



Bat Survey

Proposed New Convenience Store

Puckeridge, Ware, Hertfordshire

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ENVIRONMENTAL AND
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Executive Summary

This report details the results of a bat survey of a petrol station and shop in Puckeridge, Ware Hertfordshire. This is to be refurbished and developed as a convenience store.

A preliminary bat roost assessment (PRA) and emergence survey of the building was carried out in August 2023. The PRA initially assessed the building as having low potential for bats. Therefore, in accordance with best practice guidance, an emergence survey was undertaken to determine the presence or likely absence of roosting bats using these buildings. No bats, or evidence of bats was recorded using the building, however a small common pipistrelle roost was identified in an adjacent adjoining building. This is of low conservation significance.

The proposals will not result in loss or damage of the roost. However, there is a risk of it being disturbed during demolition and/or construction. Regardless of its conservation value, the roost is legally protected and therefore it is necessary to implement measures to prevent disturbance.

Mitigation for the effects of the development will entail timing the works to a period when bats are unlikely to be using the roost and are less vulnerable to disturbance. Works will be supervised by an ecologist. Lighting for the new development should be designed to ensure that the roost is not subject to additional illumination.

Provided the recommended mitigation measures are implemented in full, the proposals would comply with all relevant legislation and planning policy.

1.0 Introduction

1.1 *Background*

This document reports the findings of a bat survey of an existing petrol station and shop of Cambridge Road, Puckeridge, Ware, Hertfordshire (see Figure 1.1 for the site location). In December 2022, Encon Associates were instructed by Tim Blake to undertake an Ecological Appraisal survey of the site in order to provide information regarding the ecology of the site and inform plans for its redevelopment (1). This identified the potential of the building on the site to be used by roosting bats. And therefore, in July 2023, Encon Associates were instructed to undertake a Preliminary Roost Assessment (PRA) and emergence survey of the existing building on the site.

1.2 *Brief Description of the Proposed Works*

The proposals entail the clearance of the site including the demolition of all the existing buildings, followed by the construction of a new convenience store with associated access and car parking.

1.3 *Scope*

This document aims to fully assess the likely ecological effects of the proposed development on bats. The scope of the report is to:

- Provide full details of the status of bats on the site.
- Assess the likely effects of the development upon bats against relevant legislation and policy.
- Recommend avoidance and/or mitigation measures to reduce the impact of the proposals on bats, if required.

The report is only concerned with the effect of the proposed development upon bats. It does not consider effects on any other protected species, or on other features of ecological value.

1.4 *Legislation and Policy Context*

1.4.1 *Relevant Legislation*

The Wildlife & Countryside Act 1981 (as amended) (2) is the primary legislation by which biodiversity in the UK is protected. All species of bats in the United Kingdom are listed in Schedule 5 of the Act, however they are only covered by parts of the legislation, which makes the following activity an offence.

- obstruction of places used for shelter or breeding and the disturbance of scheduled animals at such places

The Conservation of Habitats and Species Regulations 2017 (as amended) (known as the 'Habitats Regulations') (3), pass two EU Directives into UK law. All species of bats in the UK are scheduled within Schedule 2 of the Regulations which makes the following activity and offence:

- capture, injury or killing of scheduled animals
- disturbance of scheduled animals
- damaging or destroying the breeding sites or resting places of scheduled animals
- possession of scheduled animals
- transport of scheduled animals
- sale of or offering for sale scheduled animals

In order to allow activities likely to result in a breach of species protection under the Regulations, a European Protected Species (EPS) licence must first be obtained from

Natural England. These can be issued for different purposes, most commonly science, conservation or mitigation.

The Natural Environment and Rural Communities (NERC) Act 2006 (4) requires that public bodies to have regard to the conservation of biodiversity. This means that Planning Authorities must consider biodiversity when planning or undertaking activities (e.g. management of sites or granting Planning Permission). Certain bat species are listed in Section 41 of the Act (Species of Principal Importance in England).

1.4.2 *Planning Policy*

Government policy with respect to the protection of biodiversity is laid out in the National Planning Policy Framework (NPPF) (5).

Policy 179, requires developments to: *‘Protect and enhance biodiversity and geodiversity, plans should: promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.’*

Policy 180 states that *‘When determining planning applications, local planning authorities should apply the following principle: Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.’*

At a local level, planning policy within Ilkley is contained within the *Herts District Local Plan* (6). This contains a number of policies relevant to the protection of the environment. With specific reference to protected species, Policy NE3 *Species and Habitats* requires the submission of evidence of the ecological effects of proposals. It also requires development to seek to enhance biodiversity; protects woodland, trees and hedgerows, local biodiversity sites, NERC Act Section 41 habitats and species; and requires in the integration of bird and bat boxes into new buildings.

1.4.3 *Other nature conservation policy*

Biodiversity Action Plans (BAPs) were the UK's response to the 1992 Convention on Biological Diversity. The UKBAP described the biodiversity of the UK and contained Action Plans for the most threatened habitats and species. It was implemented at a local level through regional and local BAPs. Whilst the UKBAP has expired, BAPs are still used at a more local level in some areas and species and habitats which were previously priorities within the UKBAP are now listed as Species of Principal Importance within Section 41 of the NERC Act 2006 (4). The site lies in the area covered by the *Hertfordshire Biodiversity Action Plan 2012* (HBAP, 7).

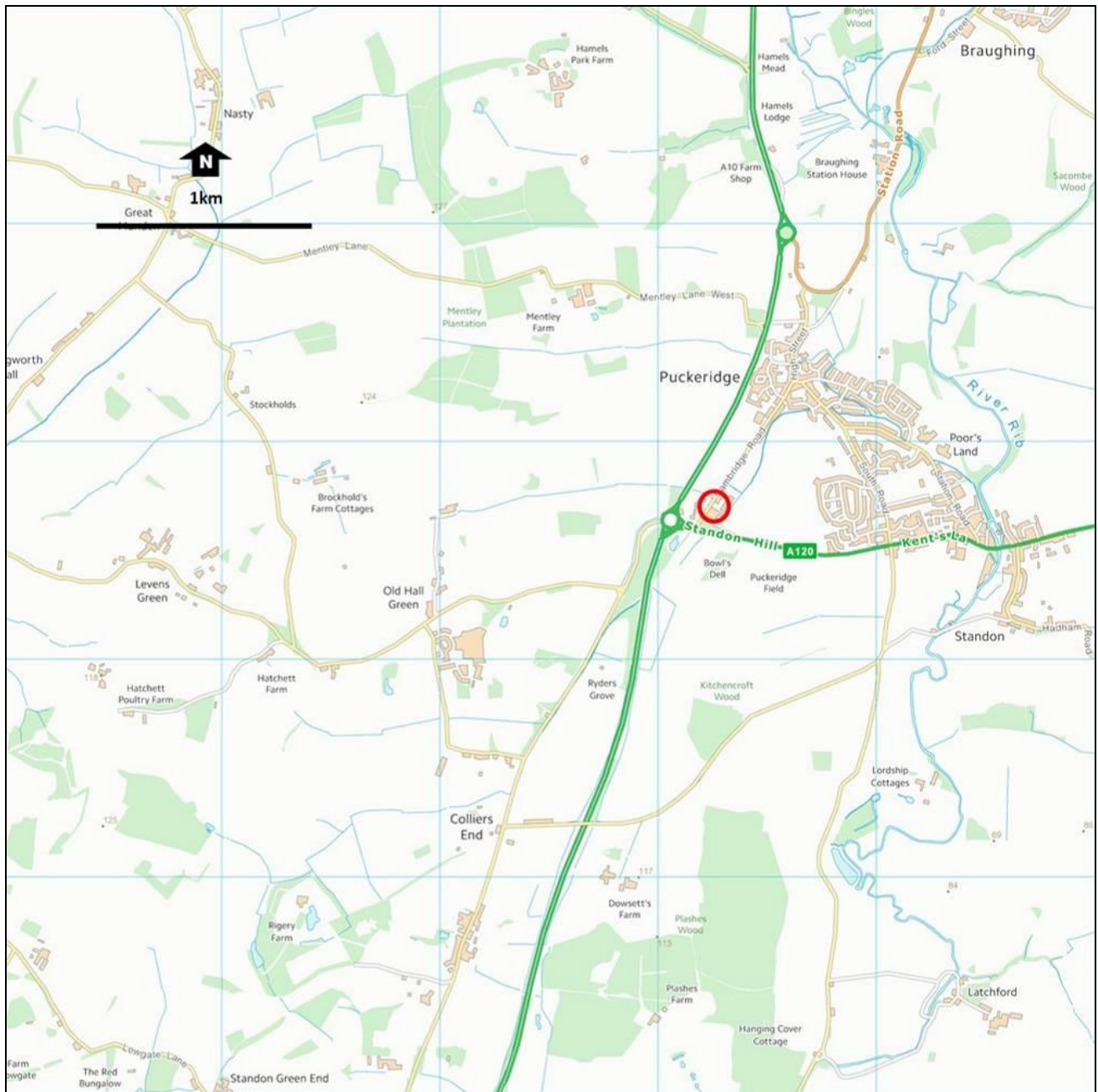


Figure 1.1: Site location. Contains Ordnance Survey data © Crown copyright and database right 2018.

2.0 Methodology

2.1 *Desk Study Methodology*

Available online resources such as the MAGIC (Multi-Agency Geographical Information for the Countryside) and NBN (National Biodiversity Network) websites were interrogated for relevant information. In addition, a search of records of bats, within 1km of the site was requested from Hertfordshire Environmental Records Centre (HERC).

2.2 *Field Survey Methodology*

2.2.1 *Preliminary Roost Assessment*

A bat Preliminary Roost Assessment (PRA) of the buildings on the site was carried out by Claire Clarke BSc ACIEEM and Matt Clarke BSc (both bat class licence holders) for and on behalf of Encon Associates Ltd on 15 August 2023, following best practice methodology (8). All areas of the building were internally and externally examined for evidence of bats. The building survey included an internal and external assessment using a powerful torch and an endoscope where necessary. The internal rooms and loft spaces were fully assessed using a powerful torch beam to scan the walls and flat surfaces for droppings and other signs of bat activity. Feeding remains such as moth and butterfly wing concentrations were also recorded.

Externally, visual ground inspections of all elevations were undertaken using binoculars. Photographs were taken to capture likely features of ecological value to bats and birds i.e. missing tiles, damaged or missing mortar, exposed gable ends, gaps within soffit board, rotten timber and other potential entry points. Other external aspects of the buildings were surveyed, including windows, windowsills, external doors and the ground within close

proximity of the structure was thoroughly inspected for bat droppings and feeding remains.

The building was categorised as either high, moderate, low or negligible potential for roosting bats in accordance with the criteria in Table 2.1.

Table 2.1. *Criteria for the categorisation of bat roost potential.*

Suitability	Description of building, tree or structure
Negligible	No habitat features on likely to be used by roosting bats
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, potential roost sites not suitable for larger numbers or regular use (i.e. maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats, but unlikely to support a roost of high conservation status.
High	A structure or tree 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.
Confirmed roost	Evidence of bats or use by bats found.

2.2.2 Emergence survey

A bat emergence survey was undertaken on the building following best practice guidelines (8). Following the PRA, the building was initially assessed as being of low potential. Therefore, a single emergence survey visit was undertaken.

Two surveyors were positioned outside the building so that all potential bat access points were visible. This included on surveyor located on the flat roof extension. All aspects of the roof and other key locations suitable for use by roosting bats were being observed. For the dusk emergence surveys, surveyors took up separate positions 15 minutes prior to and

1.5 hours after sunset. The dates, timings and weather conditions during each survey are given in Table 2.2.

Visual observations of bat activity were noted, and bat species were identified using detectors and sonogram analysis. Information recorded during the survey included weather, timings, whether bats emerged from or entered the building, direction of travel, species and activity e.g. foraging or commuting. EM Touch 2 Pro devices coupled to Apple iPhone and Peterson D240x detectors were used to record bats. The survey was carried out by Claire Clarke BSc ACIEEM and Matt Clarke BSc.

Table 2.2. *Bat emergence and activity survey timings and weather conditions.*

Date	Sunset time	Start time	End time	Temp. (°C)	Weather
15 August 2023	20:24	10:10	21:55	19-17	6/8 cloud, 0 wind, warm and humid

2.3 *Assessment Methodology*

2.3.1 *Introduction*

The methodology for the assessment of the likely ecological effects of the proposed development is based on the principles of CIEEM's *Guidelines for Ecological Assessment in the UK, 2nd Edition* (9). Although this assessment does not constitute a formal Ecological/Environmental Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

2.3.2 *Valuation*

Features of ecological interest are valued on a geographic scale. Value is assigned on the basis of legal protection, national and local biodiversity policy and cultural and/or social significance.

2.3.3 *Identification of Potential Ecological Impacts in Absence of Mitigation*

A development may have ecological effects beyond its site boundaries, therefore the CIEEM guidelines require that the 'zone of influence' be identified. Due to the relatively small size of this development, for the majority of ecological features, the zone of influence is considered unlikely to extend beyond the footprint of the works and immediately adjacent habitat.

Without mitigation, the proposed development may result in the following biophysical changes during construction and/or operation:

- Loss of and damage to habitats within the footprint of the development which could support bats.
- Any loss or damage of habitats could result in death and/or injury to bats should they be present during demolition.

2.4 *Limitations*

The survey was undertaken at an appropriate time of year and during suitable weather conditions. Sightlines were good with all relevant parts of the building visible to at least one surveyor. Therefore, there are no significant limitations to the survey.

The ecology of a site can change quickly over time. Therefore, this survey is considered valid for two years from the date of the report.

3.0 Ecological Baseline

3.1 *Site Context*

The proposed development site is located on the southwest corner of Puckeridge. The village is located within a broadly agricultural area and is surrounded by large arable fields with a network of hedges and small woods. The site is set within a southern extension to the village and is surrounded by residential development, although farmland and other non-developed land is present nearby.

3.2 *Pre-existing Records*

HERC returned over 750 records of bats from within the search area, including several roosts. Species recorded include common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii* (as well as other unidentified pipistrelle bats), noctule *Nyctalus noctula*, Leisler's bat *Nyctalus leisleri*, serotine *Eptesicus serotinus*, Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystanicus* (and other unidentified *Myotis* bats), and brown long-eared bat *Plecotus auritus*. Many of these records are associated with an important hibernation roost within the village.

3.3 *Building Description*

The main building on the site is a former residential property that is now in use as an antiques shop. This two-storey building appears to date from the mid-20th century and is of rendered brick construction with a clay tiled roof. It has single-layer wall with no wall cavity. It has a brick-built single storey extension to the south, which has a flat, bitumen felt-covered roof. This has another, smaller extension of similar construction to the south. The smaller extension has wooden bargeboards around the roof. The main part of the

building adjoins a residential building containing several flats to the east. The building is in generally good condition although some cracks are present in the walls. Gaps were noted around lead flashing at the rear, and where it joins to the flats, as well as due to missing mortar at the northern gable end. Ivy *Hedera helix* covers the corner of the extension.

The loft space of the building measures approximately 10m x 6m with a height of 3.5m to the ridge. The roof has attic style trusses and is lined with bituminous felt. Although it is not insulated, the loft was dry and warm on the day of the survey. The loft appears not to be used for storage. There was light ingress into the loft at the edges of the northern gable (corresponding with the missing mortar noted on the outside) as well as a few gaps in the roofing felt.

No evidence of bats was observed during the survey either inside or outside of the building. However, rat *Rattus norvegicus* droppings were noted in the loft as well as the remains of dead birds.

In addition to the main building on the site, the forecourt area is dominated by a metal canopy over the pumps which also covers a small wooden shed-style payment booth. A collection of outbuildings is present at the northern edge of the site, which contains a wooden shed, a red-brick shed with a pitched roof and a larger red-brick shed with a flat roof. These are considered to be of negligible bat roost potential.

3.4 *Assessment of Roost Potential*

The main building on the site has some potential for roosting bats. Potential roost features or access points were limited, although the gaps around flashing to the rear of the

building, and the gaps between the buildings and the off-site residential building may enable access to potential roost sites. The construction type of the building is likely to create some suitable roost spaces within. The flat-roofed extension is generally unsuitable for roosting bats, although the ivy covering could provide some suitable roost spaces. The site itself was subject to moderate levels of urban impacts such as traffic, cars and artificial lighting associated with the petrol forecourt, as well as street lighting. Based on this survey, undertaken in accordance with best practice guidance (8), this building is considered to be of low bat roost potential.

3.5 *Emergence survey*

Activity during the survey was low. The only bat species recorded was common pipistrelle. At 20:40 a common pipistrelle emerged from the roof of the adjoining flats, and in total four common pipistrelles emerged from the same location between 20:40 and 21:03. At 21:13 and 21:24 bats were emerged flying close to the emergence point on two occasions and landing on the wall below it, before flying away from the site. Following this, only occasional passes were recorded by either surveyor until 21:40.

3.6 *Discussion and Ecological Valuation*

A survey of the buildings on the site has been completed following appropriate guidance. No bats were recorded emerging from the building and therefore, it is not considered to be of value for bats. The site itself is not considered to be of value for foraging bats.

However, a common pipistrelle roost has been identified in the adjoining building. Based on the numbers of bats seen and the timing of the survey. This is likely to be a small day roost, although further surveys would be required to confirm this. Common pipistrelles are a relatively common and widespread species of bat. Based on the relatively small number

of bats recorded using the roost, this suggests that this roost would not be of greater than local ecological value.

4.0 Assessment of Likely Impacts in Absence of Mitigation

4.1 *Introduction*

The CIEEM guidelines (9) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However, in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

4.2 *Site Preparation and Construction Activities*

The demolition of the buildings on the site would not have a direct impact on the roost with the adjacent building as these will be retained in their current form. The proposed new building is single-storey and therefore would not obstruct access to the roost entrance, the roofline would be further from the roost than the existing building.

However, there is a possibility that bats could be disturbed by noise and vibration during demolition and construction. Bats and their roosts are protected from damage and disturbance under the Wildlife & Countryside Act and the Habitats Regulations, and therefore this could result in a legal offence.

4.3 *Site Operation*

The proposals will result in changes to the artificial lighting on the site. This could affect the behaviour of bats. If the roost entrance on the adjacent building was subject to additional illumination, it could deter bats from using it.

5.0 Mitigation, Compensation and Enhancements

5.1 *Introduction*

This chapter contains recommendations for further works needed to fully assess the ecological impacts of the proposals and to mitigate any potential adverse effects. In addition, recommendations for the enhancement of nature conservation and biodiversity on the site are included.

5.2 *Further Survey*

A bat survey has completed that complies with best practice guidance (1) which confirms that the presence of a bat roost in the site is unlikely. Therefore, no further survey is required to establish the status of bats on the site. Although not a legal requirement, additional surveys carried out immediately prior to works on the site may give increased confidence in the effectiveness of mitigation measures.

5.3 *Licensing*

Activities that could result in damage to, or destruction of, a bat roost require a licence issued by Natural England to proceed without risking a legal offence. However, it is Natural England's policy to not issue licences to disturb roosting bats, other than for the purposes of science, education or conservation. Therefore, it would not be possible to obtain a licence to allow disturbance of the roost arising from demolition and/or construction work. Consequently, in order to avoid risking a legal offence, it would be necessary to avoid disturbance to the roost in the adjacent building.

5.4 *Mitigation Measures*

5.4.1 *Timing of works to avoid disturbance*

The survey suggests that the roost in the adjacent building is a summer roost. Whilst there is little available information on pipistrelle hibernation roosts, this building is an occupied residential building and therefore is unlikely to offer suitable conditions for hibernation. Therefore, the risk of disturbance to the roost can be avoided by timing the demolition works to avoid the summer maternity season. Although the building is unlikely to be used for hibernation, the most suitable time of year to undertake demolition would be the autumn, October to November, after the maternity period has ended, but before hibernation starts (depending on the weather conditions). Therefore, demolition, which is most likely to cause a disturbance, would avoid both the maternity and hibernation periods. Construction works which are less likely to cause disturbance could then take place over the winter when bats are unlikely to be using the building.

5.4.2 *Supervision*

Initial stages of the demolition should be supervised by a suitably qualified and experienced ecologist, who may undertake an emergence survey immediately prior to works starting. The ecologist may recommend measures such as a hand strip of the roof close to the adjacent building, if it is felt that this would reduce the risk of disturbance. If the ecologists suspects the works are causing disturbance to the adjacent roost, they will stop the works.

5.4.3 *Wildlife-friendly lighting*

It is essential that the adjoining building is not subject to any additional illumination as a result of the works. Therefore, lighting for the development should be designed so this

area remains dark at all times. This is likely to require the use of hoods or shielding to prevent any light from reaching the adjacent building.

In general, new lighting associated with the proposals must be designed to minimise the effects on nocturnal wildlife, particularly bats, and should follow best practice guidance (10). The following principles will minimise the impact of lighting on nocturnal wildlife and should be applied to the lighting design across the site:

- Use of low-level bollard lighting to minimise light spill.
- Directing lights away from the edges of the site and the use of hoods or similar measures to direct light away from important habitats, particularly adjoining building.
- Restriction of UV light frequencies through selection of suitable lighting elements or the use of filters.
- Use of warm white spectrum lighting elements.

5.5 *Enhancements*

Bat boxes should be erected on or incorporated into the new building or fixed on retained trees. They should be situated in areas with little artificial light. A variety of suitable bat boxes are commercially available, however, the design selected should be suitable for crevice-roosting species such as pipistrelles, which have been recorded on the site and are most often found in suburban habitats.

6.0 Summary and Conclusions

No bats have been recorded using the buildings on the site, which are proposed for demolition. However, a small day-roost of common pipistrelles is present in an adjacent adjoining building. This is likely to be of low conservation significance. Regardless of their conservation value, all bat roosts are legally protected.

Whilst the proposals will not result in any direct impacts to this roost due to loss or damage, there is a risk it could be disturbed during demolition and/or construction. It is not possible to obtain a licence to disturb the roost and therefore it is necessary to implement avoidance measures to ensure the roost is not disturbed.

The primary avoidance measure will be to time demolition and subsequent construction to take place when bats are less vulnerable to disturbance and are unlikely to be using the roost. Works will be supervised by an ecologist. Lighting must be designed to ensure the roost is not subject to new additional lighting and a wildlife-friendly lighting scheme covering the whole site is required.

Ecological enhancements in the form of bat boxes should be erected on the site.

Provided all the recommended mitigation measures are implemented in full, disturbance to the adjacent roost is unlikely and therefore the proposals would comply with all relevant legislation and planning policy.

7.0 References

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