

# APPENDIX 5 BAT SURVEY

Appendix 5.1 – Bat Fauna Survey for proposed Strategic Housing Development (SHD) at Coolagad, Greystones, Co. Wicklow



# 20<sup>th</sup> February 2022

**Prepared by:** Bryan Deegan (MCIEEM) of Altemar Ltd. **On behalf of:** Cairn Homes Properties Ltd.

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#### **SUMMARY**

Structure:	The subject site consists of open farmland with treelines and hedgerows.		
Location:	Coolagad, Greystones, Co. Wicklow		
Bat species present:	Three bat species were noted on site (soprano pipistrelle ( <i>Pipistrellus pygmaeus</i> ), Leisler's bat ( <i>Nyctalus leisleri</i> ) and common pipistrelle ( <i>Pipistrellus pipistrellus</i> ).		
Proposed work:	Proposed Strategic Housing Development (SHD) at Coolagad, Greystones, Co. Wicklow.		
Impact on bats:	Foraging activity of three bat species (soprano pipistrelle ( <i>Pipistrellus pygmaeus</i> ), Leisler's bat. ( <i>Nyctalus leisleri</i> ) and common pipistrelle ( <i>Pipistrellus pipistrellus</i> ), were noted on site. Foraging activity was noted primarily along treelines and hedgerows. No significant long term effect would be seen on bats due to the retention of the majority of key habitats on site and the sensitive lighting strategy.		
Survey by:	Bryan Deegan MCIEEM		
Survey date:	31 <sup>st</sup> August 2020, 31 <sup>st</sup> August 2021,		

## **Receiving Environment**

### Background

The proposed development consists of 586 residential units (351 houses; 203 apartments and 32 duplex units) at a site c. 26.03 ha at Coolagad, Greystones. The development will also include the provision of a community building (392 sqm), a creche, a sport field and a MUGA. A proposed new vehicular entrance with signalised junction from the R761 Rathdown Road to the north of Gate Lodge, Rathdown Road opposite Sea View and Redford Cemetery, providing a distributor road as part of the long-term objective to provide a northern access route from Greystones to the N11 is also proposed. The development also includes site development infrastructure, a hierarchy of internal streets including bridges, cycle paths & footpaths; new watermain connection and foul and surface water drainage; the development also provides for the upgrading of the public sewer within the wayleave of the R761/R762 (Rathdown Road) from the site entrance as far as the R762 in front of St. Kevin's National School, Rathdown Road, Greystones.

The development consists of:

- o 586 residential units including:
  - 351 houses comprising:
    - 207 No. 3 bed
    - 140 No. 4 bed
    - 4 No. 5 bed

The houses are all 2 storey and provided in the following composition: 4 No. detached, 309 No. semidetached and 38 No. terraced.

- **203 no. apartments and 35 no. duplex units** provided within 6 No. four-storey blocks (over basement parking) with residential amenity facilities (including gym, co-working space and lounge) and within 2 No. three- storey duplex block, all with associated private balconies/terraces as follows:
  - 65 No. 1 bed
  - 123 No. 2 bed
  - 15 no. 3 bed
  - 16 no. 2 bed Ground Floor Duplex apartment
  - 16 No. 3 bed storey Duplex
- o c. 5,192 sqm of communal open space to serve the proposed apartment/duplex units;
- Community building (single storey) of 392 sq.m. with 29 car parking spaces, including changing rooms and a multipurpose room.
- Creche building of 734 sq.m. with 21 car parking spaces
- A new vehicular entrance, with signalised junction and pedestrian crossings, will be provided off the R761 (Rathdown Road). The new junction will be linked to the existing signalised junction at Blacklion Manor Road / Redford Park which has a planned upgrade by Wicklow County Council. Cycle lanes will be provided along this section of the R761 on both sides. A footpath will also be provided on its western side. Car parking will be provided to the east of the R761, in the front of Redford Cemetery.
- The new access will provide a distributor road as part of the long-term objective to provide a northern access route from Greystones to the N11.
- Car and bicycle parking spaces are provided as follows:702 on curtilage car parking spaces for the houses; 206 car parking spaces at basement level and 5 at surface level for the apartments; and 32 spaces for the duplex units and 10 visitor spaces at surface level; 22 motorbike spaces;
- 436 resident and 118 visitor bicycle parking spaces are proposed in a mix of basement and surface levels for the apartment blocks and duplex units; 12 bicycle spaces are proposed for the creche, 12 for the community centre and 10 at the sport field.
- The development also includes site development infrastructure, a hierarchy of internal streets including bridges, cycle paths & footpaths; new watermain connection and foul and surface

water drainage; the development also provides for the construction of a new public foul sewer along the R761/R762 from the site entrance as far as the R762 in front of St. Kevin's National School, Rathdown Road, Greystones.

- c.10.43ha open space to include a sport field, a MUGA, private, communal and public open spaces incorporating an existing stream, formal and informal play areas, and new boundary treatments.
- ESB substations/switchrooms, lighting, site drainage works and all ancillary site development works above and below ground.

It should be noted that several springs are located within the subject site and a stream (Greystones Stream) traverses the centre of the subject site in an easterly direction, before discharging to the Irish Sea at Greystones North Beach.

The proposed development site is located in an area with quite a few hills and slopes, with the terrain falling from 90mOD at the western boundary to 39mOD at the R761 Rathdown Road on the eastern side. Towards the south-western extremity of the site, it reaches a highest point of 95mOD. Most of the land slopes moderately at gradients in the range of 1:12 and 1:15 but there are steeper parts of the site with slopes of up to 1:6 which are located toward the higher side of the southern portion of the site.

#### Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 26 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (2007)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 3rd Edition (Collins, J. (Ed.) 2016) and Kelleher and Marnell (2007), Bat Mitigation Guidelines for Ireland.

#### Legislative Context

#### Wildlife (Amendment) Act 2000.

Bats in Ireland are protected by the Wildlife (Amendment) Act 2000. Based on this legislation it is an offence to wilfully interfere with or destroy the breeding or resting place of any species of bat. Under this legislation it is 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. "

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora transposed into Irish Law i.e. European Communities (Natural Habitats) Regulations, 1997 (SI No. 64/1997).

Annex II of the Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) lists animal and plant species of Community interest, the conservation of which requires the designation of Special Areas of Conservation (SACs); Annex IV lists animal and plant species of Community interest in need of strict protection. All bat species in Ireland are listed on Annex IV of the Directive, while the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) is protected under Annex II which related to the designation of Special Areas of Conservation for a species.

Under section 23 of SI No. 64/1997 all bats are listed under the first schedule of Section 23 which makes it an offence to:

- deliberately capture a bat
- deliberately disturb a bat,
- damage or destroy a breeding site or resting place of a bat.



0

0.5

1 km







Figure 1. Outline of proposed site.

Project: Coolagad Location: Greystones, Co. Wicklow Date: 17th January 2022 Drawn By: Bryan Deegan (Altemar)

#### Arboricultural Assessment & Impact Report

An Arboricultural Report was carried out by The Tree File Consulting Arborists. In conclusion the report states the following:

#### '1 Report Summary

1.1 The survey of the receiving site has shown a variable tree population, often dominated by Ash. There is an ongoing history of tree failure and damage, with many trees showing signs of mechanical failure and breakage. Note is made that tree collapse has been recorded in the past year. This form of damage, combined with an expected loss of trees across the site and an associated increase in exposure and shelter loss means that further tree failure should be expected. Many trees offer limited sustainability, but issues such as the spread of Ash Dieback disease suggest that many more trees could die in the coming years.

1.2 The proposed development will, because of site levels issues, require the modification of substantial areas of the site. This means that many areas where trees might be retained are encroached upon by collateral works. In this respect, the tree retention extent outlined in this report is reliant upon the provision of suitable tree protection during the construction period.

1.3 Note is made of specific engineering methodologies being employed at various positions across the site, orientated towards the rapid or immediate return to native ground levels, and the avoidance of space consuming grading works. Where levels issues occur near minimum tree root protection areas, then successful and sustainable tree retention will be reliant on the adoption of similar methodologies wherever necessary.

1.4 Note is made of various works intended for completion near trees or vegetation intended for retention. An example of this includes the proposed walk-ways through and about "Woodland Area 1" to the northeast of the site. It is understood that such works will have an unavoidable impact on immediate vegetation. That impact must be minimised by the adoption of low impact methodologies and material and should be undertaken using manual means and avoiding mechanical or vehicular access wherever possible.

1.5 In respect of perceived impacts, attention is drawn to the "tree impacts drawings" associated with this report. These drawings provide a reasonable representation of likely impacts, based on a review of drawn information. The assumed extent of tree protection has been represented on the "tree protection plan" drawings. Note is made that in many instances, it appears that minimum tree protection cannot be attained. Similarly, it appreciated that the reconciliation of some levels issues may affect the ability to provide the desired extent of tree protection. Ultimately, the extent of tree protection provided is likely to affect the sustainability of and retained tree.'



*Figure 2. Tree protection plan- North-East* 



Figure 3. Tree protection plan- North-West



Figure 4. Tree protection plan- South

## Lighting

An Outdoor Lighting Report was prepared by Sabre Electrical Services Limited. Significant discussions took place between Cairn Homes, Altemar and Sabre in relation to the proposed lighting strategy. The lighting has been designed in accordance with EN13201-2:2015 Category P4 with the Urbis Axia 2.1 LED luminaire fitted with warm white LEDs (2200K). It should be noted that the proposed temperature of the lighting goes beyond the Bat Lighting Guidance of a temperature of 2700°K. The proposed lighting temperature for the development of 2200°K is a warmer lighting temperature that is less likely to impact on bat foraging. The access junction is designed in accordance with EN13201-2:2015 Category C4 with the Urbis Axia 2.2 LED luminaire fitted with warm white LEDs (2200°K). In order to encourage and promote bat foraging on site no lighting will take place within openspace areas, the riparian corridor, hedgerows and treelines unless required for access routes.

#### Landscape

A Landscape Report was composed by Kevin Fitzpatrick, Landscape Architecture in relation to the proposed development. In relation to the existing landscape characteristics the report states that: 'The aesthetic quality of the existing stream, native hedgerows, trees, marsh area and the steep ground levels are the most important components in defining the landscape character of the site. Other than these elements, the general character of the landscape would be considered that of a traditional agricultural landscape mixed with adjoining developing residential use. In a wider context, the Glen of the Downs and coastal areas would be of a high value landscape character.'

In relation to the proposed landscape for the development site, the report states that: 'The enhancement and strengthening of existing landscape features throughout the site is a fundamental aspect of the overall landscape approach. The green infrastructure strategy serves to link and integrate all of the spaces within the site together using existing and new landscape elements, while also contributing to green infrastructure in a wider context by creating opportunities to connect to green infrastructure beyond the site boundary.

The main method used to enhance green infrastructure links is the retention and strengthening of existing hedgerows and woodland areas. Existing hedgerows provide the opportunity to create green routes through the site, which serve both a recreational and ecological function. Hedgerows increase local biodiversity and create habitats, thus becoming biodiversity corridors which link to other green infrastructure features in the surrounding areas. In addition to this, retaining hedgerows and ditches also allows the prospect of implementing a SuDS network through the site which can integrate into the circulation routes and become a part of the wider green infrastructure strategy.

The stream and associated vegetation is also of high priority. Similar to the treatment of the existing hedgerows, this linear space will become an integral linking feature in the wider green infrastructure strategy. The existing riparian corridor will be enhanced and significantly widened to form the focus on one of the main spaces. The existing wetland marsh will also be increased in size and enhanced to create an important wetland habitat of significant biodiversity value. The stream and wetland form the basis for a SuDS system, with all proposed channels eventually running into the stream. This is expanded upon with ditches and swales that will be created as bioswales adding to the green infrastructure network.'

The proposed landscape masterplan is seen in Figure 5. It should also be noted that the landscaping strategy has incorporated the potential impact on bat foraging from lighting by providing treelines to shield opens paces from light spill.



Figure 5. Proposed public lighting layout - isolines



*Figure 6. Proposed public lighting layout - isolines* 



Figure 7. Proposed Landscape Strategy

#### Bat survey

This report presents the results of site visits by Bryan Deegan (MCIEEM) on the 31<sup>st</sup> August 2020 and 31<sup>st</sup> August 2021 (bat emergent and detector surveys) during which all on site treelines were assessed for bat roosting potential. No buildings are present on site. At dusk, a bat detector survey was carried out onsite using a *Batbox Duet* heterodyne/frequency division detector in 2020 and an Echo Meter Touch 2 in 2021, to determine bat activity.

## Tree Roosting Potential Survey

The surveys also highlighted trees of bat roosting potential on site. No buildings or structures of roosting potential were present within the development site. However, a series of farm out buildings are adjacent to the proposed development site. In relation to bat roosting potential, the site comprised of large fields surrounded by mature hedgerows and treelines.

A derogation licence is not required to fell the trees of roosting potential as no actual bat roosts were actually observed emerging from the trees. However, it recommended that a pre-construction survey is carried out and the trees are studied in detail to ensure that roosts are not present at the time of felling if required. If a bat roost is found to be present during the pre-construction survey the tree must not be felled until a derogation licence had been granted.

#### Survey constraints

The detector surveys were undertaken during the active bat season. Weather conditions were good with temperatures of greater than 10oC after dusk. Winds were light and there was no rainfall during the surveys.

# Bat assessment findings

## Review of local bat records

The review of existing bat records (sourced from Bat Conservation Ireland's National Bat Records Database) within two 2km<sup>2</sup> grids (Reference grids O21W & O21R) encompassing the study area reveals that none of the nine known Irish species have been observed locally. The National Biodiversity Data Centre's online viewer was consulted in order to determine whether there have been recorded bat sightings in the wider area. This is visually represented in Figures 8-10. The following species were noted in the wider area: Brown Long-eared Bat (*Plecotus auritus*), Natterer's Bat (*Myotis nattereri*), Pipistrelle (*Pipistrellus pipistrellus sensu lato*), Lesser Noctule (*Nyctalus leisleri*) (Figures 8-10).

### Detector survey

As seen in Figure 10 bat activity on site was relatively high in specific places where insects are likely to be plentiful and have the ability to swarm. Three species were noted on site:

- Common pipistrelle (Pipistrellus pipistrellus)
- Soprano pipistrelle (*Pipistrellus pygmaeus*)
- Leisler's bat (Nyctalus leisleri)

No bats were detected emerging from any of the onsite trees. However, it would be expected that the large mature trees on site have the potential to act a bat roosts as numerous trees have large cracks and hollows. Trees of bat roosting potential that are to be felled include Tree 62 Oak (Quercus robur), 63 Ash (Fraxinus excelsior), 97 Ash (Fraxinus excelsior), 140 Sycamore (Acer pseudoplatanus), 123 Ash (Fraxinus excelsior), 126 Ash (Fraxinus excelsior), 127 Ash (Fraxinus excelsior) and 128 Ash (Fraxinus excelsior).



**Figure 8**. Brown Long-eared Bat (Plecotus auritus) (purple) and Natterer's Bat (Myotis nattereri) (yellow), and both Brown Long-eared Bat and Natterer's Bat (orange) (Source NBDC) (Site – red circle)



**Figure 9.** Pipistrelle (Pipistrellus pipistrellus sensu lato) (purple) (Species aggregate), Lesser Noctule (Nyctalus leisleri) (yellow), and both Pipistrelle and Lesser Noctule (orange) (Source NBDC) (Site-red circle)



Figure 10. Soprano Pipistrelle (*Pipistrellus pygmaeus*) (purple) (source NBDC) (Site- red circle)

# Potential impacts of proposed redevelopment on bats

No buildings are noted on site. No bats emerging onsite trees were observed. Numerous large trees on site on site have the potential for bat roosting. The loss of trees of bat roosting potential could potentially lead to the loss of a bat roost. Mitigation measures are required in relation to the removal of trees on site. Lighting during construction and operation could potentially lead to impacts on foraging.

Impacts in the absence of mitigation: neutral, site, long term, not significant. Mitigation is required.

## Mitigation measures

It should be noted, that prior to the design of being implemented the ecological constraints were identified and given to the project team. The proposed project has been designed specifically around the ecology on site and significant input has been given to the retention of trees, ecological sensitive areas the maintenance of bat foraging on site. The lighting of the proposal has taking into account the foraging on site and is only lighting areas of the site where necessary. Open spaces, the riparian corridor and hedgerows and treelines are to remain unlit unless absolutely necessary. The landscaping strategy has also provided screening where possible to further constrain light spill. A pre-construction survey of trees to be felled should be carried out and a derogation licence acquired if a bat roost is present. Light spill from the dwellings and public lighting will be more conservative than the Bat Conservation Ireland "Bats & Lighting Guidance. A post construction light spill assessment will be carried out to ensure conformity with the lighting proposed.

# Predicted and residual impact of the proposal

The retention of trees and the sensitive lighting plan will ensure that the level of bat foraging is retained on site. No significant long term impacts on bats would be foreseen from the proposed development.





Figure 10. Bat activity on site. Leisler's bat (blue), Soproano pipistrelle (yellow), Common pipistrelle (orange).

# Legal status and conservation issues – bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Acts (2000 and 2010). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat *Rhinolophus hipposideros* is further listed under Annex II. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.

Common and scientific name	Wildlife Act 1976 &	Irish Red List	Habitats	Bern & Bonn
	Wildlife (Amendment)	status	Directive	Conventions
	Acts 2000/2010			
Common pipistrelle	Yes	Least	Annex IV	Appendix II
Pipistrellus pipistrellus		Concern		
Soprano pipistrelle	Yes	Least	Annex IV	Appendix II
P. pygmaeus		Concern		
Nathusius pipistrelle	Yes	Not	Annex IV	Appendix II
P. nathusii		referenced		
Leisler's bat	Yes	Near	Annex IV	Appendix II
Nyctalus leisleri		Threatened		
Brown long-eared bat	Yes	Least	Annex IV	Appendix II
Plecotus auritus		Concern		
Lesser horseshoe bat	Yes	Least	Annex II	Appendix II
Rhinolophus hipposideros		Concern	Annex IV	
Daubenton's bat Myotis	Yes	Least	Annex IV	Appendix II
daubentonii		Concern		
Natterer's bat	Yes	Least	Annex IV	Appendix II
M. nattereri		Concern		
Whiskered bat	Yes	Least	Annex IV	Appendix II
M. mystacinus		Concern		
Brandt's bat	Yes	Data	Annex IV	Appendix II
M. brandtii		Deficient		

The current status and legal protection of the known bat species occurring in Ireland is given in the following table.

Also, under existing legislation, the destruction, alteration or evacuation of a known bat roost is a notifiable action and a derogation licence has to be obtained from the *National Parks and Wildlife Service* before works can commence.

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. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in Circular Letter NPWS 2/07 "*Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 - strict protection of certain species/applications for derogation licences*" issued on behalf of the Minister of the Environment, Heritage and Local Government on the 16<sup>th</sup> of May 2007.

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 re: European Protected Species.

# References

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979

EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992

European Communities (Birds and Natural Habitats) Regulations 2011 Government of Ireland, Dublin

Kelleher, C. and Marnell, F. 2007 *Bat Mitigation Guidelines for Ireland – Irish Wildlife Manuals No. 25*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

Marnell, F., Kingston, N. and Looney, D. 2009 *Ireland Red List No. 3: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

Wildlife Act 1976 and Wildlife Amendment Acts 2000 and 2010. Government of Ireland

Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) https://cdn.bats.org.uk/pdf/Resources/Bat\_Survey\_Guidelines\_2016\_NON\_PRINTABLE.pdf?mtime=20181115 113931&focal=none

Bat Mitigation Guidelines for Ireland (NPWS, 2006) https://www.npws.ie/sites/default/files/publications/pdf/IWM25.pdf

Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

https://www.tii.ie/technicalservices/environment/planning/Best\_Practice\_Guidelines\_for\_the\_Conservation\_of\_Bats\_in\_the\_Planning\_o f\_National\_Road\_Schemes.pdf

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.