

Bat Fauna Impact Assessment for the Proposed GNI143 Ballykilleen Pipeline



30th April 2026

Prepared by: Frank Spellman and Emma Peters of Altemar Ltd.

On behalf of: Gas Networks Ireland

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SUMMARY

Structure:	No existing structures are present within the EIAR assessment area. The proposed development area consists mainly of agricultural grassland, hedgerows, treelines, standalone trees, ditches, watercourses and the Grand Canal.
Location:	Kilwarden Offtake Installation (Kilwarden, Co. Meath) to Bord na Móna Cushaling Peaker Plant (Kilcumber, Co. Offaly).
Bat species present:	Common pipistrelle (<i>Pipistrellus pipistrellus</i>), Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>), Leisler's bat (<i>Nyctalus leisleri</i>), brown long-eared bat (<i>Plecotus auritus</i>), Daubenton's bat (<i>Myotis daubentonii</i>) and Natterer's bat (<i>Myotis nattereri</i>).
Proposed work:	Gas pipeline installation and associated works.
Surveys by:	Frank Spellman, Emma Peters, Luke Dodebier, Calvin-Townsend Smith, Jack Doyle, Jeff Boyle, Gayle O'Farrell.
Surveys dates:	9 th /17 th December 2024, 20 th /21 st /28 th /29 th January 2025, 4 th /5 th /10 th /14 th /18 th February 2025, 21 st to 25 th July 2025, 21 st August 2025, 13 th – 15 th & 20 th – 22 nd January 2026.

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Competency of Assessor

This assessment has been reviewed by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 31 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 (2022)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan.

This report and associated surveys were carried out by Frank Spellman (MSc (Ind) Zoology, BSc Zoology). Frank has extensive experience in carrying out a wide range of ecological surveys as both a sub-contractor and employee for environmental consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, terrestrial non-avian mammal surveys, breeding/wintering bird surveys, freshwater ecology surveys as well as flora/invasive plant surveys. Frank has been lead surveyor on numerous development projects within Ireland carrying out full avian/non-avian mammal, wintering bird, breeding bird, Fossitt and invasive species assessments. 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 Marnell, Kelleher and Mullen (2022), Bat Mitigation Guidelines for Ireland V2 (which update and replace the Bat Mitigation Guidelines for Ireland published in 2006).

This report and associated surveys were carried out by Emma Peters (BSc Environmental science). Emma has carried out a diverse array of fauna and flora surveys as an employee of Altemar Ltd. These include terrestrial flora, breeding bird, bat (emergent, detector, static, foraging, potential bat roost, internal building roost inspection and ground level tree assessments), mammal, predatory bird, reptile, amphibian and over-wintering bird assessments. Emma has been lead ecologist on multiple projects in Altemar. Emma administers surveys according to techniques approved and recommended by CIEEM.

Jack Doyle (MSc Sustainable Environments) contributed to the survey effort for this assessment. Jack has carried out a wide range of flora and fauna surveys and produced ecological assessments on numerous residential, commercial, and infrastructure projects in Ireland. These include breeding ornithological surveys, roving and static acoustic bat surveys, terrestrial non-avian mammal surveys, and habitat identification

Survey effort was contributed to by Luke Dodebier. Luke holds a BSc (Hons.) in Wildlife Biology and has 6 years' experience in ecological consultancy. Luke has worked on a large variety of projects from large scale renewable projects to small scale residential projects and seen them to completion. Luke is a skilled terrestrial ecologist experienced in Bird, mammal and flora surveying as well as associated reporting in AA, NIS and EclA. Designing and implementing mitigation for bat including lighting and habitat enhancement. Luke has attended the following courses: Bat Detector Workshop (BCI, July 2018), Bat mitigation course (CIEEM, November 2019) Bat Handling Course (BCI, 2025).

Survey effort was contributed to by Calvin Townsend-Smith. Calvin is an experienced ecologist with over 6 years in ecological consultancy, including extensive work in Appropriate Assessment (AA), Environmental Impact Assessment (EIA), and Strategic Environmental Assessment (SEA). Calvin has a background in both terrestrial and aquatic ecology, invasive species management, and GIS (ArcGIS & QGIS). He is skilled in field surveys, ecological reporting, and biodiversity protection for public and private clients. He recently completed an MSc in Biodiversity and Conservation at Trinity College Dublin with research focused on marine mammal mortality.

Survey effort was contributed to by Jeff Boyle (BSc. (Hons) Environmental Management). Jeff has worked with multi-disciplinary teams including planners, architects and engineers in the preparation of numerous statutory environmental reports. These include Appropriate Assessment Screenings & Natura Impact Statements (NIS), Ecological Impact Assessments (EclA), Preliminary Ecological Appraisals (PEA), Biodiversity chapters of Environmental Impact Assessment Reports (EIAR) and Bat/Mammal/Flora/Invasive Species reports. Jeff is skilled in bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys. He is also experienced in habitat assessment and has undertaken flora/invasive species surveys and breeding/wintering bird surveys to produce numerous ecological assessments on a range of residential, industrial, and commercial projects.

Survey effort was contributed to by Gayle O'Farrell (BSc). Gayle joined Altemar in 2024. She holds a BSc Hons. in Agri-Environmental Sciences from University College Dublin. Since joining Altemar Gayle has led numerous projects that have involved producing AA Screenings, Natura Impact Statements, Ecological Impact Assessments, biodiversity chapters of EIAR's, Construction Environmental Management Plans, Biodiversity Enhancement Plans and bat assessments. Gayle is adept in wintering bird surveys, mammal assessments and breeding bird surveys. Additionally, Gayle has carried out numerous bat surveys over several survey seasons and has carried out static detector surveys, dusk emergence, and dawn re-entry surveys. Gayle is also experienced in habitat assessment and has undertaken flora/invasive species surveys to produce numerous ecological assessments on a range of residential, industrial and commercial projects. She has also carried numerous roles as ecological clerk of works on housing and infrastructural projects including gas pipeline works and river crossings.

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.

Project Description

The Proposed Development site and associated temporary working areas covers an area of approximately 243.4 hectares (ha) (the “Proposed Development Site”) and encompasses all lands required for the construction and operation of the pipeline, including the Kilwarden Offtake Installation, the Ballykilleen AGI, temporary construction compounds, line-pipe storage areas, and all associated ancillary works.

The Proposed Development Site comprises the c. 23.65 km linear route of the underground GNI 143 Ballykilleen Pipeline and its temporary working areas.

The Proposed Development site outline and location are demonstrated in figures 1 & 2.

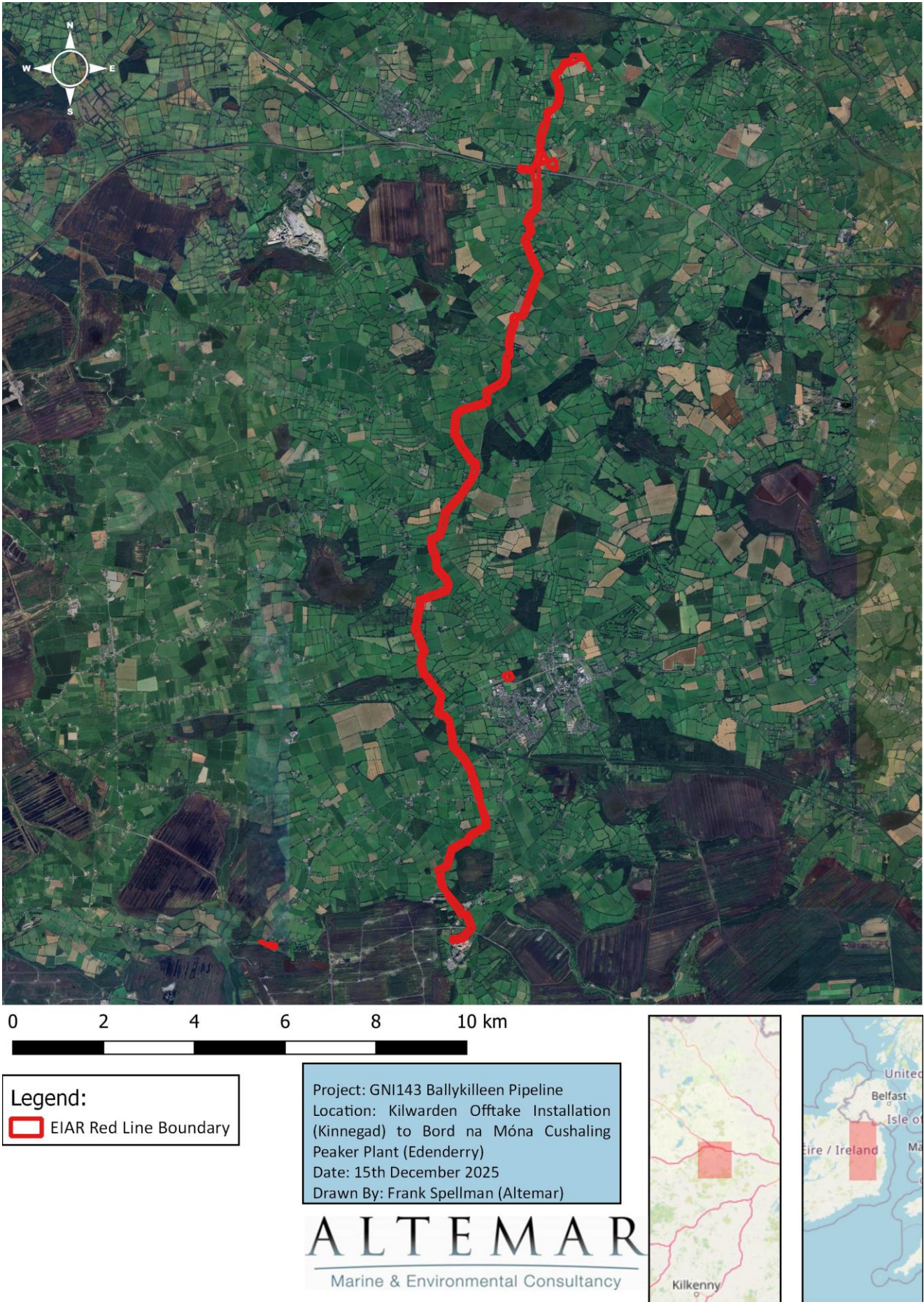



Figure 1. Proposed development boundary assessment area.



0 2 4 6 8 10 km



Legend:

 EIAR Red Line Boundary

Project: GNI143 Ballykillen Pipeline
 Location: Kilwarden Offtake Installation (Kinnegad) to Bord na Móna Cushaling Peaker Plant (Edenderry)
 Date: 15th December 2025
 Drawn By: Frank Spellman (Altamar)

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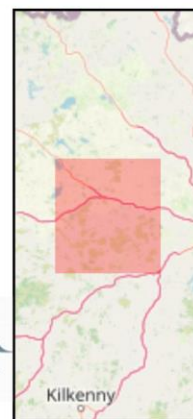


Figure 2. PROPOSED DEVELOPMENT

Bat Survey

This report presents the results of multiple site visits by Altemar across 2025 and 2026. Trees and features along the assessment route were identified and recorded by Frank Spellman and Emma Peters between December 2024, February 2025 and January 2026. Emergent/re-entry surveys were carried out in July 2025 by Altemar at all trees of low and medium bat roosting potential (identified at that time) that could potentially be impacted by the proposed development. Due to storm damage/natural deterioration, surveys in 2026 were carried out to identify any additional trees of bat roosting potential within the Proposed Development site.

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.'

A ground level roost assessment was carried between December 2024 and February 2025 to examine trees and structures along and adjacent to the proposed development for features that could form bat roosts. Potential roosting features include heavy ivy growth, broken limbs, areas of decay, vertical or horizontal cracks, cracks in bark, roof rafters, cracks in buildings, attic spaces, stone walls etc. No existing structures were present within the influence of the proposed development. All trees within and immediately adjacent to the Proposed Development were assessed for bat roosting potential, specifically for potential roosting features such as dense ivy growth, cracks, split branches, and holes/hollows etc. Trees of bat roosting potential were categorized into roost potential suitability according to Bat Conservation Trust guidelines.

In July 2025, emergence/re-entry surveys were carried out at all trees of low roosting potential or higher. A single emergence/re-entry survey was carried out at trees of low roost suitability. Two emergence/re-entry surveys were carried out at all trees of moderate roost suitability.

Survey Results

Trees/structures as potential bat roosts.

No trees of high bat roosting potential were noted within the Proposed Development area. In total, 61 trees of low and nine trees of moderate bat roosting potential within the Proposed Development area were identified that could potentially impacted by works associated with the Proposed Development.

Emergent/re-entry surveys.

An emergent/re-entry survey was carried out once at low and twice at medium bat roosting potential trees identified in 2024/25. Surveys were carried out by Frank Spellman, Emma Peters, Jack Doyle, Luke Dodebier, Calvin Townsend-Smith and Jeff Boyle between 21st and 25th July 2025. Due to access constraints, trees 63-69 were surveyed by Frank Spellman and Emma Peters on 21st August 2025.

Emergent-re-entry surveys were undertaken within the active bat season. Weather conditions were good with mild temperatures greater than 10°C after sunset. Winds didn't exceed Beaufort 2. There was no precipitation during or preceding the surveys. Insects were observed in flight for the duration of all surveys.

As outlined in Collins (2016) in relation to weather conditions '*The aim should be to carry out surveys in conditions that are close to optimal (sunset temperature 10°C or above, no rain or strong wind.), particularly when only one survey is planned.... Where surveys are carried out when the temperature at sunset is below 10°C should be justified by the ecologist and the effect on bat behaviour considered.*' There were minimal constraints in relation to the survey carried out. All trees were accessible, and weather conditions were optimal for bat assessments in the area surrounding the site. Winds were considered optimal for assessing foraging behaviour.

Emergence and re-entry surveys were carried out at each tree of bat roosting potential 1 hour before and after dusk/dawn. Potential roosting features observed included dense ivy, cracked limbs, split trunks, holes, lifting bark and forks. Trees were observed for the full survey period and any confirmed or potential emergence/re-entry recorded. Identification of bat species was determined by ultrasonic calls using an *Echo meter touch 2 Pro* detector. Following the emergent survey and prior to re-entry surveys, an acoustic survey was carried out over approximately one hour within immediate area surrounding each survey location to record all species present. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations.

Bats were observed emerging from 10 trees potentially impacted by the Proposed Development during the emergent/re-entry surveys. This included a potential Leisler maternity roost within a fissure of an ash tree (BRP tree 50, arborist id G084) south of chainage 15,200 m, where a minimum of 13 Leisler individuals were recorded re-entering. This was re-validated on a second re-entry survey where up to 51 Leisler individuals were recorded re-entering, however repeated entries/exits may have resulted in a proportion of double counts. Overall Leisler, Common pipistrelle and Soprano pipistrelle were recorded roosting in trees within the influence of the proposed development. A total of five bat species were recorded during emergence/re-entry surveys: common pipistrelle, soprano pipistrelle, leisler, daubenton, and brown long-eared. Trees of bat roosting potential surveyed and trees within which bats were recorded roosting are demonstrated within Volume IV of the associated EIAR, with specific details included in Appendix I of this report.

Static detector surveys

Three static detectors were deployed at points along the proposed pipeline route to determine the presence/activity of any other bat species not recorded during emergent/re-entry surveys. Detectors were placed near features within the landscape that would provide important foraging areas/commuting corridors in order to maximise the number of species recorded. These locations included the Grand Canal, Yellow River and best example of mature treeline along the assessment corridor. Detectors were deployed from 25th July and collected on 21st August 2025.

Overall, six bat species were recorded by static detectors. All species recorded during emergence/re-entry surveys in addition to Natterer's bat were recorded. The highest levels of activity recorded were of Soprano pipistrelle, Common pipistrelle, and Leisler in descending order, with relatively few recordings of daubenton, natterer and brown long-eared.

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 five 10km² grid (Reference grid N52, N53, N62, N63, N64) encompassing the study area reveals that seven known Irish species have been observed and recorded locally. The National Biodiversity Data Centre’s online viewer was consulted to determine whether there have been recorded bat sightings in the wider area, of which the same seven species were found. The location of these records are included in figures 3-9.

Table 1. Bat species recorded within a 50 km² area (Reference grids N52, N53, N62, N63, N64) encompassing the study area

Species name	Date of last record	Title of dataset	Designation
Brown Long-eared Bat (<i>Plecotus auritus</i>)	22/06/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Common Pipistrelle (<i>Pipistrellus pipistrellus sensu stricto</i>)	30/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Daubenton's Bat (<i>Myotis daubentonii</i>)	31/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Leisler's Bat (<i>Nyctalus leisleri</i>)	18/05/2019	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Natterer's Bat (<i>Myotis nattereri</i>)	18/05/2009	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	21/10/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	10/06/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Whiskered Bat (<i>Myotis mystacinus</i>)	29/08/2017	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

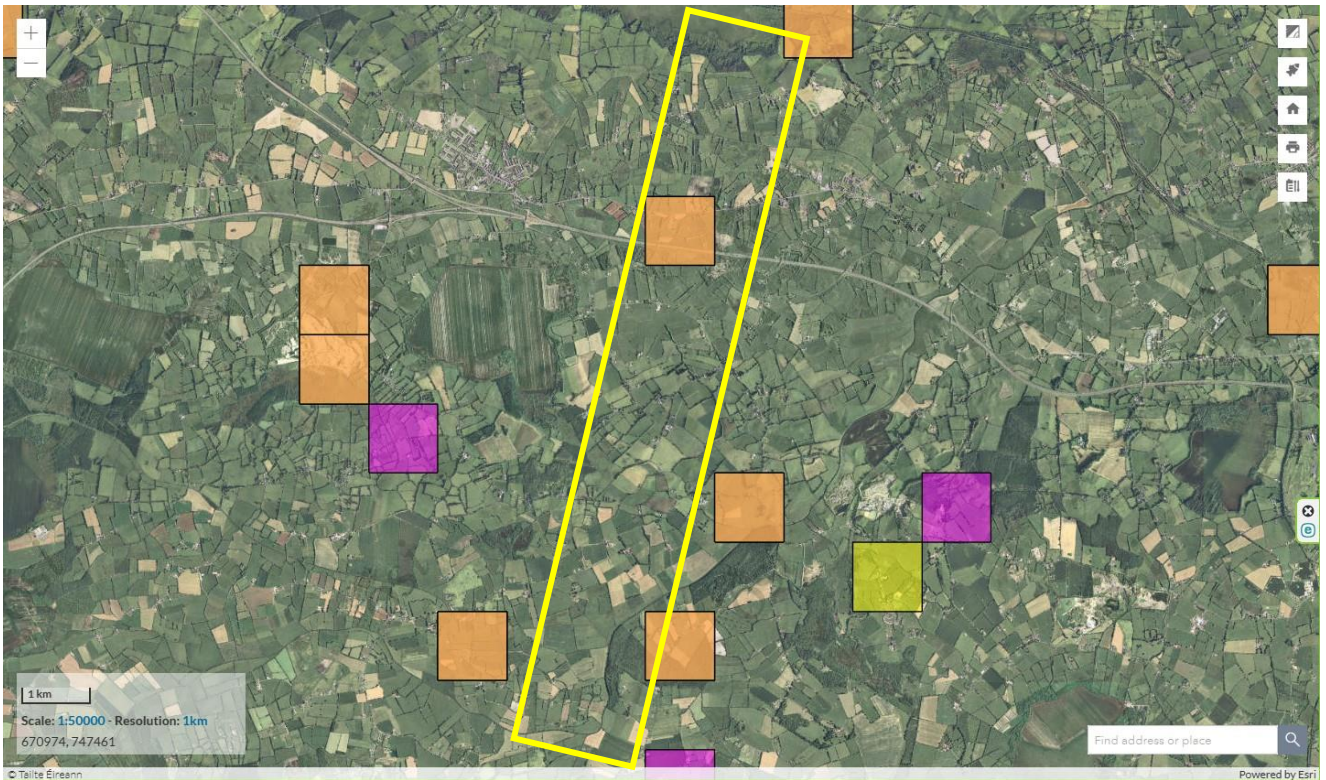


Figure 3. Common pipistrelle (purple), soprano pipistrelle (yellow) and both species (orange) sightings surrounding the northern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).

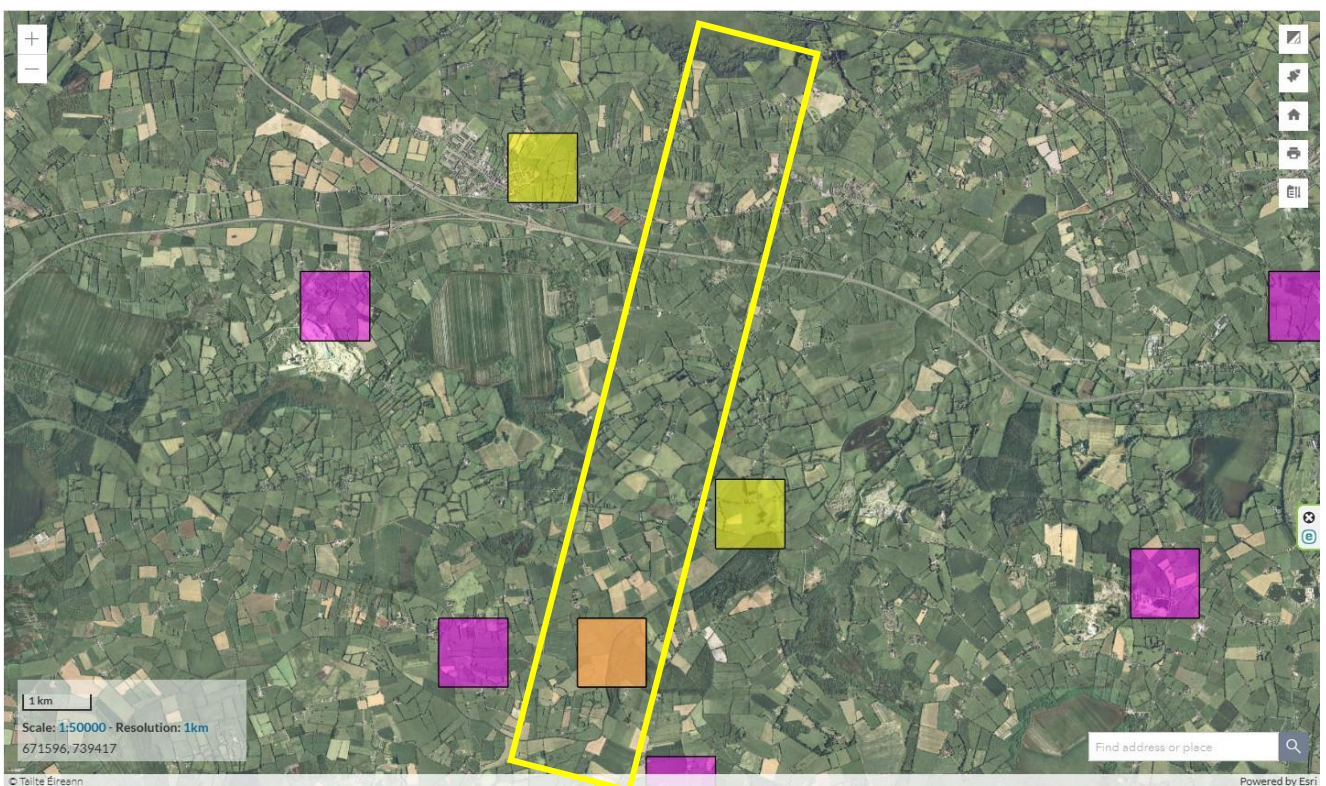


Figure 4. Leisler (purple), Daubenton's (yellow) and both species (orange) sightings surrounding the northern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).

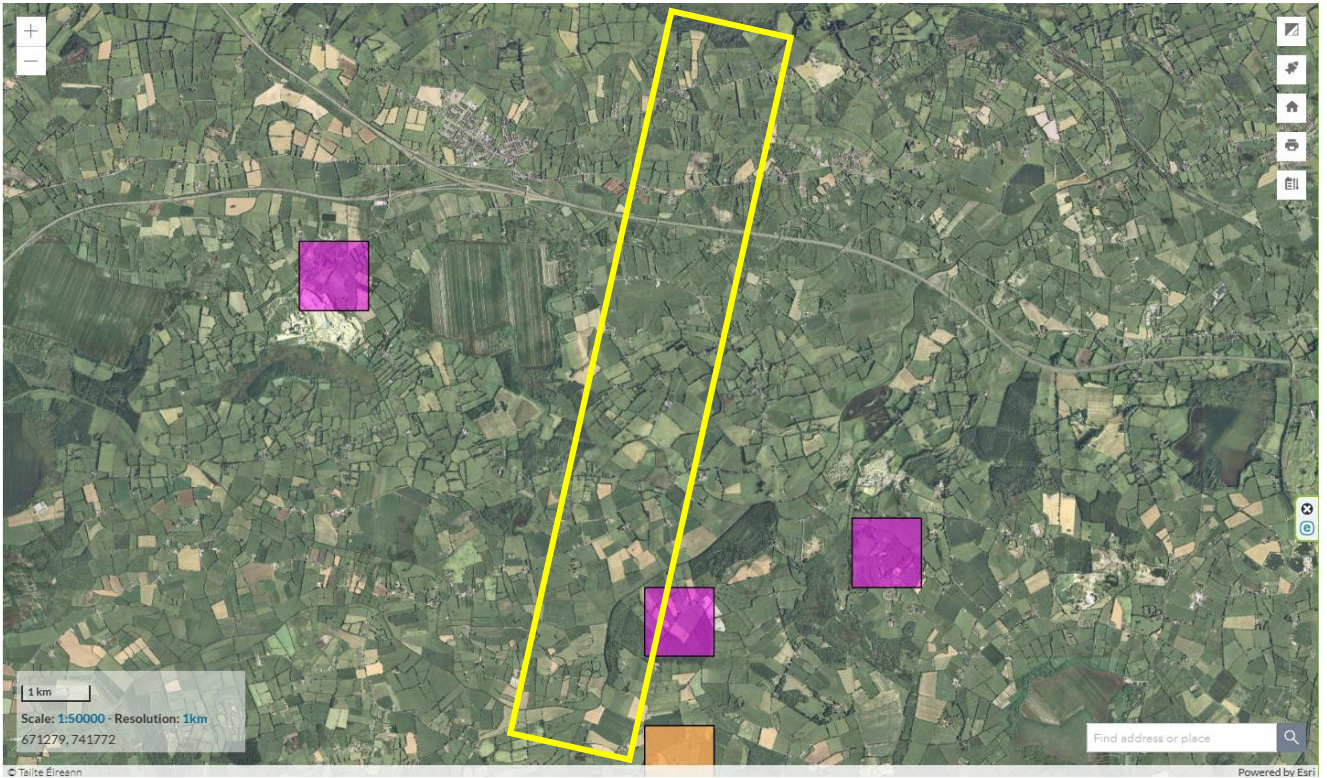


Figure 5. Whiskered (yellow), brown long-eared (purple) and both species (orange) sightings surrounding the southern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).

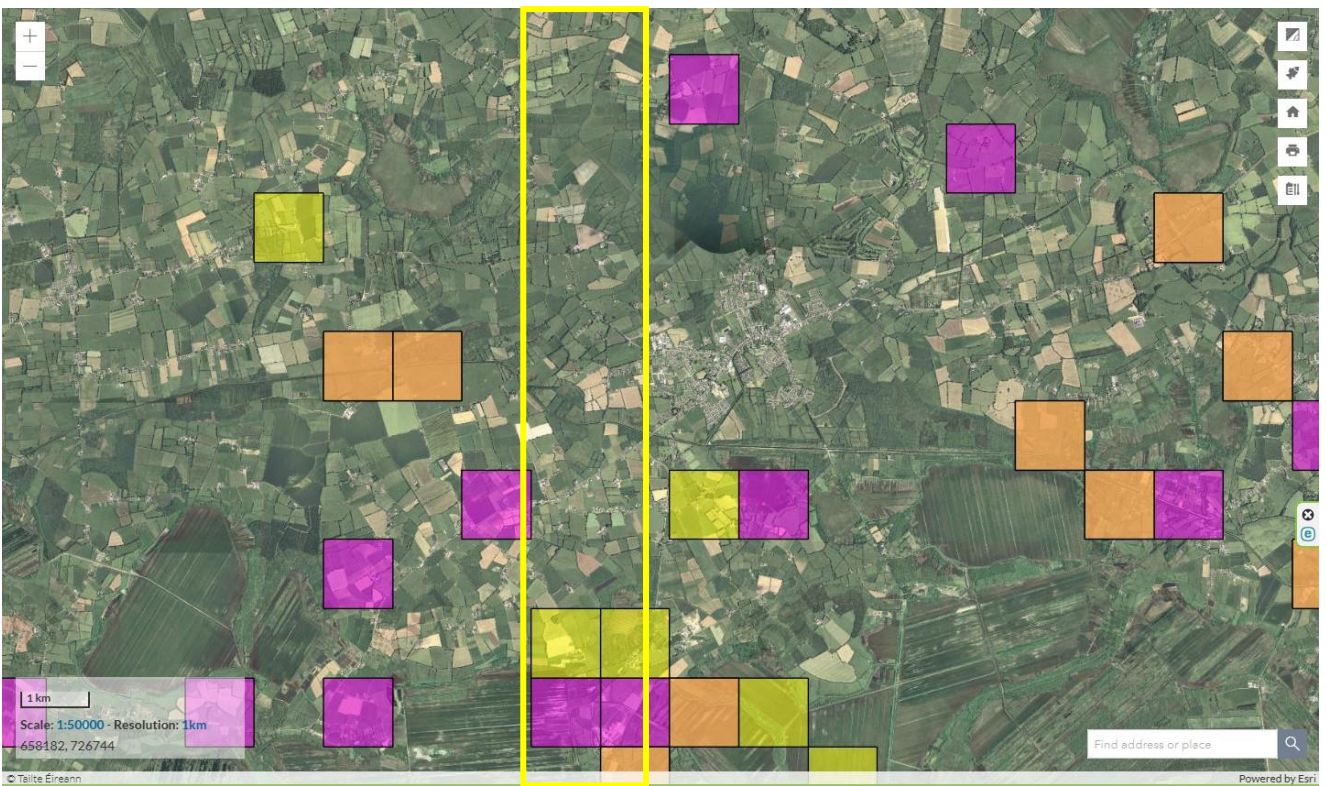


Figure 6. Common pipistrelle (purple), soprano pipistrelle (yellow) and both species (orange) sightings surrounding the southern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).

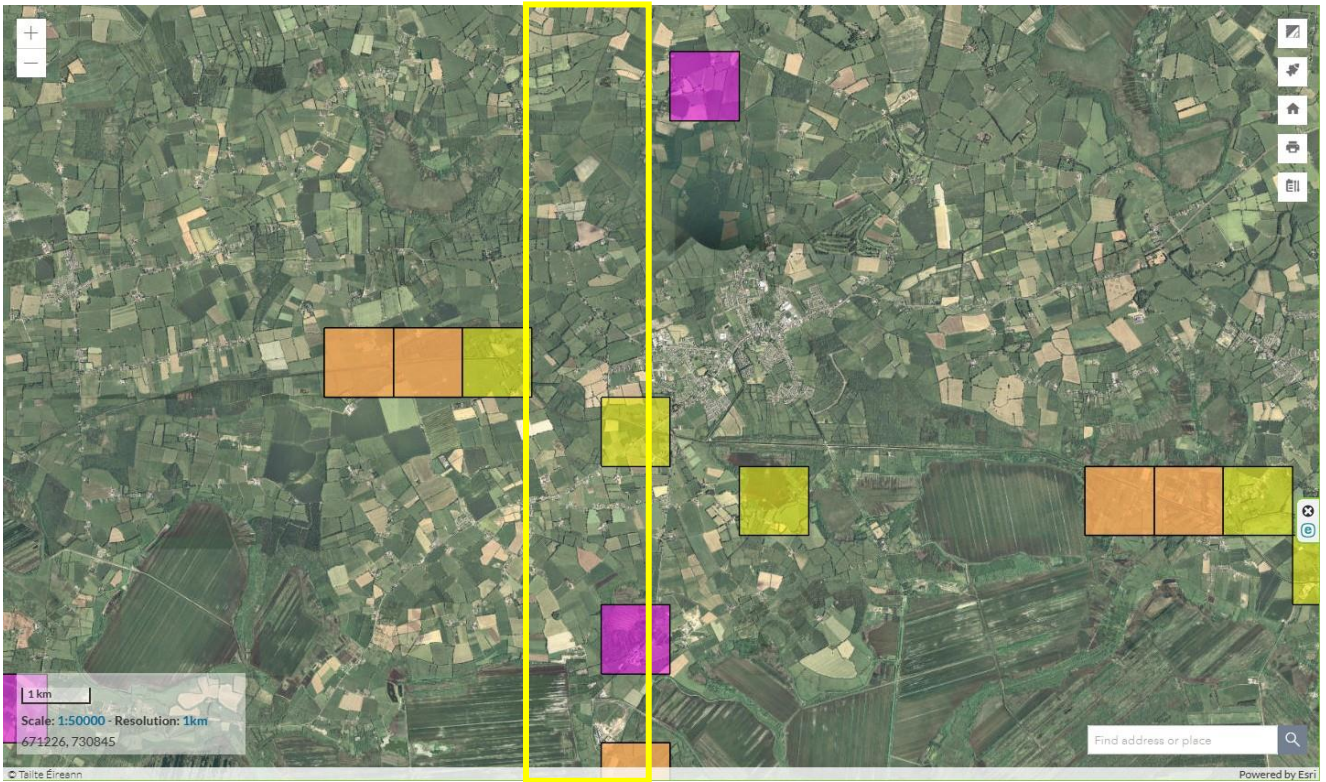


Figure 7. Leisler (purple), Daubenton's (yellow) and both species (orange) sightings surrounding the southern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).



Figure 8. Whiskered (yellow), brown long-eared (purple) and both species (orange) sightings surrounding the southern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).

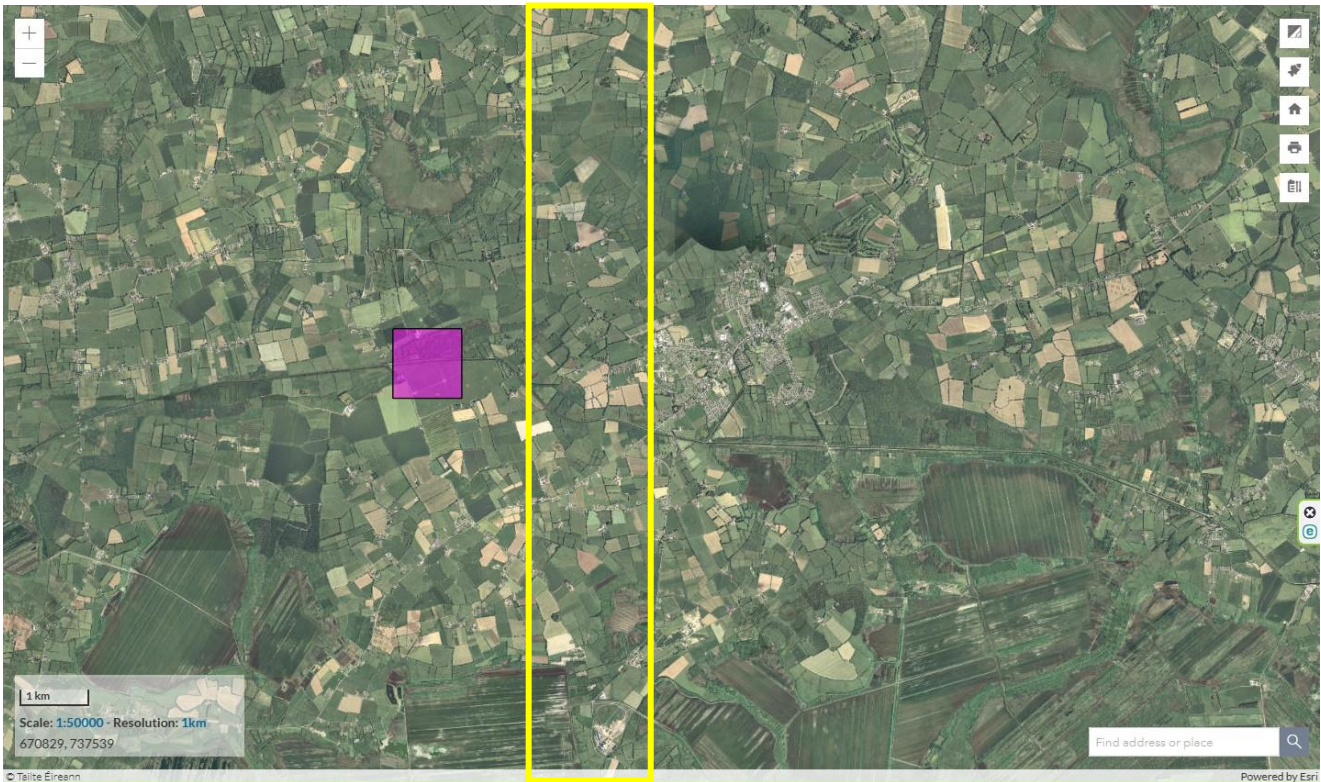


Figure 9. Natterer's (purple) sightings surrounding the southern half of the assessment area according to the NBDC's online viewer (approximate assessment area in yellow).

Evaluation of Results

The bat surveys comply with bat survey guidance documentation including Marnell et al (2022) and Collins (2016). A total of 70 trees of low (61) and moderate (9) roosting potential were recorded. Active roosts were identified in 10 of these trees during the emergent/re-entry surveys. However, the roost status of 23 trees are unknown due to identification of these in the period since emergent/re-entry surveys took place. A potential maternity roost was observed within a fissure of an ash tree south of chainage 15,100 m. Leisler, common pipistrelle and soprano pipistrelle were recorded roosting in trees within the influence of the proposed development. Overall, six bat species were recorded across emergence/re-entry and static detector surveys: common pipistrelle, soprano pipistrelle, leisler, daubenton, brown long-eared, natterer.

Of the trees identified as containing active bat roosts, none are scheduled for removal for the Proposed Development. 13 trees of bat roosting potential are scheduled for removal (two trees of moderate and 11 of low bat roosting potential). Of these trees of bat roosting potential scheduled for removal, three (all of low bat roosting potential) have not yet been assessed via emergent/re-entry surveys due to only being identified in early 2026 as a result of storm damage/natural decay resulting in new potential roosting features.

The potential maternity roost (arborist tree tag no. G084) at chainage 15,200 m is likely a significant roost for this species locally. However, given the similar suitable habitat types available in the wider area encompassing the Proposed Development site, it is likely that similar levels of suitable bat roost availability is present in the surrounding area, and that the Proposed Development site is not of specific importance to populations of other bat species locally.

The site is likely frequented by other species including those identified in NBDC records (indicating one additional species within the surrounding areas of the assessment area historically).

Mitigation measures are required to prevent potential negative impacts on bats as a result of trees of bat roosting potential being scheduled for removal and prevent disturbance to existing bat roosts present in trees not scheduled for removal.

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.’*



The specific mitigation and enhancement measure outlined below will be implemented:




- Prior to any removal of trees of bat roosting potential, a survey will be carried out by a suitably qualified ecologist to identify whether any active roosts are present.
- In the event that active roosts are identified within any trees of bat roosting potential scheduled for removal, prior to removal, a derogation license will be sought from NPWS and no action taken regarding these trees unless derogation is granted.
- Trees identified as containing active bat roosts within and bounding to the construction corridor will be suitably marked to prevent any accidental damage/removal.
- Tree no. 50 (arborist tag id G084) containing a large, potential maternity, Leisler roost, in addition, will have ground protection and fencing implemented during construction.
- Illumination of treelines and canopies avoided during construction.
- The project ecologist will be consulted regarding all lighting related to the construction phase.
- An arborist will be appointed to oversee implementation of root protection zones prior to works.
- All sections of hedgerow to be removed to facilitate construction will be replaced with a similar species composition.




References

- Bat Conservation Ireland (2004)** on-going, National Bat Record Database. Virginia, Co. Cavan
- Bat Conservation Ireland (2015)** Bats and Bat Boxes, Guidance Notes for: Agri-environmental Schemes.
- The Bat Conservation Trust**, London. ISBN-13 978-1-872745-96-1
- 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.
- 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
- 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.
- Collins, J. (ed.) (2023)** Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.
- 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)**
- Department of Housing, Planning and Local Government (December, 2018)** Urban Development and Building Heights Guidelines for Planning Authorities.
- EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) (1992)**
- 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.
- 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 Altamar Marine and Environmental Consultants
- 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, <https://www.npws.ie/sites/default/files/publications/pdf/IWM134.pdf>
- 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
- Racey, P.A. and Swift, S.M. (1986)** The residual effects of remedial timber treatments on bats. *Biological Conservation* **35**: 205 – 214
- Wildlife Act 1976 and Wildlife [Amendment] Act 2000.** Government of Ireland.


Appendix I – Trees of bat roosting potential along Proposed development boundary, classification and roost status.

No.	Chainage (nearest)	Type	BRP	Active roost	No. surveys	Survey dates	Image	Arborist Assessment Recommendations
1	0m	Heavily ivy clad mature ash 15m- possible single roost. Ivy forms bulbous growths- potential features not visible.	Low	Unknown	0	13/01/26		Not removed T1734
2	100m	Heavily ivy-clad mature ash. Approx 16m. 1 visible prf (hole in branch) I.	Low	Unknown	0	13/01/26		Not removed T1737




3	100m	25m mature ash, heavily ivy clad, some peeling bark, thick reaching branches, ivy blocking visibility of potential features	Low	Yes	1	21/07/2025		To be removed T1740
4	1000m	Mature 15m heavily ivy clad ash. Ivy branches quite thick and concealing tree bark. Twisting branches may provide suitable roost for single bat	Low	Unknown	0	13/01/2026		Not removed G009
5	1,000m	Heavily ivy-clad mature ash. No PRFs noted.	Low	No	1	21/07/2025		Not removed T1775




6	1,300m	Very heavily ivy-clad pair of ash with some minor cracked limbs.	Low	No	2	21/07/2025 & 25/07/2025		Not removed G014
7	2,300m	Ivy-clad dead ash. Small area of trunk visible but mostly covered.	Low	Yes	2	21/07/2025 & 25/07/2025		Not removed T1793 Ground protection and fencing during construction. Inspection and possible remedial works post construction.
8	2,300m	Heavily ivy-clad mature ash. No PRFs. Ivy not dense throughout but may provide limited roosting potential.	Low	No	1	21/07/2025		Not removed G018

9	3,600m	Moderately ivy-clad large mature beech. No noted PRFs. Limited roosting opportunities.	Low	No	1	22/07/2025		Not removed T1808
10	3,600m	Large mature ivy-clad beech. No PRFs. Heavy ivy creates limited but feasible roost habitat. 25-30m.	Moderate	No	2	22/07/2025 & 25/07/2025		Not removed T1809 Ground protection and fencing during construction. Inspection and possible remedial works post construction.
11	3,700m	Large mature ivy-clad beech. No PRF features. Extent of ivy given the trees size provides limited but potential roost habitat.	Moderate	No	2	22/07/2025 & 25/07/2025		To be removed T1811

12	3,700m	Mature beech with limited ivy cover. Twisting trunk.	Moderate	No	2	22/07/2025 & 25/07/2025		<p>Not removed T1812 Ground protection and fencing during construction. Inspection and possible remedial works post construction.</p>
13	3,700m	Mature ivy clad beech.	Low	No	1	22/07/2025		<p>T1814 Not removed</p>
14	4,200m	Heavily ivy-clad large ash. No PRFs. Substantial ivy could provide limited roosting habitat.	Low	No	1	10/06/2025		<p>T1817 Not removed</p>




15	4,400m	Semi mature beech. No ivy. 1prf I (split branch).	Low	Unknown	0	14/01/2026		T1827 To be removed
16	5,500 m	Large mature ash. No PRFs. Heavy ivy cover could facilitate limited roosting.	Low	No	1	2025-06-10		T1821 To be removed
17	5,800m	Heavily ivy-clad large mature hawthorn. No visible prfs.	Low	Unknown	0	15/01/2026		Not identified



18	5,800m	Heavily ivy-clad large mature hawthorn. No visible prfs.	Low	Unknown	0	15/01/2026		T1824 Not removed
19	5,800 m	Heavily ivy-clad large mature ash. Prf I visible (cracked bark/limb).	Low	No	1	2026-01-15		T124 Not removed
20	6000m	Ivy-clad large mature ash. 2 visible prfs I (broken limbs). App 25m.	Low	Unknown	0	15/01/2026		Not identified

21	7,100m	Mature ash. Covered in dense dead ivy. No PRFs apart from ivy.	Low	No	1	22/07/2025		T1836 Not removed
22	7,500m	Heavily ivy clad mature ash, thick twisting roots of ivy block view of potential roosting features on trunk. 25m.	Moderate	No	2	23/07/2025 & 25/07/2025		G044 To be removed
23	7,500m	Ivy-clad ash. No PRFs. Dense ivy. 25m.	Low	No	1	23/07/2025		G044 To be removed



24	8,800m	Dead ivy-clad ash. 2 visible prfs (peeling bark). 20m	Low	Unknown	0	15/01/2026	N/A	T1853 No removal
25	8,800m	Ivy-clad large ash. 2 visible prf I (split limb/hole).	Low	Unknown	0	15/01/2026	N/A	G055 No removal
26	8,800m	Densely ivy-clad large ash. 2 visible prfs I (holes).	Low	Unknown	0	15/01/2026	N/A	T1856 To be removed
27	8,800m	Large ash. 1 visible prf (broken limb) I.	Low	Unknown	0	15/01/2026	N/A	T1857 No removal
28	9,300m	Large mature beech. No ivy. 2 prfs I (hole/knuckle). No. 1874	Low	Unknown	0	15/01/2026	N/A	T1874 To be removed
29	10,500m	ivy clad ash 10pm o visible features ivy vines thick	Low	No	0	23/07/2025	N/A	T1884 To be removed
30	10,600 m	Pair of heavily ivy-clad ash with very ivy-clad hawthorn. No other PRFs. Ivy may facilitate roosting.	Low	No	1	23/07/2025		T1868 To be removed

31	10,700m	Ash mature 25 meters, heavily ivy clad. Suitable for single bat roost	Low	Unknown	0	15/01/2026	N/A	G060 No removal
32	10700m	20m sycamore ivy clad suits libel for one roost	Low	Unknown	0	15/01/2026	N/A	G590 No removal
33	10,900m	Ivy-clad mature ash. 2 visible prf I (broken branch). Approx 20m	Low	Unknown	0	15/01/2026	N/A	T1864 To be removed
34	10,900m	Mature ash. Some dead ivy. 1 visible prf (broken/cracked limb). Approx 18m.	Low	No	1	23/08/2026		T1865 No removal



35	11,100 m	Mature ash with mature dense ivy.	Low	Yes	1	23/07/2025		T1859 No removal
36	11,100 m	Heavily ivy-clad large mature oak. No visible PRFs. Dense ivy may provide roosting habitat.	Low	Yes	1	23/07/2025		T1860 No removal
37	11,100 m	Heavily ivy-clad large mature ash (25m). 1 PRF observed (small split in main branch).	Low	Yes	1	23/07/2025		T1861 Ground protection and fencing during construction. Inspection and possible remedial works post construction

38	12000m	Oak 30m covered externally thick ivy, no visible roosting features Arborist says Ash	Low	Unknown	0	20/01/2026	N/A	Unassessed
39	12,300m	Cracked bark, broken limbs 3 prf no ivy	Low	Unknown	0	20/01/2026		T1894 No removal, avoided via HDD
40	12,300 m	Crack visible, good ivy cover.	Low	No	1	22/07/2025		T1895 No removal

41	12,300 m	Crack through trunk and underside of main branch.	Low	No	1	22/07/2025		T1896 No removal
42	12,700 m	Heavily ivy-clad ash (x3). No PRFs but dense ivy cover.	Low	Yes	1	24/07/2025		G079 No removal
43	13200m	Moderately ivy-clad ash. 3 visible prf (small holes). Approx 20m.	Low	Unknown	0	20/01/2026		T1907 No removal

44	13,400 m	Thick ivy cover. PRF feature from crown and branches overlaying.20m in height.	Low	No	1	24/07/2025		T1910 To be removed
45	14,800 m	Ivy-clad ash. No PRFs. 30m.	Low	Yes	1	24/07/2025		GO84 (Unassessed) No removal. Ground protection and fencing during construction. Inspection and possible remedial works post construction
46	14,800 m	Ivy-clad oak. No PRFs. 30m.	Low	No	1	24/07/2025		GO82 Ground protection and fencing during construction. Inspection and possible remedial works post construction

47	14,900 m	Ivy-clad oak. No PRFs. 30m.	Low	No	1	24/07/2025		G082 Ground protection and fencing during construction. Inspection and possible remedial works post construction
48	15,200m	Ivy-clad ash. 1 visible prfs I (broken branch). Approx 25m	Low	Unknown	0	21/01/2026		T1929 No removal
49	15,100 m	Mature ash broken limb and dense ivy.	Low	No	1	24/07/2025		G081 No removal


50	15,200 m	Large ash with cavity formed from trunk growing through formerly damaged branch.	Moderate	Yes	2	24/07/2025 & 25/07/2025		<p>G084</p> <p>Ground protection and fencing during construction.</p> <p>Inspection and possible remedial works post construction.</p>
51	15,200 m	Mature ash dense ivy and broken limb.	Low	No	1	24/07/2025		<p>T1938</p> <p>Ground protection and fencing during construction.</p> <p>Inspection and possible remedial works post construction.</p>




52	15,300 m	Very large ivy-clad ash. PRFs present.	Moderate	No	2	24/07/2025 & 25/07/2025		T1939 Pre construction; pollard to 4m protecting tree as valuable biodiversity habitat.
53	15,300 m	Very heavily ivy clad oak. PRF present (cracked limb).	Moderate	No	2	24/07/2025 & 25/07/2025		T1940 No removal
54	15,900 m	Large mature oak. No ivy. 2 PRFs (split/cracked limbs).	Low	No	1	24/07/2025		G101 No removal



55	15,900 m	Vertical crack down trunk of large oak. No ivy.	Moderate	No	1	24/07/2025		T1970 Ground protection and fencing during construction. Inspection and possible remedial works post construction
56	16300m	Mature beech, large cavity from broken limb 30m	Low	Unknown	0	21/01/2026		G089 No Removal
57	16,400m	Prf and 1(large split/crack, individual holes etc.). Large mature beech. Approx 30m.	Moderate	Unknown	0	21/01/2026		Unassessed

58	17,400 m	Heavily ivy-clad large mature ash.	Low	No	1	24/07/2025		G098 To be removed
59	17,400 m	Ash. No PRFs but very dense ivy.	Low	No	1	24/07/2025		T1958 No removal
60	17,500 m	Mature ivy-clad beech trunk with dense ivy. No PRFs visible.	Low	Yes	1	24/07/2025		T1660 No removal

61	17,500m	2 soprano's emerged in summer25 surveys , thick ivy large crown, some holes, 20m	Low	Yes	1	21/01/2026		Unassessed
62	17,700 m	Heavily ivy-clad ash.	Low	No	1	12/06/2025		T1962 No removal
63	20,000m	Ash. 3 prf (holes). App 15m. No. 2001.	Low	Unknown	0	21/01/2026		T2001 Ground protection and fencing during construction. Inspection and possible remedial works post construction

64	20,100m	1 prf (hole, likely hollow). Dying. Ash approx 15m. No. 2000	Low	No	1	25/07/25		T2000 No removal
65	20200m	Dying ash. 3 prf (holes) approx 12m.	Low	No		21/01/2026		T1999 No removal

66	20,100 m	Scots pine. 1 prf.	Low	No	1	21/08/2025		Unassessed
67	20,100 m	Ivy-clad ash.	Low	No	1	21/08/2025		Unassessed
68	20,100 m	Hollow immature ash and multiple young trees/stumps with 1-2 PRFs in field.	Low	No	1	21/08/2025		T2002 To be removed

69	20,100m	2 prf I. (Holes). Partially dead ash. Approx 10m.	Low	No	1	25/07/25		T1997 To be removed
70	23557m	Scots pine. 2 visible prf I (hole/broken branch). Approx. 15m	Low	Unknown	0	22/01/2026		Not identified.