

**DixonBrosnan**  
environmental consultants

## Bat Survey Report

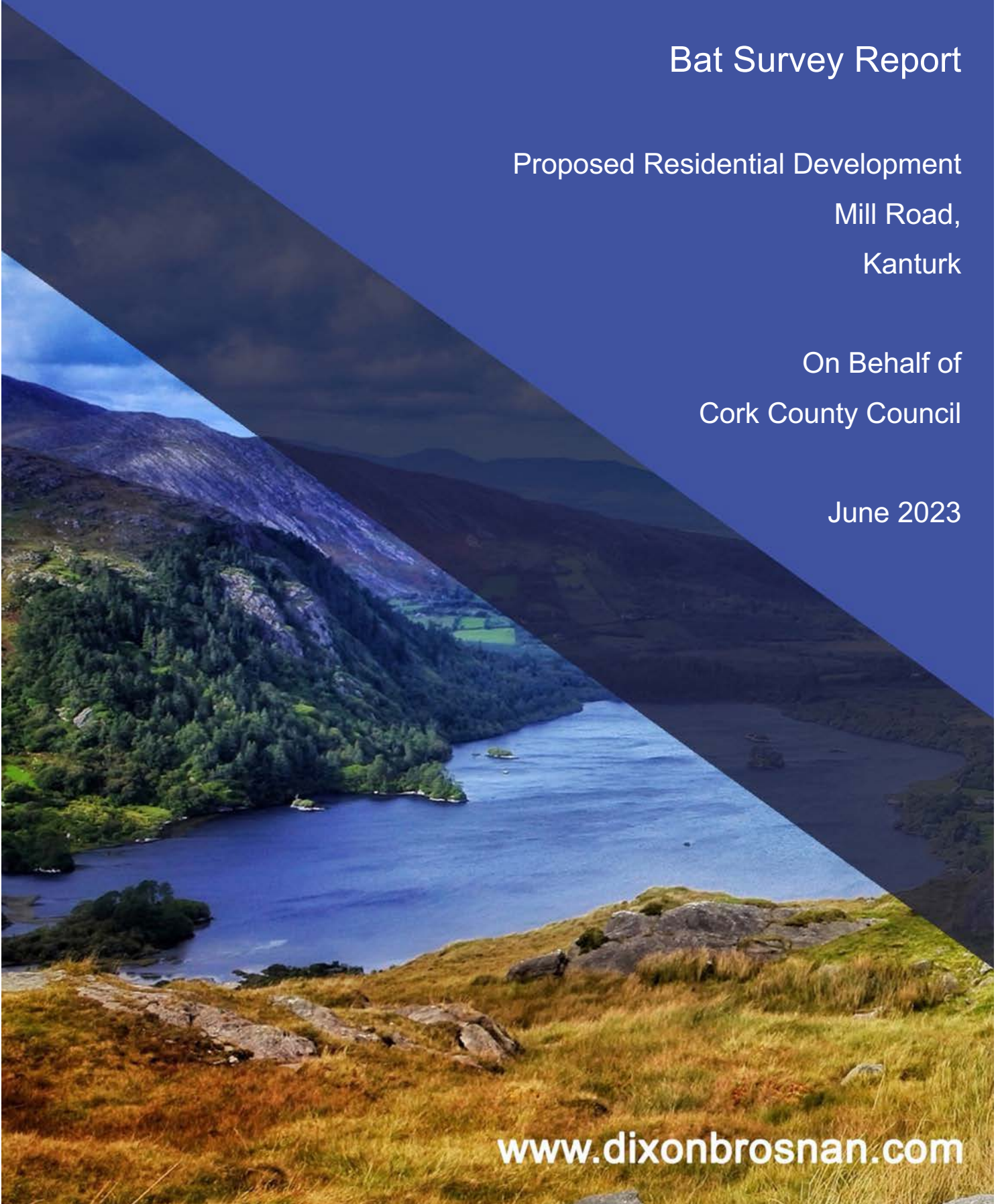
Proposed Residential Development

Mill Road,  
Kanturk

On Behalf of  
Cork County Council

June 2023

[www.dixonbrosnan.com](http://www.dixonbrosnan.com)



# DixonBrosnan

environmental consultants

Project	Bat survey report at Mill Road, Kanturk, Co. Cork	
Client	Cork County Council	
Project Ref.	23058	
Report No.	23058.01	
Client Ref.	-	
Date	Revision	Prepared By
08/06/23	Issue to client	Sorcha Sheehy PhD
		Carl Dixon MSc
DixonBrosnan Lios Ri Na hAoine, 1 Redemption Road, Cork. Tel 086 851 1437   <a href="mailto:carl@dixonbrosnan.com">carl@dixonbrosnan.com</a>   <a href="http://www.dixonbrosnan.com">www.dixonbrosnan.com</a>		
This report and its contents are copyright of DixonBrosnan. It may not be reproduced without permission. The report is to be used only for its intended purpose. The report is confidential to the client, and is personal and non-assignable. No liability is admitted to third parties. ©DixonBrosnan 2023		

## Table of Contents

<b>1. Introduction</b> .....	<b>4</b>
1.1 Background .....	4
1.2 Site Context.....	4
1.4 Report Authors.....	5
<b>2. Protection of Bat in Ireland</b> .....	<b>6</b>
<b>3. Methodology</b> .....	<b>8</b>
3.1 Desk Study .....	8
3.2 National Biodiversity Data Centre.....	8
3.3 Identification of Known Roosts.....	9
3.4 Habitat Assessment.....	9
3.4 Field Study.....	9
3.4.1 Assessment of Structures for Potential Bat Roosts .....	9
3.4.2 Bat Activity Surveys .....	13
<b>4. Results</b> .....	<b>13</b>
4.1 Bat Background Data .....	13
4.2 Habitat Assessment.....	14
4.3 Known roosts (NBDC) .....	17
4.4 Bat Activity Survey Results .....	17
4.4 Bat Building Survey.....	17
<b>5. Mitigation</b> .....	<b>25</b>
<b>6. Conclusions</b> .....	<b>26</b>
<b>References</b> .....	<b>27</b>

# 1. Introduction

## 1.1 Background

DixonBrosnan were commissioned by Cork County Council to undertake a survey for bats at the site of a proposed residential development at Mill Road, Kanturk, Co. Cork.

The aims of the bat survey was to:

- Identify any bat roosts located within the existing site building(s) and
- Identify areas and building(s) within the proposed development site that are being used by bats (including flight paths/commuting routes and foraging areas).

## 1.2 Site Context

Kanturk is located approximately 17km west of Mallow and 7.5km southeast of Newmarket in County Cork (**Figure 1**). The proposed development site, on Mill Road, is located on the southwest extent of Kanturk Village. Mill Road runs along the eastern boundary of the site. To the north and east of the site, lands are dominated by low-density residential and urban development associated with Kanturk village. To the west and south of the site, lands are largely rural in nature and are dominated by improved agricultural grassland.

The project includes 13no. housing units, 6no. apartments and 7no. houses, and associated site works at Mill Road, Kanturk. Please refer to the attached site plan and site location map for reference (**Figure 2**). There is currently a derelict bungalow onsite which is earmarked for demolition.



**Figure 1. Proposed development location | Source OSI**



**Figure 2. Proposed site layout | Source Cork County Council**

### 1.4 Report Authors

This report and survey work were completed by Carl Dixon MSc (Ecological Monitoring) and Dr. Sorcha Sheehy PhD (Ecology/ornithology).

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology, including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to Badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Sorcha Sheehy PhD (Ecology/ornithology) is an ecologist and ornithologist who has worked for 15 years in environmental consultancy. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds. Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. Her research involved field observations, post-mortem analysis and radar surveys. Sorcha has worked on bird collision risk assessments at airports

throughout Ireland including Dublin airport, Cork airport, Shannon airport and Kerry airport. During her consultancy work Sorcha carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility at Ringaskiddy, Irving Oil Whitegate Refinery (IOWR), Shannon LNG and Greenlink Interconnector.

## 2. Protection of Bat in Ireland

All bat species are protected under the Wildlife Acts (1976 to 2000, as amended) which make it an offence to wilfully interfere with or destroy the breeding or resting place of all species; however, the Acts permit limited exemptions for certain kinds of development. All species of bats in Ireland are listed in Schedule 5 of the 1976 Act and are therefore subject to the provisions of Section 23 which make it an offence to:

- Intentionally kill, injure or take a bat
- Possess or control any live or dead specimen or anything derived from a bat
- Wilfully interfere with any structure or place used for breeding or resting by a bat
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.

All bats are listed on Annex IV of the EU Habitats Directive. The domestic legislation that implements this Directive gives strict protection to individual bats and their breeding and resting places. 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 licence to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

Furthermore, on 21<sup>st</sup> September 2011, the Irish Government published the European Communities (Birds and Natural Habitats) Regulations 2011 which include the protection of the Irish bat fauna and further outline derogation licensing requirements. **Table 1** summarises the protection given to bats by national and international legislation and conventions.

**Table 1. Legislative protection for bats in Ireland**

Legislation/Convention	Relevance to Irish bats
Wildlife Acts (1976 to 2018) as amended	It is an offence to wilfully interfere with or destroy the breeding or resting place of bats, (with some exemptions for certain kinds of construction development). Provides for the creation of NHAs.

Legislation/Convention	Relevance to Irish bats
<p>EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Directive 92/43/EEC), commonly known as the 'Habitats Directive'</p>	<p>Lists all the vesper bats in Annex IV as in need of strict protection and also encourages Member States to conserve landscape features such as river corridors, field boundaries, ponds and woodlands. It also requests that Member States establish a system to monitor the incidental capture and killing of the animals listed in Annex IV.</p> <p>The lesser horseshoe bat is further listed in Annex II of the EU Habitats Directive. The level of protection offered to lesser horseshoe bats effectively means that areas important for this species are designated as Special Areas of Conservation.</p>
<p>The Convention on the Conservation of European Wildlife and Natural Habitats, commonly known as the 'Berne Convention'.</p>	<p>It obliges states to protect and conserve animals and their habitats, especially those listed as endangered or vulnerable. It also obliges parties to promote national policies for the conservation of wild fauna and natural habitats.</p>
<p>The Convention on the Conservation of Migratory Species of Wild Animals, commonly known as the 'Bonn Convention'.</p>	<p>This led to the European Bats Agreement (EUROBATS), which lists a wide range of objectives, including promoting research programmes relating to the conservation and management of bats, promoting bat conservation and public awareness of bats, and identifying and protecting important feeding areas of bats from damage and disturbance.</p>

In Ireland, nine species of bat are currently known to be resident. These are classified into two Families: *Rhinolophidae* (Horseshoe bats) and *Vespertilionidae* (Common bats). The Lesser Horseshoe Bat *Rhinolophus hipposideros* is the only representative of the former Family in Ireland. All the other Irish bat species are of the latter Family and these include three pipistrelle species: Common *Pipistrellus pipistrellus*, Soprano *Pipistrellus pygmaeus* and Nathusius' *Pipistrellus nathusii*, four *Myotis*: Natterer's *Myotis nattereri*, Daubenton's *Myotis daubentonii*, Whiskered *Myotis mystacinus*, Brandt's *Myotis brandtii*, the Brown Long-eared *Plecotus auritus* and Leisler's *Nyctalus leisleri* bats.

Whiskered and Natterer's bats are listed as 'Threatened in Ireland', while the other species are listed as 'Internationally Important' in the Irish Red Data Book 2: Vertebrates (Whilde, 1993). The population status of both Whiskered and Natterer's bats was considered 'indeterminate' because of the small numbers known of each, a few hundred and approximately a thousand respectively. Ireland is considered to be an international stronghold for Leisler's bat, whose global status is described as being at 'low risk, near threatened' (LR; nt) by the IUCN (Hutson, *et al.*, 2001).

Near threatened status is applied to those taxa that are close to being listed as vulnerable (facing a high risk of extinction in the wild in the medium-term future on the basis of a range of criteria defined by the IUCN). The Irish population of the Lesser Horseshoe Bat is estimated at 14,000 individuals and is considered of International Importance because it has declined dramatically and become extinct in many other parts of Europe. Data collected shows that the species increased significantly between from the early 1990s to present.

## 3. Methodology

### 3.1 Desk Study

A desktop study was carried out to identify features of ecological value occurring within the proposed development site and in close proximity to it. A desktop review also allows the key ecological issues to be identified early in the appraisal process and facilitates the planning of surveys. Sources of information utilised for this report include the following:

- National Parks & Wildlife Service (NPWS) - [www.npws.ie](http://www.npws.ie)
- Environmental Protection Agency (EPA) – [www.epa.ie](http://www.epa.ie)
- National Biodiversity Data Centre (NBDC)– [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- *County Cork Biodiversity Action Plan 2009-2014*;
- *Cork County Development Plan 2022-2028*;
- Hundt, L. (2012) *Bat Surveys: Good Practice Guidelines, 2nd edition. Bat Conservation Trust.*
- Collins, J. (ed) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3<sup>rd</sup> Edition, Bat conservation Trust, London.*
- Marnell, F., Kelleher, C. & Mullen, E. (2022) *Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland*
- Aughney, T., Kelleher, C. & Mullen, D. (2008) *Bat Survey Guidelines: Traditional Farm Buildings Scheme The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.*
- National Road Authority NRA, (2006) *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes*
- National Parks and Wildlife Service (2006), *Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25*
- NRA (2005). *Guidelines for treatment of Bats During Construction of National Road Schemes.*

### 3.2 National Biodiversity Data Centre

The National Biodiversity Centre (NBDC) online map viewer includes an interactive layer which displays geographical areas in terms of a 'habitat suitability' index for bats as per Lundy *et al* (2011). This shows the relative importance of landscape and habitat associations across Ireland. Maximum Entropy Models (MEM) were constructed for each bat species using records from the National Bat Database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species' occurrence and predict where species might occur. Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into



the models. The analyses provide a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. This also provides a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats.

### **3.3 Identification of Known Roosts**

The NBDC database was consulted to identify any known bat roosts within the vicinity of the proposed development.

### **3.4 Habitat Assessment**

An assessment of the potential suitability of the habitats within the site and surrounding area for bats was undertaken as part of the initial desktop study and a walkover of the proposed development area was also carried out prior to the bat survey commencing. This included an assessment using the guidelines set out in the Collins (2016) and Marnell *et al.* (2022).

It is important to note that an absence of potential commuting routes or 'good quality' foraging areas around a site cannot be used to confirm the absence of bats from a site. Bats are highly mobile animals which will use different habitats at different times of the year, therefore an appropriate level of additional survey work must be carried out in order to determine if and how bats utilise a particular site.

### **3.4 Field Study**

#### **3.4.1 Assessment of Structures for Potential Bat Roosts**

A detailed building inspection was carried out at the proposed development site on the 17<sup>th</sup> of May 2023, following an initial assessment of the exterior of the building on the 10<sup>th</sup> of February 2023. This inspection of the building earmarked for demolition looked for potential access points and 'potential roosting features (PRFs)' that bats could use and any evidence indicating the presence of bats using the building, such as rub marks, staining or droppings. This included a ground-based external inspection around the building and internal inspection of any enclosed loft spaces or roof voids, where safe access was possible.

Roosting sites for bats can be found within structures such as buildings, cellars, churches, stone masonry, bridges, tunnels, mines, caves. In addition, a number of bat species can be found roosting in suitable features within trees.

**Table 2. Guidelines for assessing the potential suitability of structures, trees and habitats for bats.**

Suitability	Description	Commuting and foraging habitats
<b>Roosting habitats</b>		
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically.</p> <p>However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions* and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.</p>	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.</p> <p>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.</p>
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	<p>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.</p> <p>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, treelined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

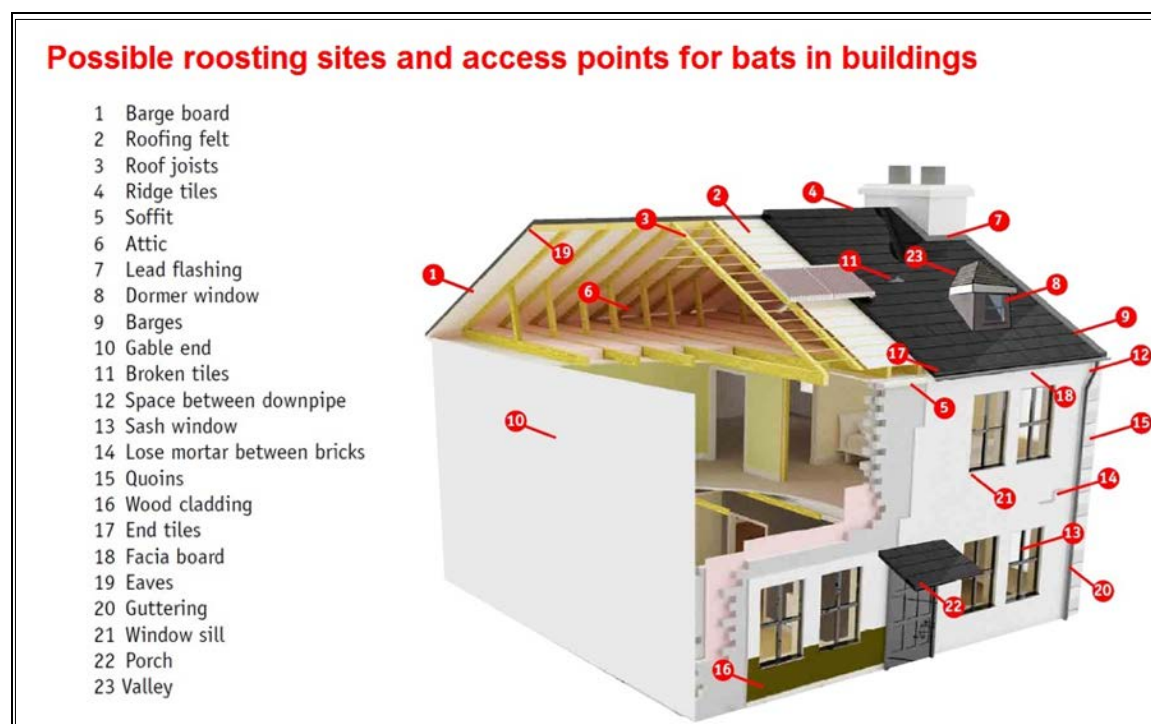
\* For example in terms of temperature, humidity, height above ground, light levels and level of disturbance Source: Collins 2016

The value of buildings as potential bat roosts was classified using the criteria specified in Collins (2016) to assess the potential value of structures as bat roosts (Potential Roost Features (PRF)), which is summarised in **Table 2** above. Evidence of bat activity associated with potential roost sites includes bat droppings, urine staining, feeding remains and dead/alive bats. Indicators that potential roost locations and access points are likely to be inactive include the presence of cobwebs and general detritus within the apertures.

Bats that use buildings can generally be divided into four categories, although there is regional variation, and some species can occupy more than one category.

- Crevice-dwelling bats (which tend to be hidden from view) include the common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Brandt's Bat and Whiskered Bat.
- Roof-void dwelling bats (that may be visible on roof timbers) are Leisler's bat and Daubenton's bat.
- Bats that need flight space in certain types of roost are Natterer's Bat, and Brown Long-Eared Bat.
- Bats that need flight space and flying access into the roost include the lesser horseshoe bat.

Bats generally require a variety of elements, that need to be taken into consideration when roosting within a building, these range from temperature and humidity regime within the roost, aspect and orientation of the roost, size of roost, access points, lighting, materials and perching points. Important roosting sites for bats in buildings include crevices in stonework of old and modern structures, crevices in brick work of chimneys, attics of buildings – old and modern buildings – often behind roofing felt, under ridge tiles or in wall cavities and underground structures associated with older buildings (**Figure 3**).



**Figure 3. Possible roosting sites for bats in buildings.**

To maximise warmth, maternity roosts for example are often located on the south and west of houses or close to sources of heat such as chimneys and boilers. Most species prefer to roost in quite small spaces and are not usually found in open draughty areas like barns. Common and Soprano Pipistrelles for example are generally found in the inaccessible parts of the roof structure and around its edges and rarely enter the loft space. Where bats are seen in buildings during the winter, they tend to be alone or in small, scattered groups, hidden in crevices or under slates and away from sources of heat.

An inspection of the building was conducted to look for suitable roosting habitat, possible emergence points and bat presence. The presence of bats is often shown by grease staining, droppings, urine marks, corpses, feeding signs such as invertebrate prey remains and/or the presence of bat fly *Nycteribiidae* spp. pupae, although direct observations are also occasionally made. Bat droppings are often identifiable to species-level based on their size, shape and content for example brown long-eared and lesser horseshoe bats, are very distinctive and unmistakable. A search of the accessible areas of the interior and exterior of the building on site was carried out to assess the potential value of the site for roosting bats and to survey for signs such as droppings, staining and prey remains.

Kelleher and Marnell (2006), uses the following classification scheme to classify usage of trees and buildings and maternity and hibernation roosts by these species (**Table 3**).

**Table 3. Bat Species Roost Classification Scheme (Kelleher and Marnell (2006))**

Species	Trees		Buildings	
	Maternity	Hibernation	Maternity	Hibernation
Common pipistrelle <i>Pipistrellus pipistrellus</i>	M	M	H	H
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	M	M	H	H
Leisler's bat <i>Nyctalus leisleri</i>	M	M	H	L
Brown long-eared bat <i>Plecotus auritus</i>	H	H	H	H
Daubenton's bat <i>Myotis daubentoniid</i>	M?	L?	M	L
Lesser Horseshow Bat <i>Rhinolophus hipposideros</i>	L	L	H	M

*N* – not recorded in recent times, *L* – low dependence; unusual, but has been recorded, *M* – some usage recorded, though perhaps not the most important type of site, *H* – the most frequently recorded type of site for this species/activity

Soprano Pipistrelle and Common Pipistrelle show preferential use of buildings for maternity and hibernation roosts. Leisler's Bat show preferential use of buildings for maternity roosts. For Brown Long-eared buildings and trees are classed as equally utilised for maternity and hibernation roosts.

Therefore although it is noted that bat roosts in trees may be under-recorded, Leisler's Bat, Soprano Pipistrelle and Common Pipistrelle are more likely to used buildings than low suitability trees. Radio-tracking has shown that bats are very variable in the distances that they travel from their roosts to forage. For example, at some roost sites for Daubenton's, bats activity took place within 2km of the roost whereas at other roosts some individuals travelled

up to 19km to forage. Brown Long-eared Bats appear to be a relatively sedentary species, with few individuals travelling more than 2km whereas other species such as Leisler's Bat will frequently travel more than 5km from their roost sites (Kelleher and Marnell 2006).

For Brown Long-eared Bat, no preference is recorded for trees or buildings for maternity and hibernation roosts. This species is strongly associated with tree cover, prefers woodland with cluttered understorey including native species, particularly deciduous and also forages in mixed woodland edge and among conifers (Collins, 2016). Lesser Horseshoe Bat show a strong preference for buildings as maternity roosts and has the strongest affinity with underground sites. In winter, Lesser Horseshoe is rarely found in any other type of site and the species has even been recorded breeding underground, though the great majority of maternity sites are now in the roof voids of buildings.

### 3.4.2 Bat Activity Surveys

Dusk activity surveys were carried out in the proposed development site during suitable weather conditions (sunset temperatures above 10°C, no rain and no strong wind) on the 17<sup>th</sup> of May 2023.

The survey was carried out using Batbox Duet and EchoMeter Touch 2 PRO bat detectors. The surveys followed the guidelines set out in '*Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*' (Collins, 2016). Surveyors walked around the perimeter of building and grassland/scrub and hedgerow habitats within the proposed development site. The survey began 15 minutes before sunset and continued until 2 hours after sunset in order to ascertain their usage of the site building as a bat roost and general activity patterns within the site.

## 4. Results

### 4.1 Bat Background Data

A review of existing bat records within grid square R30, the 10km OS grid square in which the proposed development site is located, showed that five bat species have been recorded within R30 (**Table 4**).

**Table 4. Presence of Irish bat species within R30**

Common name	Scientific name	Presence
Brown Long Eared Bat	<i>Plecotus auritus</i>	Absent
Daubenton's Bat	<i>Myotis daubentoniid</i>	Present
Leisler's Bat/ Lesser Noctule	<i>Nyctalus leisleri</i>	Present
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	Absent
Nathusius' Pipistrelle	<i>Pipistrellus nathusii</i>	Absent
Natterer's Bat	<i>Myotis nattereri</i>	Present
Pipistrelle	<i>Pipistrellus pipistrellus sensu lato</i>	Present
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Present
Whiskered Bat	<i>Myotis mystacinus</i>	Absent

NBDC 07/06/23

Other species not recorded within R30, could potentially occur in the vicinity of Kanturk. Although not recorded by the NBDC, Whiskered Bats and Brown Long-eared Bat could occur

within R30 as these species are widespread in the Irish countryside. Nathusius' Pipistrelle are rarer Irish species, which are less likely to occur. The Lesser Horseshoe Bat is the only species of bat listed on Annex II of the Habitats Directive (Directive 92/43/EEC). There are no records of this species in the vicinity of Kanturk, with the closest record near Kishkeam approximately 16km west of the proposed development site.

A study by Lundy *et al.* (2011) examined the relative importance of landscape and habitat associations across Ireland. Maximum Entropy Models (MEM) were constructed for each bat species using records from the National Bat Database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species' occurrence and predict where species might occur. Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into the models. The analyses provide a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. This also provides a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The habitat indices for all Irish bats for the landscape around the proposed development site is shown in **Table 5**. The indices in **Table 5** indicate that the proposed development site is of low to moderate suitability for bats.

**Table 5. Model Predicted Habitat suitability indices for all Irish bat species**

Bat species	Common Name	Habitat indices
All Bats		24.78
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	33
<i>Plecotus auratus</i>	Brown long-eared bat	38
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	37
<i>Rhinolophus hipposideros</i>	Lesser horseshoe	2
<i>Nyctalus leisleri</i>	Leisler's bat	32
<i>Myotis mystacinus</i>	Whiskered bat	24
<i>Myotis daubentoniid</i>	Daubenton's bat	19
<i>Pipistrellus nathusii</i>	Nathusius' pipistrelle	8
<i>Myotis nattereri</i>	Natterer's bat	30

Source: NBDC 07/06/23

## 4.2 Habitat Assessment

The proposed development site is located in a rural setting on the edge of Kanturk village. Outside the proposed development site, the network of small fields with associated hedgerows and treelines provide ideal foraging and commuting habitat for bats. Habitats recorded within the proposed development are shown below in **Figure 4**. The proposed development site consists of one field which is not actively managed and has become overgrown. The dominant habitat is dry meadows and grassy verge with emerging scrub forming a complex mosaic with scrub. Although grassland is the predominant habitat, scrub encroachment is likely to continue

in the absence of active management. One semi-mature beech and one mature conifer are located within the grassland area. A poor-quality hedgerow has developed along an earth bank on the western boundary of the site. Along the eastern boundary, where the site adjoins the Mill Road, there is a band of overgrown hedge. This is generally immature with one large mature dead tree in the corner of the site. The low hedgerow and scrub areas within the site provide some foraging potential for bats. Light spillage was recorded from the nearby road network and adjoining properties. Overall, the mixture of unmanaged grassland with emerging scrub and patchy hedgerow provides some foraging habitat for bats but not particularly significant at a local level.



Figure 4. Habitat map of proposed development site (habitat codes as per Fossitt 2000)



### **4.3 Known roosts (NBDC)**

A review of the NBDC database found a Natterer's Bat roost on the northern side of Kanturk village. This is located approximately 950m north of the proposed development site. This record, from 2008, notes that a Natterer's Bat was recorded as part of an environmental impact assessment. It is not clear if this was a roost or overflying record.

### **4.4 Bat Activity Survey Results**

As noted above, a bat activity survey was carried out at the site on the 17<sup>th</sup> of May 2023. Two species of bat were recorded during the site survey i.e. Leisler's Bat and Common Pipistrelle.

Short, regular signals of Leisler's bat were recorded early in the survey period. Based on the pattern and frequency of recording, this appeared to be overflying/commuting of Leisler's Bat (14 registrations in total).

Brief signals of Common Pipistrelle were recorded throughout the survey. Three brief records of Common Pipistrelle were recorded early during the survey period. One Common Pipistrelle was observed commuting along the western hedgerow.

Later during the survey period (approximately 10.45pm), a small number of brief signals (6 total) for Common Pipistrelle and Leisler's Bat were recorded. This is likely to be indicative of brief foraging at the site combined with general commuting activity through the site.

No prolonged bat foraging was recorded during the site survey. No emergence from the site building was recorded.

### **4.4 Bat Building Survey**

An internal and external inspection of the building earmarked for demolition was conducted during daylight hours to look for possible emergence points and bat presence.

The building is generally well sealed with the roof intact. The windows of the building are boarded up and very few entry points are available on the building. There is one broken window above the front door and the windows in the porch are also broken, potentially allowing access for roosting bats. The majority of fascias and soffits are PVC. There is an old wooden fascia on the porch and a wooden fascia in relatively good condition on the gable and rear of the building. Grills are fitted on the chimneys to prevent access by birds.

There are two small sheds located at the rear of the building. These are open, draughty, concrete structures which lack the structural elements which would provide suitable roosting areas for bats.

An internal search of the building found that part of the building has been damaged by fire, with a collapsed floor and ceiling in one of the bedrooms. The remaining rooms include a kitchen, sitting room, toilet etc. These rooms are largely intact with PVC windows. The carpets appear to be relatively modern and cobwebs were evident throughout the building. No bat droppings were noted. Apart from the fire damaged room, the ceilings are generally intact with open fireplaces in some of the rooms. In general there are few cavities available for roosting bats within the building.

Overall, the building has low suitability as a bat roost and no signs of roosting bats were recorded.



**Plate 1. Front of disused dwelling with broken windows on porch**



**Plate 2. Rear of dwelling with boarded up windows and wooden faces in relatively good condition**



**Plate 3. Small storage shed close to dwelling. Open draughty concrete block with concrete ceiling and flat roof. Very low potential for roosting bats**



**Plate 4. Gable (1) with boarded up window minor with ivy growth and intact wooden fascia**



**Plate 5. Gable (2) with boarded up windows and intact fascia**



**Plate 6. Fire damage within building interior**



**Plate 7. Damaged ceiling**



**Plate 8. Building interior showing signs of dampness**



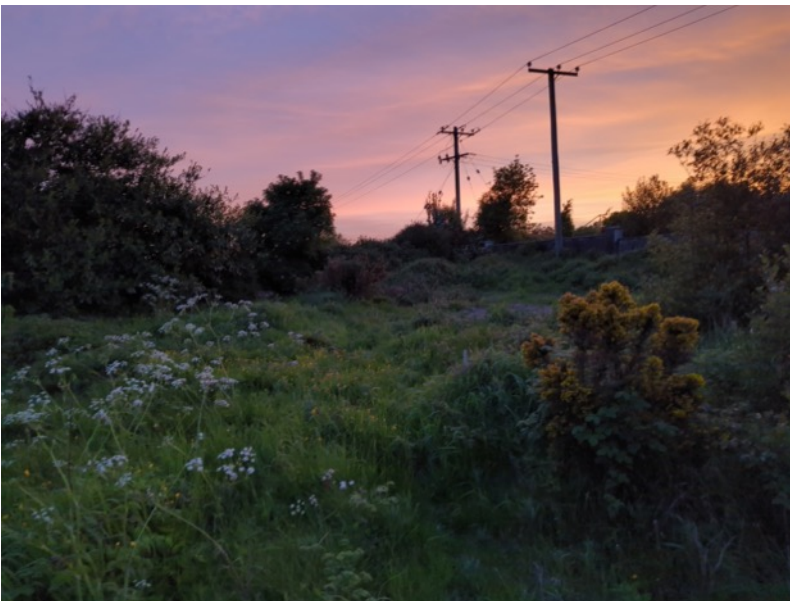
**Plate 9. Building interior showing signs of dampness**



**Plate 10. Interior toilet**



**Plate 11. Interior kitchen**



**Plate 12. Grassland dominates the site with some scrub encroachment from the margins**



**Plate 13. Mixture of unmanaged grassland with emerging scrub and patchy hedgerow**



**Plate 14. Some light spillage from adjacent road network**





**Plate 15. Some light spillage to rear from neighbouring properties**

## **5. Mitigation**

The timing of demolition works should follow that detailed in *Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.* Although no bats were recorded emerging from the site building, it is considered best practice for demolition to take place outside the bat summer period which runs from 1st May to 1<sup>st</sup> September. Where this is not feasible a preconstruction bat survey should be carried out by the supervising ecologist and if bats are recorded appropriate mitigation measures, which would include a derogation licence from the NPWS will be implemented as part of a bat management plan which would be submitted to the planning authority.

During construction site lighting should typically be provided by tower mounted temporary portable construction floodlights. The floodlights should be cowled and angled downwards to minimise spillage to surrounding properties. The following measures should be applied in relation to site construction lighting:

- Lighting should be provided with the minimum luminosity sufficient for safety and security purposes. Where practicable, precautions will be taken to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas
- Lights should be switched off when not in use
- Lighting should be positioned and directed so that it does not to unnecessarily intrude on adjacent ecological receptors and structures used by protected species. The primary area of concern is the potential impact on hedgerows on the boundary of the site. There should be no directional lighting focused towards these boundary habitats.
- Works should primarily take place during hours of daylight to minimise disturbance to any nocturnal mammal species.

The primary mitigation which will be implemented for the operational phase of the project relates to bats as these are considered the most sensitive species in relation to night-time lighting. The lighting scheme should take into account best practice, as published by the UK Bat Conservation Trust, in respect of mitigation strategies, to minimise the impact of outdoor lighting upon bat populations.

- Within the development LED type lanterns, of the Warm White type, have been specified, with a Colour Temperature of 3,000K, as is considered least disruptive to the emergence of bats from roosts at dusk, and subsequent movement from habitats to foraging locations.
- LED lanterns do not emit any ultraviolet or infra-red radiation, this again being a desirable feature in relation to impact upon bats, in terms of causing spatial exclusion from artificially lit areas.
- Light levels have been kept as low as possible by reference to levels specified in BS EN 5489-1: 2020 i.e., Illuminance Level Eav. 5 Lux Emin. 1 Lux dimmed to Eav. 3 Lux, Emin. 0.6 Lux 22.00 hrs to 07.00hrs.
- Lanterns are of the fully cut off type with no light output above the horizontal plane.
- Height of columns has been kept as low as possible taking cognisance of need to make lanterns vandal resistant
- Maximum spacing between lighting has been used.

## 6. Conclusions

No signs of bat emergence was recorded during the site survey. Low levels of activity of Common Pipistrelle and Leisler's Bats was recorded. Generally bat activity was of commuting through the site rather than activate foraging. There are no habitat features within the site such as mature treelines or watercourses/wetland habitats which could provide significant foraging habitat for bats. The site is of low, local value for foraging/commuting bats.

No evidence of bat roosting was recorded within the site building. Although no evidence of emerging bats was recorded during site surveys, the presence of occasional roosting bats in could potentially occur. Therefore, the timing of demolition works should avoid the bat summer roost period if possible.

Overall, it has been concluded that the site is not used as an active roosting site. The proposed development area is unlikely to be a critical resource for foraging bats and is considered of low local value for foraging/commuting bats.

## References

- Altringham J 2003. British Bats. Collins New Naturalist Series No 93, Harper Collins, London
- Andrews H & Gardener M 2016. Bat Tree Habitat Key – Database Report 2016. AEcol, Bridgwater.
- Bat Conservation Ireland (2010) Bats & Lighting; Guidance Notes for: Planners, engineers, architects and developers.
- Bat Conservation Trust (2018) Bats and artificial lighting in the UK. Guidance Note 08/18. Bats and the Built Environment series
- Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).
- Downs, N. C. et al (2003) The effects of illuminating the roost entrance on the emergence behaviour of *Pipistrellus pygmaeus*. *Biological Conservation* 111, 247-252
- Entwistle A, Racey P & Speakman J 1997. Roost selection by the brown long-eared bat (*Plecotus auritus*). *Journal of Applied Ecology*
- Harris S & Yalden D (eds.) 2008. Mammals of the British Isles: Handbook 4th Edition. The Mammal society, London
- Hutterer R, Ivanova T, Meyer-Cords C & Rodrigues L 2005. Bat Migrations in Europe: A Review of Banding Data and Literature. Federal Agency for Nature Conservation, Bonn
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals*, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Lintott P, Bunnefeld N, Fuentes-Montemayor E, Minderman J, Mayhew R, Olley L & Park K 2014. City life makes females fussy: sex differences in habitat use of temperate bats in urban areas.
- Lundy MG, Aughney T, Montgomery WI, Roche N (2011) Landscape conservation for Irish bats & species specific roosting characteristics. Bat Conservation Ireland.
- Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. *Irish Wildlife Manuals*, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland
- McAney, K. (2006) A conservation plan for Irish vesper bats. *Irish Wildlife Manuals*, No. 20. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Murphy S, Greenaway F & Hill D 2012. Patterns of habitat use by female brown long-eared bats presage negative impacts of woodland conservation management. *Journal of Zoology*.
- Outen, A.R. (1998) The possible ecological implications of artificial lighting. Hertfordshire Biological Records centre.