Ørsted

# Oatfield, Co. Clare

# Bat Survey Report

May 2024



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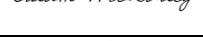
# Quality Assurance



The findings outlined within this report and the data we have provided are to our knowledge true and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) good practice guidelines. Where pertinent CIEEM Guidelines used in the preparation of this report include the *Guidelines for Ecological Report Writing* (CIEEM, 2017a), *Guidelines for Preliminary Ecological Appraisals* (CIEEM, 2017b) and *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine*, (CIEEM, 2019). CIEEM Guidelines include model formats for Preliminary Ecological Appraisal and Ecological Impact Assessment. Also, where pertinent, evaluations presented herein take cognisance of recommended Guidance from the EPA such as *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022), and in respect of European sites, *Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (European Commission, 2018).

Due cognisance has been given at all times to the provisions of the *Wildlife Act 1976-2023,* the *European Union (Natural Habitats) Regulations*, the *European Communities (Birds and Natural Habitats) Regulations 2011-2021,* EU Regulation on Invasive Alien Species under *EU Regulation 1143/2014*, the EU Birds *Directive 2009/147/EC* and *Habitats Directive 92/43/EEC*.

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Any limitation to the methods applied or constraints however are clearly identified within the main body of this document.

| **Version** | **Date** | | **Name** | **Signature** |
|---|---|---|---|---|
| 1 | 16/05/2024 | **Report prepared by:** | Calum McSorley BSc MSc |  |
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| **Project Reference** | **2230Q** | **Title** | Oatfield – Bat Survey Report | |

## Notice

This report was produced by INIS Environmental Consultants Ltd. (INIS) on behalf of **Ørsted**, the client, for the specific purpose of quantifying bat occurence at **Oatfield, Co. Clare**, with all reasonable skill, care and due diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client.

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# 1. INTRODUCTION

Inis Environmental Consultants Ltd. was commissioned by Ørsted to carry out bat surveys at Oatfield, Co. Clare to inform on bat occurrences around a proposed onshore windfarm.

## 1.1 Guidelines and Legislative Context

All bat species are protected in Ireland by the Wildlife (Amendment) Act 2000[1] which makes it an offence to wilfully interfere with or destroy the breeding or resting place of any bat species. However, limited exemptions for certain kinds of development are provided for within the Act. All bat species are listed on Schedule 5 of the Wildlife Act, 1976, and are therefore subject to the provisions of Section 23, which make it an offence to:

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

The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive; 1992[2]), seeks to protect rare and vulnerable species, including all species of bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All bat species are listed on Annex IV of the Directive and Lesser Horseshoe bat *Rhinolophus hipposideros* is further protected under Annex II. Annex II relates to the designation of Special Areas of Conservation (SACs). Inclusion on Annex IV ('European protected species') means that Member States are required to put in place a system of strict protection as outlined in Article 12. The Habitats Directive is transposed into Irish law by the European Communities (Natural Habitats) Regulations, 1997 (SI No. 64/1997). These Regulations substantially strengthen the protection provided by the Wildlife Acts 1976-2021, and in particular they remove all of the exemptions provided in Section 23(7) of the Wildlife Act, 1976 insofar as they relate to Annex IV species, including all species of bats. All bat species are listed on the First Schedule and Section 23 of the Regulations makes it an offence to:

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

It is essential that developers note that, regarding the third point above, the onus of satisfying themselves that a development will not damage or destroy a breeding site or resting site of a bat rests with the developer, as the defence that the action was not done deliberately does not apply in this instance.

Provision is made in the legislation (Article 25 (1) of the Habitats Regulations, 1997) for the Minister to grant, in strictly specified circumstances set out in that Regulation, a derogation licence permitting any of the above activities "*where there is no satisfactory alternative and the derogation is not*

[1] *Wildlife (Amendment) Act 2000. Available at* http://www.irishstatutebook.ie/eli/2000/act/38/enacted/en/html

[2] *Habitats Directive 92/43/EEC. Available at* http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

*detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range*". Two of these circumstances are of particular interest to developers: "*in the interests of protecting wild fauna and flora and conserving natural habitats*" and "*in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment*".

## 1.2 Constraints and Limitations

There are several limitations inherent to field-based surveying. These particularly relate to availability of suitable weather conditions for completing surveys. As such, when undertaking and completing fieldwork, careful consideration and planning is made to ensure optimal weather conditions during survey periods.

During the second bat walkover survey, temperatures dropped to seven degrees after sunset, which is below the optimal survey temperature. As a result, the third walkover survey was carried out at the same survey locations as the second in optimal weather conditions.

The second emergence survey for BL1 was carried out in poor weather conditions and had to be cancelled due to persistent rain.

## 1.3 Statement of Authority

**Mr Calum McSorley BSC MSC** wrote this report and undertook some of field survey visits. He is a Bat Ecologist with Inis Environmental Consultants and has a BSc in Environmental Science from National University of Ireland Galway and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. Calum has extensive bat surveying experience including roost assessments, emergence/re-entry surveys and various exclusion practices. Calum also has experience in the preparation and writing of reports, including screening for Appropriate Assessment.

**Ms Heather Murray BSc MSc** completed surveys for this report. Heather is an Assistant Ecologist at INIS Environmental Consultants Ltd. Heather holds a BSc (Hons) in Animal and Conservation Biology from Edinburgh Napier University and a MSc in Environmental Management from the University of Stirling. She has completed a number of different ecological surveys including vantage point surveys, breeding bird transects, I-WeBS, and habitat surveys. In addition to this, Heather has also gained experience in bat transects, emergence and re-entry surveys on trees and buildings, static detector deployment and bioacoustics analysis as part of her role in the bat team.

**Ms Nicole Leadbetter BSc MSc** completed surveys for this report. She is an Assistant Ecologist at Inis Environmental Consultants Ltd. Nicole has achieved a BSc (Hons) in Animal & Conservation Biology from Edinburgh Napier University and a MSc (Hons) in Environmental Management from the University of Stirling. She has completed a variety of surveys including vantage point surveys, I-WeBS, habitat surveys, breeding bird transects. Nicole is also part of the bat survey team where she carries out emergence/re-entry surveys, transects, static detector deployment and bioacoustic analysis. Nicole is also a qualifying member of CIEEM.

**Ms Lisa Kavanagh BSc MSc** carried out some of the fieldwork detailed in this report. Lisa is an Assistant Ecologist at Inis Environmental Consultants Ltd. Lisa has achieved a BSc (Hons) in Zoology from the National University of Ireland, Galway and a MSc (Hons) in Biodiversity & Conservation from Trinity

College Dublin. She has completed a wide array of surveys including vantage point surveys, I-WeBS, hen harrier roost monitoring, mammal walkover surveys, habitat surveys, camera trapping and breeding bird transects. Lisa is also part of the bat survey team where she carries out emergence/re-entry surveys, transects, static detector deployment and bioacoustic analysis. Lisa holds a LANTRA accredited qualification in conservation detection dog handling and is a qualifying member of CIEEM.

**Ms Julie O'Hare BSc MSc (Agr)** conducted surveys detailed in this report. She has been employed at Inis Environmental Consultants Ltd. since January 2023 as an Assistant Ecologist. Julie received an honours in BSc in Zoology in 2018 and MSc (Agr)in Environmental Resource Management in 2021, both from University College Dublin. She has a special interest in waders and her BSc (Agr) research project involved reviewing the Curlew Conservation Programme's (CCP) data furthermore proposing methodology for more effective surveying. During her employment with Inis, Julie has conducted a variety of survey types for birds, bats, invertebrates, and small mammals for various renewable energy projects across Ireland. Such ornithological surveys include Vantage Point counts, Hen Harrier roost surveys, Kestrel/Peregrine/Barn Owl/Hen Harrier/Merlin Breeding surveys, I-WeBS, habitat surveys etc. all in alignment with Best Practice Guidelines.

**Ms Molly O'Hare BSc MSc** conducted surveys for this report**.** She was a Bat Ecologist with Inis Environmental Consultants Ltd, has a BSc in Ecology and Environmental Biology and an MSc in Marine Biology from University College Cork. Molly has extensive Bat Surveying and Handling experience ranging from Radio Tracking, Mist Netting, Harp Trapping and Hand Netting. She also has experience with carrying out Roost Assessments, Emergence/Re-entry Surveys and various exclusion practices. Molly also has experience in the preparation and writing of reports, including Ecology Reports and screening for Appropriate Assessment.

**Ms Emer Hannon BSc** conducted surveys for this report. She is an Assistant Technical Director with Inis and has a BSc in Ecology and Environmental Biology. She has bat surveying experience including Preliminary Roost Assessments and bat activity surveys such as Emergence/Re-entry. She has also worked with Bat Conservation Ireland as a volunteer for the All-Ireland Daubenton's Bat Waterways Surveys. She is experienced in Ecological Bird Survey techniques, both in the field and with data management. She has taken part in CIEEM led report writing training. She is a Qualifying member of CIEEM.

**Mr Cillian Burke BSc is an assistant** ecologist with Inis and checked this report. He has a BSc (Hons) in Environmental Science from the University of Galway. Cillian has experience in undertaking multi-disciplinary surveys including habitat and bat surveys, as well as supporting as an Ecological Clerk of Works. Cillian has authored ecological reports including AA Screening Reports, NIS, EcIA and Biodiversity Net Gain (BNG) Reports. Cillian reviewed this report.

**Dr Alex Copland BSc PhD MIEnvSc MCIEEM** is Technical Director with INIS and reviewed this report. He is a full member of both the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Institute of Environmental Sciences (IES) and has over 25 years of professional experience working in both statutory and private companies, in third-level research institutions and with environmental NGOs. He is proficient in experimental design and data analysis and has managed several large-scale, multi-disciplinary ecological projects. These have included research and targeted management work for species of conservation concern, the design and delivery of practical conservation actions with a range of stakeholders and end-users, education and interpretation on the interface between people and the environment and the development of co-ordinated, strategic plans

for birds and biodiversity. He has written numerous scientific papers, developed and contributed to evidence-based position papers, visions and strategies on birds and habitats in Ireland. He has supervised the successful completion of research theses for several post-graduate students, including doctoral candidates. He lectures to both undergraduate and post-graduate students at UCD, as well as being a collaborative researcher with both UCD and UCC. He also sits on the Editorial Panel of the scientific journal, *Irish Birds*, which publishes original ornithological research relevant to Ireland's avifauna.

# 2. DESCRIPTION OF PROPOSED DEVELOPMENT

## 2.1 Site Description

The proposed development is the establishment of the Oatfield Windfarm Project on elevated lands approx. 9.3km north of Limerick City, between Sixmilebridge and Broadford, County Clare.

The area of the proposed Oatfield Windfarm is located within forested and agricultural lands on the northern slopes of Slieve Bernagh mountain, approximately 4km northeast of the village of Broadford, 7km north-west of Killaloe and 2.5km south of the village of Bodyke, at its closest point. Lough Derg lies approximately 4km to the east of the proposed development area (**Figure 2.1**).

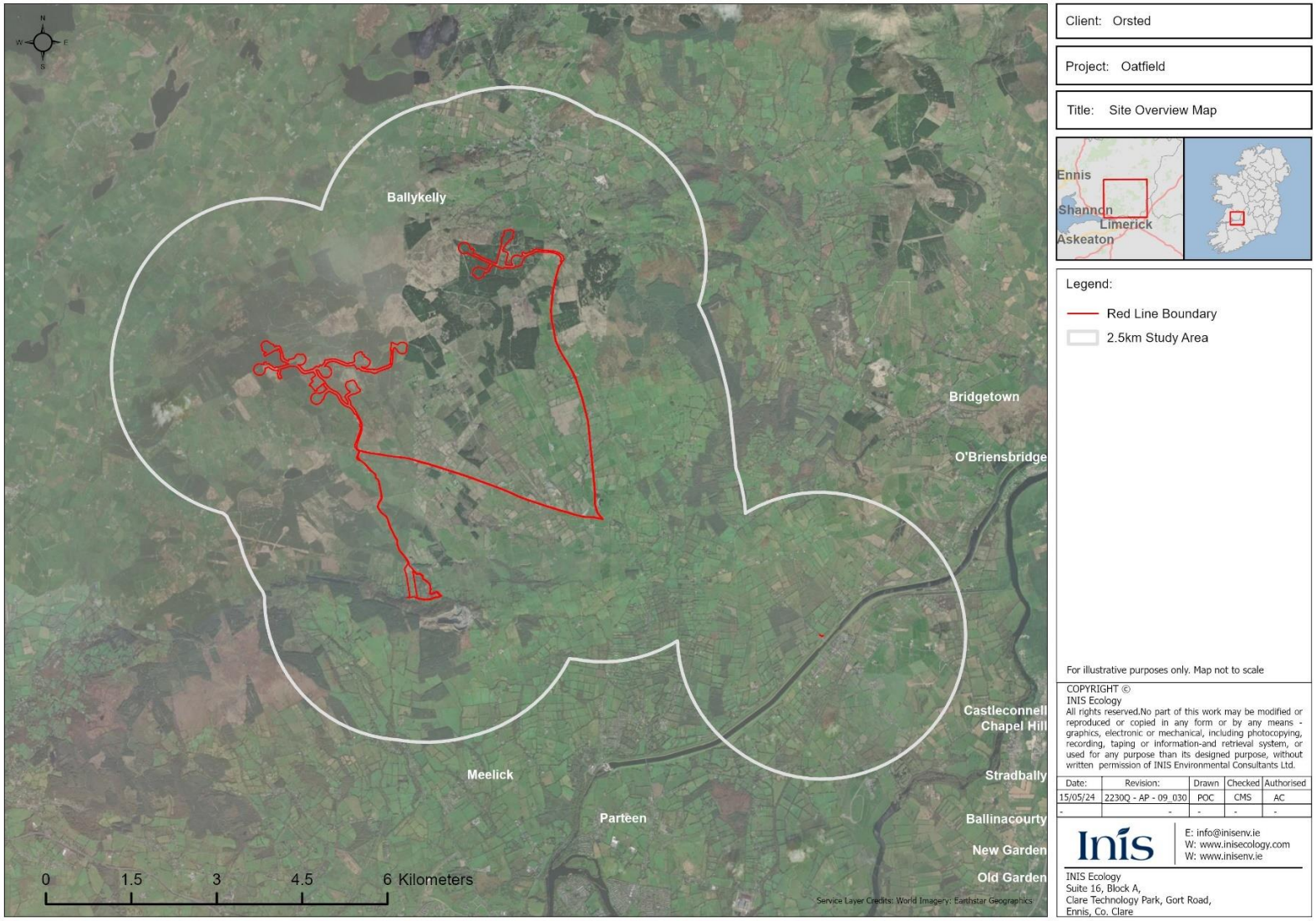


**Figure 2.1:** *Site overview map of the proposed works at Oatfield*

# 3. METHODOLOGY

## 3.1 Lesser Horseshoe Bat Roost Surveys

### 3.1.1 Desktop Review and Consultation

A desktop review was completed to identify relevant features of ecological importance for roosting Lesser Horseshoe Bats within the study area and surrounding region prior to the commencement of survey work. This involved an online assessment of relevant data on Lesser Horseshoe Bat from published or open-access data. A 2.5km buffer around the development site was established as this is the buffer zone around a roost in which suitable commuting and foraging habitat is important (NPWS & VWT, 2022).

Local NPWS staff were contacted to advise on the occurrence and location of any Lesser Horseshoe Bats within this buffer. A similar request was issued to Bat Conservation Ireland and the Vincent Wildlife Trust.

Two Lesser Horseshoe Bat roosts were identified during the desktop review within the 2.5km buffer (**Figure 3.1**). One is located northern boundary of the buffer was identified though communication with the NPWS, located at the Danes Hole, Poulnalecka SAC (NBDC, 2024). A second roost was identified from a submission received from the East Clare Environmental Protection CLG.

### 3.1.2 Preliminary Roost Assessment

A Preliminary Roost Assessment (PRA) was carried out at any structure that could support a Lesser Horseshoe Bat roost within 2.5km of the development site. PRAs were carried out during daylight hours to ascertain if there were any obvious signs of bat activity at the structure/potential roosting areas associated with the structure (NatureScot, 2021).

The aims of the PRA within the 2.5km turbine buffer area were to:

- Determine if Lesser Horseshoe Bats are currently present or have been present in the past;
- Estimate the number of bats;
- Determine the roost category or categories, e.g. the purpose and, therefore, the importance of the structure;
- Determine the bats' entry and exit points within the structure(s);
- Determine the bats' roosting locations within the structure(s);
- Determine the commuting corridors used by bats to and from their roost(s) with a description of any vegetation or other linear features of importance to bats; and

The structures identified within the 2.5km buffer area are searched systematically and consistently through all parts of the structure that were identified as suitable for bats and accessible by surveyor. Structures are searched externally for bats and signs of bat presence. Surfaces of structural surfaces were examined for the presence of droppings and feeding remains (e.g. moth wings, etc.). Structures were also examined for access points and roosting, polishing or scratching, urine and oily residue stains and for cavities suitable for roosting bats. Cavities and open areas were searched with a high-

powered torch. As bats sometimes do not leave visible signs of their presence. Structures are categorized by their roosting potential (negligible, low, moderate or high) which then determines the number of emergence surveys that are needed to be carried out (Collins, 2023; see

**Table 3.** 1).

**Table 3. 1***: Surveys recommended as a result of PRA (Collins, 2023).*

| Suitability (structures) | No. of surveys | Timing |
|---|---|---|
| **Low** | 1 Emergence Survey | May-Aug |
| **Moderate** | 2 Emergence Surveys | May-Sep (at least 1 between May-Aug) |
| **High** | 3 Emergence Surveys | May-Sep (at least 2 between May-Aug) |

### 3.1.3 Emergence Surveys

Dusk emergence surveys for Lesser Horseshoe Bats were carried out in suitable weather conditions. Surveys were carried out with an appropriate number of surveyors to visually cover all the potential roosting features of the building being surveyed. Surveys commenced 15 minutes before sunset and were completed 1.5 – 2 hours after sunset, as per Best Practice Guidance (Collins, 2023). If a Lesser Horseshoe Bat was observed emerging from the structure, its emergence location and time of emergence was recorded.

Bat emergence surveys were conducted with handheld bat detectors. The Anabat Walkabout and Elekon Batloggers were used by surveyors to identify bat species, based on their call frequencies.

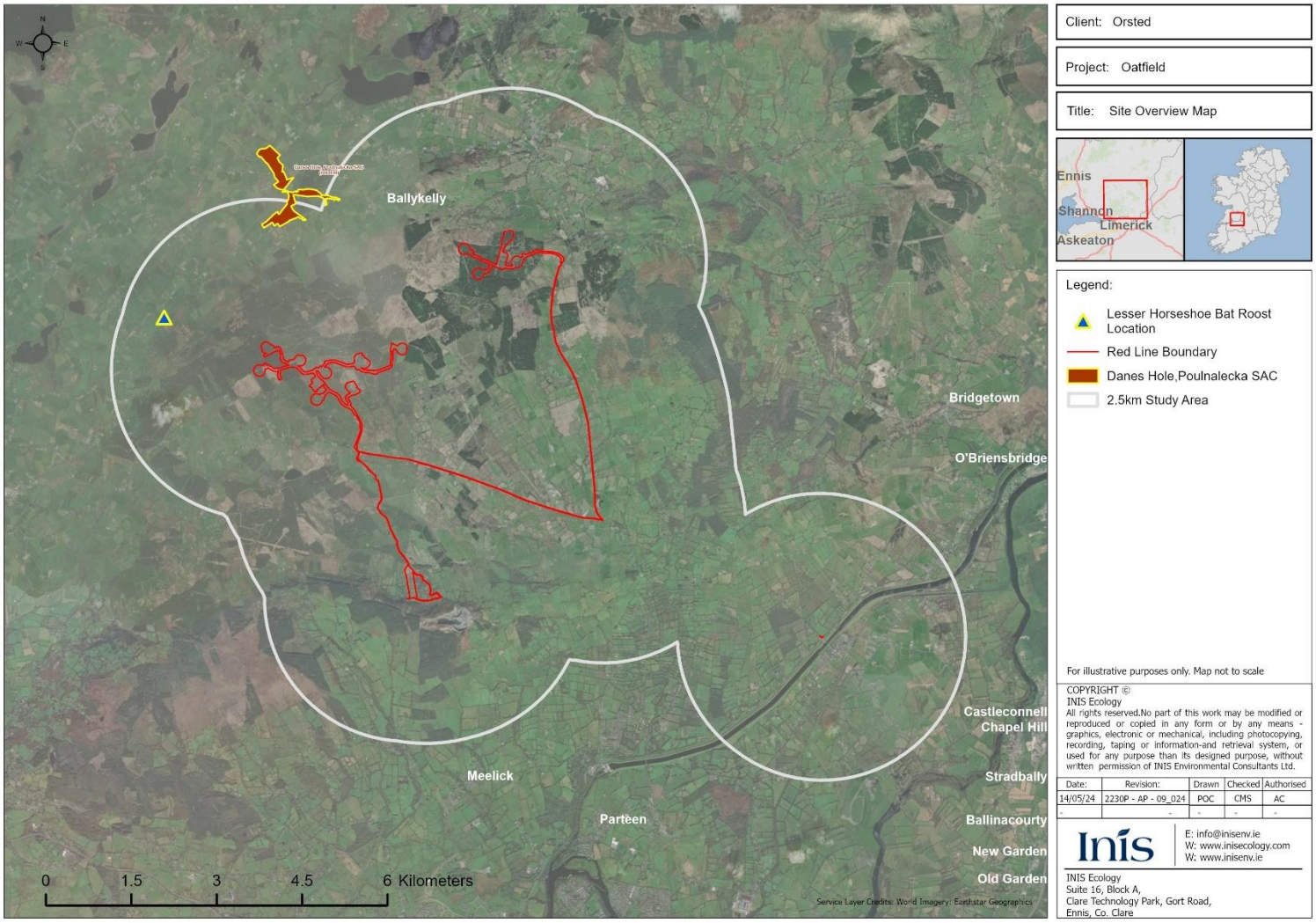


**Figure 3.1:** *Lesser Horseshoe Bat Roost Locations at Oatfield*

## 3.2 Lesser Horseshoe Activity Surveys

### 3.2.1 Night-time Bat Walkover Surveys

Night-time bat walkover surveys were carried out at locations between the known Lesser Horseshoe Bat roosts and the development site, following Best Practice Guidance (Collins, 2023). Surveyors stayed at the starting location for a minimum of 30 minutes, observing bat activity in the area. After at least 30 minutes they could move to follow any detected Lesser Horseshoe Bat activity. Four surveys were carried out with four survey locations each which sampled the habitats and commuting corridors that connect the known Lesser Horseshoe Bat roosts in the area and the proposed turbine locations. Locations of the night-time bat walkover surveys are shown in **Figure 3.2 – Figure 3.4**.

These walkovers were conducted with handheld bat detectors. The Anabat Walkabout and Elekon Batlogger were used by surveyors to identify any Lesser Horseshoe Bats, based on their distinctive call frequency. The number of Lesser Horseshoe Bats were recorded, along with their flightlines and direction. The walkovers were carried out as dusk surveys, starting at sunset and continuing 1.5 - 2 hours after sunset (Collins, 2023).

### 3.2.2 Static Detector Deployment

Ground level static detectors were deployed along commuting corridors that connect the known Lesser Horseshoe Bat roosts in the area and the development site (**Figure 3.5**). They were deployed for 20 consecutive nights, with a visit after 10 nights to replenish batteries and SD cards.

Commuting corridors were chosen along what would be the most likely routes that Lesser Horseshoe Bats would use to access the site area. These routes were along linear features such as hedgerows and treelines, with areas of suitable surrounding habitat and minimal disturbance.

The Anabat Express passive bat detector was used to collect data for the ground level static detector surveys. Bat calls from Anabat Express detectors were obtained in the zero-crossing format and were analysed and transformed using the Anabat Insight Software. The data was then analysed using Kaleidoscope Pro which allows for species identification of calls. Species identification was determined by the frequency and shape of calls recorded.

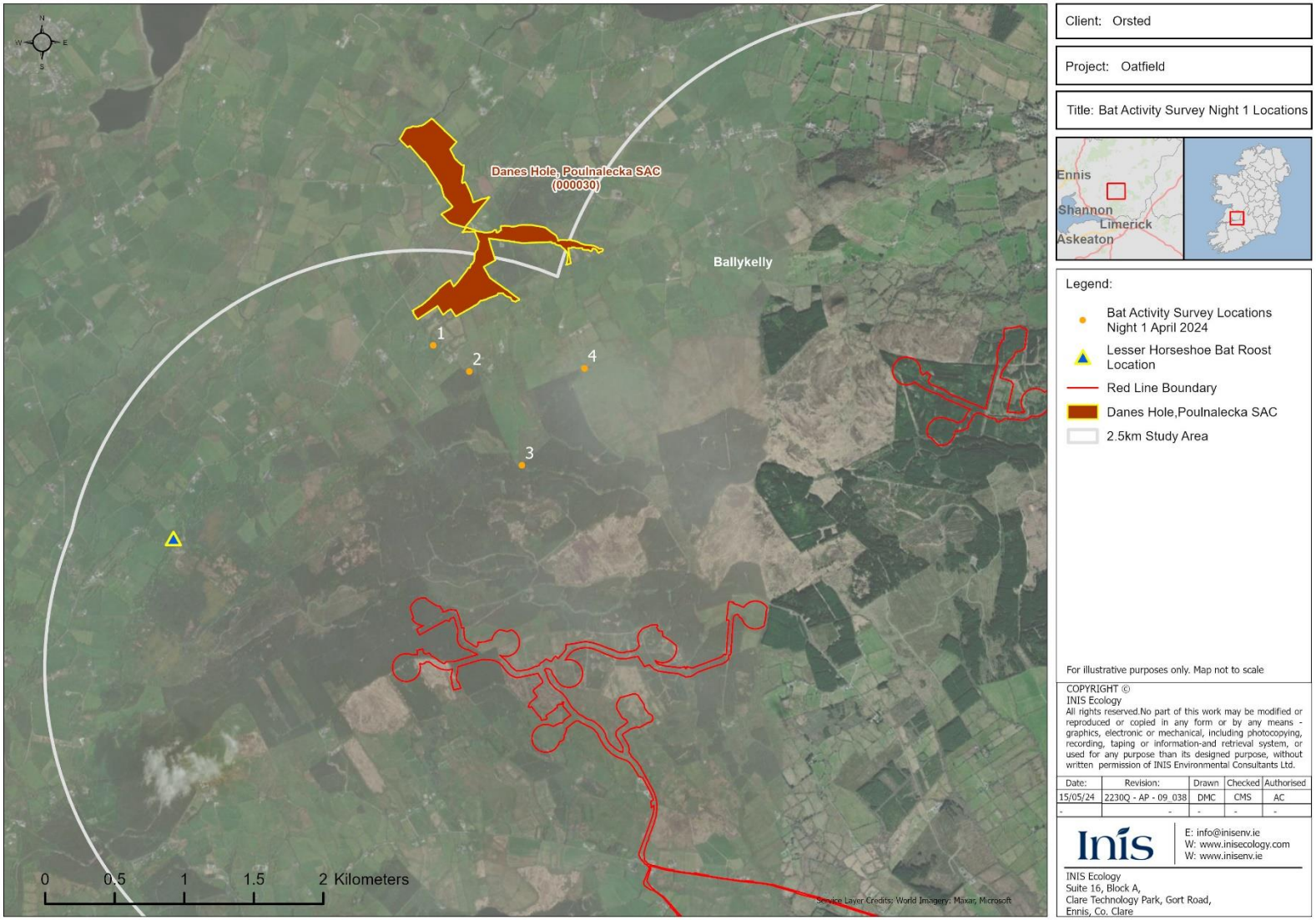


**Figure 3.2:** *Bat Walkover Survey Locations at Oatfield Night 1*

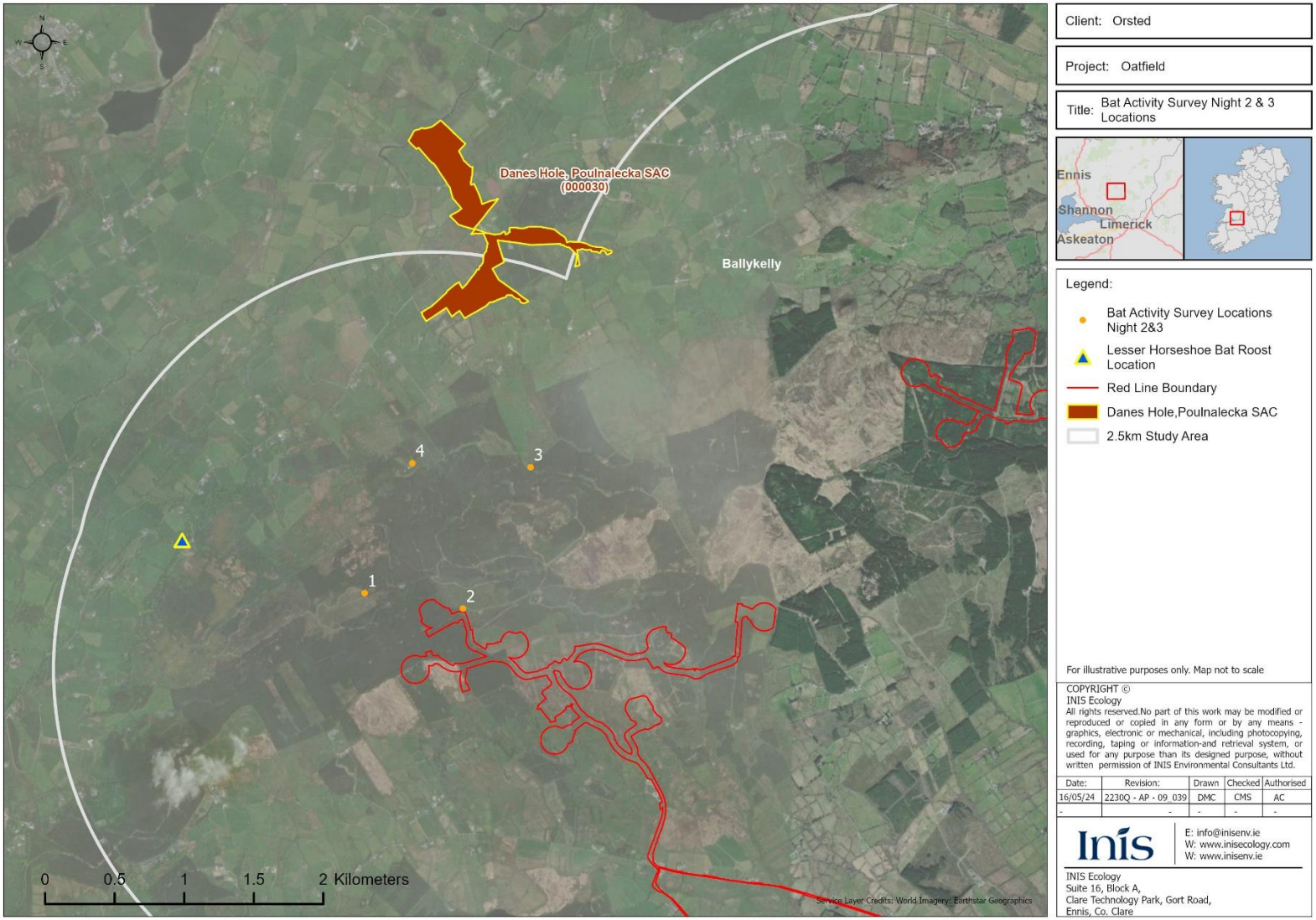


**Figure 3.3:** *Bat Walkover Survey Locations at Oatfield Night 2 and 3*

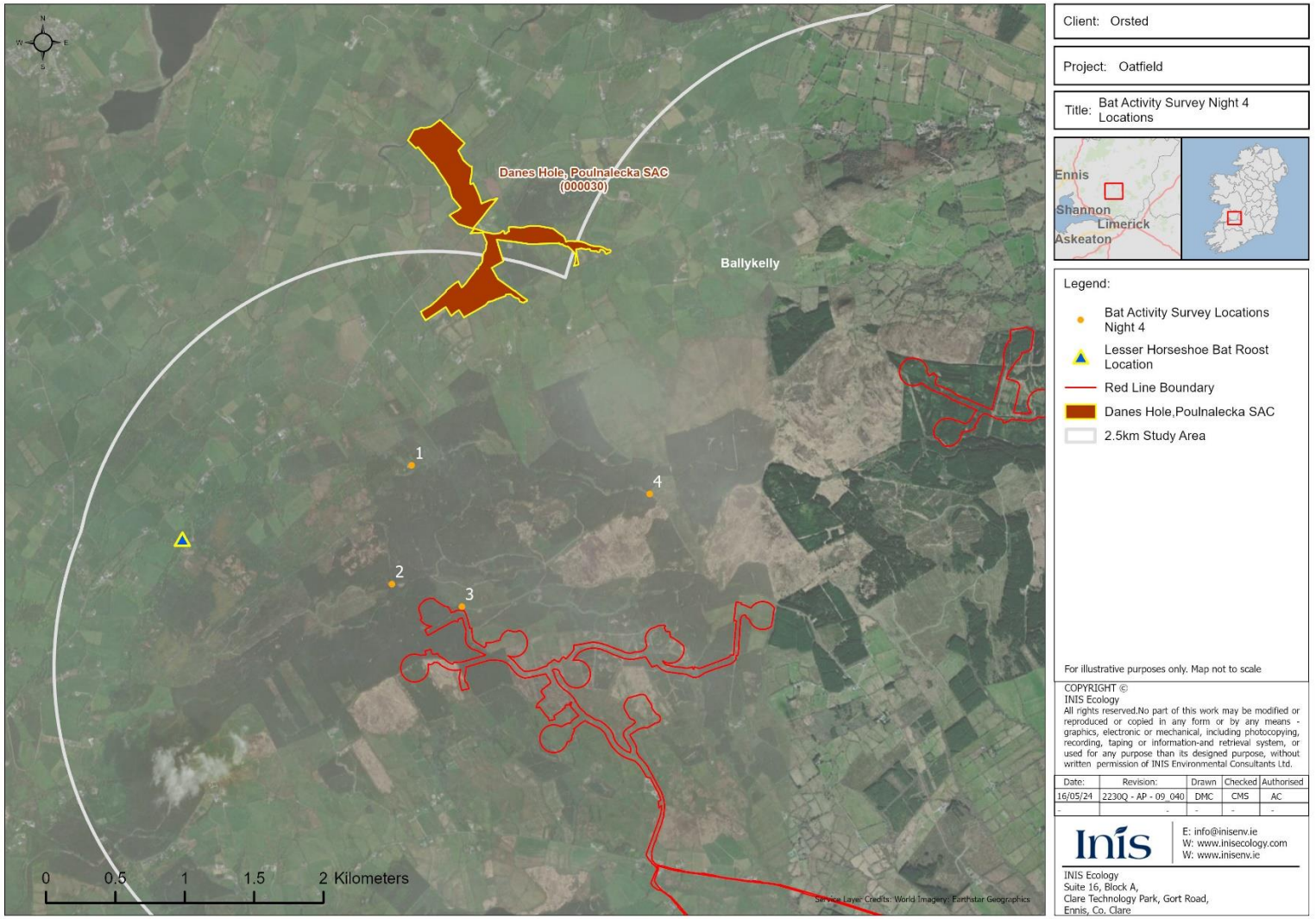


**Figure 3.4:** *Bat Walkover Survey Locations at Oatfield Night 4*

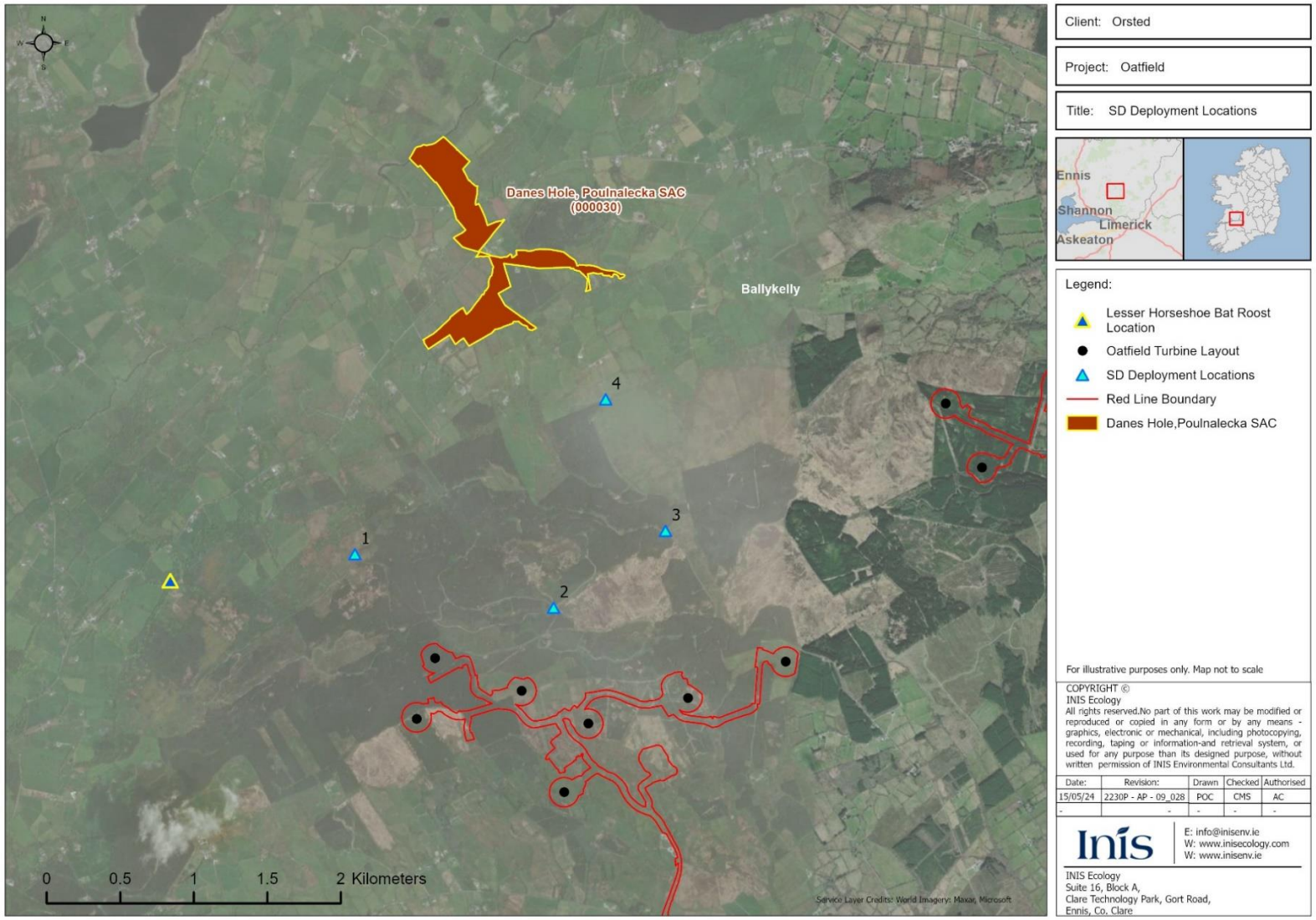


**Figure 3.5:** *Static Detector Deployment Locations at Oatfield*

## 3.3 Turbine Delivery Route Surveys

### 3.3.1 Preliminary Roost Assessment

A PRA was carried out along the Turbine Delivery Route (TDR) at any structure that could support a bat roost. This included bridges, water crossings and nodes where the road will be widened to facilitate the turbine delivery. PRAs were carried out during daylight hours to ascertain if there were any obvious signs of bat activity at the structure/potential roosting areas associated with the structure (NatureScot, 2021).

The aims of the PRAs along the TDR were to:

- Determine if bats are currently present or have been present in the past;
- Estimate the number of bats;
- Determine the roost category or categories, e.g. the purpose and, therefore, the importance of the structure;
- Determine the bats' entry and exit points within the structure(s);
- Determine the bats' roosting locations within the structure(s);
- Determine the commuting corridors used by bats to and from their roost(s) with a description of any vegetation or other linear features of importance to bats; and

The structures identified were searched systematically and consistently through all parts of the structure that were identified as suitable for bats and accessible by surveyor. Structures are searched externally for bats and signs of bat presence. Surfaces of structural surfaces were examined for the presence of droppings and feeding remains (e.g. moth wings, etc.). Structures were also examined for access points and roosting, polishing or scratching, urine and oily residue stains and for cavities suitable for roosting bats. Cavities and open areas were searched with a high-powered torch. As bats sometimes do not leave visible signs of their presence. Structures are categorized by their roosting potential (negligible, low, moderate or high) which then determines the number of emergence surveys that are needed to be carried out (Collins, 2023; see **Table 3.** 1).

### 3.3.2 Emergence Surveys

Dusk emergence surveys for were carried out in suitable weather conditions at locations identified during the PRA. Surveys were carried out with an appropriate number of surveyors to visually cover all the potential roosting features of the structure being surveyed. Surveys commenced 15 minutes before sunset and were completed 1.5 – 2 hours after sunset, as per Best Practice Guidance (Collins, 2023). If a bat was observed emerging from the structure, its emergence location, time of emergence and species was recorded.

Bat emergence surveys were conducted with handheld bat detectors. The Anabat Walkabout and Elekon Batloggers were used by surveyors to identify bat species, based on their call frequencies.

# 4. RESULTS

## 4.1 Lesser Horseshoe Bat Roost Surveys

### 4.1.1 Preliminary Roost Assessment

The PRA for Lesser Horseshoe Bat roosts was carried out on 15th April 2024. One building BL1 was identified with moderate roosting potential (**Table 4.1**). The location of BL1 within the buffer one can be seen in **Figure 4.1**.

**Table 4.1:** *PRA Survey Results*

| Structure Code | Bat Roosting Suitability | Surveys Needed | ITM | Structure Type |
|---|---|---|---|---|
| BL1 | Moderate | 2 Emergence Surveys | 554244, 668056 | Abandoned stone building, broken windows with several access points |

### 4.1.2 Emergence Survey

One dusk emergence survey was carried out at BL1 which was identified as having moderate potential for roosting Lesser Horseshoe Bats. The survey was completed on the 2nd May, with no bat roost recorded at this location (**Table 4.2**). A second emergence survey at BL1 had to be cancelled due to poor weather conditions with persistent heavy rain. The results of the emergence survey at BL1 of can be seen in **Figure 4.2**.

**Table 4.2:** *BL1 Emergence Survey Results*

| Structure | Date | Survey Type | Lesser Horseshoe Bats Recorded |
|---|---|---|---|
| BL1 | 2nd May | Emergence | No |

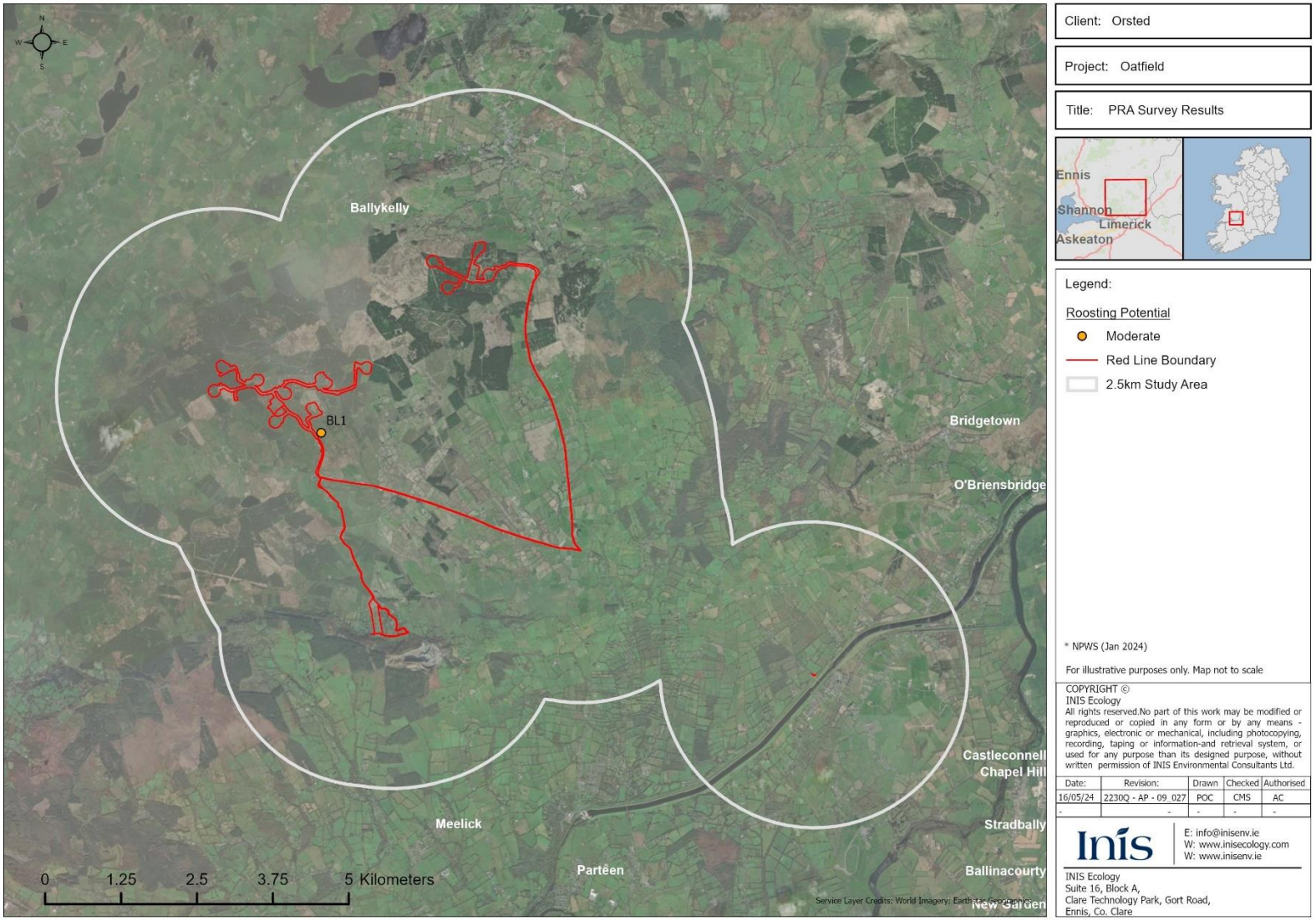


**Figure 4.1:** *Lesser Horseshoe Preliminary Roost Survey Results*

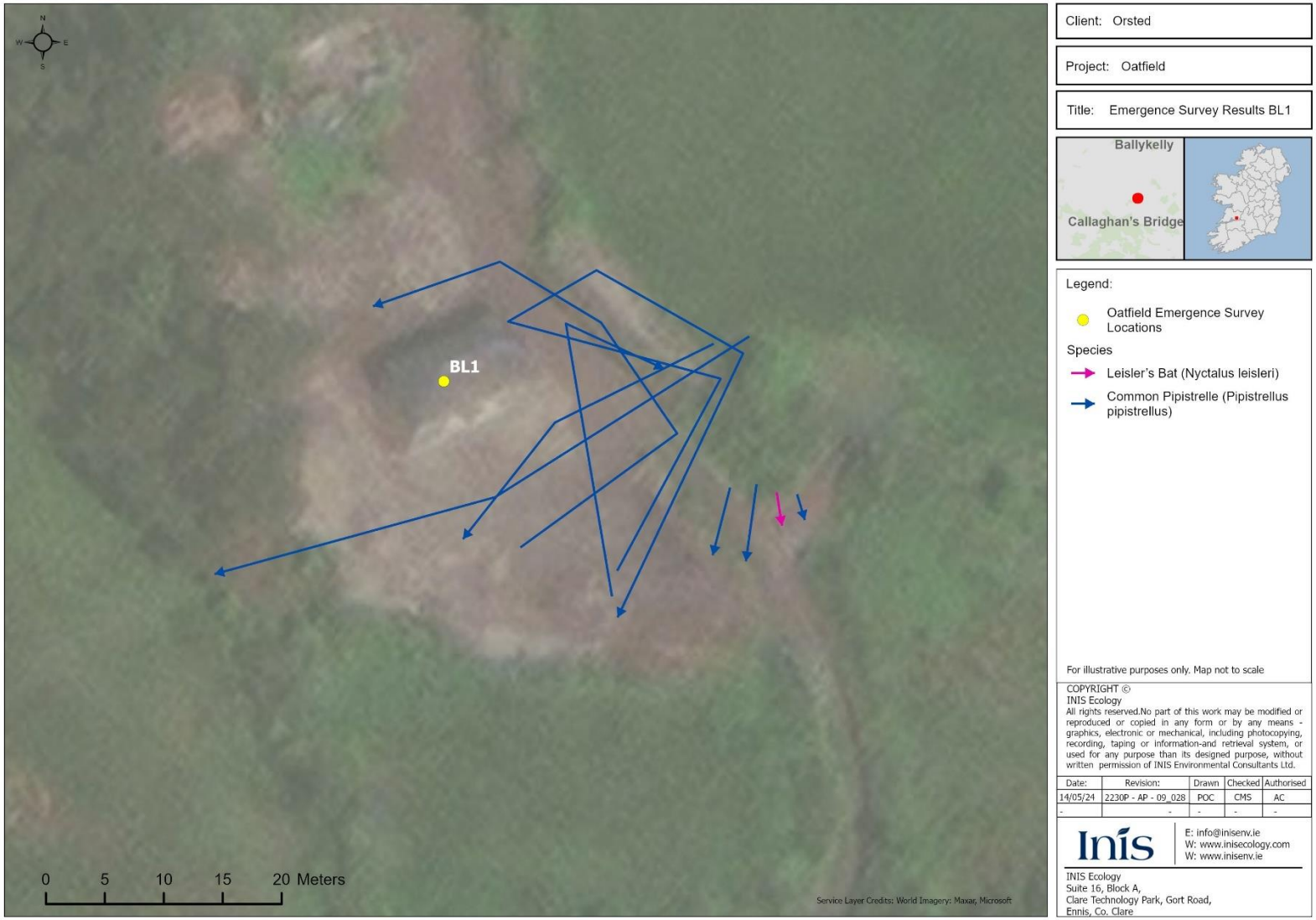


**Figure 4.2:** *BL1 Emergence Survey Results.*

## 4.2 Lesser Horseshoe Bat Activity Surveys

### 4.2.1 Night-time Bat Walkover Surveys

Four night-time bat walkover surveys were carried out with four surveyor locations each. The first survey on 18th April was carried out at locations along the access road adjacent to the known roost at Danes Hole, Poulnalecka SAC. The subsequent walkover surveys were carried out along the treelines and forestry tracks that connect the known roost locations and the planned development site.

Lesser Horseshoe Bats were recorded at surveyor locations 1, 2 and 3 on the first walkover survey on 18th April. None were recorded at any of the locations on any of the three subsequent walkover surveys (**Table 4.3**).

**Table 4.3:** *Night-time Bat Walkover Survey Results*

| Date | Surveyor Location | Lesser Horseshoe Bat Recorded | Behaviour | Occurrence (no. of flight passes) |
|---|---|---|---|---|
| ***18th April*** | **1** | Yes | Commuting | 3 |
| | **2** | Yes | Commuting | 5 |
| | **3** | Yes | Commuting | 20 |
| | **4** | No | - | - |
| ***24th April*** | **1** | No | - | - |
| | **2** | No | - | - |
| | **3** | No | - | - |
| | **4** | No | - | - |
| ***7th May*** | **1** | No | - | - |
| | **2** | No | - | - |
| | **3** | No | - | - |
| | **4** | No | - | - |
| ***14th May*** | **1** | No | - | - |
| | **2** | No | - | - |
| | **3** | No | - | - |
| | **4** | No | - | - |

### 4.2.2 Static Detector Deployments

Four static detectors were deployed on the 19th April and collected on the 9th May, for 20 nights in total. The activity levels for Lesser Horseshoe Bat at each detector location can be seen in **Table 4.4** and **Figure 4.3** and **Figure 4.4**. The full set of data can be found in **Appendix A**.

**Table 4.4:** *Bat Activity Recorded by Static Detectors*

| Detector Location | Nights Active | Number of Lesser Horseshoe Bat Calls |
|---|---|---|
| 1 | 20 | 43 |
| 2 | 20 | 7 |
| 3 | 20 | 20 |
| 4 | 20 | 16 |

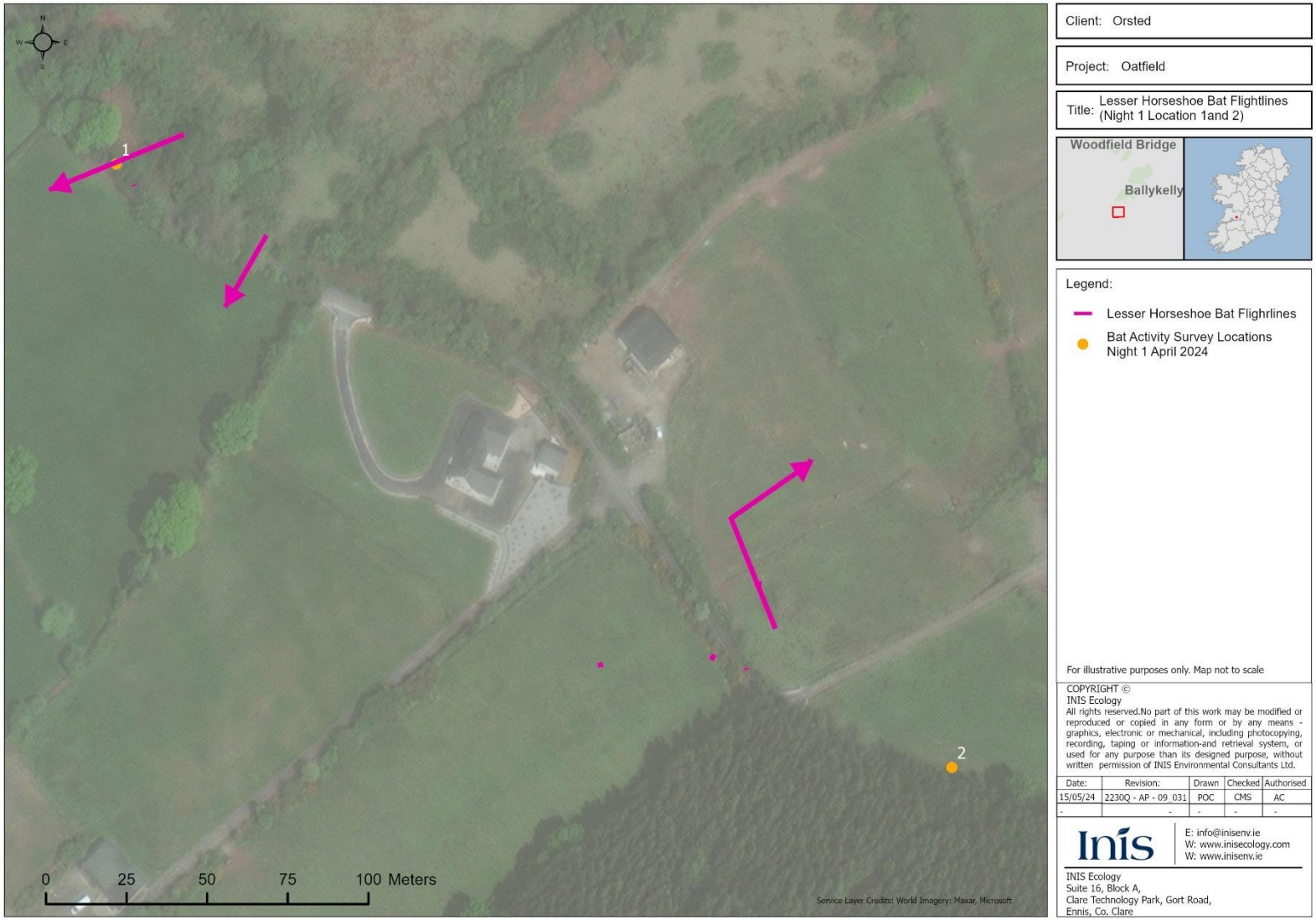


**Figure 4.3:** *Night-time Bat Walkover Survey Results Night 1 Location 1 and 2*

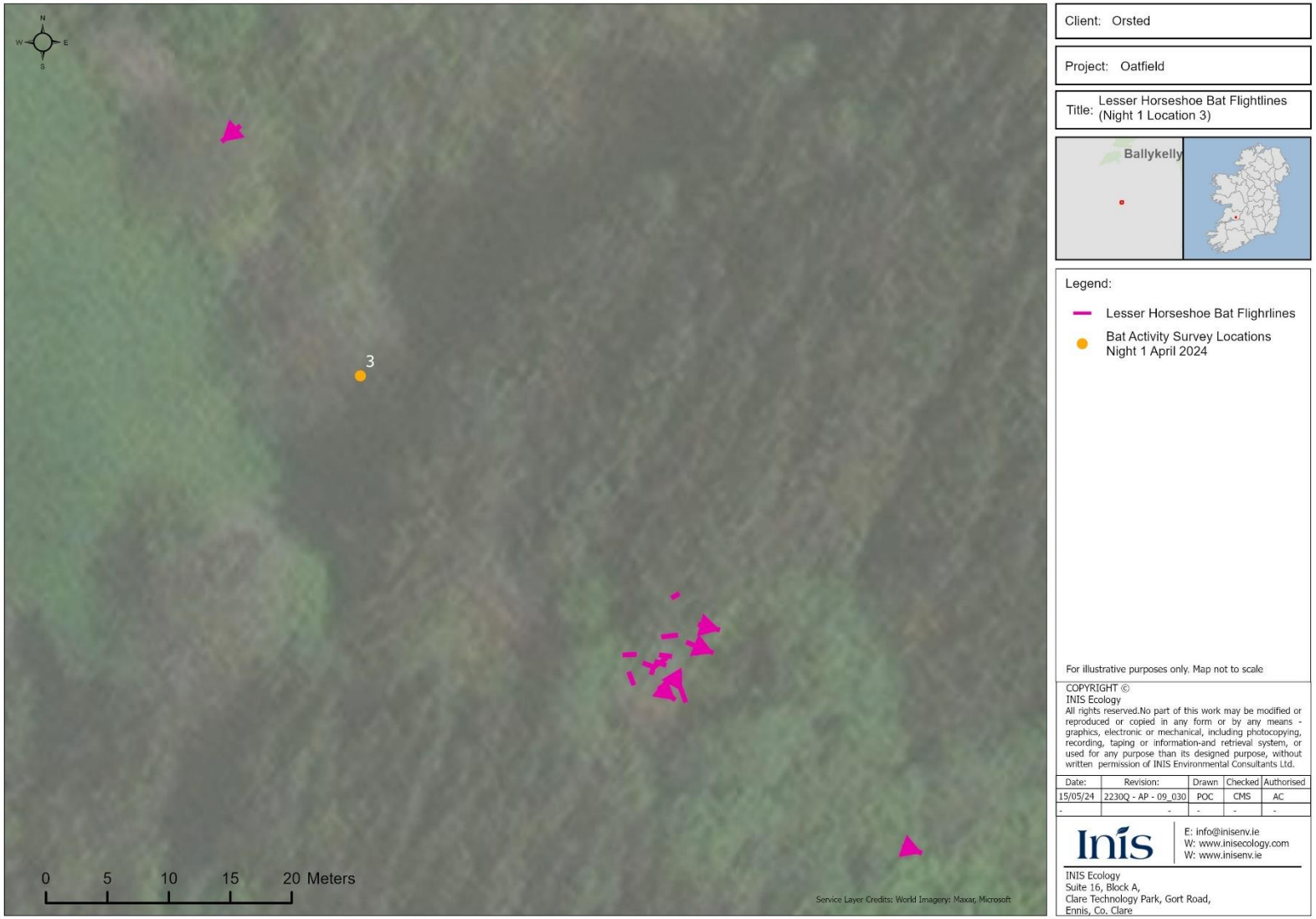


**Figure 4.4:** *Night-time Bat Walkover Survey Results Night 1 Location 3*

## 4.3 Turbine Delivery Route Surveys

### 4.3.1 Preliminary Roost Assessment

The PRA along the TDR was carried out on 16th April 2024 (**Figure 4.5**). The survey identified two water crossings with low potential for roosting bats as seen in **Table 4.5** below.

**Table 4.5:** *Turbine delivery route PRA survey results*

| Structure Code | Bat Roosting Suitability | Surveys Needed | ITM | Structure Type |
|---|---|---|---|---|
| WC9 | Low | 1 Emergence Survey | 559989, 665895 | Small bridge with gaps and crevices in stone underneath |
| WC14 | Low | 1 Emergence Survey | 558310, 667274 | Small bridge with gaps and crevices in stone underneath |

### 4.3.2 Emergence Surveys

The PRA surveys identified two water crossings to be surveyed for bat roosting. One dusk emergence was completed at each water crossing identified as low potential. WC9 was surveyed on 14th May 2024, with no roost confirmed at this location. Survey results for WC9 can be seen below in **Table 4.6** and **Figure 4.6**.

**Table 4.6:** *WC9 Emergence Survey Results*

| Species | Behaviour | Occurrence (no. of flight passes) |
|---|---|---|
| Common Pipistrelle | Commuting | 8 |
| | Foraging | 132 |
| | Emerging | 0 |
| Soprano Pipistrelle | Commuting | 7 |
| | Foraging | 53 |
| | Emerging | 0 |
| Leisler's Bat | Commuting | 9 |
| | Foraging | 4 |
| | Emerging | 0 |

WC14 was surveyed on 15th May 2024, with a confirmed Soprano Pipistrelle roost found at this location. Survey results for WC14 can be seen below in **Table 4.7** and **Figure 4.7**

**Table 4.7:** *WC14 Emergence Survey Results*

| Species | Behaviour | Occurrence (no. of flight passes) |
|---|---|---|
| Common Pipistrelle | Commuting | 3 |
| | Foraging | 20 |
| | Emerging | 0 |
| Soprano Pipistrelle | Commuting | 12 |
| | Foraging | 41 |
| | Emerging | 2 |
| Leisler's Bat | Commuting | 5 |
| | Foraging | 2 |
| | Emerging | 0 |

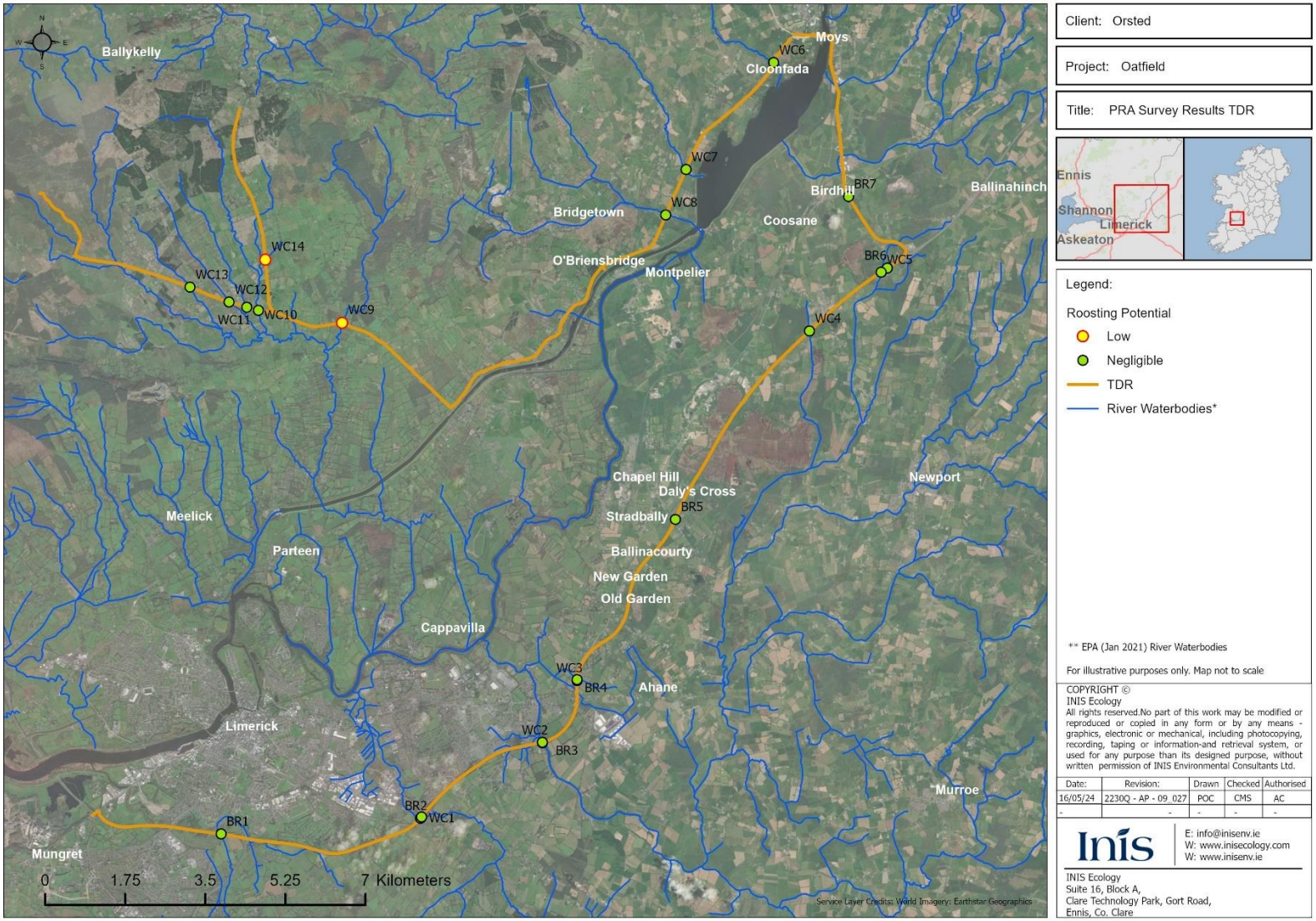


**Figure 4.5:** *Turbine Delivery Route PRA*

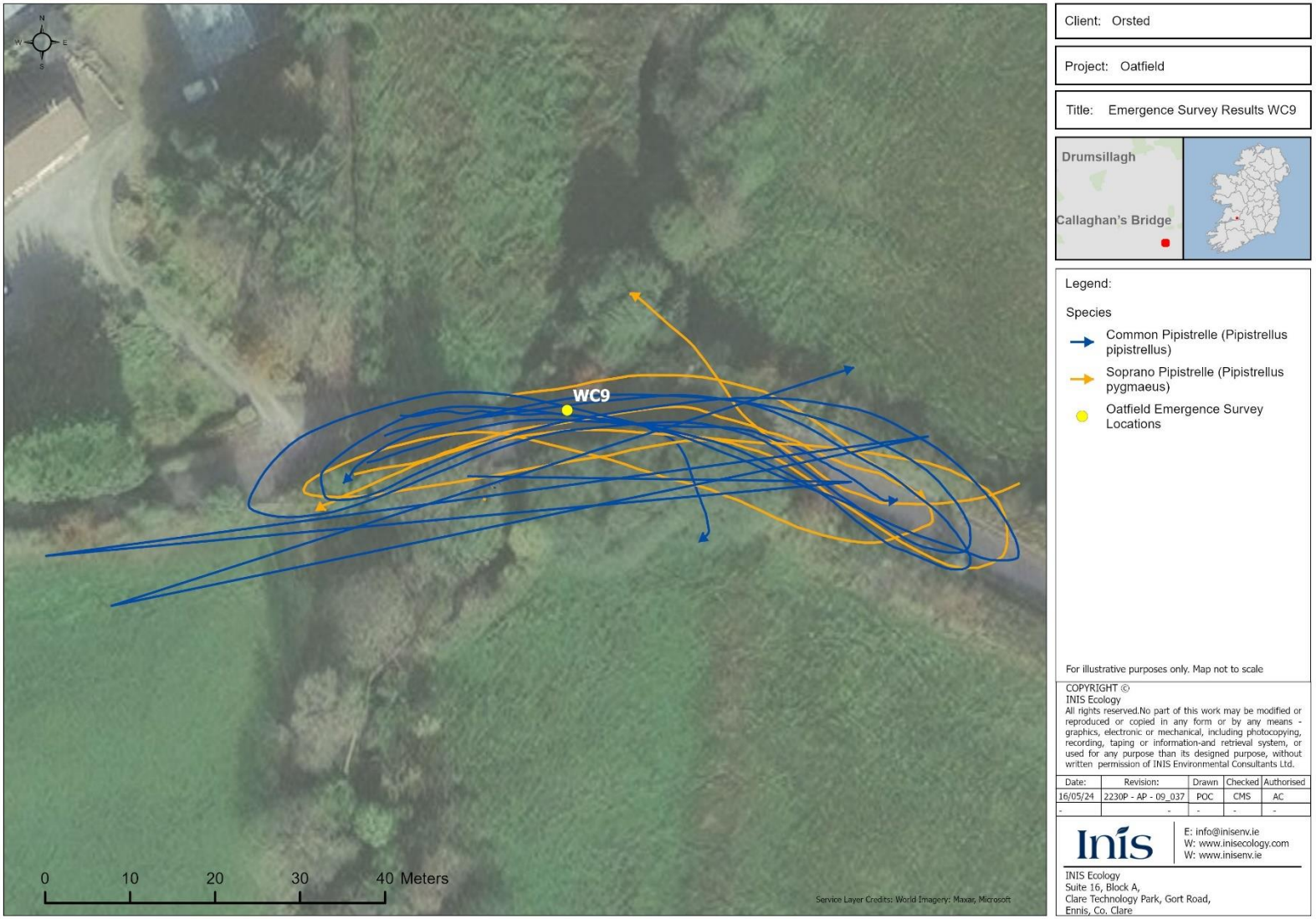


**Figure 4.6:** *WC9 Emergence Survey Results*


**Figure 4.7:** *WC14 Emergence Survey Results*

# 5. DISCUSSION

## 5.1 Assessment Lesser Horseshoe Bat Roost Surveys

During the PRA, BL1 was identified to be of moderate suitability for roosting Lesser Horseshoe Bats. As a result of the Emergence survey, BL1 was not identified as a Lesser Horseshoe Bat roost during the survey period.

## 5.2 Assessment Lesser Horseshoe Bat Activity Surveys

The first walkover survey was carried out along the road adjacent to the Lesser Horseshoe Bat roost at Danes Hole, Poulnalecka SAC and recorded commuting Lesser Horseshoe Bats at three of the four locations. The subsequent three walkover surveys were carried out along the commuting areas that connect the known Lesser Horseshoe Bat roosts with the proposed development site. No Lesser Horseshoe Bats were recorded at any of the locations at these three walkover surveys.

The deployed static detectors recorded Lesser Horseshoe Bat at all four locations. The low numbers per night suggest that the locations are being used as commuting pathways for small numbers of Lesser Horseshoe Bat.

## 5.3 Assessment of Static Turbine Delivery Route Surveys

During the PRA along the TDR, WC9 and WC14 were identified as low suitability for roosting bats.

As a result of Emergence surveys, WC9 was not identified as a bat roost during the survey period. The emergence survey results do suggest that Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Leisler's Bat *Nyctalus leisleri* are commuting through the area and foraging on site.

The emergence survey at WC14 found a Soprano Pipistrelle roost found at this location, with an emerging Soprano Pipistrelle observed at the water crossing. There were also Common Pipistrelle and Leisler's Bat observed commuting and foraging at the site.

# 6. REFERENCES

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# APPENDIX A: STATIC DETECTOR DEPLOYMENT

| Static Detector Deployment | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Night** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **Total Lesser Horseshoe Bat Records** |
| **Location 1** | | | | | | | | | | | | | | | | | | | | | |
| Lesser Horseshoe Bat | 4 | | 5 | | 3 | 4 | | 2 | | | 3 | | 1 | 2 | 4 | 2 | 5 | 8 | | | 43 |
| **Location 2** | | | | | | | | | | | | | | | | | | | | | |
| Lesser Horseshoe Bat | 1 | | 2 | | | 1 | | | | | | | | | 1 | | 2 | | | | 7 |
| **Location 3** | | | | | | | | | | | | | | | | | | | | | |
| Lesser Horseshoe Bat | 2 | 1 | 2 | 3 | | 4 | | | | | | | 1 | | 2 | 1 | 3 | 1 | | | 20 |
| **Location 4** | | | | | | | | | | | | | | | | | | | | | |
| Lesser Horseshoe Bat | | | | | | 1 | | | | | | 5 | | 2 | 2 | | 4 | 2 | | | 16 |