Higher Commons Farm, Osbaldeston

Risk Avoidance Method Statement (Bats)

Compiled by Ecology Services Ltd.

on behalf of

Mr. S. Khan

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1 Church Row Chambers
Longton
Preston
Lancashire
PR4 5PN

tel: 01772 614932
fax: 01772 614930
email: info@ecologyservices.co.uk
web: www.ecologyservices.co.uk

Ref. number: 23146
Written by: SON
Checked: LES
Approved: LES

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1.0 Introduction

1.1 Ecology Services Limited was commissioned by Mr. S. Khan in August 2023 to undertake a site visit and to produce the necessary Method Statement in relation to bats at Higher Commons Farm, Commons Lane, Osbaldeston, BB2 7LP, hereinafter referred to as 'the site'. The centre of the site is located by National Grid Reference (NGR) 364328, 431883. The location and boundary of the site is shown on Figure 1.

Background

1.2 Ecology Services Ltd has completed a number of ecological surveys at the site including a Preliminary Roost Assessment conducted on the 2nd of September 2022; Roost Characterisation Surveys in the form of dusk emergence surveys completed on the 21st September 2022 and due to the late timing of the survey a further two surveys were completed on the 18th of May and the 15th of June 2023. The surveys found the site to support low numbers of common species including; common pipistrelle (Maximum 3), soprano pipistrelle (maximum 1) and a Myotis species likely whiskered/Brandt's (Maximum 1). A total of seven access points and roosting locations were identified with roosts classified as day and transitional/ occasional roosts.

1.3 Bat species recorded during the surveys include; common pipistrelle, soprano pipistrelle, noctule and Myotis species; including Daubenton's and whiskered/Brandt's. Common pipistrelle social calls were also recorded at the site.

1.4 A further site visit was undertaken on the 25th of September 2023, to review the current conditions at the site, the proposed works and as required for any Natural England Protected Species submission.

1.5 The purpose of this report is to review the information gathered from all of the surveys completed at the site; to consider the proposed works, as per the granted planning application and to provide further advice, including if it is possible for the proposed works to be completed within the parameters of current legislation under a non-licensed risk avoidance method statement.

1.6 Full details of previous surveys and results can be found within the Bat Survey Report compiled by Ecology Services Ltd updated in July 2023.

Site description

1.7 The site is located in a semi-rural location between the villages of Osbaldeston and Balderstone. The property possesses a large garden including areas of mown grassland and a variety of trees. To the immediate north, south and west are agricultural grassland fields, bound by hedgerows containing mature trees. Adjacent to the property to the east is another residential property with a large associated garden.

1.8 In the landscape surrounding the site, there are numerous, interconnected watercourses, many of which are tree-lined. The closest to the site are c.35m away to the south-west; c.120m away to the north-east and c.280m away to the south-west – this watercourse is connected to the Wilcock Brook. Mellor Brook is located c.560m to the south-west of the site. There are multiple ponds in the vicinity of the site, with the nearest located c.70m away to the east and a large pond, located c.280m away to the south-west. c.630m to the east of the site, is a watercourse lined with mature trees which leads continuously to a large woodland. There are also wooded areas located c.1.1km away to the north-west and c.530m to the south-west. Just over 2km to the north-west is the River Ribble which has tree-lined banks

and is a substantial watercourse. These areas are likely to provide very good quality foraging habitat and other roosting opportunities for bats. Buildings within Osbaldeston and Balderstone, and farm buildings close to the site are also likely to provide roosting opportunities bats. Habitats within the immediate and wider surrounds of the surveyed building is considered of high value for foraging, roosting and commuting bats.

Proposals

1.9 Proposals for the site include the extension and construction of a two-storey extension on to the rear south-western elevation of the property and a single storey extension to the side on the south-western elevation. The proposed plans of which are shown of Figure 2. No other known works are required on the building at this time.

2.0 Legislation

2.1 This section provides an overview of legislation relevant to bats in the UK.

2.2 The Conservation of Habitats & Species Regulations 2017 (as amended), also known as the Habitats Regulations, lists all UK bat species on Schedule 2 which places an obligation to implement strict protection for these species. This legislation makes it an offence to:

- deliberately kill, injure or capture a wild bat;
- deliberately disturb* a bat;
- damage or destroy a breeding site or resting place of a bat.

*Disturbance, as defined by the Conservation of Habitats & Species Regulations 2017 (as amended), is that which is likely to:

- impair their ability –
  - to survive, to breed or reproduce, or to rear or nurture their young; or
  - in the case of animals of a hibernating or migratory species, to hibernate or migrate.
- affect significantly the local distribution or abundance of the species to which they belong.

2.3 The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 continue the same provision for European protected species, licensing requirements and protected areas after Brexit.

2.4 All UK bats and their roosts are afforded further protection through their inclusion on Schedule 5 of the Wildlife & Countryside Act 1981 (as amended), which makes it an offence to:

- intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection;
- intentionally or recklessly obstruct access to a structure or place which a bat uses for shelter or protection.

2.5 Regulation 12 the Conservation of Habitats and Species Regulations 2017 (as amended) requires the appropriate authority in England and Wales to designate as Special Areas of Conservation such sites as the authority considers to be of national importance which contribute significantly to the maintenance, or restoration at favourable conservation status in the natural range of the species listed in Annex II of the EC Habitats Directive. Four bat species (greater horseshoe, lesser horseshoe, Bechstein's and barbastelle) are listed under Annex II.

2.6 When dealing with planning applications where a European Protected Species (EPS) (all UK bats) may be affected, a Local Authority is a 'competent authority' within the meaning of regulation 7 of the Conservation of Habitats & Species Regulations 2017 (as amended). The local authority must therefore exercise their functions under the provisions made within the 2017 Regulations (as amended), and planning decisions should only be made when European Protected Species and their habitats are fully taken into account.

Licensing of Works Affecting Roosting Bats

2.7 Where a bat roost is likely to be affected by development then a licence to derogate from the legal protection would be required. Licence applications are processed and issued by Natural England and can only be applied for once planning permission (if required) has been granted.

2.8 Natural England may grant a licence for the purposes specified in paragraph 55 of the Regulations. The purposes are:

- 55(2)(e) preserving public health or safety or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment.
- 55(2)(f) preventing the spread of disease.

2.9 Natural England must not grant a licence under paragraph 55 unless it is satisfied that:

- 55(9)(a) there is no satisfactory alternative; and
- 55(9)(b) the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable status in their natural range.

2.10 In December 2016, Natural England introduced four policies for European Protected Species (EPS) licensing. The policies were revised in January 2022. The policies seek to achieve better outcomes for EPS and reduce unnecessary costs, delays and uncertainty that were inherent in the current system. In brief, the four policies are:

- **Policy 1.** Reduce mitigation measures for impacts on EPS
- **Policy 2.** Location of compensation habitats
- **Policy 3.** Let EPS use temporary habitats
- **Policy 4.** Alternative sources of evidence to reduce standard survey requirements

2.11 **Policy 1** allows compensation for EPS impacts to be delivered without the need to relocate or exclude populations where: exclusion or relocation measures are not necessary to maintain the conservation status of the local population; the avoid-mitigate-compensate hierarchy is followed; and compensation provides greater benefits to the local population than would exclusion and/or relocation. This policy can be used to reduce mitigation measures, such as exclusion or relocation of EPS, by increasing compensation. This policy allows killing of EPS and destruction of their habitat without needing to exclude or relocate individual animals.

2.12 **Policy 2** allows for the provision of off-site compensation measures where the licensing tests are met, the avoid-mitigate-compensate hierarchy is followed, there are good reasons for maximising development on the site of EPS impacts and where an off-site solution provides greater benefit to the local population than an on-site solution.

2.13 **Policy 3** relates to developments, such as mineral extraction, which temporarily create habitat which is likely to attract EPS and enables works to proceed without the exclusion of

EPS where the conservation status of the local population would not be detrimentally affected. On completion of development, such sites must contribute to the conservation status of the local population as much as or more than the land use which preceded development. The measures to achieve this should be set out in a management plan and secured by a legal agreement.

2.14 Under **Policy 4** Natural England may accept a lower than standard survey effort where: the costs or delays associated with carrying out standard survey requirements would be disproportionate to the additional certainty that it would bring; the ecological impacts of development can be predicted with sufficient certainty; and mitigation or compensation will ensure that the licensed activity does not detrimentally affect the conservation status of the local population of any EPS.

Natural Environmental and Rural Communities (NERC) Act 2006

2.15 Section 40 of the Natural Environmental and Rural Communities (NERC) Act 2006 (as amended) places a statutory duty on public authorities, in exercising their functions, to conserve and enhance biodiversity in England. Species of Principal Importance for the conservation of biodiversity in England, identified by the Secretary of State in consultation with Natural England, are listed Section 41 of the NERC Act. The Local Planning Authority and government bodies (e.g. Natural England) will expect the overall design of the development to have regard for the conservation of these species. Seven bat species are listed as 'Species of Principal Importance' under Section 41 of the Natural Environmental and Rural Communities (NERC) Act 2006:

- Noctule (*Nyctalus noctula*)
- Soprano pipistrelle (*Pipistrellus pygmaeus*)
- Lesser horseshoe (*Rhinolophus hipposideros*)
- Greater horseshoe (*Rhinolophus ferrumequinum*)
- Barbastelle (*Barbastella barbastellus*)
- Bechstein's (*Myotis bechsteinii*)
- Brown long-eared (*Plecotus auritus*)

3.0 Results

Site Visit

3.1 An updated site visit was undertaken on the 25th of September 2023 whereby assessment of the building and the proposed works was made. The site visit was undertaken by Mrs. S. O'Neill who holds Bat Class Licence Level 2 (Registration Number 2015-13768-CLS-CLS). Equipment used included; an Explorer Premium 8803AL (9mm) endoscope, a Clulite Long Ranger LED Pistol Light (1200 lumens) and close focusing binoculars.

3.2 The site visit included an assessment of the building as a whole and looked for potential roosting features and any further presence of bat/s or bat activity, such as droppings, grease marking and urine stains. Further investigation into the northern loft was made to ensure that a full assessment could be undertaken. No internal access into the third southernmost loft area could be gained and an updated and more in-depth view of external features in this area was undertaken.

Building Description

3.3 The site comprises a two-storey residential property composed of stone-built walls and slate roof and ridge tiles. Two brick-built chimneys are present with lead flashing at their base. Wooden fascia boards are present on the north-eastern and south-western elevations and the south-eastern gable. The south-eastern gable, the majority of the upper south-western

elevation and a small part of the north-eastern elevation of the building are rendered. The remaining elevations compose of stone. The windows have wooden frames and are double-glazed, with stone lintels and sills. The doors are also double-glazed. On the south-western elevation there is a single-storey "extension" which extends halfway along the length of the building and has a sloping, lean to slate covered roof. On the north-eastern elevation there is an open porch leading to the main entrance with a slate roof covering.

3.4 The initial PRA noted that there were two loft areas at the site. However, from further inspection and with discussion with the owners the surveyor was made aware that there are three loft areas with the southernmost loft having no internal access hatch. The updated description is provided below.

3.5 Internally there is a large accessible loft which is located from the central chimney to the north-eastern gable wall and is divided into two sections by a thick, stone dividing wall. The loft was accessed via a central hatch in the upstairs ceiling. To the central the loft is boarded and utilised as a storage area. There are thick wooden ceiling beams and bitumen roofing felt beneath the roofing slates. The northern most section of the loft was accessed through a small opening in the dividing wall. The insulating material was pulled back to enable full access to be gained into the loft area. There was bitumen roofing felt present in this part of the loft as well. There is a further loft located to the south most area of the building between the two external chimney stacks which has no access hatch and was therefore not subject to internal survey. This loft area is self-contained from the other loft areas and no internal access between loft areas was viewed.

3.6 In the northern loft area numerous bat droppings (c.30+) were located on the floor covering near the internal dividing wall and a small number of droppings were caught in cobwebs beneath a gap in the brickwork. Further concentrated bat droppings (c.70+) were noted at the tie beam under the central ridge. Droppings indicative of brown-long eared were noted within this area. Scattered droppings were noted throughout this loft area and a limited number of droppings were noted within the central loft area.

Site Photos

P1: View from west

P2: View from east

P3: South-western roof area to be affected by proposed works

P4: North-western elevation

P5: South-eastern gable

P6: Northern loft area through dividing wall

P7: Northern loft area view back to dividing wall

P8: Dividing wall & access between northern & central loft areas, form central loft area.

P9: Accumulation of droppings under central tie beam in northern loft area.

3.7 Bat species, roost type and access points are noted in the Table 1 below.

Table 1: Species present

Species	Roost Type	Roost Location/ Access Point
Common pipistrelle	Day Transitional/occasional	Two roost locations Roost A (access points #1, #2, #3, #4 & #5) Roost B (access point #6)
Soprano pipistrelle	Transitional/occasional	One roost location Roost A (access point #2)
Myotis (Whiskered/Brandt's)	Day	One roost location Roost A (access point #7)
Brown long-eared	Probable Day Transitional/occasional	One roost location Roost A - Bat droppings indicative of this species was found within the northern loft area. No roosting activity was noted during the roost characterisation surveys.

3.8 From the results of the site visit in conjunction with review of the surrounding habitat, the previous preliminary roost assessment and roost characterisation surveys Higher Commons Farm is considered to support roosts for common pipistrelle, soprano pipistrelle, Myotis (Whiskered/Brandt's) and brown long-eared bats. The building supports day roosts and transitional/ occasional roosts but as a cohabited residential dwelling which is heated during the winter months it is considered to hold lower value to support hibernating bat species.

3.9 Roost characterisation surveys have identified low numbers of common pipistrelle (maximum no.4), soprano pipistrelle (maximum no.1) and Myotis species (maximum no.1). Calls recorded during the surveys were analysed and compared with library calls in an effort to confirm species. The Myotis species recordings fall within known call parameters of whiskered and Brandt's bats however, determining these types of calls to species level is extremely difficult due to the similarities. In this instance is not considered critical to separate between the two species for the reasons described in paragraph 4.12.

4.0 Impacts and Recommendations

4.1 Higher Commons Farm is confirmed roost found to support a small number of bat species including common pipistrelle, soprano pipistrelle, Myotis species (whiskered/Brandt's) and likely brown long-eared bats. The species identified are all widespread in terms of distribution, although Myotis species (whiskered/Brandt's) are widespread but not necessarily as abundant as the other three identified species in the north of England.

4.2 The roosts identified are also assessed for their importance in terms of conservation status all of which are considered to be non-breeding day roosts and individual or very small numbers of transitional/ occasional roosts. When combined with the distribution, all of the species and roosts identified are considered to be important at a site level.

4.3 As droppings indicative of brown long-eared have been found within the loft area but no evidence of roosting was recorded during the roost characterisation surveys this species is included within the impacts and recommendations for the site.

4.4 Whilst the Myotis species is unconfirmed between whiskered and Brandt's bat due to the similarities of call parameters

4.5 The proposed works at the site include the construction of a two-storey extension on the south-western elevation and a single storey extension on the south-western elevation. The works will involve an eaves height of 3.7metres with a duo pitch roof that forms a gable elevation on the south-east. An existing single storey structure will be removed from the south-eastern elevation to make way for the proposed works and alteration of the existing single storey extension on the south western elevation, which will remain at a single storey height.

4.6 No roosts or access points have been identified within the immediate locality of the proposed extension works. The proposed roof will connect into the southern loft area however surveys completed have not found this loft area support roosting bats and there is no internal connection between the loft areas. A roost access point (#2) into Roost A was found present at the eaves on the south western elevation. This will also not be affected by the proposed works.

4.7 No bat roosts or access points will be directly affected by the proposed extension works therefore consideration is made to the potential for disturbance to any bats that may be present within the roost locations.

4.8 It is considered that the location of Roost B (access point #6) behind the security box will not be subject to any potential affect by the proposed works. The roost will not be affected and it is in a location where any indirect disturbance will not occur should a bat be present at the time of the works.

4.9 Roost A is considered to have a number of roost access points that would allow bats access into the internal areas of the northern and central lofts. The loft area itself will not be directly affected by the proposed works and it is considered that the internal wall between the southern loft and the central loft would act as a barrier to bats for accessing this area. Furthermore, the wall would also provide a barrier to reduce noise disturbance from the proposed activities involved in constructing the proposed extension roof.

4.10 The roost access point located at #2 is also not to be affected by the proposed works. As this is an access point into the roost area it is considered that bats using this location would have

entered within the loft area of Roost A and therefore not be subject to disturbance from the proposed works. Currently this access point is subject to light overspill from the existing roof lights on the single storey extension. The proposed alteration of the single storey extension will continue to include the presence of roof lights and therefore it is considered that there will be no additional light overspill on this roost access location.

4.11 The timings of the works are to begin during the transitional period with foundations and walls being constructed over a period of time before the roof structure is ready to be connected to the exiting building. As noted within paragraph 3.8 the building is considered to hold limited potential to support hibernating bats during the winter period due to the building being heated. Therefore, the timings of the works are to be undertaken at a time when bats are considered to be unlikely to be present and therefore unlikely to be subject to any potential disturbance issues from the construction of the proposed development.

4.12 The Myotis species is unconfirmed but considered to be either whiskered and Brandt's bat due to the similarities of call parameters. In this instance it not considered necessary to distinguish between these species as the roost location and any access points are not being affected by the works. Any proposed mitigation that might be required would also be suitable for use by either species. Therefore, no further investigation to determine species is recommended at the site.

4.13 As the roosts and access points are not to be affected and the proposed works are considered not to cause disturbance issues to any roosting bats it is considered that a Natural England licence will not be required at the site.

4.14 However, as bats are known to be present at the site and as a precautionary measure it is recommended that a Method Statement is produced which details processes that should be followed to ensure that works are completed in a sensitive manner in compliance with current guidance and legislation. Biodiversity net gains should also be considered at the site.

Safeguards and enhancement measures

4.15 If at any time bat/s is/are found all works must cease immediately and advice should be sought from either Natural England or the acting consultant. It is highly likely in this event that the works would be delayed until such a time a Natural England licence that allows for derogation from legal protection afforded to roosting bats is applied for and granted.

4.16 Light schemes should be designed in accordance with best practice and ensure that there is no detrimental impact upon bat roosting and foraging habitats. Bat activity was found present around the entirety of the building but was less frequent along the south-eastern elevation.

5.0 Method Statement

5.1 The method statement below and overleaf has been designed to provide an outline of measures required to maintain the current status of bat species found at the site. The following method statement is not a replacement for a Natural England Protected Species Licence.

5.2 The building has been confirmed to support common pipistrelle, soprano pipistrelle, Myotis species (whiskered/Brandt's) and brown long-eared bats. The roosts are considered to be used as day roosts and transitional/ occasional roosts. Maternity use has not been identified at the site and it is considered unlikely that the building is suitable to support hibernation roosts, due to the building being heated in winter months. A review of the proposed

development has been completed and it is considered that a precautionary approach may be undertaken at the site. This will ensure that disturbance does not occur and that the works are undertaken within the parameters of current legislation and protection afforded to bat species.

5.3 The works are to construct a two-storey extension on the south-western elevation and a single storey extension on the south eastern elevation. The works will involve an eaves height of 3.7metres with a duo pitch roof that forms a gable elevation on the south-east. An existing single storey structure will be removed from the south-eastern elevation to make way for the proposed works and alteration of the existing single storey extension on the south western elevation, which will remain at a single storey height.

5.4 There will be no loss and no disturbance to the existing roosts or access points identified and therefore, there will be no loss of potential roosting features. As such no compensation measures are required in relation to the works however biodiversity net gain should be applied at the site.

5.5 The below recommendations provide a precautionary approach and have provided to ensure that works on site adhere to current guidance and legislation.

- The land owner and/or any other person/s involved in the proposed works shall ensure that they are familiar with the required works in relation to bat/s.
- A tool box talk shall be undertaken to inform site operatives of the potential presence of bats at the site, the identified roost access points and the legislation relating to bats; measures that will be used to protect them; good working practices; activities that need to be avoided and what to do should any bats be found during the works.
- When the contractor needs to break through into the existing southern loft area then, as a precautionary approach, this shall be undertaken under the supervision of a bat licensed ecologist. The contractor shall provide a safe method of access to enable the bat licensed ecologist to undertake a thorough inspection of the working area prior to works commencing, if required.
- Once the area is declared to be bat free the contractor shall begin works to remove the roofing slate and other necessary works to allow for the roof areas to be linked.
- Works shall be undertaken in a sensitive manner with tools being of as low a noise output as possible or alternatively with the use of hand tools.

5.6 Should a bat/s presence be found unexpectedly during the works then no further works will be undertaken. Works at the site would be delayed until a NE licence is applied for and granted to legally permit works to commence which would affects bats or their roosts.

5.7 As a biodiversity net gain at the site, it is recommended that a single internal bat tube is installed on the south eastern wall. This should provide an alternative roosting location on an elevation where bat roosts have not been identified and is situated on an elevation that is where there are no windows.

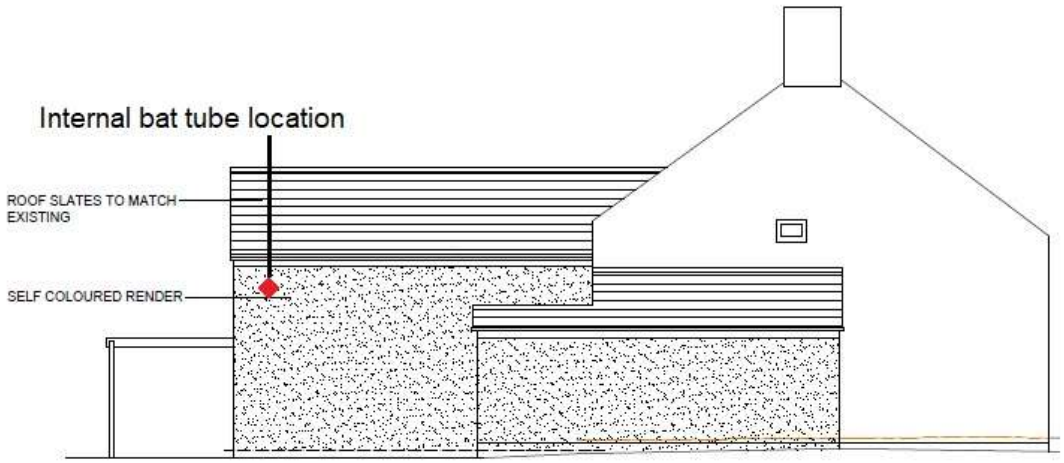
5.8 It is proposed that biodiversity net gain will be provided with the installation of one internal bat tube, such as the Schwegler 1FR Bat Tube or similar. Examples of internal bat tubes are provided overleaf.

Schwegler 1FR Bat Tube

Habitat Bat Access Panel

Ibstock enclosed bat box

5.9 One bat tube shall be located on the south-eastern elevation of the proposed two-storey extension to provide an alternative roosting provision at the site. The proposed bat tubes will not be located above windows or doors and shall be sited as high on the elevation as possible, as shown below.



South-eastern elevation

5.10 The National Planning Policy Framework (NPPF) states that new development should take into account likely effects of pollution on health, living conditions and the natural environment, in particular to 'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation'. The site is located within a rural setting with limited artificial light at night other than that emitted from the property itself. Currently there is a level of light spill from within the property through existing windows, roof lights and doorways. The location of the bat tube has been chosen in a location where light overspill is considered to be minimal. If a lighting scheme is to be used at the site, then this should incorporate provision for bat species and not illuminate the bat roosts following current guidance.

5.11 The mitigation scheme outlined within this report aims to maintain a continued ecological functionality of a building with confirmed presence of common pipistrelle, soprano pipistrelle, Myotis species (whiskered/Brandt's) and brown long-eared bats. The building is confirmed to be used as a day and transitional/occasional roost but no maternity roosts have been identified. Due to the building being heated during winter months the potential for presence of a hibernation roost is considered to be limited.

6.0 Conclusion

6.1 This report details the findings of the site visit, preliminary roost assessment and roost characterisation surveys that have been undertaken at this site and reviews potential issues in relation to the proposed works. The site visit and review has been undertaken by suitably licensed and experienced bat surveyor.

6.2 Four bat species are considered to be present at the site including common pipistrelle, soprano pipistrelle, Myotis species (whiskered/Brandt's) and brown long-eared bats. Species have been found presence singularly or in low numbers and only evidence of brown long-eared bat has been identified with no roosting observed during the roost characterisation surveys.

6.3 The proposed works have been reviewed and are not considered to directly or indirectly affect any of roosts or access points or individual from the bat species found roosting at the site. As bats are known to be present then a precautionary approach has been recommended at the site. Work will be subject to supervision by a suitably licensed ecologist when the roof line is combined with the existing roof area.

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Figure 1:
Site Plan of Building 1

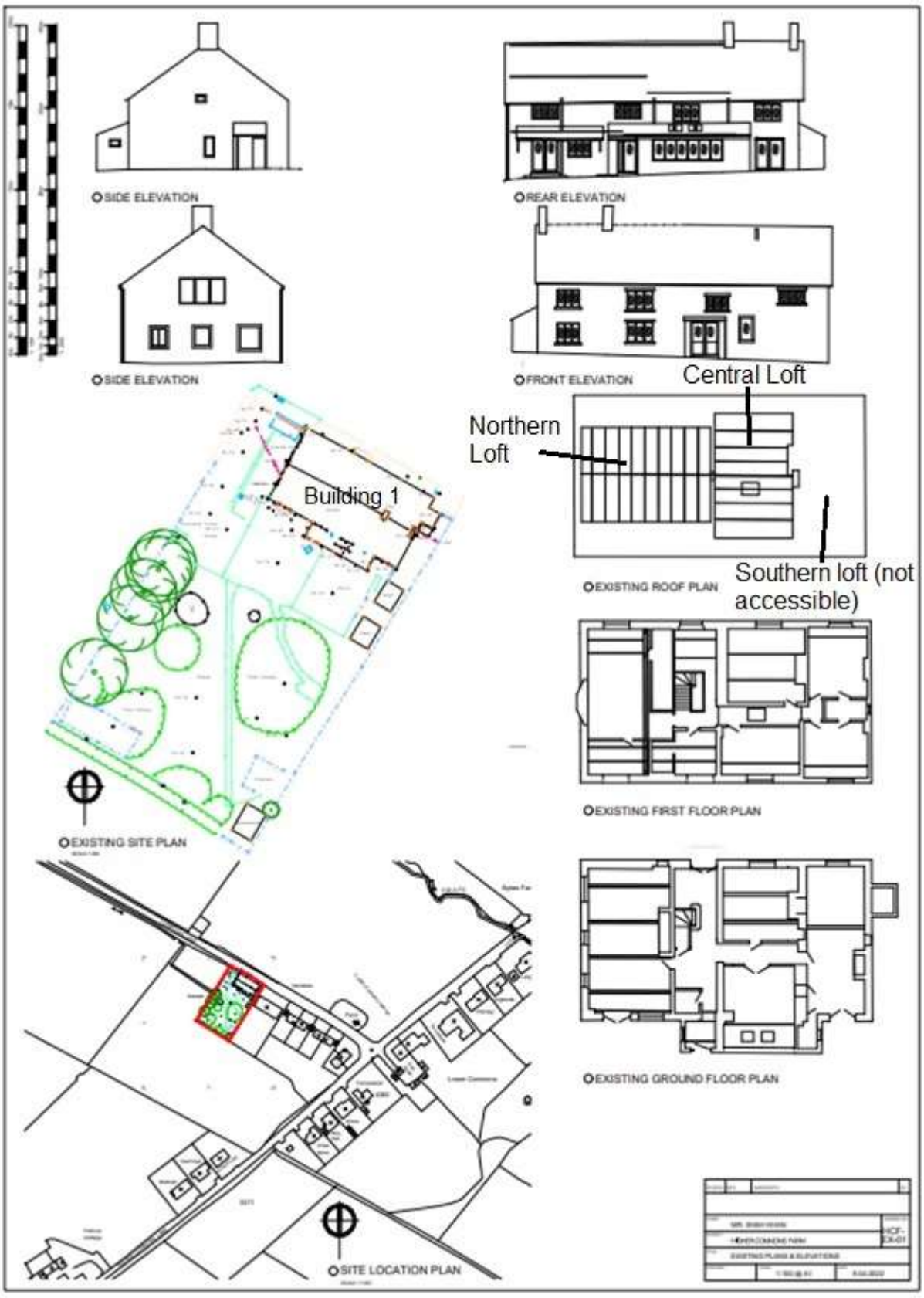
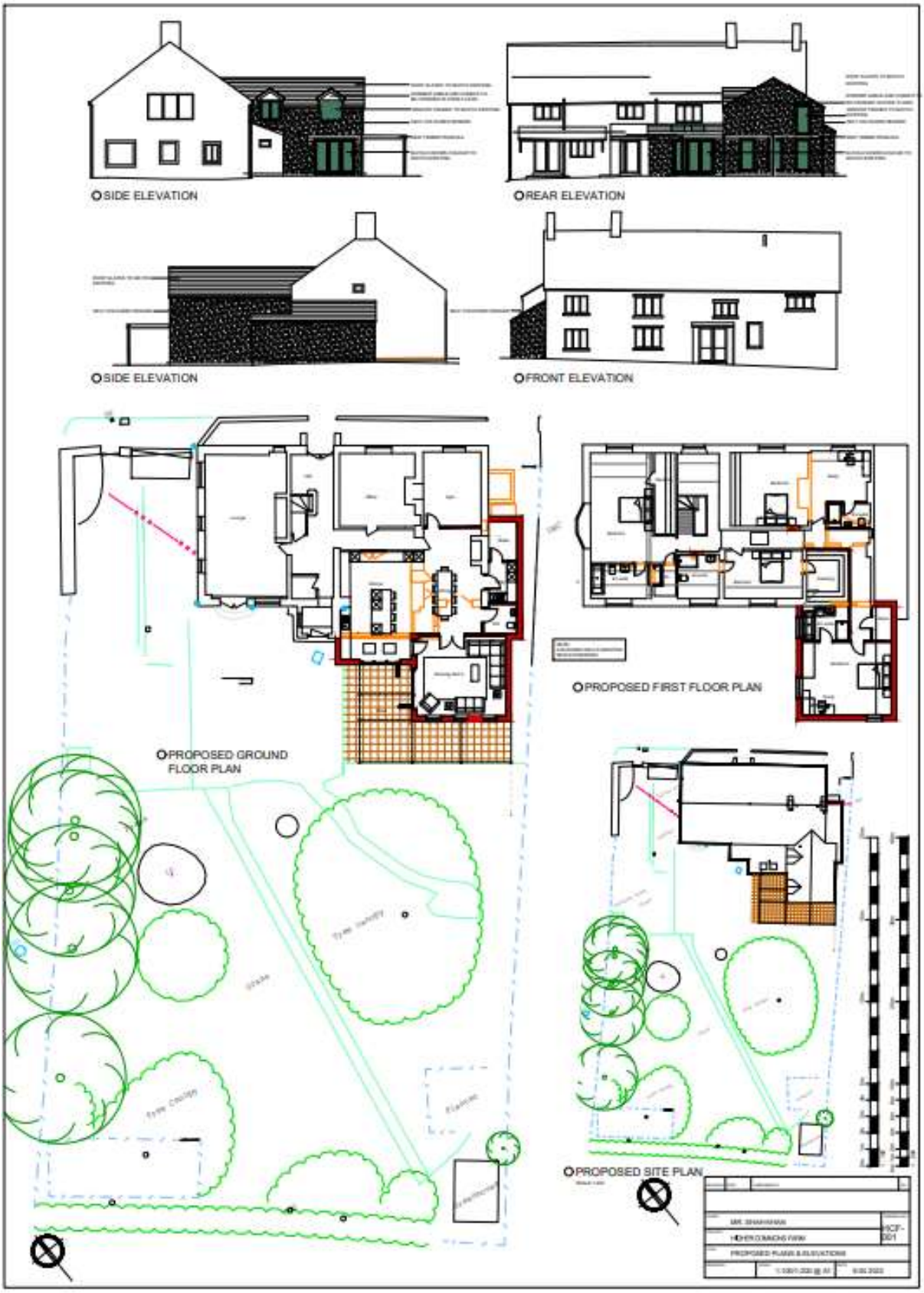


Figure 2:
Development Proposals Plan



Appendix 1:
Population statuses of bats species in Lancashire

National Status
There are 18 species of bat that are native to the United Kingdom.

The latest Review of the Conservation Status of British Mammals (2018) has shown that where change could be assessed with reasonable confidence there have been increases in the geographical range and population status of two species of UK bat (greater and lesser horseshoe bat) and decrease in the geographical range of one species (grey long-eared bat). Increases in population were also identified in the following species: Bechstein's, Daubenton's, Natterers, Serotine and brown long-eared although it is noted that the reliability of the results is poor. Population data was not available for; Alcathoe, whiskered, Brandt's, Leisler's, noctule, Barbastelle and Nathusius pipistrelle.

Population estimates were given for common and soprano pipistrelle however they could not be reliably compared to the results from Harris et al. (1995) as the two species had not been identified as separate species at the time of that survey. *Pipistrellus* spp. remain the commonest species of bat in the UK despite their decline.

The State of Bats 2017 report produced by the Bat Conservation Trust used results from multiple survey types (hibernation, roost, waterway and field) of the National Bat Monitoring Programme (NBMP) to compile population trends between 1999, 2001 or 2002 to 2016. The report identified statistically significant (95% accuracy) population increase in Great Britain in the following species; greater horseshoe (hibernation and roost surveys), lesser horseshoe (hibernation and roost surveys), Daubenton's (hibernation surveys), Natterers (hibernation surveys), common pipistrelle (field surveys), soprano pipistrelle (field surveys). Significant decreases in population in Great Britain were identified in common pipistrelle (roost surveys), soprano pipistrelle (roost surveys) and brown long-eared (roost surveys).

These trends reflect relatively recent changes to bat populations since the 1990s. It is generally considered that prior to this there were significant historical declines in bat populations dating back to at least the start of the 20th century, although evidence is fragmented and few data were collected in a systematic way.

Serotine and barbastelle are considered vulnerable and Leisler's and Nathusius' pipistrelle, near threatened in Britain and England in the Red List for Britain's Terrestrial Mammals (Mathews and Harrower, 2020).

Local Status
There are eight bat species listed as being resident in Lancashire; these are as follows:

- Brown long-eared (*Plecotus auritus*)
- Whiskered (*Myotis mystacinus*)
- Brandt's (*Myotis brandtii*)
- Daubenton's (*Myotis daubentonii*)
- Noctule (*Nyctalus noctula*)
- Common pipistrelle (*Pipistrellus pipistrellus*)
- Soprano pipistrelle *(Pipistrellus pygmaeus*)
- Natterer's (*Myotis nattereri*)

Nathusius pipistrelle (*Pipistrellus nathusii*) has also been recorded in the county more recently. Although there are no known roosts in Lancashire, they have been trapped and ringed at Pennington Flash, Wigan. Lesser horseshoe (*Rhinolophus hipposideros*) is historically known to be present in Lancashire, however, the most recent record is from East Lancashire in 2009.
Populations of bats in many parts of Lancashire are comparable in size and importance to some of the best areas in the country. Estimates have not been made for Lancashire from the national population estimates as they are of poor reliability and it is not felt that the estimates would be useful or statistically valid (White (Ed.) *et. al.,* 2017).

The valleys of the Lune, Wyre, Hodder, Ribble and their tributaries support substantial populations of pipistrelle and Daubenton's. Many colonies of the latter species roost in bridges over the rivers.

There are also good numbers of most of the other bat species listed as being present in this area.

Clusters of brown long-eared colonies are strongly skewed towards the west of the county and populations are known in the Silverdale area, Fylde and West Lancashire, and whiskered and Brandt's are probably more common in the north of the county than in southern Lancashire.

Ponds in the Fylde, mill lodges and reservoirs in eastern Lancashire and other areas provide concentrated feeding areas for many bats.

Swarming activity has been identified in two locations in Lancashire; Blackburn with Darwen and close to the Yorkshire border in Ingleton. It is known that bats will travel from Lancashire to swarming sites in Yorkshire.