possible treatment of timber-work for fungal infestation;

iii. installation of 2 no. conservation roof lights and wood burning stove flue;

iv. installation of mezzanine floor with master bedroom floor to rafters;

v. installation of new stairs, and replacement of existing doors and windows;

vi. installation of new oak frame windows below existing windows to north-east elevation;

vii. dry lining of walls and pointing of interior and exterior stone walls and masonry;

viii. conversion of the internal space to provide holiday accommodation;

vix. minimal alterations to external stone and brickwork and surrounding concrete hard-standing;

Cart Shed

ix. removal of roof tiles and ridges;

x. possible treatment of timber trusses for fungal infestations;

xi. replacement of roof with new membrane and insulation between rafters incorporating new steel flue for wood burning stove;

xii. partial removal and reinstatement of a section of the south-western stone wall to remedy slippage;

xiii. pointing of interior and exterior stonework;

xiv. construction of new studded external wall to enclose the north-east elevation with new doors and windows;

xv. installation of internal studded walls with new bedroom / living area and separate farm office;

xvi. replacement of windows and doors where necessary.

1.4.2 Currently the stables are largely unused and the cart shed used for the storage of agricultural machinery. The floors of both buildings was concrete and clear of debris.

2. SURVEY

2.1 Contextual research and consultations

2.1.1 Herefordshire Biological Records Centre was contacted to provide a data search of all protected species within a 2 km radius of the site. In the case of horseshoe bats *Rhinolophus sp* and barn owls *Tyto alba*, a wider search parameter of 4km as these species have a tendency to operate across larger feeding and breeding territories.

2.1.2 An Ordnance Survey 1:25 000 scale map was also used to identify important habitats in the vicinity and overall landscape context, as was a digital aerial map shown on http://www.multimap.com.

A search of the National Biodiversity Gateway for terrestrial mammals and amphibians based on 10km grid square for SO 62 was carried out at http://www.nbn.org.uk/. Natural England's web resource tool http://www.natureonthemap.org.uk/map.aspx was also checked for the status of protected sites and biodiversity action plan habitats within the landscape.

2.2 Bat survey

2.2.1 The interior space and external façades of the agricultural barns (including other metal barns not proposed for conversion) were thoroughly inspected by an experienced ecologist looking for evidence of bat activity such as roosting bats, urine stains, droppings, roost entrances and condition of roof spaces in accordance with the guidelines set out within the Bat Workers' Manual (A.J. Mitchell-Jones 2004) and Bat Conservation Trust Bat Surveys Good Practice Guidelines (BCT 2007).

2.2.2 A one million candle power torch was used to provide illumination within dark areas of the barns. Particular attention was paid to mortise crevices, the ridge tiles and roof tiles, door frames, crevices above rafters and beams, wall crevices and other likely places for roosting bats. A set of 8x42 binoculars were used to study all building features which were not accessible to close inspection whilst an endoscope was used to search all apparent and accessible crevices.

2.2.3 During this inspection an assessment of the potential for bats within each building was made recording the: roof lining materials; access points; condition of roof tiles; potential roost sites; and, temperature / environment sustained within the internal spaces. Evidence of potential bat activity such as a lack of cob-webs within roof spaces and ridge channel of outbuildings was also noted.

2.2.4 At the same time, any evidence of birds using the buildings such as droppings, nests and sightings were recorded. A record of the surrounding land use and vegetation types was also made as part of the inspection to identify potential corridors and key habitats in the surrounding landscape.

2.2.5 One dusk and one dawn survey were conducted to record bat activity, species, numbers, flight patterns and to determine any entry and exit points from the buildings. *Pettersson* 240x Time Expansion Bat Detectors and a *Ciel* Frequency Division / Heterodyne Detector were used by three surveyors to locate calling bats which were recorded onto a SD Media data card and later analysed using computer software to confirm or determine species identification.

2.2.6 Two surveyors were strategically deployed to help accurately pinpoint bat flight activity across and around the proposed buildings as well as to provide an indication of bat activity in the surrounding area. Once the emergence period was over, surveyors roamed around the site to identify patterns of bat flight and the full range of species using the site.

2.2.7 Each survey was conducted for two hours over dusk and dawn in accordance with the recommended survey guidelines contained within the Bat Workers' Manual (A.J. Mitchell-Jones 2004) and Bat Conservation Trust Bat Surveys Good Practice Guidelines (BCT 2007).

2.2.8 To provide additional information on the use of the buildings by bats, an Anabat SD1 broad band recorder was placed inside the stable and left for a period of two nights. This recorder was activated through bat echolocation calls with data recorded onto compact flash card and later analysed to determine species of bats and periods of activity.

2.3 Pond survey

2.3.1 The pond located within 150m of the proposed development was investigated by an experienced and licensed ecologist to determine its potential for great crested newts. An assessment was made based upon a number of factors such as water quality, presence of fish and wildfowl, marginal and aquatic vegetation. In conjunction with other factors such as the local biological records centre data extract for protected and notable species, a Habitat Suitability Index score was assigned based upon the work of Oldham, Keeble, Swan and Jeffcote (2000).

2.3.2 Further investigation of this pond was not possible due to the dense vegetation surrounding the banks and lack of water.

2.4 Survey personnel

2.4.1 The building inspection and pond survey were carried out by Fergus Henderson BSc (Hons) MIEEM. Bat activity surveys were undertaken by Fergus Henderson with assistance from Stewart Rampling BSc (Hons) MIEEM.

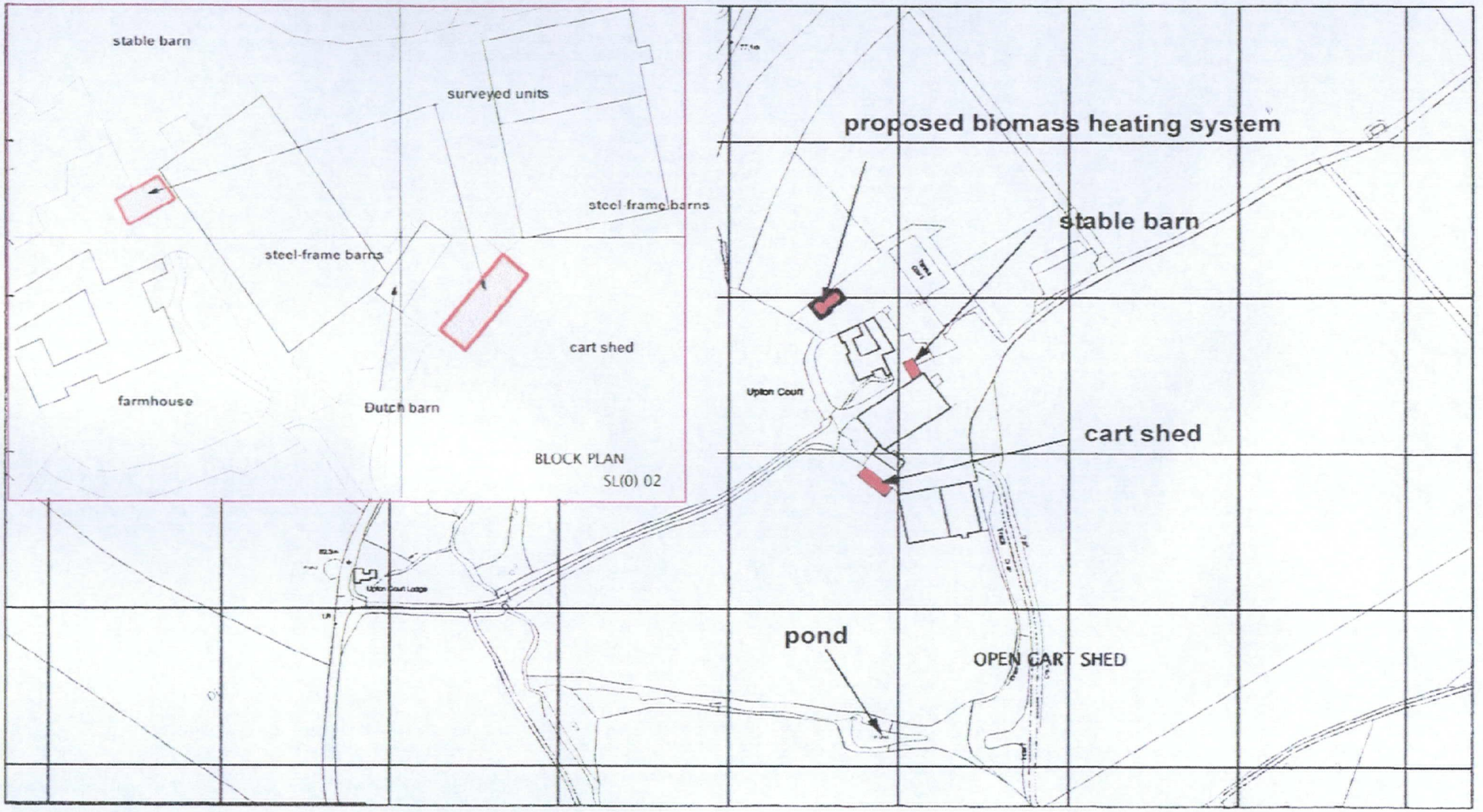
2.4.2 Mr Henderson has several years experience of conducting pond surveys, field assessments, bat activity surveys, assessment of structures for bat roosts and other survey techniques set out in the Bat Workers Manual (A.J. Mitchell-Jones 2004) and Bat Conservation Trust Bat Surveys Good Practice Survey Guidelines (BCT 2007). Mr Henderson also holds current Natural England Great Crested Newt and Bat Licences (20090400 / 20090401) and is an active member of Worcestershire Bat Group.

2.4.3 Stewart Rampling BSc (Hons) MIEEM is a director of Countryside Consultants Ltd and has four years bat survey experience. Dr Lee has over three years experience in bat activity surveys and the identification of bat echolocation calls.

2.5 Dates of survey

2.5.1 The initial building and pond inspection was carried out on the 10th July 2009. An activity survey was undertaken on the evening of the 10th July and dawn activity survey on the 22nd July 2009.

Figure 1: extent of survey area



2.5.3 The static Anabat SD1 recorder was installed into the buildings on the 17th July 2009 and retrieved on the 20th July 2009 (although battery power restricted this to two night's recording).

2.6 Limitations to survey

2.6.1 No detailed investigation of the ponds for the presence or absence of great crested newts has been carried out. The level of survey effort employed thus far is deemed sufficient given the following factors:

i. average to below average Habitat Suitability Index;

ii. absence of records for great crested newts within 2km of the site;

iii. availability of more suitable terrestrial habitat around the pond and field boundary (a newt would have to be very determined to move beyond these areas into open grassland and around a large metal barn with concrete base); and,

iv. the low potential for disturbance to great crested newt habitat posed by the development with simple avoidance measures which may further reduce any potential impact.

2.6.2 Just two activity surveys have been carried out as part of this survey. This is within the survey effort for buildings set out within Bat Surveys: Good Practice Guidelines (BCT 2007). It should be noted however that a static data recorder was also used as part of the survey and effectively provide a third survey.

2.6.3 The weather experienced during the two activity surveys was within the acceptable parameters set out in best practice guidelines (BCT 2007) although the dawn survey was slightly limited by a stiffening breeze.

2.6.4 Access to the loft space of the farmhouse was not possible during the course of the survey.

3. RESULTS

3.1 Building description and surrounding vegetation

3.1.1 The two barns for proposed conversion form part of a complex of farm buildings associated with Upton Court Farm. The farmhouse is a Georgian period property located to the northern side of the complex. It is a multi-gabled stone and brick wall construction building with a pitched tiled roof with a notably older half-timbered section on the north-eastern side.

3.1.2 The stables are located immediately to the south-east of the farmhouse with a narrow gap between the southern wall and an adjacent brick and steel frame barn. The building is tall and thin with stone and brick walls, a hipped and pitched roof covered with plain tiles.

Image 1: south-west elevation of Upton Court Farm

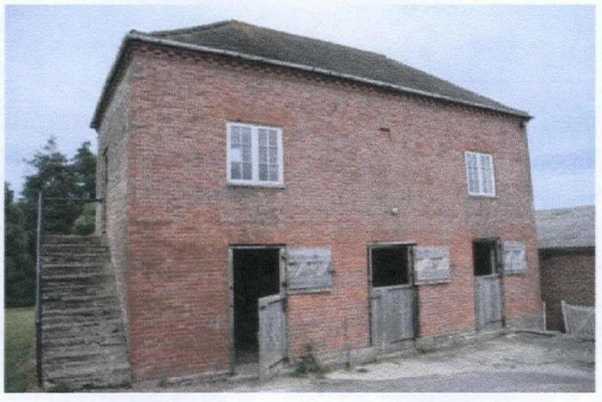


Image 2: south-west elevation of the stable barn – note the number of windows and openings

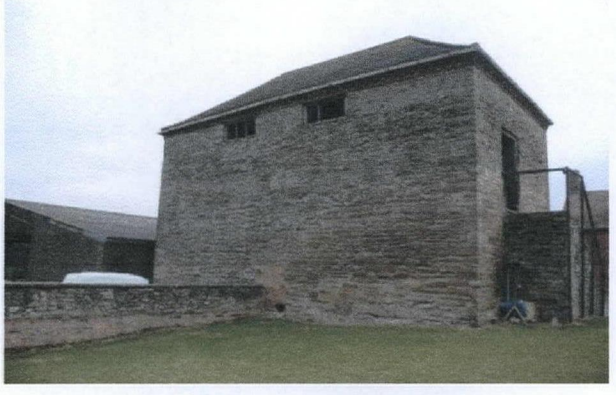


Image 3: north-eastern elevation of the stables showing stone walls

3.1.3 Inside, the building is arranged over storeys with large timber floor joists and substantial roof trusses with king posts which were noted to be notched and which probably supported a third floor or mezzanine level. The roof was visibly lined underneath with ceiling boards which were reported as being insulated underneath.

3.1.4 The building was notably light inside with windows present over two floors on three elevations. Stable doors provided an additional source of light on the ground floor with a further doorway connecting to the first floor (closed during surveys). Access to the inside of this building was through the open stable doors, open windows on the north-west elevation and through an opening over a lintel on the south-east elevation.

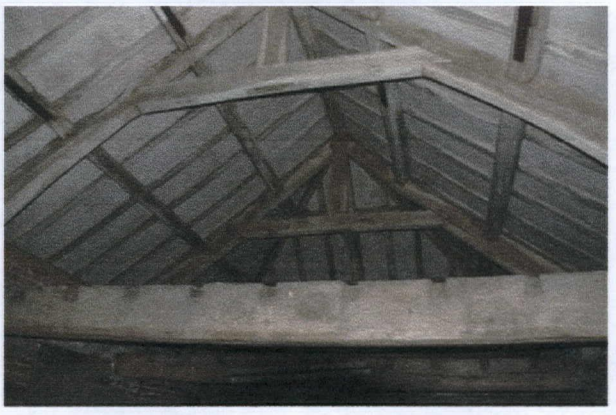


Image 4: inside view of the stables showing hipped roof and trusses with ceiling boards between rafyers

3.1.5 The atmosphere within the barn was found to be relatively cool and slightly draughty whilst the building was considered to be in a water-tight and relatively good condition. There was however considered potential for roosting bats beneath the eaves, at the wall plate and within mortise crevices and over timbers.

3.1.6 The cart shed is located to the south of the farm complex on the edge of an area of set-aside within an arable field. This single storey building was found to be open to the north-east with timber pillars and the brick / stone walls supporting the roof trusses. The roof was unlined with clay tiles and ridges over.

Image 5: north-east elevation of the cart shed showing open frontage and moderate condiiton of the roof

3.1.7 The inside of the cart shed was found to be partially divided by internal walls with glazed windows on the south-west, south-east and north-west elevations. The environment inside the cart shed was

found to be notably draughty and cool with some ingress of water through the roof which was in a moderate condition. This building was noted as having some limited roosting potential for bats beneath roof tiles and within stone wall crevices. The ridge line was clear of cobwebs although the draughty conditions are likely to preclude significant summer roosts.

Image 6: inside the cart shed showing roof trusses

3.1.8 Modern steel-framed barns and a metal Dutch barn are also located on the farm complex which is characterised by extensive, almost unbroken expanses of concrete surfaces with low stone walls connected to both stables and cart shed. Well maintained gardens were noted to the north of the farmhouse whilst the surrounding land use is characterised as being arable with scattered coniferous and deciduous trees and a fragmented hedgerow network. Figure 2 provides additional description of the buildings forming part of the study.

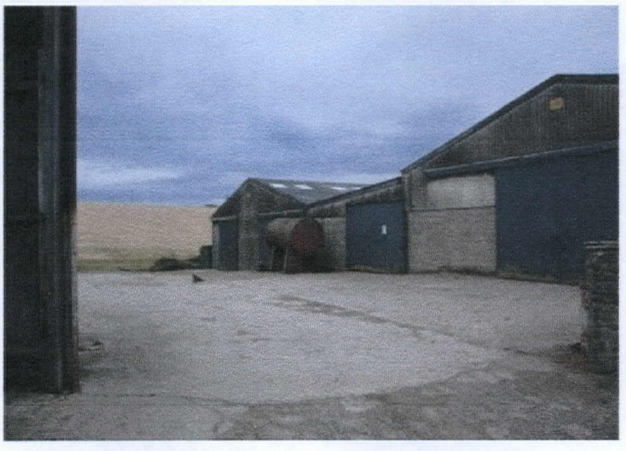


Image 7: modern agricultural barns to the south of the farm – note the expansive concrete and open arable farmland to the rear

Image 8: gardens to the north-east of the stable barn

Image 9: landscape setting with view to the west of the cart shed – note the absence of a hedgerow close to the building and arable land beyond

Figure 2:Table of building inspection report

Construction	Buildings Surveyed	
	Unit 1 (2 storey stables)	**Unit 2 (Single storey cart shed)**
Storeys	• 2	• 1
Orientation of ridge line	• NNW / SSE	• NW / SE
Walls	• Stone / red brick on W elevation	• Stone (open fronted on NE side)
Floor	• Concrete / wood	• Concrete
Roof support	• Large timber frames	• Timber frames
Roof materials	• Tiled / plastered interior	• Tiled / unfelted
Access points	• Open windows on S and E sides • Slot in timber lintel on SE. side	• Open on NE elevation
Lean-to structures	• n/a	• n/a
Condition	• Structurally sound	• roof in poor condition, otherwise structurally sound
Surrounding vegetation	• Extensive arable to E and S side / large mature gardens to N and W / mature trees/ woodlands/ poor hedgerow network	
Potential for bats	• High – approx 50 fresh and older BLE droppings and some moth wings at NW end	• Medium for foraging. Some potential for roosting in stone walls

Site Name	Upton Court Farm		
OSGR	SO 65805 28166	Surveyor	Fergus Henderson
Date survey	10th July 2009	Licence No.	20090401

3.2 Evidence of bats

3.2.1 Approximately fifty old and fresh droppings and small number of moth wing cases were found towards the north-western end of the stables beneath the ridge line. The size, shape, texture and colour of these were consistent with a brown long-eared bat *Plecotus auritus*. During the ten days of the survey, there were no noticeable additions. There were no visible signs of bats using the cart shed.

3.2.2 A brown long-eared bat was seen to be roosting inside the stables close to emergence time during one of the surveys. This bat was not seen or recording during the remainder of the activity surveys although a brown long-eared was recorded by the static data recorder.

3.2.3 Activity from a small number of common pipistrelle bats *Pipistrellus pipistrellus* was recorded during the surveys. Up to three common pipistrelles were noted with foraging activity soon after emergence period around the farmhouse and garden areas. Up to three pipistrelles were seen to be roosting beneath a ridge tile on the southern end of the farmhouse. No returning bats were recorded on either of the buildings proposed for conversion.

3.2.4 The Anabat data recorder identified common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus,* brown long-eared and Natterer's bats *Myotis nattererii* inside the stable building and noctule bat *Nyctalus noctula* overhead. Common pipistrelle activity was approximately 10-12 minutes after emergence and soprano pipsitrelle activity later than this. The brown long-eared record started at emergence and finished at dawn whilst the Natterer's record was from after midnight through to dawn. Appendix 1 details the aggregated results of the bat surveys.

3.3 Evidence of other protected species

3.3.1 Three swallow *Hirundo rustica* nests were seen in the stables (two in the ground floor and one in the first floor). A little owl *Athene noctua* was seen on top of the stables roof and fresh pellet seen on the first floor of this building. A house sparrow *Passer domesticus* was seen inside the cart shed.

3.3.2 There were no obvious piles of rubble, compost or other suitable places for reptiles or amphibians to shelter within the two buildings and concrete yard which precluded any terrestrial searches.

4. ASSESSMENT

4.1 Site context and position within the landscape

4.1.1 Contextually, Upton Court Farm is located within a landscape which is assessed as being of a medium to high quality for bats with a generally high proportion of tree cover and small-scale field pattern likely to support good densities of the common species of bats found in southern Herefordshire such as pipistrelle and brown long-eared as well as lower densities of less common and more rare species such as whiskered *Myotis mystacinus*, Natterer's *Myotis natereri* and lesser horseshoe *Rhinopholus hipposideros.*

4.1.2 Key landscape features include:

- Several large blocks of broad-leaved woodland likely to provide high quality roosting and foraging habitat for numerous species of bats;
- A local landscape corridor feature running along a watercourse roughly orientated north-south through the landscape with dense tree cover likely to provide high quality foraging, roosting and commuting habitat for bats;
- A landscape unit of local significance formed between areas of woodland and small scale field pattern with a well developed hedgerow network likely to provide high quality foraging habitat for bats;
- Good connectivity across the landscape with identifiable corridors between woodland blocks, stream corridors and other important features likely to aid the dispersal of bats;
- Localised areas of poor connectivity with fragmented and absent hedgerows and a arable land use.

4.1.2 Upton Court Farm is situated on the edge of one of the less significant areas within the landscape with a marked arable land use and fragmented hedgerow network. There is a line of trees which runs from close to the northern side of the farmhouse towards a stream corridor and this is likely to represent the most significant connective feature in respect of bats on the site.

4.1.3 Herefordshire Biological Records Centre identifies recordings for: common pipistrelle, soprano pipistrelle, brown long-eared and unidentified bat within 2km of the site and lesser horseshoe bats within 4km to the north of the site. There are also recordings for common dormouse *Muscardinus avellanarius* within woodlands to the south and east of the site within 2km and several recordings for barn owl *Tyto alba* within 4km. There however no recordings for the site or 500m for any protected or locally notable species.

4.1.4 The National Biodiversity Gateway shows records for: all five common species of amphibian within the grid square and records for common toad *Bufo bufo* and common frog *Rana temporia* within 2km; serotine bat *Eptisecus serotinus*, Daubenton's *Myotis daubentonii*, Natterer's, noctule, common pipistrelle, soprano pipistrelle, brown long-eared and lesser horseshoe bats with the grid square.

4.1.6 Taking into account of the landscape context and extent of the biological records, we would consider this to be slightly unrepresentative of the true range of species of bats and distribution of populations within the local landscape. The area is known to support some metapopulations of great crested newt although these have become fragmented due to a decline in the distribution of farm ponds.

4.1.7 Appendix 2 characterises the ecological landscape setting whilst appendix 3 carries the extract from the Records Centre.

4.2 Bats

4.2.1 There was no recorded bat activity associated with the cart shed barn. We consider this building to be too draughty to provide any significant summer roosting potential although there were a number of wall crevices noted both inside and outside whilst the roof tiles have some potential to provide hibernation roosts for crevice dwelling species such as pipistrelles. Minor hibernation roosts are difficult to identify and the best practice approach is to try to retain as much potential within conversions and to avoid period where bats will be most impacted by any unexpected disturbance.

4.2.2 A brown long-eared bat was recorded during one activity survey and during two nights by a static data recorder inside the stable barn. The second such recording was consistent with a bat emerging at dusk and returning to roost at dawn. Given this evidence and physical evidence provided by droppings, we consider the roost to be consistent with a summer roost for this species associated with a solitary bat. There was no evidence of significant activity usually associated with a breeding roost and, based upon the framework assessment set out in the Bat Mitigation Guidelines (A.J. Mitchell-Jones 2004), this roost is of a low conservation status.

4.2.3 Although one of the more common species found in Herefordshire, brown long-eared bats are thought to be declining due to their reliance on buildings for roosting and therefore prone to disturbance and loss of habitat through loft and barn conversions. This species is also listed within the latest revision of the United Kingdom Priority Species Action Plan (UK Biodiversity Partnership 2009) and Section 41 of the Natural Environment and Rural Communities Act 2006.

4.2.4 A Natterer's bat was recorded on one night although there was no other recorded activity or physical evidence within the barn. The timing of this record is suggestive of a roost location close-by or occasional roost within the stable barn (low conservation status). Natterer's bats are listed in the Herefordshire Species Action Plan as being "uncommon" (Herefordshire Biodiversity Partnership 2000).

4.2.5 The most significant roost location on the site would appear to be a small common pipistrelle roost located away from the proposed development on the farmhouse. The generally low level of bat activity recorded by the surveys is attributed to the poor connectivity of the buildings to vegetation and low grade foraging on the arable fields surrounding the farm. As with the cart shed, there is some potential for individual hibernating bats within the stable barn within wall crevices.

4.2.6 All species of bats are listed on Appendix III of the Bern Convention, Annex IV of the EC Habitats Directive and Appendix II of the Bonn Convention (and are included under the Agreement on the Conservation of Bats in Europe). They are also protected under Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations 1994 and Schedules 5 and 6 of the Wildlife and Countryside Act 1981 as amended.

4.2.7 These make it an offence to disturb, kill or capture a bat or disturb a bat roost. The UK and Herefordshire Biodiversity Action Plans encourage development close to bat roosts to take account of roosts and to provide the necessary foraging habitat to maintain and where possible enhance the local populations.

4.2.8 Overall, we would assess the site as having a low status in respect of bats. This is likely to be equivalent to a site of Local level significance in terms of the Institute of Ecology and Environmental Management framework for Environmental Assessment (IEEM 2006).

4.3 Other protected species

4.3.1 At least three swallows nests were recorded within the stable barn. Swallows are regarded as being locally notable species and listed on the Amber List of Birds of Conservation Concern (JNCC 2002). These birds are reliant on nest sites inside buildings and have experienced significant decline in their numbers over the last decade.

4.3.2 A little owl was seen perched on top of the stable barn and there was evidence of the bird using the building as a night roost. There was no evidence of breeding within the building.

4.3.3 A house sparrow's nest was seen inside the cart shed. This species is listed with the Red List of Birds of Conservation Concern (JNCC 2002) and UK Priority Species Action Plan (UK Biodiversity Partnership 2009). It is also listed on Section 41 of the Natural Environment and Rural Communities Act 2006 making it a high priority species for conservation.

4.3.4 The pond located approximately 150m to the south of the farm buildings was found to be a feature measuring approximately 8m x 4m. There was no open water visible with the surface dominated by dense float grass *Glyceria maxima* with occasional willowherb *Epilobium hirsutum* along the edges. The banks of the pond were heavily vegetated with scrub and trees and there was no access to the edge of the pond. Consequently, the pond was heavily shaded and assessed as having a below average Habitat Suitability Index (HSI) score of 0.51.

4.3.5 Taking into account the HSI score, the dense shading, the lack of open water required for newts to display courtship and lack of local recordings, we consider that great crested newts are most unlikely to be present although it should be noted that the stone wall of the south-west elevation of the cart shed has crevices at ground level which face into an area of set-aside and which shows potential for newts to use.

Table 3: HSI Score for pond located 150m to the south

Pond ref	SO 65738 27928
SI1 - Location	1
SI2 - Pond area	0.2
SI3 - Pond drying	0.9
SI4 - Water quality	0.33
SI4 - Shade	0.6
SI6 - Fowl	1
SI7 - Fish	0.67
SI8 - Ponds	0.1
SI9 - Terr'l habitat	0.67
SI10 - Macrophytes	0.8
HSI	0.51

4.3.6 Dormice are present within 2km although non of the habitats present on the site are suitable for this protected species. Barn owls have not been recorded on the farm and there was no evidence of this species being present. The poor connectivity of the farmland provides poor local hunting conditions for this species.

5. IMPACT ASSESSMENT

5.1 Potential disturbance impacts

5.1.1 Treatment of timbers, removal of roof tiles and construction operations inside the barns will result in the potential disturbance to one or more protected species. At least one low status bat roost will be disturbed with a low scale impact with the risk of harm or injury to individual bats. There is also a low risk of disturbance to crevice dwelling species of bats being disturbed through the creation of roof lights on the stable barn although no significant use of this part of the building by bats was recorded. Nesting birds may also be disturbed depending upon the timing of the re-roofing and timber treatment.

5.1.2 There is some considered potential for bats to be hibernating within one or both of the proposed barns. Any disturbance to hibernating bats carries with it a potential high scale impact.

5.1.3 We consider the presence of great crested newts to be unlikely. However, under the precautionary principle, the theoretical risk of newts being present within the south-west elevation of the cart shed should be recognised within any proposed re-building works in this area. There are no such risks associated with the stable barn which is disconnected from potential newt corridors by large expanses of concrete.

5.2 Potential habitat loss

5.2.1 The stable barn is a confirmed roosting location for a brown long-eared bat and possibly transient roost for a Natterer's bat. These roosts are considered to be of a low conservation status. These roosts will be lost as a result of the proposed development and there would appear to be no viable options for retaining a roost within the building given the small size of the building and proposed function. This loss is assessed as having a low scale impact on the site although any such losses need to be mitigated on a like for like basis in accordance with PPS9 and the Natural Environment and Rural Communities Act 2006.

5.2.2 The proposals will also result in a partial or total loss of hibernation roost potential on the barns although the lack of large numbers of bats during the summer time suggests that any such losses will be of a low scale potential impact.

5.2.3 There is a very small risk of a loss of great crested newt potential habitat should they be present within the pond to the south of the farm as a result of repairs to the stone wall facing into the field on the cart shed. Allowing for the distance from the pond, the moderate connectivity between wall and pond, and availability of better quality terrestrial habitat closer to the pond, we consider any such potential loss of habitat as being of a negligible scale impact.

5.2.4 The development of the two barns will potentially result in the loss of three swallow nests, one little owl night roost and a house sparrows nest. The cumulative impact of these losses is assessed as being a low to medium scale given the high conservation priority of swallows and house sparrows.

5.3 Post construction and wider impacts

5.3.1 The two barns are not located close enough to significant bat roosts to warrant concerns through increased levels of disturbance through occupation. The common pipistrelle roost on the farmhouse roof is some distance from the stable barn and there are no plans which would lead to significant increases in light levels which would likely disrupt patterns of bat flight around the courtyard for this species. Pipistrelle bats are reasonably tolerant of increased light levels often associated with urban habitats.

5.3.2 There are no plans for modification of loss of areas of field edge for landscaping around the cart shed which might have implications for any great crested newts present within the pond to the south of the farm.

5.3.3 The site is not assessed as being a significant site for breeding bats due to poor connectivity of habitats and limited foraging opportunities. Any potential impacts are likely to be most significant in the wider context in terms of removing potential nesting habitat for swallows and house sparrows.

6. MITIGATION, COMPENSATION AND ENHANCEMENT

6.1 Mitigation strategy

6.1.1 The proposed development will, unless adequately mitigated for, result in a low to medium scale impact to roosting bats and nesting birds through disturbance and loss of habitat. These losses may not be avoided or mitigated on the proposed buildings even after consideration of alternative layout and uses.

6.1.2 All bat roosts are protected and PPS9 and the Natural Environment and Rural Communities Act 2006 require the potential impacts of the proposed development on biodiversity to be mitigated and enhanced with a proportionate net gain.

6.1.3 A new proposed building housing a biomass boiler provides excellent potential for a replacement bat roost. The location of this building to the north-west of the farm is considered to be superior in terms of providing access for bats to nearby vegetation, thereby enhancing the value of the habitat. Warm condition roosts will also provide considerable enhancement compared to the existing roosting habitat. Access to a dedicated loft inside this building and the adjacent garage will provide suitable replacement habitat for swallows and little owl.

6.1.4 Further enhancement of the proposed barns and the boiler building for bats and birds will provide additional habitat. The potential impacts from disturbance will be minimised through sympathetic timing of works whilst any potential impacts on great crested newts will be avoided through careful working practices carried out under ecological supervision.

6.1.5 Appendix 4 details the mitigation strategy and provides drawings of habitat conservation, replacement and enhancement.

6.2 Habitat conservation, replacement and enhancement

6.2.1 All external wall crevices will be retained across the two barns wherever it is possible to leave these without compromising the structural or weather proof integrity of the walls so as to conserve as much hibernation potential for roosting bats across the farm buildings.

6.2.2 A new bat loft will be created within a proposed building to house a biomass boiler to the north-west of Upton Court Farm to replace the lost roost within the stable barn. This bat loft will be created by boarding out the building below the eaves over half the length of the building to the following dimensions:- 2.4m floor to ridge; 6.6m wide; 5m long.

6.2.3 A 300mm access will be created at the apex of the joining ridge lines of this building to provide an inter-connecting flight channel for bats to use the adjacent proposed garage for light sampling. Further access points for bats will be created on the south-east gable end (300mm x 400mm false window with oak-framed hood over) at a distance of 1.5m down from the ridge allowing access for swallows in addition to 2 no. raised ridge tiles to Roost Creation Detail 4B to provide additional ventilation.

6.2.4 The bat loft will contain the following features so as to provide high quality roosting habitat representing replacement and enhancement of the existing habitat:

i. roof lined with 1F bituminous felt membrane with loose folds and 300mm overlaps to create roosting pockets favoured by brown long-eared bats;

ii. roof supports which avoid close-coupled modern truss design so as to provide clear and uncluttered loft suitable for pre-emergence flight for species such as brown long-eared, Natterer's and other species such as lesser horseshoe;

iii. 10 x boxed rafters to Roost Creation Detail 10 to provide crevice roosting opportunities for Natterer's, brown long-eared, whiskered and pipistrelle bats;

iv. 2 x Schwegler 1FF bat boxes fitted to gable end (internal) walls beneath the ridge;

v. 900mm depth internal ply baffle to provide range of thermal conditions and barrier to light penetration from the entrance in the gable end;

vi. 2 x 100mm wide rough sawn timber planks running the entire length of the ridge wither side of the apex beneath the rafters to provide roosting conditions for whiskered bats.

6.2.5 This bat loft and adjacent garage will be accessible to birds. The following will be installed inside:

i. 3 x Schwegler SN10 swallow terraces;

ii. 1 x Schwegler little owl box no. 21.

6.2.6 The space inside the open garage of this building will provide an inter-connected space for bats to use. This will be enhanced through the provision of an additional Schwegler 1FF bat box fitted inside the north-east gable end below the ridge. Two more Schwegler swallow terraces will be fitted inside this building to provide enhanced conditions of this species whilst the garage will have an additional

3 no. raised ridge tiles to Roost Creation Detail 4A to provide crevice roosting opportunities along the ridge line.

6.2.7 To provide replacement habitat for any loss of wall crevice habitat on the cart shed, the repair to the south-west elevation will include the insertion of an integral Schwegler 1F bat tube. Crevices at ground level will be recreated so that any potential great crested newt habitat is not lost as a result of the development.

6.2.8 Further enhancement of the cart shed barn for bats will be achieved through the installation of 3 x Raised Ridge Tiles to Roost Creation Detail 4A on the cart shed to provide crevice roosting habitat for species such as pipistrelle bats. Continued and enhanced functionality of the buildings for house sparrows will be achieved by fitting Schwegler sparrow terraces to the north-west gable ends of both buildings and on the north-eats gable end (external) of the new garage building attached to the boiler room.

6.3 Timing / Supervision of works

6.3.1 The Bat Mitigation Guidelines (A.J. Mitchell-Jones 2004) suggest that for low status bat roosts, the timing of any roost destruction and habitat replacement should be simultaneous. However, as a best practice measure we recommend that the replacement bat loft is created before the destruction of the bat roost within the stable barn (effective when the works begin) so that bats are note left without a roost.

6.3.2 Works to convert the cart shed may commence during the period 1st April through 31st October provided that birds are excluded from nesting inside the structure. Works may proceed beyond this period provided that roof tiles have been removed and all pointing of stone and brick wall crevices completed by this time so as to avoid any potential disturbance or injury to individual hibernating bats.

6.3.3 The partial demolition and rebuilding of the south-west wall of the cart shed will be undertaken using hand tools and under the strict direction of a licensed ecologist to ensure that great crested newts are not using the wall crevice as terrestrial habitat. In the event of great crested newts being found, the development of this building will cease and Natural England will be consulted. It may be necessary to apply for and acquire a European Protected Mitigation Licence in respect of great crested newts before works recommence.

6.3.4 Works to convert the stable barn will commence during the period 1st September through 31st May so as to avoid the disturbance to roosting bats. If starting during the period 1st November to 31st March, a prior check on all wall crevices and beams will be made to ensure that there are no signs of bats persisting in the barn into the winter. Where evidence is found, work will be differed until the following spring.

6.3.5 Prior to the commencement of conversion works in the stable barn, radios and lights will be left on for a minimum period of seven days so as to dissuade bats from persisting in the building.

6.3.6 Treatment of timbers within the barn will be undertaken during the period stated in paragraph 6.3.4 when bats are most likely to be absent and conversion works have started. However, as an extra safeguard (bats may for example use the building at night particularly during the autumn), the fungicide treatment should be of proven non-toxicity to mammals.

6.3.7 For clarity, the following operations will be completed only under the supervision of a licensed ecologist:

i. all pointing of brick and stone wall crevices;

ii. collection of droppings from the stable barn and subsequent spreading within replacement bat loft;

iii. site check prior to commencement of conversion works and treatment of timbers within the stable barn.

6.4 Post development site safeguard

6.4.1 The landscaping scheme for the proposed boiler room building should include planting of native trees and shrubs to link the north-west corner of this building with lines of trees and shrubs extending to the north-west so as to provide linkage for commuting and foraging bats.

6.4.2 All bat and bird measures will be retained upon completion and left unhindered and undisturbed. No domestic or other storage will be undertaken within dedicated bat lofts. Bat lofts, boxes may be periodically checked outside of the nesting season to carry out routine maintenance by a licenced ecologist.

6.4.3 In view of the potential low to medium scale impact of the project, a period of two year's post construction monitoring is recommended.

6.4.4 This survey data will remain valid for a period of no more than eighteen months.

6.5 Delivery mechanism

6.5.1 The mitigation for the development of the barns will be conditional to the granting of permission to erect the biomass boiler building to the north west of Upton Court Farm.

6.5.2 A planning condition should require the preparation of a Protected Species Method Statement and Habitat Enhancement Scheme translating the recommendations set out in this report. An ecological clerk of works will be appointed to prepare this scheme and supervise all relevant work on the site.

6.5.3 On the evidence of this survey, a low conservation status bat roosts will be disturbed and destroyed by the proposed development within the stable barn. A European Protected Species Mitigation Licence in respect of bats will therefore be required prior to works commencing in this building. No licence will be required within the cart shed barn.

Report prepared by: Stewart Rampling BSc (Hons) MIEEM

Date: 23rd July 2009

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Appendix 1: Upton Court Farm bat survey results

Date:	10th July 2009.
Weather:	100% cloud, light W breeze, 15°C constant, 70% RH
Sunset:	21.29
Surveyors:	Fergus Henderson MIEEM (licence 20090401) Stewart Rampling MIEEM
Surveyors' positions:	in courtyard to east cart shed and between farmhouse and stables
Equipment used:	Pettersson D240x Time Expansion Recorder;8 x 42 binoculars; Ciel Heterodyne / Frequency Division Detector

Unit 1 = stables, Unit 2 = cart shed

21.00	START
21.53	Loud 45 kHz Pipistrelle social call heard at S end of unit 1
21.56	Faint 45 kHz Pipistrelle call heard on E side of unit 1
21.58	45 kHz Pipistrelle foraging in large cattle shed on S side of unit 1
22.04	Brown Long-eared resting on apex beam inside upper floor of unit 1
22.05	45 kHz Pipistrelle foraging in garden on E side of main farm house
22.34 – 23.15	Continual foraging activity of up to 3 x 45 kHz Pipistrelles around farm complex
23.30	FINISH

Date:	21st July 2009
Weather:	60% cloud, light SW breeze, strengthening, 13.5°C, 85% RH
Sunrise:	05.15
Surveyors:	Fergus Henderson MIEEM (licence 20090401)
Surveyors' positions:	between stables and farmhouse
Equipment used:	Pettersson D240x Time Expansion Recorder;8 x 42 binoculars; Ciel Heterodyne / Frequency Division Detector

03.00	START
03.14	45 kHz Pipistrelle pass along access track on W side of unit 1
03.29	55 kHz Pipistrelle pass along access track on W side of unit 1
04.02	55 kHz Pipistrelle pass near NE corner of unit 1
04.16	Several short 55 kHz Pipistrelle passes heard from N end of unit 1
04.23	Brief 45 kHz Pipistrelle pass heard from N end of unit 1
04.29	45 kHz Pipistrelle foraging on W side of unit 1
04.34 – 04.46	3 x 45 kHz Pipistrelles swarming at ridge tile at S gable of converted barn on E side of main farm house. Entered roost.
04.44	Noctule pass overhead
04.50	45 kHz Pipistrelle foraging in large cattle shed on S side of unit 1
05.20	FINISH

Anabat summary (located inside upper storey of unit 1)

Date	Species	Summary/time
17.7.09	45 kHz Pipistrelle	21.55 → 04.11
	55 kHz Pipistrelle	23.20 → 03.39
	Brown Long-eared	01.53 single pass
18.7.09	45 kHz Pipistrelle	21.55 → 04.46
	55 kHz Pipistrelle	22.31 → 03.49
	Brown Long-eared	21.54 → 03.50
	Natterer's	00.29 → 03.51

Appendix 2: Ecological landscape context

Appendix 3: Herefordshire Biological Records Centre Extract

SO658281

Legally Protected Species within 2km the site

Species		Status, if known	Grid Ref.	Year	Count	Sex/Stage
Fieldfare	*Turdus pilaris*	WACA1.1 HBAPCC BCCA	SO6727	2007	Present	Present
Redwing	*Turdus iliacus*	WACA1.1 HBAPCC BCCA	SO6727	2007	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO673273	2007	Present	Present
Kingfisher	*Alcedo atthis*	BC2 WACA1.1 HBAPCC HBAPSR BCCA	SO673273	2006	1	Present
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HDA4 ECH2 WACA5(Full) HBAPPS HBAPCC	SO676281	2005	2	Adult
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO6727	2003	Present	Present
Common Dormouse	*Muscardinus avellanarius*	HDA4 ECH2 WACA5(Full) UBAPPS HBAPPS HBAPCC	SO653262	2000	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO6727	2000	Present	Present
Pipistrelle	*Pipistrellus pipistrellus*	HDA4 ECH2 BC2 BOC WACA5(Full) HBAPPS HBAPCC	SO6728	2000	Present	Present
Brown Long-Eared Bat	*Plecotus auritus*	HDA4 ECH2 BC2 BOC WACA5(Full) UBAPPS HBAPCC	SO647269	1992	Present	Present
Brown Long-Eared Bat	*Plecotus auritus*	HDA4 ECH2 BC2 BOC WACA5(Full) UBAPPS HBAPCC	SO647269	1992	1	Present
Common Dormouse	*Muscardinus avellanarius*	HDA4 ECH2 WACA5(Full) UBAPPS HBAPPS HBAPCC	SO650263	1991	1	Present
Common Dormouse	*Muscardinus avellanarius*	HDA4 ECH2 WACA5(Full) UBAPPS HBAPPS HBAPCC	SO675275	1991	1	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO62N	1990	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO62P	1990	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO62T	1990	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO62U	1990	Present	Present
Unidentified Bat	*Chiroptera*	HDA4 ECH2 BOC WACA5(Full)	SO653270	1987	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO654263	1977	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO654264	1977	Present	Present
Bluebell	*Hyacinthoides non-scripta*	WACA8 HBAPCC	SO664288	1977	Present	Present
Common Dormouse	*Muscardinus avellanarius*	HDA4 ECH2 WACA5(Full) UBAPPS HBAPPS HBAPCC	SO6527	1964	Present	Present
Pipistrelle	*Pipistrellus pipistrellus*	HDA4 ECH2 BC2 BOC WACA5(Full) HBAPPS HBAPCC	SO6527	1964	Present	Present
Deptford Pink	*Dianthus armeria*	WACA8 UBAPPS VU NS	SO6527	1889	Present	Present

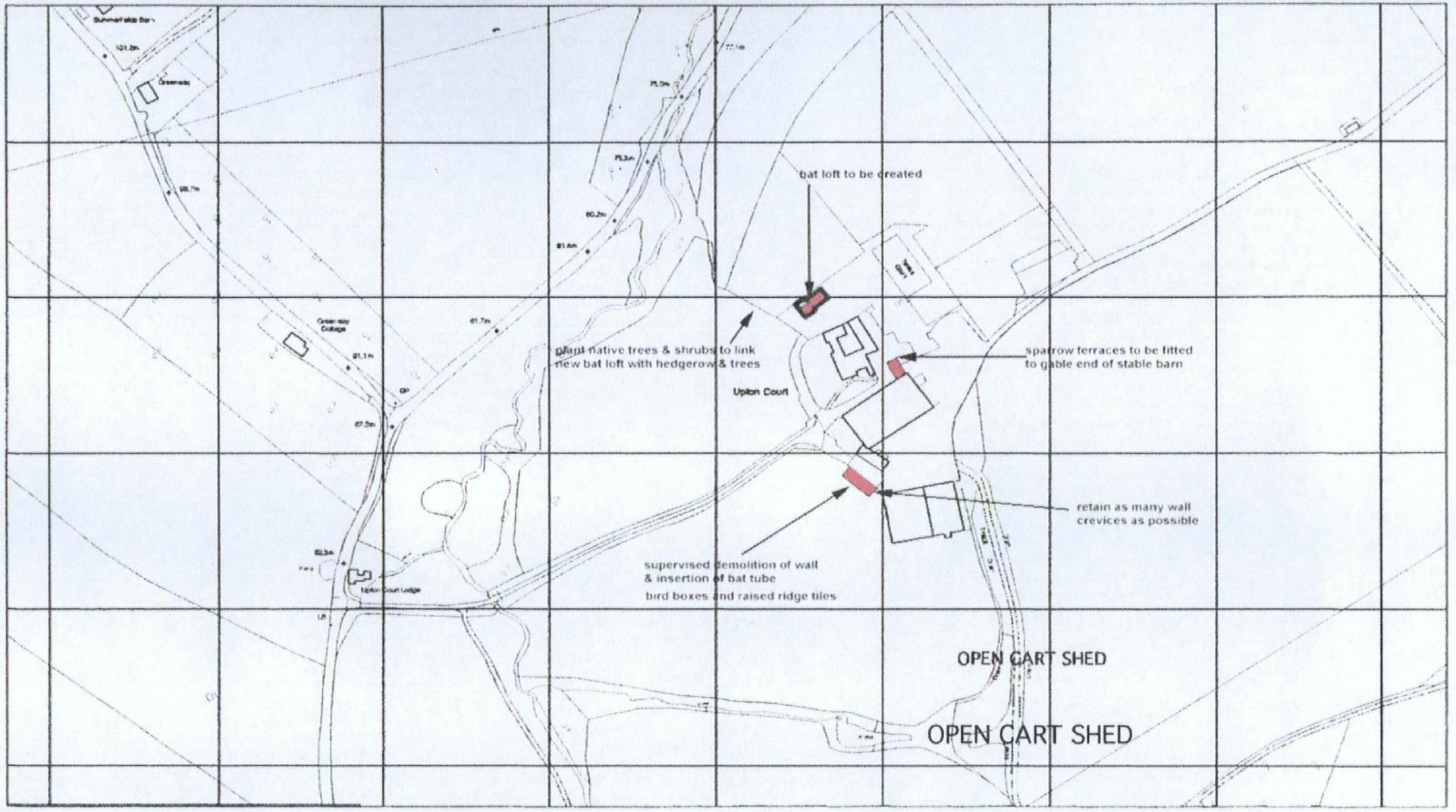
Horseshoe Bats within 4km the site

Lesser Horseshoe Bat	*Rhinolophus hipposideros*	HDA4 HDA2 ECH2 BC2 BOC WACA5(Full)	SO652319	2004	1	In Flight

UBAPPS HBAPPS H

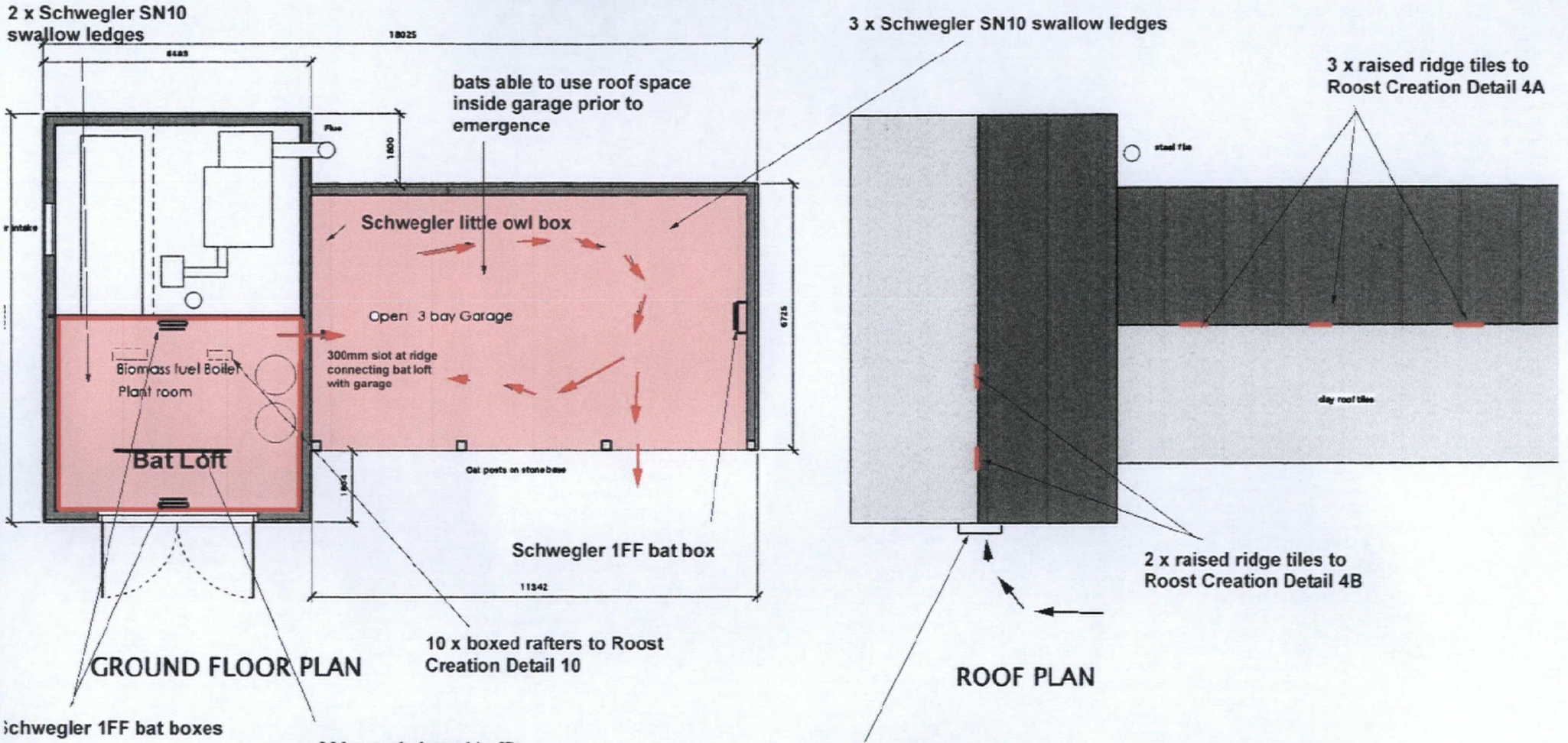
Barn Owls within 4km the site							
Barn Owl	*Tyto alba*	CITA BC2 WACA1.1 HBAPPS HBAPCC BCCA	SO662244	2005	1	Juvenile
Barn Owl	*Tyto alba*	CITA BC2 WACA1.1 HBAPPS HBAPCC BCCA	SO662244	2005	Present	Breeding Confirmed
Barn Owl	*Tyto alba*	CITA BC2 WACA1.1 HBAPPS HBAPCC BCCA	SO626295	2004	1	Present
Barn Owl	*Tyto alba*	CITA BC2 WACA1.1 HBAPPS HBAPCC BCCA	SO632284	2004	1	Present
Barn Owl	*Tyto alba*	CITA BC2 WACA1.1 HBAPPS HBAPCC BCCA	SO662302	2003	1	Present
Barn Owl	*Tyto alba*	CITA BC2 WACA1.1 HBAPPS HBAPCC BCCA	SO625295	2000	1	Present

Appendix 4: Plans & Elevations showing habitat conservation, replacement and enhancement



LOCATION PLAN
1:2500

SITE LOCATION PLAN
04 SL(0) 01 B



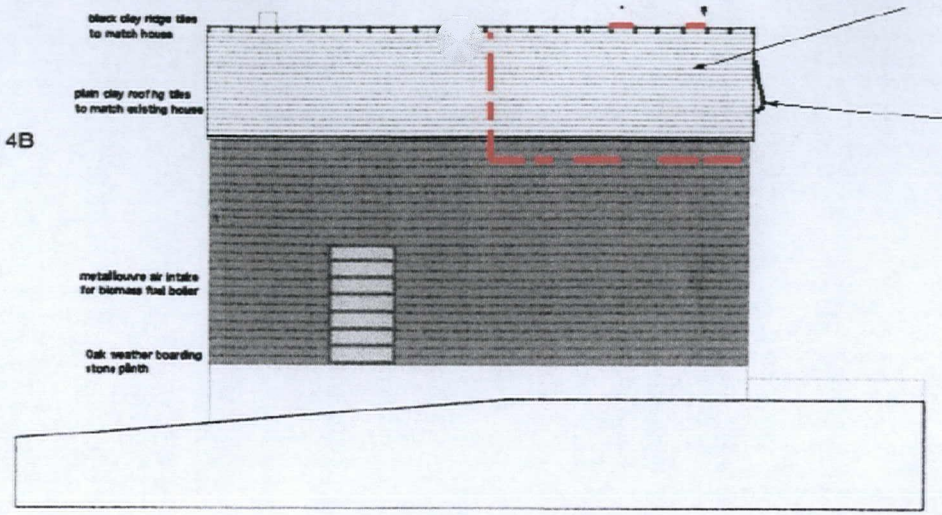
PLANS

AS PROPOSED

04 P(0) 10 B

Plan	General Notes: 1. Do not scale off this drawing. 2. Any discrepancies to be referred to the Architect. 3. This drawing is to be read in conjunction with all relevant Specifications and other drawings issued by the Architect,Structural Engineer and other Specialists. 4. This drawing is copyright and is not to be reproduced.	Specific Notes:	Revision	Date	Details of revision	Client: P BAILEY Project: UPTON COURT, UPTON BISHOP, HEREFORDSHIRE Drawing Title: GROUND FLOOR PLAN AS PROPOSED	
						Status: PRELIMINARY	Date: Drawn by: JBL
						Scale: 1:100@A3	Dwg No: Revision:

2 x raised ridge tiles
to Roost Creation Detail 4B

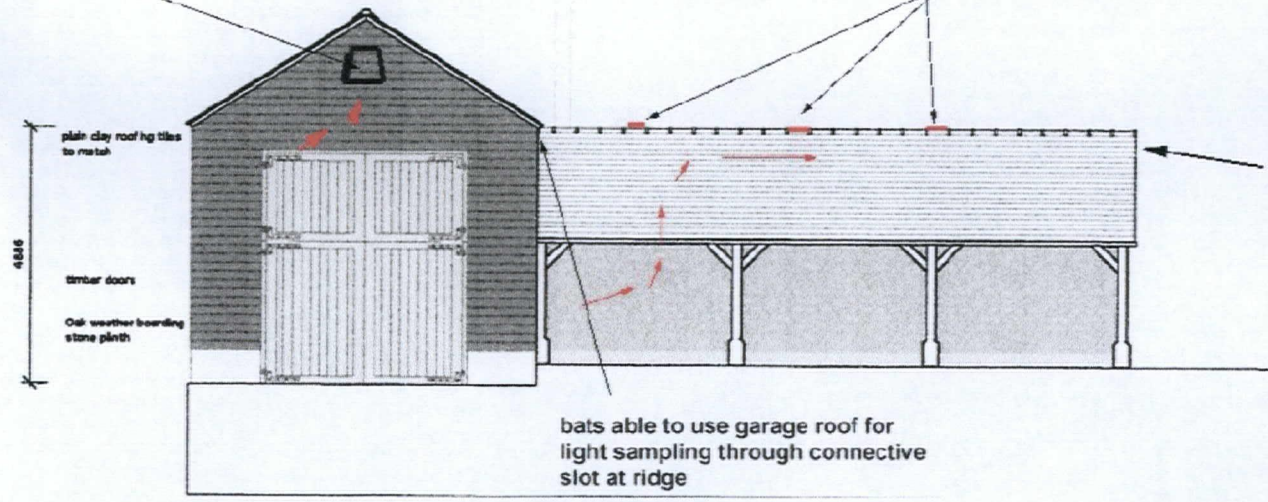


300mm x 400mm false
window with protective hood
giving access to bat loft

SOUTH WEST ELEVATION

access into bat loft

3 x raised ridge tiles
to Roost Creation Detail 4A



Schwegler sparrow terrace

bats able to use garage roof for
light sampling through connective
slot at ridge

NORTH WEST ELEVATION

ELEVATIONS-
AS PROPOSED
04 P(0) 12 B

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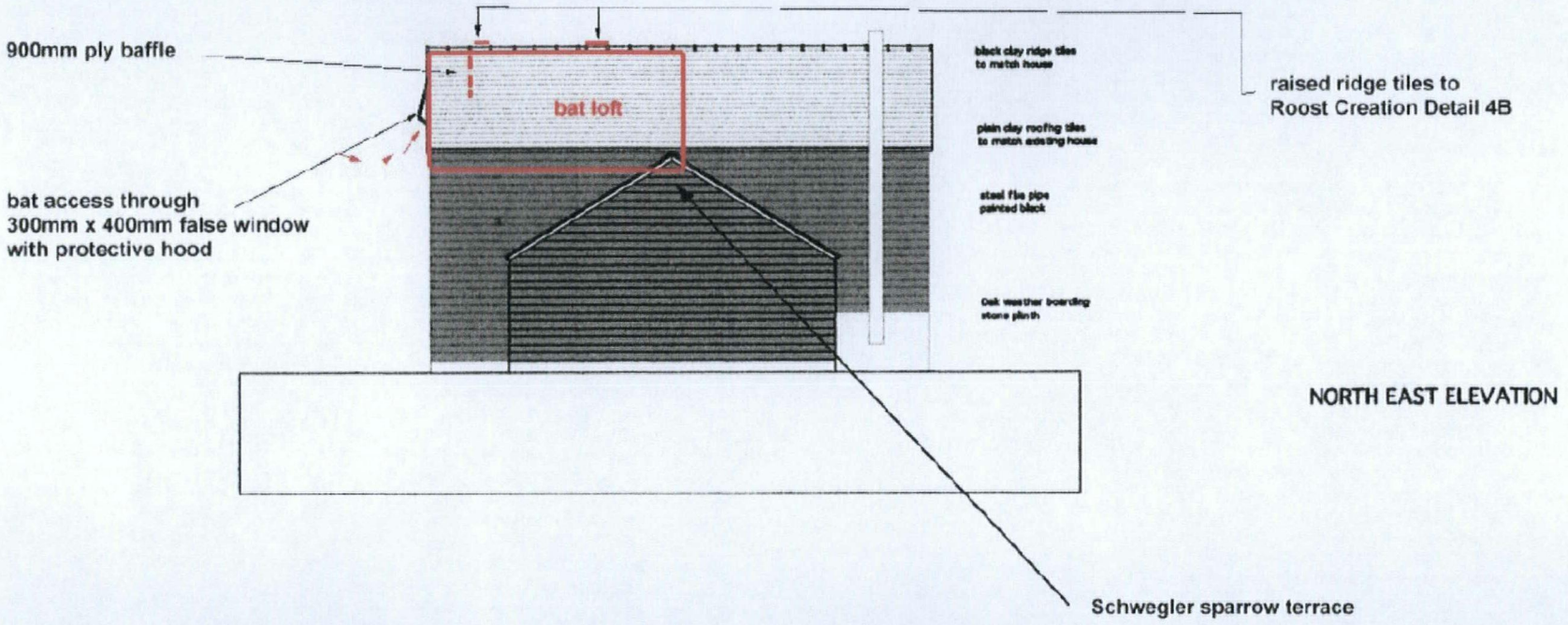
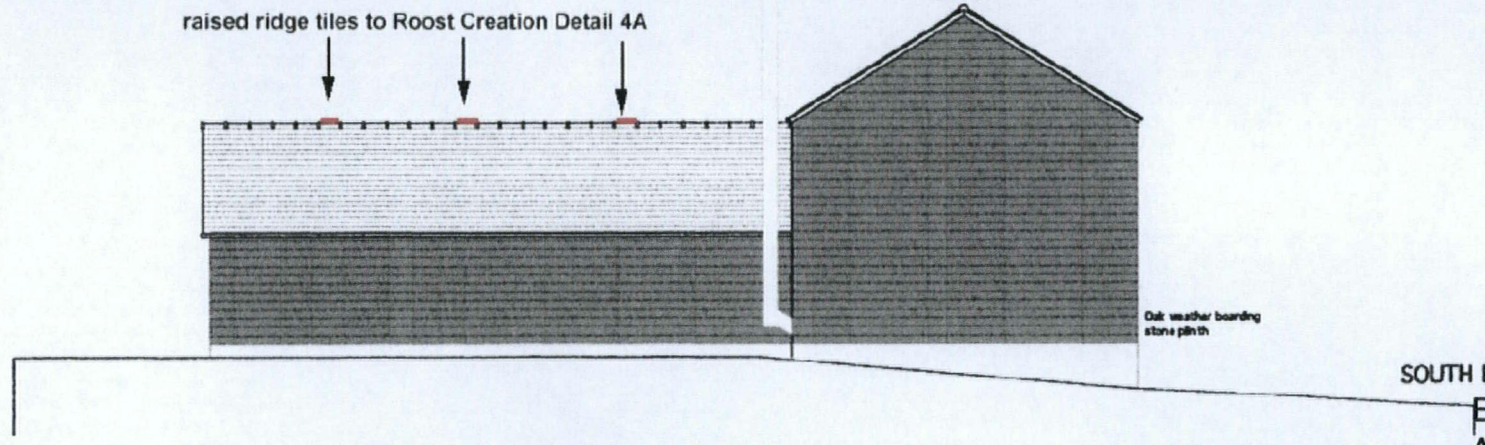
						Status	Date / Drawn By: JBL
						Scale: 1:100@A3	Dwg No / Revision





ELEVATIONS AS PROPOSED

04 P(0) 11 B

Plan

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2. Any discrepancies to be refered to the Architect.
3. This drawing is to be read in conjunction with all relevant Specifications and other drawings issued by the Architect,Structural Engineer and other Specialists.
4. This drawing is copyright and is not to be reproduced.

Specific Notes

Revision	Date	Details of revision

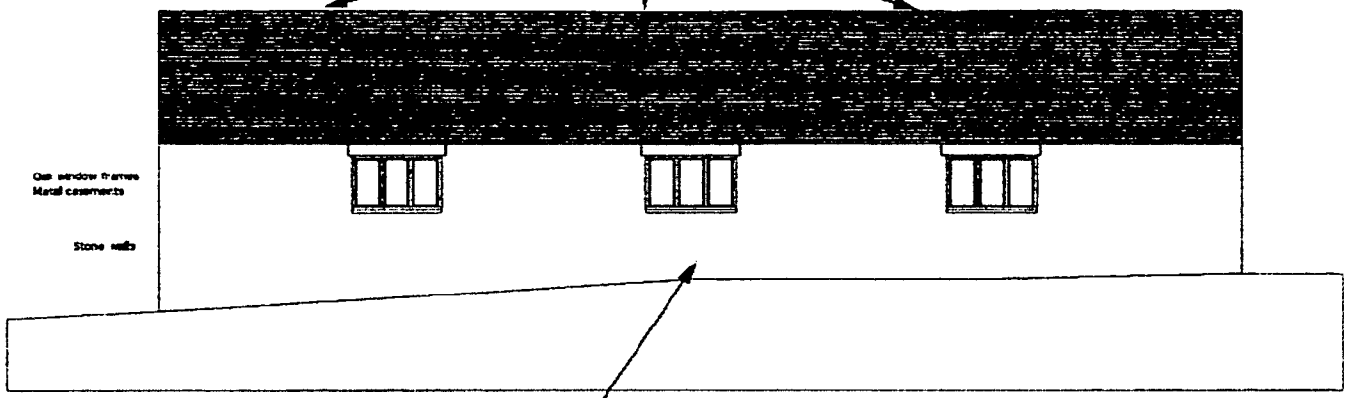
Client P BAILEY

Project UPTON COURT
UPTON BISHOP, HEREFORDSHIRE

Drawing Title ELEVATIONS AS PROPOSED

Status	Date	Drawn By
		JBL

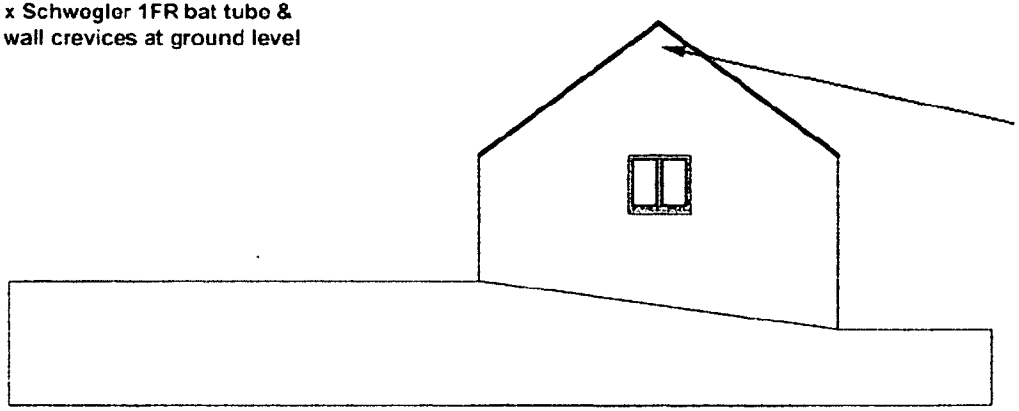
raised ridge tiles to Roost Creation Detail 4A



SOUTH WEST ELEVATION

supervised demolition & rebuild of wall
- insert 1 x Schwegler 1FR bat tube &
reinstate wall crevices at ground level

Schwegler sparrow terrace

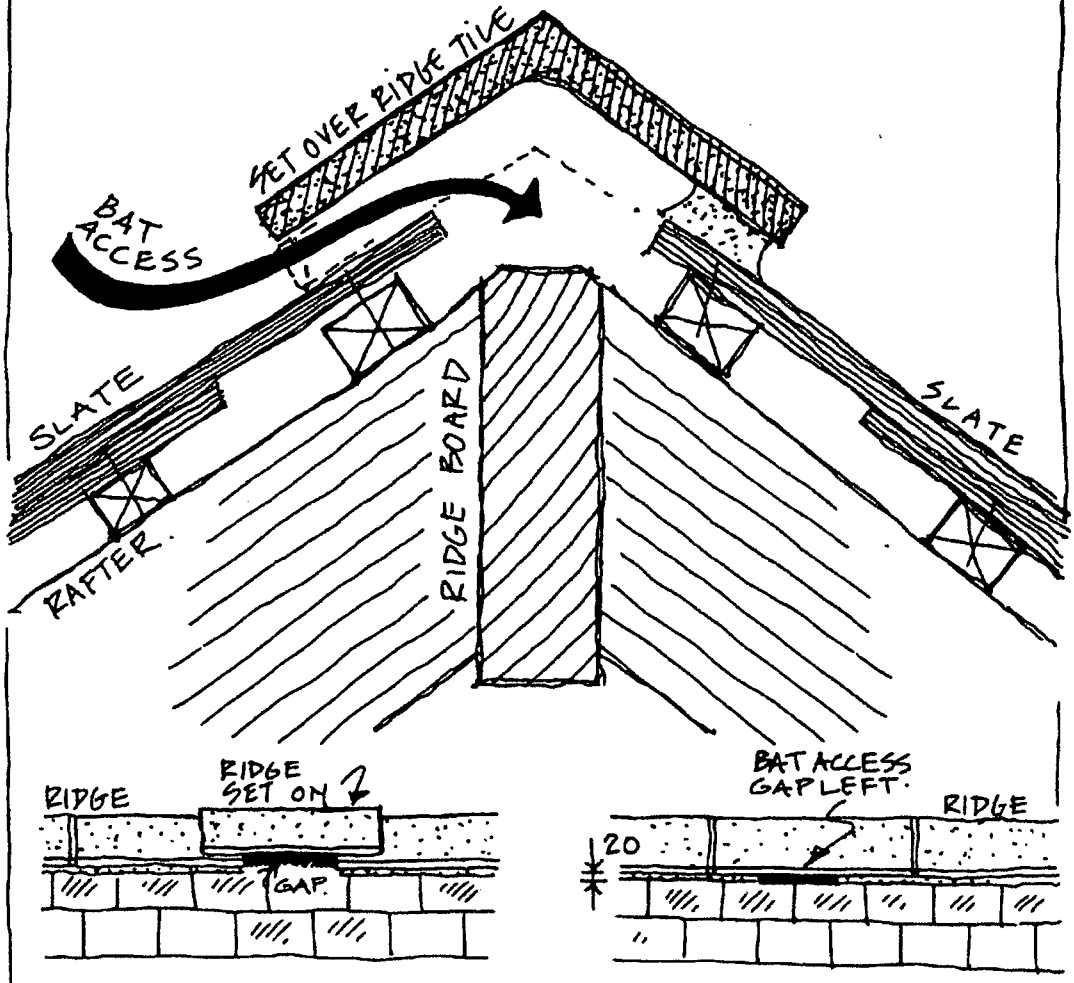


NORTH WEST ELEVATION

ELEVATIONS AS PROPOSED 02 P(0) 13

	General Notes 1. Do not scale off this drawing. 2. Any discrepancies to be referred to the Architect. 3. This drawing is to be read in conjunction with all relevant specifications and other drawings issued by the Architect, Structural Engineer and other specialists. 4. This drawing is copyright and is not to be reproduced.	Specific Notes	Revision	Date	Details of revision	Client P BAILEY Project UPTON COURT UPTON BISHOP, HEREFORDSHIRE Drawing Title ELEVATIONS SURVEY AS EXISTING	
						Status	Date	Drawn By JBL
						Scale 1:100@A3	Dwg. No	Revision A

RIDGE TILE ACCESS DETAIL 4A



~ OPTION A ~

ROOF RIDGE SET ON TOP OF GENERAL RIDGE TILES TO FORM BAT ACCESS GAP.

~ OPTION B ~

MAINTAIN 20MM MORTAR GAP. & LEAVE A SECTION OUT.

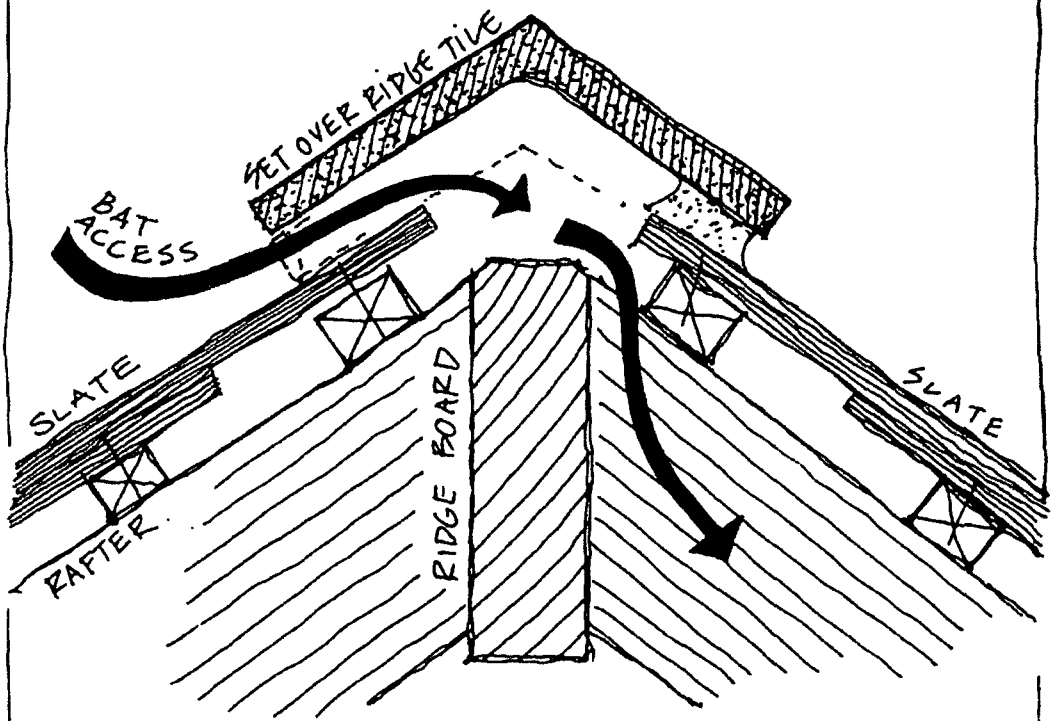
ENGLISH NATURE

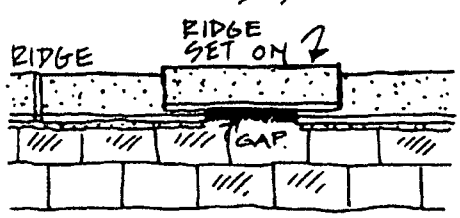
SP

English Nature Cumbria Team, Juniper House, Murley Moss, Oxenholme Road, Kendal LA9 7RL. Tel: 01539 792800 Fax: 01539 792830 Email: cumbria@english-nature.org.uk

RIDGE TILE ACCESS DETAIL 4B

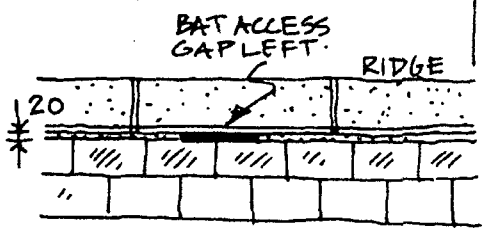
(WITH ACCESS TO ROOF VOID)





~ OPTION A ~

ROOF RIDGE SET ON TOP OF GENERAL RIDGE TILES TO FORM BAT ACCESS GAP.



~ OPTION B ~

MAINTAIN 20MM MORTAR GAP & LEAVE A SECTION OUT.

ENGLISH NATURE

SP

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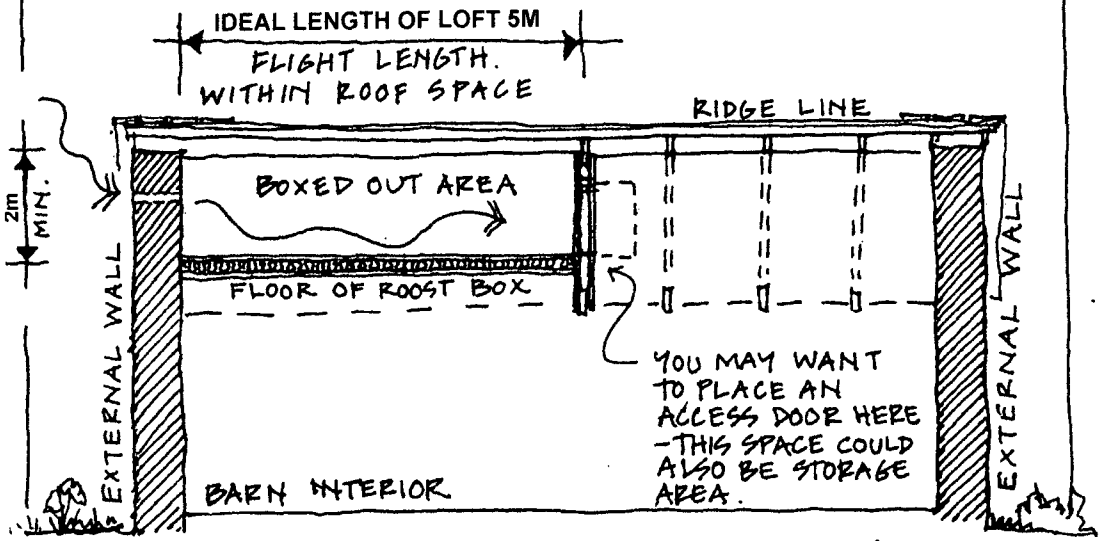
ROOF SPACE ROOST FOR LONG EARED BATS

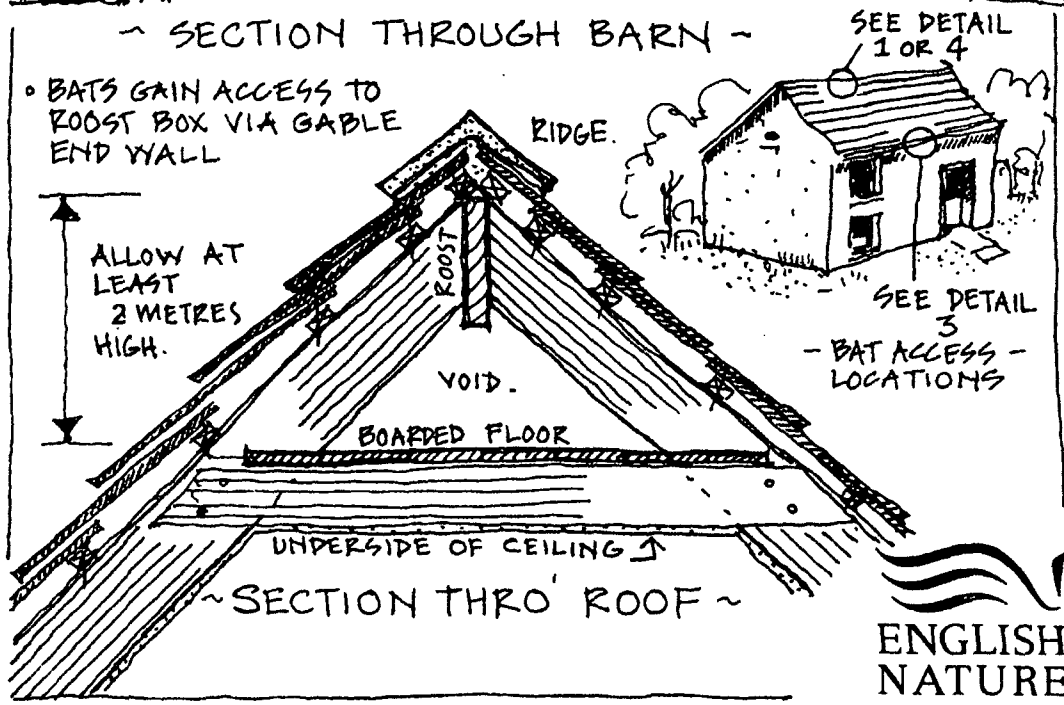
DETAIL 8

- BOX OUT SECTION OF ROOF UNDER THE RIDGE BEAM WHERE LONG EARED BATS CAN ROOST



~ SECTION THROUGH BARN ~

- BATS GAIN ACCESS TO ROOST BOX VIA GABLE END WALL



~ SECTION THRO' ROOF ~

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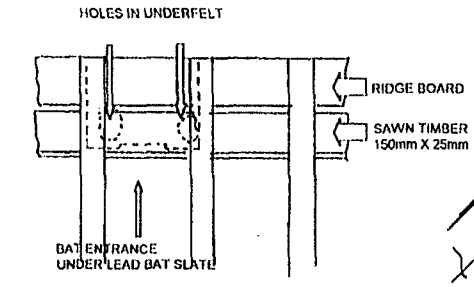
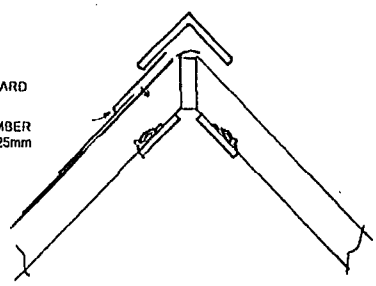
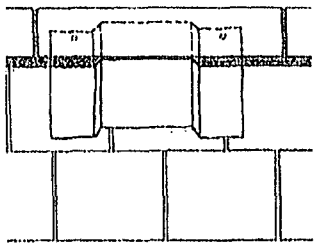
ROOST PROVISION IN ROOFS FOR WHISKERED BATS (Myotis mystacinus)

Chris Shaw AIEEM

Kingsmoor Bats Consultancy 2001







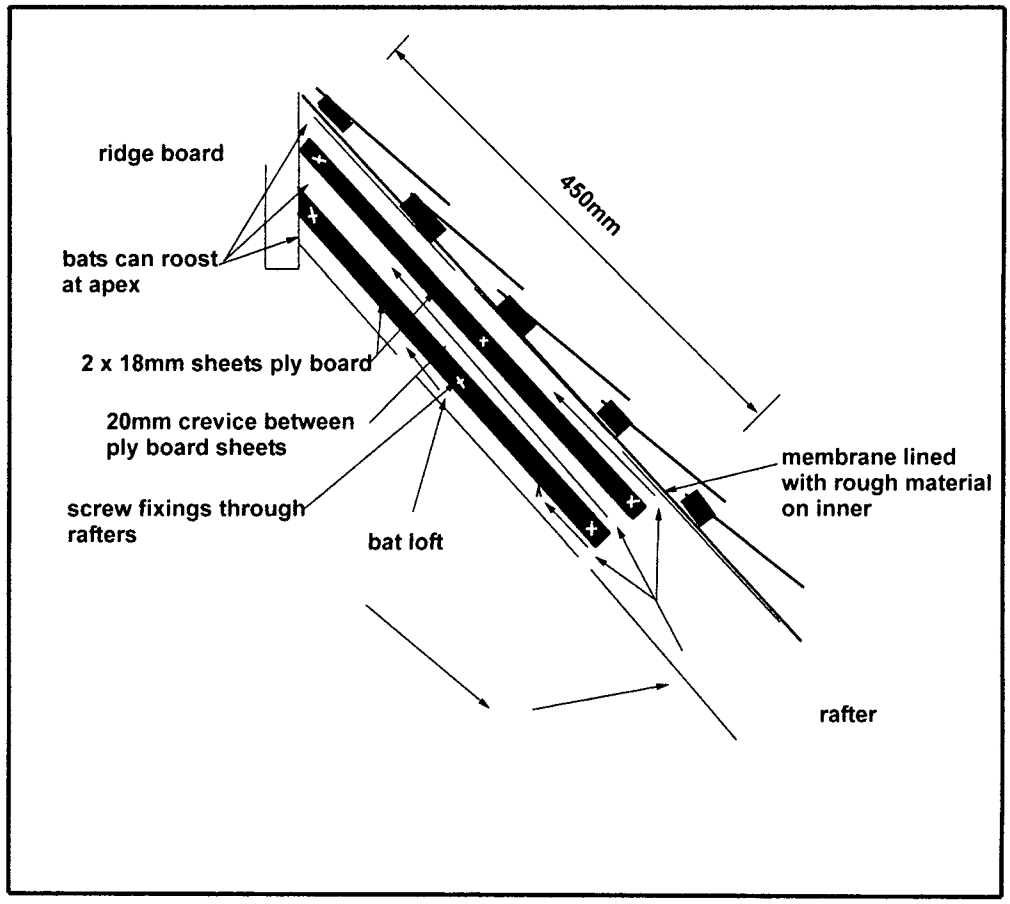
Concerns have been expressed by a number of bat workers that Whiskered bats have not returned after re-roofing of properties that have previously been used by this bat species. It was suggested that the bats, in previously unfelted roofs, were deterred from re-adopting their traditional roosts by underfelting the new roof, as required by current building regulations.

Although whiskered bats are often found in very 'unfriendly' roofs - generally drafty ones without underfelting - I have found Whiskered bats in very cosy roofs with underfelting. There is a common factor to the used roosts that is missing from the abandoned ones - the provision for the bats to roost on top of timbers.

In unfelted roofs, Whiskered bats are found roosting in the tunnel formed by ridge tiles, or on top of rafters and trusses, in the space between them and the slates or tiles above, created by the thickness of the battens. When underfelted, these spaces are lost by the felting laid directly onto the rafter and truss tops.

In felted roofs, I have found Whiskered bats on gable wall tops, where the wall does not reach the felting and in other roofs, found them where the ridge has been fixed under the rafters and there is a space between the ridge timber and the underfelt. Roost provision can be easily and cheaply incorporated into new and re-roofed buildings. Fixing two planks to the underside of the rafters under the ridge will create the roost spaces that seem to be required by these bats.

Whiskered bats will enter roofs through a variety of entrances: gaps in soffits, under ridge tiles, between slates and tiles and under flashings. The height above ground of the access has been noted as ranging from 2m to 7m. The type and position of the roost entrance for Whiskered bats is not specific. The incorporation of a bat slate at the ridge in conjunction with the proposed roost provision may offer the best solution to inviting Whiskered bats back to their traditional roosts and can provide roost provision in new buildings for this bat species.



Roost Creation Detail 10 boxed rafter bat box