

Bat Fauna Impact Assessment for a proposed Hotel Development at 1 MacCurtain Street, Victoria Quarter, Co. Cork.



19th of November 2025

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.

On behalf of: PI Hotels and Restaurants Ireland Ltd.

Altemar Ltd., 50 Templecarrig Upper, Delgany, Co. Wicklow. [REDACTED]

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Document Control Sheet			
Client	PI Hotels and Restaurants Ireland Ltd		
Project	Bat fauna impact assessment for proposed hotel development at 1 MacCurtain Street, Victoria Quarter, Co. Cork		
Report	Bat Fauna Assessment		
Date	19 th of November 2025		
Version	Author	Reviewed	Date
Final	Bryan Deegan	Jack Doyle	19 th of November 2025

SUMMARY

Structure:	Leisureplex Entertainment Centre.
Location:	1 MacCurtain Street, Victoria Quarter, Cork City.
Bat species present:	A Lesser Noctule bat roost was recorded within the site outline. A Common Pipistrelle bat roost was recorded immediately adjacent to the site (outside site outline). A single Lesser Noctule (<i>Nyctalus leisleri</i>) was recorded emerging from the brickwork of the main Leisureplex building within the side passageway to the north-west of the site. A single Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) was recorded emerging from a patch of ivy on a neighbouring building within the side passageway (outside redline).
Proposed work:	Hotel development.
Impact on bats:	The proposed development will change the local environment as the main Leisureplex building will be demolished and new lights and structures are to be erected. A Lesser Noctule bat roost was recorded within the site outline. A Common Pipistrelle bat roost was recorded immediately adjacent to the site (outside site outline). A single Lesser Noctule (<i>Nyctalus leisleri</i>) was recorded emerging from the brickwork of the main Leisureplex building within the side passageway to the north-west of the site. A single Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) was recorded emerging from a patch of ivy on a neighbouring building within the side passageway (outside redline). The development is likely to displace bats from foraging and roosting at the site during construction and post construction. The development will have negative effects on local bat populations, and that any such effect will be moderate adverse at the site level based on the finding of a bat roost on site. A derogation licence will be required for the proposed development.
Survey by:	Bryan Deegan MCIEEM.
Survey date:	04 th July 2024.

Description of the Proposed Project

PI Hotels and Restaurants Ireland Ltd intend to apply for planning permission for a proposed hotel development at 1 MacCurtain Street, Victoria Quarter, Co. Cork.

The proposed site outline, location, demolition plan (and elevations), and layout plan (including elevations) are demonstrated in Figures 1-5.

Landscape

The landscape design for the proposed development has been prepared by Gannon + Associates Landscape Architecture to accompany this planning application. The proposed landscape plan is demonstrated in Figure 6.



Site Outline

0 25 50 75 100 m

Project: Hotel Development
 Location: Victorian Quarter, Cork City
 Date: 04th October 2024
 Drawn By: Jack Doyle (Altemar)

ALTEMAR
 Marine & Environmental Consultancy

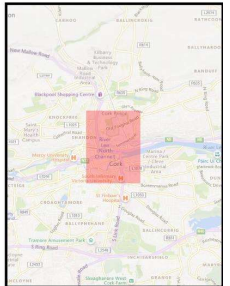
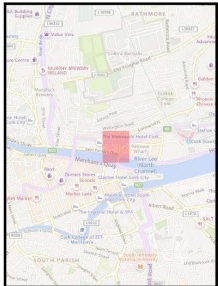


Figure 1. Outline of proposed site.



Figure 2. Demolition plan (roof level)

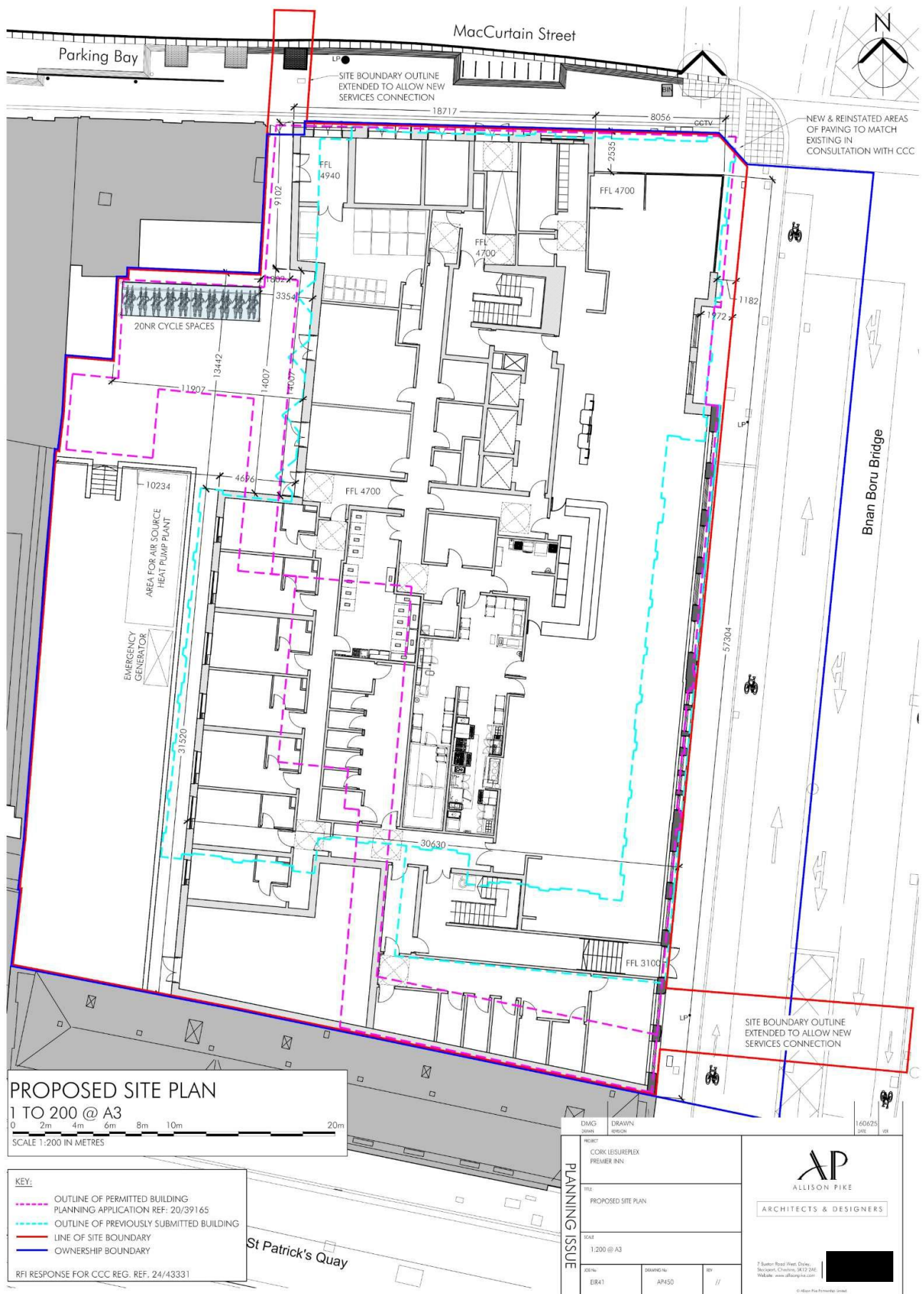


Figure 3. Proposed site plan



Figure 4. Proposed site elevations (east)

Landscape Plan
Proposed Hotel at Cork Leisureplex
 sc 1:200



Legend

- SOFT LANDSCAPE**
- Proposed Tree Planting**
 Tree planting throughout the scheme has been selected to blend the development in to its surrounding environs and create focal points within the development. The tree species selected will maximise food and nectar sources for birds and invertebrates.
- LOW EVERGREEN PLANTING MIX**
 (450mm topsoil depth, all @ 0g 20, 20-30cm Ht.)
- | Scientific name | Common name |
|---|--------------------|
| <i>Echinacea purpurea 'Ingravis'</i> | Purple Coneflower |
| <i>Sarcococca confusa</i> | Sarcococca |
| <i>Lavandula angustifolia 'Hidcote'</i> | Lavender |
| <i>Rosmarinus officinalis</i> | Rosemary |
| <i>Digitaria ferruginea</i> | Ruby Longlove |
| <i>Perovskia 'Little Spire'</i> | Russian Sage |
| <i>Deschampsia cespitosa</i> | Tufted Hair Grass |
| <i>Stipa gigantea</i> | Golden Oats |
| <i>Eryngium yuccifolium</i> | Rattlesnake master |
- Biodiversity Wildflower Meadow**
 This mixture contains a riot of all different kinds of wildflowers that are typical of many meadows that once grew in Ireland. WFOZ is one of our best mixtures for encouraging Biodiversity.
- Species List: Annual Mayweed, Birdfoot Trefoil, Black Medick, Bradder Campion, Blauweel, Burdock, Cat's Ear, Common Sorrel, Corn Marigold, Corn Poppay, Corn Spurry, Comcockle, Cornflower, Cowslip, Devil-bit Scabious, Eyebright, Field Scabious, Flag Iris, Fleabane, Fungus, Garlic Hedge Mustard, Hemp Agrimony, Henry Plantain, Kidney Vetch, Ladies Arm Lace, Lady's Bedstraw, Common Centaury, Lesser Knotweed, Musk Mallow, Marjoram, Meadow Buttercup, Madwort, Milkmaid, Ox-eye Daisy, Pineapple Mayweed, Purple Loosestrife, Ragwort, Robin, Red Barista, Red Campion, Red Clover, Redwort Plantain, Rough Hawkbit, Saffron, Shepherd's Purse, Smooth Hawkbit, St. Johnswort, Teasel, Vetch Common, Wild White Campion, Wild Angelica, Wild Carrot, Wild Valerian, Woundwort, Yarrow, Yellow Agrimony, Yellow Rattle.
- Seasonal Bulbs**
 With a diverse selection of native species, this mix serves as a vital resource for bees, butterflies, and other pollinating insects. Including: Bluebell, Wild Daffodil, Snowdrop, Wood Anemone, Spring Squill Autumn, Meadow Saffron, Tulip, Iris, Daffodils.
- * Species Native to Ireland
 * Plants for Pollinators
- These plants will provide nectar and pollen for bees and the many other types of pollinating insects. All selected species have an environmental, native biodiversity or pollinator-orientated purpose. Selection is based on the 'All Ireland Pollinator Plan'.
- HARD LANDSCAPE**
- Paving - Public Footpath
 - Paving - Primary Access
 - Paving - Secondary Access
 - Existing boundary to be retained
- FURNITURE AND FEATURES**
- Bike Stands
 - Bird feeder
 - Bug hotel
 - Bat boxes

Reference Images



g+a Landscape Architecture

Terence Enright, Centre 17
 Rathmore Rd, Terence, Dublin
 D18 V521

E	02/10/24	Issued for Planning	DC	JG
REV	DATE	REVISION	DRAWN	CHECKED

CLIENT	
PROJECT TITLE	PROPOSED HOTEL AT CORK LEISUREPLEX
PROJECT ARCHITECT	Allison Pike Architects & Design
SHEET TITLE	Landscape Plan
SHEET NO.	24158_CorkLeisureplex_LandscapePlan
SCALE	1:200
STAGE	Planning Application
DATE	October 2024

SHEET SIZE	A2
REVISION	E
DATE	October 2024
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Reference images



Figure 6. Proposed landscape plan

Competency of Assessors

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 28 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 Act 1976 (as amended by, inter alia, the 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 has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). See Art.73 of the 2011 Regulations which revokes the 1997 Regulations.

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 the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), all bat species are listed under the First Schedule and, pursuant to, *inter alia*, Part 6 and Regulation 51, it is an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat particularly during the period of breeding, hibernating or migrating;
- Damage or destroy a breeding site or resting place of a bat;
- Keep, sell, transport, exchange, offer for sale or offer for exchange any bat taken in the wild.

Bat survey

This report presents the results of a site visit by Bryan Deegan on the 04th July 2024. This included a building inspection, emergent survey, and transect detector survey.

Survey methodology

As outlined in Marnell et al. 2022 *'The presence of a large maternity roost can normally be determined on a single visit at any time of year, provided that the entire structure is accessible and that any signs of bats have not been removed by others. However, most roosts are less obvious. A visit during the summer or autumn has the advantage that bats may be seen or heard. Buildings (which for this definition exclude cellars and other underground structures) are rarely used for hibernation alone, so droppings deposited by active bats provide the best clues. Roosts of species which habitually enter roof voids are probably the easiest to detect as the droppings will normally be readily visible. Roosts of crevice-dwelling species may require careful searching and, in some situations, the opening up of otherwise inaccessible areas. If this is not possible, best judgement might have to be used and a precautionary approach adopted. Roosts used by a small number of bats, as opposed to large maternity sites, can be particularly difficult to detect and may require extensive searching backed up by bat detector surveys (including static detectors) or emergence counts.'* In relation to the factors influencing survey results the guidelines outlines the following *'During the winter, bats will move around to find sites that present the optimum environmental conditions for their age, sex and bodyweight and some species will only be found in underground sites when the weather is particularly cold. During the summer, bats may be reluctant to leave their roost during heavy rain or when the temperature is unseasonably low, so exit counts should record the conditions under which they were made. Similarly, there may be times when females with young do not emerge at all or emerge only briefly and return while other bats are still emerging thus confusing the count. Within roosts, bats will move around according to the temperature and may or may not be visible on any particular visit. Bats also react to disturbance, so a survey the day after a disturbance event, may give a misleading picture of roost usage.'*

The survey involved the methodologies outlined in Collins (2016) which included the roost inspection methodologies i.e. external methodology outlined in section 5.2.4.1 and the internal survey outlines in section 5.2.4.2 of the guidelines. In addition, the methodologies for Presence absence surveys (Section 7) was carried out for dust emergent surveys.'

As outlined in Collins (2016) 'The bat active period is generally considered to be between April and October inclusive (although the season is likely to be shorter in northern latitudes). However, because bats wake up during mild conditions, bat activity can also be recorded during winter months.'

Survey constraints

The bat survey on the 04th July 2024 was within the active bat season and the transects covered the entire site multiple times during the night. Weather conditions were good with mild temperatures of 10°C after sunset. Winds were light and there was no rainfall. Insects were observed in flight during the survey.



Project: Hotel Development
 Location: Victorian Quarter, Cork City
 Date: 04th October 2024
 Drawn By: Jack Doyle (Altamar)

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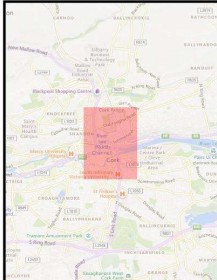
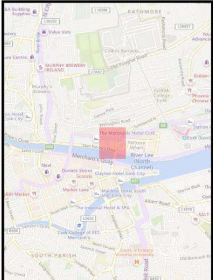


Figure 7: Bat roosts onsite. (Soprano pipistrelle– blue; Lesser Noctule - yellow)

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 a 2km² grid (Reference grid W67R) encompassing the study area reveals that four of the nine known Irish species have been observed locally (Table 1). 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 8-11. The following species were noted in the wider area: Brown Long-eared Bat (*Plecotus auritus*), Daubenton’s Bat (*Myotis daubentonii*), Natterer’s Bat (*Myotis nattereri*), Whiskered Bat (*Myotis mystacinus*), Common Pipistrelle (*Pipistrellus pipistrellus*), Lesser Noctule (*Nyctalus leisleri*), and Soprano Pipistrelle (*Pipistrellus pygmaeus*) (Figures 8-11).

Table 1: Status of bat species within a 2km² grid encompassing the subject site (Reference no. O21Q)

Species name	Record count	Date of last record
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	2	16/09/2007
Daubenton’s Bat (<i>Myotis daubentonii</i>)	10	24/08/2019
Lesser Noctule (<i>Nyctalus leisleri</i>)	2	28/05/2007
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	2	16/09/2007



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

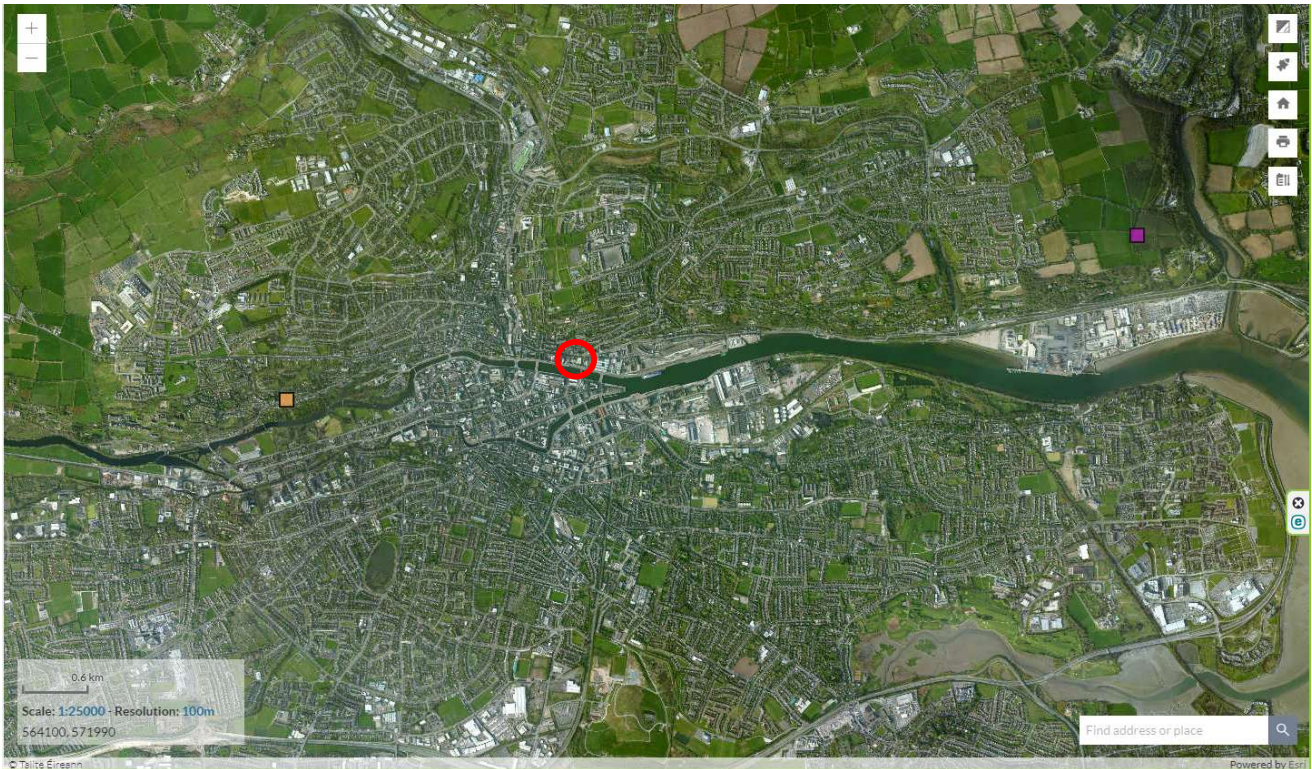


Figure 9. Natterer's Bat (*Myotis nattereri*) (purple), Whiskered Bat (*Myotis mystacinus*) (yellow), and both Natterer's Bat and Whiskered Bat (orange) (Source NBDC) (Site – red circle)



Figure 10. Common Pipistrelle (*Pipistrellus pipistrellus*) (purple), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (yellow), and both Common Pipistrelle and Soprano Pipistrelle (orange) (Source NBDC) (Site – red circle)



Figure 11. Lesser Noctule (*Nyctalus leisleri*) (purple) (Source NBDC) (Site – red circle)

Specifically, NBDC records show sightings of the Lesser Noctule bat species in locations proximate to the subject site:

1. Lesser Noctule (*Nyctalus leisleri*) in grid reference W6772. Recorded on 28/05/2007 within a 1 km² grid encompassing the subject site.
2. Lesser Noctule (*Nyctalus leisleri*) in grid reference W6772. Recorded on 06/01/1990 within a 1 km² grid encompassing the subject site.

Survey Results

Building Assessment

The onsite building was inspected for bats roost. The interior and exterior of the Leisureplex building were inspected for bat roosts and features of bat roosting potential. The Leisureplex building is currently in operation and as such no signs of bats or bat roosts were noted during the internal building inspection. The exterior of the Leisureplex building was also inspected for bats. Whilst no confirmed bat roosts were recorded historically, features of bat roosting potential (ivy and gaps in brickwork) were noted within the building's side passage (along north-western boundary of the site). This informed the emergent / detector element of the survey.



Plate 1. Exterior of Leisureplex building



Plate 2. Interior of Leisureplex building

Emergent/detector survey

Following the building inspection, an emergent /detector survey was carried out by Bryan Deegan on the 04th July 2024.

The detector survey was undertaken within the active bat season and the transects covered the entire site multiple times during the night. Weather conditions were good with mild temperatures greater than 10°C after sunset. Winds were light and there was no rainfall. Insects were observed in flight during the survey.

Two bat species were recorded emerging from features within the side passageway to the north-west of the site at dusk. A single Lesser Noctule (*Nyctalus leisleri*) bat was noted emerging from a gap in the brickwork of the main Leisureplex building within the site outline (Plate 3). A single Common Pipistrelle (*Pipistrellus pipistrellus*) bat was recorded emerging from a patch of ivy on a neighbouring building (outside the site outline) within the side passageway (Plate 4). These bats left the site area immediately after emerging from their roosts. No other bat species were recorded foraging within or transiting over the site outline throughout the detector survey.



Site Outline

0 25 50 75 100 m

Project: Hotel Development
 Location: Victorian Quarter, Cork City
 Date: 04th October 2024
 Drawn By: Jack Doyle (Altamar)

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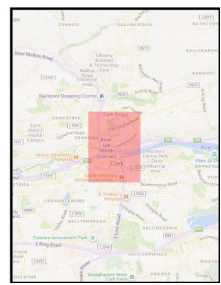
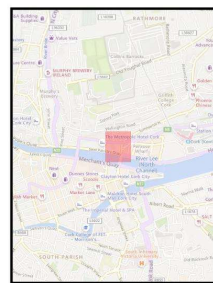


Figure 12. Location of bat roosts onsite (Lesser Noctule roost = yellow circle) (Common Pipistrelle roost = blue circle)



Figure 13. Location of bat roosts onsite (Lesser Noctule roost = yellow circle) (Common Pipistrelle roost = blue circle) (Source: Google Earth 3D)



Plate 3. Common Pipistrelle roost within patch of ivy
(outside site outline)



Plate 4. Lesser Noctule roost within gaps in brickwork (inside site outline)

Potential impacts of proposed development on bats

The proposed development will change the local environment as the main Leisureplex building will be demolished and new structures are to be erected. A Lesser Noctule bat roost (located within brickwork of main Leisureplex building at the side passageway) located onsite will be lost as a result of the proposed development. Given the nature and proximity of the proposed works, it is likely that a Common Pipistrelle bat roost located outside the red line (situated within a patch of ivy on a neighboring building at the side passageway) will also be disturbed and potentially lost indirectly due to dust/noise/light etc. The loss of two bat roosts will have a negative effect on local common bat species. The development is also likely to displace bats from foraging at the site during construction, however, given that no bat species were recorded foraging onsite during the detector survey, the displacement from this site it will not have any significant effect on local bat populations. There is the potential for increased artificial lighting during construction and operation to negatively impact on local bat populations. The proposed creation of a green space (vegetated with native shrub and tree planting) to the south of the proposed development will create a potential foraging area for local bat populations. The potential for collision risk and impact on flight paths in relation to bats is considered low due to the low level of bat activity on site and the buildings would be deemed to be clearly visible to bats. Mitigation is required in relation to bat roosting and lighting on site.

Mitigation measures

As outlined in Marnell et al. (2022) *“Mitigation should be proportionate. The level of mitigation required depends on the size and type of impact, and the importance of the population affected.”* In addition as outlined in Marnell et al. (2022) *‘Mitigation for bats normally comprises the following elements:*

- *Avoidance of deliberate, killing, injury or disturbance – taking all reasonable steps to ensure works do not harm individuals by altering working methods or timing to avoid bats. The seasonal occupation of most roosts provides good opportunities for this*
- *Roost creation, restoration or enhancement – to provide appropriate replacements for roosts to be lost or damaged*
- *Long-term habitat management and maintenance – to ensure the population will persist*
- *Post-development population monitoring – to assess the success of the scheme and to inform management or remedial operations.’*

Two bat roosts may be impacted by the proposed development. This includes a confirmed bat roost within the exterior brickwork of the main Leisureplex building (to be demolished) and another confirmed bat roost located within a patch of ivy on a neighbouring building in the western side passageway (outside site outline). As a result, mitigation measures are required. It is required to apply for a *National Parks and Wildlife Service* derogation licence to allow the planned works. Three bat boxes will be required substitute for a loss of roosting areas. The following mitigation measures will be implemented:

- Prior to works commencing on site a derogation License will be required from NPWS.
- A pre-commencement endoscope and visual inspection survey is recommended to ensure there are no roosting bats present in the building prior to works at the identified roost entrances.
- Demolition will be undertaken outside the main bat activity period (May - September). The works are proposed to take place between October and April to avoid the main bat activity period.
- Prior to the commencement of works, a toolbox talk will be undertaken to ensure that all staff members are fully aware of the sensitivities of the site i.e. existing bat roosts.
- The requirement for a pre commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice, and will serve to assess any changes in baseline conditions since the survey undertaken in June 2024.
- It is recommended that an ecologist be present during works at the identified roost locations. This will allow for: Confirmation of bat presence/absence at the time of works Verification of the nature of the roost Will provide guidance on appropriate reinstatement or replacement of roosting features.
- 3 x bat boxes will be placed within the green space to the southeast of the site and along the western boundary to mitigate disturbance impacts to the likely bat roost onsite.
- The bat boxes will be installed at least four meters from the ground, in a sunny spot and sheltered from the wind. The project ecologist will be consulted in relation to the placement of the bat boxes on site.
- Should any bats be found to be roosting during the site works the removal of the roost will be carried out as a bat specialist under NPWS license and placed in suitable bat boxes in suitable location.
- No lighting will be directed to or at bat boxes.
- Lighting at all construction stages should be done sensitively on site in compliance with bat lighting guidelines.

- A post construction bat survey and light spill assessment will be carried out to ensure compliance with the lighting plan.
- Three bat boxes to be placed onsite. These should be placed at least four meters from the ground, in a sunny spot and sheltered from the wind. The project ecologist will be consulted in relation to the placement of the bat boxes on site.

Predicted and residual impact of the proposal

The proposed development will change the local environment as the main Leisureplex building will be demolished and new lights and structures are to be erected. A Lesser Noctule bat roost was recorded within the site outline. A Common Pipistrelle bat roost was recorded immediately adjacent to the site (outside site outline). A single Lesser Noctule (*Nyctalus leisleri*) was recorded emerging from the brickwork of the main Leisureplex building within the side passageway to the north-west of the site. A single Common Pipistrelle (*Pipistrellus pipistrellus*) was recorded emerging from a patch of ivy on a neighbouring building within the side passageway (outside redline). The development is likely to displace bats from foraging and roosting at the site during construction and post construction. The development will have negative effects on local bat populations, and that any such effect will be moderate adverse at the site level in the short term, based on the finding of a bat roosts on site. A derogation licence will be required for the proposed development. Mitigation measures will be in place with the residual effect of minor adverse/longterm/not significant. It is expected that bats will continue to use the site.

References

- Collins, J. (ed.) (2016).** *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1
- 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.
- Chartered Institute of Ecology and Environmental Management (2021).** *Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats. Beta version.* Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018).** *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal, and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.
- Institution of Lighting Professionals (2018). *Bats and Artificial Lighting in the UK – Bats and the Built Environment Series: Guidance Note 08/18.* Institution of Lighting Professionals and the Bat Conservation Trust.
- Department of Housing, Planning and Local Government (December, 2018).** *Urban Development and Building Heights Guidelines for Planning Authorities.*
- Bat Conservation Trust (May 2022).** *Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys.* The Bat Conservation Trust, London.
- Bat Conservation Ireland 2004** on-going, *National Bat Record Database.* Virginia, Co. Cavan
- Boyd, I. and Stebbings, R.E. 1989** Population changes in brown long-eared bats (*Plecotus auritus*) in Bat Boxes at Thetford Forest. *Journal of Applied Ecology* **26**: 101 - 112
- 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**
- Jefferies, D.J. 1972** Organochlorine insecticide residues in British bats and their significance. *Journal of Zoology*, London **166**: 245 - 263
- Kelleher, C. 2004,** Thirty years, six counties, one species – an update on the lesser horseshoe bat *Rhinolophus hipposideros* (Bechstein) in Ireland – *Irish Naturalists' Journal* **27**, No. 10, 387 – 392
- Kelleher, C. 2015** *Proposed Residential Development, Church Road, Killiney, Dublin: Bat Fauna Study.* Report prepared for Altemar Marine and Environmental Consultants
- 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
- Marnell, F., Kelleher, C., & Mullen, E. (2022),** BAT MITIGATION GUIDELINES FOR IRELAND – V2 <https://www.npws.ie/sites/default/files/publications/pdf/IWM134.pdf>
- Racey, P.A. and Swift, S.M. 1986** The residual effects of remedial timber treatments on bats. *Biological Conservation* **35**: 205 – 214
- Smal, C.M. 1995** *The Badger & Habitat Survey of Ireland.* The Stationery Office, Dublin
- Wildlife Act 1976 and Wildlife [Amendment] Act 2000.** Government of Ireland.