

Stone Farm Barn Leighterton Gloucestershire

Preliminary Roost Assessment

October 2023

Client Name:	Kathie Thomas
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Position:	Managing Director and Principal Ecologist



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1. Introduction

- 1.1 In July 2023 Five Valleys Ecology was commissioned by Kathie Thomas (hereafter referred to as the Client) to undertake a Preliminary Roost Assessment at Stone Farm Barns, 8 Farm Lane, Leighterton, Gloucestershire GL8 8US (hereafter referred to as the 'Site') centred at Ordnance Survey grid reference ST 8229191084 (What3Words address \\fooling.patching.masks).
- 1.2 A planning application is proposed for conversion of the outbuilding and construction of a separate garage.
- 1.3 The purpose of this Preliminary Roost Assessment is to:
- Identify protected species issues that may exist in relation to bats (and nesting birds) which could influence the development proposals;
 - Assess possible ecological constraints to the development regarding bats (and nesting birds) and make preliminary recommendations for mitigation and enhancement opportunities;
 - Provide information on relevant legislation; and
 - Where necessary, specify further survey work that may be required.

2. Legislation

Bats

- 2.1 All British bats are protected under both UK law; Wildlife and Countryside Act 1981 (WCA) (as amended), and European law (The Habitats Directive); which is transposed into law in England and Wales by The Conservation of Habitats and Species Regulations 2017 ('Habitats Regulations').
- 2.2 Schedule 5 of the WCA affords protection against:
- Intentional or reckless disturbance of bats or obstruction of any structure or place used for shelter or protection; and
 - Selling, offering or exposing for sale (alive or dead, including parts or derivatives).
- 2.3 Schedule 6 states that bats cannot be killed or taken by certain methods, such as traps and nets, poisons, automatic weapons, electrical devices, smoke/gases etc.
- 2.4 All British species of bat are listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 as a European Protected Species (EPS) of animal. Regulation 41 (1) of the Regulations makes it an offence to:
- Deliberately capture, injure or kill an EPS;
 - Deliberately disturb an EPS;
 - Deliberately take or destroy the eggs of an EPS;
 - Damage or destroy a breeding site or resting place of an EPS; or
 - To be in possession of an EPS, or to control, to transport, to sell or exchange, or to offer for sale or exchange.
- 2.5 Some rare bat species, namely Greater Horseshoe Bat *Rhinolophus ferrumequinum*, Lesser Horseshoe Bat *Rhinolophus hipposideros*, Barbastelle *Barbastellus barbastellus* and Bechstein's *Myotis bechsteinii*, are afforded greater protection under European legislation, being listed under Annex II of the EC Habitats Directive which lists species whose conservation requires the designation of Special Areas of Conservation (SACs).

Brexit Changes to the Habitats regulations

- 2.6 The UK exited the European Union (EU) on 31 January 2020 and entered a transition period until the end of 2020. For England, amendments to the Habitats Regulations are largely limited to 'operability changes' that will ensure the regulations can continue to have the same working effect after the transition period. Most of these changes involved transferring functions from the European Commission (EU) to the appropriate authorities in England and Wales. All other processes or terms in the Habitats Regulations remain unchanged and existing guidance is still relevant¹.

¹ <https://cieem.net/brexit-changes-to-the-habitats-regulations/>

- 2.7 Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK no longer form part of the EU's Natura 2000 ecological network. The Habitats Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes:
- Existing SACs and SPAs
 - New SACs and SPAs designated under these Regulations
- 2.8 Any references to Natura 2000 in the Habitats Regulations and in guidance now refers to the new national site network¹.

Birds

- 2.9 All wild birds are protected under The WCA 1981 (as amended). Under this legislation it is an offence to:
- Kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird while it is in use or being built; and
 - Take or destroy the egg of any wild bird.
- 2.10 Certain rare breeding birds are listed on Schedule 1 of The WCA 1981 (as amended). Under this legislation they are afforded the same protection as other wild birds and are also protected against disturbance whilst building a nest or on or near a nest containing eggs/unfledged young.

Biodiversity Action Plans and Species of Principal Importance

- 2.11 Following The Convention on Biological Diversity in (1992), the UK BAP² was published. The aims and objectives of the plan were to preserve and enhance the biological diversity of the UK through implementation of Habitat Action Plans (HAPs) and Species Action Plans (SAPs) for habitats and species that are priorities for conservation in the UK. This has cascaded down for inclusion on a number of Local Biodiversity Action Plans (LBAPs), including the county of Gloucestershire³.
- 2.12 At the Nagoya UN Biodiversity Summit in October 2010, a new 'Strategic Plan' to drive action on biodiversity under the Convention on Biological Diversity was agreed, providing a new global vision and direction for biodiversity policy. From this, England has revised its biodiversity strategy, publishing priorities under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, which lists Habitats of Principle Importance (HoPIs) and Species of Principle Importance (SoPIs) for the purpose of conserving biodiversity.
- 2.13 From 2012 the Gloucestershire Local Nature Partnership (LNP) have now 'moved towards a more integrated landscape-scale approach to biodiversity conservation with the aim of recovering habitats and species as well as the ecosystems and services that they underpin'⁴.

² <http://jncc.defra.gov.uk/page-5705>

³ <https://www.gloucestershirenature.org.uk/biodiversity-action-plan-bap>

⁴ <https://www.gloucestershirenature.org.uk/>



- 2.14** This new ecosystem approach to delivery places greater emphasis on achieving biodiversity targets through habitat-based delivery by establishing coherent and resilient ecological networks'. In doing so, the Gloucestershire LNP promotes those species in Gloucestershire included on the section 41 list. Local Planning Authorities (LPA's) including Cotswold District Council (CDC) also have to give due regard to SoPIs and HoPIs in the exercise of their functions.
- 2.15** Where relevant SoPIs will be referenced in the report.

3. Methods

Building Searches

Bats

- 3.1 The building searches were undertaken on 11 July 2023 by Tim Smith, a qualified ecologist with over 18 years professional experience and Natural England (NE) bat survey licence holder (Bat Class Licence Registration No. 2015-10870-CLS-CLS). At the start of the survey the weather was dry, cloud 8/8 with a gentle breeze and temperature of 18°C.
- 3.2 An assessment of the building was made in terms of its suitability to support roosting bats. The survey consisted of a visual inspection of the interior and exterior of the building for evidence of bat use and followed standard methodologies set out in the Bat Mitigation Guidelines⁵, the Bat Workers Manual⁶ and the Bat Survey Good Practice Guidelines⁷.
- 3.3 A number of factors were considered, when assessing the suitability of the building to support bat roosts including: internal conditions; presence of features suitable for use by crevice dwelling bats; proximity to foraging habitats or cover; and potential for disturbance.
- 3.4 Externally, the building was carefully examined for evidence of bat use, and a visual inspection undertaken of structures such as windows and window ledges, gaps within the brickwork, lead flashing, fascia boards and slates, including droppings and staining from fur-oil or urine.
- 3.5 The internal survey of the building followed a similar approach, with a search made for bat droppings, prey residues (such as fly or moth wings) and urine stains, and any bats that may be present. Particular attention was given to dark, sheltered locations such as roof voids, gaps within beams and internal rooms.
- 3.6 The survey was aided by the use of ladders, close-focusing Opticron DISCOVERY WP PC 10x42 binoculars, Panasonic Lumix DMC-SZ3 digital camera, Eazyview Tradesman Record Inspection Camera, Fenix TK26R torch, and Clulite CB2-L1 Clubman Deluxe torch, where necessary. Dimensions were also recorded using a Leica Disto D2 Laser Distance Measurer.
- 3.7 The roosting potential of the building was classified into one of the following categories:
 - High Roosting Potential – Buildings with significant roosting potential, either because they contain a large number of suitable features or those features present appear optimal;
 - Moderate Roosting Potential – Buildings with moderate roosting potential, with roosting features appearing less suitable; and
 - Low or Negligible Roosting Potential – Buildings with few, if any, features suitable for roosting.

⁵ Mitchell-Jones, A. J., 2004. *Bat Mitigation Guidelines*. English Nature, Peterborough.

⁶ Mitchell-Jones, A. J. and McLeish, A. P., 2004. *Bat Workers' Manual*. 3rd Edition. JNCC, Peterborough.

⁷ Collins, J. (ed.), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. Bat Conservation Trust, London

Birds

- 3.8 The building was searched for features that would provide suitable nesting sites for birds during the breeding season (March to August), as well as signs of use by nesting birds, typically old nests and old concentrations of faecal deposits associated with a breeding site.

Limitations and Constraints

- 3.9 The survey was designed to provide a preliminary assessment of the value of the Site for bats (and birds). Observations made within the survey area aim to establish the potential of the area to support these species that are protected by law and through planning policy. The survey was not designed to determine the presence or absence of these species.
- 3.10 The habitat and its associated wildlife are likely to change over time with the seasons. A single visit of this type only provides a snapshot of the Site's wildlife potential.

4. Results

Site Description and Context

- 4.1 This is a semi-rural site located on the western edge of the village of Leighterton approximately 7km southwest of Tetbury in Gloucestershire (Fig. 1 and Fig 2). The Site is comprised predominantly of Buildings and Hardstanding and Grassland. Other habitat in the immediate vicinity includes further Buildings and Hardstanding comprised of the surrounding residential dwellings, Grassland and Scattered Trees.
- 4.2 Based on inspection of online mapping and aerial imagery the wider vicinity of the Site is dominated by Arable, occasional Hedgerows and Scattered Trees. Six separate blocks of ancient woodlands occur within a 2km radius of the Site⁸, the nearest of which is The Box Wood which is located 1.3km north of the Site, however, woodland cover is relatively low within this search area. The nearest Running Water and Standing Water is at Ozleworth Bottom located approximately 2.0km west of the Site.
- 4.3 NE recognises 120 bio-geographic zones termed 'Natural Character Areas', which are defined by geology, landscape character and habitats. The Site lies within the Cotswolds Natural Character Area No. 107⁹.
- 4.4 The natural character of the Cotswolds is largely a combination of geology, farming and woodland (with scrub forming a mosaic with woodland and pasture along the scarp). The pattern of cropped land in a mosaic with grassland, woodland and boundary features. Woodland is concentrated and defines the scarp slope.
- 4.5 Approximately 4% of the land cover across the Cotswolds supports semi-natural woodland. Small isolated farm woods and shelter belts characterise the dip slope. Larger estate woodland feature in some areas. The Natural Area supports a nationally significant resource of unimproved limestone grassland.
- 4.6 This NCA is a diverse landscape important for Greater Horseshoe Bat (SoPI) and Lesser Horseshoe Bat (SoPI). Grasslands of high nature conservation interest remain on the wetter valley bottoms and dry downland slopes.

⁸ <https://magic.defra.gov.uk/MagicMap.aspx>

⁹ <http://publications.naturalengland.org.uk/file/4868690241650688>

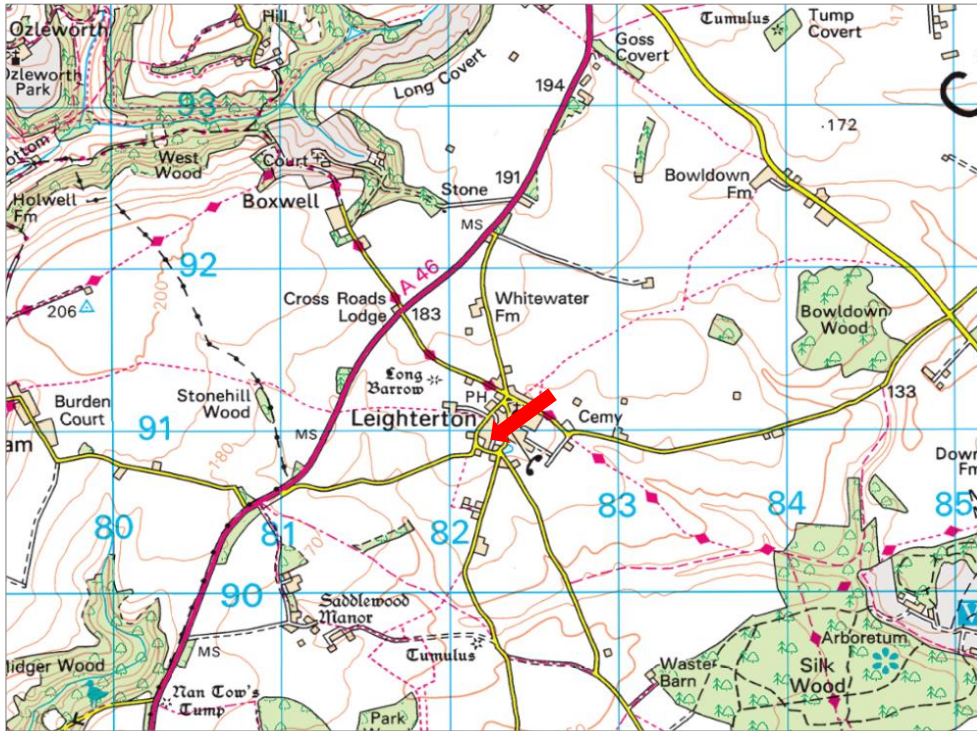


Figure 1: Site Location shown on 1:25,000 Ordnance Survey Mapping
© 2023 Microsoft. Image courtesy of Ordnance Survey



Figure 2: Aerial Image of Site Location Imagery © 2023 Google, Imagery © 2023 CNES / Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Landsat / Copernicus, Maxar Technologies, Map Data © 2023

Building Searches - Bats

- 4.7 This is a single-storey barn with a pitched roof measuring approximately 13m long, 4.6m wide and 3.7m high to the ridge (1.8m at the eaves) with coursed limestone walls; the roof is covered in clay tiles (Plate 1 and Plate 2). The barn is considered to be a later addition to the adjacent Grade II listed house which is understood to have been constructed c.1800 (2023, Pers. Comm., Kathie Thomas, 11 July).



Plate 1: View of the East and North Elevation of the Barn








Plate 2: View of the West Elevation of the Barn



Plate 3: View of the South Elevation of the Barn (and adjacent Stone Wall)

- 4.8 The building is described in further detail with any features that were recorded in Table 1 below together with the results of the building searches and accompanying photographs. Red arrows in Table 1 indicate potential roosting features (PRF's) or other pertinent features that were recorded during the building searches. All measurements given are approximate.

Table 1: Description and Results of the Building Searches of the Barn

		External	Internal
MODERATE ROOSTING POTENTIAL		<p>Walls</p> <ul style="list-style-type: none"> • Coursed limestone walls • Small crack (4mm – 5mm wide at widest point and 20mm to 30mm deep at deepest point) in south gable end wall (negligible/low potential); otherwise walls are well-pointed and in good condition • Three double wooden doors on east elevation tight apart from a small gap over the southernmost door • Gaps around rotting wooden wall plate at eaves in SW corner of building. No obvious ingress/egress over wall top • Two metal windows; tight with no gaps • No weatherboarding, hanging tiles or cladding • External lighting present on east elevation of the barn • ‘Vintage’ style street lighting with no downward deflectors is present 10m S and 25m NW of the barn at the nearest point. Some light spill onto the barn is likely • Vegetation cover (Scattered Tree) immediately adjacent to S elevation otherwise somewhat lacking obvious linear features and/or other vegetation cover with potential connectivity to wider landscape in the vicinity <p>Roof</p> <ul style="list-style-type: none"> • Pitched roof covered with clay tiles • Frequent gaps between/under tiles across both pitches of the roof • Gap between ridge tiles and between mortar and lower edge of tiles on E elevation toward S end of roof. Remainder of ridge tiles appear tight • No chimneys or lead flashing • Wooden fascia’s with some limited gaps, otherwise generally tight • No soffits or bargeboards • No bats, droppings or bird nests <p>Potential ingress/egress and possible roosting opportunities present within the external fabric of the building predominantly associated with gaps in roof tiles. Further more limited opportunities associated with cracks in S gable end wall and small number of gaps behind wooden fascia’s</p>	<ul style="list-style-type: none"> • Open to the ridge; no enclosed loft spaces are present • Internal temperature 18c (ambient 18c) • 13m long, 4.6m wide and 3.7m high to the ridge (1.8m at the eaves) • Divided into two sections by a blockwork dividing wall; dark and sheltered in S compartment. Sheltered with relatively high light levels in N compartment due to two windows • Some limited potential crevice opportunities e.g. sections of some wall tops • Building is regularly used throughout and electric lighting present so disturbance possible • Timber purlins and rafters supporting the roof tight with no obvious gaps. No gaps between end rafters and gable end walls • Extensive cobwebs throughout the unenclosed roof space suggest possible lack of recent disturbance • Roof lined with bituminous felt with hole measuring 0.3m x 0.2m on W pitch 0.7m from eaves and 0.7m from S gable, otherwise in good condition • Some daylight observed through the hole in the underfelt. Roof tiles that can be seen through the hole in the underfelt appear tight, however, there are several gaps in the roof tiles externally in close proximity to the hole in the underfelt (see External) • No bats, bat droppings or bird nests <p>No ingress/egress for free-flying bats. Limited potential ingress/egress opportunities for crevice-dwelling bats and limited potential crevice opportunities inside the barn</p>
			
			
			
			
CONT.			



Building Searches – Birds

- 4.9 No bird nests were recorded during the building searches; however, the building may provide some potential nesting opportunities within the external and internal fabric of the building where suitable ingress/egress may be present.

5. Discussion and Recommendations

Bats

- 5.1 The barn has moderate potential to support crevice dwelling bats; predominantly associated with the roof tiles. The proposed development will entail internal conversion of the barn, including possible insulation on the underside of the roof and replacement windows together with construction of a separate adjacent garage. External works to the roof will be limited to installation of ridge ventilation and adjustment of the lower courses of tiles on the pitches of the roof. No other external works are proposed to the roof in its entirety including the wooden fascias.
- 5.2 There is a risk that the proposed development of the barn could result in impacts to roosting bats, predominantly within the external fabric of the roof, if present, through damage and/or loss of roost sites and potential disturbance.
- 5.3 An outline strategy to avoid, mitigate or compensate for each of these potential impacts, and to enhance the ecological value of the Site, is set out below.
- 5.4 In order to determine the presence of absence of bats and whether mitigation to avoid impacts is required one dusk emergence survey and one dawn re-entry survey of the building would need to be undertaken during the optimum period (May to August) in accordance with best practice guidance^{5,6,7}. Two surveyors would be needed for adequate coverage of the building.
- 5.5 If roosting bats are recorded using the building during the dusk and/or dawn re-entry survey detailed above a further dusk emergence survey will be needed to characterise the roost in accordance with published guidance⁷.
- 5.6 The dusk emergence/dawn re-entry surveys would allow the design of a suitable mitigation and licensing strategy (if required), together with enhancement measures to inform development proposals for the Site in accordance with planning policy and legislative requirements.
- 5.7 The survey work should be accompanied by a full data search for bat records with Gloucestershire Centre for Environmental records (GCER). The known presence of important habitats, rare species, known roosts, or species that have already been identified as at risk from impacts should be considered from the outset⁷. The aim of the pre-survey data search is therefore to collate existing information from and around the proposed development site on bat activity, roosts and landscape features that may be used by bats⁷.
- 5.8 Preliminary recommendations are given below as a general guide to what the mitigation and enhancement strategy may potentially include. These preliminary outline recommendations can only be finalised after the surveys have been completed:
 - The Client will make all Contractors aware of bats prior to any works undertaken as part of the proposed planning application;
 - Initial 'tool box' talk by a licensed ecologist to contractors detailing how to recognise a bat and what to do if one is found in an area close to the works;

- Have a licensed bat worker present to supervise the works, as appropriate, and protect any bats encountered;
 - Works in the vicinity of roosts, if present, and PRF's should be undertaken by hand during spring or autumn when bats are least sensitive to disturbance;
 - Incorporate one or two Vivara Pro or similar internally mounted bat boxes¹⁰ (or similar) in the walls of the proposed garage in appropriate locations to provide compensatory roosting opportunities for crevice-dwelling bats, if present, and/or some proportionate biodiversity enhancement in line with planning policy requirements through the provision of long-term optimal roosting opportunities. Alternatively, a solid stone wall bat roost and/or bat access slates/ridge access tiles on any suitable areas of roofing could possibly be used, depending on requirements (see Appendix 1 for possible designs of these features¹¹);
 - Non-Bitumen Coated Roofing Membranes (formerly known as Breathable Roof Membrane (BRM)) should not be used as this can act as a tangling hazard for bats¹². Only hessian reinforced bituminous 1F felt should be used;
 - Lighting should be directed away from the bat roost features as well as mature trees, hedges and any buildings supporting roosting bats. The lighting should be on a motion sensor and should have a downwards deflector;
 - Keep noise and dust levels to a minimum; and
 - Conduct post development monitoring surveys, if required.
- 5.9 If the emergence/re-entry surveys confirm there are bat roosts present in the house it will likely be necessary to apply for an EPS development license from NE prior to the commencement of any works (once planning permission has been granted). NE has a 30 working day turnaround on EPS licence applications although it is understood there are significant delays due to resourcing issues.

Birds

- 5.10 All nesting birds are protected under the WCA 1981 (as amended) whilst the nest is being built or in use. Certain species are afforded additional protection from disturbance by being included in Schedule 1 of the Act.
- 5.11 If the proposed works commence during the bird breeding season (March to August inclusive) in the unlikely event that any active nests are found, then a suitable buffer would be left around the nest until after the chicks have fledged as advised by an appropriately qualified and experienced ecologist.

¹⁰ <https://www.nhbs.com/vivara-pro-build-in-woodstone-bat-box>

¹¹ Designs by English Nature

¹² <https://www.bats.org.uk/our-work/buildings-planning-and-development/non-bitumen-coated-roofing-membranes>



6. Conclusions

- 6.1 Provided the strategy outlined above is implemented, it is concluded that the proposal should not result in adverse impacts to bats (or birds). As such, the proposed development would be in accordance with legislative requirements.

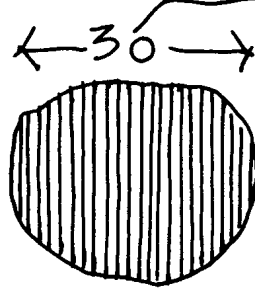
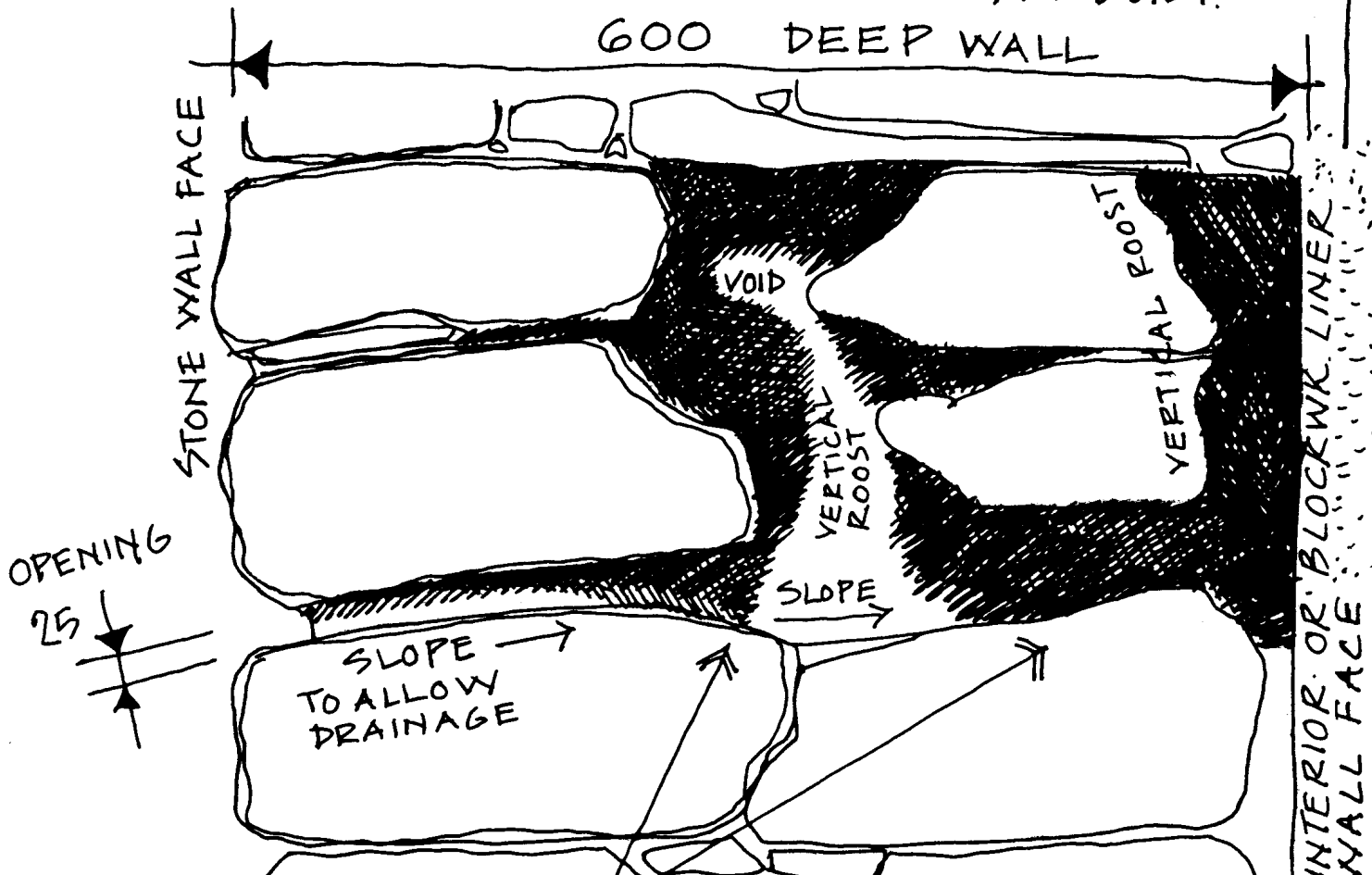


Appendix 1 Stone Wall Bat Roost, Access Slate and Ridge Tile Access Designs

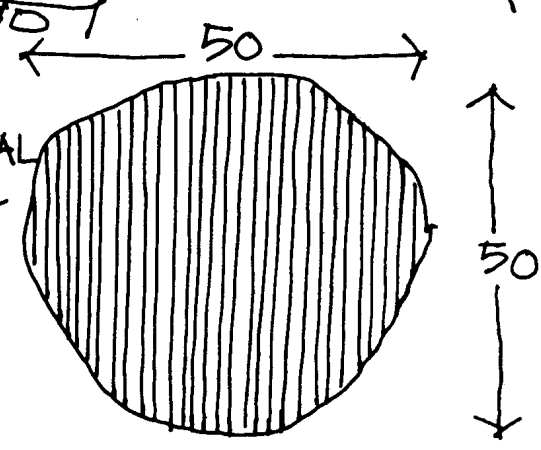
SOLID STONE WALL BAT ROOST

SECTION THROUGH WALL
IE; BARN CONVERSION
WHERE THICK STONE
WALLS ARE BEING
KEPT/RE-BUILT.

DETAIL G



MAINTAIN
INTERIOR CAVERN-
OUS AREA - VERTICAL
SURFACES ARE WELL
USED.



SECTION
THROUGH BAT
NICHE
(ACTUAL SIZE)

PROVIDE A SERIES OF THESE BAT NICHES
THROUGHOUT THE WALLS OF YOUR BARN
CONVERSION - HATCHED AREAS ARE IDEAL
LOCATIONS - AWAY FROM WINDOWS + DOOR.



BAT ACCESS 'SLATE'
DETAIL 1A

RIDGE

SLATES

ROOF
VOID

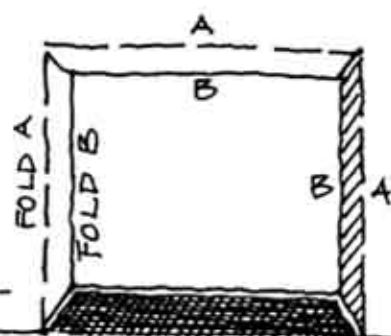
ACCESS 'SLATE'
CODE G

20
GAP

~ SECTION THROUGH ~
ROOF

RIDGE LINE

◆ CODE G LEAD. ◆



20

TO SUIT SLATE

~ BAT ACCESS
SLATE

SLATES

LEAD

SLATES

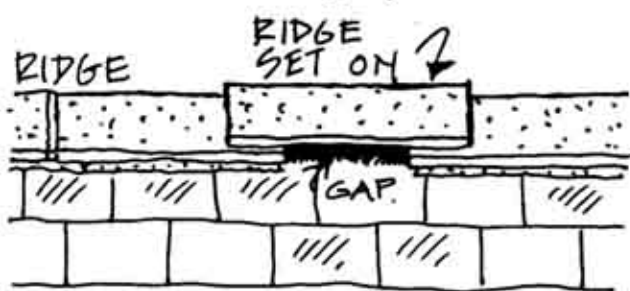
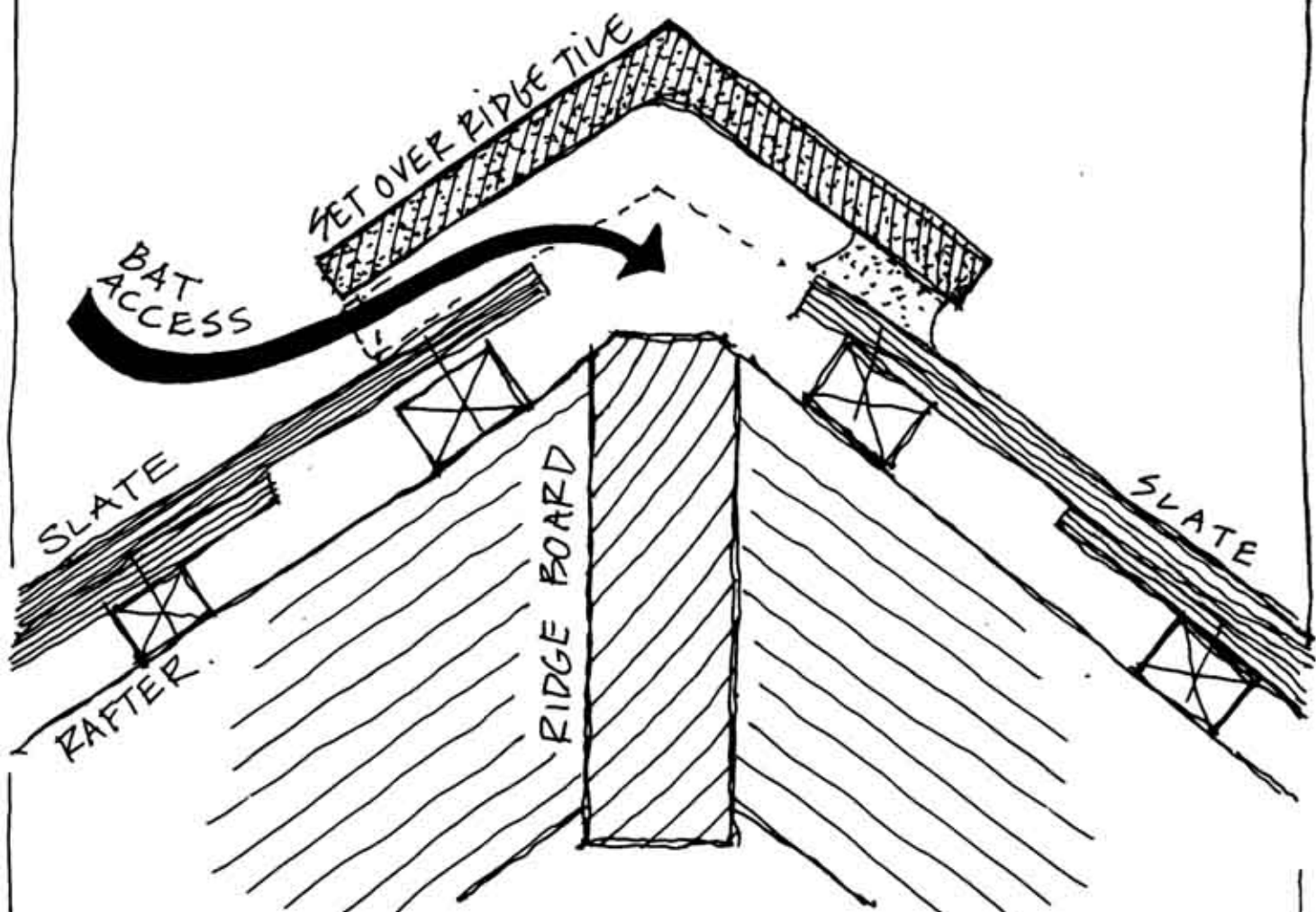
20 HIGH
GAP

LAPS
UNDER
SLATE

~ BAT SLATE BUILT INTO SLOPE ~

ENGLISH
NATURE

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.