September 2024

Bat Report

Proposed Purpose-Built Student Accommodation Scheme (PBSA)

On behalf of

Orchid Residential Ltd

Goatstown Road, Dublin 14

MALONE O'REGAN ENVIRONMENTAL

QUALITY
I.S. EN ISO 9001:2015
NSAI Certified

MALONE O'REGAN

Form ES - 04

MALONE O'REGAN ENVIRONMENTAL

Ground Floor – Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
Tel: +353- 1- 567 76 55
Email: enviro@mores.ie

Title: Bat Report, Proposed Purpose-Built Student Accommodation Scheme (PBSA), Orchid Residential Ltd, Goatstown Road, Dublin 14

Job Number: E1887

Prepared By: Stephanie Lonergan **Signed:** S. Lonergan

Checked By: Dyfrig Hubble **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

DRAFT

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	16/09/24	Report	Final	SL	DH	DH

Bat Report

Proposed Purpose-Built Student Accommodation Scheme (PBSA)

Orchid Residential Ltd

Goatstown Road, Dublin 14

Contents

FIGURES

TABLES

PLATES

1 INTRODUCTION

This Bat Survey Report has been prepared by Malone O'Regan Environmental (MOR Environmental) on behalf of Orchid Residential ('the Applicant'), to present the findings of bat surveys undertaken at the Site at Goatstown, Dublin 14 ('the Site') (OSI Reference ITM 717750 728959). The proposed purpose-built student accommodation scheme ('PBSA') works (the 'Proposed Development') will comprise of the demolition of the existing onsite structures and hardstanding in order to facilitate the construction of the proposed PBSA and associated site works. This Bat Survey Report is an Appendix to the Ecological Impact Assessment Report ('EcIA') prepared by MOR Environmental as part of the overall planning application. This bat report should be read in conjunction with the EcIA.

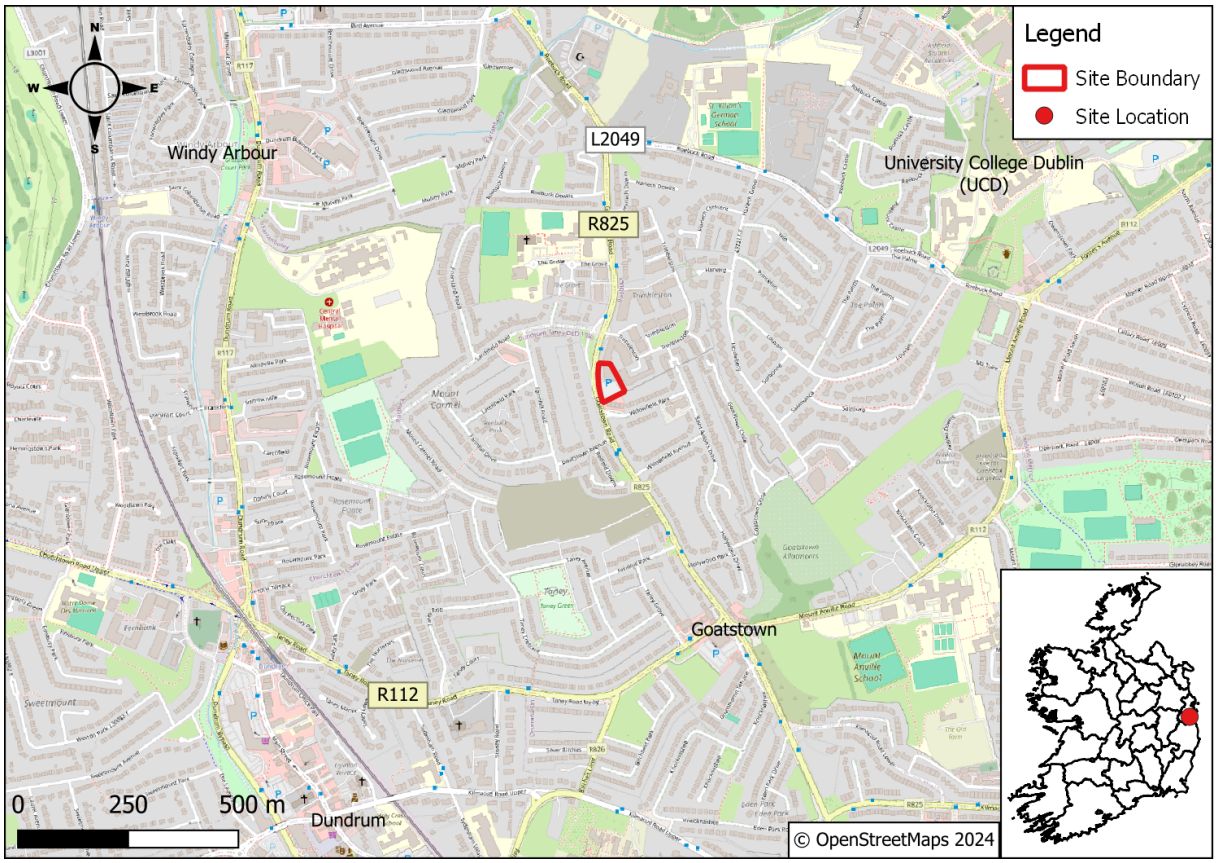
The Site currently comprises an existing car showroom building and a hard surface parking area. The Site is bordered to the north, east and west by apartment complexes and residential estates, while directly to the south of the Site are retail outlets. The Site is circa ('ca.') 0.34 hectares ('ha') in size.

A baseline ecological survey of the Site was undertaken on the 23rd September 2021 by two suitably qualified and experienced MOR Environmental ecologists to assess the extent and the quality of habitats present onsite and to identify any potential ecological receptors associated with the European sites. An updated Site walkover was also undertaken on 12th March 2024 to assess any potential changes in the habitats onsite.

The baseline ecological survey highlighted the potential for bats to use the building onsite for roosting purposes. Additionally, the trees in gardens surrounding the Site were identified as providing potential foraging and commuting routes for bats. It was therefore deemed necessary for further survey work to be carried out to determine whether or not bats would be negatively impacted by the works associated with the Proposed Development. Bat surveys were undertaken at the Site on 23rd September 2021 and 14th May 2024.

The location of the Site shown in Figure 1-1.

Figure 1-1: Site Location



1.1 Relevant Legislation

All Irish bat species are protected by law under the Wildlife Act 1976 and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;
- Possess a bat (whether alive or dead);
- Disturb a roosting bat; and,
- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

In addition to domestic legislation, bats are also protected under the EU Habitats Directive (92/43/EEC). All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular any disturbance which is likely;
    - (a) To impair their ability:
        - (i) To survive, to breed or reproduce, or to rear or nurture their young; or,
        - (ii) To hibernate or migrate.
    - (b) To affect significantly the local distribution or abundance of the bat species; or,

- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation license must be obtained from the National Parks and Wildlife Service (NPWS) before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

1.2 Statement of Authority

The bat inspection survey and subsequent report were undertaken and prepared by the following MOR Environmental personnel: Ms Stephanie Lonergan and Mr. Dyfrig Hubble.

Stephanie Lonergan, Environmental Consultant, has a B.A. (Mod) (Hons) in Environmental Science. Stephanie is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) with a particular interest in bat ecology and conservation. Stephanie has completed courses on bat ecology, identification, handling, biometrics and mitigation with CIEEM and Bat Conservation Ireland. Stephanie has undertaken training run by Wildlife Acoustics for analysis of bat calls in Kaleidoscope Pro Software and regularly uses this programme within her role at MOR Environmental. Stephanie has experience undertaking bat surveys and tree / building assessments and regularly attends events held by local bat groups.

This report was reviewed and approved by Mr. Dyfrig Hubble, Associate Director – Ecologist. Dyfrig has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. in Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 18 years' experience working in the ecological consultancy sector including habitat appraisals and specialist species specific surveys. Dyfrig has extensive experience in undertaking a variety of bat surveys including dawn / dusk surveys, transects, static monitoring, harp trapping, Lesser Horseshoe roost counts. Dyfrig has also worked on numerous projects that have required supervision of building demolition and tree removal works under licence. These projects have included work both in the UK and Ireland.

1.3 Species Background

There are eleven recorded bat species in Ireland, nine of which are considered resident and two which are considered vagrants (Please see Table 1-1 below).

Table 1-1: Status of Irish Bat Species

Bat Species	Irish status	European Status
Resident Bat Species		
Soprano Pipistrelle *(Pipistrellus pygmaeus)*	Least Concern	Least Concern
Brown Long-eared Bat (*Plecotus auritus)*	Least Concern	Least Concern
Common Pipistrelle (*Pipistrellus pipistrellus)*	Least Concern	Least Concern
Lesser Horseshoe Bat (*Rhinolophus hipposideros)*	Least Concern	Near Threatened
Whiskered Bat *(Myotis mystacinus)*	Least Concern	Least Concern

Daubenton's Bat *(Myotis daubentonii)*	Least Concern	Least Concern
Leisler's Bat *(Nyctalus leisleri)*	Least Concern	Least Concern
Nathusius' Pipistrelle *(Pipistrellus nathusii)*	Least Concern	Least Concern
Natterer's Bat *(Myotis nattereri)*	Least Concern	Least Concern
Vagrants		
Brandt's bat (*Myotis brandtii*)	Data Deficient	Least Concern
Greater Horseshoe Bat (*Rhinolophus ferrumequinum)*	Data Deficient	Near Threatened

1.3.1 Types of Bat Roosts

Bats were originally cave and tree dwelling animals, but many now use buildings to roost within. Buildings are highly important as roosting sites for all Irish bat species as they use buildings for all roost types. Most significant in terms of roosts in buildings are maternity roosts, but cellars and attics can serve as hibernation sites for bats. Roosts within buildings can far exceed the numbers encountered in trees, bridges, caves or cliffs and roosts of over 1,000 bats have been recorded in buildings [1].

Bats are social animals, and most species congregate in large colonies during the later spring/summer. These colonies consist mostly of females, with some juvenile males from the previous year. Male bats normally roost individually or in small groups meeting up with the females in the late autumn, when it is time to mate. In summer, bats seek warm dry buildings in which they can give birth and suckle their young. In winter, they seek out places with a constant low temperature and high humidity where they can become torpid and hibernate during adverse weather conditions. However, bats do not hibernate continuously during winter and will awake and hunt during mild nights when there are insects available and it is energetically advantageous to forage [2].

One purpose of daytime tree or building inspections is to determine the potential of bat roosts within the survey area. Due to the transient nature of bats and their seasonal life cycle, there are a number of different type of bat roosts. Where possible, one of the objectives of the surveys is to be able to identify the types of roosts present, if any.

Bats in Ireland feed exclusively on insects, and in the summer months (May – September) they generally emerge from their roosts around sunset to feed. Bats are known to use a number of different foraging sites in the same night and move between them to locate areas of high insect concentrations. They are also known to exhibit site loyalty and will return to the same foraging sites night after night [3].

Table 1-2 below defines the various types of bat roosts and which time of year they are utilised.

Table 1-2: Bat roost types. (definitions written by the NE Earned Recognition Project). [4]

Roost Type	NE Definition
Day Roost	A place where individual bats or small groups, rest or shelter in the day during the summer.
Night Roost	A place where bats rest or shelter in the night but are not found in the day. May be used by a single individual on occasion, or it could be used regularly by the whole colony.
Feeding Roost	A place where individual bats, or few individuals, rest or feed for short periods during the night but are not present by day.

Roost Type	NE Definition
Transitional Roost	A place used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Maternity Site	A place where female bats give birth and raise their young to independence. In some species males may also be present in the maternity roost.
Hibernation Site	A place where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
Satellite Roost	An alternative roost found in close proximity to the main nursery colony used by a few individuals to small groups of breeding females throughout the breeding season.

1.4 Purpose of Survey Work

The implication of these legislative policies is that the Proposed Development needs to take account of the potential effects on bats. Survey work is necessary to establish whether the species are currently present in areas where suitable habitat exists and in areas where bats have previously been recorded. Survey work also enables appropriate mitigation measures to be incorporated into the design of the project and ensures that there are no adverse effects on the conservation status of the species.

Survey work was deemed necessary based on desktop surveys and suitable habitat for roosting, foraging and commuting bats being identified during the initial walkover of the Site.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of bats are summarised below.

2.1 Desk-Based Studies

A desk-based study was undertaken to identify records of bats within the survey area. The following sources of information were reviewed:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the European sites relevant to this assessment [5];
- Aerial mapping was reviewed to identify any habitats and features likely to be used by bats. Maps and images of the Study Area and general landscape were examined for suitable foraging or commuting habitats including woodlands and forestry, hedgerows, treelines, and watercourses;
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to bat species distributions and bat habitat suitability index [6]; and,
- A review of the previous bat surveys and Bat Survey Report undertaken at the Site by MOR Environmental in 2022.

2.2 Field Based Studies

The survey design was informed by previous experience and the following publications:

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* [1];
- *A Conservation Plan for Irish Vesper Bats* Irish Wildlife Manual No. 20 [7];
- *UK Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats* [8]*;*
- *Bat Mitigation Guidelines for Ireland – V2*. Irish Wildlife Manuals, No. 134 [3] a publication by the NPWS; and,
- *Bat Surveys for Professional Ecologists - Good Practice Guidelines* (4th ed.). London: The Bat Conservation Trust [9].

2.2.1 Walkover and Identification of Bat Habitats

The Site was assessed during the daytime walkover survey on 23rd March 2022 and 12th March 2024 in relation to potential bat roosting potential, foraging habitat and potential commuting routes. Bat habitats and commuting routes identified were considered in relation to the wider landscape to determine connectivity for local bat populations, and through the examination of aerial mapping.

Assessment criteria for evaluating the potential suitability of the Site for bats were carried out in line with 'Bat Surveys for professional Ecologists: Good Practice Guidelines (4th ed)' [4].

Table 2-1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement [4]

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year	No habitat features on site likely to be used by any commuting or forging bats at any time of the year (i.e. no habitats that provide

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flight-paths and foraging habitats
	(i.e. a complete absence of crevice/suitable shelter at all ground/underground levels).	continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible[1]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats, however a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[2] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual site, but could be used by individual hibernating bats[3]).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by another habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roost, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

[1] Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

[2] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

[3] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al.,* 2016 and Jansen *et al.,* 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

2.2.2 External Building Inspection

An external inspection of the buildings onsite was undertaken by one MOR Ecologist on 12th March 2024. As part of the walkover, all buildings that are due to be impacted by the Proposed Development area were assessed for the presence of features that could be utilised by roosting bats, using close-focusing binoculars, a powerful focused-beam light source and an endoscope. Additionally, all buildings with safe attic / roof void spaces were inspected for the presence of roosting bats.
The inspection aimed to assess these buildings for the presence of features suitable for roosting bats. These features include:

- Windowsills;
- Windowpanes;
- Lifted rendering;
- Hanging tiles;
- Weatherboarding eaves;
- Soffit boxes;
- Fascias;
- Lead flashing;
- Gaps under felt; and,
- Gaps in brickwork or stonework.

Signs of roosting bats searched for included:

- Evidence of bat droppings / urine splashes;
- Bat specimens (live or dead);
- Evidence of feeding remains, (insect wings on the floor); and,
- Evidence of fur-oil staining.

Assessment criteria for evaluating the potential suitability of the Site for bats was done in concurrence with 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed)' [9].

2.2.3 Dusk Emergence and Nighttime Bat Walkover (NBW) Survey

One dusk emergence and NBW survey took place at the Site on 14th May 2024. The surveys commenced 15 minutes before sunset and ended two hours after sunset, therefore encompassing the typical emergence times of Irish bat species. The vantage points (VPs) took place for one hour and fifteen minutes and were designed to observe the building onsite for bat emergence. The NBW portion of the survey involved walking predetermined transects for one hour after the VPs, and were designed to incorporate all treelines, linear features and other areas of the Site and surrounding area that the initial site visit identified as providing suitable habitats for foraging and commuting bats. The transects aimed to capture bat activity levels within the wider survey area and to determine what areas within the Site are important habitats for bats.

Two MOR Environmental ecologists surveyed separate locations of the Site- see Figure 2-2 below for full details of the VPs and transects walked during the surveys.

A combination of visual observation and listening to ultrasonic bat calls were used during the emergence and activity survey. Each surveyor used one HIKMICRO LH19 Lynx 2.0 Pro

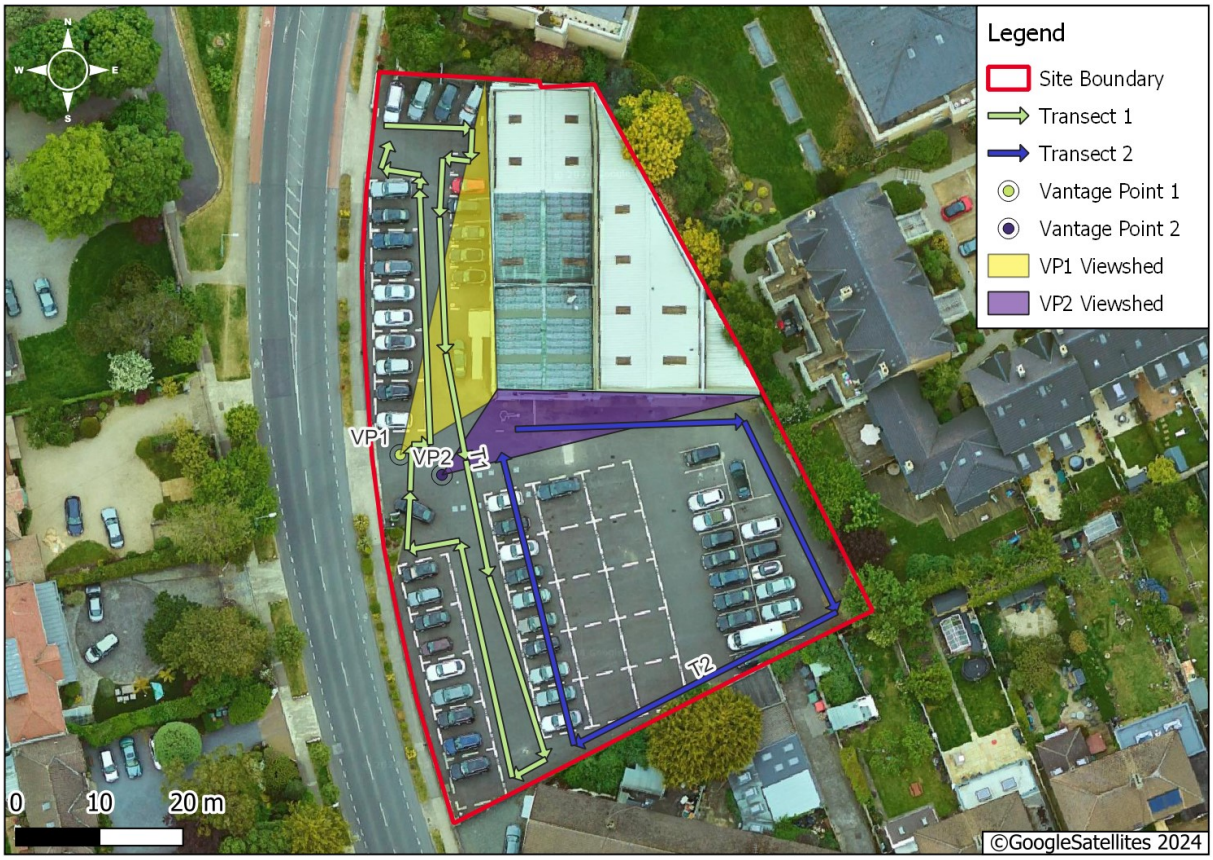
Thermal Monocular as a night vision aid (NVA) during the emergence survey to aid in monitoring the building onsite for bat emergence. See Plate 2-1 below for the viewshed from VP1 and Plate 2-2 below for the viewshed from VP2.

Plate 2-1: Viewshed from NVA at VP1

Plate 2-2: Viewshed from NVA at VP2

During both the emergence and NBW portions of the survey, the surveyors used an Echo Meter Touch2 Pro to listen for bat calls. These bat calls were recorded using this Echo Meter Touch2 Pro and stored on the EchoMeter App.

Figure 2-1: Bat Emergence VPs and NBW Survey Transects



2.2.4 Data Analysis

The bat recordings taken during the surveys were analysed using the software KaleidoscopePro to aid the identification of bat species present. A combination of the visual observations taken during the survey and the number of bat passes [4] identified on the recordings were used to determine bat activity levels within the area.

All sound file data recorded during the bat surveys was analysed using Kaleidoscope Pro Software. The 'auto-ID' function was used to batch assign the top auto-ID species for each sound file. This approach allows identification of bats to genus level for *Myotis* species, and to species level for other bats found in Ireland. Separation of *Myotis* species is complicated by the high degree of overlap between call characteristics. This software can also automatically sort sound files that contain only noise ('non-bat') from sound files that contain bat passes.

All non-noise recordings taken on the surveys were manually checked by a capable bat acoustic analyst.

2.3 Survey Limitations

Bat surveys are a snapshot of the bat activity within an area at the time of surveying. It is therefore important that bat surveys are comprised of a number of surveys designed to provide as much information on the species and levels of bats using an area. Therefore, a combination of surveys was used to determine the importance of the survey area on local bat populations.

[4] It is important to acknowledge that bat calls provide a measure of bat activity rather than the number of individuals in a population. In practice, bat activity (as, for example, represented by 100 recordings) could be from 100 bats passing the detector or one bat passing 100 times [4].

All survey work was conducted in accordance with current best practice guidelines, which dictate that bat surveys should be undertaken when there is no rain or wind and the temperature is above 10°C. During the dusk bat survey, temperatures were between 12°C - 11°C (see Table 2-1 below).

Table 2-2: Bat Survey Metadata

Date	Survey Type	Sunset / Sunrise	Survey Times (Start-End)	Weather	Temperature (°C) Start - End
14/05/2024	Dusk	21:19	21:04-23:19	Dry, light breeze	12°C-11°C

2.4 Evaluation of the Importance of the Site for Bat Species

The value of the importance of the Site for bat species was evaluated using the ecological evaluation guidance given in the National Roads Authority (NRA) guidance on assessment of ecological impacts of National Road Schemes [10]. This guidance provides ratings for resources based primarily on geographic context and allows for resources at the following levels:

- International Importance;
- National Importance;
- County Importance (or vice-county in the case of plant or insect species);
- Local Importance (Higher Value); and,
- Local Importance (Lower Value).

3 RESULTS

3.1 Desk-Based Results

Prior to conducting the field surveys, a desk-based review of information sources was completed.

Three of the nine resident bat species found in Ireland have been recorded within a 2km radius of the Proposed Development within the past 10 years -Natterer's bat, soprano pipistrelle and Daubenton's bat [6].

Table 3-1 provides details of the habitat suitability index for the Site [6]. The habitat suitability index identifies the geographical areas that are suitable for individual species. The index ranges from 0 to 100, with 100 being the most favourable to bats. The index presented is for all species combined, in addition to the individual species indices within the Site.

From the indices, it can be established that the study area has an overall low habitat suitability index range of 13-21. The habitat suitability for Irish bats within the area ranges from very low to moderate. Common pipistrelle and Lesiler's bat are the species most likely to occur within the Site.

Table 3-1: Habitat Suitability Index

Bat Species	Suitability Index Range	Suitability Index Level
All Bat Species	13-21	Low
Soprano Pipistrelle *(Pipistrellus pygmaeus)*	18-30	Low
Brown Long-eared Bat (*Plecotus auritus)*	17-28	Low
Common Pipistrelle (*Pipistrellus pipistrellus)*	31-38	Moderate
Lesser Horseshoe Bat (*Rhinolophus hipposideros)*	0-4	Very Low
Whiskered Bat *(Myotis mystacinus)*	10-20	Low
Daubenton's Bat *(Myotis daubentonii)*	0-12	Very Low
Leisler's bat *(Nyctalus leisleri)*	30-37	Moderate
Nathusius' Pipistrelle *(Pipistrellus nathusii)*	6-15	Low
Natterer's Bat *(Myotis nattereri)*	0-13	Very Low

3.1.1 Previous Bat Surveys Undertaken at the Site

As mentioned in Section 2.1 above, MOR Environmental carried out a dusk emergence and activity survey at the Site in 2022. This survey did not identify any bats roosting within the building onsite. Additionally, this survey identified low activity levels of bats commuting and foraging within the Site. The species recorded during this survey included Leisler's bat, soprano pipistrelle, common pipistrelle and *Myotis* spp.

3.2 Field Based Results

3.2.1 External Building Inspection

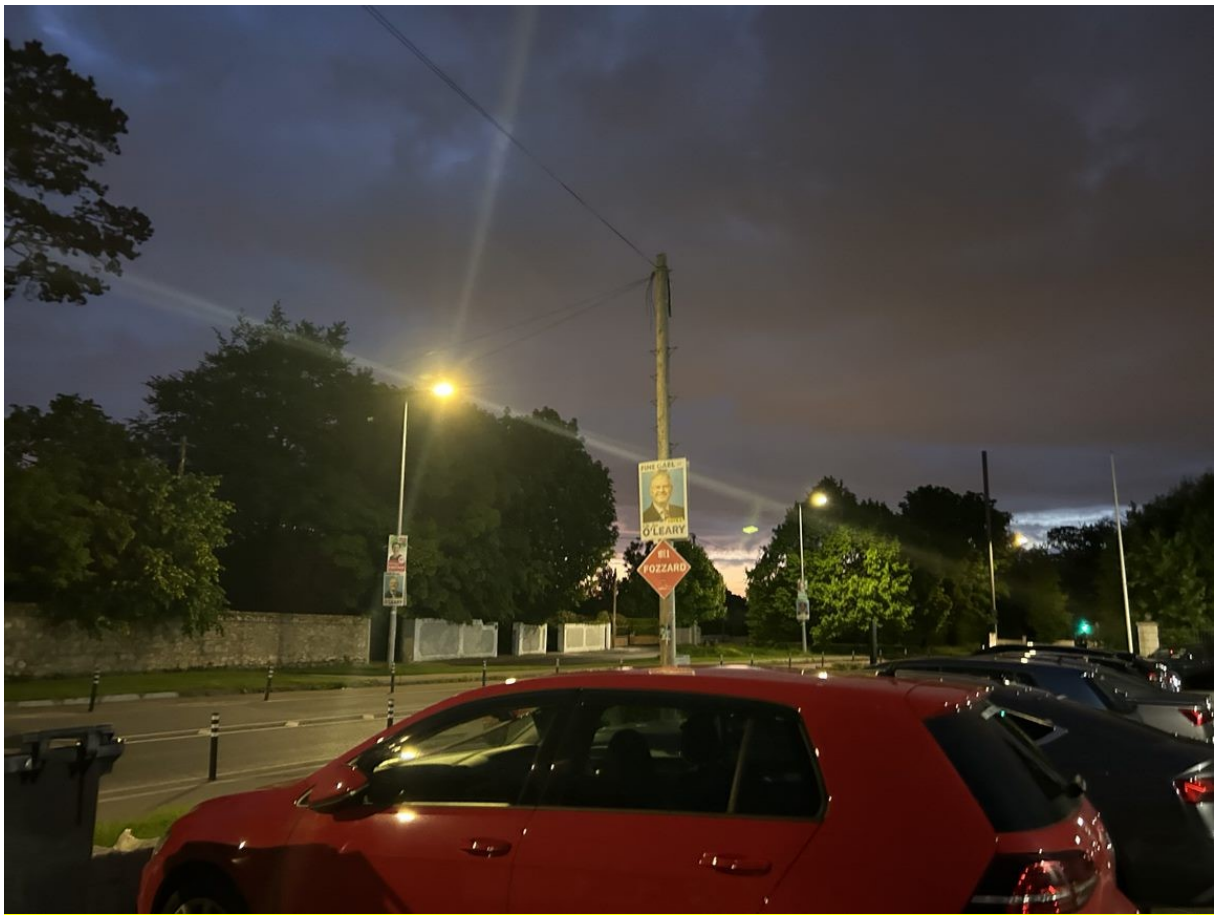
The building onsite was a flat-roofed single-storey structure with sheet metal cladding over two different roof heights. The building onsite was identified to provide low suitable roosting habitat for bats, and was surveyed on a precautionary basis. In line with the 'Bat Surveys for professional Ecologists: Good Practice Guidelines (4th ed)' [4], one dusk emergence survey should be carried out for structures with 'low roost suitability'.

It was also concluded that the trees from gardens surrounding the Site provide potential foraging and flight path habitats for bats.

However, it should be noted that during the dusk emergence survey at the Site, it was observed that the Site was heavily illuminated at night and subject to the light spillage from the R825 to the west of the Site. Additionally, lighting was present onsite which illuminated both the building and the Site in general (see Plates 3-1 and 3-2 below).

Plate 3-1: Existing Lighting Onsite

Plate 3-2: Light Spillage from the R825 onto the Site



3.2.2 Dusk Emergence and NBW Survey Results

No bats were identified roosting within the building onsite. Additionally, only one bat was recorded commuting through the Site.

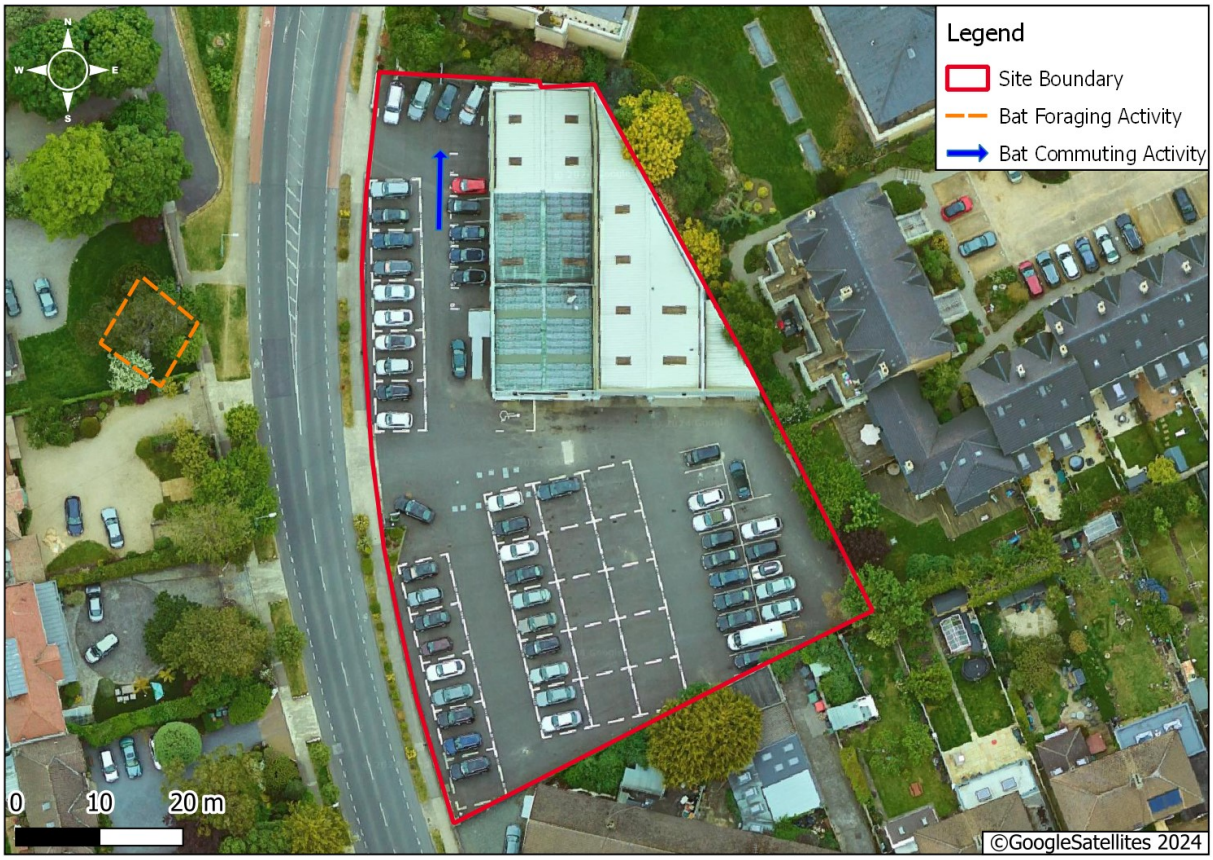
3.2.2.1 Dusk 14/05/2024

Sunset was at 21:19.

No bats were recorded or observed at VP2/T2. Additionally, no bats were observed or recorded at VP1.

At 23:01, a Leisler's bat was recorded at T1. This bat was not observed by the surveyor, but was recorded when the surveyor was walking from south to north along T1. Shortly afterwards at 23:02, a Leisler's bat was recorded foraging, but this was picked up on one of the trees in a private residential property outside of the Site boundary (see Figure 3-1 below). Analysis of the recordings taken during the survey at this time also recorded calls from brown long-eared bats, but these were not within the Site boundary and not observed by the surveyor. These were the last bat calls recorded during the survey.

Figure 3-1: Bat Activity from the Bat Survey



3.3 Overall Results

The following bats were recorded as a result of the dusk emergence and NBW survey:

- One singular recording from a Leisler's bat was recorded during the dusk emergence and NBW survey. Calls from Leisler's bats and brown long-eared bats were also taken during the survey, but these bats were recorded foraging outside of the Site boundary; and,
- No bats were observed roosting in the building onsite.

Based on the levels of activity and movement of the bats recorded during the surveys, it is considered that the Site is of no value to roosting bats and low local value to foraging and commuting bats.

4 IMPACT ASSESSMENT AND MITIGATION

The following bat species were recorded within the Site boundary during the dusk emergence and NBW survey: Leisler's bat. This represents one of the nine resident bat species known to occur in Ireland. Leisler's bats are a common Irish bat species, are an Annex IV species under the EU Habitats Directive and have a favourable status in Ireland.

As no bats were recorded roosting within the building onsite, the Proposed Development will not impact roosting bats. Additionally, no bats were observed foraging or commuting within the Site boundary, but one Leisler's bat was recorded during the NBW survey when the surveyor was walking a transect within the Site.

4.1 Potential Impacts on Bats

The Proposed Development will involve the demolition of the building onsite and the installation of lighting.

Principal impacts of the Proposed Development, in general, on bat fauna may be summarised as follows:

- Loss of Habitat / Disturbance; and,
- Lighting of the General Area.

4.1.1 Loss of Habitat / Disturbance

The surveys did not identify any bat roosts within the Site, so the Proposed Development will not result in the loss of any roosting habitat onsite.

Only one bat was recorded within the Site boundary, and this is considered to be very low bat activity. This bat was recorded when the surveyor was walking towards the north of the Site, where there are trees and ornamental planting outside of the Site boundary. The habitats outside of the Site boundary will not be affected by the Proposed Development. Additionally, no habitats important for foraging and commuting bats will be removed as part of the Proposed Development, as the onsite habitats are currently comprised of buildings and artificial surfaces, recolonising bare ground and ornamental planting.

4.1.2 Lighting of the General Area (street lighting, security lighting etc.)

Lighting for the Proposed Development will potentially impact on bat species in relation to commuting and foraging potential within survey area and the wider area. The degree of this impact is dependent on the sensitivity of the bat species, as some bats are more tolerant of lighting. *Pipistrellus* species and Leisler's bats will tolerate low levels of lighting, while brown long eared bats and *Myotis* species are very sensitive to lighting and require the light levels to be below 1lux.

While no *Myotis* species and brown long eared bats were recorded within the Site, brown long-eared bats were recorded foraging to the west of the Site boundary. Therefore, it is important to ensure that the lighting installed as part of the Proposed Development does not spill outside of the Site boundary.

In the absence of an appropriate lighting scheme, it is considered that the Proposed Development could have a Negative Impact on foraging and commuting bats.

4.2 Mitigation Measures

The following mitigation measures are recommended to reduce the potential impact of the Proposed Development on local bat populations.

4.2.1 Landscaping Plan

A Landscape Rationale Report has been prepared by RMDA and submitted as part of the overall planning application. The soft landscape treatments proposed include tree planting, screen planting, raised planter and shrub planting, grassed areas and rooftop garden planting. It should be noted that the only vegetation currently onsite is a small area of ornamental planting and butterfly bush (*Buddleja davidii*) in an area of recolonising bare ground. When the landscape rational report has been implemented onsite, the Proposed Development will result in an overall increase in the amount of vegetation onsite, increasing the overall biodiversity of the Site.

Due to the installation of lighting onsite around the areas of the Proposed Landscaping Plan, it is unlikely that bats will use these areas for foraging and commuting. However, the overall increase in vegetation onsite will attract additional insects, providing increased foraging opportunities for bats.

4.2.2 Lighting Plan

Bats are averse to excessive lighting, subsequently, impacts could occur as a result of an inappropriate lighting strategy. Inappropriate lighting can result in delayed emergence and subsequently bats missing peak insect levels at dusk. The foraging behaviour of bats can also be altered by short-wave frequency (UV) light, causing insect populations to congregate around the light and increasing the chances of bats being preyed on. Excess luminance can also cause bats to desert roosts due to light spillage on roost exit points.

However, no bat roosts were identified onsite. Additionally, as discussed in Section 3.2, there is already lighting and light spillage onsite.

A Site Lighting Plan has been prepared by RMCE as part of the Proposed Development. This plan has been designed to minimise potential impacts on foraging and commuting bats within the area, and in line with the Bat Conservation Trust and Institute of Lighting Professionals '*Bats and Artificial Lighting At Night*' guidance [11]. The following mitigation measures have been incorporated into the lighting plan to reduce impacts on nocturnal species:

- The lighting installed onsite will be a warm white light source (<2700 Kelvin) with peak wavelengths no higher than 550nm to avoid light disturbance to bats;
- Light fittings shall have a 0% upward light ratio with no upward tilt;
- Baffles and louvres will be fitted to light fittings to direct light only to pedestrian and trafficable areas;
- Lighting will be installed with lighting controls to allow movement detection to ensure lighting if off when not required. Light scheduling will also allow light output to be dimmed from 100% to 0% based upon available daylight;
- Type C light fittings will have daylight and movement sensing to ensure energising of lights is limited only lights necessary for lighting in the vicinity of detected movement. Light output of these fittings will reduce to 25% between dusk and dawn and increase to 100% upon presence detection for 20min duration;
- Type A light fittings will have a celestial time clock and be controlled to be off from dawn to dusk; and,
- Lighting control sensors to have motion detection field limited to movement areas only and shall not extend to detect movement beyond the Site boundary.

5 CONCLUSIONS

The bat surveys undertaken for the Proposed Development included a walkover of the lands within the Site, external building inspection, and bat surveys in 2022 and 2024. It was concluded that building onsite provided low roost suitability for bats, and was surveyed on a precautionary basis. The surveys in both 2022 and 2024 did not identify any bats roosting within the existing structure onsite. No derogation licence is required with regards to bats to facilitate the Proposed Development. Bat activity and species diversity was lower during the 2024 survey than the 2022 survey, and it was concluded that the Site is of low local value to foraging and commuting bats. The Proposed Development will not result in the loss of any roosting, foraging or commuting habitat for bats.

The Site and surrounding area is subject to lighting and light spillage at night, suggesting that bats within the area are adapted to certain levels of lighting. However, mitigation measures were still required to ensure that excessive light spillage from the Site does not deter foraging and commuting bats within the areas surrounding the Site.

The Site Lighting Plan has been designed in line with guidance from the Bat Conservation Trust and Institute of Lighting Professionals, and lighting installed for the Proposed Development will not spill onto surrounding habitats that bats may use as flight paths and for foraging.

Overall, the Site is considered to be of low local importance for commuting and foraging bats. It is considered that if the mitigation measures presented within this report are followed, the potential impacts on bats will be reduced and the overall impact from the Proposed Development on bats will be Low-Negligible.

6 REFERENCES

[1] National Roads Authority, “Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes,” 2006.

[2] J. Collins, “Bat Surveys for Professional Ecologists - Good Practice Guidelines (3rd ed.),” The Bat Conservation Trust, London, 2016.

[3] F. Marnell , C. Kelleher and E. Mullen, “Bat Mitigation Guidlines for Ireland. Irish Wildlife Manuals, No. 134.,” Department of Housing, Local Government and Heritage, Dublin, 2022.

[4] J. Collins, “Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn),” The Bat Conservation Trust, London, 2023.

[5] National Parks and Wildlife Service, “National Parks and Wildlife Service,” 2024. [Online]. Available: https://www.npws.ie.

[6] NBDC, “National Biodiveristy Live Maps,” 2024. [Online]. Available: http://maps.biodiversityireland.ie/.

[7] McAney, K. et al., “A conservation plan for Irish vesper bats, Irish Wildlife Manual No.20,” National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland, 2006.

[8] P. Reason and S. Wray, “UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats,” Chartered Institute of Ecology and Environmental Management , Ampfield, 2023.

[9] Bat Conservation Trust, “Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn),” The Bat Conservation Trust, London, 2023.

[10] NRA, “Guidelines for Assessment of Ecological Impacts of National Roads Schemes,” 2009.

[11] Institute of Lighting Professionals, “Bats and Artificial Lighting At Night,” 2023.