



Quod

Environmental Statement Volume III

**Appendix 10.4:
Phase 2 Bat Survey Report
(2017)**

Axis J9, Phase 3

SEPTEMBER 2021

Q210470

25 October 2017

North West Bicester

Phase 2 Bat Survey Report

Project Number: 10706_R06_NJ_LP

Author: Nathan Jenkinson
ACIEEM

Checked: Aaron Grainger
MCIEEM



Tyler Grange

Birmingham • Cotswolds • Exeter • London • Manchester

Contents

Summary

Section 1: Introduction..... 1

Section 2: Methodology.....3

Section 3: Ecological Features and Evaluation6

Section 4: Potential Impacts, Mitigation and Enhancement8

Section 5: Conclusions10

References

Appendices

- Appendix 1: Legislation and Planning Policy
- Appendix 2: Bat Survey Methodology and Results

Plans

Bat Survey Plan
10706_P03

The contents of this report are valid at the time of writing. Tyler Grange shall not be liable for any use of this report other than for the purposes for which it was produced. Owing to the dynamic nature of ecological, landscape, and arboricultural resources, if more than twelve months have elapsed since the date of this report, further advice must be taken before you rely on the contents of this report. Notwithstanding any provision of the Tyler Grange LLP Terms & Conditions, Tyler Grange LLP shall not be liable for any losses (howsoever incurred) arising incurred as a result of reliance by the client or any third party on this report more than twelve months after the date of this report.



Summary

- S.1. This This phase 2 bat survey report has been prepared by Tyler Grange LLP on behalf of Albion Land Ltd. It sets out the findings of detailed bat activity and emergence/re-entry surveys undertaken at the site known as North West Bicester, Oxfordshire.
- S.2. The site is comprised of three distinct parcels of arable land, with hedgerows forming the peripheral field boundaries and forming the boundaries between the fields. The hedgerows differ in management intensity and composition, with some scattered containing mature trees. The wider landscape comprises Howes Lane and Bicester to the east, the B4030 and a woodland/grassland matrix to the south and arable fields with a hedgerow network to the west and north.
- S.3. Detailed fauna surveys conducted in 2017 have confirmed the presence of an assemblage of bats of up to local ecological importance using the hedgerow network for commuting and foraging, with roosting bats considered to be absent.
- S.4. Through the retention and buffer planting of hedgerow H5 to maintain a commuting corridor from habitats south of the site to the wider landscape west and north of the site, and the inclusion of wildflower grassland, hedgerow replanting and buffer planting, tree planting and attenuation swales within the proposed development, it is considered that the loss of hedgerows H8 and H11 as part of the proposed development is unlikely to have an adverse impact on the foraging and commuting resource for bats at the site.
- S.5. Sensitive lighting should be implemented throughout the site, focussing on minimising light spill onto suitable boundary habitats, namely hedgerows H5, H4 and H3. The inclusion of five bat boxes within the proposed development should act to enhance the roost space resource at the site for bats.
- S.6. With the implementation of the mitigation and enhancement strategy described, the proposed development would be in conformity with relevant planning policy and legislation, as set out in **Appendix 1**.



Section 1: Introduction

Introduction

- 1.1. This phase 2 bat survey report has been prepared by Tyler Grange LLP on behalf of Albion Land Ltd. It sets out the findings of detailed bat activity and emergence/re-entry surveys undertaken at the site known as North West Bicester, Oxfordshire (hereafter referred to as the 'site'). The site is centred on OS Grid Reference [SP 56548 23251].
- 1.2. The site is comprised of three distinct parcels of arable land, with hedgerows forming the peripheral field boundaries and forming the boundaries between the fields. The hedgerows differ in management intensity and composition, with some containing mature trees. The wider landscape comprises Howes Lane and Bicester to the east, Middleton Stoney Road and a woodland/grassland matrix to the south and arable fields with a hedgerow network to the west and north.
- 1.3. Hedgerows H8 and H11 bisect the site and form part of wider network of habitats likely of value to foraging and commuting bats, including the woodland located south of the B4030, the boundary hedgerows at the site and the plantation woodland located east of the site. Given the intensive management of the remainder of the site as arable land, the site was deemed to provide **low quality** habitat for foraging and commuting bats (Collins, 2016). As such, bat activity surveys were recommended to determine how foraging and commuting bats utilise the site.
- 1.4. Tree T4 was determined to have **moderate potential** to support roosting bats due to the presence of split limbs and some areas clad in ivy, and as such two survey visits comprising a dusk emergence and a dawn re-entry survey were recommended to determine if roosting bats were roosting within the tree.

Planning Context

- 1.5. As stated in the ecology chapter prepared by Tyler Grange in May 2017 (Report Ref: 10706_R05) that forms part of the wider Environmental Statement for the Appeal Scheme, the proposed construction works will result in the loss of hedgerows H6, H7, H8 and H11, and the partial loss of hedgerow H9. Tree T4 is located within hedgerow H11 and so will also be removed.
- 1.6. The removal of tree T4 could result in relevant legislation (Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations) being triggered if a bat roost is present. The ES stated that emergence and re-entry surveys during the active season should be undertaken between April to September 2017 to determine the presence or likely absence of bats which were subsequently undertaken by Tyler Grange.
- 1.7. Hedgerows H6, H7, H8 and H11 were not considered likely to provide important commuting or foraging habitat for bats as other stronger linear habitat features exist that connect to the surrounding landscape and due to recent intensive management in the case of H8 and H11, however, the ES stated that they are likely to still have some value to the bat assemblage associated with the site. As a result, bat activity surveys undertaken between April and September 2017 were undertaken to determine the use of these features by foraging and commuting bats.

Purpose

- 1.8. The purpose of this report is to describe the results of the surveys, assess the potential impact of the



scheme on bats, and provide recommendations for appropriate mitigation and enhancement measures.

- 1.9. This assessment and the terminology used are consistent with the 'Guidelines for Ecological Impact Assessment' (CIEEM, 2016).



Section 2: Methodology

Data Search

- 2.1. The aim of the data search is to collate existing records of bats for the site and adjacent areas. Obtaining existing records is an important part of the assessment process as it provides information on issues that may not be apparent during a single survey, which by its nature provides only a 'snapshot' of the ecology of a given site.
- 2.2. A data search for records of protected and notable species was requested from Thames Valley Environmental Records Centre (TVERC) in 2014 to inform the initial ES, with an update data search undertaken in 2016.

Bat Surveys

- 2.3. The scope of further detailed survey work required was determined following receipt of desk study data and completion of the most recent ES chapter (Report Ref: 10706_R05). These further surveys were undertaken to determine the presence or likely absence of bats from the site, and assess the potential for impacts to bats as a result of the proposed development.
- 2.4. Table 2.1 below lists the surveys conducted, together with dates. **Appendix 2** provides further information concerning survey methods, surveyors and rationale. The transect route, static detector locations and surveyor location for the emergence/re-entry survey are shown on **Plan 10706/P03**. All surveys were conducted in accordance with best practice (Collins, 2016).
- 2.5. A bat 'call' is defined as a single aural detection. For the purpose of the manned transect survey, a single bat 'pass' is defined as a bat having been recorded during the manned transect surveys, with a gap of at least 10 seconds between the one aural or visual detection and the next.
- 2.6. Levels of bat activity are presented in the results in Section 3 using a Bat Activity Index (BAI). This is to account for differing lengths of recording across the three survey visits, and produces a quantitative measure of bat passes per minute, allowing direct comparison of usage of different areas of the site by bats. The BAI is calculated by dividing the number of passes recorded along a given feature or during a given survey by the total number of minutes that the static detector was recording. BAIs were rounded to two decimal places.



Survey	Date	Surveyors	Notes
Bat Activity Surveys – Manned Transects	Visit 1: 04 May 2017 Visit 2: 14 June 2017 Visit 3: 14 September 2017	Aaron Grainger MCIEEM (Bat licence 2015-12157-CLS-CLS) Nathan Jenkinson ACIEEM	One manned transect walked a total of three times, once per season (spring – April/May, summer – June/July/August, autumn – September/October) in 2017
Bat Activity – Static Surveys	Visit 1: 04 May 2017 Visit 2: 14 June 2017 Visit 3: 13 September 2017	Aaron Grainger MCIEEM (Bat licence 2015-12157-CLS-CLS) Nathan Jenkinson ACIEEM	Bat detectors left at three locations around the site for at least five consecutive nights per season during 2017 (as above).
Bat Emergence/Re-entry Surveys (Tree T4)	Visit 1: 14 June 2017 Visit 2: 14 September 2017	Nathan Jenkinson ACIEEM Robert Lawrence PhD	Survey of tree T4 to determine presence/likely absence of a bat roost

Table 2.1: Summary of bat surveys undertaken at the site in 2017



Limitations

- 2.7. The species data collated during the data search are only those records submitted to BRERC and therefore should not be taken as a definitive list of the protected and priority fauna to occur within the study area.
- 2.8. The surveys were undertaken during optimal conditions for bat surveys. As such, the surveys were not constrained by environmental factors.

Evaluation

- 2.9. The evaluation of the bat assemblage at the site is defined in accordance with published guidance (CIEEM, 2016). The level of importance of specific ecological features is assigned using a geographic frame of reference, with international value being most important, then national, regional, county, borough, local and lastly, within the site boundary only. For the purpose of this assessment, based on the data collected the geographic frame of reference assigned to the habitats in terms of bat foraging and commuting habitat have been based upon the scoring system developed by Wray *et al.* (2010).
- 2.10. Importance judgements are based on various characteristics that can be used to identify ecological features likely to be important in terms of biodiversity. These include site designations (such as SSSIs), or for undesignated features, the size, conservation status (locally, nationally or internationally), and the quality of the ecological feature. In terms of the latter, quality can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

Quality Control

- 2.11. The contents of this report have been prepared by ecologists at Tyler Grange LLP, all of whom are members of CIEEM and abide by the Institute's Code of Professional Conduct.



Section 3: Ecological Features and Evaluation

Desk Study

- 3.1 The data searches for the previous ES Chapter prepared in 2014 (Aspect Ecology, 2014) and the ES Chapter prepared by Tyler Grange in May 2017 (Report Ref: 10706_R05) returned records of the following bat species within 2km of the site:
- Common pipistrelle *Pipistrellus pipistrellus* ;
 - Soprano pipistrelle *pipistrellus pygmaeus*;
 - Brown Long-eared *Plecotus auritus*; and
 - Noctule *Nyctalus noctula*.

Roost identification

- 3.2. There are no buildings present on site. Tree T4 was subject to one dusk emergence and one dawn re-entry survey between June-September 2017. No bats were observed emerging or re-entering tree T4 during either survey visit, and as such, is not considered likely to support roosting bats.

Activity Survey Results

- 3.3. Manned transect routes and locations of static detectors (Anabat Express) are illustrated on **Plan 10706/P03**. Full details on methodologies and survey results are provided in **Appendix 2**.
- 3.4. Common pipistrelle was the only species of bat identified during the manned transect surveys. The highest levels of activity during the manned transect surveys were recorded in along hedgerow H4 and hedgerow H11 (see **Plan 10706/P03**).
- 3.5. The static bat detector surveys (refer to **Plan 10706/P03** for locations) recorded a total of three confirmed bat species using the site between May – September 2017, along with two species groups identifiable to genus level. A maximum of four species/species groups were recorded during any one survey in Visit 3 (September 2017). The species recorded at the site across the three static detector surveys are as follows:
- Common pipistrelle;
 - Noctule;
 - *Nyctalus/Eptesicus sp.*;
 - *Myotis sp.*; and
 - Soprano pipistrelle;
- 3.6. Over the course of all the static detector surveys, the statics detectors recorded a total of 2,001 bat calls. Of all the calls, 93% were from common pipistrelle, the most prevalent species on the site. The less frequently encountered bat species/species groups, namely soprano pipistrelle, unidentified *Myotis sp.*, unidentified calls belonging to *Nyctalus/Eptesicus sp.* and noctule comprised 1.3%, 3.5%, 0.3% and 1.2% of the calls recorded respectively which indicates very low use of the site by these species.
- 3.7. Of the hedgerows that were monitored over all three static detector surveys, hedgerow H11 exhibited the highest BAI (defined as passes per minute) of 0.16, with hedgerow H5 exhibiting the second highest BAI of 0.05 and hedgerow H8 exhibiting the lowest levels of activity with a BAI of 0.01. In all



instances, the highest BAI by species for each of the hedgerows was exhibited by common pipistrelle.

- 3.8. During the dusk activity survey on the 4th May 2017, a total of eight common pipistrelle passes were recorded in the west of the site, at the intersection of hedgerows H5 and H4, and at the eastern end of hedgerow H4. During the following dusk activity survey on the 14th June 2017, four common pipistrelle passes were recorded foraging and commuting along hedgerow H11, with one common pipistrelle recorded commuting along hedgerow H4. No activity was recorded during the September activity survey.
- 3.9. The results of the walked transect surveys indicate that commuting and foraging activity are concentrated in the west and centre of the site, namely along hedgerows H4, H5 and H11. The static detector surveys indicate that hedgerows H11 and H5 are likely of value to foraging common pipistrelle, with hedgerow H8 of less value. Hedgerow H5 was also shown to support the highest levels of bat activity exhibited by species other than common pipistrelle, namely *Myotis sp.* and soprano pipistrelle.
- 3.10. A large proportion of the calls recorded during both the manned transect surveys and the static detector surveys belonged to common and widespread bats species. The number of bats utilising the site for foraging and commuting activity is considered to be small, with an unknown number of nearby offsite roosts and a well-connected network of hedgerows and small intensively managed arable fields. Using the scoring system found in Wray *et al.* (2010) the commuting and foraging habitats at the site are of **local ecological importance**. Considering this geographic valuation in conjunction with the BAIs calculated, bat activity levels at the site are considered to be low.



Section 4: Potential Impacts, Mitigation and Enhancement

Proposed Development

- 4.1. Albion Land Ltd are seeking planning permission for an employment led, mixed use scheme at the Site, which forms part of the North West Bicester Eco-Town. The Site is allocated for mixed use development by Policy Bicester 1 of the adopted Cherwell Local Plan 2011-2031 (“the Local Plan”). Since 2014 AL have made two outline planning applications to Cherwell District Council for development at the site. The first of these applications was withdrawn prior to a decision by CDC, whilst the second application was refused by CDC in June 2016 (14/01675/OUT) and was subject to a planning appeal hearing in September 2017.
- 4.2. Two subsequent planning applications for the development were also submitted:
 - 17/00455/HYBRID (March 2017); and
 - 17/01090/OUT (May 2017)
- 4.3. The development proposals for the overall site comprise the following elements:
 - Development of B1, B2 and B8 (Use Classes) employment buildings, including landscaping; parking and service areas; balancing ponds and swales; and associated utilities and infrastructure. Construction of a new access off Middleton Stoney Road (B4030); temporary access off Howes Lane; internal roads, footways and cycleway; and
 - Construction of a temporary vehicular and pedestrian access (including footway along Howes Lane), permanent highway works (part of the proposed realigned Howes Lane) and pedestrian link to Howes Lane; Residential development, including landscaping, public open space, vehicular and pedestrian access.

Potential Impact and Requirement for Mitigation

- 4.4. Both the Countryside and Rights of Way (CRoW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006 give the importance of conserving biodiversity a statutory basis, requiring government departments (which includes Local Planning Authorities) to have regard for biodiversity in carrying out their obligations (which includes determination of planning applications) and to take positive steps to further the conservation of listed species and habitats. These articles of legislation require Cherwell District Council to take measures to protect species or habitats from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning authorities should refuse permission where harm to the species or their habitats would result, unless the need for, and benefits of, the development clearly outweigh the harm.
- 4.5. The scheme has been designed to, where possible maintain and protect those features of importance to bats at the site. Where there are potential impacts in the construction and operational phases of the development to bats, these are described below. Where impacts would trigger legislation or planning policy (as set out in **Appendix 1**), the requirement for mitigation is noted.

Roosting Bats

- 4.6. Tree T4 was identified as having potential to support roosting bats, as stated in the ecology chapter prepared by Tyler Grange in May 2017 (Report Ref: 10706_R05). Tree T4 was not found to support



roosting bats during the emergence and re-entry survey completed during 2017, therefore, direct effects on roosting bats are highly unlikely.

Foraging and Commuting Bats

- 4.7. Activity surveys indicated that bat foraging and commuting activity at the site was highest along hedgerow H11, with hedgerow H5 exhibiting the second highest levels of activity and hedgerow H8 the lowest level of activity. The walked transects exhibited concurrent results, with bat activity observed at the intersection of hedgerows H5 and H4, and along hedgerows H4 and H11.
- 4.8. Hedgerow H5 is due to be retained under the current site proposals, with hedgerows H11 and H8 to be removed. It is considered that bat activity along hedgerow H11 is likely to have been so high due to hedgerow H11 being used as a foraging resource by common pipistrelle. The hedgerow is considered unlikely to be an important commuting corridor as it leads across the site from suitable plantation woodland habitats located to the west of the site towards Howes Lane and the urban area of Bicester to the east.
- 4.9. Likely of greater importance to commuting bats is the link provided by hedgerow H5 between the woodland and grassland to the south of the B4030 to the area of plantation woodland to the west of the site and the hedgerow network in the wider landscape to the north and west of the site.
- 4.10. Hedgerow H8, which sits to the east of hedgerow H5 and runs parallel with hedgerow H5 exhibited the lowest levels of bat activity as of the hedgerows subject to static monitoring, it is located nearest to the artificially lit roundabout to the south-east of the site, which is likely to act to reduce its suitability for foraging and commuting bats when compared with the largely unlit corridor provided by hedgerow H5.
- 4.11. To ensure the site continues to provide connectivity between suitable habitats to the south of Middleton Stoney Road and the wider landscape, and remains suitable for foraging bats, hedgerows H5, H4 and H3 will be retained and buffered from the proposed development. Habitat creation including meadow grassland, buffer planting of retained hedgerows, creation of new hedgerows, tree planting and attenuation swales to be provided within the landscaping at the site will provide continued foraging opportunities for bats.
- 4.12. The proposed lighting strategy can be designed and implemented to ensure that there is no increase in light levels on the southern, western and northern boundary habitats ensure that the range of bat species currently utilising the site can continue using these features. Lighting throughout proposed habitats on-site should also be sympathetic to bats (BCT and ILE, 2009) to ensure they can be utilised by foraging and commuting bats during the operational phase. The highest activity levels were recorded for common pipistrelle which is a species relatively tolerant of increased ambient lighting, therefore, the introduction of additional lighting is not considered likely to significantly impact upon the use of boundary features by this species.
- 4.13. Some bat species, such as common and soprano pipistrelle and possibly single brown long-eared bats, if present, could roost in the new structures. To provide enhanced roosting opportunities for bats the provision of five bat boxes should be included within proposed new buildings or on suitable retained trees as per the Biodiversity Strategies submitted with applications 17/00455/HYBRID and 17/01090/OUT (ref 10706_R02a and 10706_R04). The details and specific locations will be provided as part of a Landscape and Ecological Management Plan (LEMP) for the development.



Section 5 Conclusions

- 5.1. Through the retention and planting that will buffer hedgerows H3, H4 and H5 to maintain a commuting corridor from habitats south of the site to the wider landscape to the north and west, and the provision of wildflower grassland, hedgerow replanting, woodland/scrub, tree planting and attenuation swales within the proposed development, it is considered that the loss of hedgerows H8 and H11 as part of the proposed development is unlikely to have an adverse impact on the available foraging and commuting resource for bats at the site. With the aforementioned habitats to be retained created, it is considered that the ecological resource at the site for foraging and commuting bats will be enhanced.
- 5.2. Sensitive lighting should be implemented throughout the site, focussing on minimising light spill onto suitable boundary habitats, namely hedgerows H5, H4 and H3.
- 5.3. With the implementation of the Biodiversity Strategies (10706_R02a and 10706_R04), the proposed development would be in conformity with relevant planning policy and legislation as listed in **Appendix 1**, which seeks to protect and enhance ecological features.



References

BCT and ILE, 2009. *Bats and Lighting in the UK: Bats and the Built Environment Series. Version 3.* London: Bat Conservation Trust (BCT); Institute of Lighting Engineers (ILE).

Chartered Institute of Ecology and Environmental Management (2016). *Guidelines for Ecological Impact Assessment in the UK and Ireland, Second Edition.* <http://www.cieem.net/ecia-guidelines-terrestrial>- Chartered Institute of Ecology and Environmental Management, Winchester.

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

Joint Nature Conservation Committee (2007). *Handbook for Phase 1 habitat survey - a technique for environmental audit.* JNCC, Peterborough

Multi-Agency Geographic Information for the Countryside (MAGIC) Interactive maps, available online at: <http://www.natureonthemap.naturalengland.org.uk>

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

Wray, S., Wells, D., Long, E., and Mitchell-Jones, T. (2010). *In Practice Issue 70: Valuing Bats in Ecological Impact Assessment.* CIEEM: Winchester



Appendix 1: Legislation and Planning Policy



Appendix 1: Legislation and Planning Policy

A1.1. This section summarises the legislation and national, regional and local planning policies, as well as other reference documents, relevant to the protection and enhancement of ecology resources.

Legislation

A1.2. Specific habitats and species receive legal protection in the UK under various pieces of legislation, including:

- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2010;
- The Countryside and Rights of Way Act 2000;
- The Natural Environment and Rural Communities Act 2006;
- The Hedgerows Regulations 1997; and
- The Protection of Badgers Act 1992.

A1.3. The European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992, often referred to as the 'Habitats Directive', provides for the protection of key habitats and species considered of European importance. Annexes II and IV of the Directive list all species considered of community interest. The legal framework to protect the species covered by the Habitats Directive has been enacted under UK law through The Conservation of Habitats and Species Regulations 2010 (as amended).

A1.4. In Britain, the WCA 1981 (as amended) is the primary legislation protecting habitats and species. SSSIs, representing the best examples of our natural heritage, are notified under the WCA 1981 (as amended) by reason of their flora, fauna, geology or other features. All breeding birds, their nests, eggs and young are protected under the Act, which makes it illegal to knowingly destroy or disturb the nest site during nesting season. Schedules 1, 5 and 8 afford protection to individual birds, other animals and plants.

A1.5. The CRoW Act 2000 strengthens the species enforcement provisions of the WCA 1981 (as amended) and makes it an offence to 'recklessly' disturb a protected animal whilst it is using a place of rest or shelter or breeding/nest site.

Planning Policy

National Planning Policy Framework

A1.6. The relevant adopted policy at the national level is set out in The National Planning Policy Framework (NPPF; 2012), which replaces Planning Policy Statement 9 (PPS9) Biodiversity and Geological Conservation (2005). The NPPF aims to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. It sets out the key principles of ensuring that development is sustainable and that the potential impacts of planning decisions on biodiversity and geological conservation are fully considered (although the presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined).



A1.7. Outline principles state that planning should:

- Contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this Framework; and
- Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production).

A1.8. Chapter 11, Conserving and Enhancing the Natural Environment, sets out a number of planning protocols, as follows:

- The NPPF provides guidance as to the protection of statutorily designated sites, including international sites, National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSIs), as well as non-statutory regional and local sites. The NPPF also addresses development and wildlife issues outside these sites and seeks to ensure that planning policies minimise any adverse effects on wildlife;
- the NPPF places emphasis on local authorities to further the conservation of those habitats of principal importance, or those habitats supporting species of principal importance, which are identified in Section 41 of the NERC Act 2006;
- the NPPF requires that adverse effects of development on species of principal importance should be avoided through planning conditions or obligations and that planning permission should be refused where harm to these species, or their habitats, may result, unless the need for and benefits of the development clearly outweigh the harm;
- the NPPF requires that opportunities for improving biodiversity within developments should be maximised. It states that development proposals where the primary objective is to conserve or enhance biodiversity should be permitted and that opportunities to incorporate biodiversity in and around developments should be encouraged; and
- the NPPF states that by encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

A1.9. The Government Circular 06/2005¹ accompanies the National Planning Policy Framework and sets out the application of the law in relation to planning and nature conservation in England.

Local Planning Policy

Cherwell Local Plan 2011 - 2031 Part 1

A1.10. The Cherwell Local Plan 2011 - 2031 Part 1 sets out the long-term spatial vision for the District and contains policies to help deliver that vision. The key policies within the Local Plan relating to ecology are as follows:

A1.11. Policy Bicester 1: North West Bicester Eco-Town which states the following with regards to biodiversity:

- *Development that respects the landscape setting and that demonstrates enhancement, restoration or creation of wildlife corridors to achieve a net gain in biodiversity.*

¹ Office of the Deputy Prime Minister (2005). *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. [Online]. Available at: <<http://www.communities.gov.uk/documents/planningandbuilding/pdf/147570.pdf>> Accessed: 23rd July 2015.



- *Preservation and enhancement of habitats and species on-site, particularly protected species and habitats and creation and management of new habitats to achieve an overall net gain in biodiversity including the creation of a local nature reserve and linkages with existing BAP habitats.*
- *Sensitive management of open space provision to secure recreation and health benefits alongside biodiversity gains.*

A1.12. Policy ESD10: protection and Enhancement of Biodiversity and the Natural Environment which will be achieved by the following:

- *In considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources.*
- *The protection of trees will be encouraged, with an aim to increase the number of trees in the District*
- *The reuse of soils will be sought. If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or as a last resort, compensated for, then development will not be permitted.*
- *Development which would result in damage to or loss of a site of international value will be subject to the Habitats Regulations Assessment process and will not be permitted unless it can be demonstrated that there will be no likely significant effects on the international site or that effects can be mitigated.*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of national importance will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site and the wider national network of SSSIs, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity.*
- *Development which would result in damage to or loss of a site of biodiversity or geological value of regional or local importance including habitats of species of principal importance for biodiversity will not be permitted unless the benefits of the development clearly outweigh the harm it would cause to the site, and the loss can be mitigated to achieve a net gain in biodiversity/geodiversity.*
- *Development proposals will be expected to incorporate features to encourage biodiversity, and retain and where possible enhance existing features of nature conservation value within the site. Existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity*
- *Relevant habitat and species surveys and associated reports will be required to accompany planning applications which may affect a site, habitat or species of known or potential ecological value.*
- *Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution.*
- *Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be viewed favourably.*
- *A monitoring and management plan will be required for biodiversity features on-site to ensure their long term suitable management.*

North West Bicester Masterplan Supplementary Planning Document, 2016

A1.13. The North West Bicester Masterplan Supplementary Planning Document (SPD) sets out the key principles for the future development of North West Bicester. The key policy within the SPD relating to ecology is Development Requirement (e) – Biodiversity which states:



- *Biodiversity mitigation and enhancement shall be incorporated into development proposals to provide a net biodiversity gain. As such it is not possible to mitigate for the impact of farmland birds on the site, off-site mitigation measures should be provided and all applications within the masterplan area should contribute to the provision of off-site mitigation.*
- *Proposals must demonstrate inclusion of biodiversity gains within the built environment for example through planting, bird, bat and insect boxes and the inclusion of green roofs.*
- *A biodiversity strategy which is part of an approved biodiversity strategy for the whole masterplan area, shall accompany all planning applications. It should include an accepted numerical metric to show that a net gain in biodiversity will be achieved.*
- *All new development within the North West Bicester site must be in line with the North West Bicester masterplan green infrastructure and landscape strategy, May 2014 which forms part of the masterplan SPD*
- *A detailed Landscape and Habitats Management Plan including a comprehensive ecological monitoring programme will be required for all reserved matters and full planning applications.*
- *Sensitive management of open space provision to secure recreation and health benefits alongside biodiversity gains.*

Biodiversity Action Plans

- A1.14. The UK Post-2010 Biodiversity Framework succeeded the UK BAP partnership in 2011 and covers the period 2011 to 2020. However, the lists of Priority Species and Habitats agreed under the UKBAP still form the basis of much biodiversity work in the UK. The current strategy for England is 'Biodiversity 2020: A Strategy for England's wildlife and ecosystem services' published under the UK Post-2010 UK Biodiversity Framework. Although the UK BAP has been succeeded, Species Action Plans (SAPs) developed for the UK BAP remain valuable resources for background information on priority species under the UK Post-2010 Biodiversity Framework.
- A1.15. Priority Species and Habitats identified under the UKBAP are also referred to as Species and Habitats of Principal Importance for the conservation of biodiversity in England and Wales within Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006. The commitment to preserving, restoring or enhancing biodiversity is further emphasised for England and Wales in Section 40 of the NERC Act 2006.
- A1.16. The Oxfordshire Biodiversity Action Plan focusses efforts on conserving the county's biodiversity on 36 Conservation Target Areas (CTAs)² which the site does not fall within. There are no specific priorities for the areas that are located outside of the CTAs, but biodiversity is still protected through legislation as well as national and local planning policy as described above.
- A1.17. The Cherwell Corporate Biodiversity Action Plan 2016-183 is Cherwell District Council's BAP and is partially delivered through the adopted Cherwell Local Plan 2011-2031 Part 1. It makes specific reference to assessing the impact of the North West Bicester Eco-Town development on important sites, habitats and species and is referred to where relevant to the assessment.

²<https://www.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/environmentandplanning/countryside/naturalenvironment/BAPnewsletterFINAL.pdf>

³ http://www.cherwell.gov.uk/media/pdf/i/q/Cherwell_Corporate_Biodiversity_Action_Plan_2016-18.pdf



Appendix 2: Bat Survey Methodology and Results

Legislation and Conservation Status

- A2.1 As European protected species, all UK bats receive legal protection in England under the Conservation of Habitats and Species Regulations (CoHSR) 2010 (as amended) and the Wildlife and Countryside Act (WCA) 1981 (as amended).
- A2.2 All British species of bat are listed on Schedule 2 of the CoHSR 2010 as European Protected Species (EPS). Regulation 41 (1) makes it an offence to:
- Deliberately capture or injure an EPS;
 - Deliberately disturb an EPS; and/or
 - Damage or destroy a breeding site or resting place of an EPS.
- A2.3 All British bats are listed in Schedule 5 of the WCA. Section 9 of the WCA affords protection to Schedule 5 animals against:
- Intentional killing, injuring or taking;
 - Possessing (including parts or derivatives);
 - Intentional or reckless damage, destruction, or obstruction of any structure or place used for shelter, or protection; and/or
 - Selling, offering or exposing for sale (alive or dead, including parts or derivatives).
- A2.4 All British bats are also listed in Schedule 6 of the WCA, and as such under Section 11 (1) of the WCA cannot be killed or taken by certain methods, such as traps and nets, poisons, automatic weapons, electrical devices, smoke / gases etc.
- A2.5 Several British bat species are listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, which states that decision-makers such as Local Planning Authorities must have regard to Species of Primary Importance (SoPI) in all their activities, including when making decisions on planning applications.
- A2.6 The following bat species are SoPIs: barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, brown long-eared *Plecotus auritus*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *R. hipposideros*, noctule *Nyctalus noctula*, and soprano pipistrelle *Pipistrellus pygmaeus*. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

Previous Records

- A2.7 The data searches returned records of the following bat species within 2km of the site:
- Common pipistrelle *Pipistrellus pipistrellus*
 - Soprano pipistrelle *pipistrellus pygmaeus*



- Brown Long-eared *Plecotus auritus*
- Noctule *Nyctalus noctule*.

Survey Methodology

Scope of Surveys

A2.8 The surveys followed standard methodologies set out in the Bat Mitigation Guidelines (Mitchell-Jones, A.J, 2004), the Bat Workers Manual (Mitchell-Jones, A.J. and McLeish, A.P. 2004) and Bat Surveys for Professional Ecologists - Good Practice Guidelines 3rd edition (Collins, J. (ed.) 2016) and comprised:

- Activity surveys – Two dusk surveys and one dawn survey with one walked transect per survey to assess bat activity across the site;
- Automated activity surveys – deployment of three static bat detectors (Anabat Express), on three occasions, left to record for five nights; and
- Emergence/re-entry surveys – One dusk emergence survey and one dawn re-entry survey of tree T4 (**moderate potential**) to determine if bats are roosting within the tree.

Activity Surveys

A2.9 Two dusk activity surveys were undertaken on 04 May 2017 and 14 June 2017. The dawn activity survey was undertaken on 14 September 2017. Surveyors used a combination of visual observation and echolocation detection techniques to identify any bat activity on the site. The dusk surveys started approximately at sunset and ended approximately two hours after sunset. The dawn survey started approximately 2 hours before sunrise and finished approximately at sunrise.

A2.10 The same transect route was walked for each of the surveys, covering all site boundaries and potential features of interest on site, namely hedgerows and trees. The transect was walked at a constant speed along a planned route recording visual and sound observations such as number of bats, flight directions and activity (e.g. commuting / foraging).

A2.11 Anabat expresses and BatBox Duets were used during the dusk activity surveys. Recordings were analysed using Analoop software to examine bat activity found on site.

A2.12 The timings and the weather conditions for the activity surveys are shown in **Table A3.1** below.

Survey	Date	Sunset/ Sunrise Time	Weather Conditions	Temp (°C)		Start time	End time
				Start	End		
Dusk Activity V1	04/05/17	20:33	Wind speed 3 (Beaufort scale), dry	10	10	20:33	22:33
Dusk Activity V2	14/06/17	21:25	Wind speed 0, dry	18	16	20:16	22:16
Dawn Activity V3	14/09/17	06:37	Wind speed 0, dry	10	11	04:37	06:37

Table A3.1: Weather conditions and timings of the bat activity surveys



Automated Activity Surveys

- A2.13 To supplement the manned activity survey data, automated surveys of the site were also conducted. Three Anabat Express static detectors were placed on the site, once per season (in May, June and September), in three separate locations for a minimum of five consecutive nights. Echolocation calls were later analysed to identify calls characteristic of different bat species or group of species present.
- A2.14 The Anabat Expresses were set to begin recording half an hour before sunset and to continue until half an hour after sunrise. The dates and weather conditions for the automated survey are shown in **Table A3.2** below.

Survey	Date (2016)	Time of Sunset	Time of Sunrise	Weather Conditions		
				Air temperature at sunset (°C)	Precipitation	Wind at sunset (Beaufort Scale)
Visit 1	04/05/17	20:34	05:29	12	dry	1
	05/05/17	20:35	05:27	11	dry	1
	06/05/17	20:37	05:25	12	dry	1
	07/05/17	20:39	05:24	11	dry	1
	08/05/17	20:40	05:22	10	dry	1
Visit 2	14/06/17	21:25	04:44	19	dry	1
	15/06/17	21:25	04:44	14	dry	1
	16/06/17	21:26	04:44	18	dry	0
	17/06/17	21:26	04:44	21	dry	0
	18/06/17	21:27	04:44	22	dry	0
Visit 3	13/09/17	19:23	06:36	14	rain earlier in day	1
	14/09/17	19:21	06:37	13	dry	1
	15/09/17	19:19	06:39	12	rain earlier in day	1
	16/09/17	19:16	06:41	11	rain earlier in day	1
	17/09/17	19:14	06:42	15	rain earlier in day	1

Table A3.2: Date and weather conditions for the automated bat surveys

Emergence/Re-entry Surveys

- A2.15 One dusk emergence and one dawn re-entry survey of tree T4 were undertaken in June 2017 and September 2017 respectively.
- A2.16 Surveyors were positioned at tree T4 to provide adequate visual coverage of all suitable features present on the southern aspect of the tree. For the dusk emergence survey, the surveyor was in position 15 minutes before sunset and observed the tree until 1.5 hours after sunset. For the dawn re-entry survey, the surveyor was in position 1.5 hours before sunrise and observed the tree until 15 minutes after sunrise.
- A2.17 Surveyors used a combination of visual observation and echolocation detection to identify any bats emerging from, or re-entering the tree. A Batbox Duet detector connected to an Edirol recorder was



used throughout the surveys. The Batbox Duet detector records in both heterodyne and frequency division formats. Analook software was used to analyse sonograms of any calls which could not be identified in the field.

A2.18 The timings and the weather conditions for the emergence and re-entry surveys are shown in **Table A3.3** below.

Survey	Date	Sunset/ Sunrise Time	Weather Conditions	Temp (°C)		Start time	End time
				Start	End		
Dusk Emergence V1	14/06/ 17	21:25	Wind speed 0, dry	18	16	21:10	22:55
Dawn Re- entry V2	14/09/ 17	06:37	Wind speed 0, dry	8.0	9.0	05:07	06:52

Survey Limitations

A2.19 Bat surveys are subject to numerous variables. The echolocation calls of species such as brown long-eared bats are of low amplitude and may not always be picked up on bat detectors. Survey results represent a sample of bat activity during the surveys. It is possible that bats may use the site at other times.

A2.20 Bat calls cannot always be identified to species level, either due to distant contacts or the similarity between some types of bats. Where this occurs, it is recorded as 'unidentified bat species' (Unid), or will show which bat species it is likely to be (e.g. *Pipistrelle* sp. / *Myotis* sp.).

A2.21 The weather was optimal during all activity surveys and a high level of confidence is placed on the results.

Survey Results

A2.22 The activity transect route, static detector locations and the location of the surveyor undertaking the emergence/re-entry surveys are shown on plan **10706/P03**.

Activity Surveys

A2.23 The following species were detected during the manned and static activity surveys;

- Common pipistrelle;
- Noctule;
- *Nyctalus/Eptesicus* sp.;
- *Myotis* sp.;
- Soprano pipistrelle.

A2.24 The results of each manned activity survey are outlined in Tables A3.4 to A3.6 below, with the results of the static detector surveys given in Tables A3.7 to A3.19.



Manned Transects

Visit 1 – 04 May 2017

Date	Common pipistrelle	Grand Total
04/05/17	8	8

Table A3.4: Number of passes per species during Activity Survey Visit 1

Visit 2 – 14 June 2017

Date	Common pipistrelle	Grand Total
14/06/17	5	5

Table A3.5: Number of passes per species during Activity Survey Visit 2

Visit 3 – 14 September 2017

Date	Grand Total
14/09/17	0

Table A3.6: Number of passes per species during Activity Survey Visit 3

Static Surveys

Visit 1

Dusk Date	Common pipistrelle	Soprano pipistrelle	Myotis sp.	Grand Total
04/05/17			1	1
05/05/17	1			1
06/05/17	8	1	4	13
07/05/17	1		3	4
08/05/17				0
Grand Total	10	1	8	19

Table A3.11: Static survey data – Visit 1 Location A (hedgerow H5)

Dusk Date	Common pipistrelle	Myotis sp.	Grand Total
04/05/17		1	1
05/05/17	1		1
06/05/17	37	1	38
07/05/17	1		1
08/05/17			0
Grand Total	39	2	41

Table A3.12: Static survey data – Visit 1 Location B (hedgerow H8)



<i>Dusk Date</i>	<i>Common pipistrelle</i>	<i>Myotis sp.</i>	<i>Grand Total</i>
04/05/17	3		3
05/05/17	27		27
06/05/17	97		97
07/05/17	4	2	6
08/05/17			0
Grand Total	131	2	133

Table A3.13: Static survey data – Visit 1 Location C (hedgerow H11)

Visit 2

<i>Dusk Date</i>	<i>Common pipistrelle</i>	<i>Noctule</i>	<i>Myotis sp.</i>	<i>Grand Total</i>
14/06/17	3		4	7
15/06/17	73		7	80
16/06/17	77		2	79
17/06/17	24	1	3	28
18/06/17	3		1	4
Grand Total	180	1	17	198

Table A3.14: Static survey data – Visit 2 Location A (hedgerow H5)

<i>Dusk Date</i>	<i>Common pipistrelle</i>	<i>Myotis sp.</i>	<i>Noctule</i>	<i>Nyctalus/Eptesicus sp.</i>	<i>Grand Total</i>
14/06/17	6		3	2	11
15/06/17	6	2	1	3	12
16/06/17	9	2	5		16
17/06/17	9	1	2	2	15
18/06/17	8	5	4		17
Grand Total	38	10	16	7	71

Table A3.15: Static survey data – Visit 2 Location B (hedgerow H8)

<i>Dusk Date</i>	<i>Common pipistrelle</i>	<i>Soprano pipistrelle</i>	<i>Noctule</i>	<i>Myotis sp.</i>	<i>Grand Total</i>
14/06/17	135		1	4	140
15/06/17	984		1		985
16/06/17	93	2		8	103
17/06/17	4			1	5
18/06/17	12		1	6	19
Grand Total	1228	2	3	19	1252

Table A3.16: Static survey data – Visit 2 Location C (hedgerow H11)



Visit 3

Dusk Date	Common pipistrelle	Soprano pipistrelle	Noctule	Myotis sp.	Grand Total
13/09/17	7	1		2	10
14/09/17	29	9	1	1	40
15/09/17	32				32
16/09/17					
17/09/17	139	12			151

Table A3.17: Static survey data – Visit 3 Location A (hedgerow H5)

Dusk Date	Common pipistrelle	Soprano pipistrelle	Noctule	Myotis sp.	Grand Total
13/09/17	2	1			3
14/09/17			1	1	2
15/09/17				3	3
16/09/17					
17/09/17				3	3
Grand Total	2	1	1	7	11

Table A3.18: Static survey data – Visit 3 Location B (hedgerow H8)

Dusk Date	Common pipistrelle	Soprano pipistrelle	Noctule	Myotis sp.	Grand Total
13/09/17	5	1	2	1	9
14/09/17	13			1	14
15/09/17	10				10
16/09/17				1	1
17/09/17	7	1	1		9
Grand Total	35	2	3	3	43

Table A3.19: Static survey data – Visit 3 Location C (hedgerow H11)

Emergence/Re-entry Surveys

Tree T4 – ‘Moderate’ potential

Surveyor: Aaron Grainger		
Equipment used: Batbox Duet and Ediolol	Location of surveyor: A	
Sunset time: 21:25	Start time: 21:10	End time: 22:55
Weather	At start:	At end:
Cloud Cover:	50%	60%
Wind (Beaufort Scale):	1	1
Temperature:	18	16



Precipitation:	0	0
Notes: No emergence from tree T4 observed. 10 common pipistrelle passes and one noctule pass observed between 21:56 and 22:45.		

Table A3.20: Emergence survey data – Visit 1 Location A

Surveyor: Robert Lawrence		
Equipment used: Batbox Duet and Edirol	Location of surveyor: A	
Sunset time: 06:37	Start time: 05:07	End time: 06:52
Weather	At start:	At end:
Cloud Cover:	50%	60%
Wind (Beaufort Scale):	1	1
Temperature:	10	11
Precipitation:	0	0
Notes: No emergence from tree T4 observed. One common pipistrelle pass at 05:43.		

Table A3.21: Re-entry survey data – Visit 2 Location A



Plans

Bat Survey Plan













10706_P03



North West Bicester
Phase 2 Bat Survey Report

10706_R06_25 October 2017_NJ_LP



-  Site Boundary
 -  Arable
 -  Tall Ruderal
 -  Dry Ditch
 -  Hedgerow
 -  Standard Tree
 -  Pond
- Bat Survey**
-  Transect Route
 -  Static Detector Locations
 -  Emergence / Re-entry: Surveyor Location and Field of View
 -  Transect: Bat Passes
 -  Static Detectors: Areas of Highest Bat Activity



Project Land of Middleton Stoney Road, Bicester

Drawing Title **Bat Survey Plan**

Scale Not to Scale

Drawing No. 10706/P03

Date October 2017

Checked NJ/LM



Trident House, Ground Floor, 46-48 Webber Street, London, SE1 8QW
 T: 0207 620 2710 E: info@tylergrange.co.uk W: www.tylergrange.co.uk