



**The Bartholomew Building, Market Square,
Eynsham, Oxfordshire OX29 4HW**

Bat & Bird Survey Report

June 2021

***on behalf of* Eynsham Parish Council**

Disclaimer



This report is issued to the client for their sole use and for the intended purpose as stated in the agreement between the client and Windrush Ecology Ltd. This report may not be relied upon by any other party without the express written consent of Windrush Ecology Ltd.

Windrush Ecology Ltd has exercised due care in preparing this report. It has not independently verified information provided by others, and no warranty is made in relation to the content of this report and Windrush Ecology Ltd assumes no liability for any loss resulting from errors, omissions or misinterpretation made by others.

Any recommendation, opinion or finding stated in this report is based on the circumstances and facts as they existed at the time that Windrush Ecology Ltd performed the work. The content of this report has been provided in accordance with the provisions of the CIEEM Code of Conduct.

Nothing in this report constitutes legal opinion.

Client	Eynsham Parish Council
Job name	The Bartholomew Building, Market Square, Eynsham, Oxfordshire OX29 4HW
Survey dates	11 th May & 1 st June 2021
Report date	19 th June 2021
Report title	Bat & Bird Survey Report
Reference	W4237_rep_The Bartholomew Building, Eynsham_19-06-21

	Signed	Name	Position	Date
Prepared by		Tracy Gray <i>BSc (Hons)</i>	Senior Ecologist	09/06/21
Reviewed by		Edward Bodsworth <i>MA (Cantab)</i> <i>PhD MCIEEM</i>	Director	19/06/21

Report Contents

1	Introduction	2
1.1	Site Description & Context.....	2
1.2	Proposed Works.....	2
1.3	Aims of Study	2
1.4	Bat Ecology	2
2	Methodology.....	3
2.1	Building Inspection Survey	3
2.2	Bat Activity Survey	5
2.3	Limitations on Survey Data	6
3	Results	6
3.1	Description of Building	6
3.2	Evidence of Bats	7
3.3	Bat Activity.....	7
3.4	Evidence of Birds	7
4	Discussion	7
4.1.1	Bats	7
4.1.2	Birds	8
4.2	Legislative Guidance.....	8
4.2.1	Bats	8
4.2.2	Nesting Birds.....	9
4.3	Impact Assessment.....	9
4.3.1	Bats	9
4.3.2	Birds	9
5	Bat Mitigation Strategy.....	10
5.2.1	Timing.....	10
5.2.2	Careful Work Practices	10
6	Bird Mitigation Strategy	10
6.1.1	Careful Works	10
6.1.2	Further Survey	10
7	References.....	10
8	Appendix 1. Photographs	12
9	Appendix 2. Site Location Maps	14

1 Introduction

1.1 Site Description & Context

The Bartholomew Building is located within the market square of the village of Eynsham in the county of Oxfordshire. The approximate Ordnance Survey grid reference for the dwelling is SP 432 092. The Bartholomew Building is considered to date from the 18th Century. It is a detached building that forms a focal point within the market square at the centre of the village. It is constructed from stone and has a hipped roof covered with stone roof tiles. The building is split over two floors and a single loft void covers the footprint of the building.

The Bartholomew Building is located to the south-eastern corner of the village. It is surrounded by built development in all directions, including dwellings, commercial properties and St Leonard's church which lies immediately beyond the market square to the south. The village extends extensively to the north and west of the Bartholomew Building. Being at the south-eastern corner the built development extends to a lesser extent to the south and east.

The open countryside lies approximately 120m to the south and 300m to the east of the property. The countryside here is dominated by agricultural land, comprising arable fields and improved pastures set within a network of hedgerows. The closest significant ecological feature is the Chilbrook which flows past the site approximately 350m to the south of the building. The river creates an ecological feature suitable for foraging and commuting bats within the local area. There are also tree lines and coppices that lead to the village from the surrounding landscape, particularly along the southern and eastern edges.

Significant ecological features in the wider countryside include the River Thames, which flows past the site approximately 1.2km to the south-east and Wytham Woods which lie approximately 1.8km to the east. Both provide highly suitable foraging grounds for bats.

1.2 Proposed Works

The proposals include a number of repairs and the re-arrangement of the kitchen and toilet on the lower floor to allow ease of use. These internal works have already begun.

During the works a damp issue has unexpectedly been discovered on the upper floor. The roof structure and faulty roof tiles are causing water to soak into the stone work of the building, including the chimney. As a result, the proposals include re-roofing and repair of the chimney.

1.3 Aims of Study

The aims of this study are to survey the building for bats and/or evidence of bats and to assess the overall potential of the building to support roosting bats and other protected species, including nesting birds, such as swifts *Apus apus*. The report discusses the likely impacts of the proposed works on bats and birds and makes recommendations for appropriate mitigation, compensation and enhancement measures in this regard.

The potential impacts are assessed in accordance with the legal protection afforded to bats under The Conservation of Habitats & Species Regulations 2017, as amended. The need for a European Protected Species (bat) licence is also discussed in light of the impact assessment.

1.4 Bat Ecology

Bats are the only mammals to have developed the ability of true flight. At present, over 1,100 species of bat are recognised worldwide, making bats the second largest mammal group after rodents. As well as flight, bats have evolved a system of navigation and orientation using echolocation which has allowed many species to become nocturnal. There are 18 species of bat that occur within the British Isles, of which 17 are known to breed here. More species occur in the south and west of the country, with species numbers declining towards the north and into Scotland.

All bat species in the UK are nocturnal and feed exclusively on insects (they are insectivorous) which they catch in flight during their night-time activity, using echolocation to locate and home-in on their prey. Bats will roost during the daytime and seek out dark, enclosed and undisturbed places in which to do so, often using a variety of roosting sites within their home range. Different roost sites are used for different purposes (such as mating, giving birth and hibernation) and at different periods of a bat's life cycle.

During the summer, female bats will gather together in a maternity or breeding roost. In the UK, this starts to occur towards the end of May and the females will seek out a warm and undisturbed site in which to give birth. Because maternity roosts require a particular set of environmental attributes (such as location, temperature, orientation and size), breeding bats tend to return to roost and breed in the same locations year after year. Given that bats live a relatively long time (anywhere from 10-20 years), and only give birth to one pup a year, maternity colonies are crucial to the reproduction and survival of the local population and can be very sensitive to environmental change.

Relatively little is known about hibernation roosts, as tracking and locating hibernating bats is very difficult. However, many species (particularly those within the genera *Myotis* and *Rhinolophus*) have been found within underground sites such as caves, mines and cellars, where the temperature remains constant and low throughout the winter allowing the bats to remain in a state of torpor. The spring and autumn are periods of transition and bats can use a number of different locations on a temporary basis, often moving between roosts as environmental conditions change and temperatures fluctuate. In the autumn, bats will mate and it has been shown that male and female bats will gather at particular locations (such as a building, cave or tree) to meet, socialise and mate.

Bats choose to roost in a number of different locations, depending on the species, their activity pattern and the period of their lifecycle. Certain species, such as the pipistrelles, favour crevices and small cavities for roosting and will use features such as cracks, crevices and small rot holes in the boughs and trunks of trees and within certain features of buildings such as boxed eaves, gaps under roof tiles, hanging tiles and soffit boards. Other species favour large, uncluttered roof spaces and lofts within buildings where they can hang up on the underside of the roof and use the interior space for flying prior to emergence. Hollow trees, cellars, caves, barns, churches and cavity walls can also all be used for roosting, given suitable access. Certain species, such as the noctule, favour roosting sites within trees whilst others tend to favour buildings. Roost sites may be used by only a very small number of bats, such as solitary males, or may offer shelter to tens or hundreds of bats within maternity and hibernation roost sites.

The suitability of roosting sites is also highly influenced by the location or context of a tree, building or cave. Roost sites are most often favoured when they are within close proximity to foraging habitats and where those habitats are connected to one another within the landscape by features such as hedgerows, woodlands, rivers or sunken lanes along which bats disperse and 'commute' from place to place. Suitable foraging habitats are any places where insect prey is diverse and abundant such as woodlands, ponds, lakes, rivers, scrub, hedgerows and unimproved grassland or pasture. Thus, the ecological context of a site is very important for determining if bats may be present within a roost and the potential for a roost to be present tends to be much higher within rural or village locations.

2 Methodology

2.1 Building Inspection Survey

The building inspection survey was undertaken on the 11th May 2021. The weather on the day was warm (12°C), dry other than a short rain shower, cloudy (80% cloud cover), with a slight breeze (Beaufort Scale 0-1).

The building inspection survey carried out as part of this study was undertaken by Tracy Gray BSc GradCIEEM, an experienced ecologist. Miss Gray holds a licence from Natural England to survey

for bats within all counties of England (Natural England Level 2 WML-CL18 Licence 2015-14396-CLS-CLS) and has over eleven years of experience in undertaking bat surveys.

A detailed internal and external survey of the Bartholomew Building was undertaken using a 1 million candle-power torch and close-focusing binoculars in order to look for bats and/or evidence of bats and to assess the potential of the building to support roosting bats.

The internal spaces and external elevations of the building were inspected for evidence of bats including, bat droppings, urine stains, feeding remains (such as moth wings) and characteristic fur staining around access points.

Notes were made on the relative freshness, shape and size of bat droppings and the location and quantity of any feeding remains. 'Clean' gaps and crevices within the structure of the building were looked for as this can indicate where bats may have gained access the fabric of the building. The survey was undertaken according to the best practice guidelines published by the Bat Conservation Trust in 2016 (Collins, 2016).

The study also takes into account the structure and ecological context of the dwelling, including the following factors which may increase the likelihood of roosting bats being present:

- Age of the building (pre-20th Century or early 20th Century construction)
- Nature of construction; traditional brick, stone or timber construction
- Large and complicated roof void with unobstructed flying spaces
- Large (>20 cm) roof timbers with mortise joints, cracks and holes
- Entrances and gaps for bats to fly and crawl through
- Poorly maintained fabric providing ready access points for bats into roofs, walls; but at the same time not being too draughty and cool.
- Roof warmed by the sun, south-facing roofs in particular
- Weatherboarding and/or hanging tiles with gaps
- Undisturbed roof voids
- Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year
- Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting

The criteria used as guidelines for assessing the potential suitability of buildings for bats are shown in Table 1 below.

Table 1. Criteria used as guidelines for assessing the potential suitability of buildings for bats (Collins, 2016).

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after the presence is confirmed).

High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitats.
------	--

Confirmed presence of roosting bats is where evidence indicates that a building or other structure is used by bats, this includes:

- bats seen roosting or observed flying from a roost or freely in the habitat;
- droppings, carcasses, feeding remains etc. found and/or
- bats heard 'chattering' inside a roost on a warm day or at dusk.

Where the possibility that bats are present cannot be eliminated or evidence of bats is found during the building inspection survey, then further surveys (such as winter hibernation, presence/absence and/or roost characterisation) are likely to be necessary if impacts on the roosting habitat (or the bats using it) are predicted.

In addition to the bat survey, the barn was assessed for its suitability to support breeding birds. The survey involved a search for evidence of birds including inactive and active nests, droppings, eggs and feathers.

2.2 Bat Activity Survey

One bat activity (emergence) survey was conducted at dusk on the 1st June 2021, in accordance with best practice (Collins, 2016).

One survey was undertaken, as the building has been assessed as having 'low' potential to offer shelter to roosting bats, exhibiting features that individual bats could use opportunistically. The features do not provide enough protection, have appropriate conditions and don not have enough suitable surrounding habitat to be used by larger numbers on a regular basis.

Two surveyors were employed to cover all elevations of the building. For details of the surveyors during the of the survey please see Table 2 below.

Table 2. Bat activity survey schedule.

Date	Surveyors
01.06.21	Tracy Gray BSc (Hons) * Jenny Hull

* Natural England Level 2 WML-CL18 Licence 2015-14396-CLS-CLS

Please refer to Table 3 for timing and weather conditions during the bat activity survey and Figure 1 for the location of surveyors for the survey.

Table 3. Timings and weather conditions during the bat activity survey at the Bartholomew Building, Eynsham.

Date	Timing	Sunset	Temp (Start)	Temp (Finish)	Weather (at start of survey)
01.06.21	20:50-22:30	21:15	19°C	18°C	Moderate cloud (40% cloud cover), dry and with a slight occasional breeze (Beaufort Scale 1-2)

The surveyors were equipped with Echometer Touch Pro bat detectors to listen to and record bat calls. The Echometer Touch bat detectors allows for real-time analysis of sonograms. The bat activity surveys were undertaken in accordance with best practice guidelines (Collins, 2016); one survey was considered appropriate in order to ascertain presence/likely absence of roost sites as the building has been assessed as having 'low' potential to offer shelter to roosting bats.



Figure 1. Position of the surveyors during the dusk emergence survey undertaken at the Bartholomew Building, Eynsham. The yellow dots indicate the location of the surveyors during the survey carried out at the building on the 1st June 2021.

2.3 Limitations on Survey Data

As with any survey undertaken on a certain date, the data presented within this report provide information at a particular point in time and presents a 'snap-shot' of the ecological status of the site. Ecosystems and species behaviour/activity are dynamic and can change over time. Whilst this report presents a characterisation and evaluation of habitat and species status at the time of the study, it should not be taken as an exhaustive representation of the ecological status of the site either at present or into the future.

3 Results

3.1 Description of Building

The Bartholomew Building is a detached building in the market square of the village of Eynsham. The building is considered to date from the 18th Century and it is constructed of stone and has a hipped roof that is covered with stone roof tiles. Currently, scaffolding has been erected on the exterior of the building; this does not significantly obscure the roof structure.

There is a stone chimney set along the southern side of the building, lead flashing is present around its base. A tight-fitting wooden bargeboard is fitted at the eaves of the building. In the past a series of arched doorways were present around the building, all save one in the eastern elevation which now provides access into the interior, have been covered with stones. Crescent-shaped windows with grates placed over them, have been created in the location of some of the former arched doorways, using the shape of the door arch. In one of the doorways in the northern elevation a full arched window has been created. Windows are set in all of the upper elevations.

A single loft space covers the footprint. The roof is supported by a simple A-frame with a vertical central support post that is rotting. No ridge beam or board is present along the apex of the roof. The

underside of the roof is covered with a bitumen and hessian underfelt, underneath which the roof has been further lined with fibreglass insulation. A small section of the bitumen and hessian underfelt can be viewed to the eastern side of the roof.

The stone walls of the building, albeit suffering from damp, are in good repair. In that there are no gaps between the stone work, the mortar is intact. This is the same regards the stone work of the chimney. The wooden bargeboards are tightly fitted to the eaves, any gaps that are present are superficial and do not create crevice features that crevice dwelling bat species could utilise.

The roof tiles have a large number of naturally occurring gaps beneath them, there are also a small number of slipped and missing roof tiles. These gaps give bats the opportunity to access the batten space between the tiles and the underfelt, within which they could potentially roost.

The gaps below the roof tiles are relatively exposed as the tiles have seen some wear and tear creating larger than normal gaps beneath the roof tiles. Therefore, these gaps offer opportunities for individual bats on an opportunistic basis only. The features within the roof structure are not suitable for larger numbers of roosting bats on a more regular basis given the conditions. Furthermore, the immediate context of the site offers relatively poor foraging grounds for bats. More suitable foraging opportunities exist just beyond the edge of the village. Given the above discussion the Bartholomew Building is considered to have 'low' potential to offer shelter to roosting bats (Collins, 2016).

3.2 Evidence of Bats

No bats or evidence of bats were found within the loft space during an inspection of the loft on the 11th May 2021.

3.3 Bat Activity

No bats were seen to emerge from the building during the bat activity survey undertaken on the 1st June 2021.

Bat activity around the dwelling was low, with four species of bat being recorded in the vicinity of the building, these are the common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, serotine *Eptesicus serotinus* and noctule *Nyctalus noctula*.

Individual pipistrelle bats made a small number of passes, both on the northern and southern sides of the building during the survey. The serotine was heard and seen within the vicinity of the church, to the south of the building. Noctules were seen and heard overhead, flying in a southerly direction, with occasional foraging buzzes.

3.4 Evidence of Birds

A jackdaw *Corvus monedula* nest appears to be present within the chimney on the south side of the building.

A parent bird was observed entering the chimney with what looked like food during the survey undertaken on the 11th of May, suggesting that chicks have hatched. Although no calling chicks were heard at the time. The jackdaw entered and existed on a small number of occasions within the duration of the survey.

The jackdaw was seen entering and existing the chimney again during the dusk emergence survey undertaken on the 1st June 2021, again no chicks were heard.

4 Discussion

4.1.1 Bats

As a result of the findings of the initial building inspection survey and subsequent dusk bat emergence survey, roosting bats are considered to be absent from the dwelling.

No bats were seen to emerge from the potential roost sites within the roof structure of the building, and there is no evidence of bats within the loft space. The habitat within the immediate vicinity of the site is relatively poor in terms of suitability for foraging bats, as it is dominated by built development in a brightly lit suburban area.

Bats will choose to roost within different locations within the summer and winter periods (see Figure 2), favouring dark, enclosed, humid and cool locations for hibernation such as caves and cellars. These locations must maintain a constant low temperature (2-8°C), but temperatures must also not go below freezing. In addition, bats favour places that retain relatively high humidity during the winter period. The Bartholomew Building is not considered to be suitable for hibernation as the loft space, gaps beneath roof tiles are unlikely to maintain the constant low temperatures that hibernating bats require.

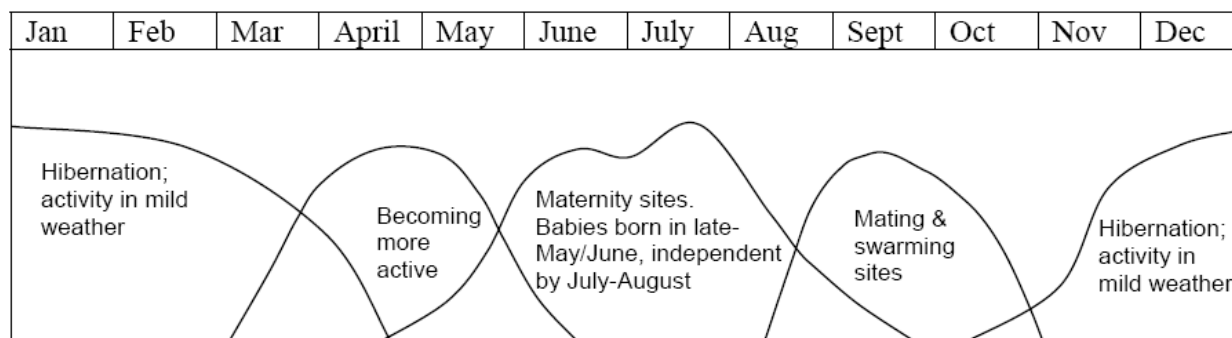


Figure 2. Diagram showing the yearly life cycle of a bat. Taken from the *Bat Mitigation Guidelines* by Mitchell-Jones 2004.

4.1.2 Birds

A jackdaw nest within the chimney on the south side of the building.

4.2 Legislative Guidance

4.2.1 Bats

As with many animal species within the UK, declines in the abundance and distribution of many bat species have been documented through recent decades. The reasons for these declines are various and complex but it is considered that the major factors are changes in landuse and agriculture, the loss of woodlands and hedgerows and the loss of suitable roosting sites.

Bats are particularly sensitive to human activity due to the fact that they roost within buildings, trees and underground structures such as mines, and the availability of suitable roost sites is considered to be a key factor in the conservation of bats within the UK. As a consequence, all species of bat and their roost sites are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and under The Conservation of Habitats and Species Regulations 2017, as amended. Taken together, these make it an offence to:

- (a) Deliberately capture or intentionally take a bat
- (b) Deliberately or intentionally kill or injure a bat
- (c) To be in possession or control of any live or dead wild bat or any part of, or anything derived from a wild bat
- (d) Damage or destroy a breeding site or resting place of such an animal or intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
- (e) Intentionally or recklessly disturb any wild bat while it is occupying a structure or place that it uses for shelter or protection
- (f) Deliberately disturb any bat, in particular any disturbance which is likely - to impair their ability;

- (i) to survive, breed, reproduce or to rear or nurture their young; or
- (ii) in the case of hibernating or migratory species, to hibernate or migrate; or
- to affect significantly the local distribution or abundance of the species to which they belong

A bat roost may be any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected whether or not the bats are present at the time.

Although the law provides strict protection to bats, it also allows this protection to be set aside (derogation) under The Conservation of Habitats and Species Regulations 2017, as amended through the issuing of licences. Where a lawful operation is required to be carried out but which is likely to result in one of the above offences, a licence may be obtained from Natural England (the statutory body in England with responsibility for nature conservation) to allow the operation to proceed. However, in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017, as amended, a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment';
- 'There is no satisfactory alternative';
- The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'.

4.2.2 Nesting Birds

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. The nesting season for most species is between March and August, inclusive.

4.3 Impact Assessment

4.3.1 Bats

There is no evidence to suggest that the Bartholomew Building is being used as a place of shelter/protection by roosting bats. As a result of this conclusion, repairs to the roof will not result in any significant impacts on bats or the places that they use for breeding, shelter and/or protection (roosts) and no specific compensation measures are considered necessary (Mitchell-Jones 2004).

In addition, since no significant impacts on bats are predicted under The Conservation of Habitats and Species Regulations 2017, as amended a European Protected species (bat) licence will not be required for the proposed works to proceed.

Nevertheless, given there are a number of roosting opportunities beneath roof tiles and the fact that bat activity was noted around the building, albeit low frequency activity, a precautionary approach is recommended.

4.3.2 Birds

Works to chimney during the breeding bird period may result in the destruction of an active jackdaw nest and the possible killing or injury of eggs and young, if nests are present at the time the works are undertaken.

5 Bat Mitigation Strategy

As previously discussed, a European Protected Species (Bat) Licence is not considered to be necessary for the proposed works to proceed. However, it is recommended that the following precautionary approach is followed.

5.2.1 Timing

No timing constraints are considered necessary in this instance.

5.2.2 Careful Work Practices

Works to remove the roof tiles of the Bartholomew Building should proceed in a careful and controlled manner, with the removal of the roof tiles, by hand, checking below for any bats that may be present.

Contractors should be briefed with regard to the fact that individual bats can often exploit very small crevices as roost sites (such as gaps beneath roof tiles) and that bats can move between roost sites on a regular basis. They should remain vigilant for bats and any evidence of bats (bat droppings) when removing the roof tiles.

In the unlikely event that bats or significant evidence of bats (for example large accumulations of fresh bat droppings) are encountered, works should stop immediately, and advice sought from a qualified ecologist and/or Natural England.

If disturbance to small numbers of bats were to occur, it is unlikely to impair their ability to survive, breed, and reproduce or to rear or nurture their young or to significantly affect the local distribution or abundance of the species to which they belong. Therefore, works may be able to continue once advice has been given and the issue has been resolved. However, individual situations will have to be evaluated on a case-by-case basis and a European Protected Species (Bat) Licence may be required to allow works to proceed if the impacts are considered to be significant under The Conservation of Habitats and Species Regulations 2017, as amended.

6 Bird Mitigation Strategy

6.1.1 Careful Works

As there is a jackdaw nest within the chimney on the south side of the building, contractors should be briefed to the presence of the nest site and works to the roof in this area should be undertaken as carefully and sensitively as possible, in order that minimal disturbance is caused to the birds.

Jackdaws are not legally protected from disturbance when activity nesting, however, best practice is to cause as little disturbance as possible so that the chicks can fledge safely.

6.1.2 Further Survey

Before repair works to the chimney proceed, the jackdaw nest will need to be confirmed as inactive. A bird check of the Bartholomew Building will be required within 24 hours of commencing works to the chimney. If the nest is still active, works to the chimney will need to be delayed until a time when the young have fledged.

7 References

Altringham, J., 2003. *British Bats*. Harper Collins.

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

Joint Nature Conservation Committee., 2012. *Bat Worker's Manual*. Joint Nature Conservation Committee, Peterborough, UK.

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

Neuweiler, G., 2000. *The Biology of Bats*. Oxford University Press, Oxford, UK.

Ransome, R., 1990. *The Natural History of Hibernating Bats*. Christopher Helm, London, UK.

8 Appendix 1. Photographs



Photograph 1. The northern elevation of the Bartholomew Building.



Photograph 2. Photograph showing eastern elevation of the building.



Photograph 3. The Bartholomew Building viewed from the south.



Photograph 4. Photograph showing the eastern elevation of the building.



Photograph 5. A view inside the loft space. Taken from the east looking west.



Photograph 6. Detail of the underside of the roof, which has been lined with fibreglass insulation, with bitumen and hessian roofing felt above.



Photograph 7. Photograph showing the numerous naturally occurring gaps below the roof tiles.



Photograph 8. The jackdaw returning to the chimney with what appears to be food.

9 Appendix 2. Site Location Maps



Aerial photograph showing the location of The Bartholomew Building in Eynsham (indicated by the red outline). Source: Google Earth Pro



Ordnance Survey map showing the approximate location of the Bartholomew Building, Eynsham (red circle) within the local area. Source: <http://www.bing.com/maps/>.