APPENDIX 5.4

Community Benefit Framework for Red Admiral

Final Report January 2026

Data Centres have become a critical part of Ireland's Digital Infrastructure and contribute to high value job creation, local economic growth, and the development of the digital economy. They attract investment, facilitate technological innovation, and provide essential infrastructure for enterprise, ultimately boosting economic activity. Development policy is increasingly recognising the need for such developments to demonstrate a community benefit in a responsible way through delivering economic, environmental and social impacts.

The Red Admiral Data Centre seeks to act as a model of best practice in this sphere by ensuring that its activity is in harmony with the local economy and community and where possible new opportunities and investment flow directly to the local labour market, local supply chain and the local communities where the facility is hosted.

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1. Introduction

The Red Admiral Data Centre (DC) Facility and Decentralised Energy Resource (DER) development proposal at Castlelost in County Westmeath will exemplify the optimum future model for delivering the twin objectives of Digitalisation and Decarbonisation at the fore of national development policy in Ireland. The project is by any measure a massive boost for the local and regional economy, with well in excess of €1bn investment to develop this expansive project. Some of the key economic outputs and indicators are highlighted in the infographic on the following page.

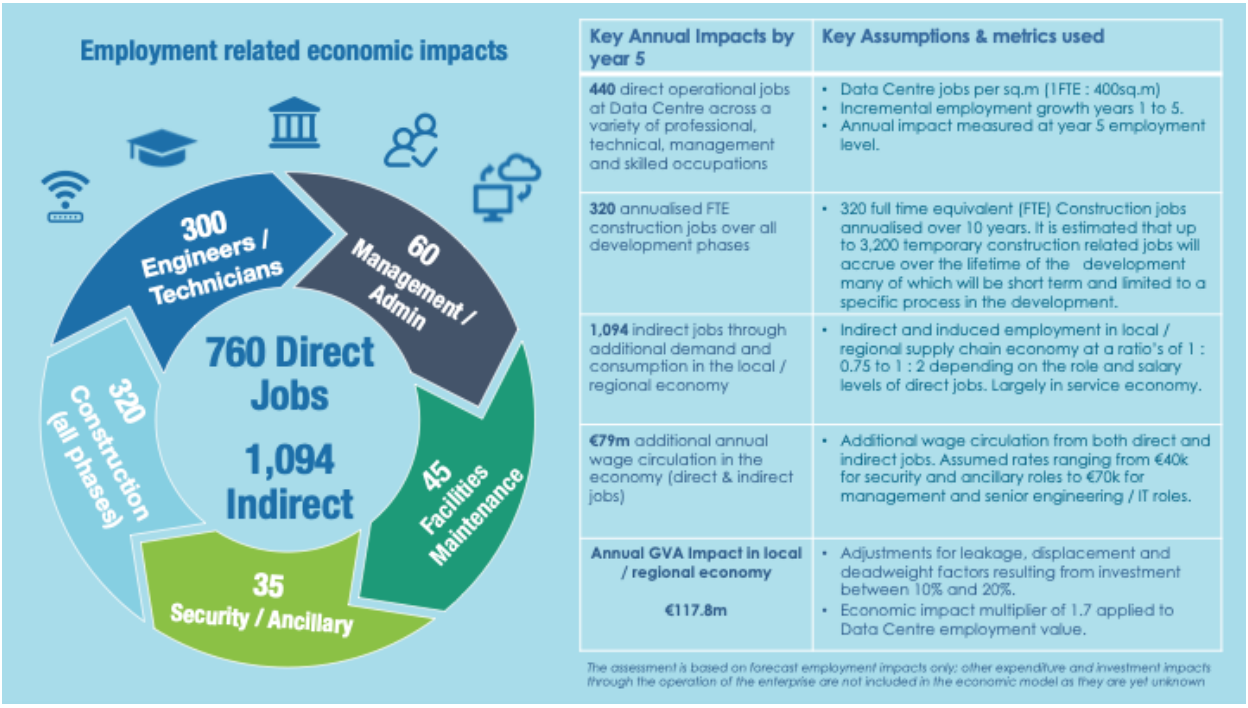
The project offers lessons for the design and integration of next generation DC development which reflects the 6 key principles set out in the Government's policy statement on data centres (2022). This includes regional location preference to support balanced regional development; co-located renewable power generation solar and fuel cells, energy storage,; economic benefit to the host location and local enterprise ecosystem (particularly SME's); strategic grid connection and efficiency; and decarbonised design codes leading to net zero data services.

Chief among these strategic priorities is the regional development impact resulting from the significant investment in the future economy in an area undergoing economic restructuring away from fossil fuels extraction and processing to a decarbonised cleantech economy with new and higher value employment and skills. Red Admiral can play a critical role in prioritising recruitment of labour from the local area and procurement of goods and services from the local and regional SME community. This investment, in turn, will lead to significant secondary investment by new enterprises and a continuous transition in the regional economic base.

Meeting the demand for future data centres will require a more robust criteria based approach to proposed projects than in the past. The Red Admiral project has carefully incorporated these critical considerations and principles to ensure current and future policy and compliance is respected and demonstrated.

In addition to the significant employment and enterprise outcomes the project will also support a variety of local community benefit initiatives through local sports clubs, schools and charitable groups.

This report sets out to provide an initial assessment of Community Benefit, and to outline a framework and set of principles for informing a fully-fledged Community Benefit Scheme or fund once the project is developed and operational.



Key Annual Impacts by year 5	Key Assumptions & metrics used
440 direct operational jobs at Data Centre across a variety of professional, technical, management and skilled occupations	• Data Centre jobs per sq.m (1FTE : 400sq.m) • Incremental employment growth years 1 to 5. • Annual impact measured at year 5 employment level.
320 annualised FTE construction jobs over all development phases	• 320 full time equivalent (FTE) Construction jobs annualised over 10 years. It is estimated that up to 3,200 temporary construction related jobs will accrue over the lifetime of the development many of which will be short term and limited to a specific process in the development.
1,094 indirect jobs through additional demand and consumption in the local / regional economy	• Indirect and induced employment in local / regional supply chain economy at a ratio's of 1 : 0.75 to 1 : 2 depending on the role and salary levels of direct jobs. Largely in service economy.
€79m additional annual wage circulation in the economy (direct & indirect jobs)	• Additional wage circulation from both direct and indirect jobs. Assumed rates ranging from €40k for security and ancillary roles to €70k for management and senior engineering / IT roles.
Annual GVA Impact in local / regional economy **€117.8m**	• Adjustments for leakage, displacement and deadweight factors resulting from investment between 10% and 20%. • Economic impact multiplier of 1.7 applied to Data Centre employment value.

The assessment is based on forecast employment impacts only; other expenditure and investment impacts through the operation of the enterprise are not included in the economic model as they are yet unknown

The development of a formal Community Benefit support structure and fund arising from the Red Admiral development at Castlelost in Co. Westmeath will be informed by a number of factors including:

- policy and regulation towards local economic impact and community benefit;
- local and regional needs and priorities;
- best practice in delivering support from large commercial or infrastructure projects;
- scale of the investment and returns by the operator;
- nature of the operation and how it can best transfer benefit to the community;
- the relationship and understanding of the community in which the project sits.

Lumcloon Energy Group, the promoter of the Red Admiral development, has a strong track record of engaging with local communities in which they have projects.

Through their earlier development, Castlelost FlexGen, located adjacent to the Red Admiral site, Lumcloon Energy has established a positive relationship with residents and community organisations. To date, Castlelost FlexGen has made numerous donations to the local community across a broad spectrum of organisations, in Sport and Recreation, Education, Heritage and Wellbeing. These contributions reflect the company's commitment to strengthen and support the local community.

This direct local approach and connection to the community groups and structures will be key to developing an appropriate model of community benefit as the Red Admiral project progresses towards the development phase (4 to 6 years) and thereafter the operation of the campus.

While it is not possible, or appropriate, to set out the exact scale or mechanism of community benefit at this stage, it is important to begin to develop a framework and set of principles to guide the final scheme design and implementation model.

This document sets out a framework and strategy for community benefit based on prior experience; research findings and good practice in the field; policy and regulation and interpretation of what the local community needs and aspirations are beyond the natural economic benefits that will flow from the project.

2. Context of this report

This brief report is intended to provide a set of principles and a framework for the Red Admiral development project to design and deliver a fitting Community Benefit Fund or Scheme over the course of its development and into its operational phase.

It is anticipated that this operational phase will commence in 2030 and scale up over the following two to four years before becoming fully operational at full capacity. It is important to acknowledge that some of the key variables that will be fundamental to any future Community Benefit Fund/Scheme are yet unknown. Therefore, it is prudent to set the direction and the principles for the final design and implementation of the scheme well in advance of its commencement.

The establishment of the framework at this stage is to either address queries or expectations and to enable discussions with stakeholders in the community and statutory agencies to build confidence and trust in the process of moving towards a final scheme for community benefit.

In particular, this framework for community benefit will provide an opportunity to:

1. Substantiate a response to the need for a formal community benefit programme to accompany the development.
2. Respond to requests for further information regarding the future community benefit as part of the planning process.
3. Establish dialogue with the relevant community forums and representatives. The initial stakeholder consultation has focused on regional and county level agencies / organisations, which was deemed to be an appropriate mechanism at this stage of project development. Within this context the LECP and LCDC were seen at the paramount strategy and structure to focus our assessment of the community benefit potential of the project.
4. Set out the scope of future community engagement once the development commences. The framework in Section 5 of this report outlines a proposed methodology through which a more comprehensive stakeholder consultation will be undertaken when the project moves from the planning to implementation stage.

2. Best Practice in Community Benefit Models

The Irish government's Guide for Inclusive Community Engagement in Local Planning and Decision Making is a helpful resource for Community Benefit Funds that can be used to help ensure that marginalised and disadvantaged communities have opportunities to participate in all stages of decision-making, and can share in the benefits of the funds allocated.[1] The guide provides practical checklists and case studies that illustrate how effective and meaningful community engagement can be achieved at the planning, information-sharing, decision-making, and review stages of a public project.

Gresham Smith Guide for Community Engagement

In the US, Gresham Smith – a prestigious architecture, engineering, design, and consulting firm involved in large-scale infrastructure projects – offers a guide on appropriate ways to support community engagement.[2] It highlights practical considerations alongside the ethical issues noted above. The 10 steps Gresham Smith identify are framed here within the Irish context.

10 steps for better community engagement	**Framing within the Irish setting**
1. Engage early and often with the local community	Prepare a community engagement framework, which ensures communication is two-way in nature. Traditional communications campaigns focus on information-giving, but good engagement ensures there are avenues through which members of the local community can engage with the developer/generator.
2. Highlight the project's community benefits	Community benefit funds often add value to large scale infrastructure projects, with case studies and photographs providing a clear and accessible narrative that demonstrates community benefits and helps communicate them to a local audience.
3. Address environmental concerns with transparency	Large infrastructure projects, such as data centres, consume large amounts of resources during their construction, and on into their operations phase. Dealing with these concerns, honestly and with transparency is important, and is a key factor in building relationships with the local community.
4. Be upfront about resource use and sustainability plans	Interlinked with Point 3 above.
5. Collaborate closely with local authorities	Addressed through the Irish planning system.
6. Invest in local authority infrastructure improvements	An opportunity to link with the Local Economic and Community Plan (LECP), and other strategic/development plans for the area.
7. Establish a community feedback loop	Interlinked with point 1 above.
8. Design with aesthetics and local character in mind	New infrastructure developments bring many changes with them, with visual changes often being highly significant.

[1] Department of Rural and Community Development, Pobal, Community Work Ireland, and the Irish Local Development Network (2023), *Guide for Inclusive Community Engagement in Local Planning and Decision Making*.
[2] Gresham Smith, 'Data centres and the Art of Being a Good Neighbor: Ten Steps for Better Community Engagement'. Available at: https://www.greshamsmith.com/news-and-insights/data-centers-the-art-of-being-a-good-neighbor-ten-steps-for-better-community-engagement/

	Understanding and incorporating local views on the changing nature of the built environment demonstrates respect.
9. Leverage local suppliers and workforce	This can be challenging in some situations, due to the complex nature of procurement. Advance notice, and opportunities to build capacity (e.g. specific training courses, and 'tickets' would offer more genuine access to opportunities). A procurement process that values contractor proximity, and is accepting of smaller-scale businesses, could also result in significant local impact. Apprenticeship opportunities, in traditional trades as well other professions, are likely to be welcomed and valued by members of the local community.
10. Be patient and persistent in building relationships	Members of the community living close to the development may not welcome it. They may have serious concerns or be frightened of change. They may in time come to accept the development, or they may not. Assuming that you were not invited into the community by its local residents, the onus is on the developer/generator to invest in the building of relationships, which may in some cases take patience and persistence.

Community Benefit Fund Models

In Ireland, community benefit funds are a reasonably recent phenomenon. They tend to be associated with large-scale infrastructure projects associated with things such as landfill, wind farms, and power grid maintenance, upgrade, or expansion.

The Good Principles Handbook for Community Benefit Funds under the Renewable Energy Support Scheme (RESS), published in 2021, marked the first concerted effort in Ireland to standardise these funds, albeit within a specific industry. It was superseded in May 2025 by the Rulebook for Community Benefit Funds under RESS, which presents a regulatory framework for these funds and insists that the community is always a key stakeholder.

Community Benefit Funds are administered using a variety of mechanisms, many of which place an obligation on community groups to apply to the fund on a project-by-project basis. Three examples of such models are briefly reviewed below to illustrate their key characteristics, and are explored in further detail in the case studies section of this report.

Community Benefit Fund – Rulebook for Community Benefit Funds under RESS

The Renewable Energy Support Scheme (RESS) is an established structure for the channelling of financial support to local communities from energy infrastructure projects and distributors. The direct annual monetary contribution by the Generator into the Fund is fixed at a minimum of €2/MWh of Loss-Adjusted Metered Quantity under the RESS Terms and Conditions.

Minimum annual contribution to the Fund remains the same for the lifetime of the fund.

A fund may, on occasion, be index-linked, but many are not.

There are three main components to the Fund:

- Direct household payments
- Funding of local projects (min 40% of Fund)
- Agreed maximum percentage of the fund allocated to administration costs (An allowance of 20% for the first year to allow for establishment, 'subject to a maximum of 10% over the entire period in which the RESS Project is required to maintain the Community Benefit Fund)

A fund is generally administered by a Grant Giving Organisation (GMO) but may also be administered by the generator.

Traditionally, funding applications were made and awarded on an annual basis, but this is slowly changing as the practice is somewhat restrictive, and often does not correspond to community needs, particularly in relation to larger capital projects, where the cost of proposed projects exceeds that available from the fund in a single year.

Community Benefit Agreement

The CBA model appears to originate from the United States of America, where it is applied across a wide variety of sectors and infrastructure development projects (Good Jobs First provides an extensive database of such agreements).[3]

A CBA is a legally binding agreement between community organisations (sometimes including local governments) and a company. It includes a list of deliverables that a company is obligated to produce in exchange for locating in that community. A well-structured CBA should respond to the unique needs of a community and should mitigate any harm that the project might bring.[4]

[3] Ibid.
[4] Good Jobs First 'Community Benefit Agreements with Data Centers Can Help Mitigate Harms'. Avaiable at https://goodjobsfirst.org/community-benefit-agreements-with-data-centers-can-help-mitigate-harms/ (Accessed 24 August 2025).

Specific examples of the mechanisms through which a data centre could make a meaningful contribution to its local community are stated to include the following:

- Job quality standards and local hiring[5]
- Fiscal responsibility (with regards to local taxation)
- Residents' quality of life
- Environment

Endowment Fund

- An initial once-off contribution from the developer/generator creates an investment fund.
- An annual contribution is made by the generator to the investment fund, as per agreement with the community and/or Local Authorities.
- Applications for funding are made on an agreed basis, maybe every 3 years, whereby the fund to be allocated to local projects draws upon the interest made on the capital investment, enabling the fund to operate in perpetuity.
- May be more suited to supporting ongoing running costs, such as staff, heat, light, insurance.
- Due to the nature of the funds, they are administered by specialists.
- It is unclear whether such models operate in Ireland; however, two Endowment Funds associated with wind farms in the UK and US are included in the Case Studies section of this report.

There is also potential for the creation of a delayed start/hybrid endowment model fund, whereby the fund invites applications for local projects at the inception of the fund, in order to meet local needs for already identified projects. Once this demand has been met, the fund is invested, and the interest is then allocated on an agreed basis.

Community Benefit Funds – learning from case studies

This preparatory study has reviewed a range of case studies, detailed in Appendix 2 below, which were selected to highlight relevant examples of community benefit funds in Ireland and internationally. The review also sought to identify examples of best practice that could inform the Red Admiral Community Benefit Fund framework. The table below summarises the most significant findings from these case studies.

Case Studies	**Framing in the context of the Red Admiral Data Centre**
Data Centre Community Benefit Funds	- There appears to be an interesting trend where finding clear information about data centre community benefit funds is challenging, suggesting a possible barrier to access. - Definite opportunities in terms of improved community consultation, and communications.
Renewable Energy Community Benefit Fund	- Becoming well established in the Irish context under RESS, and also in relation to other large infrastructure projects. - Case studies illustrate interesting administration models, whereby local decision

[5] Ibid.

	making and administration can be incorporated into a fund's governance model. - Opportunities to explore investment / endowment models, through which a financial mechanism can be created to support its community into perpetuity.
Large Infrastructure Project	- EirGrid Celtic Interconnector is underpinned by Community Benefit Fund Policy, and guided by a Celtic Interconnector Community Benefit Fund Strategic Plan, which was developed with community input. - Strong links with academic institutions demonstrate commitment to best practice.
Industry - Community Benefit Agreement	Within the context of a Community Benefit Agreement or other similar framework, consider the following: - A procurement process which provides appropriate capacity-building support where necessary, and which prioritises local suppliers of good and services - Provision of apprenticeship opportunities, in traditional as well as non-traditional professions - Creation of a Community Benefit Fund, which is evidence-based and co-created with local representatives following a Strategic Planning exercise

3. Appraisal of Red Admiral in context of Community Benefit

Inclusive engagement can help support the transparency of decision-making in relation to a Community Benefit Fund, reducing the risk of conflict and improving accountability as well as ensuring that benefits reach every part of a community.

In the context of large-scale infrastructure development and related community benefit funds, 'community' is a multifaceted and complex concept. While the term means, at its most basic level, 'a grouping of people', in practice, it is generally used to encompass rich and diverse meanings shaped by social, geographic, and political contexts. Communities may be defined in relation to our work, family, friends, or our immediate neighbourhood, or town or village, a sports club we may support, or some other affiliation which connects us to others.

The Red Admiral data centre will be located in a geographic area that in itself contains multiple communities. It is critical for the project promoters to understand that, upon construction of the data centre, these communities will need to be engaged with on a variety of levels both collectively and individually in supporting their general and specific objectives and concerns arising from the development. Understanding and embracing the complexity and dynamic nature of community is key to any successful community engagement programme.

This framework used the six Goals & Priorities for economic and community development as set out in the current Westmeath Local Economic & Community Plan (LECP) 2023 to 2028. The framework identified where the potential for community benefit impacts and opportunities from this development meet the stated priorities and objectives within the LECP.

The LECP is the principal statutory policy relating to community development for the county and ensures that all objectives and goals are consistent with other key policies including UN Sustainable Development Goals; European Green Deal (2019); National Planning Framework (2018) – Project Ireland 2040; National Development Plan 2021-2030; Climate Action Plan 2024; The Eastern and Midland Regional Spatial and Economic Strategy (RSES) 2019-2031 and The Westmeath County Development Plan 2021-2027.

The LECP is also the direct expression of aspirations and ambitions by a wide grouping of economic and community partners and stakeholders locally. Therefore, aligning with the LECP will help to ensure that development and economic activity will be consistent with key policy, and respects and support local community development goals.

It is clear that the Red Admiral project will provide tangible benefits to its local and regional communities. The socio-economic benefits will include new employment creation (direct and indirect), upskilling of workers, local procurement and SME enablement, development contributions, donations to charitable organisations, local authority rates, community benefit funds and social investment.

In addition to these direct outputs the project can support many other aspirations and objectives of the community as outlined below in the summary assessment of the project in its alignment with local community priorities. A more detailed assessment of the alignment with the LECP priorities and sub-priorities is presented in Appendix 1 of this document.

It is important to note that this assessment demonstrates the alignment with LECP priorities and the potential for beneficial impact from the project in a strategic sense. It is not to be interpreted as a commitment or guarantee of funds or support to any individual project or initiative at this stage. Significant engagement with the authorities and the communities affected by the project will proceed with the main consortium partners prior to a final scheme is developed and implemented.

LECP Goal	Impact	Evidence or Example
1. Support a proactive response to the challenge of climate change	✓	The Red Admiral project could address climate change by promoting energy efficiency, digital connectivity, and biodiversity initiatives that build community capacity and climate resilience.
2. Develop an inclusive and equitable society that supports our vibrant urban and rural communities	X	
3. Improve health and well-being of our citizens	✓	The Red Admiral project could address climate change by promoting energy efficiency, digital connectivity, and biodiversity initiatives that build community capacity and climate resilience.
4. Support sustainable economic activity, employment and education towards a smart green economy	✓	The Red Admiral project will support sustainable economic activity, employment, and education by creating high-quality jobs, fostering STEM skills, and partnering with local institutions to develop training and research opportunities. Through collaboration and recognition programmes, it promotes innovation, sustainability, and a smart green economy in Westmeath and Midlands region.
5. Enhance economic and social infrastructure, including housing	✓	The Red Admiral project could strengthen social infrastructure by upgrading community facilities for energy efficiency, comfort, and flexible use, supporting local well-being and business connectivity.
6. Promote and protect our rich culture and heritage and realise our tourism potential	✓	The Red Admiral project has the potential to promote and protect local culture and heritage while supporting tourism by boosting the local economy through job creation and increased visitor spending. Its community benefit fund further supports local clubs, organisations, and cultural initiatives, helping strengthen community identity and attract.

At a minimum the Red Admiral project will contribute to most of the top-level priorities of the local community framework in some direct or indirect way by virtue of its development and operation. Some of the key outputs that will deliver economic and community benefit include:

- New economic activity leading to employment growth, skills development, regeneration and new enterprise creation in a Just Transition Region targeted for enterprise support.
- Strong potential for future clustering in related activity (digitalisation and decarbonisation) arising from the investment in key enterprise infrastructure and the regional skills base.
- Planning conditions will seek development contributions which will be reinvested in local infrastructure and amenity.
- The enterprise will become a significant commercial rate payer in the Local Authority bringing additional annual revenue for local services.
- Potential to partner with local community and statutory bodies to deliver local community benefit projects e.g. sports & recreation; education; tidy towns; biodiversity; local heritage etc.
- Development could act as a catalyst and host for innovation and research support around best practice in digital technology and renewable energy models.
- Sustaining communities through employment growth and active participation in local enterprise networks.

4. Principles of Community Benefit Design

Strategy for Community Benefit Framework

A Community Benefit fund or scheme of this nature should be guided by an overarching Strategic Plan, which is cognisant of the local and regional policy context, sensitive to local needs, and developed through a collaborative process.

Such a plan may propose structures such as a Fund Committee, on which sit community representatives from each of the local representative community groups, in addition to representatives from the developer/generator and the Grant-making Organisation, with the Terms of Reference being determined following the completion of the Strategic Plan, in its implementation phase.

The following are likely to be included within such a Strategic Plan:

- Vision, Mission, Values
- Key priority / focus areas
- Opportunities & challenges
- Balance capital investment and contributions to operational costs (see note)
- Catchment area
- Fund Committee & other structures which support ongoing community engagement
- The importance of individual Community Action Plans, as a preparatory step, prior to the official launch of the Fund

Supported by the Fund, and following the preparation of the overall Strategic Plan, prepare distinct integrated community plans for each of the prioritised settlements/communities within the defined catchment area of the fund (as identified by the Strategic Plan).

Following adoption of the Strategic Plan, prepare **Fund Guidelines**, which lead on to the opening of the fund.

Prepare Monitoring & Evaluation Framework, linked to the KPI' s

Potential frameworks associated with a data centre development

Present possible community engagement framework:

- Explore the nature, extent and purpose of a **future community engagement process designed** to inform the community benefit fund
- Prepare a **Community Engagement & Communications** Plan (to support the community engagement process)

Outline and analysis of the forecast socio-economic impact of the development without any intervention, and through a bespoke CBS. This can demonstrate the additional new benefits to the community as a result of the investment.

Consideration of different measurement models for calculating CBS based on impact of the enterprise (Data Centre & Energy Park) and estimation of annual benefit fund and scaling of same.

- **Explore potential Community Benefit Fund models**, such as:
  - Investment models / endowment funds
  - Self-administered community benefit funds
- **Governance** considerations, including:

- Exploration of the role of Grant Making Organisation(s)
- Project evaluation panel / Fund Committee structures

Stakeholder Engagement Process

The stakeholder consultation serves several key purposes:

- To deepen understanding of existing plans and policies by examining their effects and practical implications at the local level, and understanding how these strategies are being implemented in practice.
- To identify gaps in local service provision or infrastructure that may need to be addressed.
- To communicate an outline of the framework through which the Community Benefit Fund will be developed to key stakeholders, outlining opportunities for participation at this stage.
- Collate a database of local community and voluntary groups, including contact details.

Agree stakeholder segmentation – drawing on quadruple helix:

- Government – relevant Departments, Failte Ireland, national & regional agencies etc.
- Education – Education & Training Board, Regional Skills Network, Third Level Institutions etc.
- Industry / Economic e.g. Local Enterprise Office etc.
- Community e.g. Local Development Companies, Public Participation Networks etc.

Informed by the desk research, undertake extensive stakeholder consultation, focusing on what information is being sought from the different stakeholder categories.

Prepare exploratory area of benefit / catchment area to gain an understanding of population and topline demographics. Examination of the local / regional catchment area to target for CBS to address deficits or weaknesses in the area of skills; employment & enterprise opportunities; service provision; community infrastructure and assets.

Drawing upon the community group database prepared during the early stages of the project, contact identified community groups on an individual basis to invite them to a 1-2-1 engagement meeting. This **community engagement** process will be extensive and may take place over a number of weeks or months.

Representative Community Groups

A significant historic issue in the development of a community benefit fund framework, is the absence, of a 'community' with which to engage. In an ideal world, all communities would have a representative community development organisation with which agencies can engage; however, this is often not the case. There are many reasons why an area does not have such a group, not least of which is a perceived lack of need.

Red Admiral will work with the LCDC / Local Development Companies to identify appropriate representative community groups. If such community group structures do not exist, Red Admiral will provide the relevant capacity-building supports to form such groups. It is critical to note that the terms of reference for these groups will be determined throughout the capacity-building and support process, and that its remit is likely to be broader than solely the community benefit fund. Such an approach will only be possible with community buy-in. Where possible, existing community structures should be utilised, and new groups should be formed only as a last resort.

Catchment area / area of benefit

The catchment area/area of benefit can be contentious. A rule of thumb in some renewable energy developments is that those most affected by the development are those who will receive the most from the fund. This is a complex area, though, as this model tends to imply that a development has had a negative impact. The EirGrid Community Benefit Policy addresses this challenge well, stating that whilst the company 'aim[s] to create as little disturbance as possible, at times [its] work can involve some disruption to communities'.[6] This acknowledges that some of their construction and upgrade work has the capacity to create disturbance, and that the Community Benefit Policy reflects an understanding of, and an attempt to mitigate, that impact.

It is important to consider that the immediate local communities are sharing their resources with a new entity that will bring much change and some disruption. The people, flora, and fauna of that area are now sharing roads, footpaths, service providers, water, airspace and so on with this new development, and often experience frustration with the resulting change. While the obvious benefits such as jobs and enterprise creation will come with the development there is a period of time where the impact of the project (in the construction phases) will sometimes be disruptive to the lives of the local population.

It is proposed that identification, and agreement on the catchment area/area of benefit is incorporated into the community benefit fund framework, and that it is a particular focus of the community consultation.

It is suggested that a principle of targeting the benefits and impacts from the project to the most appropriate groups depending on proximity to the project; needs within the community; capacity within the community to absorb the benefits; types of benefit outputs to be distributed (small scale funds to support local initiatives / skills development programmes / sponsorship of clubs, facilities or events / etc). In this context a tiered catchment will be designed to accommodate the different community stakeholders as their distance increases from the site of the project, such as:

- Immediate community catchment – up to 5km radius from site
- Secondary community catchment – 5/6km to 20km from site
- Regional catchment – beyond 25km from site

Challenging the status quo

The community development landscape in Ireland is becoming more complex. Huge effort has been invested by community groups in improving their local areas, and many of the more straightforward community-development-type projects have been completed. This presents challenges in that the type of funding which can be of most benefit would relate to running costs/overheads, which community benefit funds have tended to avoid.

Exploring community needs, and collaborative working practices which challenge outdated norms, would offer significant opportunities for innovation, and genuine community impact which focuses on the needs of the community, not those of the funder.

[6] EirGrid (2023), 'Eirgrid Community Benefit Policy'. Available:https://cms.eirgrid.ie/sites/default/files/publications/EirGrid-Community-Benefit-Policy-Brochure%20June%202023.pdf (Accessed 10 October 2025).

5. Red Admiral Community Benefit Framework

5.1 Vision Statement & Mission Statement

VISION: ***"To follow a sustainable pathway for data centres, creating intelligent, sustainable data infrastructure, powering the future of connectivity"***

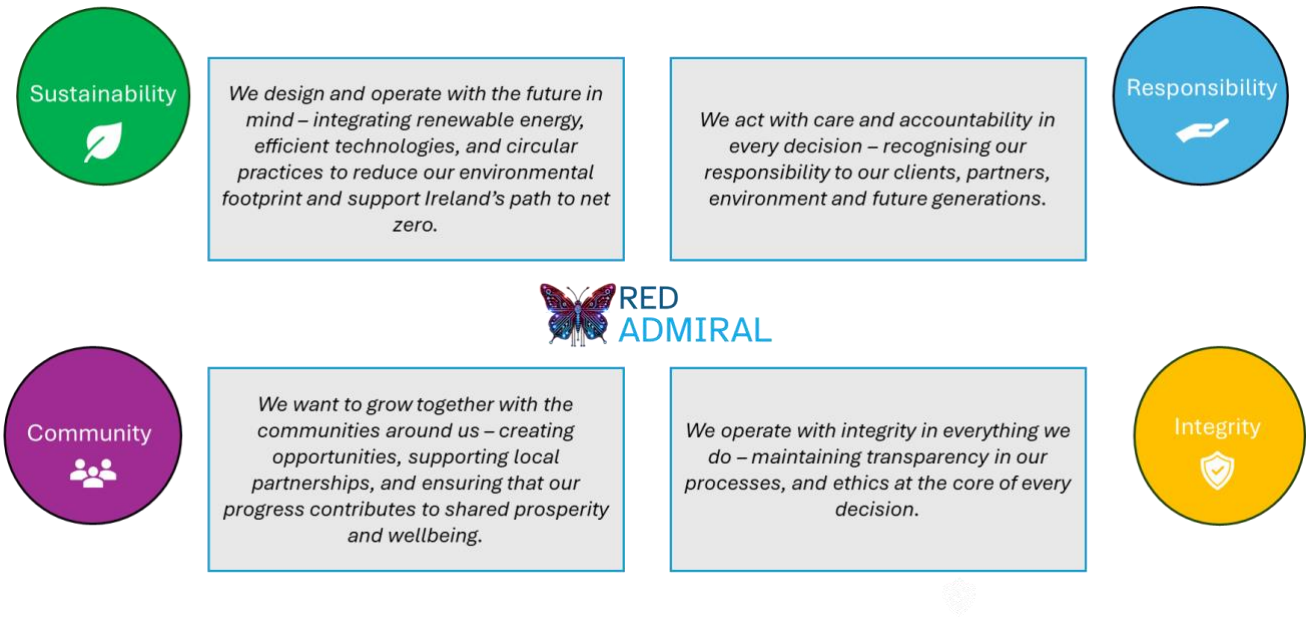
MISSION: ***"To enable sustainable digital infrastructure by combining cutting edge solutions with locally generated low-carbon energy resources, empowering our communities to connect and thrive in Ireland's net-zero future." In doing so we will:***

- Engage in a responsible and considerate manner with our partners, suppliers, community stakeholders and local agencies;
- Invest in our workforce through continuous upskilling and development and create opportunity for career progression;
- Ensure that our operations are delivering real economic impact and community benefit to the local area and wider region;
- Collaborate with all innovation and enterprise stakeholders to help transition the region deeper into the digital economy;
- Educate and demonstrate the power of renewables in making our lives more sustainable and healthier.

5.2 Strategy Values & Guiding Principles

The four guiding principles or values associated with the project in a community facing context are as follows:

Sustainability > Community > Responsibility > Integrity



5.3 Areas of focus for the CBA

Arising from the strategic vision and mission, and informed by the organizational values and the local priorities as set out in the community strategy (LECP) we will prioritise and promote community benefit activities and initiatives that deliver the following outcomes:

- **To act as a regional development catalyst in the transition to a Digitalised and Decarbonised economy in the Midlands**
- **To support and promote digital and technical skills towards a dynamic workforce**
- **To provide Leadership in demonstrating decarbonization in practice**
- **To build and sustain genuine and long-term partnership with the local community**

5.4 Statements of Intent

(A) Regulatory / Policy Compliance

The Red Admiral project will meet all current and future legislation, regulation and statutory policy requirements relating to community benefit in a compliant and rigorous manner. This will mean that, at a minimum standard, Lumcloon Energy Group and its projects will be delivered with strict adherence to the principle of responsible community engagement, welfare and impact resulting from its developments and operations. The specific codes, protocols, procedures for distributing a community benefit scheme or fund will be set out clearly and managed in a transparent and inclusive way so that strong community trust and collaboration is built into the scheme or fund from the start.

(B) Engagement with Community & Stakeholders

Lumcloon Energy Group will continue to build genuine and long-term relationships with the local communities in the areas immediate to its projects and developments. In the case of the Red Admiral Data Centre and Solar Energy site Lumcloon Energy Group, together with its delivery partners, will focus on the communities in the neighbouring towns of Rochfortbridge and Tyrrellspass. We will build meaningful relationships with community groups in an effort to identify fitting community initiatives that can be supported financially or through other supports such as volunteerism, professional or technical expertise. Additionally, Lumcloon Energy Group will communicate with the wider community in an open manner to allow for accurate and quality information about its operations and address any concerns or questions that arise from the community in full and transparent manner using relevant media formats and direct community meetings and discussion groups.

(C) Scale & Scope of benefits

Lumcloon Energy Group will deliver financial supports, and non-monetary benefits, to its neighbouring communities commensurate with the scale of the operation and its outputs and in compliance with any regulatory or statutory requirement. In this regard the distribution of the community benefit funds or resources will be prioritised in a tiered geographic catchment and also a thematic manner. This means that the immediate local communities (up to 5km of site) will be targeted for direct financial support through contributions to existing community initiatives, facilities, campaigns and groups and the wider community (5km to 20k from site) will be targeted for other supports and benefits such as training and employment opportunities, longer term sponsorship or partnership arrangements and hosting or participating on relevant enterprise and sectoral forums in the region.

(D) Process for allocations

Lumcloon Energy Group will set up a Community Benefit Scheme that will run annually and or multi-annually and will address each of the priorities and capabilities described in its mission statement and guiding principles. Each element of the fund or scheme will have resources dedicated to it and will deliver direct investment or sponsorship to compliant and eligible applicant organisations or groups within the defined catchment areas. The allocations will be set in either an annual or multi-annual award framework with all key criteria and objectives of the funding set out and explained. The application process will be open and allow for sufficient time for local community groups to make quality submissions. In so far as possible the Red Admiral Project will award financial support to existing community initiatives rather than seek new activity from community groups to chase funding.

(E) Governance of scheme

The Community Benefit Scheme will be managed by an Evaluation Team comprising designated management personnel with relevant expertise, supported where appropriate by external advisory representatives from County Westmeath to ensure objectivity, local insight, and best practice. The Evaluation Team will assess all applications and submissions against published eligibility and assessment criteria, applying a transparent scoring mechanism to rank proposals based on community benefit, value for money, feasibility, and alignment with the Scheme's objectives. Funding awards and the allocation of available funds will be determined on the basis of these scores, subject to budget availability and final approval in line with the Scheme's governance and financial controls, and details of successful applicants and funding allocations will be published to ensure transparency and accountability.

Accompanying the call for applications the Community Benefit Fund will issue guidance and instructions on eligibility, awards scoring system, application timelines and other key information to help community groups to apply to the fund.

Appendix 1: LECP Alignment assessment

Priority 1. Support a proactive response to the challenge of climate change	Impact (Direct / Indirect)	Examples of how Red Admiral can reach these goals
Support, advise and assist local communities seeking to increase building energy efficiency and carbon reduction through retrofitting and installation of renewable energy sources	Direct	The Red Admiral project could contribute indirectly to local communities through community partnerships, educational engagement, and potential funding supports. In alignment with regional sustainability goals, the project could sponsor community talks such as home energy retrofit information sessions, providing residents with practical guidance on improving energy efficiency and accessing available grants. These initiatives would help raise awareness of carbon reduction opportunities and strengthen local capacity to adopt renewable energy solutions.
Provision of infrastructural resources to assist with reducing public dependence on private vehicle use and decreasing the number of high emission vehicles travelling on our roads	Indirect	The Red Admiral project could indirectly support reduced transport emissions through improved digital and infrastructural capacity in the Midlands. By strengthening regional data connectivity, the project can enable greater opportunities for remote working, e-learning, and digital service delivery, which may help reduce the need for some long-distance commuting and business travel over time.
Raise awareness of the intrinsic link between climate change and biodiversity. Support initiatives that have a positive impact on climate and biodiversity.	Indirect	The Red Admiral project will indirectly support greater awareness of the connection between climate action and biodiversity through its community benefit programme. By supporting local initiatives such as the Tidy Towns biodiversity awareness campaigns, pollinator-friendly planting, and tree-planting projects, the community benefit fund can help enhance local habitats and promote understanding of how protecting nature contributes to climate resilience.
Priority 2. Develop an inclusive and equitable society that supports our vibrant urban and rural communities	**Impact**	**Examples of how Red Admiral can reach these goals**
Tackle Dereliction **Increase representation of all communities on statutory bodies, agencies and committees** **Provision of an affordable and efficient public transport system**	No impact	This priority and its intended actions are in the sphere of public authorities and specific agencies responsible for delivering infrastructure and services.
Priority 3. Improve health and well-being of our citizens	**Impact**	**Examples of how Red Admiral can reach these goals**

Create opportunities to improve health and well-being of our citizens	Direct	The Red Admiral project could support the health and well-being of local communities through its community benefit programme and sustainable development practices. By funding initiatives such as green spaces, recreational infrastructure, or wellness-focused community project. The project can contribute to healthier, more resilient communities. Future opportunities could include partnerships with local health or sports organisations to promote physical activity, environmental education, and well-being initiatives.
Mullingar Regional Sports Complex to include a swimming pool	Direct	The project's community benefit programme may include support for local recreational infrastructure, such as the proposed Mullingar Regional Sports Complex and swimming pool, depending on final decisions made by the project owner and in consultation with the community.
Improve Physical Health and Well-being (e.g. recreation & sports, health awareness, mental health supports)	Direct	The Red Admiral project could contribute to improving physical health and well-being through the community benefit program. Support may include initiatives that promote recreation, sport, and social connection, such as local GAA and football clubs, scouting activities, and community events including social services Christmas parties. The program could also assist with first-aid training and help to strengthen community well-being, inclusivity, and resilience.
Priority 4. Support sustainable economic activity, employment and education towards a smart green economy	**Impact**	**Examples of how Red Admiral can reach these goals**
Attract and retain graduates in Westmeath	Direct	The Red Admiral project will help attract and retain graduates in Westmeath by creating high-quality employment opportunities in the fields of energy, engineering, technology, and digital infrastructure. Through its community and educational engagement, the project can foster STEM awareness, training pathways, and partnerships with local third-level institutions, encouraging skilled graduates to build their careers in the region. This would contributes to a stronger, more innovative local economy and supports long-term regional development.
Support & Promote Further & Higher Education & Training in Westmeath	Direct	The Red Admiral project will support and promote further and higher education and training in Westmeath through collaboration with local educational institutions and training providers. The project's focus on digital infrastructure, and advanced technologies offers opportunities for apprenticeships, internships, and research partnerships. By engaging with schools, colleges, and community training programmes, Red Admiral can help build local capacity, foster STEM interest, and strengthen pathways from education into sustainable regional employment.

Development of sustainability awards to encourage a smart green economy	Indirect	The Red Admiral project can contribute to the development of sustainability awards or recognition programmes that encourage a smart, green economy in Westmeath. By collaborating with local authorities, businesses, and educational partners, the project could help celebrate and promote local leadership in energy efficiency, biodiversity, circular economy practices, and community innovation. Such initiatives would raise awareness of sustainability, inspire behavioural change, and strengthen Westmeath's profile as a forward-looking, low-carbon intensity region.
Priority 5. Enhance economic and social infrastructure, including housing	**Impact**	**Examples of how Red Admiral can reach these goals**
Additional remote working hubs	Indirect	Through its community benefit programme, the Red Admiral project could support the retrofit of the local community hall, improving energy efficiency, comfort, and accessibility. Upgrades such as enhanced insulation, low-energy lighting, and modern heating systems would reduce carbon emissions and running costs. Once retrofitted, the hall could also serve as an additional remote working hub, providing residents and local businesses with flexible, sustainable workspace and supporting digital inclusion in the region.
Economic development opportunities associated with the greenways	No impact	
Social and Affordable housing supply as per targets in the Housing Delivery Action Plan 2022 – 2026.	No impact	
Priority 6. Promote and protect our rich culture and heritage and realise our tourism potential	**Impact**	**Examples of how Red Admiral can reach these goals**
Create compelling reasons for tourists to visit and stay in our county	Indirect	Red Admiral is expected to create hundreds of jobs both directly and indirectly. Many of these workers and contractors will stay, eat and spend in nearby towns, boosting accommodation, hospitality, retail, and food service sectors. Post construction, a long-term operations team will sustain this demand. The extra cashflow in the area will generate investment back into the local businesses and create tourism opportunities. The community-benefit fund aims to support local clubs and organizations and initiatives within the region.

Appendix 2: Selected Case Studies

Microsoft Datacenter Community Pledge

The Microsoft Datacenter Community Pledge is an initiative established by Microsoft in 2024 as a formal commitment to the local communities where its data centres are constructed. [7] This pledge ensures that the data centres not only support technological infrastructure but also provide direct benefits to their associated communities.

This pledge focuses on three main areas: contributing to a sustainable future, advancing community prosperity and well-being, and operating responsibly as a good neighbour.

The first aspect of this pledge – contributing to a sustainable future – focuses on the carbon footprint impact of the data centres. Through this pledge, Microsoft commits to 'design and operate our datacenters to support society's climate goals and become carbon negative, water positive, and zero waste before 2030'. This initiative aligns with Microsoft's overarching climate objectives, which include sourcing 100% renewable energy worldwide by 2025 and achieving a net positive water impact in its data centre operations.[9] As an example of delivery on this aspect of the pledge, Microsoft's Circular Centers, which are designed to reuse, recycle, and repurpose servers and hardware to divert waste from landfill, can now be found in six sites across Europe, most notably in Amsterdam.[10]

Advancing community prosperity is the second area of the pledge which aims to ensure that Microsoft's data centres are bringing local economic, social, and environmental benefits to the areas surrounding their projects. This aspect of the pledge takes many forms such as: partnering with local contractors to build the infrastructure and increase local job opportunities, providing apprenticeships and STEM skills training, and community-led initiatives.[11] These programmes have been ongoing in Poland, Ireland, and Sweden with an overarching aim being to support the presence of community initiatives tied to data centres.

The final aspect of this pledge concentrates on operating responsibly as a neighbour. The focus here is on engaging with local neighbours, communities, and the wider public to create positive relationships with the data centres. An emphasis on light and noise pollution reduction measures to support the environment, and partnerships with charities and nonprofits seeks to create positive change that improves local attitudes and perceptions of data centres.

Type of Fund and Administration Model

Based on information that is currently available, this Community Pledge is not a standalone fund with a fixed contribution. Instead, the pledge takes the form of multiple commitments from Microsoft to the

[7] Walsh, Noelle (2025) 'Microsoft's datacenter community pledge: to build and operate digital infrastructure that addresses societal challenges and creates benefits for communities'. The Official Microsoft Blog. Available: https://blogs.microsoft.com/blog/2024/06/02/microsofts-datacenter-community-pledge-to-build-and-operate-digital-infrastructure-that-addresses-societal-challenges-and-creates-benefits-for-communities/

[9] ESG Investing (2024), 'Microsoft launches "datacenter community pledge" with sustainability and community commitments. Available: https://esg-investing.com/2024/06/04/microsoft-launches-datacenter-community-pledge-with-sustainability-and-community-commitments

[10] Walsh, Noelle (2025) 'Microsoft's datacenter community pledge'.

[11] Microsoft (2025), 'Increasing access to digital skills and local job opportunities'. Available: https://local.microsoft.com/homepage/commitments/econ-oppt/

different communities within which its data centres are located. This funding is administered in partnership with third-party organisations.[15]
In the Irish context, funds are administered via Change X, which is a charity specialising in community projects and mobilisation, although the funding is provided by Microsoft.[16] Interested parties apply for funding via the Change X website, which provides application criteria and other information for applicants. Successful applicants receive funding via a bank transfer and, in specific circumstances, individuals and organisations may apply for funding for more than one project or initiative at a time.

Fund Value

The fund value varies from project to project and from country to country. In Ireland, Microsoft invested €4 million between 2008 and 2024 on a wide variety of projects in the Dublin area.[19] In 2025, Microsoft pledged €100,000 to community initiatives that included a citizen science monitoring scheme, school gardens development, and plastic pollution reduction initiatives.
This 2025 fund makes €4,500 available per project, on a first come, first served basis, and applicants are required to participate in a 30-day challenge to unlock the funding.
Microsoft, which operates over 300 facilities across 95 countries, has maintained a longstanding presence in Ireland through its data centres,[22] and it has supported community priorities in Clondalkin and greater Dublin through investments with 112 local partners since 2018.

[15] Irish Tech News, 'Microsoft launches community fund for South Dublin organisations'. Available: https://irishtechnews.ie/microsoft-launches-community-fund-south-dublin/
[16] ChangeX (n.d.) 'Microsoft data centre communities'. Available: https://www.changex.org/us/organisations/microsoft
[19] Moderntribe (2025). 'Supporting thriving communities with the Microsoft Community Fund for Dublin'. Available: https://local.microsoft.com/blog/supporting-thriving-communities-with-the-microsoft-community-fund-for-dublin/
[22] Microsoft (2024), 'Microsoft datacentres in Ireland'. Available: https://local.microsoft.com/wp-content/uploads/2024/05/Microsoft-datacentres-in-Ireland.pdf

IREN

Overview

IREN Ltd. is an Australian-based company that owns and operates data centres in the United States and Canada.[24] These facilities are powered entirely by renewable energy and are located in regions including Texas, US, and British Columbia, Canada.[25] The data centres are specifically optimised for high-demand computational tasks such as bitcoin mining, artificial intelligence (AI), and other power-intensive processes.[26]

Similar to other major technology corporations, including Meta, Microsoft, and Google, IREN has developed a community grants programme aimed at generating positive social impact in the regions surrounding its data centres.[27] The programme reflects the organisation's commitment to corporate social responsibility (CSR) and environmental, social, and governance (ESG) principles, and it is designed to foster long-term benefits for local communities. IREN's funding priorities focus on addressing community needs through financial support for hardship programmes, investment in community infrastructure, upskilling initiatives, and the promotion of STEM (science, technology, engineering, and mathematics) education.[28] Complementing these efforts, the programme also promotes sustainability by supporting renewable energy projects, diversity, equity, and inclusion (DEI) initiatives, recycling schemes, and the development of community gardens.

Currently, IREN is implementing grant-supported projects across four data centre sites located in Prince George and Mackenzie in British Columbia, Canada, and Fisher County and Childress in Texas, US. These locations were selected based on a combination of operational presence and potential community impact, with the goal being to ensure that the grants are distributed to areas where they can create measurable social value.

Type of Funding and Administration Model

IREN's community grants are administered by IREN's internal team, whose members evaluate applications, select projects, and ensure compliance with programme objectives. The grants are exclusively directed toward non-profit organisations, community groups, schools, and training authorities, excluding for-profit commercial enterprises.[32] This approach ensures that funding is utilised to serve public and community-oriented goals rather than private interests.

Applications are assessed using a comprehensive set of criteria that evaluate the potential social impact of proposed initiatives, the capacity of the organisation to deliver the project effectively, and the opportunities for IREN to enhance its public profile through positive community engagement.[33] Applicants are required to submit detailed project proposals, including a description of the project, a breakdown of funding requirements, organisational information, and planned reporting mechanisms.

Each proposal must clearly outline how funds will be allocated, and managed to achieve the desired outcomes. Furthermore, applicants are required to demonstrate that appropriate resources, operational systems, and evaluation methods are in place to ensure effective project delivery and to measure outcomes accurately. By instituting these requirements, IREN upholds the financial integrity of its grants and promotes the achievement of measurable outcomes that benefit the community.

[24] Financial Times (2025), 'IREN Ltd, IREN:NSQ profile'. Available: https://markets.ft.com/data/equities/tearsheet/profile?s=IREN:NSQ
[25] IREN (2025), 'AI cloud'. Available: https://iren.com/solutions/gpu-cloud/ai-cloud
[26] IREN (2025), 'Community grants program'. Available: https://iren.com/company/community-grants
[27] See Meta (2025), 'Data center community action grants'. Available: https://datacenters.atmeta.com/community-action-grants/ and Google (2025), 'Google grant application eligibility'. Available: https://www.google.com/nonprofits/eligibility/
[28] IREN (2025), 'Community grants program'.
[32] IREN (2025), 'Community grants terms & conditions – US'. Available: https://iren.com/legal/community-grants-terms--conditions---us (Accessed 24 October 2025).
[33] IREN (2025), 'Community grants program'.

Once projects are approved, successful applicants are formally notified, and funds are disbursed either as a one-off payment or in instalments, depending on project-specific requirements.[37] Grants are restricted to discrete projects that address the organisation's key funding priorities, such as community participation, sustainability, safety, and technology or learning initiatives, rather than general operating costs,[38] principles that will be analysed, and challenged later in this report.

Fund Value

In 2024, the organisation awarded funding to over 100 recipients, distributing a total of USD 500,000.[39]

[37] IREN (2025) 'Prince George community grants program'. Available: https://iren.com/company/community-grants/prince-george

[38] IREN (2025), 'Community grants program'.

[39] Ibid.

Renewable Energy Community Benefit Funds

Quixwood Moor

Introduction

The Quixwood Moor Wind Farm is located in Berwickshire, on the eastern side of the Scottish Borders, close to the village of Grantshouse.[40] According to planning permission granted in April 2013, the wind farm comprises 13 turbines with an overall capacity of up to 29.9 MW.[41] These turbines have the ability to generate enough clean energy for 17,000 homes.[42]

Initially developed by Banks Renewables, construction commenced under its oversight but the asset was sold in August 2015 to NTR plc.[43] As a renewable-energy development situated in a predominantly rural community, Quixwood Moor is accompanied by a structured community benefit fund intended to support local infrastructure, biodiversity, and community-led activities in the vicinity of the wind farm.[44]

Funding and Administration

The community benefit arrangements for Quixwood Moor are managed via a multi-stream fund structure. The fund is administered by 'Point North', which was previously known as the County Durham Community Foundation (CDCF), on behalf of the developer (NTR plc) and in collaboration with the local community councils: Abbey St Bathans, Bonkyl & Preston Community Council (ABPCC) and Grantshouse Community Council.[45]

Eligibility for the fund's grants is clearly defined through guidelines issued by Point North: community organisations or groups operating in the eligible ward areas (Abbey St Bathans, Bonkyl, Grantshouse and Preston) may apply, and the fund encourages projects focused on community wellbeing, rural regeneration, education/training, energy efficiency, and environmental protection.[46]

Funding favours projects and initiatives which are identified as priorities across ABPCC and GCC councils, as outlined in their respective Community Council Action Plans.[47]

Fund Value

The owners of Quixwood Moor Wind Farm, NTR plc, in partnership with Point North, have committed to providing £44,000 each year to the Preston and Abbey Community Trust (PACT) as a core annual contribution to support local community projects.[48]

An additional Open Access Fund has been established to collect any unspent or surplus funds from other grant streams.[49] This fund serves as a flexible reserve that can be accessed following

[40] Community of Abbey St. Bathans, Bonkyls & Preston (2025), 'Quixwood Moor'. Available: https://coabp.org/wind-farm-funding/quixwood-moor/ (Accessed: 30 October 2025).
[41] Comparison of calculated and actual wind farm output - Quixwood Wind Farm. Available at: https://www.energymap.co.uk/project.asp?pageid=3126 (Accessed: 30 October 2025).
[42] NTR (2016), '€57 million debt facility secured by NTR plc for Quixwood Moor Wind Project'. Available: https://www.ntrplc.com/articles/57-million-debt-facility-secured-by-ntr-plc-for-quixwood-moor-wind-project/ (Accessed:30 October 2025).
[43] Community of Abbey St. Bathans, Bonkyls & Preston, 'Quixwood Moor'.
[44] NTR (2016), '€57 million debt facility secured by NTR plc.
[45] Point North (2024), 'About point north: better today, brighter tomorrow'. Available: https://pointnorth.org.uk/about/ (Accessed: 30 October 2025).
[46] Community of Abbey St. Bathans, Bonkyls & Preston (2025), 'Quixwood Moor', and Point North, 'About point north: better today, brighter tomorrow'.
[47] Community of Abbey St. Bathans, Bonkyls & Preston, 'Quixwood Moor'.
[48] Ibid.
[49] Ibid.

consultation with Point North, Abbey St Bathans, Bonkyl and Preston Community Council (ABPCC), and Grantshouse Community Council (GCC).[50]

A further funding stream, the Quixwood Small Grants Fund, provides awards of up to £5,000 for community initiatives, with the possibility of grants up to £10,000 being awarded in exceptional cases.[51]

[50] Ibid.
[51] Point North (2024), 'Wind farm: Quixwood Moor wind farm fund'. Available: https://pointnorth.org.uk/grants/quixwood-moor-wind-farm-fund/ (Accessed: 30 October 2025).

Pattern Panhandle Wind Energy Facility – Texas USA

Introduction

Pattern Energy's Panhandle Wind Facility is situated in Carson County, Texas, US.[52] Commissioned in 2014, the project was developed in two phases and comprises a total of 197 wind turbines.[53] The facility produces enough renewable electricity to supply approximately 115,000 households each year and is expected to deliver an estimated $200 million in economic benefits to the region over a 25-year period.

These benefits include payments to Carson County, the Panhandle and White Deer Independent School Districts, the Panhandle Groundwater Conservation District, local landowners participating in the project, and the Panhandle Wind Community Benefits Program.

Funding and Administration

Recognising the importance of fostering positive relationships with the local community, Pattern Energy established the Panhandle Wind Community Benefits Program in 2015. This initiative aims to support civic and educational causes in Carson County, ensuring that the benefits of the wind farm extend beyond energy production to enhance the quality of life for local residents.

The programme, created to promote educational and community development efforts in Carson County, is administered through the Amarillo Area Foundation (AAF), which is responsible for managing and distributing grant funds that originate from financial contributions linked to the Panhandle Wind Farm. Operating as a partnership between the foundation and local residents, the programme relies on an advisory committee composed of community members from Carson County.

This committee reviews grant proposals, identifies charitable initiatives to support, and advises on how and when funds should be distributed.The grant is split into two streams: (a) the Pattern Panhandle Wind Civic Fund and (b) the Pattern Panhandle Wind Education Fund. The Civic Fund is primarily designed to enhance both new and ongoing initiatives that contribute to the overall well-being of Carson County residents.[62] Grant applications for this fund typically focus on areas such as civic participation, disaster response and emergency readiness, workforce and economic development, health promotion, and programmes that assist senior citizens.

The Education Fund, on the other hand, is dedicated to supporting educational programmes for public school students in Carson County, spanning from kindergarten through to twelfth grade (ages 4–18). This fund provides direct financial assistance to local schools and also awards four annual scholarships of $2,500 each to graduating seniors from Panhandle and White Deer High Schools.

Fund Value

Pattern Energy made an initial investment of $1.5 million to establish the Education and Civic Grant Endowments, both dedicated to supporting initiatives within Carson County. The company also committed to contributing an additional $150,000 annually during the project's first decade of operation, ensuring a long-term and sustainable funding source for local community projects.

Grant awards from both the Civic Fund and Education Fund typically range between $2,500 and $25,000. In the 2021 funding cycle, the Amarillo Area Foundation distributed a total of $149,888 in grants to various civic and educational initiatives through the Pattern Panhandle Wind Community Benefits Program. Between the programme's launch in 2016 and 2021, the Foundation reported awarding a cumulative total of $3,574,888 to local recipients.

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[52] Amarillo Area Foundation (2022), 'Pattern panhandle wind grant program'. Available: https://amarilloareafoundation.org/pattern-panhandle-wind/ (Accessed: 30 October 2025).

[53] Panhandle Wind (2024), 'Pattern energy'. Available: https://patternenergy.com/projects/panhandle-wind/ (Accessed: 30 October 2025).

[62] Amarillo Area Foundation (2024), 'Pattern panhandle wind - grant apply'. Available: https://amarilloareafoundation.org/pattern-panhandle-wind-apply/ (Accessed: 30 October 2025).

Large Infrastructure Project

Eirgird Celtic Interconnector

The Celtic Interconnector Cable is currently being laid between Knockraha in East Cork and La Martyre in Finistére, France. This cable will enable the exchange of 700MW of electricity between Ireland and France, across 575km, with 500km of cable running under the sea.[71] This development is between EirGrid (Ireland's national energy provider) and the French equivalent, Réseau de Transport d'Électricité (RTE), and construction began in 2023. Once built, this will meet the electricity needs for approximately 450,000 homes across Ireland.

This project is in line with the broader European Union (EU) goals of supporting energy transitions within Europe, meeting renewable energy targets, and creating a more integrated energy system within the EU. Stemming from this energy project, the Celtic Interconnector Community Benefit Fund was created by EirGrid in recognition of the support of local communities and the disruption that may occur during the 2023-2026 construction phase.

The overall aim of this Community Benefit Fund is to 'increase public and environmental wellbeing in the community and to leave a positive legacy in the communities'. This fund is awarded to a variety of project types in the community, under three main project streams focused on community projects, sustainability, and biodiversity. These projects are underpinned by objectives outlined in the Sustainable Development Goals (SDGs), such as ending poverty and protecting the planet.

Type of Fund & Administrat ion Model

SECAD Partnership CLG was appointed to be the administrator of the community benefit fund, which is to be invested in communities over the construction period. SECAD provides a wide range of rural development and social inclusion support across Ireland, and it acts as a GMO for a wide range of community benefit funds, particularly in relation to onshore wind farms.

This fund is administered through an application funding portal, found on the EirGrid website, with funding being administered in phases. Payment for applications is administered via an electronic transfer, with successful groups receiving an advance of 50% of the award value.
Applicants are appraised based on evaluation criteria published on the Celtic Interconnector Community Benefit Fund website, including considerations for projects based on their type, social impact, long-term viability, value for money, and more.[80]
The fund is now in phase two, with applications for funding having been submitted between 15 January and 14 March 2025.[81] Phase three has not yet been announced. Upon applicants' receipt of funding, both SECAD and EirGrid put in place a monitoring and evaluation framework to monitor progress and the impact of the funding in the community.[82]

[71] EirGrid (n.d), 'Celtic interconnector'. Available: https://www.eirgrid.ie/celticinterconnector (Accessed 23 October 2025).
[80] Ibid.
[81] EirGrid (2025), 'EirGrid announces opening of next phase of €2.4m Celtic Interconnector Community Benefit Fund', 15 January. Available: https://www.eirgrid.ie/news/eirgrid-announces-opening-next-phase-eu24m-community-benefit-fund (Accessed: 23 October 2025).
[82] SECAD Partnership CLG (2025), 'EirGrid. Celtic Interconnector Community Benefit Fund: Guidelines, Phase 2'.

Fund Value

To date, this fund has awarded community groups and local organisations near the Celtic Interconnector project a total of €821,265.50. This is the second of three phases of funding available to communities in the project area, with the total fund amounting to €2.4 million.

During the most recent funding phase, €240,000 was distributed through the community stream, €236,437.50 was shared via the sustainability stream, and €344,828 was allocated to biodiversity initiatives. The biodiversity allocation includes

Industry

Community Benefit Agreements (CBA)

Introduction

A Community Benefit Agreement (CBA) is defined as a 'legally binding contract between coalitions of community-based organizations and developers that shape[s] how local development projects contribute to improving the quality of life of nearby residents'.[83] These agreements allow for communities to secure tangible benefits from proposed development projects while safeguarding against any potential burdens.[84] These agreements establish the framework for how local development projects engage with the community, and they ensure that the resulting benefits are distributed equitably and fairly across the population.[85]

In the American context, CBAs sit within a wider 'umbrella' of community benefit frameworks, alongside Good Neighbor Agreements (GNA), Project Labor Agreements (PLA), Host Community Agreements (HCA), and Community Benefit Plans (CPB).[86] CBA agreements share many similarities with these agreement types, but the focus of CBAs is on legally binding and enforceable contracts between the developer and community organisations, with the host community receiving monetary and non-monetary benefits, which can increase community support for a project and provide more certainty for a project's developers.[87]

In recent years, CBAs have become more commonly used than before in urban renewal projects, and social housing developments and major commercial ventures like sports stadiums, have been using the agreements successfully for many years.[88] More recently the model has been explored for its potential in the clean energy sector, in particular, with CBA agreements being employed by wind and solar farms.[89] The use of CBAs in this context allows host communities and organisations greater opportunity to capture the socio-economic benefits associated with infrastructure projects, helping to strengthen community support for renewable energy projects, while also creating more equitable outcomes for all involved.[90]

In addition to working towards the generation of local jobs and revenue for local areas, care must be taken that the introduction of a CBA does not create new or exacerbate existing inequities within the community in which it is based.[91] This risk has been ascribed to inequitable decision-making processes, especially when certain communities or groups possess greater capacity for self-advocacy than others. Furthermore, disparities in the distribution of benefits within the communities themselves have also been documented.[92]

Risk also needs to be considered in relation to the importance of energy justice and the need to create transparent and equitable energy policy.[93] CBAs can be used to fill a niche in energy policy, bridging

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[83] Moore-Bloom, Ruby (2025), 'Community benefits agreements: opportunities, barriers, and best practices'. Available: https://www.cleanenergytransition.org/post/community-benefits-agreements-opportunities-barriers-and-best-practices (Accessed 27 October 2025).

[84] Riedl D., Carlsen, W., Said, E., Saha, D, Adcox. G, & Fraser C. (2025) 'Community benefits frameworks: shortcomings and opportunities for greater impact', World Resources Institute. Available: https://www.wri.org/technical-perspectives/community-benefits-frameworks-database-takeaways (Accessed 27 October 2025).

[85] Blount, D. C., Elder, K., Fu, S., Girod, K, Perez, J, Pitkin, B. 'Community benefit agreements', Urban Institute. Available: https://www.urban.org/apps/pursuing-housing-justice-interventions-impact/community-benefit-agreements (Accessed 26 October 2025).

[86] Moore-Bloom R. 'Community benefits agreements'.

[87] Moore-Bloom R. 'Community benefits agreements', and Kreider, M., Jabrixio, M., Thomas, T., Eshuis, L., Constant, C., & MacDonald, S. (2024), 'Benefits and burdens: exploring the role of community benefits in wind energy development' National Renewable Energy Laboratory, Report No.: NREL/PR-5000-88603. Available: https://docs.nrel.gov/docs/fy24osti/88603.pdf (Accessed 26 October 2025).

[88] Kreider M. et al., 'Benefits and burdens'.

[89] Moore-Bloom, Ruby (2025), 'Community benefits agreements', and Kreider M. et al., 'Benefits and burdens'.

[90] Kreider M. et al., 'Benefits and burdens'.

[91] Ibid.

[92] Kreider M. et al., 'Benefits and burdens', and Gunton C. & Markey, S. (2021), 'The role of community benefit agreements in natural resource governance and community development: issues and prospects'. *Resources Policy*, 73:102152.

[93] Gunton C. & Markey S. 'The role of community benefit agreements in natural resource governance and community development'.

the gaps between communities and projects, and ensuring that there is a structured approach to the flow of benefits from the energy project directly to the community. By centring the community at the heart of the decision-making process and ensuring active participation by all parties, CBAs can be a positive bridge between industry and community development; [94] however, trust is an essential element in forming Community Benefit Agreements (CBAs) for clean energy projects.

Fund Type and Administration

The structure and format of these agreements vary. A literature review identified the use of differing funding quantities, stakeholders, administrators, and fund distribution methods (e.g. direct payments or grant awarded by), as well as funding distribution timelines (one-time payments, milestone-linked payments, or payments over the project lifetime).[97]

The principles and practices that inform the establishment and management of CBAs also vary, and there is a wide variety of guidance available on best practices, templates, and structures. [98] Nevertheless, it is clear that creating a 'good' CBA typically involves several different administrative steps.

Prior to initiating the project, it is essential to enhance education and raise awareness within communities to ensure they understand that CBAs are available as an option.[99] This process can also be complemented by a Social Impact Assessment (SIA), which can holistically assess the project in the context of the desired community and assess its impact.[100]
Subsequently, the relevant community should be convened to determine their priorities and to address any potential concerns associated with the project.[101] This step should include consulting directly with a diverse cross-section of the community, to ensure a wide range of voices are considered and heard.[102] This process may involve inviting a variety of community members such as business owners, parents, school representatives, faith leaders, and individuals and groups with shared needs to voice their views and opinions.[103]

Terms of agreement should be explored carefully and tailored to each project. As each community and project combination is unique, agreements may look different in each case.[104] However, these terms should always be clearly defined and include specific, tangible benefits for the community.[105]
Thereafter, the agreement should be prepared by a developer in collaboration with legal counsel, who may also designate a third party or community leader/administrator as the signatory.[1] This process should be followed by the instigation of a monitoring and evaluation framework to ensure that all parties can play a role in the implementation and enforcement of the agreement.[106] Clearly defined mechanisms ensure project developer accountability and ensure the commitment is fulfilled by both parties.

Fund Value

The fund value for CBA agreements varies substantially depending on the project's scale, type, and location. For renewable energy developments, contributions are commonly tied to project capacity or output, with funds calculated on a per-megawatt basis to ensure proportionality between project size and community benefit.[107]

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[94] Ibid.
[97] U.S. Department of Energy (2025), 'Wind energy community benefits guide'. Available: https://windexchange.energy.gov/community-benefits-guide (Accessed: 27 October 2025).
[98] Kreider M. et al., 'Benefits and burdens', and Partnership for Working Families (2016), 'Common challenges in negotiating community benefits agreements: and how to avoid them'. Available from: https://www.datocms-assets.com/64990/1657040054-effective-cbas.pdf (Accessed 26 October 2025).
[99] Moore-Bloom, Ruby, 'Community benefits agreements'.
[100] Department of State Development, Infrastructure and Planning (2025), 'Community benefit', Queensland Government. Available: https://www.planning.qld.gov.au/planning-framework/community-benefit (Accessed 26 October 2025).
[101] Ibid.
[102] Ibid.
[103] Kreider M. et al., 'Benefits and burdens: exploring the role of community benefits in wind energy development'
[104] Moore-Bloom, Ruby, 'Community benefits agreements'
[105] Ibid.
[106] Moore-Bloom, Ruby, 'Community benefits agreements', and Kreider M. et al., 'Benefits and burdens'.
[107] U.S. Department of Energy, 'Wind energy community benefits guide'.

Monetary contributions may include direct annual payments to community funds, lump-sum payments during construction, or ongoing contributions linked to project revenues.[108] Non-monetary benefits can include the provision of community infrastructure, education and skills training programmes, energy efficiency initiatives, and/or environmental enhancement projects.[109]

Determining the appropriate value for community benefit funds requires balancing project viability with meaningful community impact. Transparent methodologies for calculating fund value help foster trust between developers and host communities, while participatory decision-making ensures that fund benefits align with local priorities and long-term development goals.[110]

[108] Moore-Bloom, Ruby, 'Community benefits agreements'.
[109] Ibid.
[110] Moore-Bloom, Ruby, 'Community benefits agreements', and Kreider M. et al., 'Benefits and burdens: exploring the role of community benefits in wind energy development'

APPENDIX 6.1

Eire Ecology

Environmental Consultants

Bat Survey Report

Project Admiral

DOCUMENT DETAILS

Client:	Red Admiral DC Ltd
Project Title:	Construction of solar farm, data centers and ancillary works.
Document Title:	Bat Survey Report
Prepared By:	John Curtin; Eire Ecology
Date:	20/05/2025

EXECUTIVE SUMMARY

This document reports on the findings of bat surveys conducted in 2024 and 2025 within the proposed development in the townlands of Oldtown, Crockaun, Rahincuill and Farthingstown, Co. Westmeath located along R446 just west of Rochfortbridge. Surveys included pre-construction bat surveys focusing on the subject site, surrounding habitats, potential roost features and connectivity with the wider landscape.

Surveys included roost assessment of trees and structures, walked surveys using bat detectors, and longer duration static monitoring focusing on representative habitats found within the site. The aim was to examine current bat usage within the site and identify the impact of the development on the species present.

Eight static detectors were placed within the site for twelve nights in August to early September and again in April, with four statics placed in open habitat and four placed by edge habitat, along linear connective features in each section of the site. During static surveys, a total of seven species of bats were recorded: Common Pipistrelle, Soprano Pipistrelle, Nathusius Pipistrelle, Leisler's bat, Natterer's bat, Daubenton's bat and Brown long-eared bat. In addition, several unidentified Myotis species were recorded; though without social calls or characteristic call features present these are only classified to a genus level. The most frequently recorded species was Common Pipistrelle, followed by Soprano Pipistrelle and Leisler's bat, with lower levels of the Myotis species and Brown long-eared bat detected. Solar panels are proposed within open pasture with the majority of tree lines and hedges within solar lands being retained. The western development will result in the loss of some tree lines utilised by bats.

Results show that without mitigation there will be a significant impact on feeding bats by the western section of the site particularly Common Pipistrelle given the proximity to a roost.

All bats recorded during surveys are classified as 'Least Concern' on the Irish Red List No. 12 and protected under the EU Habitats Directive Annex IV and Wildlife Acts. The site is outside the typical geographical range for the EU Habitats Directive Annex II listed species lesser horseshoe bat.

Robust mitigation is proposed in order to negate potential impacts on bats including the creation of a woodland, creating veteran features in existing trees, limiting outdoor lighting, upgrades to bat roost and a post construction monitoring program designed to examine the effectiveness of these mitigation measures.

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1 INTRODUCTION

This report details the findings of bat surveys carried out as part of the Admiral Solar Development which will develop farmland either side of the M6. The development will consist of a Solar Farm and data centres with ancillary buildings outside Rochfordbridge.

1.1 SITE DESCRIPTION

The subject site lies adjacent to the village of Rochfortbridge (53.3989, -7.326), within the townlands of Oldtown, Crockaun, Rahincuill and Farthingstown, Co. Westmeath. While close to the village, the site is located in a rural area. The settlement pattern in the area is linear, made up of one-off rural housing and farmyards generally located along the local road network. The majority of the proposed development is located within pasture and tillage with associated treelines and hedgerows. Small streams can be found to the north (Castlejordan Stream) and west (Kiltotan stream) of the site.

1.2 PURPOSE OF THIS REPORT

This report aims to;

- Examine the area of works for the presence of bats or their roosts.
- Identify species of bats using the sites and identify regions of higher bat activity to focus conservation efforts on.
- Potential impacts of bats by the proposed development.

In order to assess the presence and activity of bats within the proposed development grounds the following surveys were undertaken within and adjacent to the proposed planning boundary:

- Preliminary roost assessment.
- Bat activity (emergence surveys);
- At height tree roost inspections (PRF surveys) and
- Static detector (activity surveys).

The surveys undertaken follow elements of the Bat Conservation Trust 'Good Practice Guidelines, 4th edition, (Collins, 2023) and the Irish Wildlife Manual No. 134' (Marnell F. K., 2022).

1.2.1 Surveyor Information

The surveys were designed and carried out by John Curtin B.Sc. (Env.). John has over fifteen years' experience of carrying out bat surveys and has completed numerous surveys during this time. John has also completed the Bat Conservation Ireland, Bat Detector Workshop and Bat Handling Workshop which are the standard training for the carrying out of bat surveys in Ireland. He follows the Bat

Conservation Ireland 'Good Practice Guidelines'(Aughney et al., 2008)'. In addition, John is a longtime active member of Bat Conservation Ireland, which monitor bat populations in Ireland, and facilitate the education of bat communities to the public.

John holds the following licenses.

Description	Licence No
Licence to capture protected wild animals for educational, scientific or other purposes (bats)	C014/2025
Roost disturbance (bats)	Der/Bat 2025-177
Licence to photograph / film wild animals (bats)	032/2025

Surveys were assisted by; Karolina Illien M.Sc Ecologist, Fionn O Neill and Rowan Curtin (assistants). At height tree surveys were conducted by arborist Rik Pannett and overseen by John Curtin

1.3 Relevant Legislation

There are two main pieces of legislation which cover wildlife protection in Ireland – the Wildlife Act and the Habitats Regulations. These are outlined below, with particular reference to the protection afforded to bat species in Ireland.

The Wildlife Acts 1976 and 2000

The primary domestic legislation providing for the protection of wildlife in general, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976, as amended. The aims of the wildlife act according to the National Parks and Wildlife Service are "... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims." All bat species are protected under the act. The Wildlife (Amendment) Act of 2000 amended the original Act to improve the effectiveness of the Act to achieve its aims.

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

1.3.1.1 European Communities (Birds and Natural Habitats) Regulations 2011 to 2021

The EC (Birds and Natural Habitats) Regulations 2011-2021 provide strict protection for all of the Irish species listed on Annex IV of the EU's Habitats Directive. It does by prohibiting certain activities which could impact on the conservation status of those species. Those activities may only be permitted by way of a derogation license. All bat species found in Ireland are listed under Annex IV of the Directive, while the lesser horseshoe bat is afforded further protection under Annex II.

Figure 1-1: Site Layout

2 DESKTOP STUDY

2.1 SCOPE

As mentioned above, surveys undertaken follow elements of the Bat Conservation Trust 'Good Practice Guidelines, 4th edition, (Collins, 2023) and the Irish Wildlife Manual No. 134' (Marnell F. K., 2022). Emergence surveys were conducted in April and May 2025. While outside the peak maternity period, data from static surveys conducted in August and September provides insight into this period. A ground level tree assessments were conducted in March 2025. At height tree surveys were conducted in April 2025 with emergence surveys conducted in April and May. A final static detector surveys was carried out in April 2025. The survey types were determined appropriate to establish a baseline species assemblage, along with spatial and temporal distribution of species activity within the proposed planning boundary.

2.2 DESKTOP REVIEW

A desktop assessment is required in order to assign a risk level to the site and design future survey work. The appropriate level of survey effort for a site depends on the quality of habitat and the scale and likely impact of the development. Consideration should be given to the presence of suitable commuting and foraging habitat and the likely presence of bat roosts near proposed turbines. An assessment was conducted for Admiral by examining the BCI database, NBDC records, BCI landscape model for bat suitability, Ordinance survey, aerial photos and google street view.

A data search was conducted in August 2024 and again in March 2025 to revise existing information from the surrounds of the proposed planning boundary. The following sources of information were examined:

- Known bat records within a 6 km radius of the proposed sites from the Bat Conservation Ireland database
- Adhoc and observational bat records from the National Bat Database held by the National Biodiversity Data Centre (www.biodiversityireland.ie)
- Review of Ordnance Survey mapping and aerial photography of the proposed wind farm boundaries and their environs (i.e. 200 m plus rotor radius of the boundary of the development)
- Records of designated sites within a 6 km radius of the proposed sites where bats form part or all of the reason for designation (https://www.npws.ie/protected-sites)
- Collation of data on known caves within a 4 km radius of the proposed sites from the Cave Database for the Republic of Ireland, compiled by Trinity College (http://www.ubss.org.uk/search_irishcaves.php)
- Review of bat survey data from Ecological Impact Assessments from proposed and permitted developments within the wider environs of the site.

2.2.1 Designated Sites

In order to determine the state of the preexisting bat landscape in the area, a desktop search was made for designated sites within 15km of the proposed planning boundary. These included sites designated at the European level (in the context for bats, this refers to Special Areas for Conservation or SACs) and the Irish level (Natural Heritage Areas or NHAs and proposed Natural Heritage Areas or pNHAs). The Habitats Directive (Article 6) forms a basis for the designation of SACs. Further information on the context of SACs for bats is given in section 2.2.1.

NHAs are areas considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000), NHAs are legally protected from damage from the date they are formally proposed for designation.

All pNHAs were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, for the purposes of this assessment all pNHAs have been considered as fully designated sites.

Both NHAs and pNHAs may be designated due to the presence of bats, so considerations are made for both.

The site lies, approximately 5.19km from Raheenmore Bog SAC [Site Code: 000582], approximately 5.61km from Lough Ennell SAC [Site Code: 000685], 6.30km from the Lough Ennell SPA [Site Code: 004044], 6.4km from Split Hills and Long Hill Esker SAC [Site Code: 001831], 13.36km from Wooddown Bog SAC [Site Code: 002205]. None of the EU designated sites are designated for the presence of bat species. (see **Figure 2-1** below).

The closest recorded cave lies 9.6km to the south of the site (Mount Brisco). No records of bats have been noted from the cave and it lies outside the zone of influence for the development.

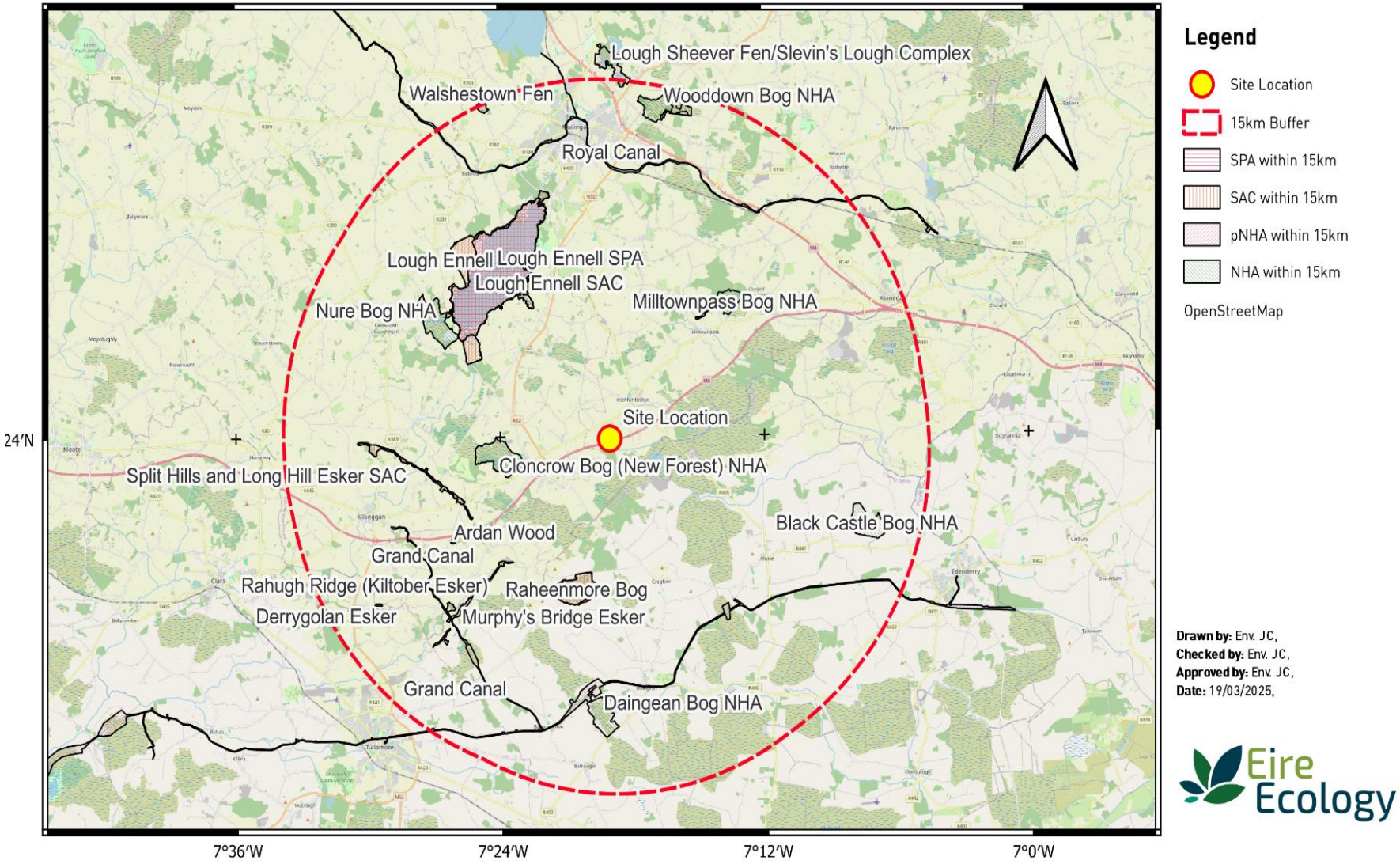

Figure 2-1: Location of proposed development to designated sites

Table 2-1: Designated sites surrounding site

Site Code	Site Name	Distance (Km)	Details with respect to Bats	Potential relevant connectivity
EU Designated Sites				
000582	Raheenmore Bog SAC	5.19km	The CO and Site synopsis documents for this SAC do not refer to bats	No.
000685	Lough Ennell SAC	5.61km	The CO and Site synopsis documents for this SAC do not refer to bats	No.
004044	Lough Ennell SPA	6.30km	The CO and Site synopsis documents for this SPA do not refer to bats	No.
001831	Split Hills and Long Hill Esker SAC	6.46km	A Soprano Pipistrelle roost is located within SAC.	Unlikely given distance
002205	Wooddown Bog SAC	13.36km	The CO and Site synopsis documents for this SPA do not refer to bats	No.
Nationally Designated Sites				
000677	Cloncrow Bog (New Forest) NHA	3.15km	The site synopsis documents for this NHA does not refer to bats.	No. Tyrellspass village forms a barrier between sites.
02323	Milltownpass Bog NHA	5.63km	The site synopsis documents for this NHA do not refer to bats. While there is potential connectivity through hedgerow between the sites this lacks relevance given bats are not a key feature of the NHA	No.
000918	Rahugh Ridge (Kiltober Esker) pNHA	6.30km	The site synopsis documents for this pNHA does not refer to bats.	No.
001725	Nure Bog NHA	7.59km	The site synopsis documents for this NHA do not refer to bats	Unlikely given distance
001711	Ardan Wood pNHA	7.66km	Common and Soprano Pipistrelle previously found next to pNHA	Unlikely given distance
001775	Murphy's Bridge Esker pNHA	8.89km	The site synopsis documents for this pNHA does not refer to bats.	Unlikely given distance
002104	Grand Canal	9.4km	While the site synopsis document for this pNHA does not refer to bats, the Grand canal acts as an important linear feature, especially for Daubenton's bats	Unlikely given distance
002033	Daingean Bog NHA	10.61km	The site synopsis documents for this NHA do not refer to bats	Unlikely given distance
002103	Royal Canal pNHA	10.81km	The site synopsis documents for this pNHA does not refer to bats although Daubenton's bats are known to utilize the canal.	Unlikely given distance
000570	Black Castle Bog NHA	11.40km	The site synopsis documents for this NHA do not refer to bats	Unlikely given distance
000896	Derrygolan Esker pNHA	12.40km	The site synopsis documents for this pNHA does not refer to bats.	Unlikely given distance
000694	Wooddown Bog NHA	13.22km	The site synopsis documents for this NHA do not refer to bats	Unlikely given distance
001731	Walshestown Fen pNHA	14.58km	The site synopsis documents for this pNHA does not refer to bats.	Unlikely given distance
000690	Lough Sheever Fen/Slevin's Lough Complex pNHA	14.69km	The site synopsis documents for this pNHA does not refer to bats.	Unlikely given distance

2.3 Bat Species Recorded in the Surrounding Area

The BCI database was consulted for details on bat records held for the site and the surroundings. The database was consulted on 26/03/2025 for details on historical records from the site for the surrounding area. Results are outlined in Appendix A Table 1.

Five species were recorded roosting within a 6km radius of the site, including Common Pipistrelle, Soprano Pipistrelle, Daubenton's Myotis, Brown Long-eared bats and Natterer's bat.

The database lists four roosts within 6km. Of most relevance are roosts found 1.1km and 1.5km to the north of the site where Natterer's Myotis, Brown Long-eared and Common Pipistrelle (1 of each) were observed hibernating and a summer roost of Daubenton's bats (1 bat) and Brown Long-eared bat (max of 1 observed) was found. These roosts have connectivity to the subject site via hedgerows, however roost observations show low numbers of bats.

Additionally, bat box schemes set 4.4 and 5.5km from the site have records of Soprano Pipistrelle, unidentified Pipistrelle and unidentified bats.

The closest adhoc records are from 2km to the site where Soprano Pipistrelle and Daubenton's bats were noted.

2.3.1 Derrygreenagh CCGT located 2.78km south east of the subject site.

Bat emergence surveys conducted at six buildings and one structure within the vicinity of the existing Bord na Móna power plant in 2023 revealed the presence of eight bat roosts. Of these, two soprano pipistrelle and a single Natterer's bat maternity roost were confirmed. All other roosts were considered to be transitional /occasional roosts or night roosts/ feeding perches. According to (BCT, 2020) Natterers bats have a CSZ of 4km while Soprano Pipistrelle are 3km.

A core sustenance zone (CSZ), as applied to bats, refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.

The CSZ for these roosts cover sections of the solar site to the southeast however in these areas, treelines and hedgerows will not be impacted to a large extent.

2.3.2 Bat Landscapes

(Lundy, 2011) produced a landscape model by analyzing data contained in the Irish National Bat Database, maintained by Bat Conservation Ireland and the National Lesser Horseshoe Bat database maintained by National Parks and Wildlife Service. The maps are a visualisation of the results of the

analyses based on a 'habitat suitability' index. The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. The landscape model has been conducted for all of Irelands nine resident species.

The site lies within a moderately suitable landscape for bats with highest suitability for Common Pipistrelle (see Table 2-2).

Table 2-2 Risk assessment (green is low suitability for bats, red is high)

Castlelost Solar development		**Suitability index**
Overall Suitability; BCI		21.78
Pipistrellus pygmaeus	Soprano Pipistrelle	35
Plecotus auritus	Brown Long-eared bats	26
Pipistrellus pipistrellus	Common Pipistrelle	38
Rhinolophus hipposideros	Lesser Horseshoe	0
Nyctalus leisleri	Leisler's Bat	35
Myotis mystacinus	Whiskered Bat	13
Myotis daubentonii	Daubenton's Bat	19
Pipistrellus nathusii	Nathusius's Pipistrelle	5
Myotis nattereri	Natterer's Bat	25

2.3.2.1 Preliminary Habitat Ranking

Much of the site consists of large tillage and pasture fields with associated tree lines and hedges. Bats use landscape features such as tree lines for commuting and feeding purposes. Large open fields are of less favorability than smaller ones. Of the four sections outlined in the scoping document, the western area appears to have more frequent and mature tree lines. The central site, close to a farmstead, also appears to have large tree lines thus are of somewhat higher value. The southern section contains a stream, partially dissecting the site. This could also be useful as a hunting and commuting route for bats.

The site appears to have limited buildings within the red line boundary, with more found towards the periphery. Overall, the site is provisionally assigned a Moderate risk site.

3 SURVEY METHODOLOGY

3.1 SURVEY METHODOLOGIES

3.1.1 Habitats on site

The site as referred to in this report consists of four areas, three north of the M6 and one south, which are referred to as Section 1 through 4. Section 2, 3 and 4 will consist of arrays of Solar panels, with associated access routes and Section 1 will contain buildings, roads, ancillary structures alongside areas dedicated to wildlife. The subject site mostly comprised of Improved agricultural grassland and tillage, with small portions of peat to the south and some conifer plantation just outside the site boundary. The site is bisected by the M6 motorway, providing a barrier for connectivity between north and south portions of the site. The site does contain multiple large trees with multiple potential roost features across the site, some of which will be felled during the construction phase of the project. A PRF survey as well as at height tree survey was conducted in order to accurately assess the impact of the loss of these potential roost locations for bats.

Figure 3-1: Aerial view displaying four site areas.

3.1.2 Preliminary Ecological Appraisal (PEA)

The proposed development is not altering buildings onsite though will require the removal of a number of linear features in including treelines and hedgerows to allow for the construction of access roads and buildings in Section 1.

An inspection of trees and structures was undertaken to assess for potential to host a bat roost on the 21st and the 26th of March 2025. Trees are a highly important feature of landscapes in that they provide roost sites throughout the year as well as being essential sources of insect prey. Therefore, the removal of such trees reduces the availability of shelter and feeding sites for bats (NRA 2005).

3.1.2.1 Structures.

Structures thought to be of high potential for bat roosts were identified onsite during desktop on preliminary roost assessment of the structures by surveyors. Four buildings were identified as having the highest potential and as such were flagged for nighttime emergence surveys.

Figure 3-2: Buildings where emergence surveys were deemed necessary

3.1.2.2 Trees - GLTA

The use of trees as roost sites is well established. Discovery of such roosts may be established by a variety of means including the use of a bat detector survey or alternatively by examination of all suitable crevices and cavities; commonly referred as Potential Roost Features (PRF's). Trees most likely to serve as bat roosts should be identified by a bat specialist from a walk-through of the route, from aerial photography or from a tree survey report.

High potential roost features (PRF's) used by bats include;

Knot-Holes – dead branch
Flush-Cuts – chainsaw cut of branch
Tear-Outs – wind or snow, often well below canopy
Double-Leaders - 2 stems of equal diameter emerge from same spot, cavity is located below split. Increased chance of roost where entrance hole is small
Wounds & Cankers - Rough edge, indistinct shape of entrance
Butt-Rot - decay at the base of a tree
Hazard-Beams - longitudinal splits in lateral limbs and (less frequently) upright stems allowing light to be seen through the gap typically found on Quercus, Salix and horse chestnut
Subsidence, Shearing & Helical-Splits - typically on the convex side of a bend
Lightning-Strikes – from crown to base.
Impact-Shatters – branch hit by falling tree etc.
Desiccation-Fissures – dead wood
Transverse-Snaps – branch / stem snapped however still attached
Lifting-bark
Unions – 2 independent branches (or double leader) fuses. Frequently Beech and Scots Pine
Ivy - typically where the root forms a mat against the tree – rare for bat usage.

Trees were categorized following (Collins, 2023).

Table 3-1: Categorise each tree according to Table 4.2 of (Collins, 2023).

Tree Category	Description
PRF	A tree with at least one potential roost feature (PRF)
FAR	Further assessment required to establish if PRF's are present in the tree.
None	Trees have no potential.

In total 420 trees were surveyed from ground level for their potential to host individual bats or a maternity roost. Two veteran ash trees in Section 1 and two Beech trees in Section 3 were flagged as having the potential to host a maternity roost (PRF-M). Both pairs of trees were subjected to nighttime emergence surveys as a second survey after an at-height inspection. Results are summarized below.

3.1.3 At-height surveys of trees

At-height surveys were carried out by John Curtin and Rik Pannett where Rik climbed trees and used a ridgid 350 ca. This was connected to the ecologists phone via wi-fi thus the ecologist inspected all cavities. Surveys were conducted on the 02nd and the 08th of April 2025. A number of Veteran trees onsite were noted to be of key importance in maintaining the continuity of connectivity through the site during and post construction. It is advised these trees be kept as Monolith features to assist in the establishing of the Compensatory woodland that will be planted on the West of the site. Details are Outlined in Section 6 of this Report.

3.1.4 Bat activity and emergence surveys

Bat detectors used during emergence surveys were Wildlife Acoustics Inc. (Echometer Pro 2's) which are triggered to record when a bat call is emitted louder than 18dB for 1sec. These detectors use full spectrum sampling; detecting all frequencies simultaneously, meaning that multiple bat calls can be recorded at the same time.

In addition to audio recording, multiple NVA's were used to assist the onsite surveyors. These include:

- Track IR Pro 19mm thermal imaging scope
- Track IR Guide Pro TK thermal imaging scope
- Canon XA10 night vision camcorder supplemented with two Nightfox IR torches

Video footage was analysed using Motion Meerkat alongside manual verification. Each contact with a bat was recorded. Where possible, a positive identification to species level was made by comparing onsite observations, audio recordings and night vision footage. Information on flight behaviour was also recorded where available.

A contact describes a bat observed by the surveyor. This contact can range from a commuter passing quickly to a foraging bat circling a feature lasting for several minutes. Some observations contain multiple bats. When several bats of the same species are encountered together, they are recorded under the one contact. A separate contact is recorded for each species. A contact finishes when the recorder assumes the bat is no longer present. It is likely that the same bat is recorded in several contacts throughout the night. This survey type cannot estimate abundance of bats, rather activity; *the amount of use bats make of an area / feature.*

Bat activity is governed by the activity of their insect prey and insect abundance is in turn governed by weather conditions and climate. Insects, and therefore bats, are unlikely to be present at temperatures below 7°C or during periods of strong winds or heavy rainfall so surveying in such conditions is not

possible. All field surveys were undertaken within the active bat season and during good weather conditions (dry conditions and temperature at 8°C and greater).

Bats were identified by their ultrasonic calls coupled with behavioral and flight observations and by sound analysis of recorded echolocation and social calls with dedicated software (Wildlife Acoustic's Kaleidoscope Pro; version 5.6.8)[1].

3.1.5 Static bat detector surveys

Song Meter Mini and SM4BAT Full spectrum bat recorders were deployed within the study area for twelve nights in early autumn and spring periods. Each bat pass does not correlate to an individual bat but is representative of bat activity levels. Some species such as the pipistrelles will continuously fly around a habitat and therefore it is likely that a series of bat passes within a similar time frame is one individual bat. On the other hand, Leisler's bats tend to travel through an area quickly and therefore an individual sequence or bat pass is more likely to be indicative of individual bats.

Detectors were programmed to commence half an hour before sunset and finish half an hour after sunrise to ensure that bat species that emerge early in the evening and return to roosts late are recorded. In total eight detectors were deployed, 4 within open habitats (the habitat type most impacted by the solar panels) and 4 adjacent to tree lines or hedges (higher potential features).

The data was analysed with Wildlife Acoustic's Kaleidoscope Pro; version 5.6.8). This software identifies many of the calls made by Irish bats. All calls were manually verified. Results presented below show some Myotis calls that the surveyor is confident are Natterer's bat and a single Daubenton's Bat. Distinguishing between Myotis species recordings is difficult (unless distinctive social calls are recorded thus several calls are recorded to genus level only. These could be either Whiskered, Daubenton's or Natterer's bat. Similarly, several Pipistrelle calls were recorded with a peak frequency of around 40kHz. These calls are lower than expected for Common Pipistrelle but higher than typical for Nathusius'. Following the precautionary approach these calls have been included in the ECOBAT section below as Nathusius Pipistrelle although it is likely many, if not all were Common Pipistrelle.

3.1.6 Static Survey and Analysis Limitations

- It is not always possible to identify a bat call to species level due to the recorded call not being clear. Recorded files from automated detectors may contain only fragments of a call, or the bat may be calling from a distance (from the detector) in which case it may not be clear enough to assign the call to a specific species. In these cases the call has been assigned to genus level;

[1] *The surveyor manually verified all calls rather than depending on auto identification. It is the surveyor's opinion that auto-id features frequently misidentify bat species*

- Some caution must be taken when comparing activity levels between species, as bias can be shown towards those species with 'louder' or 'lower frequency' echolocation calls. For example, Nyctalus species have louder and low frequency echolocation calls which carry further than the quieter and more broad-band brown long-eared bat echolocation calls;
- A bat contact (for static surveys) is defined as a single detector file which contains at least one bat call. Multiple contacts at any given detector location do not necessarily indicate the presence of more than one bat and should therefore be interpreted as a level of activity rather than the number of bats recorded;
- Typically, ECOBAT analysis (provides tools for the standardised, rigorous interpretation of bat activity data) is used to assign activity levels based on bat passes per night compared with environmental data such as location, weather etc. It works by contrasting the users data with previously uploaded data from other users. This tool had been offline (since November 2022) and while recently available, the author is not confident it currently works correctly thus the author has had to evaluate this dataset by using ECOBAT percentiles from previously used analysis on different sites that share similar attributes (open and edge habitat).
- Following the conservative approach 40kHz activity was included with Nathusius Pipistrelle.

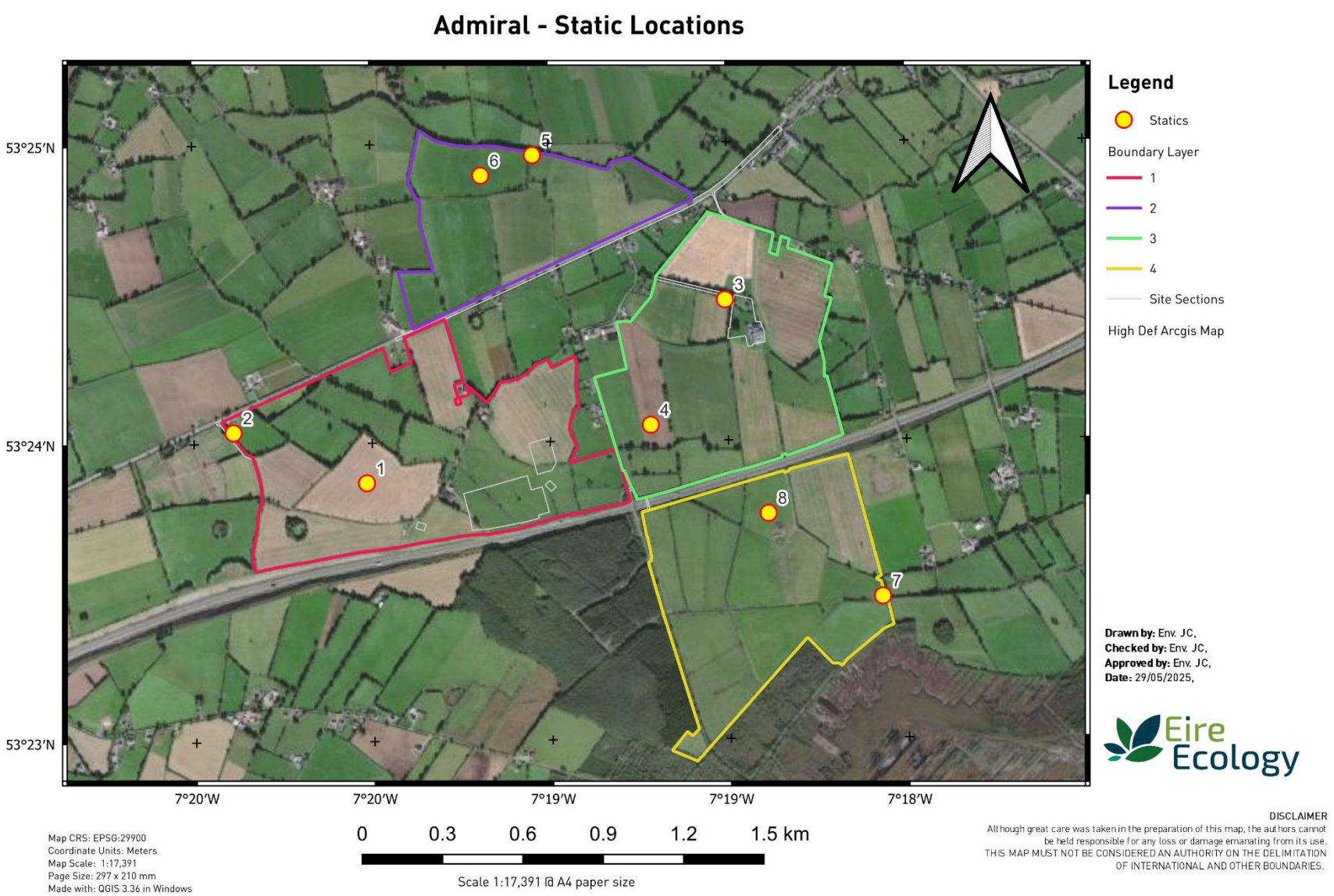

Figure 3-3: Static detector locations.

4 SURVEY FINDINGS

4.1 PEA RESULTS

4.1.1 Structures

A search was conducted of sheds and dwellings of highest potential that were within or close to the site. In situations where access was not possible the surveyor conducted nighttime surveys from the road examining bats and attempting to locate commuting routes and roosts. Table 4-1 and Figure 4-1 provide details from a preliminary search for bat roosts within buildings.

Table 4-1 Potential roost structures examined during daylight preliminary searches.

No.	Latitude	Longitude	Potential	Description
1	53.4006883	-7.3379244	Moderate	Occupied dwelling with newly renovated roof, some gaps in facia and potential for bats in the tile roof.
2	53.4007471	-7.3376315	Moderate-Low	Shed on property of Structure 1, concrete walls with deep crevices provide potential for single bats.
3	53.4005975	-7.3400088	High	Derelict house, now used as a storage shed for large hay bales, all windows are open, and crevices are present in the walls of the building
4	53.4044935	-7.3089102	Moderate-Low	Occupied modern dwelling with recently renovated tile roof. Low potential for bats from the facia.
5	53.4036950	-7.3089259	Moderate	Derelict dwelling and sheds next to farmyard. They are semi-detached with multiple sections of collapsed roof so there are areas where the interior is bright during the day, and so less suitable for bats.
6	53.400414	-7.324851	Moderate-Low	Derelict dwelling found to south of site by western section. Lots of light exposure due to no windows and large holes in roof and missing ceiling.
7	53.398711	-7.326159	Low	Shed and wall found to west of structure 6. Shed has no cavities and has metal roof. Shed lacks potential to host a roost. Wall has low potential.
8	53.397058	-7.328246	Low	Ruin of building with no roof. Exposed and low potential

During the daylight search no evidence of bats was noted from any of the structures listed in Table 3-4. Night-time surveys did reveal the presence of bat roost within five of these structures

4.1.2 Trees

In total, 420 trees were identified on site and were surveyed for bat Potential. Of these, 33 trees were concluded to contain potential roost features. Two ash trees in Section 1 were flagged as hosting good

potential for a large roost and 2 Beech trees in Section 3 were similarly flagged for good potential. These trees were investigated from the ground and then assessed again during at height tree surveys.

No bats were found to be roosting in trees onsite, though bats were observed utilising treelines for feeding purposes during nighttime surveys.

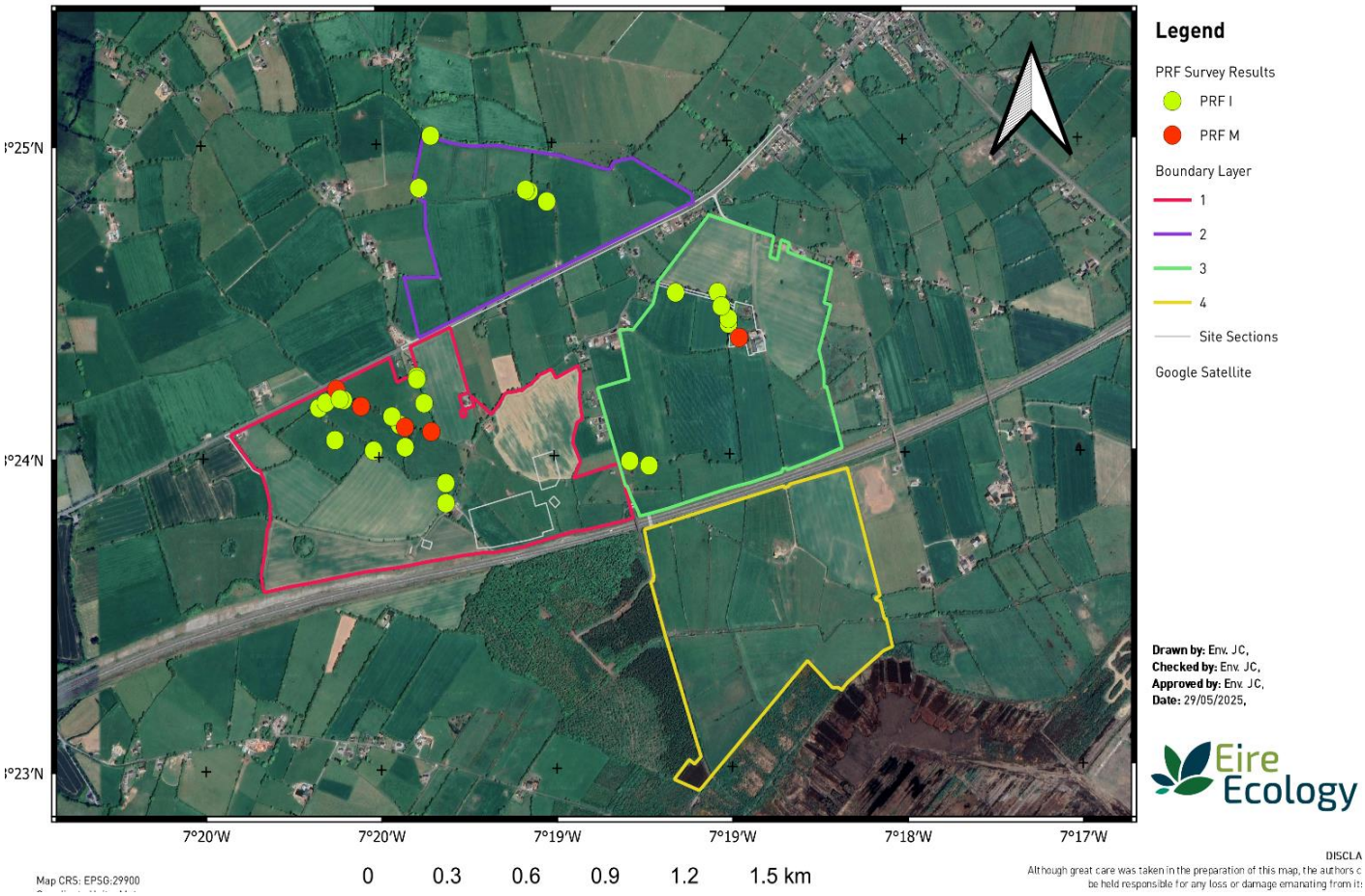

Figure 4-1: PRF Tree locations

4.1.3 Night-time Surveys

Nighttime surveys were conducted on the 23rd April, 01st of May and 9th May 2025. These surveys consisted of multiple surveyors recording activity levels at various points throughout the site at various structures identified during desktop surveys. The purpose of surveys was to examine for roosting bats that could be impacted by the development, observe bat interactions such as commuting routes, feeding areas, and examine if there are current impediments to bats within and surrounding the site.

- Trees located in section 1
- Occupied Dwelling to the West of Section 1, adjacent to D-2 and the shed Adjacent to house.
- Derelict Dwelling used as a hay storage shed.
- Occupied Dwelling in Section 3 of the site adjacent to D-3, shed included in survey.
- Derelict Sheds with slate roof semi-detached from derelict dwelling.

- Tree located in Section 3.

4.1.3.1 Key findings from nighttime surveys

4.1.3.1.1 Emergence surveys on 23/04/2025

Surveys were conducted on two veteran ash trees which showed potential for a maternity roost. Trees were recorded with Thermal NVA's from multiple angles and multiple microphones were used to ensure good coverage.

Table 4-2: Summary results from emergence surveys 23rd April 2025

Contact number	Time	Species	Details	NVA
1	21:21	Common Pipistrelle	Common Pipistrelle recorded and seen flying length of treeline, not emerging from tree	Thermal Tk
2	21:24	Leisler's Bat	Recorded but not seen, infrequent Leisler's Recordings throughout night	Thermal Tk
3	21:29	Soprano Pipistrelle	Heard but not Seen	Thermal Tk
4	21:50	Common Pipistrelle	One bat seen flying South along treeline, Recordings show both Common and Leisler's Calls at this time	Thermal Tk
5	21:44	Leisler's Bat	Heard but not Seen	Thermal Tk
6	22:23	Leisler's Bat	Heard but not Seen	Thermal Tk
No Bats emerging from Trees				
1	21:40	Leisler's Bat	Recording of Leisler's calls present, none seen	Canon
No bats seen emerging or commuting along treeline				

Plate 4-1: Thermal Footage of Ash Tree Emergence Survey

4.1.3.1.2 Emergence surveys on 01/05/2025

Two emergence surveys were conducted on the 1st May 2025 of structures 1, 2 and 3 by multiple surveyors working with NVA's and Ultrasonic detectors. Six Pipistrelle bats were observed emerging from Structure 3 (most likely 5 Common Pipistrelle and 1 Soprano Pipistrelle), from various exit points in the walls and gable end of the building. Only a single bat was observed leaving Structure 2.

Figure 4-2: Emergence Surveys conducted on buildings either side of R446.

Table 4-3: Emergence Surveys 01/05/2025

Contact number	Time	Species	Details	NVA
1	20:40	Unknown	Bat swooping behind house	Thermal TK
2	21:16	Unknown	Bat on Thermal, swooping from behind house	Thermal TK
3	21:22	Unknown	Bat passing Thermal TK in front of house	Thermal TK
4	21:50	Common Pipistrelle	Bat swooping to the right of camera	Thermal TK
No bats seen emerging from occupied dwelling				
1	20:51	Unknown	Bat enters Shed	Thermal 19mm
2	21:13	Likely Pipistrelle	Bat emerges from crevice in wall on the south face of the shed. Thermal imaging suggests hay and plaster retain heat and make the shed a more promising roost site.	Thermal 19mm
3	21:44	Soprano Pipistrelle	Bat emerges from lower right-hand window on the south side.	Thermal 19mm
4	21:57	Likely Common Pipistrelle	Emerging from corrugated roof, above right-hand 1st floor window	Thermal 19mm
5	22:20	Common Pipistrelle	B circling dwelling, emergence not seen, foraging behaviour for a number of minutes	Thermal 19mm
6	22:20	Common Pipistrelle	Emerges from central 1st floor window	Thermal 19mm
7	22;22	Common Pipistrelle	Emerges from Top left window	Thermal 19mm
8	22:23	Common Pipistrelle	Emerges from gable opening	Thermal 19mm
Six Bats seen emerging from hay shed across road to west of site				
1	21:46	Common Pipistrelle	Bat emerges from shed interior	Canon IR
Single Bat emerges from Shed				

4.1.3.1.3 Tree Emergence survey on 9th May 2025

A tree emergence survey was also conducted on the night of the 9th May 2025. This survey was conducted on two Beech trees located West of an occupied dwelling and farmyard, which is being surveyed at the same time.

Table 4-4:Tree Emergence Survey 09/05/2025

Contact number	Time	Species	Details	NVA
1	21:44:05	Barn Owl	Pair of Barn Owls were seen during this survey	Thermal 19mm
2	22:17 -> End	Common Pipistrelle	Bats hunting low in front of trees	
No bats observed emerging from either Beech Tree				

Figure 4-3: Beech trees being surveyed for bats

4.1.3.1.4 Emergence survey on 09/05/2025

Multiple emergence surveys were conducted on the 9th of May on Structure 4, an occupied house with tile roof and Structure 5, a semi-detached derelict shed and dwelling. No bats were found to be emerging from either building. Structure 4 is an occupied dwelling and shed, with a modern slate roof. The shed is small but showed better potential for a small number of roosting bats than the dwelling. Additionally, a derelict dwelling with semi-detached sheds, both with slate roofs in disrepair, were also surveyed. Facia was in disrepair on these structures, but many areas had collapsed roofs, making the interior brighter and thus less suitable for bats.

Figure 4-4: Emergence Surveys Conducted on buildings 4, 5, 7 (Shed) and Tree

Despite showing potential, no roosting bats were found in any structure on this property, though bats were observed frequently during the night using open areas in front of the dwelling. During late August surveys in 2024, this area showed high levels of bat activity, though reduced in Spring 2025, when this survey was completed.

Table 4-5: Emergence Survey 09/05/2025

Contact number	Time	Species	Details	NVA
1	21:45	Common Pipistrelle	Bat flies over house	Thermal TK
2	22:15	Common and Soprano Pipistrelle	Bats utilise the front of House and Lawn for hunting	Thermal TK
No bats observed emerging from House or Shed				
1	21:50	Soprano Pipistrelle	Bat circles shed in yard and behind building	Canon Starts at 21:14
2	22:00	Soprano Pipistrelle	Fly from other side of Shed	Video 2 starts at 21:51
3	22:28	Soprano Pipistrelle	Flew over surveyor and over slatted shed.	Finishes 22:59
No Bats observed Emerging from derelict sheds				

4.1.4 Static bat detector surveys

Eight Song Meter Mini full spectrum bat recorders were deployed within areas suitable for bats for 12 nights from August to early September during the bat active season, and again in May 2025. Detector 3, located in Section 3 showed the highest levels of Soprano Pipistrelle, Natterer's Bat and Leisler's Bat on site and had the highest activity level overall.

Several Pipistrelle calls were recorded with a peak frequency of around 40kHz. These calls are lower than expected for Common Pipistrelle but higher than the typical for Nathusius. In these cases, the calls are classified to genus level (Unidentified Pipistrelle 40kHz).

Table 3-1 below provides a summary of data with full data tables provided in Appendix A. Results show number of registrations and Bat passes per hour (Bp/Hr) and divides results per species and detector. An overall average of 46.9 Bp/Hr was recorded from the August-September period. Figure 3-3 below shows the location of statics detectors with size of location point based on number of registrations recorded.

Activity across the site was substantially higher on edge habitat compared to open across all sections, with the highest areas of bat activity being at Detector 3 and Detector 2 which show Bp/Hr of 241.1 and 131.6 during the August surveys. In August, the most common species recorded was Common Pipistrelle with 27,060 registrations (48%) followed by Soprano Pipistrelle with 14,829 recordings (27%). Leisler's bat represents 2.3% of total calls with other species recorded at low levels comparatively.

Activity in Spring showed reduced activity when compared to the first survey period. Detector 3 showed the largest drop-in activity of any location, activity dropped from 241.1 Bp/Hr (15,803 recordings), to just 18.5 Bp/Hr, with all species dropping in the same proportions. The majority of the calls on this site are still recorded at Detector 2, where Common Pipistrelle is the most abundant call recorded (89%)

It should be noted that a single bat continuously circling a small stand of trees will produce numerous recordings, thus the number of registrations cannot quantify abundance, rather activity.

Table 4-6: Summary of all results from static detector surveys

Detector	Habitat	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total	Bp/Hr
1	Open	69	88	102	0	0	18	1	3	7	288	1.1
2	Edge	188	21,309	2,976	4	7	35	6	0	100	24,625	94.7
3	Edge	543	8,169	9,521	3	2	17	19	0	86	18,360	90.2
4	Open	124	64	92	0	1	23	2	0	7	313	1.2
5	Edge	261	8,159	5,284	0	0	36	9	2	436	14,187	51.3
6	Open	43	59	55	0	0	11	1	0	20	189	0.7
7	Edge	192	2,287	1,802	4	5	34	1	0	47	4,372	18.0
8	Open	190	142	177	0	0	18	2	0	17	546	2.0
Total		**1,610**	**40,277**	**20,009**	**11**	**15**	**192**	**41**	**5**	**720**	**62,880**	
Bat passes per hour (Bp/Hr)		0.8	19.7	9.8	0.0	0.0	0.1	0.0	0.0	0.4	30.8	

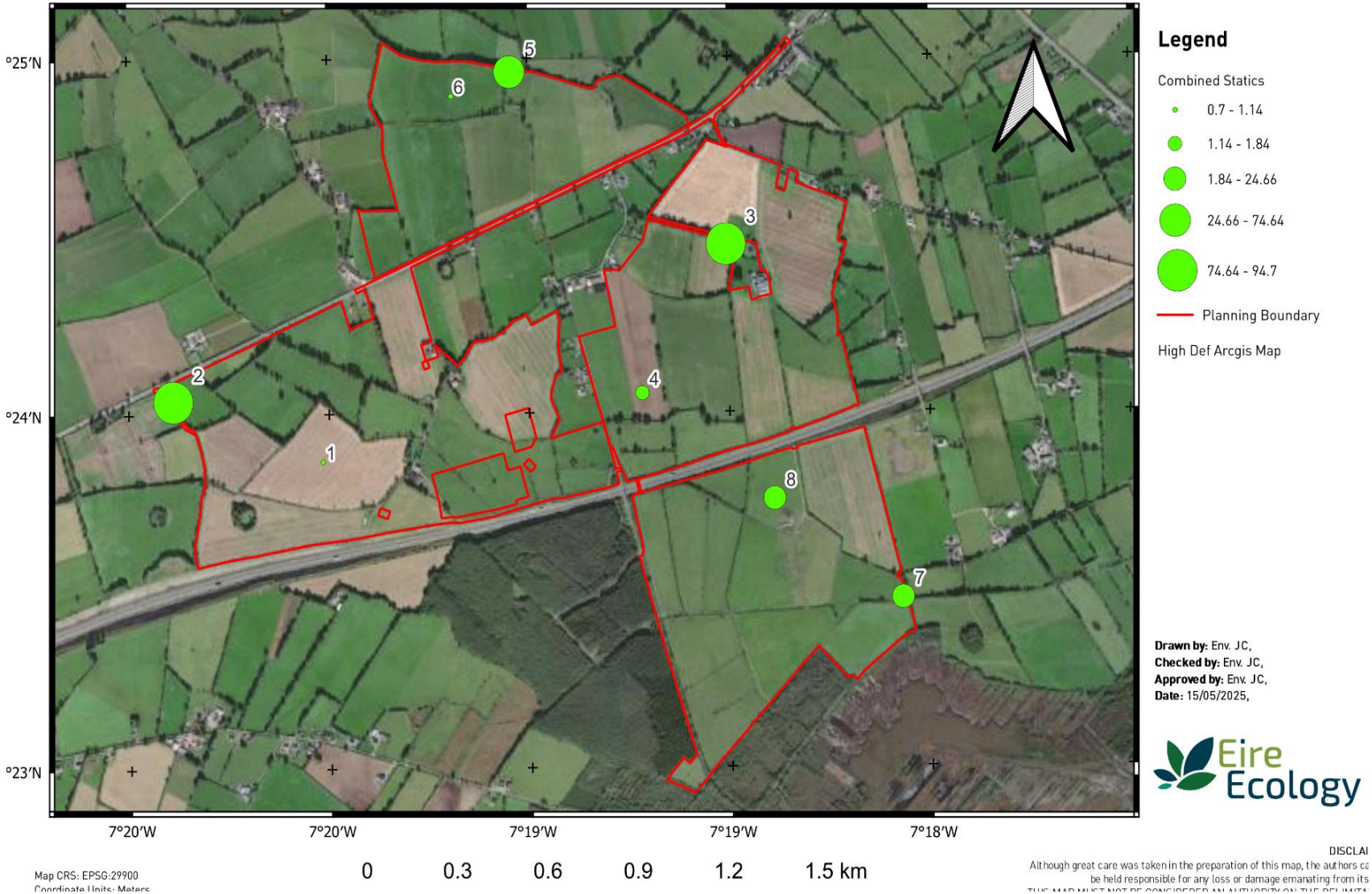

Figure 4-5: Combined Bat Activity. Size of circle represents activity level (Bp/Hr)

4.1.4.1 Activity Analysis

Static results were interpreted through ECOBAT type analysis. Ecobat was an online tool which makes assessments of bat activity levels by comparing data entered by the user with bat survey information from similar areas. Specifically, a median bat activity level is calculated which corresponds to a bat activity category (Table 4-7). This software had not been operational between November 2022 and January 2025 and while a new version has recently been release, the author is not yet satisfied it is providing accurate interpretations.

Table 4-7: Median percentile range and corresponding bat activity

Percentile	Bat Activity
81-100	High
61-80	Moderate to High
41-60	Moderate
21-40	Low to Moderate
0-20	Low

To prepare a risk assessment for the site, previous ECOBAT data the author has analysed was used to derive both an activity level and a median percentile. Data from numerous sites with similar habitat types were examined and compared with data from the subject site. Activity level from these donor sites were examined, activity percentiles were averaged to create a model from which activity can be derived. Admiral detectors were condensed into two groups; open grassland without a landscape feature within 25m of the detector and locations close to edge habitat (be that hedgerow or treeline). The percentile rating for each night's total passes per species from the comparison sites were ranked and averaged to derive a percentile score for the Garrane detectors. Following (P. Lintott., 2017) a minimum range of 200 nights with at least one night of bat passes was compiled.

An assessment was conducted only for those species identified for Leisler's bat, Common, Soprano and Nathusius Pipistrelle (following the precautionary approach all 40kHz Pipistrelle recordings were added to Nathusius Pipistrelle data). Table 4-8 provides an assessment of the entire site while table 4-10 compares the difference between open and edge habitats. For open habitats the site had moderate common and soprano pipistrelle activity and low Leisler's activity while edge had high activity for common and soprano, moderate Leisler's activity. Nathusius activity was low everywhere.

Table 4-8: Garrane detectors grouped by habitat

Group	1	2
Habitats	Open grassland without a landscape feature within 25m	Close to edge habitat (treeline, hedgerow or woodland)
Detectors	1, 4, 6, 8	2, 3, 5, 7

Table 4-9: Assigned activity levels – entire site

Latin Name	Common Name	Nights of High Activity	Nights of Moderate/ High Activity	Nights of Moderate Activity	Nights of Low/ Moderate Activity	Nights of Low Activity	Median Percentile	Bat Activity Category
Nyctalus leisleri	Leisler's bat	14	41	36	14	71	35	Low to Moderate
Pipistrellus nathusii	Nathusius Pipistrelle	0	5	7	5	159	0	Low
Pipistrellus pipistrellus	Common Pipistrelle	71	23	34	17	31	67	Moderate to High
Pipistrellus pygmaeus	Soprano Pipistrelle	66	32	22	8	48	61	Moderate to High

Table 4-10: Assigned activity levels – open compared to edge habitat

Latin Name	Common Name	Edge Habitat		Open Habitat	
		Median Percentile	Activity Category	Median Percentile	Activity Category
Nyctalus leisleri	Leisler's bat	53	Moderate	11	Low
Pipistrellus nathusii	Nathusius Pipistrelle	0	Low	0	Low
Pipistrellus pipistrellus	Common Pipistrelle	97	High	42	Moderate
Pipistrellus pygmaeus	Soprano Pipistrelle	93	High	46	Moderate

5 Discussion

Seven of the nine resident Irish bat species were found within the site; Leisler's Bat, Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Brown Long-eared, Natterer's Bat and Daubenton's bat.

62,880 registrations were recorded over the course of 22 nights from 8 static bat detectors placed in key locations throughout the site. Detectors 2, 3, 5, 7 are set in Edge Habitat which shows much higher activity on this site and these detectors make up 97% of all bat calls. Locations with high density of bat commuting traffic are Detector 2 and Detector 3 (D3 particularly in late summer when young bats are present).

Lowest Levels of activity was consistently seen in open habitats onsite, with Detector 1, 4, 6 and 8 showing drastically lower levels of activity. Detector 5 is the only detector placed adjacent to a watercourse, a small stream along the northern border of Section 3. It also showed the highest levels of Myotis Species on site though few Myotis bats were recorded.

The detector surveys show in open habitats, the average bat pass equates to 1.3 Bp/Hr. This is a very low level of activity and this habitat represents the majority of the site, particularly where the solar panels are proposed. In open habitats Common and Soprano Pipistrelle make up 58.3% of activity with Leisler's bats representing 31.9%. All these species typically fly at heights above 5m and regularly at heights of 20m+. The presence of solar panels should have little impact on these species current rate of activity in open areas. Other species were found in very low numbers here.

The average Bp/hr by edge habitat reached 100 Bp/Hr with high numbers of Common and Soprano Pipistrelle. In sections 2, 3 and 4, treelines and hedges are being retained with minimal gaps provided for access. In section 1 a significant portion of mature treelines will be lost. These trees were used by feeding bats and the loss of this habitat will need to be mitigated; see sections 6 and 7 below.

A Breeding pair of Barn owls were observed nesting onsite near Detector 3. Literature suggests that Barn Owls can influence the suitability of an area for bats, potentially driving bats out of a roost. (Roulin, 2013) concludes that while Barn Owls can predate on insectivore bat species, bats typically make up a small portion of their diet (usually <0.2%) and predation is mostly opportunistic on the part of the Barn Owl.

No tree roosting bats were recorded during any survey. Bat roosts were noted from buildings to the west of the site (two roost structures) however these buildings will not be altered by the proposed development.

6 IMPACT ASSESSMENT PRIOR TO MITIGATION

Determination of impacts is derived with guidance from EPA 2022 Guidelines on the information to be contained in Environmental Impact Assessment Reports. Table 6-1 provides definitions of effect while table 6-2 provides an assessment of impacts prior to mitigation for bats recorded within the site.

6.1 LOSS OF ROOSTING HABITAT

Assessment of Potential Impacts on Roosting Bats	All structures, trees and hedge species which could be impacted by the development were assessed from ground level examining the potential to host a bat roost. The shed in the North-western corner of the site is not going to be renovated, despite being onsite, and as such no derogation license is required, provided care is taking with lighting during the post-construction phase. Trees were examined for their potential to host a bat roost however none were found. The majority of trees will remain unaffected by the proposed development baring in section 1 where treelines are proposed to be removed. These trees will require re-surveying prior to felling to ensure no bats are present.
Characterization of unmitigated effect	Due to the retaining of the shed roost on site and the other roost being located offsite, the development will not have an impact on roosting bats. Lighting post-construction is the most likely cause of roost habitat loss and care must be taken that bats are not deterred from returning to their roost due to improper lighting practices. Bats moving into potential tree roosts that are being felled could be harmed. The removal of trees in section 1 will result in the loss of potential roost features.
Assessment of Importance prior to mitigation	This has the potential to have an effect on a receptor of Local Importance (Moderate Value).
Mitigation	Tree-felling should ideally be undertaken in the period **September to late October/early November,** however, can also be conducted from **late January until the end of February**. Outside of these times an EcOW will need to first verify if impacts will occur. All trees recorded as PRF will require an additional at height survey prior to felling. Identified roosts will not be impacted by lighting. **Veteranisation of trees** To compensate for the loss of prf features, veteranisation of remaining trees will create new features suitable for roosting bats. Six trees have been marked to be retained as monolith features to assist in the development of the compensatory woodland. The tree to the north will be retained if possible. This tree is an ash with significant dieback and is at the edge of the proposed road. This tree would have its crown removed and additional prfs cut in. The canopy of these trees will be cut and roost features will be cut into the trunks thus providing prf features in trees without any. Retaining these veteran trees will expedite the effectiveness of the mitigation measures by providing potential satellite roost locations and maintaining important continuity in the connectivity of treelines onsite

	Building 1 While a bat roost was not found in building 1, the attic of this building will be converted to make it more suitable for roosting bats. Three bat slates will be installed in the roof. In the attic, baffles will be created and 3 x 1ff Schwegler (or equivalent) bat boxes installed.
Residual Effect following Mitigation	With the implementation of the prescribed mitigation measures, no significant residual effects are predicted as a result of the construction works.

6.2 Loss of Foraging and Commuting Habitat

Describing the Significance of Effects	Surveys demonstrate low bat activity in open areas of the site thus the placement of solar panels throughout the site should have low levels of impacts on feeding bats. Section 1 contain the majority of hedgerow and treeline loss due to the density of proposed buildings in this section. The loss of these treelines will result in the loss of feeding and commuting habitats for the local bat population.
Characterisation of unmitigated effect	Without mitigation, there would be a loss of some feeding habitat for bats close to the location of a Common Pipistrelle roost.
Assessment of Importance prior to mitigation	This is a moderate effect on receptors of Local Importance (Higher Value).
Mitigation	**Planting of Compensatory Woodland** A plot of land, (4.34Ha), has been set aside to be planted with trees to act as mitigation against habitat loss in this section. Native trees will be planted along the Western boundary of the Section. With the retaining of mature trees, this will provide feeding and commuting habitat for local bats. An additional strip of woodland (1Ha) is proposed to be planted in Section 4, where trees are to be planted along the Northern Border of the site along the M6. This will act as safe commuting routes for bats in this section of the site and sheltering the Northern Section from light and noise pollution that may affect bat populations in the area. **Ponds** Two ponds will be created within section 1 that will act as SuDS drainage system. These ponds will not be kept as aesthetic features, rather be landscaped so as to avoid lighting and anthropic disturbance. Ponds will be surrounded by native trees.
Residual Effect following Mitigation	With the implementation of the prescribed mitigation measures, no significant residual effects are predicted as a result of the construction works. Short term slight effects on foraging and commuting are anticipated due to the temporary loss of vegetation during the construction phases though these effects will reduce as the Compensatory Woodland matures.

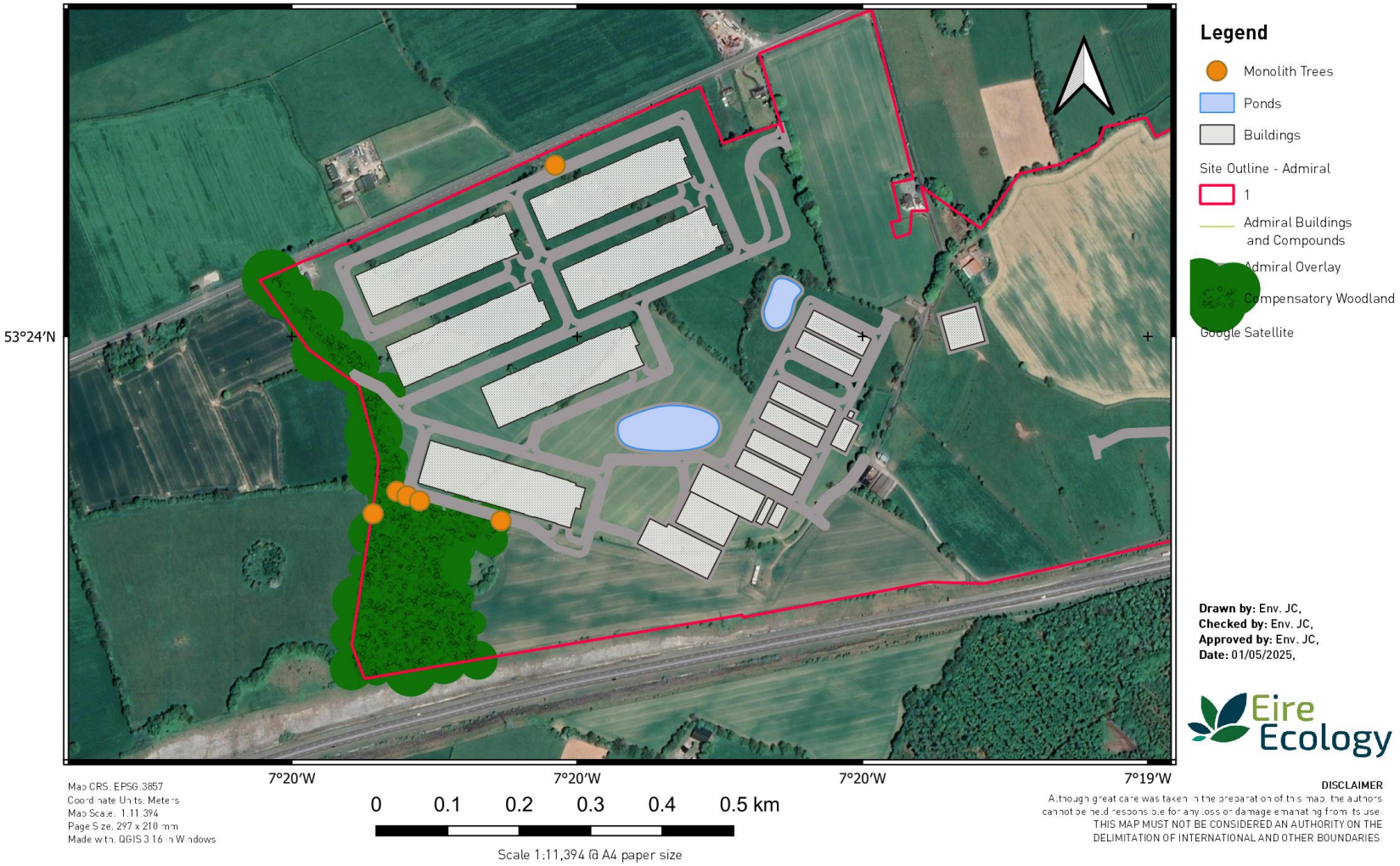

Figure 6-1: Trees Proposed as Monolith Features, section 1 proposed woodland and ponds.

Figure 6-2: Proposed Compensatory Woodland (total : 5.34Ha)

6.3 DISTURBANCE.

Describing the Significance of Effects	**Disturbance** - Works associated with development or building work are likely to lead to an increase in human presence at the site, extra noise and changes in the site layout and local environment. **Lighting effects on feeding and commuting bats** Guidance on lighting has been based on Bats and artificial lighting in the UK, Guidance Note 08/18 (BCT, 2018), EUROBATS*; Guidelines for consideration of bats in lighting projects.* (Voigt, 2018) and BCI; Bats & Lighting document; (BCI, 2010). Lighting can alter the behaviour of bats and the insects they prey on. Night flying insects can be attracted to lights particularly sources that emit an ultraviolet component or have a high blue spectral content. Whilst some species of bat such as Leisler's and Pipistrelle species can take advantage of this occurrence, other species such as Daubenton's bat and brown long-eared avoid such areas. Lighting can create barriers for bat species both entering roosts and using commuting routes such as rivers, treelined roads and woodland edges. A mitigation guideline produced by (Bat Conservation Trust, 2018) recommends that for effective mitigation to be implemented, there needs to be a collaborative effort by an ecologist in conjunction with engineers, planners and when deemed necessary by the ecologist, there should also be input from a lighting specialist and landscape designer. The guideline was designed for the UK where more bat species are concerned however there are aspects of the guideline that apply to Irish bat species. The guidelines recommend a baseline bat survey is conducted and the following areas should have no ALAN • Roosting and swarming sites for all species • Foraging or commuting habitat for highly light-averse species (lesser horseshoe, brown long-eared and some Myotis) • Foraging or commuting habitat used by large numbers of bats • Foraging or commuting habitat for rare species (Lesser horseshoe) (Bat Conservation Trust, 2018) **Western roost structure** Lighting is only proposed in section 1. This area contains a roost to the north west while another roost is located close but outside the site. Lighting close to the roost has the potential to impact entry to roosts and limit access to feeding grounds.
Characterisation of unmitigated effect	Without sufficient care, lighting could have a significant impact on the NW roosts.
Assessment of Importance prior to mitigation	This is assessed as a long-term Significant effect on a receptor of Local Importance (Higher Value).
Mitigation	**Construction** Where lighting is unavoidable during construction, low-intensity lighting and motion sensors will be used to limit illumination. Exterior lighting, during construction, will be designed to minimize light spillage, thus reducing the effect on areas outside the

	proposed development, and consequently on bats i.e. Lighting will be directed away from mature trees/treelines around the periphery of the site boundary and woodland areas to minimize disturbance to bats. Directional accessories will be used to direct light away from these features, e.g. through the use of light shields (Stone, 2013). The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands. **Operation** The aim of the lighting plan is to create three lighting zones in section 1; a dark zone (not impacted by lights), a low lux zone and a standard lit area. Figure 6-3 shows these areas. *Dark zone* The western boundary of the site (by building 1) showed highest bat activity during surveys. This entrance and the proposed woodland strip will remain unlit, The proposed road here is a secondary emergency road and does not require lighting. The new woodland and ponds will also remain unlit. **Low light zone** This area covers some sections of road where connectivity between the ponds and the woodland is desirable. Along these roads 6m high lights are proposed with a colour of 4000k thus not attractive to invertebrates. These lights will have motion sensors installed so will only operate when required. For much of the night, these areas will remain unlit. **Standard areas** The main buildings are considered standard areas where lighting is required. These areas are not of high value to bats.
Residual Effect following Mitigation	No significant residual effects on bats are expected at a county, national or international level.

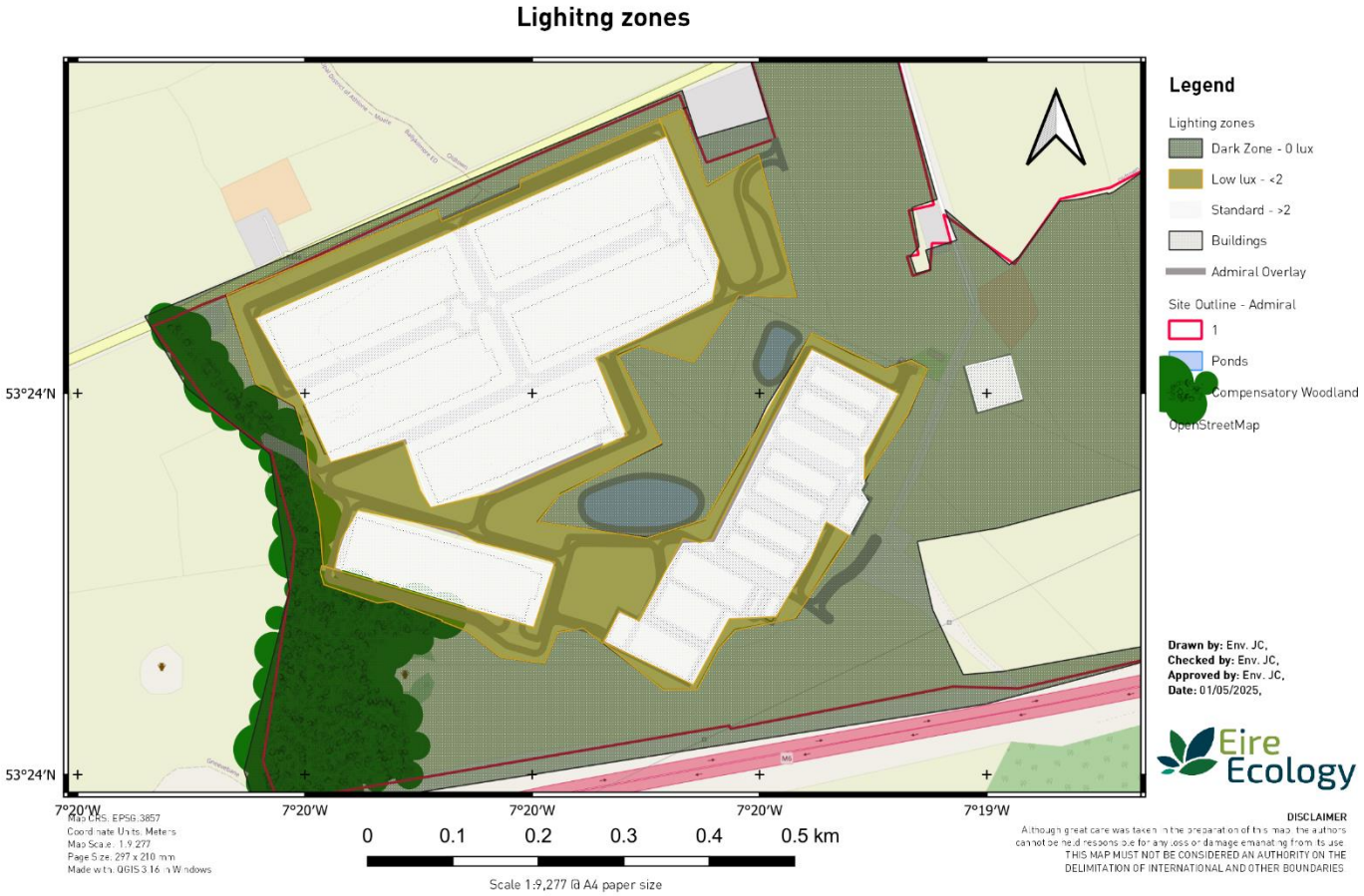

Figure 6-3: Section 1 lighting zones

6.4 BAT INTERACTIONS WITH SOLAR PANELS

Assessment of Potential Impacts on Roosting Bats	(Smallwood K. , 2022) reviewed reports of fatality monitoring from 1982 to 2018 at 14 project in California (PV, SCAs & heliostat mirrors reflecting light to towers) estimated some 11,418 bats have been killed in the state of California per year. Smallwood recommends • Perform baseline studies beginning ≥1 year prior to project construction to quantify relative abundance, densities in both breeding and nonbreeding seasons, and behaviour patterns of resident and migratory wildlife species; • Monitor all new utility-scale solar projects for fatalities, • Use scent-detection dogs • Integrate carcass detection trials into routine fatality monitoring, using appropriate species to quantify overall detection probability • Quantify and report observer error rates associated with monitoring, such as carcass detection rates and species misidentifications; • Report species-specific use rates and fatality rates in addition to use rates and fatality rates of all birds and all bat

	Regarding general activity, (Szabadi, 2023). The study found species most adapt at utilising anthropogenic environments used solar farms. The study also found a decrease in Myotis / woodland bats. Our surveys show the majority of bat activity recorded within the site was from open and edge habitats such as Common and Soprano Pipistrelle alongside Leisler's bat
Characterization of unmitigated effect	Given the lack of documented Irish studies there exists the potential some bats may collide with solar panels. In addition, there may also be a reduction in bat feeding habitats although the majority of hedgerows and trees within the solar farm portion of the site are being retained. Our surveys show these are the features most valuable for bats.
Assessment of Importance prior to mitigation	This has the potential to have a slight effect on a receptor of Local Importance (Moderate Value).
Mitigation	• Minimum 5m buffer for drain ditches and hedgerows. • (Horvath, 2010) suggests solar panels are a new source of polarized light pollution and can be attractive to insects, thus also insect feeding bat species. There is evidence that this potential effect can be mitigated by a non-polarising white grid, partitioning on solar panels to reduce or eliminate their reflection of polarised light. As such, all panels will be fitted with a non-polarising white grid partitioning. • Retention of all hedgerows and treelines in sections 2, 3 4 and 5. • Lighting restrictions. In general, artificial light creates a barrier to bats so lighting should be avoided where possible. Construction operations within the solar farm site will take place during the hours of daylight where possible to minimise disturbances to faunal species at night. Where temporary lighting is required, directional lighting (i.e. lighting which only shines on work areas and not nearby countryside) will be used to prevent overspill. The operational phase solar farm will not require lighting. This is a key measure to reduce impacts on bats.
Residual Effect following Mitigation	With the implementation of the prescribed mitigation measures, no significant residual effects are predicted as a result of the construction works.

7 MONITORING

Based on recommendations outlined on Smallwood and to provide an opportunity to gain baseline data on bat / solar panel interaction it is recommended that the scheme be monitored for bat (and bird) fatalities for the first three years of operation (post construction surveys). A comprehensive onsite fatality monitoring programme is to be undertaken following published best practice (e.g. SNH 2021 or equivalent at the time of operation).

The primary components of the bat mortality programme are outlined below:

a) *Carcass removal trials to establish levels of predator removal of possible fatalities. This should be done following best recommended practice and with due cognisance of published effects such as predator swamping, whereby excessive placement of carcasses increases predator presence and consequently skews results.* At the time of writing (2022), predation trials set using trail cameras following guidance set out in (Smallwood K. S., 2010) provides the most accurate results.
b) Searches for fatalities should be undertaken with the use of conservation dogs following best practice in terms of search area and at intervals selected to effectively sample fatality rates as determined by carcass removal trials in (a) above. Given little is documented at an Irish level monthly surveys should be conducted within the site and should include areas of highest bat activity.
c) Recorded fatalities should be calibrated against known predator removal rates to provide an estimate of overall fatality rates (bat fatalities/MW/year).
d) Conduct static monitoring in the same locations at similar times of year and assess activity compared to the baseline.
e) Monitoring report to be submitted to Westmeath County Council and the NPWS.

- A post-construction lux survey should be conducted of all lights in proximity to features important to bats such as woodland, treelines ponds and the known roosts. Should light have increased to a point where it may impact bats, adjustments to the lights will be required.
- Post construction monitoring of existing roosts should be conducted. Should occupancy lower than the baseline, measures will be required to rectify the situation.

8 CONCLUSION

Seven of the nine resident Irish bat species were found within the site. Two bat roosts were found; the site is utilised for feeding and commuting purposes. The site is located in Co. Westmeath. Common

Pipistrelle was the primary species utalising the site, with Soprano and Leisler's Bats also present in moderate numbers. Two Roosts were found in structures, one onsite and another less than 100 bm from the site boundary. Common pipistrelle and Soprano Pipistrelles were confirmed roosting onsite.

Common and Soprano Pipistrelle especially near D-2 and D-3, during the bat breeding season, in autumn, show very high levels of activity. It's these groups of bats that are of the highest risk onsite. Numbers of other species are much lower and more typical of occasional interactions with the site, not roosting bats.

Mitigation has been implemented by way of Compensatory woodland and retained monolith tree features to enhance the stability of the area. D2 was located in the western section of the site where this compensatory woodland will be planted. The large amount of Common Pipistrelle using the tree lines here will benefit from additional tree lines and lands for foraging.

After mitigation, no significant long term residual impacts will occur to roosting and commuting bats. It is possible that there will be a slight long-term impact on feeding bats specifically relating to bats utilising the area in and around the substation and lands adjacent to construction areas in Section 1, though compensatory measures will ensure that ample opportunities are available for bats after the construction phase is completed.

Additionally, bats should be able to better utilise the southern Section of the site, where connectivity has been created along the motorway through the planting of an additional hectare of woodland. Activity was low in the Southern section of sit but improving connectivity will encourage transit to the larger landscape outside the site.

9 Residual Impacts

As long as the mitigation measures requested above are implemented, impacts on the local bat populations will be negligible. Post construction monitoring will provide insights into the effectiveness of mitigation.

APPENDIX A – TABLES, FIGURES & PHOTOS

Table 1: Irish bat species recorded in the BCI database

Record Type	*Species name*	Distance of record from site	Last record	Details	Designation	Potential connectivity with subject site (for roost records)
Roost	*Myotis nattereri*	1.1km	2023	Ruined stone building by river. Records are of low numbers of hibernating bats	Annex IV EU Habitats Directive	Yes, Connectivity through treelines to N section
	Pipistrellus pipistrellus (45kHz)					
	Plecotus auritus					
	Plecotus auritus	1.5km	2024	Ruined stone building, Conifer plantation and watercourses nearby.		Yes, Treeline/Hedgerow provide connectivity
	Myotis daubentonii					
	Pipistrellus pygmaeus	4.4km	2015	Bat Box erected in woodland		No
	Unidentified Species	4.4km	2015	Bat Box erected in woodland		No
	Unidentified Species	4.4km	2015	Bat Box erected in woodland		No
	Unidentified Species	4.4km	2015	Bat Box erected in woodland		No
	Pipistrellus spp. (45kHz/55kHz)	5.5km	2015	Bat Box erected on boundary hedgerow		No
	Unidentified Species	5.5km	2015	Bat Box erected on boundary hedgerow		No
Ad Hoc	*Pipistrellus pipistrellus (45kHz)*	5.2km	2009	Bat Surveys - Tina Aughney	Annex IV EU Habitats Directive	N/A
	Pipistrellus pygmaeus					
	Myotis spp.					
	Nyctalus leisleri					
	Pipistrellus pipistrellus (45kHz)	5.1km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus pipistrellus (45kHz)	4.2km	2009			
	Pipistrellus pygmaeus					
	Nyctalus leisleri					
	Pipistrellus pipistrellus (45kHz)	4.6km	2009			
	Pipistrellus pygmaeus					
	Myotis spp.					
	Pipistrellus pipistrellus (45kHz)	5.2km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Nyctalus leisleri					

Record Type	*Species name*	Distance of record from site	Last record	Details	Designation	Potential connectivity with subject site (for roost records)
	Plecotus auritus					
	Myotis spp.					
	Plecotus auritus					
	Pipistrellus pipistrellus (45kHz)	5.4km	2009	Bat Surveys - Tina Aughney		
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Nyctalus leisleri					
	Plecotus auritus					
	Pipistrellus pipistrellus (45kHz)	5.3km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Myotis spp.					
	Pipistrellus pipistrellus (45kHz)	5.2km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Nyctalus leisleri					
	Myotis spp.					
	Plecotus auritus					
	Pipistrellus pipistrellus (45kHz)	4.8km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Pipistrellus pipistrellus (45kHz)	5.4km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Nyctalus leisleri					
	Pipistrellus pipistrellus (45kHz)	4.9km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Myotis spp.					
	Pipistrellus nathusii					
	Pipistrellus pipistrellus (45kHz)	4.5km	2009			
	Pipistrellus pygmaeus					
	Pipistrellus spp. (45kHz/55kHz)					
	Myotis spp.					
	Pipistrellus nathusii					
	Pipistrellus pipistrellus (45kHz)	4.0km	2009			
	Pipistrellus pygmaeus					
	Nyctalus leisleri					

Record Type	*Species name*	Distance of record from site	Last record	Details	Designation	Potential connectivity with subject site (for roost records)
	Pipistrellus pipistrellus (45kHz) *Pipistrellus pygmaeus,* *Pipistrellus spp. (45kHz/55kHz),* *Myotis spp.,* *Nyctalus leisleri*	4.2km	2009	Bat Surveys - Tina Aughney		
	Pipistrellus pipistrellus (45kHz) *Pipistrellus pygmaeus* *Nyctalus leisleri* *Myotis spp.*	3.9km	2009			
	Pipistrellus pipistrellus (45kHz) *Pipistrellus pygmaeus* *Pipistrellus spp. (45kHz/55kHz)* *Nyctalus leisleri*	3.6km	2009			
	Pipistrellus pipistrellus (45kHz) *Pipistrellus pygmaeus,* *Nyctalus leisleri*	3.6km	2009			
	Pipistrellus pipistrellus (45kHz) *Pipistrellus pygmaeus* *Nyctalus leisleri*	3.6km	2009			
	Pipistrellus pipistrellus (45kHz) *Pipistrellus pygmaeus* *Nyctalus leisleri* *Myotis spp.*	2.7km	2009	Batlas 2010		
	Pipistrellus pygmaeus *Myotis daubentoniid*	2.0km	2009	Batlas 2010		

POTENTIAL ROOST FEATURE (PRF) RESULTS

Table 2: PRF GLTA Results

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
1	53.40201	-7.3331	None	Ash	Some ivy but not mat forming	N/A
2	53.40194	-7.3332	None	Ash	Some ivy but not mat forming	N/A
3	53.40189	-7.3332	None	Ash	Some ivy but not mat forming	N/A
4	53.40186	-7.3334	None	Ash	Some ivy but not mat forming	N/A
5	53.40181	-7.3335	None	Ash	Some ivy but not mat forming	N/A
6	53.40177	-7.3336	None	Ash	Some ivy but not mat forming	N/A
7	53.40167	-7.3338	None	Ash	Some ivy but not mat forming	N/A
9	53.40156	-7.334	None	Hawthorn	Some ivy but not mat forming	N/A
10	53.4015	-7.3342	None	Hawthorn	Some ivy but not mat forming	N/A
11	53.40139	-7.3344	None	Hawthorn	Some ivy but not mat forming	N/A
12	53.40128	-7.3347	None	Hawthorn	Some ivy but not mat forming	N/A
13	53.40122	-7.3349	None	Hawthorn	Some ivy but not mat forming	N/A
14	53.40113	-7.335	None	Hawthorn	Some ivy but not mat forming	N/A
15	53.40107	-7.3352	None	Hawthorn	Some ivy but not mat forming	N/A
16	53.40101	-7.3353	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A
17	53.40098	-7.3355	None	Ash	Some ivy but not mat forming. 4 trees	N/A
18	53.40091	-7.3356	None	Ash	Some ivy but not mat forming	N/A
19	53.40086	-7.3357	None	Ash	Some ivy but not mat forming. 2 trees	N/A
20	53.40081	-7.3358	None	Hawthorn	Some ivy but not mat forming	N/A
21	53.40082	-7.3359	None	Beech	Some ivy. No knot holes or cracks	N/A
22	53.40086	-7.3359	None	Beech	6 trees. No knot holes or cracks	N/A
23	53.40098	-7.3361	None	Ash	Some ivy but not mat forming. 4 trees	N/A
24	53.40102	-7.3362	None	Ash	Some ivy but not mat forming. 3 trees	N/A
25	53.40109	-7.3364	None	Ash	Some ivy but not mat forming	N/A
26	53.40117	-7.3365	None	Ash	Some ivy but not mat forming. 2 trees	N/A
27	53.4006	-7.3359	None	Ash	Some ivy but not mat forming. Has die back	N/A
28	53.40052	-7.3357	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A
29	53.40048	-7.3356	None	Hawthorn + Ash	Some ivy but not mat forming. 2 trees	N/A
30	53.40039	-7.3355	None	Hawthorn	Some ivy but not mat forming. 4 trees	N/A
31	53.40033	-7.3353	None	Hawthorn + Ash	Some ivy but not mat forming. 3 trees	N/A
32	53.40023	-7.3352	None	Ash	Some ivy but not mat forming	N/A
33	53.40005	-7.335	None	Hawthorn	Some ivy but not mat forming. 2 trees	N/A
34	53.39997	-7.3352	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
35	53.39983	-7.3359	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash tree in hawthorn hedgerow	N/A
36	53.39977	-7.3361	None	Hawthorn	Some ivy but not mat forming. 2 trees	N/A
37	53.39975	-7.3362	None	Hawthorn + Ash	Some ivy but not mat forming. 2 ash trees and 1 hawthorn	N/A
38	53.39967	-7.3366	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
39	53.39967	-7.3366	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A
40	53.39957	-7.3369	None	Hawthorn + Ash	Some ivy but not mat forming. 2 ash and 1 hawthorn	N/A
41	53.39972	-7.3373	None	Blackthorn	Some ivy but not mat forming. 3 trees	N/A
42	53.39983	-7.3374	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
43	53.39994	-7.3376	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 2 hawthorn	N/A
44	53.39998	-7.3377	None	Ash	Some ivy but not mat forming. 4 trees	N/A
45	53.40014	-7.3379	None	Ash	Some ivy but not mat forming. 3 trees	N/A
46	53.40026	-7.338	None	Ash	Some ivy but not mat forming. 3 trees	N/A
47	53.40036	-7.3381	None	Ash	Some ivy but not mat forming. 4 trees	N/A
48	53.4004	-7.3382	None	Ash	Some ivy but not mat forming. 3 trees	N/A
49	53.40047	-7.3383	None	Ash	Some ivy but not mat forming. 2 trees	N/A
50	53.40062	-7.3384	None	Ash	Some ivy but not mat forming	N/A
51	53.39939	-7.3364	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
52	53.39932	-7.3364	None	Hawthorn + Ash	Some ivy but not mat forming. Hedgerow with 1 ash tree	N/A
53	53.39924	-7.3364	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
54	53.39913	-7.3362	None	Hawthorn	Some ivy but not mat forming. 7 trees	N/A
55	53.39898	-7.3362	None	Hawthorn	Some ivy but not mat forming. 7 trees	N/A
56	53.39885	-7.3361	None	Hawthorn	Some ivy but not mat forming. 7 trees	N/A
57	53.39848	-7.336	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
58	53.3983	-7.3359	None	Hawthorn	Some ivy but not mat forming	N/A
59	53.39817	-7.3357	None	Ash	Some ivy but not mat forming	N/A
60	53.3981	-7.3355	None	Elm	Some ivy but not mat forming	N/A
61	53.39792	-7.3359	None	Ash	Some ivy but not mat forming	N/A
62	53.39773	-7.3361	None	Elm	Some ivy but not mat forming	N/A
63	53.3974	-7.3362	None	Ash	Some ivy but not mat forming	N/A
64	53.39716	-7.3362	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
65	53.39695	-7.3363	None	Ash	Some ivy but not mat forming	N/A
66	53.39676	-7.3363	None	Ash	Some ivy but not mat forming. 4 trees	N/A
67	53.3966	-7.3364	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
68	53.39634	-7.3365	None	Ash	Some ivy but not mat forming	N/A
69	53.39617	-7.3365	None	Ash	Some ivy but not mat forming. 5 trees	N/A
70	53.39611	-7.3365	None	Ash	Some ivy but not mat forming. 5 trees	N/A
71	53.39605	-7.3364	None	Ash	Some ivy but not mat forming. 3 trees	N/A
72	53.39723	-7.3284	None	Ash	Some ivy but not mat forming	N/A
73	53.39717	-7.3297	None	Ash	Some ivy but not mat forming	N/A
74	53.39721	-7.3306	None	Ash	Some ivy but not mat forming	N/A
75	53.39741	-7.3323	None	Ash	Some ivy but not mat forming	N/A
76	53.39745	-7.3325	None	Ash	Some ivy but not mat forming	N/A
77	53.39756	-7.3335	None	Ash	Some ivy but not mat forming	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
78	53.39795	-7.3346	None	Ash	Some ivy but not mat forming	N/A
79	53.3983	-7.3341	None	Ash	Some ivy but not mat forming	N/A
80	53.39841	-7.3339	None	Ash	Some ivy but not mat forming	N/A
81	53.3986	-7.3335	None	Ash	Some ivy but not mat forming	N/A
82	53.39905	-7.3328	None	Ash	Some ivy but not mat forming	N/A
83	53.3991	-7.3323	None	Ash	Some ivy but not mat forming. 2 trees	N/A
84	53.39913	-7.3324	None	Ash	Some ivy but not mat forming. 3 trees	N/A
85	53.39916	-7.3325	None	Ash	Some ivy but not mat forming. 5 trees	N/A
86	53.39923	-7.3327	None	Ash	Some ivy but not mat forming. 2 trees	N/A
87	53.39927	-7.3328	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
88	53.39935	-7.333	None	Ash	Some ivy but not mat forming	N/A
89	53.39942	-7.3332	None	Ash	Some ivy but not mat forming. 2 trees	N/A
90	53.39951	-7.3334	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
91	53.39961	-7.3337	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A
92	53.39971	-7.3339	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
93	53.39989	-7.3344	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
94	53.4	-7.3346	None	Ash	Some ivy but not mat forming. 2 trees	N/A
95	53.39917	-7.3319	None	Ash	Some ivy but not mat forming. 3 trees	N/A
96	53.39931	-7.3316	None	Ash	Some ivy but not mat forming. 2 trees	N/A
97	53.39955	-7.3313	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
98	53.39976	-7.331	None	Ash	Some ivy but not mat forming. 2 trees	N/A
99	53.39999	-7.3307	None	Hawthorn	Some ivy but not mat forming. Hedgerow	N/A
100	53.40016	-7.3305	PRF I	Ash	Best potential so far. A few holes from where brances have fallen off	none
101	53.40025	-7.3304	None	Ash	Some ivy but not mat forming. 2 trees	N/A
102	53.40021	-7.3303	PRF I	Ash	Some ivy but not mat forming. Tall enough to have potential for single bats	PRF I
103	53.40013	-7.3301	None	Ash	Some ivy but not mat forming. 3 trees	N/A
104	53.4	-7.3299	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
105	53.39979	-7.3296	None	Hawthorn + Ash	Some ivy but not mat forming. 1 ash and 1 hawthorn	N/A
106	53.39946	-7.3288	None	Ash	Some ivy but not mat forming. 3 trees	N/A
107	53.39934	-7.3286	None	Ash	Some ivy but not mat forming	N/A
108	53.39924	-7.3285	None	Ash	Some ivy but not mat forming. 2 trees	N/A
109	53.39913	-7.3278	None	Ash	Some ivy but not mat forming	N/A
110	53.39916	-7.3275	None	Ash	Some ivy but not mat forming	N/A
111	53.39923	-7.3265	None	Ash	Some ivy but not mat forming	N/A
112	53.39923	-7.3262	None	Ash	Some ivy but not mat forming	N/A
113	53.39925	-7.326	None	Ash	Some ivy but not mat forming. 3 trees	N/A
114	53.39921	-7.3259	None	Ash	Some ivy but not mat forming	N/A
115	53.39915	-7.3262	PRF I	Ash	Some ivy but not mat forming. Tall enough to have potential for single bats	PRF I

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
116	53.39902	-7.3263	None	Ash	Some ivy but not mat forming	N/A
117	53.39851	-7.3261	None	Ash	Some ivy but not mat forming	N/A
118	53.39851	-7.3262	PRF I	Ash	Some ivy but not mat forming. Tall enough to have potential for single bats	PRF I
119	53.39837	-7.3263	None	Sycamore	Some ivy but not mat forming. 2 trees	N/A
120	53.39816	-7.3268	None	Ash	Some ivy but not mat forming	N/A
121	53.39796	-7.3271	None	Ash	Some ivy but not mat forming	N/A
122	53.3979	-7.3272	None	Holly	Some ivy but not mat forming	N/A
123	53.39968	-7.3286	None	Ash	Some ivy but not mat forming. 3 trees	N/A
124	53.39976	-7.3288	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A
125	53.40008	-7.3286	None	Hawthorn	Some ivy but not mat forming. 3 trees	N/A
126	53.40019	-7.3286	None	Ash	Some ivy but not mat forming. 2 trees	N/A
127	53.40026	-7.3285	None	Ash	Some ivy but not mat forming. 2 trees	N/A
128	53.40031	-7.3285	PRF I	Ash	Plenty of holes and cracks	3 PRF I
129	53.4005	-7.3285	None	Ash	1 or 2 holes in it but don't go in far enough	N/A
130	53.40061	-7.3284	None	Ash	Some ivy but not mat forming. 3 trees	N/A
131	53.40063	-7.3283	None	Ash	Some ivy but not mat forming. 3 trees	N/A
132	53.40084	-7.3283	None	Ash	Some ivy but not mat forming. 3 trees	N/A
133	53.40095	-7.3285	PRF M	Ash	Plenty of knots and cracks. Good potential	PRF M
134	53.40103	-7.3288	PRF I	Ash	Branch fallen off + lots of cracks and holes	PRF I
135	53.4011	-7.3292	None	none	No potential	N/A
136	53.40138	-7.3302	PRF M	Ash	Lots of holes and 2 openings. Size indicates that could be containing big roost. Emergence survey conducted; no bats.	PRF M
137	53.40144	-7.3304	PRF M	Ash	Cracks and holes. Could also contain larger roost. Emergence survey conducted; no bats.	PRF M
138	53.40154	-7.3307	None	Ash	No potential	N/A
139	53.40155	-7.3308	None	Ash	No potential	N/A
140	53.40162	-7.3309	None	Ash	No potential	N/A
141	53.40163	-7.331	PRF M	Ash	Prf-m. Large cavity on trunk. Goes up 1m. Diameter is 15cm. Could hold a maternity roost. Needs another check. Can access via ladder. Emergence survey conducted; no bats.	PRF M
142	53.40166	-7.3312	None	Ash	No potential	N/A
143	53.4017	-7.3314	None	Ash	No potential	N/A
144	53.40184	-7.332	PRF I	Ash	Holes suitable for single bat	PRF I
145	53.40187	-7.3322	PRF	Ash	Holes suitable for single bat	PRF-I
146	53.40218	-7.3324	PRF M	Ash	Holes suitable for single bat. Has considerable dieback. Proposing to retain if possible, cut canopy off and retain as monolith.	PRF-I
147	53.40231	-7.3288	None	Leyland + Sitka Spruce	No potential	N/A
148	53.40233	-7.3286	None	Sitka Spruce	No potential	N/A
149	53.4024	-7.3283	None	Leyland	No potential	N/A
150	53.40256	-7.3278	PRF I	Beech	Holes suitable for single bat	PFR I

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
151	53.40248	-7.3278	PRF I	Beech	Holes suitable for single bat	PFR I
152	53.40186	-7.3275	None	beech	No potential	N/A
153	53.40171	-7.3274	PRF I	Beech	Holes suitable for single bat	PRF I
154	53.40143	-7.3272	None	Beech	No potential	N/A
155	53.40118	-7.3271	None	Ash	Some ivy but not mat forming	N/A
156	53.40107	-7.327	None	Ash	Some ivy but not mat forming	N/A
157	53.4009	-7.3269	None	Ash	Some ivy but not mat forming	N/A
158	53.40071	-7.3268	None	Lodgepole Pine	Some ivy but not mat forming	N/A
159	53.4008	-7.327	PRF M	Ash	Holes suitable for single bat	PRF M
160	53.40091	-7.3274	None	Ash	Some ivy but not mat forming	N/A
161	53.40055	-7.3309	None	Ash	Some ivy but not mat forming. 2 trees	N/A
162	53.40075	-7.3313	None	Ash	Some ivy but not mat forming	N/A
163	53.40106	-7.3323	None	Ash	Some ivy but not mat forming	N/A
164	53.40112	-7.3325	None	Ash	Some ivy but not mat forming. 3 trees	N/A
165	53.40118	-7.3327	None	Ash	Some ivy but not mat forming	N/A
166	53.40056	-7.3325	PRF I	Beech	Holes suitable for single bat	PRF I
167	53.40131	-7.333	None	Ash	Some ivy but not mat forming. 2 trees	N/A
168	53.40144	-7.3334	None	Ash	Some ivy but not mat forming	N/A
169	53.4015	-7.3336	None	Ash	Some ivy but not mat forming	N/A
170	53.40159	-7.3334	None	Ash	Some ivy but not mat forming. 3 trees	PRF I
171	53.40165	-7.3332	None	Ash	Some ivy but not mat forming. 3 trees	N/A
172	53.40176	-7.333	None	Ash	Some ivy but not mat forming. 3 trees	PRF I
173	53.40697	-7.3198	None	Ash	Some ivy but not mat forming	N/A
174	53.40713	-7.3198	None	Ash	Some ivy but not mat forming	N/A
175	53.4073	-7.3198	None	Ash	Some ivy but not mat forming	N/A
176	53.40745	-7.3198	None	Ash	Some ivy but not mat forming	N/A
177	53.40748	-7.3198	None	Ash	Some ivy but not mat forming	N/A
178	53.40792	-7.3198	None	Ash	Some ivy but not mat forming	N/A
179	53.40805	-7.3202	None	Ash	Some ivy but not mat forming	N/A
180	53.40812	-7.3203	PRF I	Ash	Has potential for single bat	PRF I
181	53.40846	-7.3202	None	Ash	Some ivy but not mat forming	N/A
182	53.40859	-7.3207	None	Ash	Some ivy but not mat forming	N/A
183	53.40845	-7.3213	PRF I	Ash	Lightning strike cavity.	PRF I
184	53.40846	-7.3213	None	Ash	Some ivy but not mat forming. 3 trees	N/A
185	53.4085	-7.3215	PRF I	Ash	Three large lightning strike cavities on tree.	PRF I
186	53.40844	-7.3218	None	Ash	Some ivy but not mat forming	N/A
187	53.40845	-7.3222	None	Ash	Some ivy but not mat forming	N/A
188	53.40842	-7.3223	None	Ash	Some ivy but not mat forming	N/A
189	53.40831	-7.3243	None	Ash	Some ivy but not mat forming	N/A
190	53.40839	-7.3259	None	Hawthorn	Some ivy but not mat forming	N/A
191	53.4082	-7.3272	None	Ash	Some ivy but not mat forming. 3 trees	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
192	53.40828	-7.3273	None	Ash	Some ivy but not mat forming. 3 trees	N/A
193	53.40835	-7.3273	None	Ash	Some ivy but not mat forming. 3 trees	N/A
194	53.40845	-7.3275	None	Ash	Some ivy but not mat forming. 3 trees	N/A
195	53.40859	-7.3276	PRF I	Ash	Has potential for single bat	PRF I
196	53.40863	-7.3277	None	Oak	Some ivy but not mat forming	N/A
197	53.40872	-7.3277	None	Ash	Some ivy but not mat forming. 5 trees	N/A
198	53.4088	-7.3277	None	Ash	Some ivy but not mat forming. 2 trees	N/A
199	53.40893	-7.3276	None	Ash	Some ivy but not mat forming. 2 trees	N/A
200	53.40931	-7.3275	None	Ash	Some ivy but not mat forming. 2 trees	N/A
201	53.40952	-7.3274	None	Ash	Some ivy but not mat forming. 2 trees	N/A
202	53.40976	-7.3273	None	Ash	Some ivy but not mat forming. 2 trees	N/A
203	53.41001	-7.3273	None	Ash	Some ivy but not mat forming. 2 trees	N/A
204	53.41012	-7.3272	None	Ash	Some ivy but not mat forming	N/A
205	53.41019	-7.3272	None	Ash	Some ivy but not mat forming	N/A
206	53.41029	-7.3272	None	Ash	Some ivy but not mat forming. 2 trees	N/A
207	53.4103	-7.327	None	Beech	Outside site boundary	N/A
208	53.41026	-7.3269	PRF I	Beech	Has a few small looking holes. Outside site boundary	PRF I
209	53.41018	-7.3266	None	Beech	Outside site boundary	N/A
210	53.41001	-7.3262	None	Beech	Outside site boundary	N/A
211	53.40996	-7.3258	None	Beech	Outside site boundary	N/A
212	53.40985	-7.3252	None	Beech	Outside site boundary	N/A
213	53.40981	-7.3247	None	Beech	Outside site boundary	N/A
214	53.4098	-7.3244	None	Beech	Outside site boundary	N/A
215	53.40982	-7.3239	None	Beech	Outside site boundary	N/A
216	53.40981	-7.3236	None	Beech	Outside site boundary	N/A
217	53.40986	-7.3234	None	Beech	Outside site boundary	N/A
218	53.40983	-7.323	None	Beech	Outside site boundary	N/A
219	53.40976	-7.3226	None	Beech	Outside site boundary	N/A
220	53.40975	-7.3223	None	Beech	Outside site boundary	N/A
221	53.40968	-7.3218	None	Beech	Outside site boundary	N/A
222	53.40965	-7.3215	None	Beech	Outside site boundary	N/A
223	53.40963	-7.3212	None	Beech	Outside site boundary	N/A
224	53.40954	-7.3212	None	Ash	-	N/A
225	53.40945	-7.3212	None	Sycamore	-	N/A
226	53.40929	-7.3212	None	Sycamore	-	N/A
227	53.40917	-7.3212	None	Ash	-	N/A
228	53.40899	-7.3213	None	Sycamore	-	N/A
229	53.40886	-7.3213	None	Sycamore	-	N/A
230	53.40877	-7.3212	None	Sycamore	-	N/A
231	53.40929	-7.3209	None	Hawthorn	-	N/A
232	53.40959	-7.3209	None	Sycamore	Outside site boundary	N/A
233	53.40956	-7.3206	None	Sycamore	Outside site boundary	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
234	53.40954	-7.3204	None	Scots Pine	Outside site boundary	N/A
235	53.40951	-7.3201	None	Beech	Outside site boundary	N/A
236	53.40947	-7.3196	None	Ash	Outside site boundary	N/A
237	53.40942	-7.3194	None	Ash	Outside site boundary	N/A
238	53.40937	-7.3191	None	Ash	Outside site boundary	N/A
239	53.40934	-7.3188	None	Blackthorn	Outside site boundary	N/A
240	53.40928	-7.3185	None	Blackthorn	Outside site boundary	N/A
241	53.40917	-7.3178	None	Sycamore	Outside site boundary	N/A
242	53.40907	-7.3173	None	Oak	Outside site boundary	N/A
243	53.40902	-7.317	None	Blackthorn	Outside site boundary	N/A
244	53.40904	-7.3165	None	Ash	Outside site boundary	N/A
245	53.40923	-7.3164	None	Ash	Outside site boundary	N/A
246	53.40925	-7.3164	None	Blackthorn	Outside site boundary	N/A
247	53.40933	-7.3161	None	Ash	Outside site boundary	N/A
248	53.40933	-7.3158	None	Ash	Outside site boundary	N/A
249	53.40934	-7.3154	None	Ash	Outside site boundary	N/A
250	53.40927	-7.3151	None	Ash	Outside site boundary	N/A
251	53.40911	-7.3148	None	Ash	Outside site boundary	N/A
252	53.40898	-7.3144	None	Ash	Outside site boundary	N/A
253	53.40886	-7.3141	None	Ash	Outside site boundary	N/A
254	53.40874	-7.3136	None	Ash	Outside site boundary	N/A
255	53.40863	-7.3133	None	Ash	Outside site boundary	N/A
256	53.40846	-7.3128	None	Ash	Outside site boundary	N/A
257	53.40835	-7.3125	None	Ash	Outside site boundary	N/A
258	53.40825	-7.3122	None	Ash	-	N/A
259	53.40825	-7.3119	None	Sycamore	Outside site boundary	N/A
260	53.40827	-7.3115	None	Ash	Outside site boundary	N/A
261	53.40785	-7.3155	None	Sycamore	-	N/A
262	53.40796	-7.3155	None	Sycamore	-	N/A
263	53.40808	-7.3156	None	Sycamore	-	N/A
264	53.40815	-7.3157	None	Ash	-	N/A
265	53.40825	-7.3157	None	Oak	-	N/A
266	53.40832	-7.3157	None	Ash	-	N/A
267	53.40864	-7.3159	None	Sycamore	-	N/A
268	53.40872	-7.3159	None	Blackthorn	-	N/A
269	53.40884	-7.3161	None	Blackthorn	-	N/A
270	53.40586	-7.3227	None	Ash	-	N/A
271	53.40589	-7.3227	None	Ash	-	N/A
272	53.406	-7.3227	PRF-I	Ash	A few holes suitable for single bat	N/A
273	53.40607	-7.3227	None	Ash	-	N/A
274	53.40635	-7.3228	None	Ash	-	N/A
275	53.40641	-7.3229	None	Ash	-	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
276	53.40651	-7.3229	None	Sycamore	-	N/A
277	53.40805	-7.327	None	Ash	-	N/A
278	53.40761	-7.3271	None	Ash	-	N/A
279	53.4075	-7.3271	None	Ash	-	N/A
280	53.40723	-7.327	None	Ash	-	N/A
281	53.40523	-7.326	None	Ash	-	N/A
282	53.40517	-7.3261	None	Ash	-	N/A
283	53.40461	-7.3258	None	Sycamore	-	N/A
284	53.40446	-7.3257	None	Ash	-	N/A
285	53.40435	-7.3257	None	Ash	-	N/A
286	53.4055	-7.3229	None	Oak	-	N/A
287	53.40546	-7.3229	None	Ash	-	N/A
288	53.40533	-7.3229	None	Ash	-	N/A
289	53.40521	-7.3229	None	Sycamore	-	N/A
290	53.40409	-7.3154	None	Ash	-	N/A
291	53.40538	-7.3139	None	Beech	-	N/A
292	53.40537	-7.3139	None	Beech	-	N/A
293	53.40535	-7.3138	None	Ash	-	N/A
294	53.40531	-7.3136	None	Beech	-	N/A
295	53.40521	-7.3134	None	Ash	-	N/A
296	53.4052	-7.3133	None	Ash	Few holes. Suitable for single bat	N/A
297	53.40519	-7.3132	None	Ash	Few holes. Suitable for single bat	N/A
298	53.40517	-7.313	PRF I	Sycamore	Few holes. Suitable for single bat	PRF I
299	53.40514	-7.3128	PRF I	Sycamore	Few holes. Suitable for single bat	N/A
300	53.40512	-7.3127	None	Sycamore	-	N/A
301	53.40513	-7.3126	None	Beech	-	N/A
302	53.40509	-7.3125	None	Beech	-	N/A
303	53.40506	-7.3123	None	Beech	-	N/A
304	53.40505	-7.3121	None	Beech	-	N/A
305	53.40505	-7.3118	PRF I	Ash	Few holes. Suitable for single bat	N/A
306	53.40489	-7.312	None	Blackthorn	-	N/A
307	53.40456	-7.312	None	Beech	-	N/A
308	53.40333	-7.3121	None	Ash	-	N/A
309	53.40329	-7.312	None	Ash	-	N/A
310	53.40334	-7.3119	None	Ash	-	N/A
311	53.40334	-7.3116	None	Blackthorn	-	N/A
312	53.40334	-7.3112	None	Ash	-	N/A
313	53.40334	-7.311	None	Ash	-	N/A
314	53.40341	-7.3106	None	Sycamore	-	N/A
315	53.40345	-7.3102	None	Beech	-	N/A
316	53.40348	-7.3102	PRF I	Sycamore	Few holes. Suitable for single bat	N/A
317	53.40361	-7.3101	None	Sycamore	-	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
318	53.40374	-7.3101	PRF I	Sycamore	Few holes. Suitable for single bat	N/A
319	53.40387	-7.3101	PRF I	Sycamore	Few holes. Suitable for single bat	N/A
320	53.40398	-7.3101	PRF	Beech	Few holes. Suitable for single bat	none
321	53.40404	-7.31	None	Beech	-	N/A
322	53.40412	-7.31	PRF I	Beech	Few holes. Suitable for single bat	N/A
323	53.40416	-7.31	PRF I	Sycamore	Few holes. Suitable for single bat	PRF I
324	53.40423	-7.31	PRF I	Beech	Few holes. Suitable for single bat	N/A
325	53.40427	-7.31	None	Beech	-	N/A
326	53.40432	-7.31	PRF	Sycamore	Few holes. Suitable for single bat	PRF I
327	53.40444	-7.3099	None	Beech	-	N/A
328	53.40448	-7.3099	PRF	Beech	Looks like it could have larger roost. Big opening that goes in a good bit	PRF I
329	53.40456	-7.3099	None	Beech	-	N/A
330	53.40464	-7.3099	None	Beech	-	N/A
331	53.40472	-7.3104	PRF	Sycamore	Few holes. Suitable for single bat	PRF I
332	53.40475	-7.3104	None	Ash	-	N/A
333	53.40479	-7.3107	FAR	Ash	Few holes. Suitable for single bat	N/A
334	53.40482	-7.311	FAR	Ash	Few holes. Suitable for single bat	none
335	53.40487	-7.3113	FAR	Sycamore	Few holes. Suitable for single bat	none
336	53.40508	-7.3116	None	Ash	-	N/A
337	53.40515	-7.3118	FAR	Ash	Few potential holes. Suitable for single bat	none
339	53.40258	-7.314	None	Ash	-	N/A
340	53.40176	-7.3138	None	Ash	-	N/A
341	53.40163	-7.3138	None	Ash	-	N/A
342	53.40151	-7.3137	None	Ash	-	N/A
343	53.40138	-7.3137	None	Ash	-	N/A
344	53.40124	-7.3137	None	Ash	-	N/A
345	53.4006	-7.3135	None	Ash	-	N/A
346	53.40039	-7.3134	None	Ash	-	N/A
347	53.39988	-7.3133	None	Ash	-	N/A
348	53.39983	-7.314	FAR	Ash	Few holes. Suitable for single bat	
349	53.39984	-7.3142	None	Ash	-	N/A
350	53.39965	-7.3146	FAR	Ash	Few holes. Suitable for single bat	PRF I
351	53.39943	-7.3155	None	Ash	-	N/A
352	53.39982	-7.316	None	Sycamore	-	N/A
353	53.3998	-7.3157	PRF I	Ash	Few holes. Suitable for single bat	PRF I
354	53.39979	-7.3154	None	Ash	-	N/A
355	53.39991	-7.3131	None	Ash	-	N/A
356	53.39998	-7.3129	None	Ash	-	N/A
357	53.40003	-7.3127	None	Sycamore	-	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
358	53.39985	-7.3115	None	Ash	-	N/A
359	53.3999	-7.3115	FAR	Ash	Few holes. Suitable for single bat	N/A
360	53.40003	-7.3112	None	Ash	-	N/A
361	53.39985	-7.3111	FAR	Ash	Few holes. Suitable for single bat	N/A
362	53.3998	-7.3107	None	Ash	-	N/A
363	53.39982	-7.3097	None	Ash	-	N/A
364	53.39982	-7.3095	None	Ash	-	N/A
365	53.4004	-7.3096	None	Ash	-	N/A
366	53.40093	-7.3097	None	Ash	-	N/A
367	53.40111	-7.3097	None	Ash	-	N/A
368	53.40207	-7.3099	None	Ash	-	N/A
369	53.40242	-7.31	None	Ash	-	N/A
370	53.40292	-7.3101	None	Ash	-	N/A
371	53.40316	-7.3101	None	Sycamore	-	N/A
372	53.40385	-7.3099	FAR	Beech	Mature tree	N/A
373	53.40371	-7.3098	None	Sycamore	-	N/A
374	53.40368	-7.3097	None	Sycamore	-	N/A
375	53.40369	-7.3095	None	Sycamore	-	N/A
376	53.40371	-7.3094	PRF M	Sycamore	Few holes. Suitable for single bat	PRF M
377	53.40512	-7.3102	None	Sycamore	-	N/A
378	53.40517	-7.3106	PRF I	Ash	Few holes. Suitable for single bat	PRF I
379	53.40538	-7.312	None	Sycamore	-	N/A
380	53.40556	-7.3129	None	Sycamore	-	N/A
381	53.40571	-7.3136	None	Ash	-	N/A
382	53.40607	-7.313	None	Ash	-	N/A
383	53.4063	-7.3127	None	Ash	-	N/A
384	53.40673	-7.3121	None	Ash	-	N/A
385	53.40729	-7.3113	None	Sycamore	-	N/A
386	53.40738	-7.3111	None	Ash	-	N/A
387	53.40549	-7.3071	None	Sycamore	-	N/A
388	53.40588	-7.3046	None	Sycamore	-	N/A
389	53.4056	-7.3044	None	Ash	-	N/A
390	53.40515	-7.3046	FAR	Ash	Few holes. Suitable for single bat	N/A
391	53.40505	-7.3047	None	Sycamore	-	N/A
392	53.40469	-7.3045	None	Ash	-	N/A
393	53.40462	-7.3044	None	Ash	-	N/A
394	53.40444	-7.3045	None	Ash	-	N/A
395	53.40418	-7.3046	None	Sycamore	-	N/A
396	53.40378	-7.3048	None	Sycamore	-	N/A
397	53.40358	-7.305	None	Ash	-	N/A

Name	Latitude	Longitude	GLTA	Species	Details	PRF final
398	53.40303	-7.305	None	Ash	-	N/A
399	53.40291	-7.3051	None	Oak	-	N/A
400	53.4028	-7.3054	None	Ash	-	N/A
401	53.40269	-7.3057	None	Ash	-	N/A
402	53.40262	-7.3058	None	Ash	-	N/A
403	53.40247	-7.3061	None	Ash	-	N/A
404	53.40211	-7.3078	None	Ash	-	N/A
405	53.40089	-7.3075	None	Ash	-	N/A
406	53.4005	-7.3074	None	Ash	-	N/A
407	53.39991	-7.3072	None	Sycamore	-	N/A
408	53.40001	-7.3091	None	Sycamore	-	N/A
409	53.40112	-7.3093	None	Sycamore	-	N/A
410	53.40204	-7.3095	None	Ash	-	N/A
411	53.40065	-7.304	FAR	Sycamore	Few holes. Suitable for single bat	N/A
413	53.40186	-7.305	None	Blackthorn	-	N/A
414	53.40196	-7.3058	None	Blackthorn	-	N/A
415	53.39677	-7.3144	None		-	N/A
416	53.39774	-7.3127	None	Blackthorn	-	N/A
417	53.39787	-7.3123	None	Blackthorn	-	N/A
418	53.3984	-7.3093	None	Sycamore	-	N/A
419	53.39832	-7.3093	None	Ash	-	N/A
420	53.39719	-7.3094	None	Ash	-	N/A
421	53.39147	-7.3087	None	Beech	Outside site boundary	N/A
477	53.4013	-7.32924	FAR	Ash	-	PRF I
479	53.39806	-7.33579	None	Elm	-	N/A

Table 3: Static Detector Results

August														
Detector	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	LSH	Natterer's Bat	Whiskered Bat	Daubenton's Bat	Unidentified Myotis	**Total**	**Minutes recorded**	**Bat passes per hour**
1	66	57	88	0	0	17	0	1	0	0	7	236	7633	1.9
2	152	11408	1983	1	5	31	0	2	0	0	31	13613	6208	131.6
3	413	7091	8193	0	1	13	0	19	0	0	73	15803	3932	241.1
4	113	43	69	0	0	21	0	1	0	0	5	252	7633	2.0
5	157	6086	2572	0	0	31	0	1	0	0	89	8936	7633	70.2
6	43	53	55	0	0	11	0	0	0	0	9	171	7633	1.3
7	192	2238	1757	3	5	34	0	1	0	0	45	4275	7633	33.6
8	165	76	104	0	0	18	0	2	0	0	12	377	7633	3.0
Total	**1301**	**27052**	**14821**	**4**	**11**	**176**	**0**	**27**	**0**	**0**	**271**	**43663**		
Bat passes per hour	1.4	29.0	15.9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	43663	**55938**	**46.8**
Spring														
Detector	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	LSH	Natterer's Bat	Whiskered Bat	Daubenton's Bat	Unidentified Myotis	**Total**	**Minutes recorded**	**Bat passes per hour**
1	3	31	14	0	0	1	0	0	0	3	0	52	7613	0.4
2	36	9901	993	3	2	4	0	4	0	0	69	11012	9398	70.3
3	130	1078	1328	3	1	4	0	0	0	0	13	2557	8285	18.5
4	11	21	23	0	1	2	0	1	0	0	2	61	8285	0.4
5	104	2073	2712	0	0	5	0	8	0	2	347	5251	8952	35.2
6	0	6	0	0	0	0	0	1	0	0	11	18	8285	0.1
7	0	49	45	1	0	0	0	0	0	0	2	97	6942	0.8
8	25	66	73	0	0	0	0	0	0	0	5	169	8952	1.1
Total	**309**	**13225**	**5188**	**7**	**4**	**16**	**0**	**14**	**0**	**5**	**449**	**19217**		
Bat passes per hour	0.3	11.9	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	17.3	**66712**	**17.3**

Table 4: Daily Static Results

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
1	29th August	14	3	13	0	0	4	0	0	1	35
1	30th August	3	4	2	0	0	1	0	0	0	10
1	31st August	3	4	9	0	0	1	0	0	0	17
1	1st September	5	9	7	0	0	0	1	0	2	24
1	2nd September	3	5	4	0	0	5	0	0	1	18
1	3rd September	3	2	6	0	0	0	0	0	2	13
1	4th September	5	5	4	0	0	1	0	0	0	15
1	5th September	13	4	2	0	0	1	0	0	0	20
1	6th September	12	10	20	0	0	1	0	0	1	44
1	7th September	5	5	12	0	0	3	0	0	0	25
1	8th September	0	6	9	0	0	0	0	0	0	15
1	2nd April	0	0	3	0	0	0	0	0	0	3
1	3rd April	1	4	1	0	0	0	0	0	0	6
1	4th April	0	1	0	0	0	0	0	0	0	1
1	5th April	0	1	0	0	0	0	0	0	0	1
1	6th April	0	4	1	0	0	0	0	0	0	5
1	7th April	0	1	0	0	0	0	0	1	0	2
1	8th April	0	2	0	0	0	1	0	0	0	3
1	9th April	0	1	0	0	0	0	0	1	0	2
1	10th April	2	6	2	0	0	0	0	0	0	10
1	11th April	0	4	2	0	0	0	0	1	0	7
1	12th April	0	7	5	0	0	0	0	0	0	12
2	27th August	10	1600	376	0	0	7	2	0	7	2002
2	28th August	3	889	74	0	0	3	0	0	4	973
2	29th August	6	887	63	0	0	6	0	0	0	962
2	30th August	33	534	84	0	0	4	0	0	3	658

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
2	31st August	8	1819	231	1	0	3	0	0	7	2069
2	1st September	3	2083	318	0	0	0	0	0	3	2407
2	2nd September	8	221	59	0	0	0	0	0	3	291
2	3rd September	5	842	144	0	0	2	0	0	1	994
2	4th September	35	823	82	0	0	2	0	0	0	942
2	5th September	40	623	144	0	5	4	0	0	1	817
2	6th September	1	1087	408	0	0	0	0	0	2	1498
2	2nd April	0	185	28	0	0	0	0	0	3	216
2	3rd April	0	513	54	0	0	0	0	0	4	571
2	4th April	1	89	10	0	0	0	0	0	0	100
2	5th April	1	91	8	0	0	0	0	0	5	105
2	6th April	1	382	9	0	0	0	0	0	5	397
2	7th April	1	569	13	1	0	0	0	0	11	595
2	8th April	2	628	29	0	0	1	0	0	5	665
2	9th April	2	1083	46	0	1	0	1	0	5	1138
2	10th April	6	2352	562	0	1	1	0	0	2	2924
2	11th April	0	1998	103	0	0	2	0	0	4	2107
2	12th April	3	688	58	0	0	0	0	0	5	754
2	13th April	12	166	29	1	0	0	1	0	7	216
2	14th April	7	1157	44	1	0	0	2	0	13	1224
3	29th August	11	1393	1428	0	0	0	0	0	8	2840
3	30th August	35	1107	1355	0	0	3	6	0	18	2524
3	31st August	64	1312	1021	0	0	6	4	0	16	2423
3	1st September	227	976	939	0	1	4	5	0	14	2166
3	2nd September	52	924	1420	0	0	0	3	0	5	2404
3	3rd September	24	1379	2030	0	0	0	1	0	12	3446
3	2nd April	2	34	19	0	1	0	0	0	0	56
3	3rd April	3	97	93	0	0	0	0	0	1	194

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
3	4th April	8	29	58	0	0	0	0	0	0	95
3	5th April	0	3	9	0	0	0	0	0	0	12
3	6th April	5	48	59	0	0	1	0	0	0	113
3	7th April	1	45	72	1	0	0	0	0	0	119
3	8th April	0	58	51	1	0	0	0	0	2	112
3	9th April	33	89	162	0	0	1	0	0	1	286
3	10th April	31	398	480	1	0	1	0	0	7	918
3	11th April	43	250	315	0	0	1	0	0	2	611
3	12th April	4	27	10	0	0	0	0	0	0	41
4	30th August	0	0	2	0	0	4	0	0	1	7
4	31st August	9	7	3	0	0	2	0	0	0	21
4	1st September	15	6	13	0	0	3	1	0	1	39
4	2nd September	5	1	6	0	0	1	0	0	1	14
4	3rd September	1	1	5	0	0	0	0	0	0	7
4	4th September	4	2	5	0	0	2	0	0	2	15
4	5th September	16	8	11	0	0	2	0	0	0	37
4	6th September	31	9	10	0	0	3	0	0	0	53
4	7th September	27	7	11	0	0	4	0	0	0	49
4	8th September	5	2	3	0	0	0	0	0	0	10
4	2nd April	0	0	0	0	0	0	0	0	0	0
4	3rd April	0	2	2	0	0	0	0	0	0	4
4	4th April	0	1	1	0	0	0	0	0	0	2
4	5th April	0	0	1	0	0	0	0	0	0	1
4	6th April	1	0	2	0	0	0	1	0	0	4
4	7th April	1	3	3	0	0	0	0	0	0	7
4	8th April	0	2	1	0	0	0	0	0	1	4
4	9th April	6	2	4	0	0	0	0	0	0	12
4	10th April	2	8	7	0	1	0	0	0	1	19

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
4	11th April	1	1	2	0	0	2	0	0	0	6
4	12th April	0	2	0	0	0	0	0	0	0	2
5	29th August	10	234	138	0	0	3	0	0	12	397
5	30th August	7	208	93	0	0	1	0	0	2	311
5	31st August	14	276	191	0	0	1	0	0	2	484
5	1st September	9	191	280	0	0	2	1	0	1	484
5	2nd September	6	196	116	0	0	3	0	0	4	325
5	3rd September	24	427	184	0	0	4	0	0	7	646
5	4th September	17	624	151	0	0	6	0	0	7	805
5	5th September	36	1481	458	0	0	1	0	0	21	1997
5	6th September	14	482	329	0	0	1	0	0	2	828
5	7th September	14	333	423	0	0	0	0	0	5	775
5	8th September	6	1634	209	0	0	9	0	0	26	1884
5	2nd April	0	57	118	0	0	0	1	0	11	187
5	3rd April	4	325	333	0	0	0	0	0	24	686
5	4th April	1	116	291	0	0	0	0	0	12	420
5	5th April	0	105	115	0	0	0	0	0	10	230
5	6th April	2	113	77	0	0	0	2	0	34	228
5	7th April	4	424	287	0	0	0	1	0	17	733
5	8th April	10	182	197	0	0	0	0	0	14	403
5	9th April	4	105	162	0	0	0	0	0	51	322
5	10th April	40	332	220	0	0	1	1	1	31	626
5	11th April	13	109	189	0	0	0	2	1	40	354
5	12th April	4	91	40	0	0	0	0	0	18	153
5	13th April	8	19	23	0	0	0	1	0	49	100
5	14th April	14	95	660	0	0	4	0	0	36	809
6	30th August	3	5	4	0	0	1	0	0	0	13
6	31st August	8	5	2	0	0	1	0	0	0	16

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
6	1st September	8	9	9	0	0	1	0	0	0	27
6	2nd September	1	4	2	0	0	2	0	0	0	9
6	3rd September	1	8	9	0	0	2	0	0	6	26
6	4th September	1	0	7	0	0	0	0	0	0	8
6	5th September	1	3	3	0	0	0	0	0	0	7
6	6th September	8	10	10	0	0	0	0	0	1	29
6	7th September	3	6	3	0	0	2	0	0	2	16
6	8th September	9	3	6	0	0	2	0	0	0	20
6	2nd April	0	0	0	0	0	0	0	0	0	0
6	3rd April	0	0	0	0	0	0	1	0	0	1
6	4th April	0	0	0	0	0	0	0	0	1	1
6	5th April	0	0	0	0	0	0	0	0	0	0
6	6th April	0	0	0	0	0	0	0	0	0	0
6	7th April	0	0	0	0	0	0	0	0	1	1
6	8th April	0	0	0	0	0	0	0	0	2	2
6	9th April	0	0	0	0	0	0	0	0	2	2
6	10th April	0	0	0	0	0	0	0	0	5	5
6	11th April	0	2	0	0	0	0	0	0	0	2
6	12th April	0	2	0	0	0	0	0	0	0	2
6	13th April	0	0	0	0	0	0	0	0	0	0
6	14th April	0	2	0	0	0	0	0	0	0	2
7	29th August	11	91	109	0	1	4	0	0	2	218
7	30th August	18	349	380	3	0	7	1	0	4	762
7	31st August	18	320	208	0	0	5	0	0	8	559
7	1st September	63	376	200	0	2	2	0	0	13	656
7	2nd September	13	55	66	0	0	2	0	0	3	139
7	3rd September	11	58	32	0	0	3	0	0	1	105
7	4th September	12	79	117	0	0	2	0	0	0	210

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
7	5th September	12	399	285	0	1	2	0	0	7	706
7	6th September	16	283	211	0	1	4	0	0	0	515
7	7th September	16	205	111	0	0	3	0	0	6	341
7	8th September	2	23	38	0	0	0	0	0	1	64
7	2nd April	0	0	0	0	0	0	0	0	0	0
7	3rd April	0	1	0	0	0	0	0	0	0	1
7	4th April	0	2	15	0	0	0	0	0	0	17
7	5th April	0	0	0	0	0	0	0	0	0	0
7	6th April	0	1	0	0	0	0	0	0	0	1
7	7th April	0	1	1	0	0	0	0	0	0	2
7	8th April	0	6	11	0	0	0	0	0	1	18
7	9th April	0	6	5	0	0	0	0	0	1	12
7	10th April	0	27	12	1	0	0	0	0	0	40
7	11th April	0	5	1	0	0	0	0	0	0	6
8	29th August	16	3	4	0	0	3	0	0	2	28
8	30th August	4	9	5	0	0	2	0	0	1	21
8	31st August	13	8	22	0	0	1	1	0	0	45
8	1st September	36	10	27	0	0	4	1	0	0	78
8	2nd September	6	1	6	0	0	3	0	0	4	20
8	3rd September	10	2	4	0	0	0	0	0	0	16
8	4th September	5	3	4	0	0	1	0	0	0	13
8	5th September	13	5	5	0	0	0	0	0	1	24
8	6th September	42	20	9	0	0	1	0	0	1	73
8	7th September	16	12	13	0	0	3	0	0	2	46
8	8th September	4	3	5	0	0	0	0	0	1	13
8	2nd April	0	6	6	0	0	0	0	0	0	12
8	3rd April	0	10	7	0	0	0	0	0	0	17
8	4th April	2	2	2	0	0	0	0	0	0	6

Detector	Date	Leisler's Bat	Common Pipistrelle	Soprano Pipistrelle	Nathusius Pipistrelle	Pipistrelle 40 kHz	Brown Long-eared	Natterer's Bat	Daubenton's Bat	Unidentified Myotis	Total
8	5th April	0	5	1	0	0	0	0	0	0	6
8	6th April	0	4	5	0	0	0	0	0	0	9
8	7th April	2	2	3	0	0	0	0	0	0	7
8	8th April	1	6	2	0	0	0	0	0	1	10
8	9th April	2	13	6	0	0	0	0	0	1	22
8	10th April	1	4	8	0	0	0	0	0	2	15
8	11th April	5	5	9	0	0	0	0	0	0	19
8	12th April	11	2	13	0	0	0	0	0	0	26
8	13th April	1	1	4	0	0	0	0	0	0	6
8	14th April	0	6	7	0	0	0	0	0	1	14

PHOTOS

Plate 0-1: Structure 1 – Occupied Dwelling adjacent to D2

Plate 0-2: 5 Structure 2 – Shed next to Dwelling, 1 Bat emerged.

Plate 0-3: Derelict Dwelling with Hay being stored inside. It is the surveyor's opinion that the Hay being stored here is increasing the roosting potential of this building

Plate 0-4: Derelict dwelling and semi-detached sheds

Plate 0-5: Occupied Dwelling Emergence survey

Plate 6: Tree 146 proposing to retain as monolith.

APPENDIX 6.2

Eire Ecology

Environmental Consultants

Bird Survey Report
Project Admiral

DOCUMENT DETAILS

Client:	Red Admiral DC Ltd
Project Title:	Project Admiral
Document Title:	Bird Survey Report
Prepared By:	John Curtin – Consultant Ecologist
Date:	June 2025

EXECUTIVE SUMMARY

This document reports on the findings of wintering and breeding bird surveys undertaken within and surrounding a proposed development in the townlands of Farthingstown, Oldtown and Kiltotan, Co. Westmeath outside Rochfortbridge. The Surveys took place between September 2024 and May 2025 inclusive. The objective of these surveys was to establish a baseline dataset of birds using the site and the surrounds and to determine the scale of effects on birds as a result of the planned development.

Target Species of Interest for this site are Golden Plover and Snipe, which were observed using multiple areas of the site to the South and in the case of Golden Plover, tillage fields to the Northwest during winter months. These birds are not breeding on site. Breeding barn owl were recorded within the site. Whooper Swan was recorded within the hinterland but did not utilise fields onsite while Lapwing were confirmed breeding in bog habitats outside the site during May's hinterland survey. Meadow Pipit was found to be breeding onsite, with possible Yellowhammer breeding present.

Robust mitigation, enhancement and monitoring have been proposed to negate impacts on birds including creating designated feeding grounds for golden plover and buffer zones for construction phase activities.

After the implementation of mitigation, residual Impacts on bird species will be low.

Table of Contents

1 INTRODUCTION

1.1 Purpose of this report

Eire Ecology were commissioned to complete bird surveys for the proposed Project Admiral site. This report presents the results of these surveys, comprising of Vantage Point, Transects, Breeding Wader, Breeding Bird surveys and Hinterland surveys within and surrounding the proposed development in the townlands of Farthingstown, Oldtown and Kiltotan.

The report aims to:

- Identify species of birds using the site.
- Identify breeding bird species on and adjacent to the site.
- Identify how bird species in the surroundings utilise the site.
- Potential impacts of birds by the proposed development.

Surveys were conducted from September 2024 to May 2025. The survey types were determined most appropriate to establish a baseline species assemblage, along with spatial and temporal distribution of species activity within the proposed planning boundary.

1.2 Landscape context

The site is situated within a working farm with a mix of improved agricultural (GA1), tillage land (BC3) with associated hedgerows (WL1), treelines (WL2), drains (FW4) and roads (BL3).

1.3 Development proposals

The proposed development consists of the construction of a solar farm and datacentre development in Co. Westmeath (see site outline in figure 1-1).

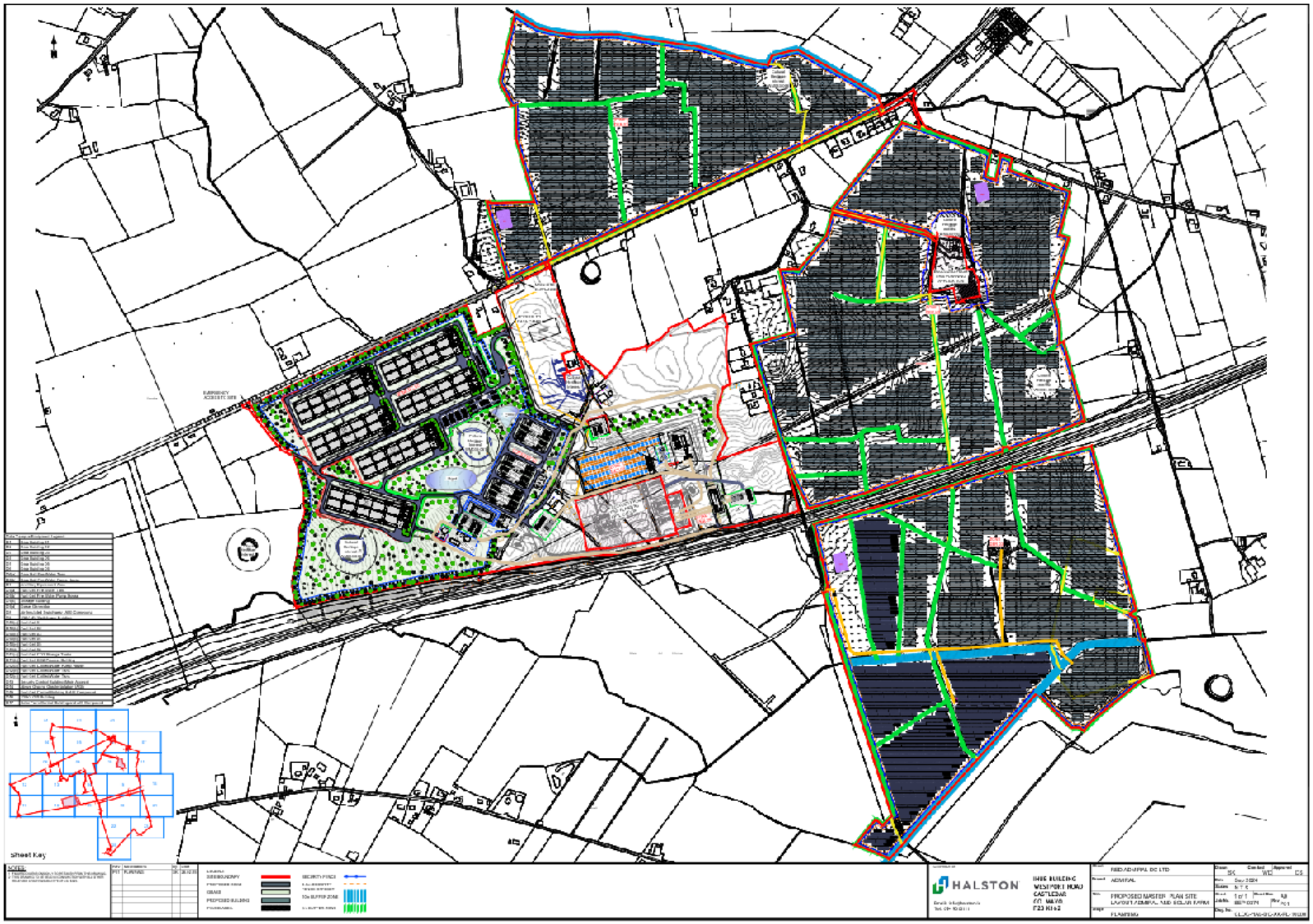

Figure 1-1: Admiral Project: Site Layout

1.4 Survey and Assessment

A desk study which includes a review of the literature relevant to the avian ecology of the site is provided in Section 2 of this report. The following sources of information are included: the most recent Bird Atlas 2007-2011 (the breeding and wintering birds of Britain and Ireland) (Balmer *et al* 2013). IWeBS and NDBC data within 2km of the site.

Field surveys of the site were conducted from September 2024 to April 2025 during winter and breeding Periods, and the findings of those surveys are presented in Section 3 of this report. All bird species observed or heard within the site and the surrounding area were recorded during the walkover survey, as well as information observed on the breeding probability of these species.

A variety of bird transects were conducted within the site including;

- O'Brien and Smith methodology (O'Brien and Smith, 1992, Gilbert et al., 1998) targets lowland breeding waders, other waterbirds and raptors (3 x surveys conducted between the 14th April and the 21st of April. Survey conducted from the three hours after dawn and / or the three hours before dusk).
- Common Bird Census methodology (British Trust for Ornithology, 2021) targets dense habitat breeding birds (3 x surveys conducted in April).
- Nighttime Thermal transects, targeting wintering waders (Golden Plover, Woodcock, Curlew) recorded on site or in Hinterland Surveys. (2 x Surveys conducted between the 18th of February and 19th of February)

Monthly Vantage point surveys following (SNH, 2017) were conducted from September 2024 to March 2025 in three locations overlooking the site.

To better understand the relationship between the site and the surrounding areas, hinterland surveys were conducted on a monthly basis from September to May comprising of point counts, habitat information and breeding information, and encompassed breeding raptor surveys. Additionally, a hinterland survey focused on mapping Golden Plover Habitat in the surrounding 5km of the site was conducted in February 2025.

Target species for the surveys include waders and other red listed species, particularly; Snipe, Golden plover, various raptors including Kestrel, Buzzard, Sparrowhawk and Barn Owl, waterbirds such as Mallard, Mute Swan, Whooper Swan and Grey heron, and passerines such as Yellowhammer and Meadow pipit.

1.5 Limitations of Survey

Surveys were conducted in acceptable weather conditions and cover both wintering and breeding periods thus provide robust coverage of the site.

2 DESK STUDY

The below information is a repletion of results outlined in the accompanying wintering bird report.

2.1 POLICY & GUIDANCE

2.1.1 EU Birds Directive

The "Birds Directive" (Council Directive 79/409/EEC as codified by 2009/147/EC) provides for a network of sites in all member states to protect birds at their breeding, feeding, roosting and wintering areas. This directive species that are rare, in danger of extinction or vulnerable to changes in habitat and which need protection (Annex I species). Appendix I indicates Annex I bird species as listed on the Birds Directive. A "Special Protection Area" or SPA, is a designation under The Birds Directive.

2.1.2 Wildlife Acts 1976 – 2012

The primary domestic legislation providing for the protection of wildlife in general, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976, as amended. The aims of the wildlife act according to the National Parks and Wildlife Service are "... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims." All bird species are protected under the act. The Wildlife (Amendment) Act of 2000 amended the original Act to improve the effectiveness of the Act to achieve its aims.

2.2 Site Location in Relation to Protected sites with Ornithological Value

The proposed site lies between the towns of Rochfortbridge and Tyrellspass (Grid Ref: 245818.8N 239258.0E) and contains land on both sides of the motorway. The site for the proposed development lies approximately 5.19km from Raheenmore Bog SAC [Site Code: 000582], approximately 5.61km from Lough Ennell SAC [Site Code: 000685], 6.30km from the Lough Ennell SPA [Site Code: 004044], 6.4km from Split Hills and Long Hill Esker SAC [Site Code: 001831], 13.36km from Wooddown Bog SAC [Site Code: 002205]. None of the EU designated sites are designated for the presence of bat species. (see **Figure 2-1** below).

These sites contain habitats which may support populations (see Figure 2-1 and table 2-1 below).

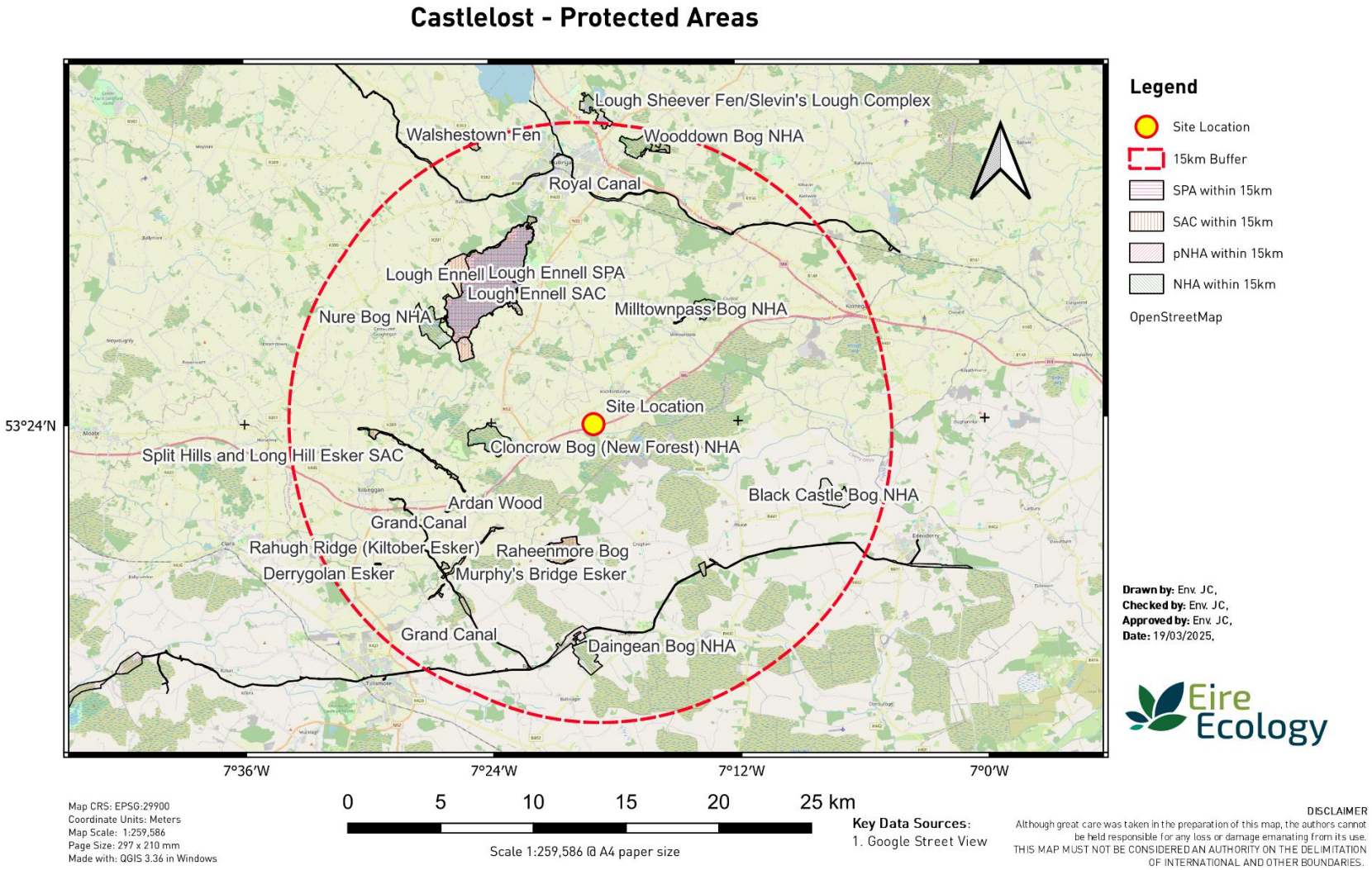

Figure 2-1 Site Location in Relation to designated site

Table 2-1 Protected habitats with ornithological value in the vicinity of the proposed development

Site Code	Site Name	Distance	Literature review with respect to ornithology	Potential connectivity (in relation to ornithology)
EU designated Sites				
000582	Raheenmore Bog SAC	5.19km	Breeding: Red Grouse, Snipe, Lapwing, Curlew, Woodcock, Skylark and Meadow Pipit. Wintering: Merlin, Sparrowhawk, Kestrel, Grey Heron, Teal and Mallard.	There is potential connectivity as this bog forms a network with other cutover bogs that lie close to the site.
000685	Lough Ennell SAC	5.61km	Greenland White-fronted Goose, Cormorant, Mute Swan, Pochard, Tufted Duck, Coot. A single count of 522 Golden Plover	Potentially. Greenland white-fronted geese can forage between 5 – 8km from night roosts.
004044	Lough Ennell SPA	6.30km	Pochard [A059], Tufted Duck [A061], Coot [A125]	The COs of this lake are associated with water rather than terrestrial habitats so are unlikely to be affected by the development.
001831	Split Hills and Long Hill Esker SAC	6.46km	No mention of important bird species	N/A
002205	Wooddown Bog SAC	13.36km	Buzzard, and snipe	Unlikely given distance
Nationally designated sites				
000677	Cloncrow Bog (New Forest) NHA	3.15km	Site synopsis does not refer to birds	N/A
000582	Raheenmore Bog pNHA	5.20km	Site synopsis does not refer to birds	N/A
02323	Milltownpass Bog NHA	5.63km	Site synopsis does not refer to birds	N/A
000918	Rahugh Ridge (Kiltober Esker) pNHA	6.30km	Site synopsis does not refer to birds	N/A
001725	Nure Bog NHA	7.59km	Site synopsis does not refer to birds	N/A
001711	Ardan Wood pNHA	7.66km	Probable breeding Sparrowhawks, and Long-eared Owls.	Unlikely given distance
001775	Murphy's Bridge Esker pNHA	8.89km	Site synopsis does not refer to birds	N/A

Site Code	Site Name	Distance	Literature review with respect to ornithology	Potential connectivity (in relation to ornithology)
EU designated Sites				
002033	Daingean Bog NHA	10.61km	Site synopsis does not refer to birds	N/A
002103	Royal Canal pNHA	10.81km	Site synopsis does not refer to birds	N/A
000570	Black Castle Bog NHA	11.40km	Site synopsis does not refer to birds	N/A
000896	Derrygolan Esker pNHA	12.40km	Site synopsis does not refer to birds	N/A
000694	Wooddown Bog NHA	13.22km	Site synopsis does not refer to birds	N/A
001731	Walshestown Fen pNHA	14.58km	Site synopsis does not refer to birds	N/A
000690	Lough Sheever Fen/Slevin's Lough Complex pNHA	14.69km	Lakes provide a very good habitat for a variety of bird species	Unlikely given distance

2.3 Historical Review of Data

2.3.1 National Biodiversity Data Centre (NBDC) information

The NBDC was accessed on the 14th of August 2024 and again on the 21st of May 2025 for previous records within the 3 x 2km squares the site resides in; N43U, N43P and N44K. In total there were sixteen bird species recorded within the records examined. The following rare and / or threatened birds have been recorded here.

Table 2-2 Designated species recorded within the 2km squares; N43U, N43P and N44K

Name	Latin Name
Mallard	*Anas platyrhynchos*
Eurasian Teal	*Anas crecca*
Eurasian Wigeon	*Anas penelope*
Tufted Duck	*Aythya fuligula*
Common Snipe	*Gallinago gallinago*
Eurasian Woodcock	*Scolopax rusticola*
Eurasian Curlew	*Numenius arquata*
Northern Lapwing	*Vanellus vanellus*
Barn Swallow	*Hirundo rustica*
Common Starling	*Sturnus vulgaris*
House Martin	*Delichon urbicum*
House Sparrow	*Passer domesticus*
Lesser Black-backed Gull	*Larus fuscus*

Name	Latin Name
Mute Swan	*Cygnus olor*
Sky Lark	*Alauda arvensis*
Yellowhammer	*Emberiza citrinella*

The proposed site lies in close proximity to the Yellow River windfarm project where numerous bird surveys have previously been carried out. The Kilmurray's sand and gravel quarry (lying 1.4km from the subject site) is a component of this windfarm and contains a breeding population of Lapwing as well as numerous wintering birds including Golden Plover and Whooper Swans.

3 Field Survey

3.1 Survey Personnel

Bird surveys were primarily conducted by Shane O'Neill. Shane O'Neill is an experienced ornithologist (Co-author Hen Harrier Survey, NPWS 2015) with a broad knowledge of breeding birds, waders and all aspects of ornithology. Shane has previously conducted I-WeBS surveys and taken part in the Shannon estuary wintering wader surveys. In addition, some surveys were conducted by John Curtin B.Sc and Karolina Illien M.Sc, both Eire Ecology ecologists.

3.2 Summary of Results

Table 3-1 below provides a summary of surveys undertaken.

Table 3-1 Summary of surveys conducted

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
1	20/09/2024	VP2	10:00	16:30	VP started once fog cleared. High Buzzard activity on site, also one siting of Kestrel and 4 golden plover seen briefly landing on site.	07:17 / 19:28
2	23/09/2024	VP3	10:00	16:30	Cormorant and 5 Lesser black backed Gull flew over site but did not interact with site. One Buzzard heard but not seen	07:13 / 19:20
3	23/09/2024	VP1	06:17	12:47	Only species of note recorded was a buzzard.	07:13 / 19:20
4	25/09/2024	Hinterland	8:30	17:30	Coot and Mallard were observed on pond adjacent to site. Mute swan were observed at locations 2 and 4 and a heron was observed at Location 3	07:17 / 19:14
5	09/10/2024	VP3	12:46	19:16	In total 7 Golden Plover flew over site. Sparrowhawk, Buzzard and Meadow Pipit present. Very high corvid activity on site all day. No migratory flocks seen	07:42 / 18:46
	09/10/2024	VP3	12:46	19:16	In total 7 Golden Plover flew over site. Sparrowhawk, Buzzard and Meadow Pipit present. Very high corvid activity on site all day. No migratory flocks seen	07:42 / 18:46
6	14/10/2024	VP1	13:00	16:00	A total of 90 Golden plover were recorded, 4 Yellowhammer, a Kestrel was recorded 5 times during the watch hunting this area. There were 4 sightings of Buzzard believed to be 2 separate birds hunting on the site (Possible Pair). Tillage to the W, NW and N was drawing in Woodpigeon, Hooded Crow Rook and Jackdaw also.	07:50 / 18:32
	14/10/2024	VP1	16:30	19:40	There was a farmer working the field to the W which may have caused disturbance during this watch. Yellowhammer and Buzzard were still present during the watch.	07:50 / 18:32
7	15/10/2024	Hinterland	09:15	17:30	A total of 8 hinterland VP's were found to be worth return visits, this should grow as the second and third visits are carried out.	07:52 / 18:27
8	17/10/2024	VP2	13:00	16:00	A total of 21 Golden plover were recorded on or over the site during this watch 11 circled over the site the other 10 landed onto the site in a GS4 to the SW of the VP field. Yellowhammer were recorded on the edge of the Tillage field calling and a Kestrel was hunting the site throughout the watch.	07:56 / 18:23
	17/10/2024	VP2	16:30	19:30	During this watch a small flock of Golden plover landed into the W side of the VP field where the roosted. A further 24 were recorded to the W, off site circling close to the motorway. 9 Whooper swan were recorded flying over the NE of the site but didn't land onto it. There were 2 recordings of Buzzard on site during this watch, but it is believed to be same bird.	07:56 / 18:23
9	07/11/2024	VP2	06:40	09:40	Whooper Swan flying over site. Buzzard and Redeye observed on site	07:40 / 16:40

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
	07/11/2024	VP2	10:20	13:20	Buzzard flying over site	07:40 / 16:38
10	14/11/2024	VP3	06:45	09:45	Before dawn during this watch Snipe were heard calling from the ground and Golden Plover were heard calling (The GP were not recorded on the ground during this watch). A total of 7 Whooper Swan were recorded flying over the site. None recorded on it during this watch. Buzzard were also recorded flying over this site during the watch.	07:49 / 16:28
	14/11/2024	VP3	10:20	13:20	Golden plover were recorded flying over the site during this watch, also recorded were Peregrine, Sparrowhawk, Buzzard, Yellowhammer and Black headed Gull. All of these were recorded flying over the site, apart from the Y that was calling from the hedgerows and the SH that was recorded hunting the hedgerows of the site.	07:49 / 16:28
11	15/11/2024	VP1	06:45	09:45	A total of 95 Golden plover were recorded during this watch 92 circled the site for over 40 minutes before landing in the site. Yellow hammer were again recorded calling from the edges of the site with Kestrel hunting just off site to the east. Buzzard was recorded to the south of the motorway off site.	07:51 / 16:27
	15/11/2024	VP1	10:15	13:15	Golden plover were recorded coming and going from the field to the north of VP the largest number recorded on the ground was 120. Also recorded were 3 Lapwing that flew over the site flying from east to west. A Sparrowhawk was also recorded hunting the site it is believed it flushed the GP.	07:51 / 16:27
12	16/11/2024	Hinterland	08:15	16:15	A total of 11 hinterland point count locations were recorded during this survey but it is expected to rise. There was 2 flocks of Whooper swan recorded one numbering 7 and the second numbered 29. Also recorded were 6 Goldeneye on Lough Ennell.	07:53 / 16:25
13	11/12/2024	VP2	10:15	13:15	Buzzard were the most recorded bird during this survey. It looked to be a pair hunting the area to the east of the site both sides of the motorway. Kestrel was also recorded hunting this area. A large flock of Golden Plover were recorded off to the east 2-3km off site.	08:32 / 16:05
	11/12/2024	VP2	14:00	17:00	Two flocks of Golden plover were recorded during this watch one of 115 and the second of 46. Both were recorded off site circling. Buzzard was also recorded during this watch perched on site.	08:31 / 16:05
14	12/12/2024	Transect1			No large flocks of interest were recorded during these transects. Some SN were recorded but in small numbers (see Maps). The second part of transect 1 was to the north of the motor way mostly consisting of tillage and GA1. In this area there were large flocks of SG but no flocks of birds of interest.	08:32 / 16:05
15	13/12/2024	Transect2			Transect 2 was carried out in the area to the north and the west of the site both were north of the motorway. As with transect 1 there were no large flocks of birds of interest recorded. Small numbers of SN were recorded feeding on the site	08:33 / 16:05
16	16/12/2024	VP1	10:10	13:10	Flock of GP flew over site from N to S	08:35 / 16:05
	16/12/2024	VP1	13:40	16:40	Golden Plover Sighted later in Watch	08:35 / 16:05

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
17	17/12/2024	VP3	09:40	16:10	Within the site, there were 35 Redwing feeding in the grass. Flying overhead within and without the site were Cormorant, Buzzards, Golden Plovers and Herring Gull.	08:41 / 16:10
18	18/12/2024	Hinterland	09:30	17:30	48 whooper swan by quarry along with 110 lapwing. Small flock (15) golden plover further south in tillage field. 34 lapwing noted perched in field to NE of site.	08:42 / 16:11
19	18/12/2024	Thermal Transect	18:19	01:10	There were roosting Snipe scattered across the sites.	08:42 / 16:11
20	13/01/2025	VP2	07:00	10:00	Few target species were recorded this survey; they include Buzzard and Yellowhammer.	08:34 / 16:33
	13/01/2025	VP2	11:00	14:00	There were 3 wigeon recorded flying over the site during this watch. Also recorded were Buzzard and Kestrel. No large flocks were observed during this watch	08:34 / 16:33
21	15/01/2025	VP3	10:48	13:48	Few target species were recorded this survey	08:32 / 16:36
	15/01/2025	VP3	14:18	17:18	10 Golden Plover seen during survey	08:32 / 16:36
22	15/01/2025	Transect 1	09:00	17:15	There was a small flock of Golden plover recorded circling a tillage field to the east of the site these were possibly flushed when the electronic gate was open to let me enter they circled for 15 minutes before I continued on with my transect they were not in the area when I returned (First recorded at 53.40615, -7.31035). Later in the transect there was a large flock of Snipe flushed by me from the same fields as the Golden Plover These flew west total number of SN flushed was 42 from 53.40560, -7.31186.	08:32 / 16:36
23	16/01/2025	Transect2	09:00	17:00	During this transect a large flock (250-275) of Golden Plover were circling the site as if they wanted to land. 40 did land in a tillage field on site at 53.39853,-7.33017. The remainder circled over the site and off to the west within 1 km of the site. I didn't enter the field that they landed in as I didn't want to cause disturbance. There was no visible reason why the rest of the flock did not land. The rest of the transect no large flocks but did have some Buzzard holding territory.	08:31 / 16:38
24	21/01/2025	VP1	11:01	14:01	Few Species of interest during survey, Golden Plover observed	08:26 / 16:47
	21/01/2025	VP1	14:31	17:31	Two flocks of Golden Plover with 30 individuals seen during this survey	08:26 / 16:47
25	25/01/2025	Hinterland	09:00	17:05	By quarry, and grassland surrounding, 172 lapwing perched and 63 whooper swan grazing. 150 black headed gulls in field to north of site by Gaybrook Demesne.	08:30 / 17:06
26	06/02/2025	VP3	7.05	10.05	GP flew in from NW and perched in field within site. Buzzard also flew low over field then perched within site. Lots of flocks of RE flying over (largest flock 60)	08:01 / 17:17

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
	06/02/2025	VP3	10:35	13:35	BB circling low over field adjacent to site outline. GP flew high over site from NW to SE	08:01 / 17:17
27	18/02/2025	Thermal Transects	18:00	21:35	No Large flocks were recorded but some small flocks of Snipe were recorded foraging in Tillage and in GS4 wet grassland. Also recorded in these fields were Woodcock. Some of these birds were not picked up by the thermal scope as the vegetation was too high in places.	07:37 / 17 :41
28	19/02/2025	VP2	11:30	13:30	Buzzard and Kestrel were the main species recorded during this watch, but one large flock of Golden Plover numbering 350-400 birds was recorded to the south of the site circling over peat bog 1-2km off site approx.	07:35 / 17:43
	19/02/2025	VP1	15:00	18:00	There were no large flocks recorded during this watch. The only notable recording was a Kestrel flying through the site.	07:35 / 17:43
29	19/02/2025	Thermal Transects	18:15	20:45	There were a small number of Golden Plover flushed from the Tillage fields to the west and NW of VP1. These birds were not part of a larger flock these were just singletons that were roosting in the fields. Note these were not picked up by the thermal scope as the tillage was to high 8 inches approx. Some Snipe were picked up in the fields north of VP3 some of these birds were picked up by the thermal scope and some were not, depending where in the fields they were recorded.	07:35 / 17:43
30	20/02/2025	5km golden plover habitat mapping	08:30	16:30	The day was spent visiting Tillage fields within 5km of the site boundary to see if they were suitable for large flocks of Golden Plover and other winter waders. All suitable areas were marked and mapped.	07:33 / 17:45
31	12/03/2025	Hinterland	08:30	16:00	Still 30 whooper swan by quarry. Increased tufted duck numbers (25). Decrease in numbers as wintering season draws to a close.	06:57 / 18:35
32	18/03/2025	VP2	06:00	09:00	Birds of interest recorded were Hen Harrier, Golden Plover, Yellow Hammer, and Lapwing. The Hen Harrier was recorded flying through the SW corner of the site. This Male HH had no interaction with the site apart from flying over it. A flock of 141 Golden Plover were recorded circling to the E of the site they appeared to have been flushed from the pond to the E of the site. They did circle over the E edge of the site but settled again off site to the E. The Lapwing that were recorded were mixed in with the GP and also settles off site to the E.	06:32 / 18:34
	18/03/2025	VP3	10:40	13:40	The most recorded species on or over VP3 were Buzzard, Yellowhammer were also recorded. The BZ were recorded flying over the site perched in the site and hunting the site. The Yellow hammer were recorded perched and calling from hedge rows within the site . They looked to be holding territory but no singing was recorded.	06:32 / 18:34

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
33	19/03/2025	VP3	06:45	09:45	Again during this watch Yellow Hammer and Buzzard were the main birds of interest recorded. Yellow Hammer were recorded pairing up, Singing and holding in the hedge rows of the improved grassland. They were feeding on the spilt sheep feed that probably had grains and seeds in it. The Buzzard was recorded on and over the site hunting and perched. There seems to be a territory just north of the site north of VP3.	06:30 / 18:36
	19/03/2025	VP1	10:40	13:40	At VP1 Buzzard, Yellowhammer and Raven were recorded. The Buzzards were holding territory and displaying. The territory is north northwest of VP1 not in tillage fields. The yellowhammer were singing, Perched and calling from inside and outside the site 1 pair look to be holding territory in the hedgerow to the north of VP1. Ravens are already sitting on eggs in the Pylon to the SE of VP1.	06:30 / 18:36
34	20/03/2025	VP1	06:30	09:30	During this VP, Yellowhammer were the most recorded birds of interest recorded. The Yellow hammer were recorded singing, Calling and holding territory. A Snipe was recorded calling from the tillage field to the west of the VP. This snipe was later recorded flying off site heading south.	06:28 / 18:37
	20/03/2025	VP2	10:20	13:20	Buzzard, Yellowhammer, Kestrel, and Golden Plover were the birds of interest recorded from VP2 during this watch. The Buzzard was recorded displaying over the site also flying over it hunting it and generally holding territory. Yellowhammer were recorded singing and holding territory on and off site. A flock of 130 Golden plover were recorded flushed off the pond in the field just east of the sire they circled off to the NE but returned and landed back into the field with the pond in it a short while later. The Kestrel was recorded just off site to the S hunting the bog, not recorded over the site.	06:28 / 18:37
35	14/4/2025	Breeding bird survey	09:30	18:00	During this survey all birds were recorded with particular attention given to birds of note such as Yellowhammer, Raptors and any red or amber listed birds. The survey was carried out in the East and SE areas of the site. There was no standout birds of interest recorded during the survey.	06:28 / 20:23
36	15/04/2025	O Brien and Smith	05:50	08:40	This survey was carried out in the south SE of the site there was no evidence of breeding waders in this area. This area comprises of a mixture of GA1 and GS4 with suitable drainage ditches and a river running through the site. These habitats would be suitable nesting habitat but for the fact there is much better habitat off site to the south and southeast of this site.	06:26 / 20:24
	15/04/2025	O Brien and Smith	18:15	21:15	This survey was carried out to the north of the site. There were no breeding waders recorded during this survey even though there was some suitable habitat present	06:26 / 20:24
-	16/04/2025	Breeding bird survey	09:45	10:30	This survey was called off as the weather was not good enough to continue	06:24 / 20:26
37	19/04/2025	O Brien and Smith	18:10	21:16	There was 3 Snipe recorded on site during this survey but no evidence of breeding was recorded. They were all recorded in a flooded area of the site, they looked to be foraging. When flushed they flew off site into more suited areas for breeding and were not recorded returning to the site. No signs of breeding wader were recorded during this survey.	06:17 / 20:32

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
	21/04/2025	O Brien and Smith	05:45	08:30	During this survey that was carried out in perfect conditions there were no breeding waders recorded. The area that was surveyed was the area in the north of the site it has mostly GA1 but with some suitable patched of GS4 and large drainage ditches and a river running the northern boundary suitable for breeding waders.	06:21 / 20:32
38	20/04/2025	Breeding bird survey	09:30	18:30	During this survey all birds were recorded with particular attention was given to birds of note such as Yellowhammer, Raptors and any red or amber listed birds. The survey was carried out in the section around the farmhouse surrounded by tillage in the east of the site. The area to the north of the site was surveyed on this visit. Also the area of tillage to the west was surveyed on this visit.	06:15 / 20:33
39	28/04/2025	Hinterland	08:50	15:50	No whooper swan visible. Surveys sought raptors. Several sightings of buzzard surrounding site in suitable breeding habitat. Sparrowhawk and kestrel also observed in suitable breeding habitat.	06:08 / 21:00
40	04/05/2025	Breeding bird survey	09:30	18:00	This survey was carried out in suitable weather conditions in the area south of the motorway and in the 2 GA1s just north of the motorway. All species were recorded. Special interest was taken of Yellowhammer and raptor species. See data sheets.	05:45 / 20:58
41	05/05/2025	Breeding bird survey	09:30	18:00	It was carried out to the North of the motorway In a mixture of GA1 and Tillage. Again all species and there breeding status was recorded, with special emphasis given to Yellowhammer. In this area Yellowhammer were recorded on the edge of GA! Habitat feeding on the grain that had been left for the sheep. In the area north of the road at VP3 there were 2 possibly 3 pairs utilising this resource.	05:43 / 21:00
42	06/05/2025	Breeding bird survey	09:30	17:15	This survey was also carried out in perfect weather conditions. It was carried out in GA1 and Tillage habitat in the west and east of the site, north of the motorway. All species were recorded and there breeding status was recorded. Yellowhammer were again given special emphasis as the majority of the habitat was tillage.	05:42 / 21:02
43	07/05/2025	O Brien and Smith	05:00	07:30	The area along the river that runs along the northern boundary of the site was especially targeted. No waders were recorded during this survey.	05:40 / 21:04

Visit No	Date	Location	Start Time	End Time	Details	Sunset / sunrise
44	07/05/2025	O Brien and Smith	18:46	10:00	There were 2 Snipe and 4 Lapwing recorded during this walkover. No drumming or chipping were recorded on or over the site, thus the snipe are not breeding. Some territorial dispute over the bog to the south of the site was recorded, with 2 Lapwing pushing a third off the bog and onto the site. No alarm calling or distraction display from the 4 Lapwing on site which I would expect from breeding birds at this time of the season. The first snipe that was recorded flushed and left the site flying south onto the bog. This snipe was in an area unsuitable for nesting. The second snipe was a Jack Snipe that flushed from suitable nesting habitat and landed again to the south. No sign of a nest was found in the area it flushed from but signs of foraging were recorded. A further 3 Lapwing were recorded on the pond off site to the east of the site this area was more suited for nesting but no evidence was recorded.	05:38 / 21:05
45	15/05/2025	Hinterland	09:30	17:30	Final Hinterland Survey conducted in lands south of the Site, Lapwing were found breeding during this survey in Conifer plantation south of site.	05:26 / 21:17

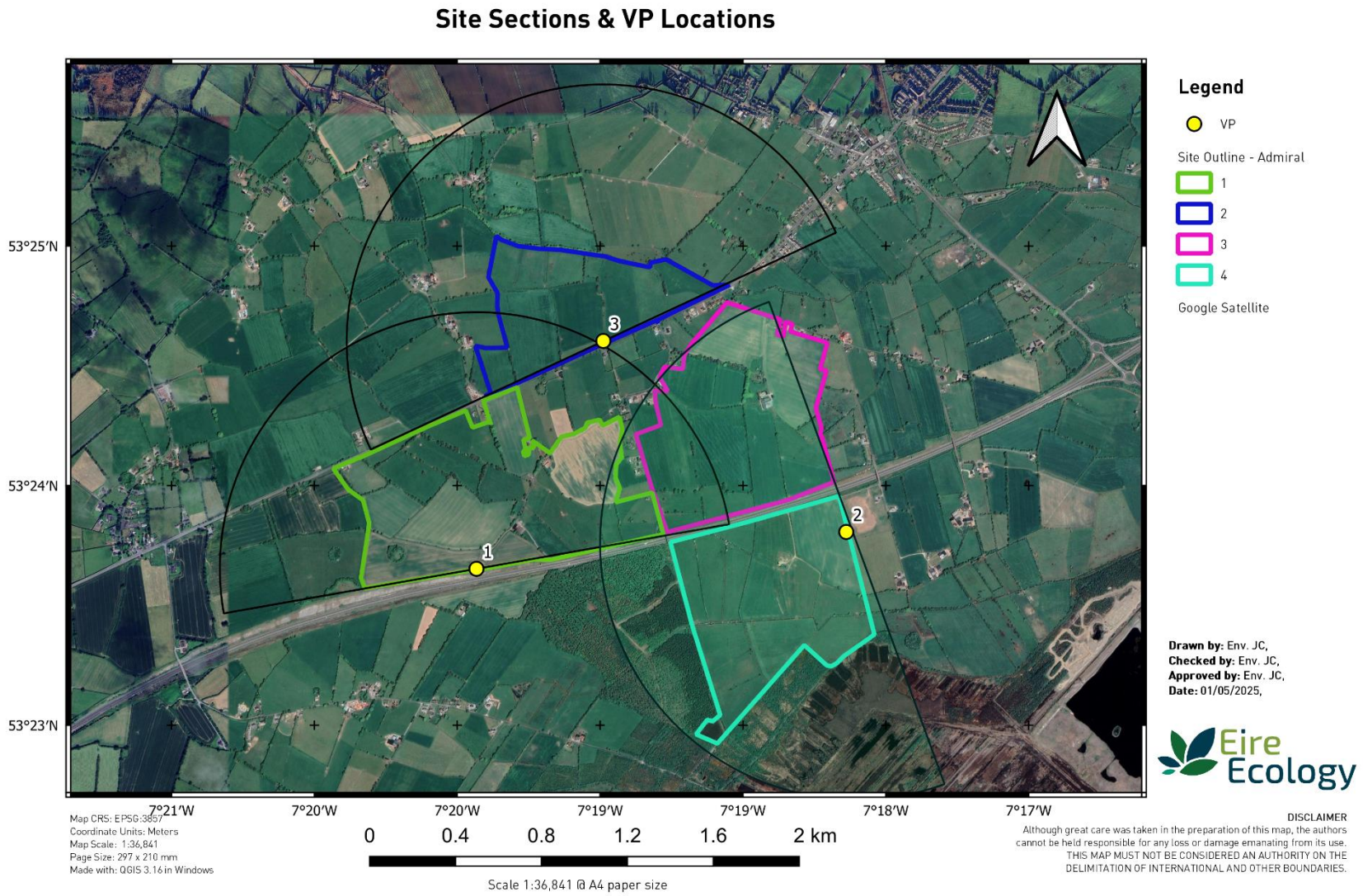

Figure 3-1: VP locations with site split into sections

3.3 Birds in the ecological survey area

3.3.1 Birds within the site of the proposed development and surrounds

During Vantage point surveys, species of interest noted using the site included Golden Plover, Lapwing, Snipe and Woodcock.

Buzzard, Golden Plover and Kestrel were seen most frequently making use of the site, with moderately sized flocks of Meadow Pipit, Mallard and Redwing also present. A large flock of Golden Plover observed far to the South of the Site numbering ~375 individuals was noted and is included below, though on the site, the largest recorded flock was 262 individuals strong. Whooper Swan were noted overflying but did not interact with the site.

3.3.2 Onsite Results

3.3.2.1 VP Summary

Three vantage point surveys were conducted each month between September 2024 and March 2025. The presence of the Target species and their flightlines were recorded. Table 3-2 provides a summary of species of interest including number of times the species was observed and if the species interacted with the site (perched within, hunting or roosting compared to flying over). Summaries of non-target species can be found in Appendices.

Table 3-2 Summary of Vantage Points 'Species of interest' results

Species	No of Obs.	Max Obs.	Recorded within site	Interacting with Site?	BoCCI4	Season for BOCCI4 designation
Black-headed Gull	2	2	In	No	Amber	Breeding/Wintering
Buzzard	63	7	In	Yes	Green	-
Golden Plover	42	375	In	Yes	Red	Breeding/Wintering
Great Cormorant	2	1	In	No	Green	-
Hen Harrier	1	1	In	Yes	Amber	Breeding
Herring Gull	1	1	In	No	Green	-
Kestrel	21	92	In	Yes	Red	Breeding
Lapwing	2	3	In	Yes	Green	-
Lesser Black-backed Gull	1	5	In	No	Amber	Breeding/Wintering
Meadow Pipit	3	22	Out	Yes	Red	Breeding
Peregrine Falcon	1	1	Out	Yes	Green	-
Raven	1	2	In	Yes	Green	-
Redwing	2	35	In	Yes	Red	Wintering
Sky Lark	1	1	In	Yes	Green	-
Snipe	4	2	In	Yes	Red	Breeding/Wintering
Sparrowhawk	3	1	In	Yes	Green	-
Whooper Swan	7	10	In	No	Amber	Breeding/Wintering

Species	No of Obs.	Max Obs.	Recorded within site	Interacting with Site?	BoCCI4	Season for BOCCI4 designation
Wigeon	1	4	In	No	Amber	Breeding/Wintering
Woodcock	1	2	In	Yes	Red	Breeding
Yellowhammer	29	3	In	Yes	Red	Breeding

Table 3-3 Summary of Vantage Point Non-Target results

Species	No of Obs.	Max Obs.	BoCCI4	Season for BOCCI4 designation
Blackbird	16	6	Green	-
Barn Swallow	3	10	Amber	Breeding
Blue Tit	12	4	Green	-
Bullfinch	1	4	Green	-
Chaffinch	16	10	Green	-
Coal Tit	1	1	Green	-
Collared Dove	2	6	Green	-
Dunnock	14	2	Green	-
Fieldfare	9	150	Green	-
Goldcrest	2	2	Amber	Breeding
Goldfinch	6	25	Green	-
Great Tit	6	2	Green	-
Greenfinch	4	30	Amber	Breeding
Grey Heron	1	1	Green	-
Grey Wagtail	1	2	Green	-
Hooded Crow	20	40	Green	-
House Martin	1	6	Amber	Breeding
House Sparrow	2	7	Amber	Breeding
Jackdaw	13	80	Green	-
Jay	5	3	Green	-
Kestrel	1	1	Red	Breeding
Lesser Redpoll	2	5	Green	-
Linnet	4	4	Amber	Breeding
Long-tailed Tit	5	9	Green	-
Magpie	3	2	Green	-
Meadow Pipit	12	10	Red	Breeding
Mistle Thrush	4	7	Green	-
Pheasant	1	1	Green	-
Pied Wagtail	13	4	Green	-
Raven	4	3	Green	-
Redwing	6	50	Red	Wintering
Reed Bunting	2	18	Green	-
Robin	24	20	Green	-
Rook	18	100	Green	-
Sky Lark	3	2	Green	-
Song Thrush	9	3	Green	-
Starling	21	500	Amber	Breeding
Stonechat	5	2	Green	-
Tree Sparrow	1	4	Amber	Breeding
Winter Wren	16	8	Green	-
Wood Pigeon	26	150	Green	-

3.3.2.2 Wintering Transects

Three wintering transect surveys were conducted in December and two in January; these surveys are of benefit to discover species not obvious during VP surveys. Table 3-4 below provides a summary of birds found during these transect surveys, including the number of times the species was observed and the largest flock observed at once. All Transect Points were recorded within the site outline.

Table 3-4 Summary of Transect 'Species of interest' results

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation
Buzzard	16	2	Green	N/A
Golden Plover	5	262	Red	Breeding/Wintering
Little Grebe °	1	1	Green	N/A
Meadow Pipit	29	16	Red	Breeding
Mute Swan °	3	2	Amber	Breeding/Wintering
Redwing	8	22	Red	Wintering
Snipe	14	42	Red	Breeding/Wintering
Yellowhammer	33	8	Red	Breeding

° outside site boundary

Table 3-5 Summary of Non-Target Transect results

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation
Blackbird	142	5	Green	N/A
Blue Tit	21	2	Green	N/A
Bullfinch	3	2	Green	N/A
Chaffinch	80	9	Green	N/A
Dunnock	30	5	Green	N/A
Fieldfare	17	100	Green	N/A
Goldfinch	3	3	Green	N/A
Great Tit	7	6	Green	N/A
Hooded Crow	3	1	Green	N/A
Jackdaw	10	4	Green	N/A
Jay	17	18	Green	N/A
Lesser Redpoll	3	2	Green	N/A
Long-tailed Tit	1	2	Green	N/A
Magpie	1	1	Green	N/A
Mistle Thrush	5	7	Green	N/A
Pheasant	5	3	Green	N/A
Pied Wagtail	25	7	Green	N/A
Robin	3	4	Green	N/A
Rook	18	3	Green	N/A
Sky Lark	2	3	Green	N/A
Starling	51	2	Amber	Breeding
Stonechat	14	71	Green	N/A
Tree Sparrow	3	1	Amber	Breeding

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation
Winter Wren	1	4	Green	N/A
Wood Pigeon	1	1	Green	N/A

3.3.2.3 Breeding Season Surveys

To determine which species are breeding within the site, combined surveys were conducted, including preliminary barn owl assessment, a nighttime thermal survey and several breeding walkover surveys (O' Brien and Smith). Summaries are provided below with full results in appendix.

Table 3-6: Summary of Breeding Season Species of Interest Results

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation	Confirmed Breeding?
Barn owl	1	2	Red	Breeding	Yes
Buzzard	8	1	Green	N/A	No
Goldcrest	11	1	Amber	Breeding	No
Golden Plover	1	1	Red	Breeding/Wintering	No
Great Black-backed Gull	1	1	Green	N/A	No
House Martin	5	6	Amber	Breeding	No
Little Grebe	2	3	Green	N/A	No
Mallard	1	2	Amber	Breeding/Wintering	No
Meadow Pipit	65	11	Red	Breeding	Yes
Mute Swan	2	2	Amber	Breeding/Wintering	No
Northern Lapwing	2	1	Green	N/A	No
Snipe	1	1	Red	Breeding/Wintering	No
Teal	2	2	Amber	Breeding/Wintering	No
Willow Warbler	16	1	Amber	Breeding	No
Yellowhammer	64	3	Red	Breeding	No

Table 3-7: Summary of Breeding Season Non-Target species

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation	Confirmed Breeding?
Blackbird	218	4	Green	N/A	Yes
Blackcap	87	2	Green	N/A	No
Blue Tit	30	2	Green	N/A	No
Bullfinch	1	1	Green	N/A	No
Chaffinch	248	3	Green	N/A	Yes
Chiffchaff	15	1	Green	N/A	No
Dunnock	43	2	Green	N/A	Yes
Goldfinch	34	8	Green	N/A	No
Great Tit	15	2	Green	N/A	Yes
Greenfinch	10	2	Amber	Breeding	No
Hooded Crow	3	2	Green	N/A	No
Jackdaw	11	7	Green	N/A	No
Linnet	33	7	Amber	Breeding	Yes
Long-tailed Tit	3	2	Green	N/A	No

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation	Confirmed Breeding?
Magpie	3	2	Green	N/A	Yes
Mistle Thrush	17	2	Green	N/A	No
Moorhen	1	1	Green	N/A	No
Pheasant	2	1	Green	N/A	No
Pied Wagtail	8	2	Green	N/A	No
Raven	11	4	Green	N/A	No
Reed Bunting	2	1	Green	N/A	No
Robin	128	2	Green	N/A	Yes
Rook	5	6	Green	N/A	No
Sky Lark	20	2	Green	N/A	No
Song Thrush	56	2	Green	N/A	
Starling	28	12	Amber	Breeding	Yes
Tree Sparrow	25	4	Amber	Breeding	Yes
Winter Wren	205	1	Green	N/A	No
Wood Pigeon	42	7	Green	N/A	No

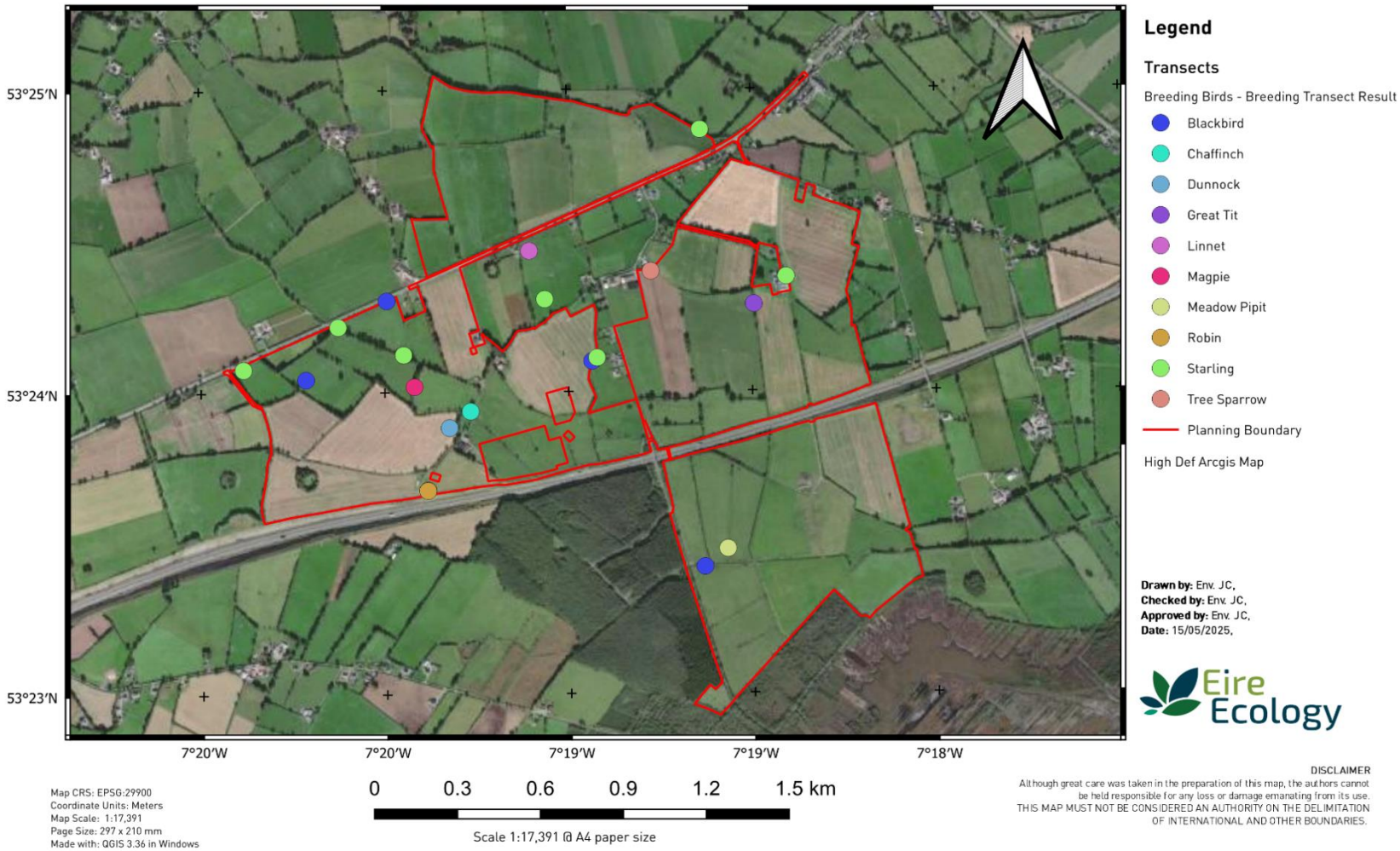

Figure 3-2: Confirmed species breeding, April/May 2025

3.3.2.4 Nighttime Thermal Surveys

Thermal Surveys were conducted in order to assess the use of the site by wintering wader species as a roosting location. Most commonly found species during these surveys was snipe, with 39 observations, mostly in Section 4 of the site to the North.

Table 3-8: Summary of Thermal Survey Results

Species	No. of observations	Max no. observed	BoCCI4	Season for BOCCI4 designation
Golden Plover	3	2	Red	Breeding/Wintering
Meadow Pipit	1	5	Red	Breeding
Snipe	39	16	Red	Breeding/Wintering
Song Thrush	1	3	Green	N/A
Woodcock	3	2	Red	Breeding

Plate 3-1: Snipe in GA1 Habitat before being flushed

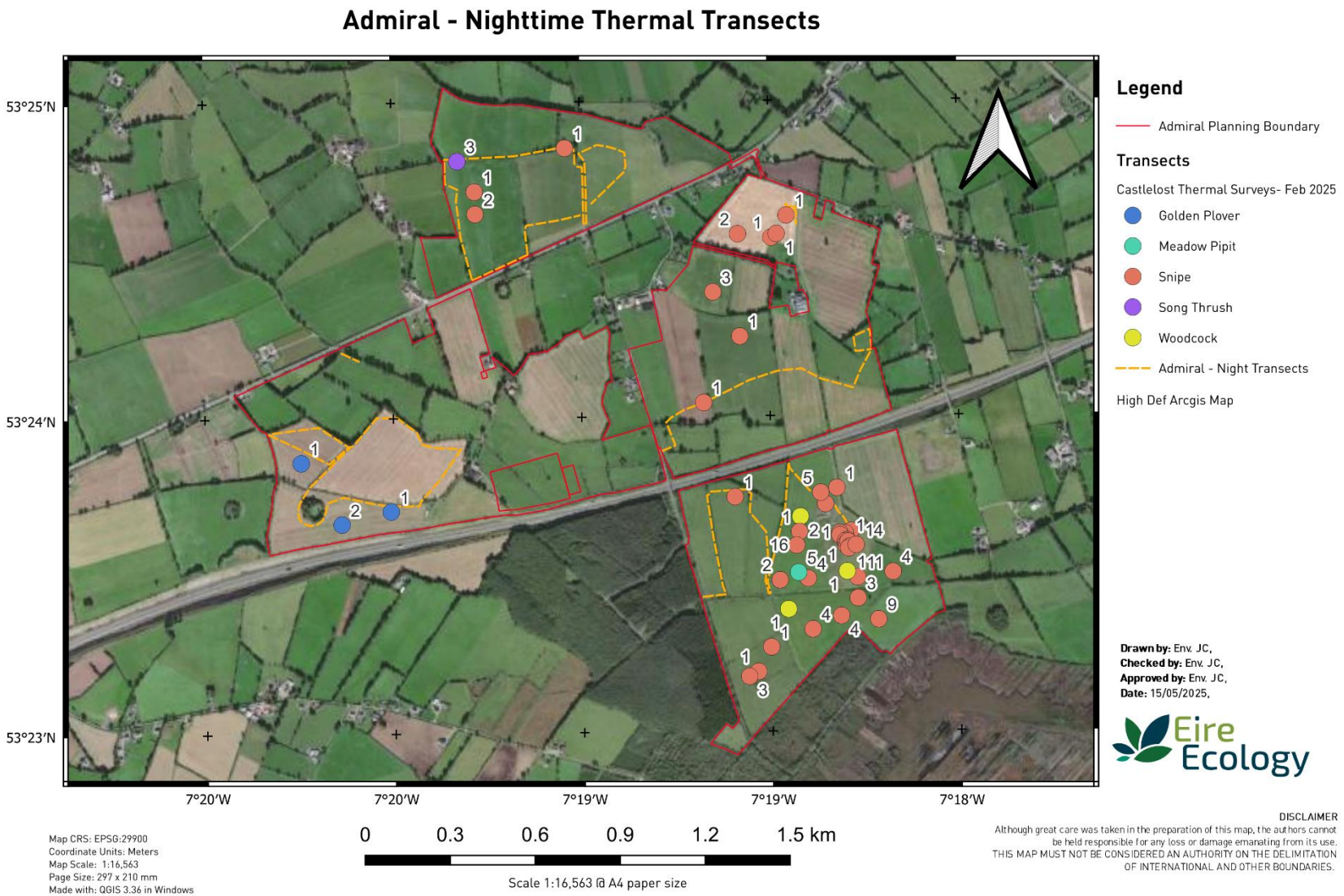

Figure 3-3: Thermal Survey Results (number of birds provided by location points)

3.4 Summary per species

The following sections provides a summary of sightings from species of note observed within the site. Full details can be found in Appendix 1.

Fig. 3-2 below shows the maximum numbers of wintering birds observed using the site during VP's, throughout the winter and migration periods (September 2024 -> March 2025). Of these, Golden Plover showed the most significant numbers utilizing the site.

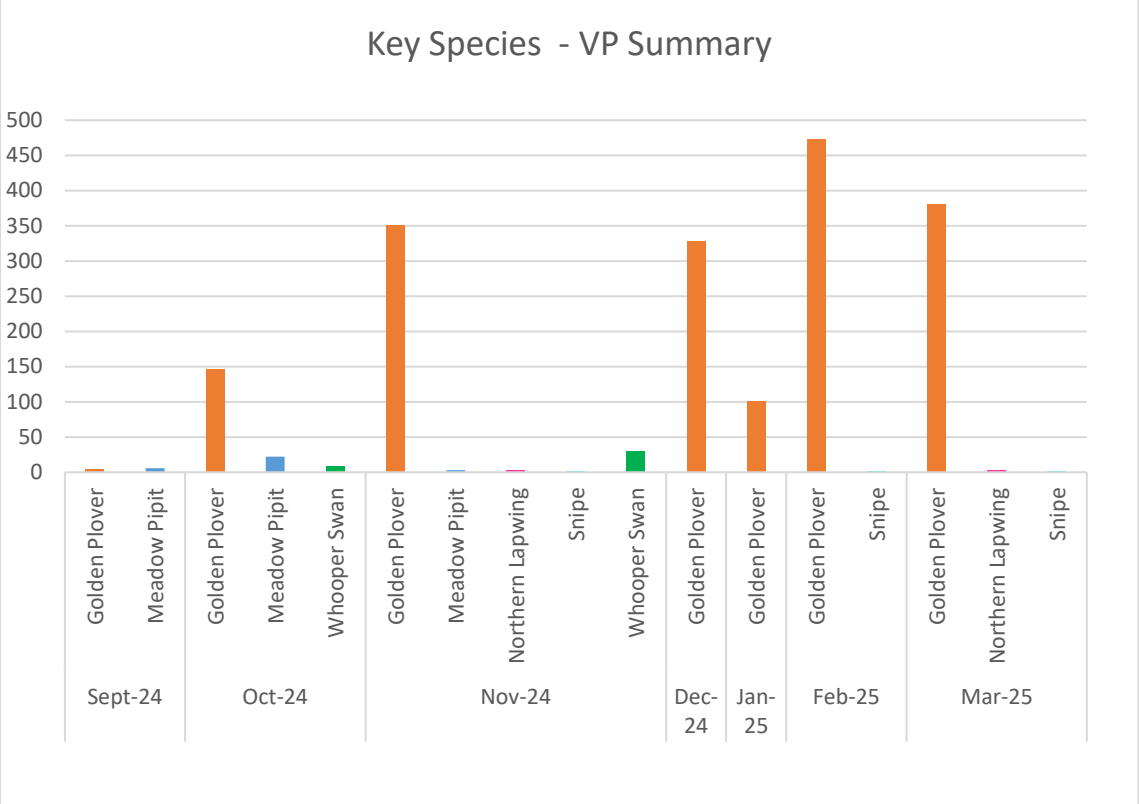

Figure 3-4: Wintering bird numbers – VP summary

3.4.1 Golden Plover

Golden Plover is a red listed species and is of high conservation value. Golden plover was observed 42 times over the course of the VP surveys, with peaks in February and March. Highest flock noted onsite during VP's was 141, with a flock noted during transects of up to 262. Additionally, a flock of 375 individuals was noted far south of the site. Golden Plover was observed in most of the site, but particularly to the West and South. An analysis of suitable plover habitat (peatland, tillage and grassland with less than 7cm sward height - (Gilling, 2007)) within 5km of the site shows 2,279 Ha, accounting for a total of 18% of total land cover. 46.5 Ha of this habitat is located onsite.

4.26 Ha of this habitat is proposed to be retained onsite with an additional 6.9 Ha proposed to be developed for Golden plover habitat. In total it is predicted that 35.34 Ha of habitat will be lost during the implementation of the current proposed development. This corresponds to a habitat reduction of 1.5% within the 5km surrounding area of the site.

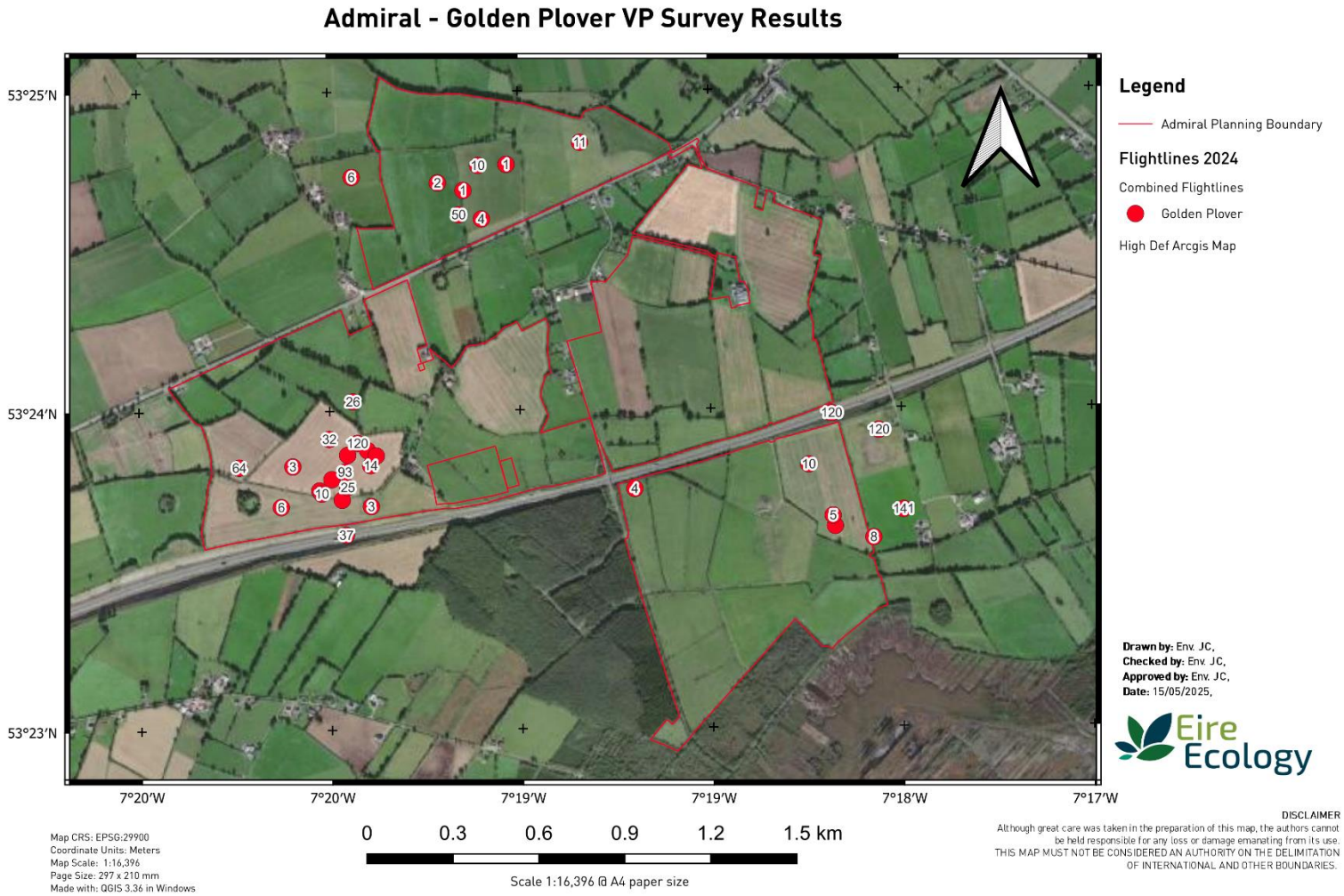

Figure 3-5: Golden Plover VP Results

3.4.2 Snipe

Common snipe is a small cryptic wader mostly found in bog, marshy wetland, and rough ground in both upland, lowland regions, and lakeshores. Breeding takes place between April - June. Courtship ritual most often involves a male producing a drumming effect by filtering air over feathers ([RSPB)., 2021). There may be an aerial display to ward off competitors. As snipe is a crepuscular species, these behaviors are most likely observed in twilight. The lifespan of a snipe is typically 3 years, with breeding commencing at 2 years. The average clutch size is 4, which the female incubates 18-20 days. The fledgling period is 19/20 days (BTO), 2021). Small invertebrates and seedlings form part of the diet.

Only a handful of Snipe were recorded onsite during VP surveys. A single snipe was seen during VPs in November 2024 with an additional sighting in February and two in March 2025. Only five Snipe were observed in total between September and March.

Thermal night time surveys were conducted during in February and March 2025. 39 observations of Snipe were recorded during these surveys, for a total of 110 individuals (Max Obs. of 17). The majority of the thermal footage was of Snipe roosting onsite to the south, with some examples of roosting snipe in the Eastern and Northernmost sections.

Breeding wader surveys conducted within the site did not find any breeding snipe onsite. During April, 3 snipe were observed were flushed, flying offsite. In May, two snipe were observed one of which could possibly have been a jacksnipe. Importantly, no instances of drumming or displays were observed which is an indicator of breeding. It is likely this species is breeding oin the bog to the south of the site.

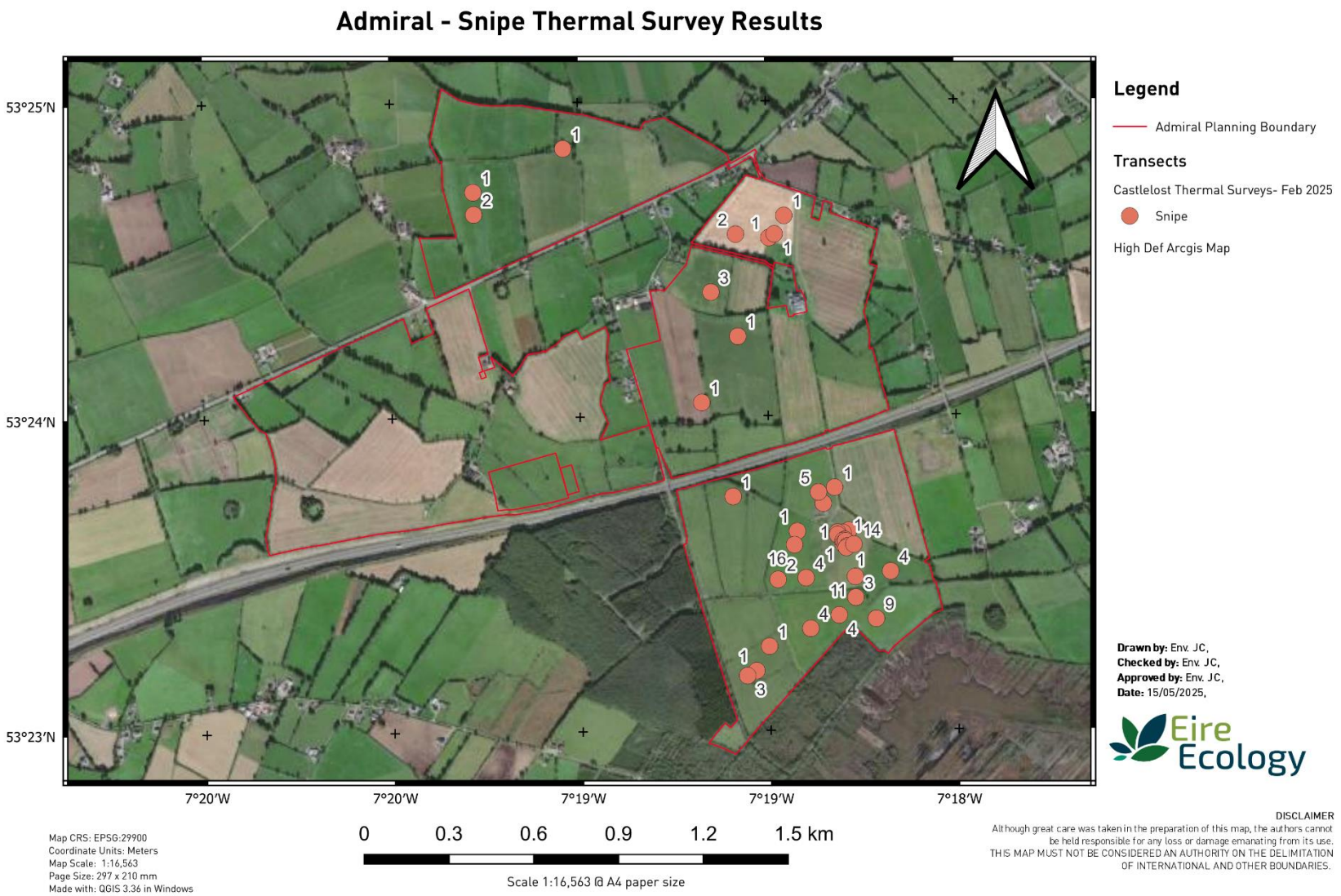

Figure 3-6: Snipe recorded during Winter Thermal Surveys

3.4.3 Meadow pipit

Meadow pipit, a ground nesting, red listed passerine. This species was noted 3 times from within the site boundary during vantage point surveys. Largest flock of Meadow Pipits was noted with 22 individuals.

With 66 total observations, Meadow Pipit was noted in higher numbers during the Breeding season walkover surveys, where a single contact of Meadow pipit confirmed to be breeding onsite. Additionally, 58 observations noted behaviour indicating Possible or Probable breeding onsite. Detailed map of transect results are displayed below.

The majority of Probable Breeding indicators were located in the northern section of the site, though the only confirmed instance of breeding Meadow Pipit was located in the Southernmost section of the site.

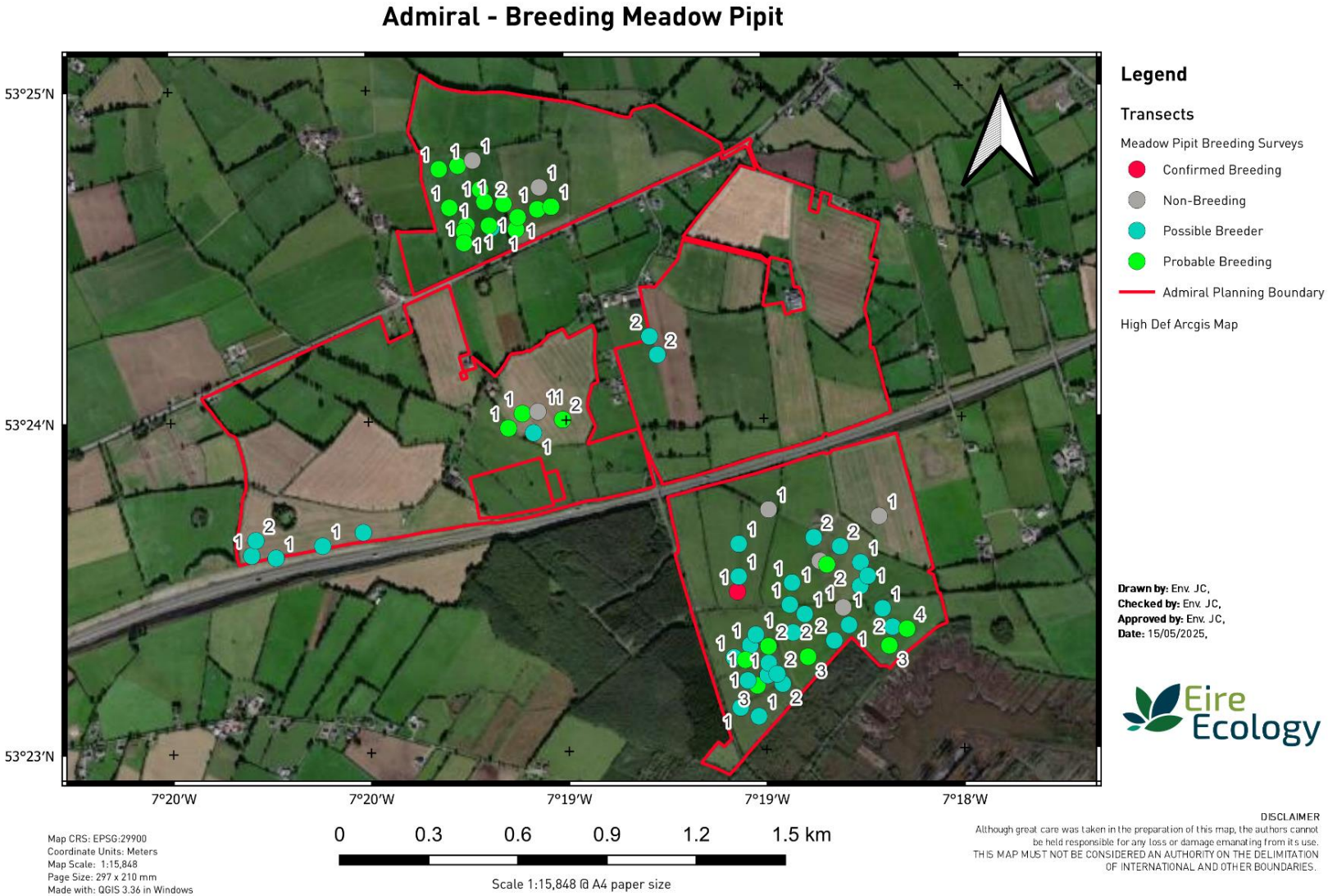

Figure 3-7: Meadow Pipit Breeding Survey Results

3.4.4 Whooper Swan

Not found to utilise the site, found using a pond to the east and the site is not used as a commuting route or feeding area. Hinterland Surveys show Whooper Swan are faithful to a location 2km south by the Yellow River Windfarm and often use the lands surrounding the Kilmurray Sand and Gravel Quarry. Whooper Swan was most often noted during Hinterland surveys South of Site.

3.4.5 Breeding Raptors

3.4.5.1 Buzzard

Buzzard is a widespread bird of prey best adapted to hunt over lowland pasture. Multiple records were noted from this species throughout the site. The species typically breeds within treelines and hedgerows thus retention of these features will be important for Buzzards continued usage of the site. Buzzard is a green listed species with a secure Irish population.

Buzzard was observed 63 times during VP surveys between September and March. 40 of the sightings were recorded within the site, though most observations noted the Buzzard flying/circling over the site, with 5 sightings within 500m of the site and 12 sightings flying over the site but not interacting. The largest number of Buzzard seen at once was 7 individuals observed flying over the site and not interacting.

During breeding season walkover surveys, 8 Buzzards were observed onsite, but none were recorded engaging in breeding behaviours and were simply flying over site.

3.4.5.2 Kestrel

21 Kestrel sightings were observed during VP Surveys, 14 of which were noted using the site. Kestrel was observed every month between September 2024 to March 2025, though they were not observed using the site in March.

During Breeding Walkover Surveys, no Kestrel was observed either on or off the site.

3.4.5.3 Barn Owl

Combined surveys were conducted to establish the presence of Barn Owl's on the site, including at height assessment of trees, preliminary barn owl habitat assessments and nighttime thermal surveys.

A nest was identified onsite in April 2025 during at height tree surveys of the site and was recorded and flagged for further assessment. A day of Barn owl surveys was conducted to attempt to confirm the presence of Owls, however little evidence was found at this time.

Nighttime footage of the nest tree conducted in May 2025 concluded that there was indeed a nesting pair in the vicinity of a house in the Eastern Section of site. Mitigation measures have been included below to ensure that these owls are not disturbed during the construction phase of the project.

The barn owl nest location is withheld from this report as releasing locations of nest sites is not advisable. This information will be submitted separately and should not be available for public viewing.

3.4.6 Yellowhammer

Yellowhammer, a declining red listed passerine found mainly in the east and south of Ireland. Strongly tied to cereal cultivation, this species breeds in treelines.

There were 23 sightings of Yellowhammer within the site during VP Surveys and a further 6 just outside the boundary, most were in section 1 (western portion of site) where tillage is prominent, and Section 2 (Northern Section of Site). No Yellowhammer were observed in Section 3 of the site.

During Breeding walkover surveys, Yellowhammer was found in all sections of the site, with Section 4 being most prominent. Yellowhammer onsite displayed few indicators of breeding birds, with only a single observation deemed as evidence for probable breeding in Section 2 of the site. Interestingly, within the site, yellowhammer was less associated to cereal fields than typically observed.

3.4.7 Gulls

Four sightings of gulls occurred within the site; Five Lesser Black-backed gulls were observed flying over the site and not interacting. A Black-headed Gull was observed onsite and another far outside the buffer, and a single Herring gull was noted flying over the site in December.

The site does not contain habitat suitable for breeding gulls.

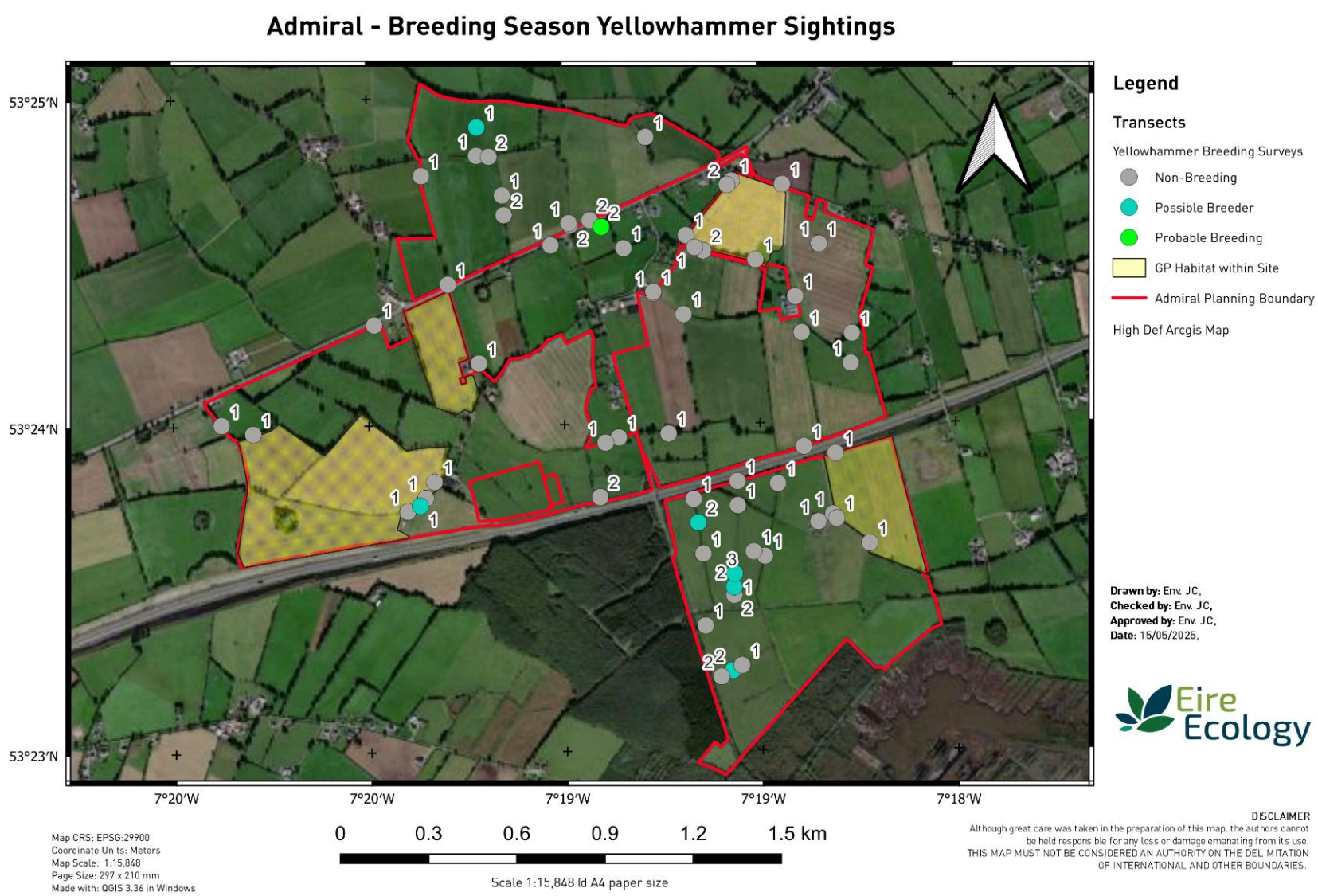

Figure 3-8: Breeding Yellowhammer Results

3.5 Hinterland Surveys

3.5.1.1 Hinterland Surveys

Hinterland surveys were conducted monthly, in order to examine the connectivity of the subject site to the surrounding lands. Areas of high ornithological value were established through a desktop study followed by ground truthing. February's hinterland survey consisted of the assessment of Golden Plover Habitat with a 5km area based on the results of this desktop study. Surveys were conducted in lands thought to have high potential for species of interest, Golden Plover, Whooper Swan, Snipe and Woodcock. During the surveys, Golden Plover, Whooper Swan, Curlew, Northern Lapwing and Tufted Duck were found to be using lands to the south of the site.

The majority of Hinterland activity surrounding the site was located in the wetlands to the south of site, where multiple water bird species were observed interacting with these lands, including Tufted Duck, Mallard, Whooper Swan and Mute Swan.

Lapwing were discovered adjacent to these lands, with observations of birds using the quarry lake, located just to the Southwest of the site. Territorial Behaviour was indicative of a breeding pair of Lapwing. Larger flocks of Lapwing were observed further South of the quarry, reaching a maximum size of 235 individuals.

An Area to the East of Section 1, the westernmost section of the site, is labelled as "Construction Area" below in Figure, this is the location of the construction works being conducted ancillary to the construction of the main substation for this site and is no longer suitable habitat for species of interest in this site and was disregarded in the transect surveys conducted.

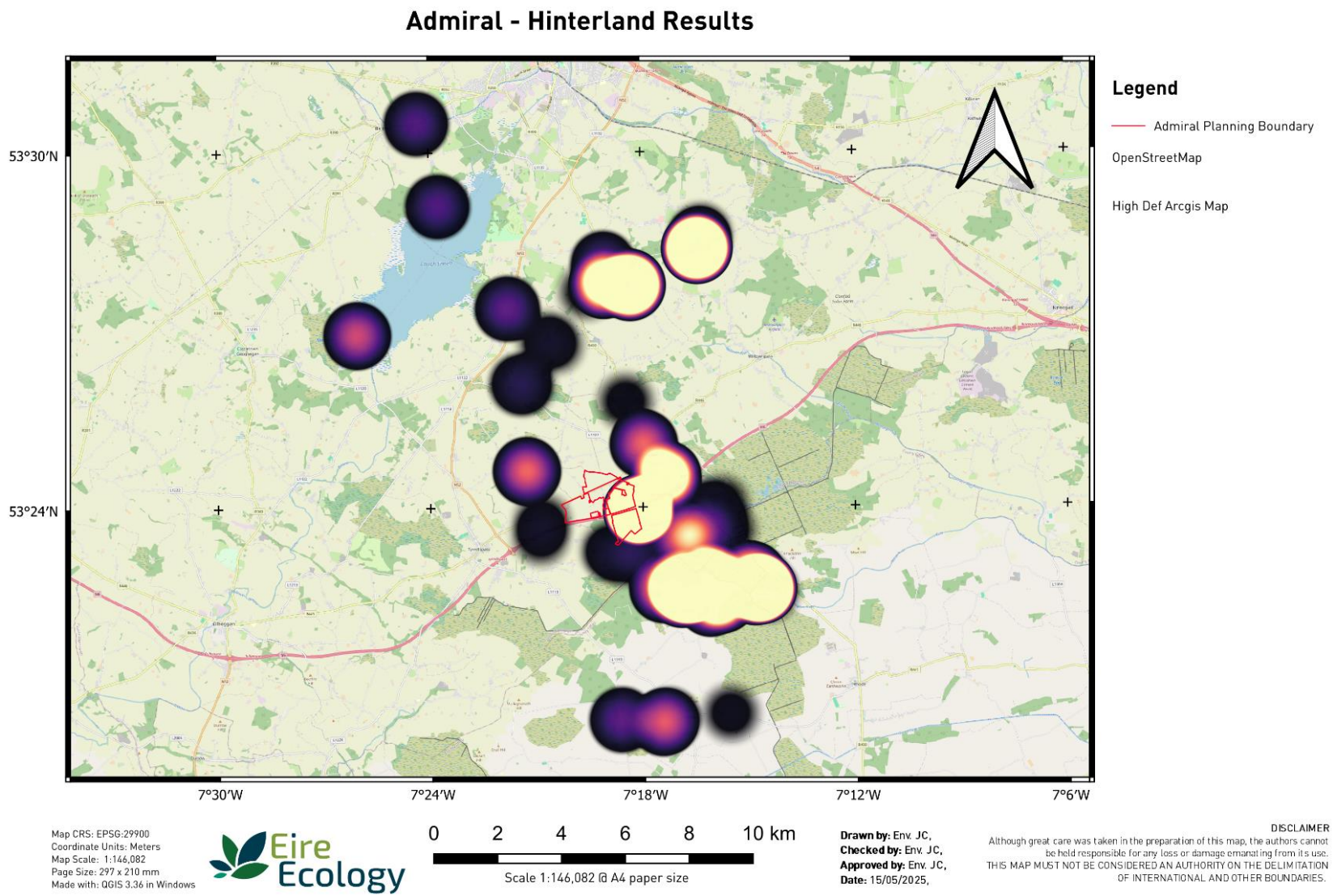

Figure 3-9: Hinterland Results

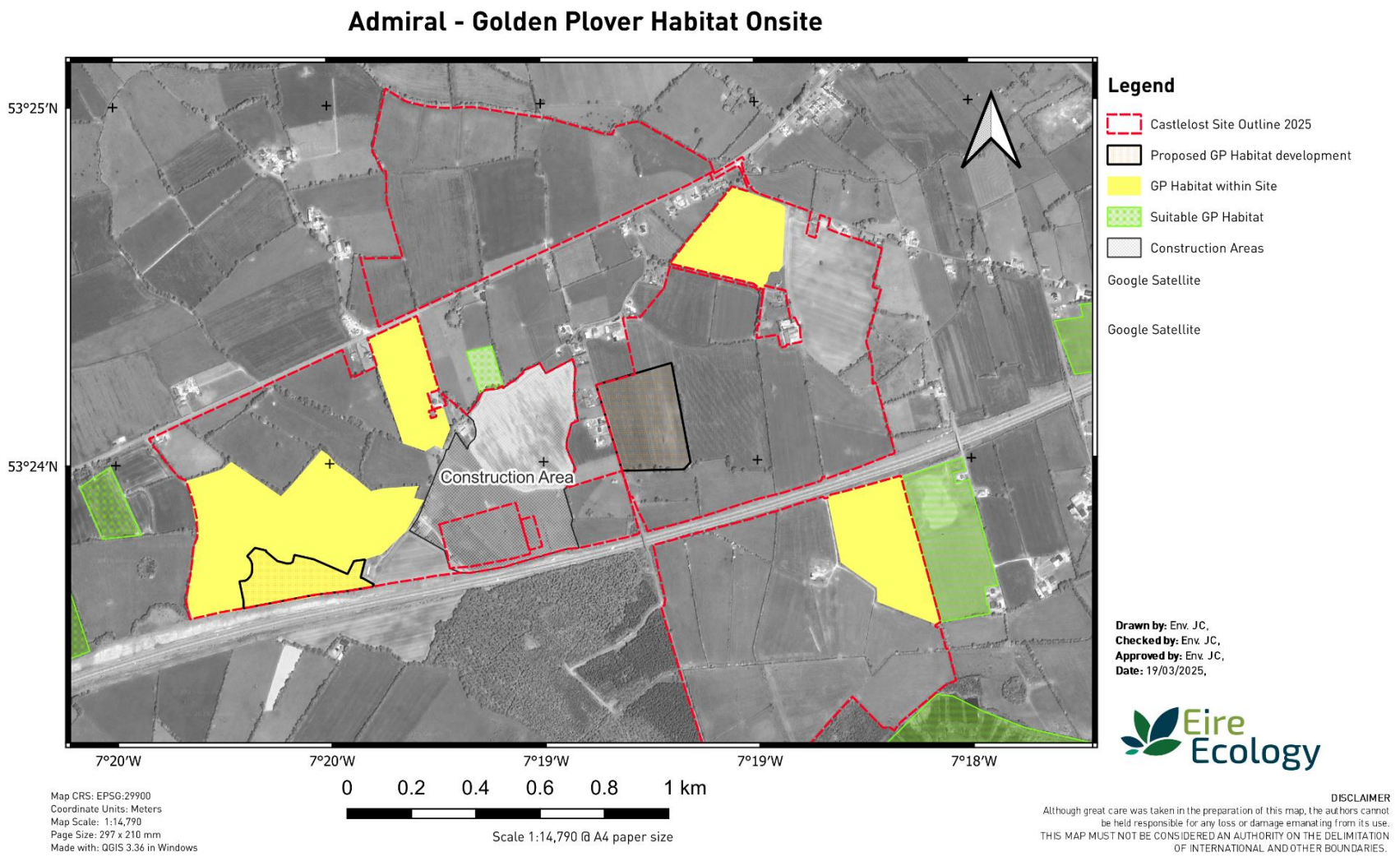

Figure 3-10: Golden Plover Habitat within site

3.6 Significance of Birds

The significance of potential ecological effects on birds was determined using Percival (2003) together with professional judgement and is based on results from breeding and wintering bird data. The effects were further described with reference to EPA (2017) and CIEEM (2019) criteria for characterising ecological impacts.

The following portion of the report also utilises results from the baseline wintering bird report found accompanying this application.

Table 3-9: Criteria for assessing impacts based on CIEEM (2019) and (EPA, 2022)

Parameter	Description	
Quality	Positive effect: A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).	
	Neutral effect: No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.	
	Negative effect: A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).	
Extent	The area over which an impact occurs	
Duration	• Momentary – effects lasting from seconds to minutes • Brief – effects lasting less than a day • Temporary – effects lasting less than a year • Short-term – effects lasting 1 to 7 years • Medium term – effects lasting 7 to 15 years • Long term – effects lasting 15 to 60 years • Permanent – effects lasting over 60 years • Reversible	
Reversibility	Irreversible impacts: permanent changes from which recovery is not possible within a reasonable time scale or for which there is no reasonable chance of action being taken to reverse it. Reversible impact: temporary changes in which spontaneous recovery is possible or for which effective mitigation (avoidance/cancellation/reduction of effect) or compensation (offset/recompense/offer benefit) is possible.	
Frequency and Timing	Frequency –How often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually) Timing –the timing of an activity or change may result in an impact if it coincides with critical life-stages or seasons e.g. bird nesting season.	
Describing the significance of effects (EPA, 2017)	Imperceptible	An effect capable of measurement but without significant consequences.
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Parameter	Description	
	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics

The desk study and the field study reveal that some species of high ecological importance are present in low numbers in the local environment. There are no SPA's found close by which have connectivity to the subject site with the closest; Lough Ennell, being 6.3km away from the site. No species associated with this SPA were found within the site.

Wintering water bird species of interest were recorded utilising tillage in the surrounds and onsite. The threshold for inclusion of a bird species as a qualifying interest for an SPA is 1% of Irelands population. No such flock was recorded from within the site or during hinterland surveys.

Moderate sized flocks of Golden Plover were often found in Section 1, in the Southwestern most field. These birds were observed both during day and nighttime surveys. The western section of site (Section 1) consists of tillage and grassland with associated bordering treelines and hedgerows.

Buzzard was observed many times through the site, though they have not been confirmed breeding here.

Snipe can also be found, with observations of Snipe in Section 1 and 2 in February and March 2025 however no evidence of breeding snipe were noted.

3.6.1 Significance values for birds

Table 3-11 evaluates the importance of species of interest found within and surrounding the site. The table provides a sensitivity value based on (Percivel 2003) although this was designed to examine impacts on birds by wind energy.

Table 3-10 Determination of Sensitivity in study area

Sensitivity	Determining factor
Very High	Species that form the cited interest of SPAs and other statutorily protected nature conservation areas. Cited means mentioned in the citation text for the site as a species for which the site is designated.
High	Species that contribute to the integrity of an SPA but which are not cited as species for which the site is designated. Ecologically sensitive species including the following: divers, common scoter, hen harrier, golden eagle, red-necked phalarope, roseate tern and chough. Species present in nationally important numbers (>1% Irish population)
Medium	Species on Annex 1 of the EC Birds Directive Species present in regionally important numbers (>1% regional (county) population) Other species on BirdWatch Ireland's red list of Birds of Conservation Concern
Low	Any other species of conservation interest, including species on BirdWatch Ireland's amber list of Birds of Conservation Concern not covered above.

Table 3-11 Evaluation of importance for species of interest from within site and hinterland

Species	Species information	Found within site?	Found in Hinterland surveys?	Designation	Sensitivity (Percivel 2003)	Value of hinterland study area	Value of subject site
Barn owl	Scarce resident mainly in central and southern Ireland. No longer breeds in large patches of northern, western and eastern Ireland. Red-listed in Ireland due to a significant decline in the breeding population. The European population is currently evaluated as Declining. Confirmed breeding towards the east of the site.	Yes	No	Red	Medium	Local High	Local High
Black-headed gull	Single sighting of a bird overflying site. Not observed associating (feeding) within the site. No impacts expected.	Yes, but only overflying	Yes	Amber	Low	Local low	Local Low
Buzzard	Green listed in BoCC 2020-2026. Regularly found both within and surrounding the site. No confirmed breeding observed though there are several sightings during preliminary breeding transects.	Yes	Yes	Green	Low	Local High	Local High
Golden Plover	There is no SPA surrounding the site that has Golden plover as a Conservation objective thus these birds should not be viewed as an ex-situ flock (closest Golden plover SPA is Lough Iron SPA 21km to the North). Species is undertaking a long term, significant decrease in Ireland (I-WeBS National trends 1994/95 to 2019/20). Higher numbers found once in Hinterland.	Yes	Yes	Red, Annex I	Medium	County	Local High
Great Black-backed Gull	Site is not suitable fopr breeding gulls. This species was not observed inteacting with site.	Yes	Yes	Green	Low	Local low	Local Low
Hen harrier	A single sighting of hen harrier was recorded during winter surveys. No wintering roost habitat found on site. Habitats on site are not suitable for breeding hen harrier. VP2 overlooked adjacent bog habitats; the only suitable winter roost habitat for this species close to the site. No evidence of roosting birds were observed from any survey. As such this was a vagrant record.	Yes	No	Amber, Annex I	High	Local high	Local low
Herring gull	A single Herring Gull was observed onsite. Habitat used or breeding by this species is not present on site.	Yes	No	Green	Low	Local Low	Local low

Species	Species information	Found within site?	Found in Hinterland surveys?	Designation	Sensitivity (Percivel 2003)	Value of hinterland study area	Value of subject site
Kestrel	Countryside bird survey shows an overall downward trend since 1998 however the index has trended up since a 2014 low (https://c0cre470.caspio.com/dp/4bae3000b62efcaae08e4f4da8bd). The 2011-2016 population was estimated at 13,500 (Lewis 2019). This species was found to hunt and perch within the site rarely. There will be no loss of breeding habitat, and the species should continue to hunt effectively post construction.	Yes	Yes	Red	Medium	Local medium	Local medium
Lesser Black-backed Gull	Amber listed species with a peak count of 20,832 within Ireland (Lewis 2019). Five individuals were observed interacting with site, and overflying. Site is not suitable for breeding gulls.	Yes	Yes	Amber	Low	Local low	Local low
Meadow Pipit	Red listed (breeding) in BoCC 2020-2026. The listing of this species as of high conservation concern is due to a large decline in population following the unusually cold winters of 2009/2010. According to BirdWatch Ireland, the species has undergone a significant recovery since that period (Countryside bird survey data trend showed 2019 with highest peak since index started in 1998. Slight decline occurred from this peak in 2020 and 2021; https://c0cre470.caspio.com/dp/4bae3000b62efcaae08e4f4da8bd) Meadow Pipit was found widely dispersed over the site, with a number of indicators of Breeding birds, especially in section 2 and 4. A confirmed instance of breeding Meadow pipit was observed in Section 4.	Yes	No	Red	Medium	Local High	Local medium
Lapwing	Historical records alongside hinterland records verify that Lapwing can be found to the south of the site, primarily utalising peatland and have been recorded breeding towards the Yellow River windfarm. Breeding behaviour noted in May on peatland to the south of the site. Lapwing to Nine Observations of Lapwing were recorded from within the site, with only 2 of them interacting with the site. Lapwiing were not breeding onsite.	Yes	Yes	Red	Medium	County	Local low

Species	Species information	Found within site?	Found in Hinterland surveys?	Designation	Sensitivity (Percivel 2003)	Value of hinterland study area	Value of subject site
Peregrine falcon	Habitats within the site are not suitable for breeding given the lack of cliffs or tall structures. A single Peregrin was noted on site but not interacting. No breeding Peregrine were recorded during hinterland surveys. Quarries to the south do not have tall cliff edges.	Yes	No	Green. Annex I	Medium	Local Low	Local low
Snipe	Severe declines have been recorded in Snipe breeding and wintering populations in Ireland, resulting in its move to the Red-List in the most recent BoCCI assessment (Gilbert, Stanbury and Lewis, 2021). According to the last IUCN Red List assessment in 2016, the Snipe is a species of 'Least Concern' on a global scale. However, a decreasing global population trend was noted. This ground nesting species finds suitable breeding habitat where there is grassy tussocks within or adjacent to boggy areas. Bogs and wet grassland can be suitable habitat for this species. The habitat on site is suitable for wintering birds and a handful of Snipe were noted within wetter areas throughout the site. Breeding surveys do not indicate breeding snipe on this site, but are likely to breed on peatland to the south.	Yes	Yes	Red	Medium	Local High	Local High
Yellowhammer	According to BirdWatch Ireland, the species has a fluctuating population trend since 1998 (Countryside bird survey data trend showed 2018 with highest peak since index started in 1998 (Lewis L. J., 2019). Slight decline occurred from this peak in 2019, 2020 and 2021; https://c0cre470.caspio.com/dp/4bae3000b62efcaae08e4f4da8bd. There were 23 Sightings during VP surveys and a further 6 just outside the site boundary, 211 sightings of Yellowhammer were recorded during transect surveys within the site. No breeding Yellowhammer were found but probable breeding signs were noted.	Yes	No	Red	Medium	Local High	Local High
Woodcock	Wintering woodcock were noted during a thermal survey on ground close to conifer plantation to the south of the site. Breeding Woodcock are known to breed in the hinterland. This species breeds in woodland, as habitat not found within the site.	Yes	No	Red	Medium	Local High	Local Low

Species	Species information	Found within site?	Found in Hinterland surveys?	Designation	Sensitivity (Percivel 2003)	Value of hinterland study area	Value of subject site
Whooper swan	The closest location Whooper swan were noted to the site was a small pond to the SE of the site. This species did not interact with the site. This species was found in higher numbers by Killsarn quarries, although numbers are lower than historic records.	Yes	Yes	Amber. Annex I	Medium	County	Local Low

4 ASSESSMENT OF IMPACTS

Determination of impacts is derived with guidance from (Percival, 2003), (CIEEM, 2024) & (EPA, 2022). Table 4-1 provides definitions for magnitude of effect. This data alongside the previously assigned significance value is imputed into Table 4-2; significance matrix to provide a final significance impact of the development per species where the value of the site was above a low value.

Table 4-1 Determination of Magnitude of Effects.

Magnitude	Description
Very High	Total loss or very major alteration to key elements/ features of the baseline conditions such that the post development character/ composition/ attributes will be fundamentally changed and may be lost from the site altogether. Guide: < 20% of population / habitat remains
High	Major loss or major alteration to key elements/ features of the baseline (pre-development) conditions such that post development character/ composition/ attributes will be fundamentally changed. Guide: 20-80% of population/ habitat lost
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of baseline will be partially changed. Guide: 5-20% of population/ habitat lost
Low	Minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible but underlying character/composition/attributes of baseline condition will be similar to pre-development circumstances/patterns. Guide: 1-5% of population/ habitat lost
Negligible	Very slight change from baseline condition. Change barely distinguishable, approximating to the "no change" situation. Guide: < 1% population/ habitat lost

Table 4-2 Significance matrix

Significance		Sensitivity			
		Very high	**High**	**Medium**	**Low**
Magnitude	**Very High**	Very high	Very high	High	Medium
	High	Very high	Very high	Medium	Low
	Medium	Very high	High	Low	Very Low
	Low	Medium	Low	Low	Very Low
	Negligible	Low	Very Low	Very Low	Very Low

Table 4-3 Impacts on species of interest

Species	Potential Impacts		Duration and Magnitude of potential impact	Frequency and reversibility	Magnitude and Significance of effect
Barn Owl	Direct Habitat Loss	Barn owl were found to roost within the site. Barn owl are not strongly territorial, with home ranges regularly overlapping. Barn owl nest sites have been recorded less than 350m apart. See mitigation section below for further details. Few studies have been conducted on the impacts of solar arrays on barn owls. The Barn owl trust UK state; Ground mounted solar arrays "*present a negligible collision risk and do not electrocute, dazzle or burn Barn Owls. In fact, solar PV 'farms' have the potential to be of great benefit to Barn Owls as the array frameworks are typically at a height from which Barn Owls can perch-hunt.*" (Trust, 2025).	Permanent, neutral	Occurs once, irreversible	The magnitude of the impact is assessed as Very Low. moderate sensitivity species + Negligible Impact = Very Low effect significance. No likely significant effects at a local level are predicted
	Displacement and barrier effect	A breeding site was found during nighttime surveys. (Goodship, 2022) states Barn owl have a low sensitivity to disturbance and suggests a 50 to 100m buffer zone during the breeding season. (Shawyer, 2011) suggests a disturbance risk of 175m for heavy construction works . The breeding site lies within the site boundary thus disturbance from the development may impact this species. With the creation of breeding season buffer disturbance impacts can be avoided - see mitigation	Temporary and of negligible magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of the impact is assessed as Very Low. Moderate sensitivity species + Negligible Impact = Very Low effect significance. No likely significant effects at a local level are predicted
Buzzard	Direct Habitat Loss	The development footprint is dominated by improved grassland and tillage with associated hedgerows and treelines, providing suitable breeding and foraging habitat for the species. While breeding surveys did not confirm breeding, it is likely this species will breed within the site at some stage. Due to mitigation by design the majority of treelines and hedgerows will be retained thus no net loss of breeding habitat is anticipated. The placement of solar panels on grassland will result in a change of land use of hunting habitat for the species. Given passerines are likely to remain unaffected by the presence of solar panels no net loss of prey species is anticipated.	Permanent, slight negative	Occurs once, irreversible	The magnitude of impact is assessed as Low. Low sensitivity species + Low Impact = Very Low effect significance. No likely significant effects at a local level are predicted
	Displacement and barrier effect	There is the potential of disturbance to breeding Buzzard through construction phase solar panel arrays, or because the construction activities will disturb the birds and displace them from the area. Foraging and commuting birds may temporarily avoid construction areas owing to the noise and increased activity. Construction of solar farms does not require heavy construction activities with solar stands bored into soil. Based on continued bird surveys through the construction phase it is proposed to identify breeding sites and create a 150m buffer surrounding the zone (Goodship, 2022). Construction will be avoided here until fledging has occurred.	Temporary and of low magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of impact is assessed as Low. Low sensitivity species + Low Impact = Very Low effect significance. No likely significant effects at a local level are predicted

Species	Potential Impacts		Duration and Magnitude of potential impact	Frequency and reversibility	Magnitude and Significance of effect
Golden Plover	Direct Habitat Loss	30 sightings from within site (max of 262 birds interacting with site); Higher numbers observed in the surrounds. Within the overall site section 1 had most sightings. This species favours stubble and grassland with a very short sward. In total it is predicted that 35.34 Ha of Habitat will be lost during the implementation of the current proposed development as the mitigation section will outline, a new designated area within the site boundary will be managed for this species. After mitigation, the habitat reduction will see a loss of 1.5% within the 5km surrounding area of the site. According to table 4-1 a loss of between 1 and 5% habitat equates to a low impact Overall, the site was used by smaller flock numbers in comparison to those found in the hinterland, although hinterland figures are not of national importance.	Permanent and of low magnitude and will result in long-term effect.	Occurs once, long term	The magnitude of the impact is assessed as low. Medium sensitivity species + low Impact = low effect significance.
	Displacement and barrier effect	The IECS Toolkit26 (EU, 2010) suggests that golden plover is of moderate sensitivity to disturbance. There is the potential of disturbance to wintering Golden Plover located onsite through construction phase activities. Golden Plover showed the highest level of activity in the Western portion of the site. Based on wintering surveys, tillage in this section will be retained to ensure access to suitable habitat for this species. Construction activity in this zone will be limited to time when the species is not present.	Temporary and of low to negligible magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of impact is assessed as Low. Medium sensitivity species + Low Impact = Low effect significance. No likely significant effects at a local level are predicted
Kestrel	Direct Habitat Loss	The development footprint is dominated by improved grassland and tillage with associated hedgerows and treelines, providing suitable foraging habitat for the species. 21 observations of Kestrel were noted during surveys, 14 of which were determined to be interacting with the site. Kestrel can nest in a variety of substrates such as rock ledges, old corvid stick nests, bird boxes, buildings etc. Due to mitigation by design only minor impacts will occur on treelines and hedgerows thus no net loss of breeding habitat is anticipated. The placement of solar panels on grassland will result in a change of land use of hunting habitat for the species. Given passerines are likely to remain unaffected by the presence of solar panels no net loss of prey species is anticipated. No evidence of breeding kestrel was found.	Permanent, slight negative	Occurs once, irreversible	The magnitude of impact is assessed as Low. Medium sensitivity species + Low Impact = Low effect significance. No likely significant effects at a local level are predicted

Species	Potential Impacts		Duration and Magnitude of potential impact	Frequency and reversibility	Magnitude and Significance of effect
	Displacement and barrier effect	There is the potential of disturbance to breeding Kestrel through construction phase solar panel arrays, or because the construction activities will disturb the birds and displace them from the area. Foraging and commuting birds may temporarily avoid construction areas owing to the noise and increased activity. Construction of solar farms does not require heavy construction activities with solar stands bored into soil. Construction phase breeding bird surveys will identify if breeding kestrel and create a 200m buffer (NatureScot 2022) where construction will be delayed until after fledging.	Temporary and of low magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of impact is assessed as Low. Medium sensitivity species + Low Impact = Low effect significance. No likely significant effects at a local level are predicted
Meadow Pipit	Direct Habitat Loss	The development footprint is dominated by improved grass and tillage, which provides some suitable nesting, roosting and foraging habitat for the species. Meadow pipit was observed 3 times during VP's, interacting with the site only twice. This species was noted in much higher numbers during breeding bird surveys and was observed 66 times (A single confirmed breeding onsite and 58 contacts with Possible or Probable Breeding). The majority of the site will still be used as grassland post construction thus this species ability to occupy the site will remain.	Permanent and of medium magnitude	Occurs once, irreversible	The magnitude of the impact is assessed as Low. Medium sensitivity species + Low to medium Impact = Low effect significance. No likely significant effects at a local level are predicted
	Displacement and barrier effect	There is the potential of disturbance to breeding meadow Pipit because the construction activities will disturb birds and displace them from the area. Based on continued bird surveys through the construction phase it is proposed to identify breeding sites and create a 50m buffer surrounding the zone (50m buffer is based on IECS Toolkit26). Works will avoid key breeding periods with works continuing after fledging.	Temporary and of negligible magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of the impact is assessed as Very Low. Medium sensitivity species + Negligible Impact = Very Low effect significance. No likely significant effects at a local level are predicted
Snipe	Direct Habitat Loss	The development footprint is dominated by improved grassland, which provides some suitable nesting, roosting and foraging habitat for the species particularly close to patches of wet grassland in section 4. Dedicated breeding wader surveys show the site was not used as a breeding site for this species. Post construction, the hydrological regime of the site will remain the same thus little long term impacts are expected.	Long term slight Negative	Occurs once, irreversible	The magnitude of the impact is assessed as Very Low. Medium sensitivity species + Negliable Impact = Very Low effect significance. No likely significant effects at a local level are predicted

Species	Potential Impacts		Duration and Magnitude of potential impact	Frequency and reversibility	Magnitude and Significance of effect	
	Displacement and barrier effect	Some displacement may occur. Pierce-Higgins et al (2012) note that snipe densities declined to the order of ca. 50% within 500 metres of turbines at wind farms during construction. Construction activities will be limited to the development footprint so direct disturbance effects will not extend beyond the works areas. There is potential for indirect disturbance to roosting (and potentially breeding) snipe from noise and visual stimuli associated with construction activities. Construction phase breeding surveys will re-survey lands and should breeding snipe be found a disturbance zone of 400m (BES, 2020) will be put in place until fledging has occurred.	Temporary and of low to negligible magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of impact is assessed as Medium. Medium sensitivity species + Low Impact = Low effect significance. No likely significant effects at a local level are predicted	
Yellowhammer	Direct Habitat Loss	The only area within the site which will see substantial loss of treelines is in section 1 (west of site). No evidence of possibly, probably or confirmed breeding Yellowhammer were found in this area. For the rest of the site existing hedges and trees will be retained. Several areas currently used as tillage will be transformed to grassland. Atypically, within the site, yellowhammer were not particularly associated with these tillage areas and were regularly noted in grassy fields. Grassland will remain post construction thus impacts on this species due to habitat change are less than typically expected. Given the loss of tillage and following the precautionary approach, a mitigation strategy has been put in place to create significant areas of bird crop cover (11.16Ha) within sections 1 and 2. This crop will not be harvested so all grain will remain available for passerines. These areas will be resown every year for the lifespan of the development thus ensuring a food source within the site. The addition of bird crop cover in section 2 will allow for the expansion of Yellowhammers range into these fields.	Permanent and of negligible magnitude	Occurs once, irreversible	The magnitude of the impact is assessed as Medium. Medium sensitivity species + negligible Impact = Very Low effect significance within the site. No likely significant effects at a local level are predicted	
	Displacement and barrier effect	There is the potential of disturbance to breeding Yellowhammer because the construction activities will disturb birds and displace them from the area.	Temporary and of negligible magnitude and will not result in long-term adverse effects.	Occurs during construction phase	The magnitude of the impact is assessed as Very Low. Medium sensitivity species + Negligible Impact = Very Low effect significance. No likely significant effects at a local level are predicted	
		Based on continued bird surveys through the construction phase it is proposed to identify breeding sites and create a 50m buffer surrounding the zone. Works will avoid key breeding periods with works continuing after fledging.				

5 Mitigation and Enhancement

- An Ornithologist ECoW will be employed during the construction phase to micromanage construction locations to avoid disturbance on key species. Species of interest will be identified and management plans implement to avoid significant impacts.
- Whilst halting the construction to times outside the wintering period was considered the scale of works was not considered impactful enough to negatively impact wintering birds both within the site and in the surrounds. Rather an ECoW will be involved in the construction and limit construction in areas based on when they are of value to birds. The monitoring section above outlines how bird surveys will continue during the construction phase and based on these results micro exclusion zones can be put in place. Table 4-3 goes through potential buffer zones and timings when works may need to be halted here. This method based on co-operation between overseeing ornithologist, site manager will allow works to continue throughout the year whilst also avoiding disturbances to key species at vulnerable times.
- Minimum 5m buffer for drain ditches, hedgerows and tree lines.
- The proposed development will result in some loss of tillage. This tillage was utilised during winter months by golden plover. In order to prevent losses reaching medium magnitude for the local populations, tillage will be maintained to the south of section 1 as well as a new area located in section 3 (see figure 5-1). Lands identified should be planted with tillage each year and be unoccupied from October to March inclusive. Winter sward height no greater than 7cm. Increasing the invertebrate level will occur by eliminating the use of herbicides, pesticides and managing lands organically.
- A construction exclusion zone of 100 m will be implemented where breeding barn owl where observed nesting. Construction should not occur during breeding season at this location. Figure 5-2 shows the buffer outline for the breeding season exclusion zone.
- Woodland will be planted in Section 1 and 4 to mitigate the loss of linear features onsite during the construction phase. Two areas are detailed below, a 4.34Ha plot located adjacent to the ring fort feature in section 1. An additional strip of woodland along the Southern boundary of the motorway in Section 4.
- Two ponds will be created within section 1. These ponds will be hidden from view and will be of use by duck and wader species known to be found in the hinterlands (mallard, tufted duck, cormorant, little grebe). A lighting plan will ensure these ponds remain dark at night, increasing the ecological value.

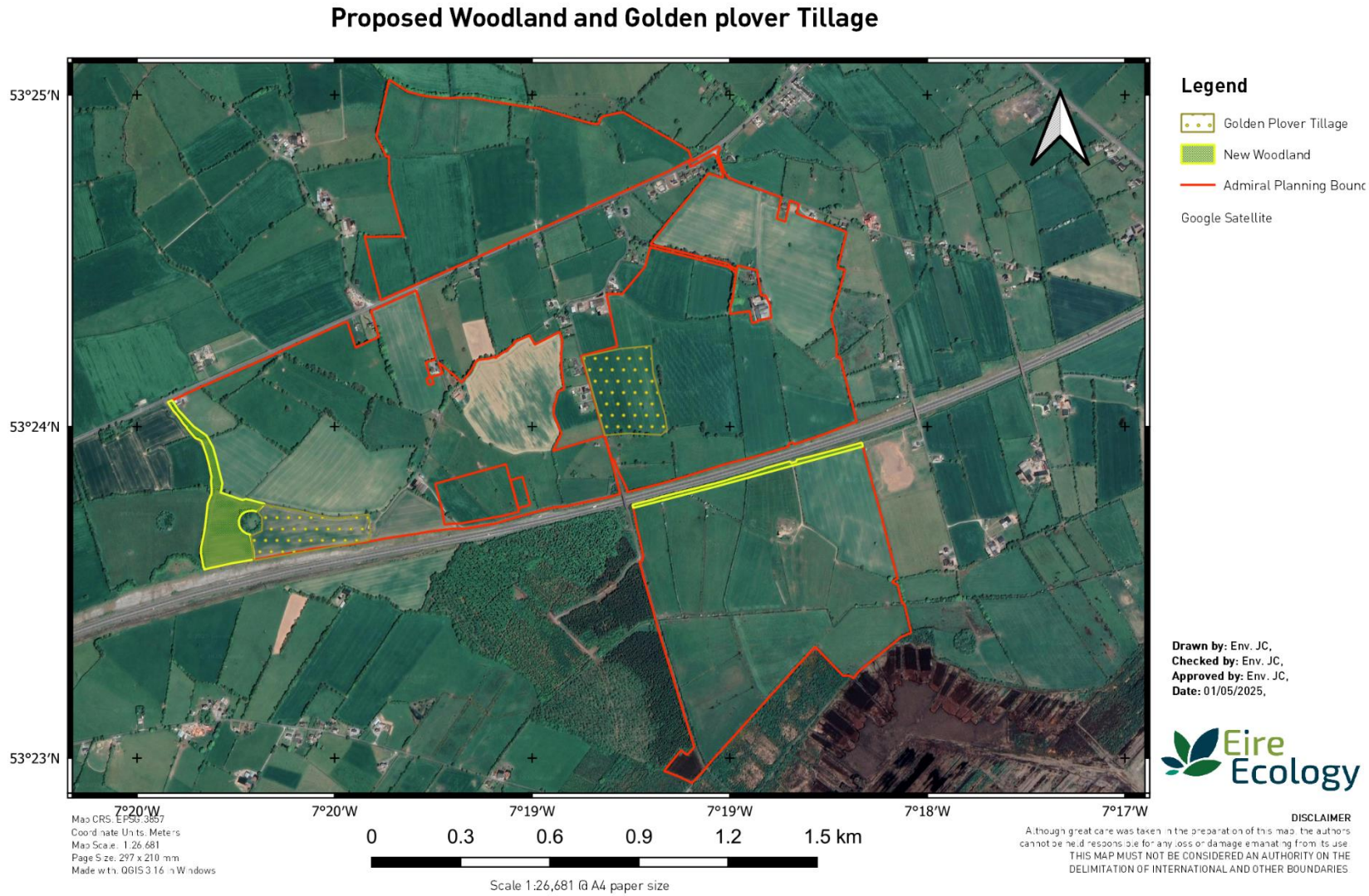

Figure 5-1: Enhancement; native woodland creation and areas for golden plover

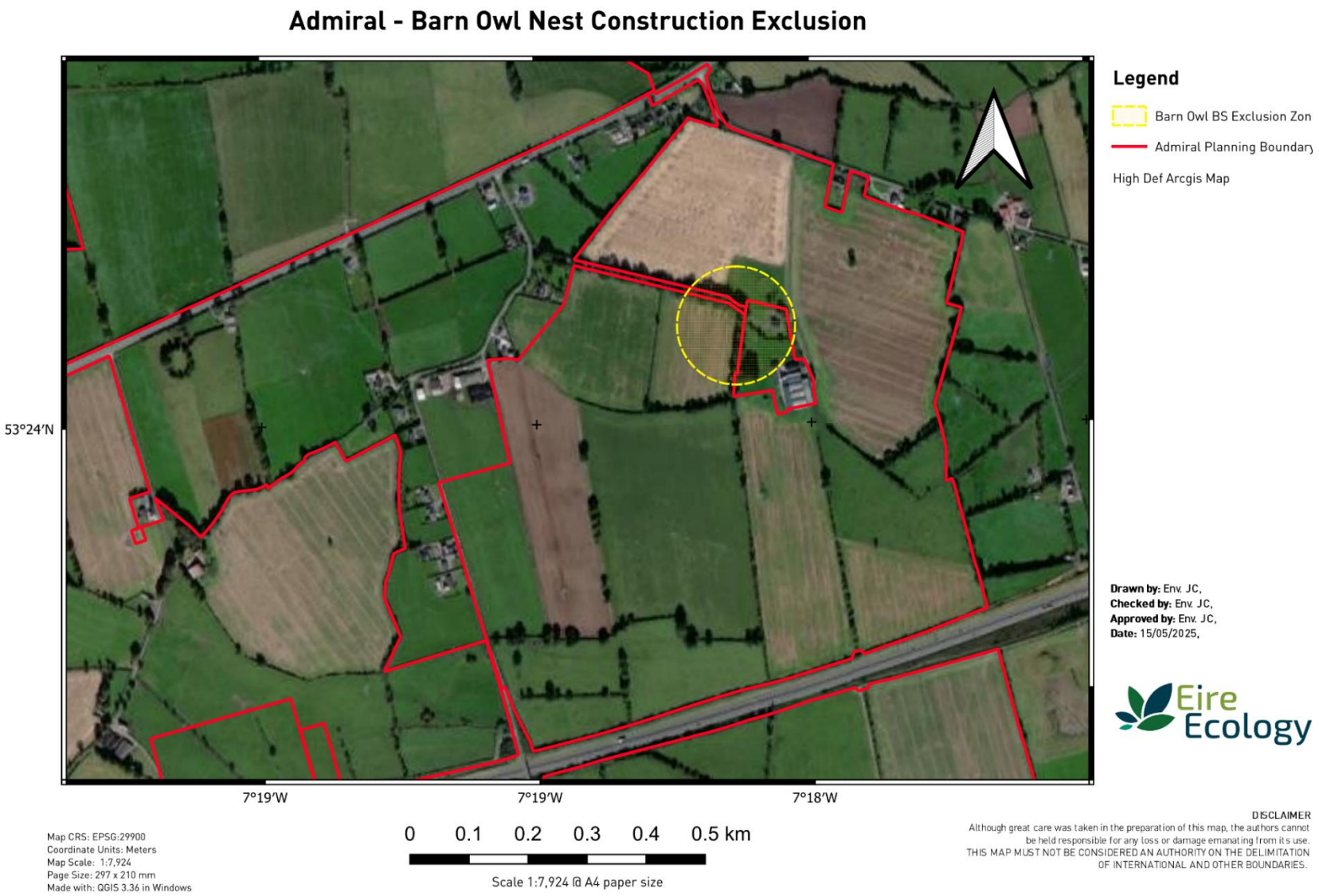

Figure 5-2: Location of Breeding Barn owl zone to be avoided during the breeding season.

6 Residual Impacts after Mitigation

Residual impacts are those that occur after the mitigation measures have taken effect. The mitigation measures outlined in section 5 will minimise impacts associated with the construction phase of the proposed development.

No significant indirect impacts on the habitats associated with rare and protected birds found utilising the site in the wintering and breeding seasons as long as best practice measures such as those outlined in Mitigation and Enhancement are implemented fully.

As such residual Impacts on bird species will be low.

7 Conclusion

This report provides details from bird surveys conducted in the townlands of Farthingstown, Oldtown and Kiltotan, Co. Westmeath. The site was found to have value of local high for barn owl, buzzard, golden plover, snipe and yellowhammer while a value of local medium for kestrel and meadow pipit. No species associated with designated European or National sites were found during surveys.

Mitigation measures proposed will reduce the impact on all bird species while enhancement measures should result in a net overall benefit for the local bird population. The proposed development will not have a significant impact on any bird species on a local or county basis.

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9 APPENDIX 1 – Tables and Figures

Table 9-1 Survey dates and environmental data

VP Location	Date	Sunset / sunrise	Start / finish	Cloud	Wind direction	Visibility	Rain
2	20/09/2024	07:09 / 19:26	10:00-13:00	1	0	4	0
2	20/09/2024	07:09 / 19:26	13:30-16:30	1	0	5	0
3	23/09/2024	07:14 / 19:19	06:17-09:17	3	2	5	0
1	23/09/2024	07:14 / 19:19	06:17-09:17	3	2	5	0
1	23/09/2024	07:14 / 19:19	09:47-12:47	3	2	5	0
3	23/09/2024	07:14 / 19:19	09:47-12:47	3	2	5	0
Hinterland	25/09/2025	07:14 / 19:19	09:15-17:30	2	2	5	0
3	09/10/2024	07:42 / 18:46	12:46-19:16	2	3	5	1-0
1	14/10/2024	07:51 / 18:39	13:00 -16:00	1	SE 1	5	0
1	14/10/2024	07:51 / 18:39	16:30 -19:40	2	SE1	5	0
Hinterland	15/10/2024	07:53 / 18:27	09:15-17:30	3	SE2	5	2
2	17/10/2024	07:57 / 18 :23	13:00-16:00	3	W2	5	3
2	17/10/2024	07:57 / 18 :23	16:30-19:30	3	W2	5	3
2	07/11/2024	07:36 / 16:40	06:40 - 09:40	3	SW1	5	0
2	07/11/2024	07:36 / 16:40	10:20-13:20	3	W1	5	0
3	14/11/2024	07:49 / 16:28	06:45-09:45	3	NW2	3	1
3	14/11/2024	07:49 / 16:28	10:20 -13:20	3	NW2	5	0
1	15/11/2024	07:51 / 16:27	06:45-09:45	3	NW1	3	0
1	15/11/2024	07:51 / 16:27	10:15-13:15	3	SW2	3-4	3
Hinterland	16/11/2024	07:53 / 16:25	08:15-16:15	3	W 3	5	2
2	11/12/2024	08:31 / 16:06	10:15-13:15	3	NE 1	5	0
2	11/12/2024	08:31 / 16:06	14:00-17:00	3	NE1	4	0
Transect 1	12/12/2024	08:32 / 16:05	9:00 - 17:00	3	E1	4	0
Transect 2	13/12/2024	08:32 / 16:05	09:00-17:00	2	E2	5	0
3	17/12/2024	08:38 / 16:07	9:40 - 16:10	3	SE	4	2
1	16/12/2024	08: 39 / 16:08	10:10 - 13:10	3	SE	5	1
1	16/12/2024	08: 39 / 16:08	13:40 - 16:40	3	SE	5	2
2	13/01/2025	08:34 / 16:33	07:00-10:00	3	SW2	4	3
2	13/01/2025	08:34 / 16:33	11:00-14:00	3	SW2	3	3
1	21/01/2025	08:26 / 16:47	11:01 - 14:01	3	S2	3	3
1	21/01/2025	08:26 / 16:47	14:31 - 17:31	3	W2	3	3
3	15/01/2025	08:32 / 16:36	10:48 - 13:48	3	E1	3	3
3	15/01/2025	08:32 / 16:36	14:18-17:18	3	E1	3	3
Transect 1	15/01/2025	08:32 / 16:36	09:00-17:15	1	S2	5	0
Transect2	16/01/2025	08:31 / 16:38	09:00-17:00	2	S3	5	0
3	06/02/2025	08:01 / 17:17	14:00 -17:00	1	S1	5	0
2	19/02/2025	07:35 / 17:43	11:30-14:30	2	SE2	5	3
1	19/02/2025	07:35 / 17:43	15:00-18:00	3	SE4	4	3
Thermal Transects	19/02/2025	07:35 / 17:43	6:15:00-08:45	3	SE3		3
Habitat mapping	20/02/2025	07:33 / 17:45	08:30-16:30	2	SE2	5	2
2	18/03/2025	06:32 / 18:34	06:00-09:00	1	E1	4	0
3	18/03/2025	06:32 / 18:34	10:40-13:40	2	E2	5	0
3	19/03/2025	06:30 / 18:36	06:45-09:45	1	E1	5	0
1	19/03/2025	06:30 / 18:36	10:40-13:40	1	SE1	5	0
1	20/03/2025	06:28 / 18:41	06:30-09:30	1	SE1	4	0
2	20/03/2025	06:28 / 18:41	10:20-13:20	1	SE1	4	0

VP Location	Date	Sunset / sunrise	Start / finish	Cloud	Wind direction	Visibility	Rain
Breeding bird survey	14/04/2025	05:54	09:30-18:00	2	W/SW 2	5	3
O Brien and Smith	15/04/2025	05:54	05:50-08:40	2	NW1	5	0
O Brien and Smith	15/04/2025	09:12	18:15-21:15	3	N2	5	
Breeding bird survey	16/04/2025	05:50	09:45	3	NW 2	4	4
O Brien and Smith	19/04/2025	21:16	18:10-21:16	3	E1	3	1
Breeding bird survey	20/04/2025		09:30-18:30	3	SE1	4	2
O Brien and Smith	21/04/2025	05:45	05:45-08:30	3	W1	5	2
Breeding bird survey	04/05/2025	05:05	09:30-18:00	1	NE1	5	0
Breeding bird survey	05/05/2025	05:05	09:30-18:00	1	NE1	5	0
Breeding bird survey	06/05/2025	05:05	09:30-17:15	1	SE1	5	0
O Brien and Smith	07/05/2025	05:01	0500-07:30	2	E1	5	0
O Brien and Smith	07/05/2025	21:55	18:46-10:00	1	E2	5	0

Table 9-2: Weather Key

Visibility		Rain		Cloud Cover	
1	N visibility	0	None	1	0-32
2	Limited (<500m)	1	Drizzle Mist	2	33-65
3	Poor (<1km)	2	Light Showers	3	66-100
4	Moderate (1-2km)	3	Heavy Showers		
5	Good (>2km)	4	Heavy Rain		

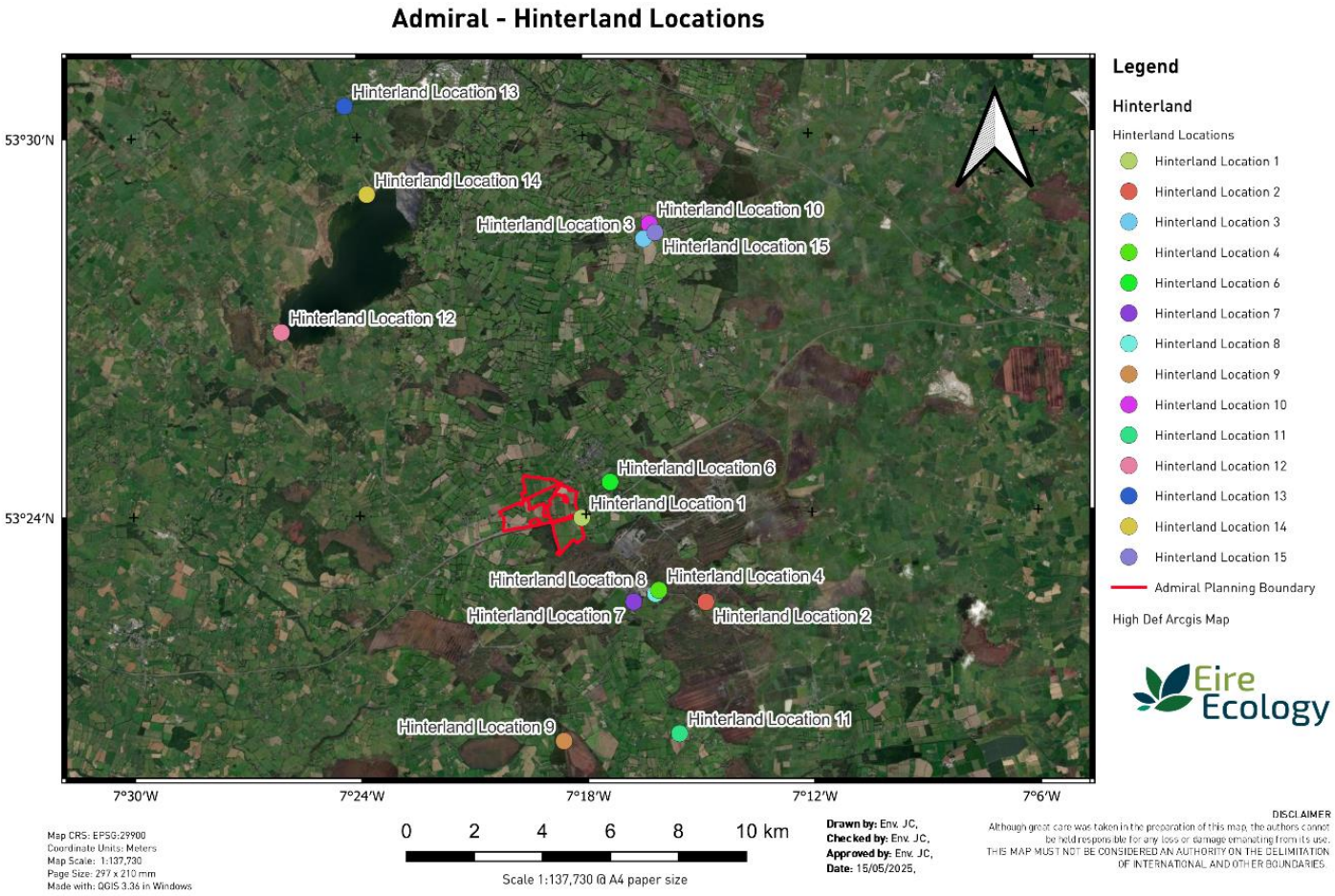

Figure 9-1: Hinterland Locations

Table 9-3 VP Results

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
20/09/2024	2	Migratory	1	Buzzard	1	10:30	30	In	Improved Grassland/Treeline	Flying	Mobbed by swallows
20/09/2024	2	Migratory	2	Buzzard	1	11:08	30	In	Improved Grassland/Treeline	Flying	Flew over edge of site then over hedge
20/09/2024	2	Migratory	3	Buzzard	1	11:24	6	In	Improved Grassland	Flying	Over big farm shed north of road, then into trees
20/09/2024	2	Migratory	4	Golden Plover	4	12:10	20	In	Improved Grassland	Flying	Flew in from west, landed on field within site, however, could not be seen by surveyor after they landed
20/09/2024	2	Migratory	5	Buzzard	4	12:46	480	In		Flying	4 Buzzard soaring high over woodland, 3 disappeared at 12.53 and 1 remained until 12.54. Possible juvenile flock
20/09/2024	2	Migratory	6	Kestrel	1	14:35	120	In	Improved Grassland	Hunting	Hunting over site
20/09/2024	2	Migratory	7	Buzzard	2	14:44	60	In		Flying	Soaring over woodland west of site
20/09/2024	2	Migratory	9	Kestrel	1	15:20	70	In	Improved Grassland	Hunting	Hovering over site
20/09/2024	2	Migratory	10	Buzzard	1	15:37	120	In	Improved Grassland	Flying	Mobbed by two HC
20/09/2024	2	Migratory	11	Buzzard	1	16:02	10	In	Improved Grassland	Flying	Seen briefly but could be heard for a while
20/09/2024	2	Migratory	12	Buzzard	2	16:10	60	In	Improved Grassland	Flying	Soaring
20/09/2024	2	Migratory	13	Buzzard	2	16:13	120	In	Improved Grassland	Flying	North section of site
23/09/2024	3	Migratory	1	Great Cormorant	1	07:50	3	In	Improved Grassland	Flying	Flew over site, did not associate with site
23/09/2024	3	Migratory	2	Lesser Black-backed Gull	5	08:07	7	Buffer	Improved Grassland	Flying	Flew over site, did not associate with site
23/09/2024	3	Migratory	3	Buzzard	1	10:32	2	Buffer	Improved Grassland	Flying	Flew over site, did not associate with site
23/09/2024	3	Migratory	4	Meadow Pipit	6	11:01	6	In	Improved Grassland	Flying	Flew over site, did not associate with site

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
09/10/2024	3	Migratory	1	Buzzard	1	12:46	30	Buffer	Treeline	Flying	Soaring over mature trees, north of site
09/10/2024	3	Migratory	2	Meadow Pipit	22	13:27	10	In	Improved Grassland	Flying	Flew over, did not land on site
09/10/2024	3	Migratory	3	Buzzard	2	13:38	60	Buffer	Improved Grassland/Treeline	Flying	Soaring high, adjacent to site (NW)
09/10/2024	3	Migratory	4	Golden Plover	6	13:39	60	In	Improved Grassland	Flying	Circling high over site, then flew south. Did not land on site
09/10/2024	3	Migratory	5	Buzzard	1	14:46	30	In	Improved Grassland	Flying	West section of site
09/10/2024	3	Migratory	6	Buzzard	2	14:51	120	In	Improved Grassland	Hunting	1 buzzard flying low over site, briefly joined by second buzzard
09/10/2024	3	Migratory	7	Golden Plover	1	17:26	40	In	Improved Grassland	Flying	Flew lowish over site from west to east
09/10/2024	3	Migratory	8	Sparrowhawk	1	17:31	120	In	Improved Grassland	Hunting	Perched on ESB post in middle of site, then flew low into treeline to east of site
14/10/2024	1	Winter	1	Yellowhammer	1	13:06	5	In	Tillage/Treeline	Perched / Calling	Flew E after calling from ash tree
14/10/2024	1	Winter	2	Yellowhammer	1	13:08		In	Tillage/Treeline	Perched / Calling	Didn't see it leave
14/10/2024	1	Winter	3	Sky Lark	1	13:30	5	In/Out	Tillage	Flying	Flying S/SE to the E of VP
14/10/2024	1	Winter	4	Kestrel	1	13:31	10	In	Tillage	Flying	Flew off Ash tree flew W 5-10 m
14/10/2024	1	Winter	5	Kestrel	1	13:44	20	In	Tillage	Flying	Flew over tillage W-E 5-10m
14/10/2024	1	Winter	6	Golden Plover	26	13:46	180	In	Tillage	Flying	Flew in from the E circled as if they were about to land, kept flying NW
14/10/2024	1	Winter	7	Golden Plover	64	13:56	240	In	Tillage	Flying/circling	Flew in from the N circled before flying back out N again 40-60m
14/10/2024	1	Winter	8	Buzzard	1	13:59	40	In	Tillage	Flying	Flew NE to SE 5-10m through the site
14/10/2024	1	Winter	9	Buzzard	1	14:05	180	In/Out	Improved Grassland	Circling	Circling off site to the W
14/10/2024	1	Winter	10	Buzzard	1	14:06	50	In	Tillage	Flying	Flew through the site SE-NW

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
14/10/2024	1	Winter	11	Buzzard	1	14:55	10	In	Treeline	Flying / Perched	Flying W along treeline mobbed by HC perched in tree out of site
14/10/2024	1	Winter	12	Kestrel	1	15:09	25	In	Tillage	Flying / Perched	Flew in from the N circled and flew to ash tree W of VP and perched
14/10/2024	1	Winter	13	Kestrel	1	15:16	15	In	Tillage	Perched / Flying	Flew off treeline, Flew W/SW 5-10m
14/10/2024	1	Winter	14	Kestrel	1	15:31	300	In	Tillage	Circling / Flying / Hunting	Flew in from the W circled from 15-60m hunted before carrying on N (Female same bird as last 2 entries)
14/10/2024	1	Winter	15	Yellowhammer	1	15:44	180	In	Treeline	Singing	Singing from treeline to the W
14/10/2024	1	Winter	16	Yellowhammer	1	15:50	10	In	Built	Flying / Perched	Flying S-N landed in ash tree to N of VP
14/10/2024	1	Winter	17	Yellowhammer	3	17:35	5	In	Treeline	Flying / Perched	Flying E-W perched into Ash tree N of VP.
14/10/2024	1	Winter	18	Buzzard	2	17:39	90	In	Improved Grassland/treeline	Treeline and improved grassland	Flew from N-S into treeline , 1 had prey other looked to be begging.
17/10/2024	2	Winter	1	Golden Plover	10	13:08	480	In	Tillage GS4	Flying / Perched	Circling landed in field to SW
17/10/2024	2	Winter	2	Golden Plover	3	14:36	300	In	Tillage/Wet Grassland	Flying / Circling	Circled in from the E circled tilled field before flying NE
17/10/2024	2	Winter	3	Kestrel	1	14:57	40	In	Wet grassland	Hunting / Perched	Hunting over grassland flew W and perched.
17/10/2024	2	Winter	4	Yellowhammer	1	15:04	30	In	Tillage	Flying	Flew E over the site.
17/10/2024	2	Winter	5	Kestrel	1	15:28	300	In	Wet grassland	Hunting	Hunting Wet grassland to the SW of VP
17/10/2024	2	Winter	6	Golden Plover	8	15:33	60	In	Tillage/Improved grassland	Flying	Flee N-S turned back N
17/10/2024	2	Winter	7	Buzzard	1	16:32	40	In	Improved grassland	Flying	Flying E-W 5-10m
17/10/2024	2	Winter	8	Whooper Swan	9	17:04	90	In	Improved grassland	Flying	Flying N-S over NE corner of site.

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
17/10/2024	2	Winter	9	Golden Plover	5	17:48	240	In	Tillage	Circling / Perched	Circled in from the E landed on W side of tilled field that VP is in.
17/10/2024	2	Winter	10	Buzzard	1	17:56		In	Treeline	Perched	Perched in a Ash tree.
17/10/2024	2	Winter	11	Golden Plover	24	18:39	90	Out	Built	Circling	Circling off to the west about 2km..
23/09/2024	1	Migratory	1	Buzzard	1	07:44	10	In	Improved Grassland	Flying	Flying
23/09/2024	1	Migratory	2	Buzzard	1	07:57	5	In	Improved Grassland	Flying	Flew into tree
23/09/2024	1	Migratory	3	Buzzard	1	08:19	30	In	Improved Grassland	Flying	Flew E into tree. Second bird. First still perched in tree to W.
23/09/2024	1	Migratory	4	Buzzard	1	11:02	5	In	Improved Grassland	Flying	Flew into tree to NW
14/11/2024	3	Winter	1	Snipe	1	06:51	180	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	2	Buzzard	1	07:30	40	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	3	Whooper Swan	1	08:34	-	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	4	Whooper Swan	5	08:44	-	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	5	Buzzard	1	09:15	60	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	6	Golden Plover	11	10:56	60	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	7	Yellowhammer	1	11:23	-	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	8	Black-headed Gull	1	12:15	-	In	Improved Grassland	Mobbing PE	-
14/11/2024	3	Winter	8	Peregrine Falcon	1	12:15	-	In	Improved Grassland	Being Mobbed by BH	-
14/11/2024	3	Winter	9	Yellowhammer	1	12:47	30	In	Improved Grassland	Flying	-
14/11/2024	3	Winter	10	Sparrowhawk	1	12:48	5	In	Improved Grassland	Flying	-
15/11/2024	1	Winter	1	Blackbird	1	08:08	-	In	Improved Grassland	Perched / Calling	-

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
15/11/2024	1	Winter	2	Yellowhammer	1	08:06	-	In	Improved Grassland	Perched / Calling	-
15/11/2024	1	Winter	3	Golden Plover	3	08:23	120	In	Improved Grassland	Flying	-
15/11/2024	1	Winter	4	Kestrel	1	08:38	-	Buffer	Improved Grassland	Flying	-
15/11/2024	1	Winter	5	Kestrel	92	09:20	2820	In	Improved Grassland	Flying	-
15/11/2024	1	Winter	6	Golden Plover	93	09:26	-	In	Improved Grassland	Flying / Perched	-
15/11/2024	1	Winter	7	Yellowhammer	1	09:32	-	In	Improved Grassland	Flying	-
15/11/2024	1	Winter	8	Buzzard	1	09:33	15	Buffer	Improved Grassland	Flying	-
15/11/2024	1	Winter	9	Buzzard	1	09:39	10	Buffer	Improved Grassland	Flying	-
15/11/2024	1	Winter	10	Golden Plover	120	10:56	1680	In	Tillage	Flying	-
15/11/2024	1	Winter	11	Sparrowhawk	1	10:58	-	In	Tillage	Flying	-
15/11/2024	1	Winter	12	Northern Lapwing	3	11:01	120	In	Tillage	Flying	-
15/11/2024	1	Winter	13	Golden Plover	14	11:03	30	In	Tillage	Flying	-
15/11/2024	1	Winter	14	Golden Plover	5	11:10	10	In	Tillage	Flying	-
15/11/2024	1	Winter	15	Golden Plover	19	11:15	10	In	Tillage	Flying	-
15/11/2024	1	Winter	16	Golden Plover	86	12:16	60	In	Tillage	Flying	-
07/11/2024	2	Winter	1	Whooper Swan	5	08:01	30	In/Out	Tillage	flying	Flew in from bog to south and landed in pond adjacent to site
07/11/2024	2	Winter	2	Whooper Swan	10	08:12	45	In/Out	Flying	flying	Flew S to N over site
07/11/2024	2	Winter	3	Whooper Swan	6	08:14	75	In/Out	Flying	flying	Flew S to N over site
07/11/2024	2	Winter	4	Meadow Pipit	3	08:15	20	In/Out	Flying	flying	Flying over BC1 on site

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
07/11/2024	2	Winter	5	Redwing	2	08:49	300	In	Treeline	perched	Flock perched in tree on site boundary, also several flocks flew over site throughout the morning
07/11/2024	2	Winter	6	Buzzard	4	11:09	20	In/Out	Flying	flying	Flew over site from S being mobbed by 2x HC, then landed in field within site
07/11/2024	2	Winter	7	Buzzard	7	11:25	30	In/Out	Flying	flying	Flying
07/11/2024	2	Winter	8	Buzzard	5	12:53	20	In/Out	Flying	flying	Flying, then landed in tree
07/11/2024	2	Winter	9	Whooper Swan	3	13:07	60	Out	Flying	flying	Flying over bog
11/12/2024	2	Winter	1	Buzzard	1	10:22		Out	Treeline	Perched	Perched on edge of the site didn't ser it leave the perch
11/12/2024	2	Winter	2	Buzzard	1	10:26		In	Treeline	Perches	Perched in Treeline didn't see it leave
11/12/2024	2	Winter	3	Buzzard	1	10:49		In	Treeline	Perched	Perched in treeline believed to be same bird as number 2.
11/12/2024	2	Winter	4	Golden Plover	100	11:23	240	Out	Bog	Circling	Circling 2-3 km to the E over worked bog 50-150m
11/12/2024	2	Winter	5	Kestrel	1	11:36	30	In	Improved grassland	Flying	Flew S-N through the site just E of VP perched N of motorway.
11/12/2024	2	Winter	6	Buzzard	1	11:41	15	In	built	Flying/perched	Flew along motorway perched E of VP
11/12/2024	2	Winter	7	Buzzard	1	11:45	10	In	Treeline	Flying	Flew N over motorway.
11/12/2024	2	Winter	8	Buzzard	1	12:00	15	In	Tillage	Hunting	Hunted the E edge of the site over tillage no sticks
11/12/2024	2	Winter	9	Yellowhammer	1	12:50			Treeline	Perched	Heard calling not seen.
11/12/2024	2	Winter	10	Kestrel	1	12:55	300	Out	Bog	Hunting	Hunting bog to the S of the site off site.
11/12/2024	2	Winter	11	Golden Plover	115	14:16	360	Out	Improved grassland	Circling	Circling off site 1-2 km S 50-120m
11/12/2024	2	Winter	12	Golden Plover	46	15:35	240	Out	Improved grassland	Circling	Circled before dropping out of sight N side of the motorway.

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
11/12/2024	2	Winter	13	Buzzard	1	15:49	30	In	Improved grassland	Flying/Perched	Flew in from the west perched E of where a farmer wad feeding cattle
16/12/2024	1	Winter	1	Golden Plover	37	10:20			Improved Grassland	Flying	Flew into site from N-S
16/12/2024	1	Winter	2	Golden Plover	3	10:25	1320		Improved grassland	Flying/Perched	3 Flew in and landed on site, several perched in field already, 32 in total
16/12/2024	1	Winter	3	Yellowhammer	1	11:15			Improved grassland		In hedgerow alongside chaffinch & GT
16/12/2024	1	Winter	4	Golden Plover	20	12:20	270		Improved grassland		Circling Field for 4.5 minutes
16/12/2024	1	Winter	5	Golden Plover	3	14:36	20		Improved grassland		Flew in from West, did look over tilled field and flew west again
16/12/2024	1	Winter	6	Kestrel	1	14:51	30		Improved grassland		Flew over the site from N - S
17/12/2024	3	Winter	1	Great Cormorant	1	11:02	30	In/Out	Improved grassland	Flying	Cormorant was flying over site, headed east.
17/12/2024	3	Winter	2	Golden Plover	4	11.39	40	In/Out	Improved grassland	Flying	They flew through the site, headed S/SW.
17/12/2024	3	Winter	3	Herring Gull	1	12:01	70	In/Out	Improved grassland	Flying	Herring Gull was flying through, headed east.
17/12/2024	3	Winter	4	Buzzard	1	12:25	60	Out	Improved grassland	Flying	Buzzard was flying, most likely hunting. Was eventually mobbed by several rooks.
17/12/2024	3	Winter	5	Buzzard	1	13:20	75	Out	Improved grassland	Flying	Buzzard was flying low until dropping below the tree line.
17/12/2024	3	Winter	6	Redwing	35	14:54	5	In	Improved grassland	Feeding	Flock were feeding in the grass and were perched in mature ash tree.
17/12/2024	3	Winter	7	Buzzard	1	15:51	85	Out	Improved grassland	Flying	Buzzard was flying low until dropping below the tree line.
13/01/2025	2	Winter	1	Buzzard	1	08:20		In	Treeline	Calling	Not seen heard calling to the NE
13/01/2026	2	Winter	2	Yellowhammer	1	08:56			Treeline	Calling	Perched in treeline just S of motorway calking.
13/01/2027	2	Winter	3	Wigeon	4	11:54	40	In	Tillage	Flying	Flew from the E over the site turned S/SE possibly came off pond to the E.

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
13/01/2028	2	Winter	4	Buzzard	1	12:18	240	In/Out	Tillage/Improved grassland	Hunting/flying	Hunted in for the E over the E side of the site turned N across the motorway turned W.
13/01/2029	2	Winter	5	Kestrel	1	12:28	120	Out	Peat bog/Improved Grassland	Hunting	Hunting Bog and grassland to the SE of VP2.
13/01/2030	2	Winter	6	Buzzard	1	13:40	1200	In/Out	Peatbog/rough grassland	Hunting/perched	Hunted in from the W along S edge pf site
15/01/2025	1	Winter	1	Golden Plover	30	11:13	-	In	Improved grassland	Flying	-
15/01/2025	1	Winter	2	Golden Plover	30	11:31	-	In	Improved grassland	Flying	-
15/01/2025	1	Winter	3	Golden Plover	6	11:39	-	In	Improved grassland	Flying	-
15/01/2025	1	Winter	4	Golden Plover	25	13:35	-	In	Improved grassland	Flying	-
21/01/2025	3	Winter	1	Golden Plover	10	14:18	-	In	Improved grassland	Flying	GP settled in field, then flew north
06/02/2025	3	Winter	1	Golden Plover	2	08:57	-	In	Improved grassland	Flying	-
06/02/2025	3	Winter	2	Buzzard	1	09:35	-	In	Improved grassland	Flying	-
06/02/2025	3	Winter	3	Black-headed Gull	2	12:08	-	Out	Improved grassland	Flying	-
06/02/2025	3	Winter	4	Golden Plover	35	12:28	-	In	Improved grassland	Flying	-
17/02/2025	VP1	Winter	1	Buzzard	1	12:31	60	Out	Tillage, Improved Grassland	Flying	-
17/02/2025	VP1	Winter	2	Golden Plover	52	12:33	150	Out	Tillage, Improved Grassland	Flying	-
17/02/2025	VP1	Winter	3	Buzzard	2	12:28	300	In	Tillage, Improved Grassland	Flying/Hunting	-
17/02/2025	VP1	Winter	4	Golden Plover	2	13:00	15	In	Tillage	Flying	-
17/02/2025	VP1	Winter	5	Golden Plover	3	13:06	120	In	Tillage/Built	Circling	-
17/02/2025	VP1	Winter	6	Golden Plover	1	13:51	90	In	Improved Grassland	Flying	-

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
17/02/2025	VP1	Winter	7	Golden Plover	3	14:54	20	In	Tillage	Flying, Perched	-
17/02/2025	VP2	Winter	1	Kestrel	1	15:39		In	Improved Grassland	Perched	-
17/02/2025	VP2	Winter	2	Snipe	2	15:56	30	In	Improved Grassland	Flying	-
17/02/2025	VP2	Winter	3	Woodcock	2	1817	10	Out	Broadleaf forestry	Flying	-
19/02/2025	VP2	Winter	1	Kestrel	1	11:34	309	In	Wet Grassland/peatbog	Hunting	-
19/02/2025	VP2	Winter	2	Buzzard	1	12:13	30	In	Tillage/Improved grassland	Flying	-
19/02/2025	VP2	Winter	3	Buzzard	1	12:42		In/Out	Improved Grassland	Hunting	-
19/02/2025	VP2	Winter	4	Kestrel	1	12:44	240	In/Out	Improved Grassland	Mobbing and Hunting	-
19/02/2025	VP2	Winter	5	Golden Plover	375	12:56	360	Out	Peat Bog	Circling	-
19/02/2025	VP2	Winter	6	Kestrel	1	13:29	120	In	Wet grassland.	Hunting	-
19/02/2025	VP1	Winter	1	Kestrel	1	17:36	25	In/Out	Tillage/ Built	Flying	-
18/03/2025	VP2	Winter	1	Yellowhammer	1	06:58	-	Out	Hedgerow	Singing	-
18/03/2025	VP2	Winter	2	Yellowhammer	1	08:15	-	In	Hedgerow	Singing	-
18/03/2025	VP2	Winter	3	Hen Harrier	1	08:34	15	In/Out	Wet grassland/Scrub	Hunting	-
18/03/2025	VP2	Winter	4	Golden Plover	141	09:23	120	In /Out	Wet Grassland	Flying	-
18/03/2025	VP2	Winter	5	Northern Lapwing	3	09:23	60	In/Out	Wet Grassland	Flying	-
18/03/2025	VP3	Winter	1	Yellowhammer	1	10:40	-	In	Hedgerow	Perched	-
18/03/2025	VP3	Winter	2	Yellowhammer	1	10:40	-	In	Hedgerow	Perched	-
18/03/2025	VP3	Winter	3	Buzzard	1	11:45	-	In/Out	Hedgerows, Improved grassland	Flying	Circled onto the site circled off to the W 30-150m

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
18/03/2025	VP3	Winter	4	Buzzard	1	12:05	-	Out	Improved Grassland	Flying	Circling off site to the N possibly same bird.
18/03/2025	VP3	Winter	5	Buzzard	1	12:25	-	In/Out	Improved Grassland	Flying	Circled in from the N flew W off site
18/03/2025	VP3	Winter	6	Buzzard	1	12:27	-	In	Treeline	Perched	Perched on site in an Ash tree to the W.
18/03/2025	VP3	Winter	8	Buzzard	1	13:12	-	In/Out	Improved Grassland	Flying	Flying
19/03/2025	VP3	Winter	1	Yellowhammer	2	07:09	-	In	Built area sheep feeder	Foraging	Foraging
19/03/2025	VP3	Winter	2	Yellowhammer	1	07:42	-	In	Treeline	Calling	Calling
19/03/2025	VP3	Winter	3	Yellowhammer	2	08:53	-	In/Out	Built up	Flying Foraging	Flying foraging
19/03/2025	VP3	Winter	4	Buzzard	1	09:42	-	In	Improved Grassland	Flying	Flew N-S through the site 5-10m.
19/03/2025	1	Winter	2	Buzzard	2	10:40	-	In	Tillage Treeline	Flying	Circling 10-20m Displaying visiting potential nest sites
19/03/2025	1	Winter	3	Yellowhammer	1	11:01	-	Out	Hedgerow	Calling	Calling from off site in hedgerow
19/03/2025	1	Winter	4	Raven	2	11:20	-	In	Pylon	Nesting	Nesting in the pylon just E of VP1
19/03/2025	1	Winter	5	Yellowhammer	1	12:04	-	In/Out	Hedgerow	Calling	Calling from hedgerow.
19/03/2025	1	Winter	6	Buzzard	1	12:11	-	In	Tillage, Treeline	Flying	Looked to be a male displaying swooping Diving at bird wile calling 5-20m
19/03/2025	1	Winter	7	Buzzard	1	13:11	-	In	Tillage, Treeline	Flying	Flew N-S stopped 3 times over 30minutes each stop marked on map
20/03/2025	1	Winter	1	Yellowhammer	2	06:28	-	In	Hedgerow	Holding Territory	Pair in hedgerow holding Territory
20/03/2025	1	Winter	2	Yellowhammer	1	06:38	-	In	Treeline	Calling	Male calling from treeline
20/03/2025	1	Winter	3	Yellowhammer	1	06:42	-	In	Hedgerow	Singing from hedgerow to the SW of VP	Singing from hedgerow to the SW of VP
20/03/2025	1	Winter	4	Snipe	1	06:59	-	In	Tillage	Calling	Calling from tillage West of VP

Date	VP	Season	Obs No.	Species Name	No. of Birds	Time of flight	Duration of flight (s)	In /Out	Habitat	Activity	Comments
20/03/2025	1	Winter	5	Yellowhammer	1	07:10	-	Out	Hedgerow	Calling	Singing from hedgerow off site.
20/03/2025	1	Winter	6	Snipe	1	08:08	-	In/Out	Tillage	Flying	Same bird as called earlier Flew S0-20m
20/03/2025	1	Winter	7	Yellowhammer	1	08:32	-	In	Tillage	Calling	Singing from edge of the site to the W of VP.
20/03/2025	1	Winter	8	Yellowhammer	1	09:25	-	In	Treeline	Calling	A pair holding territory male calling.
20/03/2025	2	Winter	1	Buzzard	2	10:23	-	In/Out	improved grass land	Flying	Flew through the site from conifer plantation just off site to the SW. flew from the SW to N of the site.
20/03/2025	2	Winter	2	Buzzard	1	10:40	-	In/Out	improved grass land	Flying	1 flew back the same line 20 mins later 5-10m
20/03/2025	2	Winter	3	Kestrel	1	11:03	-	Out	Peat bog	Hunting	Hunting the bog to the S of the Site working its way E
20/03/2025	2	Winter	4	Golden Plover	120	12:04	-	In/Out	Wet grassland, Improved, Tillage	Flying	Flew off Field with pond in it to the E circled before flying NE
20/03/2025	2	Winter	5	Buzzard	1	12:13	-	In	Improved Grassland	Flying	/Flew E along motorway circled off to the NW 10-100m
20/03/2025	2	Winter	6	Yellowhammer	1	12:19	-	In	Hedgerow	Calling.	Singing from hedge row.
20/03/2025	2	Winter	7	Golden Plover	120	12:25	-	Out	improved grass land	Flying	Flew in from the NE circled and landed back into field with pond in it.
20/03/2025	2	Winter	8	Buzzard	2	12:42	-	In	improved grass land	Flying	-Circled in from SE corner of the site sored p, 10- 200m drifted off N/NW

Table 9-4: Breeding season transects

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-09-43-43	Robin	1	Singing	53.39583	-7.31431	Flying
2025-04-14-09-45-31	Yellowhammer	1	Calling	53.39602	-7.31296	Flying
2025-04-14-09-46-03	Chaffinch	1	Singing	53.39574	-7.31292	Flying
2025-04-14-09-46-34	Dunnock	1	Singing	53.39622	-7.31455	Flying
2025-04-14-09-50-13	Blackbird	1	Alarm calling	53.39697	-7.31483	Flying
2025-04-14-09-50-54	Song Thrush	1	Singing	53.39715	-7.31494	Flying
2025-04-14-09-51-43	Chaffinch	1	Singing	53.39772	-7.31444	Flying
2025-04-14-09-52-19	Robin	1	Singing	53.39756	-7.31505	Flying
2025-04-14-09-52-51	Winter Wren	1	Singing	53.39739	-7.3149	Flying
2025-04-14-09-55-22	Yellowhammer	2	In suitable habitat	53.39696	-7.3132	Flying
2025-04-14-09-56-18	Winter Wren	1	Foraging	53.39724	-7.31331	Flying
2025-04-14-09-57-16	Song Thrush	1	in suitable habitat	53.39654	-7.31204	Flying
2025-04-14-09-59-57	Goldfinch	3	Territorial dispute	53.39767	-7.31136	Flying
2025-04-14-10-02-09	Chaffinch	2	Calling	53.39706	-7.31119	Flying
2025-04-14-10-03-55	Chaffinch	1	Suitable habitat	53.39781	-7.31161	Flying
2025-04-14-10-04-28	Robin	1	Singing	53.39811	-7.31197	Flying
2025-04-14-10-07-05	Winter Wren	1	Singing	53.398	-7.31209	Flying
2025-04-14-10-07-26	Winter Wren	1	Singing	53.39829	-7.31096	Flying
2025-04-14-10-07-55	Robin	1	Singing	53.3975	-7.31119	Flying
2025-04-14-10-09-12	Goldfinch	1	Singing	53.3982	-7.31153	Flying
2025-04-14-10-10-57	Chaffinch	1	Singing	53.39842	-7.31017	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-10-11-36	Song Thrush	1	Singing	53.39733	-7.30928	Flying
2025-04-14-10-12-04	Greenfinch	1	Holding territory	53.39707	-7.30945	Flying
2025-04-14-10-13-27	Chaffinch	1	Singing	53.39764	-7.30923	Flying
2025-04-14-10-13-55	Winter Wren	1	Singing	53.39852	-7.30942	Flying
2025-04-14-10-15-48	Chaffinch	2	Territorial dispute	53.39739	-7.30999	Flying
2025-04-14-10-16-23	Wood Pigeon	1	Suitable habitat	53.39646	-7.31052	Flying
2025-04-14-10-18-58	Chaffinch	1	Suitable habitat	53.39679	-7.30946	Flying
2025-04-14-10-23-51	Blackbird	1	In suitable habitat	53.39717	-7.31118	Flying
2025-04-14-10-25-12	Blackcap	1	Singing	53.39657	-7.30957	Flying
2025-04-14-10-25-46	Sky Lark	1	Singing holding territory	53.39653	-7.30909	Flying
2025-04-14-10-28-18	Winter Wren	1	singing	53.39615	-7.30977	Flying
2025-04-14-10-29-33	Yellowhammer	1	On ground foraging	53.39607	-7.31039	Flying
2025-04-14-10-32-18	Linnet	1	perched	53.39585	-7.31122	Flying
2025-04-14-10-32-54	Blackbird	1	Alarm calling	53.39577	-7.30988	Flying
2025-04-14-10-35-39	Yellowhammer	3	Territorial dispute	53.39539	-7.31138	Flying
2025-04-14-10-36-22	Linnet	3	Territorial dispute	53.39513	-7.3114	Flying
2025-04-14-10-37-15	Chaffinch	1	Singing	53.39495	-7.31032	Flying
2025-04-14-10-38-07	Sky Lark	1	Holding territory	53.39487	-7.30939	Flying
2025-04-14-10-40-39	Yellowhammer	2	Singing	53.39474	-7.3114	Flying
2025-04-14-10-41-31	Blackbird	1	Singing	53.39467	-7.31262	Flying
2025-04-14-10-43-49	Blackbird	1	Singing	53.39402	-7.30984	Flying
2025-04-14-10-44-20	Winter Wren	1	Singing	53.39428	-7.31174	Flying
2025-04-14-10-44-58	Winter Wren	1	Singing	53.39432	-7.31042	Flying
2025-04-14-10-45-35	Sky Lark	1	Holding territory	53.39401	-7.30924	Flying
2025-04-14-10-50-11	Pied Wagtail	2	Suitable nesting habitat	53.39337	-7.30954	Flying
2025-04-14-10-51-18	#N/A	2	GL suitable habitat	53.39425	-7.31097	Flying
2025-04-14-10-53-40	Yellowhammer	1	Calling	53.39259	-7.31103	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-10-54-20	Meadow Pipit	1	Suitable habitat	53.39347	-7.31051	Flying
2025-04-14-10-55-00	Meadow Pipit	2	Suitable habitat	53.39261	-7.30987	Flying
2025-04-14-10-59-22	Sky Lark	1	Holding territory	53.39311	-7.3087	Flying
2025-04-14-11-00-01	Winter Wren	1	Singing	53.39277	-7.30913	Flying
2025-04-14-11-02-48	Meadow Pipit	1	Suitable habitat	53.39209	-7.31093	Flying
2025-04-14-11-04-37	Yellowhammer	2	Singing Male and female	53.39225	-7.31209	Flying
2025-04-14-11-05-09	Blackcap	1	Singing	53.39123	-7.31196	Flying
2025-04-14-11-05-31	Blackcap	1	Singing	53.3919	-7.31235	Flying
2025-04-14-11-05-51	Wood Pigeon	1	Perched holding territory	53.39013	-7.31136	Flying
2025-04-14-11-06-29	Song Thrush	1	Singing	53.39168	-7.31221	Flying
2025-04-14-11-07-02	Robin	1	Singing	53.39206	-7.31244	Flying
2025-04-14-11-07-24	Blackbird	1	Alarm calling	53.39036	-7.31152	Flying
2025-04-14-11-09-30	Chaffinch	1	Singing	53.39022	-7.31037	Flying
2025-04-14-11-10-05	Meadow Pipit	1	Perched in suitable habitat	53.391	-7.31039	Flying
2025-04-14-11-11-25	Raven	1	Suitable habitat	53.391	-7.31109	Flying
2025-04-14-11-12-54	Blackcap	1	Singing	53.3909	-7.30929	Flying
2025-04-14-11-14-00	Willow Warbler	1	Singing	53.38987	-7.31023	Flying
2025-04-14-11-15-08	Blackcap	1	Singing	53.39127	-7.3087	Flying
2025-04-14-11-17-29	Linnet	2	In suitable habitat	53.39187	-7.30871	Flying
2025-04-14-11-18-25	Goldfinch	8	Flying over site	53.39135	-7.30938	Flying
2025-04-14-11-19-51	Winter Wren	1	Singing	53.39166	-7.30828	Flying
2025-04-14-11-21-31	Meadow Pipit	2	In suitable habitat	53.39198	-7.30917	Flying
2025-04-14-11-23-31	Linnet	2	Perched in suitable habitat	53.39237	-7.30883	Flying
2025-04-14-11-24-12	Meadow Pipit	2	Suitable habitat	53.39228	-7.30945	Flying
2025-04-14-11-28-06	Chaffinch	1	Calling	53.39253	-7.31264	Flying
2025-04-14-11-28-35	Winter Wren	1	Singing	53.39284	-7.31283	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-11-29-25	Blackcap	1	Singing	53.39302	-7.31294	Flying
2025-04-14-11-30-03	Blackbird	1	Alarm calling	53.39327	-7.31312	Flying
2025-04-14-11-30-30	Winter Wren	1	Alarm calling	53.39346	-7.31322	Flying
2025-04-14-11-31-16	Chaffinch	3	Calling	53.39398	-7.31348	Flying
2025-04-14-11-32-35	Blue Tit	1	Singing	53.39424	-7.31223	Flying
2025-04-14-11-32-54	Blackbird	1	Singing	53.39418	-7.31354	Flying
2025-04-14-11-33-25	Chaffinch	1	Singing	53.39426	-7.31263	Flying
2025-04-14-11-35-29	Hooded Crow	1	Flying through the site	53.39481	-7.31205	Flying
2025-04-14-11-36-20	Dunnock	1	Singing	53.39504	-7.31269	Flying
2025-04-14-11-38-54	Chaffinch	1	Singing	53.39536	-7.31284	Flying
2025-04-14-11-39-25	Blue Tit	1	Singing	53.39531	-7.31406	Flying
2025-04-14-11-41-04	Winter Wren	1	Singing	53.3962	-7.31304	Flying
2025-04-14-12-43-24	Winter Wren	1	Singing	53.39889	-7.30675	Flying
2025-04-14-12-43-55	Winter Wren	1	Singing	53.39877	-7.30669	Flying
2025-04-14-12-44-17	Blackcap	1	in suitable habitat	53.39863	-7.30667	Flying
2025-04-14-12-46-11	Blackbird	1	Singing	53.39857	-7.3066	Flying
2025-04-14-12-47-53	Robin	1	Singing	53.3985	-7.30659	Flying
2025-04-14-12-48-16	Winter Wren	1	Singing	53.39883	-7.30766	Flying
2025-04-14-12-48-37	Song Thrush	1	singing	53.39849	-7.30907	Flying
2025-04-14-12-49-28	Robin	1	Singing	53.39841	-7.30912	Flying
2025-04-14-12-51-10	Blue Tit	2	In suitable nesting habitat	53.39876	-7.30818	Flying
2025-04-14-12-51-43	Chaffinch	1	Singing	53.3989	-7.30736	Flying
2025-04-14-12-52-03	Robin	1	Singing	53.39873	-7.30838	Flying
2025-04-14-12-52-38	Chaffinch	1	Singing	53.3983	-7.30655	Flying
2025-04-14-12-55-22	House Martin	6	Flying through the site	53.39712	-7.30756	Flying
2025-04-14-12-56-11	Raven	1	Flying over the site	53.39657	-7.3058	Flying
2025-04-14-12-58-09	Chaffinch	2	In suitable nesting habitat	53.39664	-7.30801	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-12-59-13	Goldfinch	2	Carrying nesting material	53.39693	-7.30781	Flying
2025-04-14-13-00-21	Meadow Pipit	2	Suitable nesting habitat	53.39639	-7.30753	Flying
2025-04-14-13-01-10	Pied Wagtail	1	Suitable nesting habitat	53.39632	-7.30778	Flying
2025-04-14-13-05-10	Blackbird	1	Flying in suitable habitat	53.39676	-7.30712	Flying
2025-04-14-13-07-55	Blackbird	1	Alarm calling	53.39515	-7.30744	Flying
2025-04-14-13-08-35	Sky Lark	1	Holding territory	53.39499	-7.30698	Flying
2025-04-14-13-09-15	Meadow Pipit	1	In suitable nesting territory	53.39407	-7.30803	Flying
2025-04-14-13-09-54	Meadow Pipit	1	In suitable nesting habitat	53.39503	-7.30865	Flying
2025-04-14-13-12-36	Chaffinch	1	Singing	53.39439	-7.30854	Flying
2025-04-14-13-13-11	Winter Wren	1	Singing	53.39438	-7.30879	Flying
2025-04-14-13-14-03	Linnet	2	In suitable habitat	53.39431	-7.30956	Flying
2025-04-14-13-18-15	Sky Lark	1	Holding territory	53.39345	-7.30769	Flying
2025-04-14-13-19-15	Meadow Pipit	3	Territorial dispute	53.39279	-7.30788	Flying
2025-04-14-13-21-48	Sky Lark	1	Holding territory	53.39463	-7.30756	Flying
2025-04-14-13-22-41	Linnet	2	Singing territorial dispute	53.39441	-7.3077	Flying
2025-04-14-13-26-11	Willow Warbler	1	Singing	53.39254	-7.30689	Flying
2025-04-14-13-26-38	Winter Wren	1	Singing	53.39323	-7.30579	Flying
2025-04-14-13-27-22	Chaffinch	1	Calling	53.39212	-7.3075	Flying
2025-04-14-13-29-27	Sky Lark	1	In suitable nesting habitat	53.39287	-7.30436	Flying
2025-04-14-13-30-22	Willow Warbler	1	Singing	53.39285	-7.30492	Flying
2025-04-14-13-31-42	Meadow Pipit	2	suitable nesting habitat	53.39367	-7.30359	Flying
2025-04-14-13-32-27	Willow Warbler	1	Singing	53.39245	-7.30379	Flying
2025-04-14-13-35-54	Linnet	7	small flock perched	53.39291	-7.30276	Flying
2025-04-14-13-36-34	Meadow Pipit	4	Territorial dispute	53.3936	-7.30286	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-13-39-13	Chiffchaff	1	Singing	53.3946	-7.30122	Flying
2025-04-14-13-39-37	Blackbird	1	Alarm calling	53.39362	-7.3013	Flying
2025-04-14-13-40-21	Chaffinch	1	Singing	53.39442	-7.30107	Flying
2025-04-14-13-40-45	Chaffinch	1	Singing	53.39456	-7.30303	Flying
2025-04-14-13-41-41	Chaffinch	1	Calling	53.39391	-7.30087	Flying
2025-04-14-13-42-00	Blackbird	1	Singing	53.3941	-7.30097	Flying
2025-04-14-13-42-17	Willow Warbler	1	Singing	53.39368	-7.30097	Flying
2025-04-14-13-43-43	Blackcap	1	Singing	53.39461	-7.30145	Flying
2025-04-14-13-44-10	Great Tit	1	Alarm calling	53.39452	-7.30113	Flying
2025-04-14-13-45-49	Great Tit	1	Singing	53.39459	-7.3026	Flying
2025-04-14-13-46-13	Chaffinch	1	Calling	53.39521	-7.30153	Flying
2025-04-14-13-50-30	Winter Wren	1	calling	53.39449	-7.30382	Flying
2025-04-14-13-51-43	Chaffinch	1	Alarm calling	53.39455	-7.30347	Flying
2025-04-14-13-53-45	Robin	1	Singing	53.39556	-7.30277	Flying
2025-04-14-13-54-10	Blackbird	1	Calling	53.3945	-7.30515	Flying
2025-04-14-13-55-52	Chaffinch	2	Calling	53.39595	-7.30428	Flying
2025-04-14-13-56-36	Winter Wren	1	Alarm calling	53.39538	-7.30482	Flying
2025-04-14-13-57-23	Willow Warbler	1	Singing	53.39606	-7.30453	Flying
2025-04-14-13-57-47	Yellowhammer	1	Calling	53.39631	-7.30444	Flying
2025-04-14-13-58-35	Dunnock	1	calling	53.39619	-7.3046	Flying
2025-04-14-13-59-28	Meadow Pipit	1	In suitable habitat	53.39562	-7.30518	Flying
2025-04-14-14-00-41	Sky Lark	1	Holding territory	53.39525	-7.30614	Flying
2025-04-14-14-01-12	Meadow Pipit	1	In suitable nesting habitat	53.39491	-7.30521	Flying
2025-04-14-14-06-51	Barn Swallow	1	flying over	53.39603	-7.30694	Flying
2025-04-14-14-07-18	Meadow Pipit	2	Suitable habitat	53.39611	-7.3062	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-14-08-53	Yellowhammer	1	calling	53.39707	-7.30613	Flying
2025-04-14-14-09-23	Willow Warbler	1	Singing	53.39691	-7.3058	Flying
2025-04-14-14-13-01	Chaffinch	1	Calling	53.39577	-7.30335	Flying
2025-04-14-14-14-35	Chaffinch	1	suitable nesting habitat	53.39639	-7.30464	Flying
2025-04-14-14-15-12	Blackbird	1	Singing	53.39629	-7.30192	Flying
2025-04-14-14-16-09	Goldfinch	1	Suitable nesting habitat	53.39656	-7.30488	Flying
2025-04-14-14-17-00	Meadow Pipit	1	Flying over	53.39702	-7.30422	Flying
2025-04-14-14-17-48	Dunnock	1	Perched	53.39647	-7.30396	Flying
2025-04-14-14-34-55	Teal	2	On pond just off site	53.39839	-7.30156	Flying
2025-04-14-14-35-39	Little Grebe	3	On pond just off site	53.3986	-7.30137	Flying
2025-04-14-14-36-10	Mute Swan	2	On pond just off site	53.39865	-7.30162	Flying
2025-04-14-15-30-58	Blackbird	1	Singing	53.39977	-7.31568	Flying
2025-04-14-15-31-37	Raven	1	Flying over the site	53.40016	-7.31553	Flying
2025-04-14-15-32-41	Buzzard	1	Suitable nesting habitat	53.39945	-7.31358	Flying
2025-04-14-15-33-18	Blackbird	1	Singing	53.39886	-7.31527	Flying
2025-04-14-15-33-36	Chaffinch	1	Singing	53.39884	-7.31513	Flying
2025-04-14-15-34-33	Willow Warbler	1	Singing	53.39854	-7.31577	Flying
2025-04-14-15-34-55	Robin	1	Singing	53.3983	-7.31569	Flying
2025-04-14-15-35-30	Winter Wren	1	Singing	53.39816	-7.31478	Flying
2025-04-14-15-39-14	Blackbird	2	Alarm calling territorial dispute	53.39887	-7.31409	Flying
2025-04-14-15-40-14	Chaffinch	1	Singing	53.39826	-7.31393	Flying
2025-04-14-15-40-46	Winter Wren	1	Singing	53.39886	-7.31321	Flying
2025-04-14-15-43-52	Robin	1	In suitable habitat	53.3988	-7.31275	Flying
2025-04-14-15-44-18	Chaffinch	1	Singing	53.39866	-7.31277	Flying
2025-04-14-15-44-44	Blue Tit	1	Singing	53.3989	-7.31274	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-15-45-05	Winter Wren	1	Singing	53.39853	-7.31212	Flying
2025-04-14-15-45-45	Chaffinch	1	Singing	53.39858	-7.31186	Flying
2025-04-14-15-46-59	Great Tit	2	In suitable habitat	53.39857	-7.31278	Flying
2025-04-14-15-50-55	Great Tit	1	Singing	53.39868	-7.31129	Flying
2025-04-14-15-51-36	Song Thrush	1	Singing	53.3997	-7.31104	Flying
2025-04-14-15-52-52	Blackbird	1	Suitable nesting habitat	53.39901	-7.30941	Flying
2025-04-14-15-53-20	Winter Wren	1	Singing	53.39934	-7.30921	Flying
2025-04-14-15-53-58	Chaffinch	1	Singing	53.39893	-7.30983	Flying
2025-04-14-15-54-24	Chaffinch	1	Singing	53.39968	-7.30999	Flying
2025-04-14-15-55-28	Song Thrush	1	Singing	53.39968	-7.30936	Flying
2025-04-14-15-58-05	Song Thrush	1	Alarm calling	53.39994	-7.31061	Flying
2025-04-14-16-04-50	Chaffinch	2	Pair in suitable habitat	53.40027	-7.30984	Flying
2025-04-14-16-05-20	Barn Swallow	6	suitable habitat	53.40099	-7.31014	Flying
2025-04-14-16-05-32	Blackbird	1	Alarm calling	53.40031	-7.30941	Flying
2025-04-14-16-09-31	Chaffinch	1	Calling	53.40163	-7.30966	Flying
2025-04-14-16-09-53	Winter Wren	1	Calling	53.40196	-7.30973	Flying
2025-04-14-16-11-53	Winter Wren	1	Singing	53.40268	-7.30986	Flying
2025-04-14-16-12-16	Blackcap	1	Singing	53.4028	-7.30986	Flying
2025-04-14-16-12-37	Chaffinch	1	Calling	53.40351	-7.30997	Flying
2025-04-14-16-15-05	Great Tit	1	Singing	53.40331	-7.31061	Flying
2025-04-14-16-16-12	Chaffinch	1	Singing	53.40323	-7.31151	Flying
2025-04-14-16-17-18	Winter Wren	1	Singing	53.40323	-7.31175	Flying
2025-04-14-16-19-45	Yellowhammer	1	calling	53.404	-7.31541	Flying
2025-04-14-16-20-09	Chaffinch	1	Singing	53.404	-7.31544	Flying
2025-04-14-16-20-37	Yellowhammer	1	Calling	53.40334	-7.31386	Flying
2025-04-14-16-22-15	Buzzard	1	Suitable nesting habitat	53.40325	-7.31003	Flying
2025-04-14-16-24-06	Yellowhammer	1	Calling	53.405	-7.31016	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-16-24-40	Winter Wren	1	Singing	53.40401	-7.312	Flying
2025-04-14-16-25-14	Chaffinch	1	Singing	53.40453	-7.31189	Flying
2025-04-14-16-25-40	Blackbird	1	Alarm calling	53.40534	-7.31353	Flying
2025-04-14-16-26-51	Wood Pigeon	1	Perched	53.40526	-7.31247	Flying
2025-04-14-16-27-23	Chaffinch	1	Calling	53.40528	-7.31323	Flying
2025-04-14-16-27-47	Chaffinch	1	Calling	53.40505	-7.31424	Flying
2025-04-14-16-28-45	Robin	1	Singing	53.40536	-7.31362	Flying
2025-04-14-16-29-10	Blackbird	1	Alarm calling	53.40486	-7.31426	Flying
2025-04-14-16-30-36	Winter Wren	1	Singing	53.40493	-7.3142	Flying
2025-04-14-16-33-41	Tree Sparrow	4	Suitable habitat	53.40427	-7.31554	Flying
2025-04-14-16-36-00	Starling	1	Calling	53.40396	-7.31577	Flying
2025-04-14-16-36-46	Tree Sparrow	2	Suitable nesting habitat	53.40395	-7.31592	Flying
2025-04-14-16-37-22	Tree Sparrow	2	Suitable nesting habitat	53.4038	-7.31617	Flying
2025-04-14-16-38-02	Tree Sparrow	1	Suitable nesting habitat	53.40356	-7.31613	Flying
2025-04-14-16-40-26	Song Thrush	8	feeding in silage	53.40355	-7.31644	Flying
2025-04-14-16-41-32	Wood Pigeon	1	Flying through the site	53.40283	-7.3151	Flying
2025-04-14-16-46-58	Blackcap	1	Calling	53.40029	-7.31661	Flying
2025-04-14-16-47-35	Robin	1	singing	53.40041	-7.31689	Flying
2025-04-14-16-48-46	Yellowhammer	1	Calling	53.39959	-7.31723	Flying
2025-04-14-16-51-20	Blackbird	1	Alarm calling	53.39937	-7.31877	Flying
2025-04-14-16-52-19	Blackcap	1	Singing	53.39903	-7.31875	Flying
2025-04-14-16-54-22	Chaffinch	1	Singing	53.40062	-7.3188	Flying
2025-04-14-16-54-53	Blackbird	1	Singing	53.40037	-7.31741	Flying
2025-04-14-16-59-13	Blackbird	1	Singing	53.40011	-7.3188	Flying
2025-04-14-16-59-39	Chaffinch	1	Singing	53.39939	-7.31892	Flying
2025-04-14-17-00-48	Linnet	2	Suitable habitat	53.40033	-7.31909	Flying
2025-04-14-17-01-52	Robin	1	Singing	53.40078	-7.3188	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-17-03-54	Wood Pigeon	1	Perched in suitable habitat	53.40111	-7.31855	Flying
2025-04-14-17-04-32	Winter Wren	1	Singing	53.40115	-7.3184	Flying
2025-04-14-17-05-20	Greenfinch	1	Perched calling	53.40207	-7.31854	Flying
2025-04-14-17-08-00	Tree Sparrow	2	Suitable nesting habitat	53.40121	-7.31816	Flying
2025-04-14-17-09-03	Starling	2	Suitable nesting habitat	53.40129	-7.31836	Flying
2025-04-14-17-09-40	Blackbird	1	Calling	53.40123	-7.31841	Flying
2025-04-14-17-09-59	Winter Wren	1	Singing	53.40144	-7.31847	Flying
2025-04-14-17-11-12	Tree Sparrow	1	Calling	53.40171	-7.31853	Flying
2025-04-14-17-11-46	Robin	1	Singing	53.40177	-7.31855	Flying
2025-04-14-17-12-55	Chaffinch	1	Singing	53.40223	-7.31851	Flying
2025-04-14-17-13-19	Blackbird	1	Singing	53.40217	-7.31855	Flying
2025-04-14-17-13-38	Winter Wren	1	Singing	53.40234	-7.31851	Flying
2025-04-14-17-14-49	Chaffinch	1	Singing	53.40274	-7.319	Flying
2025-04-14-17-15-17	Wood Pigeon	2	flying over the site	53.4026	-7.31925	Flying
2025-04-14-17-17-02	Winter Wren	1	Singing	53.40271	-7.32028	Flying
2025-04-14-17-17-31	Barn Swallow	1	suitable habitat	53.40272	-7.32046	Flying
2025-04-14-17-19-01	Wood Pigeon	1	Flushed from suitable habitat	53.40228	-7.32125	Flying
2025-04-14-17-19-39	Blackcap	2	Singing	53.40219	-7.32153	Flying
2025-04-14-17-21-59	Wood Pigeon	2	Flushed from suitable nesting habitat	53.40188	-7.32295	Flying
2025-04-14-17-23-27	Robin	1	Singing	53.40166	-7.32312	Flying
2025-04-14-17-24-05	Dunnock	1	Singing	53.40161	-7.32404	Flying
2025-04-14-17-24-29	Chaffinch	1	singing	53.40151	-7.32371	Flying
2025-04-14-17-24-59	Blackcap	1	Singing	53.40145	-7.32357	Flying
2025-04-14-17-25-48	Pied Wagtail	2	Suitable habitat	53.40117	-7.323	Flying
2025-04-14-17-26-25	Blue Tit	1	Alarm calling	53.40152	-7.32323	Flying
2025-04-14-17-27-55	Winter Wren	1	Singing	53.40087	-7.32324	Flying
2025-04-14-17-28-23	Chaffinch	1	Singing	53.40083	-7.32348	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-14-17-29-55	Chaffinch	1	singing	53.40054	-7.32366	Flying
2025-04-14-17-30-20	Meadow Pipit	1	Displaying	53.40021	-7.32221	Flying
2025-04-14-17-36-57	Meadow Pipit	11	Flock foraging	53.40027	-7.32143	Flying
2025-04-14-17-39-48	Snipe	1	Flushed by me	53.39993	-7.32065	Flying
2025-04-14-17-40-39	Meadow Pipit	2	Alarm calling	53.40002	-7.32018	Flying
2025-04-14-17-43-00	Blackbird	1	Singing	53.39988	-7.31865	Flying
2025-04-14-17-43-31	Linnet	2	Suitable nesting habitat	53.3997	-7.31913	Flying
2025-04-14-17-43-31	Goldfinch	2	Suitable nesting habitat	53.39903	-7.3194	Flying
2025-04-14-17-44-13	Chaffinch	2	Suitable nesting habitat	53.39972	-7.31872	Flying
2025-04-14-17-47-04	Linnet	4	Territorial dispute	53.3987	-7.31876	Flying
2025-04-14-17-47-45	Chaffinch	1	Singing	53.39851	-7.31875	Flying
2025-04-14-17-48-56	Dunnock	2	Suitable nesting habitat	53.39832	-7.31859	Flying
2025-04-14-17-50-18	Chaffinch	1	Calling	53.39806	-7.31864	Flying
2025-04-14-17-51-08	Blackbird	1	Singing	53.39778	-7.31858	Flying
2025-04-14-17-52-17	Blackcap	1	Singing	53.39749	-7.31881	Flying
2025-04-14-17-53-57	Blackbird	1	Singing	53.39842	-7.31727	Flying
2025-04-14-17-54-51	Blackbird	1	Suitable habitat	53.39782	-7.3167	Flying
2025-04-14-17-55-20	Winter Wren	1	alarm calling	53.39783	-7.31633	Flying
2025-04-14-17-55-51	Chaffinch	1	Calling	53.39772	-7.31681	Flying
2025-04-14-17-56-30	Robin	1	Singing	53.39794	-7.3158	Flying
2025-04-14-17-57-46	Blackbird	1	Singing	53.39841	-7.31605	Flying
2025-04-16-10-03-28	Jackdaw	2	With nest material	53.40387	-7.30896	Flying
2025-04-16-10-04-25	Pied Wagtail	2	Suitable nesting habitat	53.40314	-7.30846	Flying
2025-04-16-10-05-08	Great Tit	1	Suitable nesting habitat	53.40275	-7.30782	Flying
2025-04-16-10-05-46	Blackbird	1	Alarm calling	53.40266	-7.3078	Flying
2025-04-16-10-06-07	Winter Wren	1	Singing	53.40259	-7.30777	Flying
2025-04-16-10-07-05	Blackbird	1	Alarm calling	53.40236	-7.30778	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-16-10-08-50	Song Thrush	1	Singing	53.40177	-7.3076	Flying
2025-04-16-10-12-08	Dunnock	1	Suitable nesting habitat	53.40188	-7.30758	Flying
2025-04-16-10-14-19	Winter Wren	1	singing	53.4014	-7.3074	Flying
2025-04-16-10-15-19	Wood Pigeon	2	Suitable nesting habitat	53.40165	-7.30433	Flying
2025-04-20-09-59-15	Great Tit	2	With nesting material	53.40603	-7.31974	Flying
2025-04-20-10-00-21	Yellowhammer	1	Perched calling	53.40616	-7.3197	Flying
2025-04-20-10-02-32	Winter Wren	1	Alarm calling	53.40659	-7.31974	Flying
2025-04-20-10-03-31	Blackbird	1	suitable nesting habitat	53.40647	-7.31972	Flying
2025-04-20-10-04-36	Meadow Pipit	1	Displaying	53.40645	-7.32066	Flying
2025-04-20-10-06-09	Dunnock	1	Foraging	53.40665	-7.31975	Flying
2025-04-20-10-06-56	Barn Swallow	1	Foraging	53.40645	-7.31991	Flying
2025-04-20-10-08-00	Song Thrush	1	Singing	53.40707	-7.31978	Flying
2025-04-20-10-09-09	Great Black-backed Gull	1	Circling and calling	53.40698	-7.32013	Flying
2025-04-20-10-09-57	Rook	1	Flying over	53.40687	-7.31918	Flying
2025-04-20-10-11-19	Wood Pigeon	1	Perched on suitable nesting habitat	53.40754	-7.31982	Flying
2025-04-20-10-12-15	Starling	1	in suitable nesting habitat	53.40759	-7.31977	Flying
2025-04-20-10-12-53	Blackcap	1	Singing	53.40803	-7.3201	Flying
2025-04-20-10-13-11	Blackbird	1	Calling	53.40783	-7.3198	Flying
2025-04-20-10-16-45	Blackbird	1	Perched on suitable nesting habitat	53.40813	-7.32024	Flying
2025-04-20-10-17-25	Song Thrush	1	Singing	53.40849	-7.32146	Flying
2025-04-20-10-19-04	Blue Tit	1	Alarm calling	53.40853	-7.32019	Flying
2025-04-20-10-19-41	Linnet	2	In suitable nesting habitat	53.40865	-7.32021	Flying
2025-04-20-10-21-23	Winter Wren	1	Singing	53.4087	-7.32091	Flying
2025-04-20-10-21-44	Chaffinch	1	Singing	53.40879	-7.32115	Flying
2025-04-20-10-23-10	Robin	1	Singing	53.4089	-7.32006	Flying
2025-04-20-10-23-32	Robin	1	Singing	53.40899	-7.32113	Flying

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2025-04-20-10-23-59	Chaffinch	1	Singing	53.409	-7.31998	Flying
2025-04-20-10-24-19	Chaffinch	1	Singing	53.40961	-7.32007	Flying
2025-04-20-10-24-51	Robin	1	Singing	53.40967	-7.32076	Flying
2025-04-20-10-25-12	Blackcap	1	Singing	53.40966	-7.32036	Flying
2025-04-20-10-26-35	Blackbird	1	Calling	53.40959	-7.32103	Flying
2025-04-20-10-27-34	Chaffinch	1	In suitable nesting habitat	53.40929	-7.32105	Flying
2025-04-20-10-28-41	Blackbird	1	Calling	53.40974	-7.32123	Flying
2025-04-20-10-28-57	Winter Wren	1	Singing	53.40976	-7.32144	Flying
2025-04-20-10-29-15	Winter Wren	1	Singing	53.40971	-7.32051	Flying
2025-04-20-10-30-24	Yellowhammer	1	Singing	53.40824	-7.32439	Flying
2025-04-20-10-30-47	Chaffinch	1	Singing	53.40975	-7.3211	Flying
2025-04-20-10-31-14	Blackbird	1	Alarm calling	53.40985	-7.32186	Flying
2025-04-20-10-31-56	Chaffinch	1	In suitable nesting habitat	53.40984	-7.32191	PSB Territory
2025-04-20-10-33-00	Buzzard	1	Perched on suitable nesting habitat	53.40989	-7.32212	Flying
2025-04-20-10-33-50	Great Tit	1	Singing	53.40988	-7.32229	Flying
2025-04-20-10-34-19	Robin	1	Singing	53.4084	-7.32207	Flying
2025-04-20-10-35-01	Song Thrush	1	Singing	53.40822	-7.32428	Flying
2025-04-20-10-35-18	Pied Wagtail	2	Flying over	53.40937	-7.32292	Flying
2025-04-20-10-35-25	Blackbird	1	Singing	53.40991	-7.32247	Flying
2025-04-20-10-36-54	Winter Wren	1	Singing	53.40992	-7.32227	Flying
2025-04-20-10-37-16	Chaffinch	1	Singing	53.40992	-7.32277	Flying
2025-04-20-10-38-47	Winter Wren	1	Singing	53.40842	-7.32182	Flying
2025-04-20-10-39-58	Jackdaw	2	In suitable nesting habitat	53.4083	-7.32739	Flying
2025-04-20-10-40-36	Chaffinch	1	Singing	53.40996	-7.32346	Flying
2025-04-20-10-41-20	Winter Wren	1	Singing	53.40992	-7.32361	Flying
2025-04-20-10-43-46	Robin	1	Singing	53.40995	-7.32447	Flying

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2025-04-20-10-44-13	Chaffinch	1	Singing	53.40997	-7.32511	Flying
2025-04-20-10-44-51	Barn Swallow	2	Courtship	53.40955	-7.32454	Flying
2025-04-20-10-45-46	Blackbird	1	Singing	53.40994	-7.32494	Flying
2025-04-20-10-46-13	Mallard	2	Flying over the site	53.40885	-7.32654	Flying
2025-04-20-10-48-16	Song Thrush	1	Singing	53.41015	-7.32736	Flying
2025-04-20-10-52-27	Winter Wren	1	Alarm calling	53.41008	-7.3261	Flying
2025-04-20-10-54-34	Starling	1	In suitable nesting habitat	53.409	-7.32779	Flying
2025-04-20-10-55-11	Blackbird	2	In suitable nesting habitat	53.40874	-7.32785	Flying
2025-04-20-10-55-35	Chaffinch	1	Singing	53.40837	-7.3275	Flying
2025-04-20-10-56-46	Winter Wren	1	Singing	53.40863	-7.32775	Flying
2025-04-20-10-58-13	Robin	1	Singing	53.40845	-7.32766	Flying
2025-04-20-10-59-30	Winter Wren	1	Singing	53.40806	-7.32718	Flying
2025-04-20-11-00-36	Chaffinch	1	Alarm calling	53.40812	-7.32736	Flying
2025-04-20-11-01-06	Yellowhammer	1	Singing	53.40764	-7.32722	Flying
2025-04-20-11-01-29	Blackbird	2	In suitable nesting habitat	53.40776	-7.32719	Flying
2025-04-20-11-02-04	Blackbird	1	Singing	53.40816	-7.32623	Flying
2025-04-20-11-02-24	Meadow Pipit	1	Displaying	53.40761	-7.32633	Flying
2025-04-20-11-03-28	Meadow Pipit	1	Displaying	53.40771	-7.32537	Flying
2025-04-20-11-05-32	Blackbird	1	In suitable nesting habitat	53.40686	-7.32701	Flying
2025-04-20-11-07-26	Meadow Pipit	1	Displaying	53.40591	-7.32495	Flying
2025-04-20-11-07-55	Winter Wren	1	Alarm calling	53.40622	-7.32672	Flying
2025-04-20-11-08-41	Robin	1	Singing	53.40611	-7.32667	Flying
2025-04-20-11-10-45	Blackbird	1	Alarm calling	53.40479	-7.32602	Flying
2025-04-20-11-11-13	Winter Wren	1	Singing	53.40548	-7.32639	Flying
2025-04-20-11-11-47	Chaffinch	1	Singing	53.40395	-7.32853	Flying
2025-04-20-11-12-40	Chaffinch	2	In suitable nesting habitat	53.40578	-7.3267	Flying
2025-04-20-11-13-08	Winter Wren	1	Alarm calling	53.40577	-7.32652	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-11-13-34	Winter Wren	1	Alarm calling	53.40577	-7.32675	Flying
2025-04-20-11-13-54	Blackbird	1	Alarm calling	53.40575	-7.32687	Flying
2025-04-20-11-14-22	Winter Wren	1	Singing	53.40543	-7.32885	Flying
2025-04-20-11-14-53	Robin	1	Singing	53.40536	-7.32632	Flying
2025-04-20-11-15-30	Meadow Pipit	1	Displaying	53.40538	-7.32508	Flying
2025-04-20-11-15-59	Chaffinch	1	Singing	53.40456	-7.32496	Flying
2025-04-20-11-16-20	Chaffinch	1	Singing	53.40439	-7.32583	Flying
2025-04-20-11-17-02	Dunnock	1	In suitable nesting habitat	53.40543	-7.32637	Flying
2025-04-20-11-19-03	Song Thrush	2	Alarm calling	53.40467	-7.32601	Flying
2025-04-20-11-20-18	Starling	1	In suitable nesting habitat	53.4043	-7.32588	Flying
2025-04-20-11-21-01	Goldfinch	1	Suitable nesting habitat	53.4043	-7.32585	Flying
2025-04-20-11-21-39	Dunnock	1	Calling	53.40434	-7.32568	Flying
2025-04-20-11-23-25	Blackbird	2	In suitable nesting habitat	53.40524	-7.32277	Flying
2025-04-20-11-27-32	Winter Wren	1	Singing	53.40493	-7.3234	Flying
2025-04-20-11-27-54	Robin	1	Singing	53.40553	-7.32281	Flying
2025-04-20-11-28-20	Winter Wren	1	Singing	53.40562	-7.32281	Flying
2025-04-20-11-29-14	Winter Wren	1	Singing	53.40592	-7.32289	Flying
2025-04-20-11-29-45	Meadow Pipit	1	Displaying	53.40577	-7.32245	Flying
2025-04-20-11-30-15	Meadow Pipit	1	Displaying	53.40589	-7.32381	Flying
2025-04-20-11-31-59	Yellowhammer	2	Flew out of treeline and flew S	53.40642	-7.32302	Flying
2025-04-20-11-33-18	Meadow Pipit	1	Displaying	53.40662	-7.32403	Flying
2025-04-20-11-35-42	House Martin	1	Flying over the site	53.40707	-7.32242	Flying
2025-04-20-11-36-48	Yellowhammer	1	Flying over the site	53.40703	-7.3231	Flying
2025-04-20-11-39-01	Wood Pigeon	2	In suitable nesting habitat	53.4082	-7.32431	Flying
2025-04-20-11-42-03	Barn Swallow	1	Flying over	53.40678	-7.32173	Flying
2025-04-20-11-42-33	Meadow Pipit	1	Displaying	53.40637	-7.32136	Flying
2025-04-20-11-45-04	Winter Wren	1	In suitable nesting habitat	53.40523	-7.32242	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-11-51-30	Barn Swallow	1	Flying over the site	53.40795	-7.31926	Flying
2025-04-20-11-52-10	Chaffinch	1	Singing	53.40935	-7.31821	Flying
2025-04-20-11-52-46	Robin	1	Singing	53.40953	-7.31915	Flying
2025-04-20-11-53-25	Blackbird	1	Alarm calling	53.40952	-7.31955	Flying
2025-04-20-11-56-53	Song Thrush	1	Singing	53.40918	-7.3173	Flying
2025-04-20-11-57-26	Winter Wren	1	Alarm calling	53.40919	-7.31764	Flying
2025-04-20-11-57-56	Blackcap	1	Singing	53.4092	-7.31746	Flying
2025-04-20-12-00-09	Starling	1	Flying over the site	53.40847	-7.31676	Flying
2025-04-20-12-00-55	Wood Pigeon	2	Flying over the site	53.40741	-7.317	Flying
2025-04-20-12-03-43	Winter Wren	1	Singing	53.40914	-7.31682	Flying
2025-04-20-12-04-06	Winter Wren	1	Singing	53.40889	-7.31589	Flying
2025-04-20-12-05-42	Blackbird	1	In suitable habitat	53.40864	-7.31573	Flying
2025-04-20-12-06-58	Blackbird	1	In suitable nesting habitat	53.40936	-7.31639	Flying
2025-04-20-12-07-22	Song Thrush	1	Singing	53.40935	-7.31619	Flying
2025-04-20-12-07-52	Great Tit	1	Singing	53.40849	-7.31568	Flying
2025-04-20-12-08-14	Blackcap	1	Singing	53.40937	-7.31596	Flying
2025-04-20-12-08-30	Winter Wren	1	Singing	53.40943	-7.31567	Flying
2025-04-20-12-12-11	Chaffinch	1	Calling	53.40871	-7.31595	Flying
2025-04-20-12-12-41	Chiffchaff	1	Singing	53.40946	-7.3153	Flying
2025-04-20-12-13-22	Blackbird	1	In suitable nesting habitat	53.40835	-7.31558	Flying
2025-04-20-12-14-38	Goldfinch	2	In suitable nesting habitat	53.40824	-7.31548	Flying
2025-04-20-12-15-26	Blackbird	1	Alarm calling	53.40926	-7.31476	Flying
2025-04-20-12-15-43	Robin	1	Singing	53.40919	-7.3145	Flying
2025-04-20-12-16-07	Chiffchaff	1	Singing	53.40881	-7.31341	Flying
2025-04-20-12-16-32	Chaffinch	1	Singing	53.40914	-7.31438	Flying
2025-04-20-12-18-03	Rook	2	flying over the site	53.40863	-7.3147	Flying
2025-04-20-12-20-32	Robin	1	Singing	53.4086	-7.31283	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-12-22-07	Blackbird	1	Singing	53.40847	-7.31137	Flying
2025-04-20-12-22-30	Robin	1	Singing	53.40806	-7.31201	Flying
2025-04-20-12-23-09	Barn Swallow	1	Foraging	53.40798	-7.31227	Flying
2025-04-20-12-25-38	Winter Wren	1	Singing	53.4073	-7.31468	Flying
2025-04-20-12-26-02	Blue Tit	1	Singing	53.40712	-7.31522	Flying
2025-04-20-12-30-44	Jackdaw	3	Foraging	53.40716	-7.31787	Flying
2025-04-20-12-31-30	Linnet	1	Singing	53.40676	-7.31651	Flying
2025-04-20-12-34-10	Rook	6	Foraging	53.40774	-7.31809	Flying
2025-04-20-13-20-49	Winter Wren	1	Foraging	53.40266	-7.30772	Flying
2025-04-20-13-21-26	Robin	1	Singing	53.40254	-7.30774	Flying
2025-04-20-13-22-36	Dunnock	1	Singing	53.40259	-7.30838	Flying
2025-04-20-13-23-11	Blackcap	1	Singing	53.4026	-7.3077	Flying
2025-04-20-13-24-17	Blackbird	2	In suitable nesting habitat	53.40228	-7.30774	Flying
2025-04-20-13-25-04	Chaffinch	1	Calling	53.40207	-7.30772	Flying
2025-04-20-13-26-17	Winter Wren	1	Singing	53.40154	-7.3075	Flying
2025-04-20-13-27-18	Blackbird	3	Alarm calling	53.40132	-7.30746	Flying
2025-04-20-13-28-20	Barn Swallow	2	Foraging	53.4012	-7.30842	Flying
2025-04-20-13-29-22	Song Thrush	1	Singing	53.40125	-7.30416	Flying
2025-04-20-13-30-21	Blackbird	1	Alarm	53.40082	-7.30721	Flying
2025-04-20-13-31-24	Wood Pigeon	2	Flushed from suitable nesting habitat	53.40049	-7.30711	Flying
2025-04-20-13-32-30	Chaffinch	1	Calling	53.40042	-7.30709	Flying
2025-04-20-13-33-31	Dunnock	1	In suitable nesting habitat	53.40034	-7.30707	Flying
2025-04-20-13-34-21	Chaffinch	2	Singing	53.40022	-7.30705	Flying
2025-04-20-13-34-44	Winter Wren	1	Alarm calling	53.40032	-7.30705	Flying
2025-04-20-13-36-15	Dunnock	1	Alarm calling	53.39983	-7.30695	Flying
2025-04-20-13-36-37	Willow Warbler	1	Singing	53.39974	-7.30695	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-13-43-42	Goldfinch	2	In suitable nesting habitat	53.39936	-7.30731	Flying
2025-04-20-13-44-16	Yellowhammer	1	singing	53.39928	-7.30777	Flying
2025-04-20-13-45-59	Chaffinch	2	Flying over the site	53.40021	-7.30479	Flying
2025-04-20-13-47-30	Dunnock	1	Singing	53.39982	-7.30492	Flying
2025-04-20-13-47-50	Winter Wren	1	Singing	53.39965	-7.30561	Flying
2025-04-20-13-49-42	Dunnock	1	Foraging	53.4	-7.30422	Flying
2025-04-20-13-51-00	Chaffinch	1	Calling	53.40018	-7.30365	Flying
2025-04-20-13-52-45	Blackbird	1	Foraging	53.40063	-7.30432	Flying
2025-04-20-13-53-04	Chaffinch	1	Singing	53.40073	-7.30386	Flying
2025-04-20-13-54-40	Linnet	2	Flying over the site	53.40094	-7.30466	Flying
2025-04-20-13-55-12	Blackcap	1	Singing	53.4011	-7.30409	Flying
2025-04-20-13-55-44	Chaffinch	2	Calling	53.40146	-7.30414	Flying
2025-04-20-13-57-33	Robin	1	Singing	53.40185	-7.30442	Flying
2025-04-20-13-57-58	Chaffinch	1	calling	53.40193	-7.30439	Flying
2025-04-20-13-59-18	Robin	1	Singing	53.40238	-7.30461	Flying
2025-04-20-13-59-48	Yellowhammer	1	Calling	53.40273	-7.30526	Flying
2025-04-20-14-00-50	Blackbird	2	In suitable nesting habitat	53.40249	-7.30682	Flying
2025-04-20-14-02-32	Blackbird	1	Singing	53.40248	-7.30586	Flying
2025-04-20-14-04-08	Chaffinch	1	Singing	53.40272	-7.30715	Flying
2025-04-20-14-09-12	Dunnock	1	Flying over the site	53.39921	-7.308	Flying
2025-04-20-14-09-51	Goldfinch	1	In suitable nesting habitat	53.40028	-7.30691	Flying
2025-04-20-14-12-44	Robin	1	Singing	53.39923	-7.30918	Flying
2025-04-20-14-13-55	Wood Pigeon	2	Flushed from suitable nest site	53.39971	-7.30929	Flying
2025-04-20-14-15-52	Chaffinch	2	In suitable nesting habitat	53.39981	-7.30927	Flying
2025-04-20-14-18-36	Winter Wren	1	Singing	53.40021	-7.30944	Flying
2025-04-20-14-18-56	Blackbird	1	Singing	53.4004	-7.30949	Flying
2025-04-20-14-20-09	Winter Wren	1	Singing	53.40052	-7.30952	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-14-20-31	Song Thrush	1	Singing	53.40033	-7.30954	Flying
2025-04-20-14-24-15	Winter Wren	1	Singing	53.40073	-7.30946	Flying
2025-04-20-14-24-43	Blackcap	1	Singing	53.40082	-7.30947	Flying
2025-04-20-14-33-21	Blackcap	1	Singing	53.40215	-7.30975	Flying
2025-04-20-14-33-39	Winter Wren	1	Calling	53.40232	-7.30982	Flying
2025-04-20-14-34-38	Dunnock	1	Foraging	53.40293	-7.30963	Flying
2025-04-20-14-35-23	Great Tit	2	With food	53.40287	-7.30989	Flying
2025-04-20-14-36-53	Song Thrush	1	Alarm calling	53.40348	-7.30996	Flying
2025-04-20-14-37-59	Jackdaw	7	In suitable nesting habitat	53.40377	-7.30877	Flying
2025-04-20-14-38-30	Barn Swallow	4	in suitable nesting habitat	53.40375	-7.30865	Flying
2025-04-20-14-39-27	Blackbird	1	#NAME?	53.40335	-7.30919	Flying
2025-04-20-15-09-31	Winter Wren	1	Singing	53.40278	-7.30735	Flying
2025-04-20-15-09-57	Wood Pigeon	1	in suitable nesting habitat	53.40239	-7.30647	Flying
2025-04-20-15-11-54	Wood Pigeon	2	In suitable nesting habitat	53.40196	-7.3051	Flying
2025-04-20-15-12-18	Song Thrush	1	Singing	53.40257	-7.3056	Flying
2025-04-20-15-13-45	Chaffinch	1	Calling	53.40279	-7.30509	Flying
2025-04-20-15-14-36	Winter Wren	1	Alarm calling	53.40286	-7.30497	Flying
2025-04-20-15-14-55	Blue Tit	1	Calling	53.40287	-7.30487	Flying
2025-04-20-15-16-11	Blackbird	1	Singing	53.40289	-7.30484	Flying
2025-04-20-15-16-27	Chaffinch	1	Singing	53.40291	-7.3048	Flying
2025-04-20-15-16-45	Robin	1	Singing	53.40297	-7.30467	Flying
2025-04-20-15-17-44	Blackbird	1	Alarm	53.40302	-7.30479	Flying
2025-04-20-15-19-30	Blackbird	1	Alarm calling	53.40323	-7.30487	Flying
2025-04-20-15-19-49	Robin	1	Singing	53.40332	-7.30486	Flying
2025-04-20-15-21-17	Chaffinch	1	Singing	53.40411	-7.3044	Flying
2025-04-20-15-21-36	Chaffinch	1	Calling	53.40369	-7.30453	Flying
2025-04-20-15-21-53	Blackcap	1	Singing	53.40479	-7.30446	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-15-23-19	Blackbird	1	In suitable nesting habitat	53.40483	-7.30449	Flying
2025-04-20-15-26-29	Yellowhammer	1	Calling	53.40548	-7.30695	Flying
2025-04-20-15-27-10	Blackbird	1	Foraging	53.4059	-7.30497	Flying
2025-04-20-15-27-29	Winter Wren	1	alarm calling	53.4051	-7.30442	Flying
2025-04-20-15-27-55	Blackcap	1	Singing	53.40554	-7.3042	Flying
2025-04-20-15-28-22	Chaffinch	1	Singing	53.40599	-7.3044	Flying
2025-04-20-15-29-42	Goldfinch	2	Flying over the site	53.40498	-7.30493	Flying
2025-04-20-15-31-10	Chaffinch	1	Singing	53.40599	-7.30465	Flying
2025-04-20-15-31-31	Blackbird	2	Singing	53.40615	-7.30531	Flying
2025-04-20-15-31-51	Starling	2	In suitable nesting habitat	53.40591	-7.30415	Flying
2025-04-20-15-34-09	Winter Wren	1	Singing	53.40613	-7.30517	Flying
2025-04-20-15-36-41	Winter Wren	1	Singing	53.407	-7.30778	Flying
2025-04-20-15-37-25	Blackbird	1	Alarm calling	53.40653	-7.30753	Flying
2025-04-20-15-37-46	Winter Wren	1	Alarm calling	53.40644	-7.30757	Flying
2025-04-20-15-39-20	Yellowhammer	1	Calling	53.4073	-7.30876	Flying
2025-04-20-15-41-08	Blackcap	1	Singing	53.40752	-7.31029	Flying
2025-04-20-15-41-23	Wood Pigeon	2	In suitable nesting habitat	53.40764	-7.31109	Flying
2025-04-20-15-41-50	Blackbird	1	Alarm calling	53.4075	-7.31127	Flying
2025-04-20-15-42-09	Chaffinch	1	Singing	53.40745	-7.31135	Flying
2025-04-20-15-44-35	Winter Wren	1	Calling	53.40759	-7.31085	Flying
2025-04-20-15-44-59	Chaffinch	1	Singing	53.40763	-7.31117	Flying
2025-04-20-15-45-35	Winter Wren	1	Alarm calling	53.40756	-7.31053	Flying
2025-04-20-15-46-03	Goldcrest	1	calling	53.40759	-7.31068	Flying
2025-04-20-15-47-49	Wood Pigeon	1	Flying over	53.4068	-7.31192	Flying
2025-04-20-15-48-07	Barn Swallow	2	Foraging	53.40655	-7.31223	Flying
2025-04-20-15-49-33	Blackcap	1	Singing	53.40638	-7.31285	Flying
2025-04-20-15-49-54	Yellowhammer	1	Calling	53.40576	-7.31371	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-15-50-14	Yellowhammer	2	Calling	53.40528	-7.31284	Flying
2025-04-20-15-51-16	Winter Wren	1	Calling	53.40622	-7.31316	Flying
2025-04-20-15-52-18	Chaffinch	1	Singing	53.40593	-7.3135	Flying
2025-04-20-15-52-50	Blackcap	1	Singing	53.40568	-7.31383	Flying
2025-04-20-15-53-07	Winter Wren	1	Singing	53.40612	-7.31329	Flying
2025-04-20-15-54-20	Winter Wren	1	alarm calling	53.40548	-7.31398	Flying
2025-04-20-15-56-09	Chaffinch	1	Singing	53.40541	-7.31335	Flying
2025-04-20-15-57-10	Robin	1	In suitable nesting habitat	53.40535	-7.31314	Flying
2025-04-20-15-59-10	Linnet	2	In suitable nesting habitat	53.40529	-7.31293	Flying
2025-04-20-16-00-17	Greenfinch	1	Calling	53.40534	-7.31297	Flying
2025-04-20-16-00-46	Greenfinch	1	Calling	53.40585	-7.3136	Flying
2025-04-20-16-02-12	Goldfinch	1	In suitable nesting habitat	53.40537	-7.31264	Flying
2025-04-20-16-02-38	Winter Wren	1	Singing	53.40533	-7.31244	Flying
2025-04-20-16-03-01	Blackbird	1	Singing	53.40539	-7.31324	Flying
2025-04-20-16-03-44	Goldfinch	2	In suitable nesting habitat	53.40514	-7.31168	Flying
2025-04-20-16-06-27	Blackbird	1	Alarm calling	53.40512	-7.31105	Flying
2025-04-20-16-06-51	Chaffinch	2	In suitable nesting habitat	53.40508	-7.31121	Flying
2025-04-20-16-07-15	Winter Wren	1	Singing	53.40514	-7.31138	Flying
2025-04-20-16-09-52	Goldfinch	1	Singing	53.40499	-7.31049	Flying
2025-04-20-16-10-14	Winter Wren	1	In suitable nesting habitat	53.40478	-7.30992	Flying
2025-04-20-16-51-01	Yellowhammer	1	In suitable nesting habitat	53.39754	-7.3274	Flying
2025-04-20-16-51-39	Raven	4	Nest with chicks.	53.39674	-7.3277	Flying
2025-04-20-16-56-33	Chaffinch	1	Calling	53.39738	-7.32813	Flying
2025-04-20-16-57-04	Meadow Pipit	1	In suitable nesting habitat	53.39666	-7.33031	Flying
2025-04-20-16-59-16	Meadow Pipit	1	In suitable nesting habitat	53.39626	-7.33237	Flying
2025-04-20-17-01-06	Blackcap	1	Singing	53.39681	-7.33402	Flying
2025-04-20-17-01-44	Robin	1	Singing	53.39686	-7.33388	Flying

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2025-04-20-17-02-33	Meadow Pipit	1	In suitable nesting habitat	53.39591	-7.33474	Flying
2025-04-20-17-03-17	Wood Pigeon	1	in suitable nesting habitat	53.39799	-7.33526	Flying
2025-04-20-17-05-34	Meadow Pipit	1	In suitable nesting habitat	53.39598	-7.33597	Flying
2025-04-20-17-06-01	Meadow Pipit	1	In suitable nesting habitat	53.39644	-7.33575	Flying
2025-04-20-17-06-28	Chiffchaff	1	Singing	53.39683	-7.33659	Flying
2025-04-20-17-07-19	Robin	1	Singing	53.39575	-7.33648	Flying
2025-04-20-17-07-40	Willow Warbler	1	Singing	53.39599	-7.33691	Flying
2025-04-20-17-08-10	Winter Wren	1	Singing	53.39588	-7.33676	Flying
2025-04-20-17-08-32	Chaffinch	1	Singing	53.39576	-7.33681	Flying
2025-04-20-17-11-08	Blackcap	1	singing	53.39572	-7.33632	Flying
2025-04-20-17-13-49	Blue Tit	1	Singing	53.39748	-7.33646	Flying
2025-04-20-17-14-08	Chaffinch	1	Calling	53.39745	-7.33643	Flying
2025-04-20-17-14-24	Blackbird	1	In suitable nesting habitat	53.3975	-7.33641	Flying
2025-04-20-17-14-57	Chaffinch	1	Singing	53.39806	-7.33609	Flying
2025-04-20-17-15-14	Chaffinch	1	Singing	53.39778	-7.33632	Flying
2025-04-20-17-15-37	Winter Wren	1	Foraging	53.39734	-7.33646	Flying
2025-04-20-17-15-57	Long-tailed Tit	1	In suitable nesting habitat	53.39724	-7.3365	Flying
2025-04-20-17-18-51	Goldfinch	1	In suitable nesting habitat	53.39747	-7.33469	Flying
2025-04-20-17-20-35	Chiffchaff	1	Singing	53.39731	-7.33478	Flying
2025-04-20-17-20-52	Goldfinch	1	Singing	53.39721	-7.33479	Flying
2025-04-20-17-21-15	Blackbird	1	Alarm calling	53.39739	-7.33461	Flying
2025-04-20-17-21-42	Chaffinch	1	singing	53.3971	-7.3347	Flying
2025-04-20-17-23-39	Blackcap	1	Singing	53.39714	-7.33484	Flying
2025-04-20-17-24-28	Chaffinch	1	Singing	53.39745	-7.33446	Flying
2025-04-20-17-24-58	Winter Wren	1	Singing	53.39743	-7.33425	Flying
2025-04-20-17-26-06	Robin	1	Singing	53.39714	-7.33396	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-17-27-05	Wood Pigeon	1	In suitable nesting habitat	53.39694	-7.33393	Flying
2025-04-20-17-28-33	Blackbird	1	Alarm calling	53.39685	-7.33435	Flying
2025-04-20-17-32-14	Hooded Crow	1	In suitable nesting habitat	53.40015	-7.33468	Flying
2025-04-20-17-33-35	Chiffchaff	1	Singing	53.39827	-7.33618	Flying
2025-04-20-17-33-57	Chaffinch	1	Calling	53.39879	-7.33628	Flying
2025-04-20-17-34-41	Blackbird	1	Singing	53.3984	-7.33618	Flying
2025-04-20-17-35-11	Blackcap	1	Singing	53.39834	-7.33623	Flying
2025-04-20-17-35-27	Goldfinch	1	Singing	53.39827	-7.33623	Flying
2025-04-20-17-35-49	Goldcrest	1	Calling	53.3985	-7.33617	Flying
2025-04-20-17-37-33	Blackbird	1	-	53.39964	-7.33624	Flying
2025-04-20-17-39-44	Yellowhammer	1	Calling	53.40005	-7.33754	Flying
2025-04-20-17-40-04	Yellowhammer	1	Calling	53.39977	-7.33592	Flying
2025-04-20-17-40-30	Chaffinch	1	Calling	53.3997	-7.33615	Flying
2025-04-20-17-42-39	Chaffinch	1	Calling	53.39941	-7.33662	Flying
2025-04-20-17-43-53	Robin	1	Singing	53.39983	-7.33731	Flying
2025-04-20-17-47-21	Blackbird	1	Calling	53.39986	-7.33544	Flying
2025-04-20-17-47-39	Chaffinch	1	Calling	53.3998	-7.33555	Flying
2025-04-20-17-48-45	Buzzard	1	In suitable nesting habitat	53.40025	-7.33438	Flying
2025-04-20-17-51-36	Blackbird	1	Singing	53.39992	-7.33411	Flying
2025-04-20-17-52-10	Wood Pigeon	1	Flying over the site	53.39928	-7.33299	Flying
2025-04-20-17-55-44	Robin	1	Singing	53.39952	-7.33329	Flying
2025-04-20-17-56-47	Chaffinch	1	foraging	53.39948	-7.33302	Flying
2025-04-20-17-57-36	Chaffinch	1	Calling	53.39922	-7.33243	Flying
2025-04-20-17-58-35	Blackbird	1	In suitable nesting habitat	53.39929	-7.33257	Flying
2025-04-20-17-58-59	Winter Wren	1	Singing	53.39922	-7.33226	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-04-20-18-00-01	Wood Pigeon	1	Flushed from suitable nesting habitat	53.39984	-7.3312	Flying
2025-04-20-18-00-58	Robin	1	Singing	53.39952	-7.3318	Flying
2025-04-20-18-02-03	Robin	1	Singing	53.3997	-7.33145	Flying
2025-04-20-18-02-25	Winter Wren	1	Singing	53.39977	-7.33135	Flying
2025-04-20-18-03-25	Winter Wren	1	Foraging	53.39937	-7.33114	Flying
2025-04-20-18-05-33	Chaffinch	1	Calling	53.40003	-7.32957	Flying
2025-04-20-18-08-35	Goldfinch	1	Singing	53.3996	-7.32862	Flying
2025-04-20-18-09-05	Blackbird	1	In suitable nesting habitat	53.3993	-7.32825	Flying
2025-04-20-18-10-42	Chaffinch	1	Singing	53.39933	-7.3273	Flying
2025-04-20-18-12-10	Robin	1	Singing	53.39937	-7.32647	Flying
2025-04-20-18-12-34	Dunnock	1	singing	53.39937	-7.32671	Flying
2025-04-20-18-13-28	Blackcap	1	Singing	53.39936	-7.32565	Flying
2025-04-20-18-14-19	Chaffinch	1	Singing	53.3994	-7.32598	Flying
2025-04-20-18-15-22	Robin	1	Singing	53.39898	-7.32612	Flying
2025-04-20-18-15-53	Song Thrush	1	Alarm calling	53.39911	-7.326	Flying
2025-04-20-18-16-22	Chaffinch	1	Calli g	53.39915	-7.32597	Flying
2025-04-20-18-17-47	Winter Wren	1	Singing	53.39818	-7.32644	Flying
2025-04-20-18-18-37	Blackbird	1	In suitable nesting habitat	53.39811	-7.3266	Flying
2025-04-20-18-19-30	Yellowhammer	1	Foraging	53.39828	-7.32667	Flying
2025-04-20-18-24-07	Pied Wagtail	1	In suitable nesting habitat	53.3971	-7.32821	Flying
2025-04-20-18-24-07	Blackbird	1	-	53.3971	-7.32821	Flying
2025-05-04-10-30-20	Winter Wren	1	Singing	53.39588	-7.31291	Flying
2025-05-04-10-30-49	Robin	1	Singing	53.39453	-7.31373	Flying
2025-05-04-10-32-23	Blackbird	1	Singing	53.39503	-7.31413	Flying
2025-05-04-10-34-42	Wood Pigeon	1	flying W over site	53.39531	-7.30758	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-10-35-41	Song Thrush	1	Alarm calling	53.39476	-7.314	Probable Breeding
2025-05-04-10-36-36	Winter Wren	1	Singing	53.39485	-7.31265	Flying
2025-05-04-10-37-14	Winter Wren	1	Singing	53.39467	-7.31383	Flying
2025-05-04-10-37-39	Blue Tit	2	In suitable nesting habitat	53.39448	-7.3138	Possible Breeding
2025-05-04-10-38-17	Chaffinch	1	Calling	53.39435	-7.31373	Flying
2025-05-04-10-40-03	Wood Pigeon	1	Perched in suitable nesting habitat	53.39426	-7.31145	Possible Breeding
2025-05-04-10-40-36	Winter Wren	1	singing	53.39423	-7.312	Flying
2025-05-04-10-41-14	Sky Lark	1	Displaying	53.39392	-7.31	Probable Breeding
2025-05-04-10-41-47	Winter Wren	1	Alarm calling	53.39417	-7.31321	Probable Breeding
2025-05-04-10-42-12	Long-tailed Tit	1	In suitable nesting habitat	53.39407	-7.31353	Possible Breeding
2025-05-04-10-44-16	Yellowhammer	1	Flying E over site	53.39382	-7.31287	Flying
2025-05-04-10-47-25	Blackcap	1	Singing	53.39377	-7.31335	Flying
2025-05-04-10-48-34	Blackcap	1	Singing	53.39388	-7.31395	Flying
2025-05-04-10-49-10	Blackbird	1	Alarm calling	53.39343	-7.31318	Probable Breeding
2025-05-04-10-50-15	Blackbird	1	With food	53.39418	-7.31266	Confirmed Breeding
2025-05-04-10-51-32	Blackbird	1	Alat calling	53.39426	-7.31116	Possible Breeding
2025-05-04-10-51-57	Chaffinch	1	Singing	53.39311	-7.31296	Flying
2025-05-04-10-53-34	Meadow Pipit	1	in suitable nesting habitat	53.39279	-7.31162	Possible Breeding

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-10-54-18	Song Thrush	1	Singing	53.39254	-7.31119	Flying
2025-05-04-10-54-53	Meadow Pipit	1	In suitable nesting habitat	53.39315	-7.3108	Possible Breeding
2025-05-04-10-56-04	Yellowhammer	2	In Suitable nesting habitat	53.39244	-7.3115	Possible breeding
2025-05-04-10-57-00	Winter Wren	1	Singing	53.3923	-7.3119	Flying
2025-05-04-10-57-30	Meadow Pipit	1	Displaying	53.39271	-7.31105	Probable Breeding
2025-05-04-10-58-22	Dunnock	1	Singing	53.39236	-7.31172	Flying
2025-05-04-10-59-32	Winter Wren	1	Singing	53.39212	-7.31242	Flying
2025-05-04-10-59-50	Chaffinch	1	Singing	53.39234	-7.31257	Flying
2025-05-04-11-00-08	Chaffinch	1	Singing	53.39192	-7.31229	Flying
2025-05-04-11-01-25	Robin	1	Singing	53.39218	-7.31245	Flying
2025-05-04-11-01-53	Song Thrush	1	Singing	53.39184	-7.3123	Flying
2025-05-04-11-04-01	Blackbird	1	Alarm call	53.39144	-7.31208	Possible Breeding
2025-05-04-11-04-28	Song Thrush	1	Singing	53.3909	-7.31177	Flying
2025-05-04-11-05-37	Blackcap	1	Singing	53.39111	-7.31196	Flying
2025-05-04-11-07-35	Meadow Pipit	1	Suitable nesting habitat	53.39127	-7.31131	Possible Breeding
2025-05-04-11-09-21	Raven	2	Flying NW over the site	53.39293	-7.30811	Flying
2025-05-04-11-10-00	Blackcap	1	Singing	53.39013	-7.31061	Flying
2025-05-04-11-10-16	Willow Warbler	1	Singing	53.39021	-7.31033	Flying
2025-05-04-11-11-46	Meadow Pipit	3	Territorial dispute	53.39194	-7.31045	Probable Breeding
2025-05-04-11-12-28	Willow Warbler	1	Singing	53.39057	-7.30979	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-11-14-29	Chaffinch	1	Calling	53.39153	-7.30839	Flying
2025-05-04-11-14-46	Dunnock	1	Singing	53.39136	-7.30864	Flying
2025-05-04-11-15-12	Willow Warbler	1	Singing	53.39111	-7.30896	Flying
2025-05-04-11-18-23	Winter Wren	1	Singing	53.39181	-7.30808	Flying
2025-05-04-11-18-50	Song Thrush	1	Flying SE over the site	53.39255	-7.30895	Flying
2025-05-04-11-19-25	Winter Wren	1	Singing	53.39273	-7.30905	Flying
2025-05-04-11-21-53	Meadow Pipit	1	Flew off ground in suitable nesting habitat	53.39224	-7.30992	Flying
2025-05-04-11-24-21	Sky Lark	1	Displaying	53.39293	-7.3096	Probable Breeding
2025-05-04-11-26-37	Willow Warbler	1	Singing	53.39365	-7.30955	Flying
2025-05-04-11-27-01	Winter Wren	1	Singing	53.39392	-7.30976	Flying
2025-05-04-11-27-28	Meadow Pipit	2	Displaying	53.39312	-7.30988	Probable Breeding
2025-05-04-11-28-32	Winter Wren	1	Singing	53.39428	-7.31	Flying
2025-05-04-11-30-07	Robin	1	In suitable nesting habitat	53.39429	-7.31078	Possible Breeding
2025-05-04-11-30-39	Sky Lark	1	Displaying	53.3935	-7.31016	Probable Breeding
2025-05-04-11-31-09	Barn Swallow	1	Foraging	53.39438	-7.31141	Flying
2025-05-04-11-34-51	Yellowhammer	2	Suitable nesting habitat male singing female present	53.39499	-7.3114	Possible Breeding
2025-05-04-11-37-51	Chaffinch	1	Singing	53.39426	-7.3116	Flying
2025-05-04-11-38-14	Blue Tit	1	Foraging	53.39424	-7.31168	Flying
2025-05-04-11-41-49	Chaffinch	1	Suitable nesting habitat	53.3946	-7.31252	Possible Breeding

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-11-43-42	Linnet	1	Flying W over the site	53.39432	-7.31198	Flying
2025-05-04-11-46-50	Chaffinch	1	Singing	53.39451	-7.3102	Flying
2025-05-04-11-47-14	Blackcap	1	Singing	53.39465	-7.31144	Flying
2025-05-04-11-47-39	Goldfinch	2	Alarm calling in suitable nesting habitat	53.39514	-7.31137	Probable Breeding
2025-05-04-11-48-25	Winter Wren	1	Singing	53.39507	-7.3102	Flying
2025-05-04-11-52-55	Blackbird	1	Alarm calling	53.39542	-7.31	Probable Breeding
2025-05-04-11-53-19	Yellowhammer	1	Perched in suitable nesting habitat	53.3954	-7.31137	Probable Breeding
2025-05-04-11-54-03	Blackbird	2	Singing	53.39553	-7.30995	Flying
2025-05-04-11-55-05	Blackcap	1	Singing	53.39556	-7.30996	Flying
2025-05-04-11-56-37	Buzzard	1	Mobbed by RN flew N	53.39665	-7.31372	Flying
2025-05-04-11-57-38	Raven	1	Mobbing a BZ flew S	53.39673	-7.31386	Flying
2025-05-04-11-59-27	Blackbird	1	Suitable nesting habitat	53.39536	-7.31281	Possible Breeding
2025-05-04-11-59-56	Meadow Pipit	1	With food	53.39477	-7.31141	Confirmed Breeding
2025-05-04-12-00-21	Meadow Pipit	1	In suitable nesting habitat	53.39523	-7.31135	Possible Breeding
2025-05-04-12-01-44	Meadow Pipit	1	Suitable nesting habitat	53.39622	-7.31133	Possible Breeding
2025-05-04-12-02-34	Linnet	2	In suitable nesting habitat	53.3963	-7.31124	Possible Breeding
2025-05-04-12-03-20	Winter Wren	1	Singing	53.39632	-7.30966	Flying
2025-05-04-12-03-51	Chaffinch	1	Singing	53.39639	-7.3096	Flying
2025-05-04-12-04-22	Chaffinch	1	Singing	53.39723	-7.31122	Flying
2025-05-04-12-05-36	Yellowhammer	1	Calling	53.39749	-7.31117	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-12-06-01	Chaffinch	1	Singing	53.39738	-7.31023	Flying
2025-05-04-12-07-43	Robin	1	Singing	53.39732	-7.31117	Flying
2025-05-04-12-08-07	Chaffinch	1	Calling	53.39744	-7.31117	Flying
2025-05-04-12-08-44	Song Thrush	1	Singing	53.39751	-7.31061	Flying
2025-05-04-12-09-26	Barn Swallow	1	Foraging	53.39699	-7.31039	Flying
2025-05-04-12-12-16	Chaffinch	1	Calling	53.39703	-7.30933	Flying
2025-05-04-12-12-34	Blackbird	1	Alarm calling	53.3969	-7.30943	Probable Breeding
2025-05-04-12-12-55	Linnet	2	Flying NW over site	53.39717	-7.30956	Flying
2025-05-04-12-13-28	Robin	1	Singing	53.39705	-7.3094	Flying
2025-05-04-12-14-15	Blackcap	1	Singing	53.39781	-7.30922	Flying
2025-05-04-12-14-43	Chaffinch	1	Singing	53.39799	-7.30916	Flying
2025-05-04-12-15-04	Meadow Pipit	1	Calling	53.39724	-7.30981	Flying
2025-05-04-12-15-33	Winter Wren	1	Singing	53.39738	-7.30927	Flying
2025-05-04-12-16-45	Blackbird	1	Alarm calling	53.39766	-7.30921	Probable Breeding
2025-05-04-12-17-09	Winter Wren	1	Singing	53.39839	-7.30911	Flying
2025-05-04-12-17-29	Chaffinch	1	Calling	53.39828	-7.30914	Flying
2025-05-04-12-17-46	Chaffinch	1	Calling	53.39853	-7.30942	Flying
2025-05-04-12-18-09	Blackbird	1	Singing	53.39818	-7.30917	Flying
2025-05-04-12-19-08	Yellowhammer	1	Calling	53.39822	-7.31118	Flying
2025-05-04-12-20-14	Blackbird	3	Territorial dispute	53.39767	-7.31124	Probable Breeding
2025-05-04-12-20-41	Song Thrush	1	Singing	53.3979	-7.30919	Flying
2025-05-04-12-21-49	Chaffinch	1	Flew into suitable nesting habitat	53.39786	-7.31146	Possible Breeding
2025-05-04-12-22-28	Blackcap	1	Singing	53.39818	-7.31159	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-12-25-02	Chaffinch	1	Singing	53.39812	-7.31194	Flying
2025-05-04-12-25-21	Robin	1	Singing	53.39786	-7.31191	Flying
2025-05-04-12-27-01	Winter Wren	1	Suitable nesting habitat	53.39798	-7.31234	Possible Breeding
2025-05-04-12-27-27	Robin	1	Singing	53.39796	-7.31262	Flying
2025-05-04-12-28-50	Yellowhammer	1	Singing	53.39769	-7.31343	Flying
2025-05-04-12-29-15	Barn Swallow	1	Foraging	53.39768	-7.31302	Flying
2025-05-04-12-29-39	Chiffchaff	1	Singing	53.39773	-7.31426	Flying
2025-05-04-12-31-05	Winter Wren	1	Singing	53.39781	-7.31387	Flying
2025-05-04-12-31-25	Chaffinch	1	Singing	53.39772	-7.31446	Flying
2025-05-04-12-31-42	Robin	1	Singing	53.39772	-7.31451	Flying
2025-05-04-12-32-37	Blackcap	1	Singing	53.39735	-7.31491	Flying
2025-05-04-12-32-59	Dunnock	1	Suitable nesting habitat	53.39741	-7.31494	Possible Breeding
2025-05-04-12-33-59	Song Thrush	1	Singing	53.39717	-7.31484	Flying
2025-05-04-12-34-26	Winter Wren	1	singing	53.39722	-7.31483	Flying
2025-05-04-13-50-36	Yellowhammer	1	Singing	53.39815	-7.30911	Flying
2025-05-04-13-51-01	Blackbird	1	Singing	53.39883	-7.30677	Flying
2025-05-04-13-51-19	Yellowhammer	1	Singing	53.39906	-7.30616	Flying
2025-05-04-13-52-02	Blackcap	1	Singing	53.39874	-7.30674	Flying
2025-05-04-13-52-20	Winter Wren	1	Singing	53.39873	-7.30673	Flying
2025-05-04-13-52-43	Chaffinch	2	In suitable nesting habitat	53.39887	-7.3068	Possible Breeding
2025-05-04-13-54-58	Blackcap	1	Singing	53.39857	-7.30669	Flying
2025-05-04-13-56-45	Chaffinch	1	#NAME?	53.39752	-7.30926	Possible Breeding
2025-05-04-13-58-28	Yellowhammer	1	Singing	53.3972	-7.30631	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-13-58-57	Blackcap	1	Singing	53.39767	-7.30637	Flying
2025-05-04-13-59-23	Robin	1	Singing	53.39818	-7.30665	Flying
2025-05-04-14-00-45	Hooded Crow	1	Flying over the site	53.39572	-7.30506	Flying
2025-05-04-14-04-08	Yellowhammer	1	Calling	53.39697	-7.30707	Flying
2025-05-04-14-04-26	Goldfinch	2	In suitable nesting habitat	53.3966	-7.30698	Possible Breeding
2025-05-04-14-05-12	Sky Lark	1	Displaying	53.39619	-7.30854	Probable Breeding
2025-05-04-14-09-05	Dunnock	1	Calling	53.39645	-7.30697	Flying
2025-05-04-14-10-19	Barn Swallow	1	Foraging	53.39647	-7.30766	Flying
2025-05-04-14-10-52	Chaffinch	1	Calling	53.39669	-7.30947	Flying
2025-05-04-14-12-13	Meadow Pipit	1	Perched	53.39568	-7.30723	Flying
2025-05-04-14-12-54	Winter Wren	1	Alarm calling	53.39672	-7.30736	Probable Breeding
2025-05-04-14-15-04	Meadow Pipit	2	Territorial dispute	53.39557	-7.30688	Probable Breeding
2025-05-04-14-15-43	Yellowhammer	1	Calling	53.39593	-7.30981	Flying
2025-05-04-14-16-33	Sky Lark	1	Displaying	53.39518	-7.3082	Probable Breeding
2025-05-04-14-21-40	Northern Lapwing	1	Flew off ground flew S	53.39389	-7.30699	Flying
2025-05-04-14-24-05	Song Thrush	1	Alarm calling	53.39444	-7.3069	Probable Breeding
2025-05-04-14-25-17	Reed Bunting	1	In suitable habitat	53.39436	-7.309	Possible Breeding
2025-05-04-14-25-48	Sky Lark	1	Displaying	53.39392	-7.3088	Probable Breeding

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-14-26-14	Meadow Pipit	1	Perched in suitable nesting habitat	53.39437	-7.30878	Possible Breeding
2025-05-04-14-27-08	Goldfinch	1	Alarm calling	53.39438	-7.30834	Probable Breeding
2025-05-04-14-29-10	Linnet	1	In suitable nesting habitat	53.39431	-7.30939	Flying
2025-05-04-14-33-27	Meadow Pipit	2	In suitable nesting habitat	53.39352	-7.30863	Flying
2025-05-04-14-35-12	Sky Lark	1	Displaying	53.39379	-7.30764	Flying
2025-05-04-14-35-54	Willow Warbler	1	Singing	53.3924	-7.30718	Flying
2025-05-04-14-36-34	Winter Wren	1	Singing	53.39265	-7.30667	Flying
2025-05-04-14-37-13	Sky Lark	2	1 displaying	53.39318	-7.30727	Flying
2025-05-04-14-39-12	Meadow Pipit	2	On ground in suitable nesting habitat	53.39327	-7.30654	Flying
2025-05-04-14-39-55	Robin	1	Singing	53.39302	-7.30612	Flying
2025-05-04-14-40-20	Willow Warbler	1	Singing	53.3931	-7.30595	Flying
2025-05-04-14-43-33	Northern Lapwing	1	Flew off ground called flew S, no distraction display or signs of nesting.	53.39401	-7.30554	Flying
2025-05-04-14-45-02	Meadow Pipit	1	Singing	53.39427	-7.30608	Flying
2025-05-04-14-47-46	Blue Tit	1	Alarm calling	53.3942	-7.30483	Flying
2025-05-04-14-48-13	Blackbird	1	Alarm calling	53.39433	-7.30492	Flying
2025-05-04-14-49-42	Meadow Pipit	1	in suitable nesting habitat	53.39374	-7.30579	Flying
2025-05-04-14-59-21	Robin	1	Singing	53.39324	-7.30543	Flying
2025-05-04-15-00-03	Long-tailed Tit	1	Foraging	53.39327	-7.30556	Flying
2025-05-04-15-05-28	Meadow Pipit	3	Territorial dispute	53.3931	-7.30376	Flying
2025-05-04-15-06-07	Sky Lark	1	Displaying	53.39331	-7.30287	Flying
2025-05-04-15-07-20	Blackcap	1	Singing	53.39342	-7.30185	Flying
2025-05-04-15-07-42	Reed Bunting	1	Male in suitable nesting habitat	53.39312	-7.30237	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-15-08-16	Blackbird	1	singing	53.39364	-7.30127	Flying
2025-05-04-15-09-15	Blue Tit	1	Alarm calling	53.39407	-7.30098	Flying
2025-05-04-15-09-36	Blackcap	1	Singing	53.39378	-7.30093	Flying
2025-05-04-15-09-52	Winter Wren	1	Alarm calling	53.39374	-7.30097	Flying
2025-05-04-15-11-06	Chaffinch	1	Singing,	53.39459	-7.30139	Flying
2025-05-04-15-11-50	Wood Pigeon	2	flushed from suitable nesting habitat	53.39463	-7.30162	Flying
2025-05-04-15-12-28	Winter Wren	1	Singing	53.39543	-7.30211	Flying
2025-05-04-15-12-50	Blackbird	1	Singing	53.3946	-7.30226	Flying
2025-05-04-15-14-15	Blackcap	1	Singing	53.39459	-7.30117	Flying
2025-05-04-15-14-40	Blackbird	-	-	53.39546	-7.30229	Flying
2025-05-04-15-14-50	Robin	1	Singing	53.39462	-7.30176	Flying
2025-05-04-15-15-27	Chaffinch	1	Calling	53.39425	-7.30102	Flying
2025-05-04-15-16-48	Pheasant	1	Suitable nesting habitat	53.39569	-7.30221	Flying
2025-05-04-15-17-18	Blackbird	1	Alarm calling	53.39524	-7.30154	Flying
2025-05-04-15-17-36	Blackcap	1	Singing	53.39518	-7.30151	Flying
2025-05-04-15-17-54	Winter Wren	1	Singing	53.39459	-7.30236	Flying
2025-05-04-15-18-19	Chaffinch	1	Singing	53.39503	-7.30137	Flying
2025-05-04-15-18-39	Robin	1	Singing	53.39537	-7.30165	Flying
2025-05-04-15-21-26	Dunnock	1	Foraging	53.39441	-7.30395	Flying
2025-05-04-15-22-00	Meadow Pipit	1	in suitable nesting habitat	53.39423	-7.30409	Flying
2025-05-04-15-23-30	Meadow Pipit	1	In suitable nesting habitat	53.39521	-7.30482	Flying
2025-05-04-15-24-17	Song Thrush	1	Singing	53.39555	-7.30281	Flying
2025-05-04-15-24-45	Starling	1	Flying over the site	53.39599	-7.30397	Flying
2025-05-04-15-25-17	Blackcap	1	Singing	53.39565	-7.30319	Flying
2025-05-04-15-26-20	Winter Wren	1	Alarm calling	53.39575	-7.3035	Flying
2025-05-04-15-26-46	Winter Wren	1	Alarm calling	53.39581	-7.30391	Flying
2025-05-04-15-28-11	Sky Lark	1	Displaying	53.39509	-7.30568	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-15-29-31	Sky Lark	1	Displaying	53.39491	-7.3064	Flying
2025-05-04-15-31-05	Chaffinch	1	Flying over the site	53.39669	-7.30624	Flying
2025-05-04-15-33-02	Blackcap	1	Singing	53.39682	-7.30555	Flying
2025-05-04-15-33-32	Blue Tit	1	Foraging	53.39709	-7.30617	Flying
2025-05-04-15-34-10	Blackbird	1	In suitable nesting habitat	53.39745	-7.30633	Flying
2025-05-04-15-34-40	Dunnock	1	Singing	53.39697	-7.30595	Flying
2025-05-04-15-49-49	Chaffinch	-1	Singing	53.3991	-7.30309	Flying
2025-05-04-15-50-44	Chaffinch	1	Calling	53.39939	-7.30439	Flying
2025-05-04-15-51-53	Linnet	3	Flying over the site	53.39921	-7.30514	Flying
2025-05-04-15-52-28	Winter Wren	1	Calling	53.39926	-7.305	Flying
2025-05-04-15-54-11	Dunnock	1	Singing	53.39767	-7.30248	Flying
2025-05-04-15-54-36	Dunnock	1	Singing	53.39872	-7.30501	Flying
2025-05-04-15-54-59	Winter Wren	1	Singing	53.39885	-7.30301	Flying
2025-05-04-15-56-40	Dunnock	1	Foraging	53.39868	-7.30304	Flying
2025-05-04-15-56-51	Blackbird	1	singing	53.39926	-7.30322	Flying
2025-05-04-16-05-08	Little Grebe	3	Foraging	53.39883	-7.30183	Flying
2025-05-04-16-05-36	Mute Swan	2	Foraging	53.3987	-7.30158	Flying
2025-05-04-16-06-01	Teal	1	Foraging	53.39853	-7.30168	Flying
2025-05-04-16-06-26	Moorhen	1	Foraging	53.39851	-7.30199	Flying
2025-05-04-16-39-54	Song Thrush	2	Flying over suitable nesting habitat	53.39869	-7.31566	Flying
2025-05-04-16-40-52	Winter Wren	1	Singing	53.39973	-7.31596	Flying
2025-05-04-16-41-09	Blackbird	1	Singing	53.39974	-7.3158	Flying
2025-05-04-16-41-58	Robin	1	Singing	53.39887	-7.31534	Flying
2025-05-04-16-42-53	Winter Wren	1	Singing	53.39818	-7.31463	Flying
2025-05-04-16-43-17	Goldfinch	1	Singing	53.39837	-7.31544	Flying
2025-05-04-16-43-51	Blackbird	1	Singing	53.39842	-7.3155	Flying
2025-05-04-16-44-36	Blackbird	1	Alarm calling	53.39887	-7.31503	Flying

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2025-05-04-16-46-28	Goldfinch	2	In suitable nesting habitat	53.39889	-7.31474	Flying
2025-05-04-16-46-59	Chaffinch	1	Calling	53.39888	-7.31524	Flying
2025-05-04-16-48-47	Winter Wren	1	Singing	53.39885	-7.31402	Flying
2025-05-04-16-49-05	Robin	1	Singing	53.39886	-7.31392	Flying
2025-05-04-16-49-28	Blackbird	1	Alarm calling	53.39886	-7.3138	Flying
2025-05-04-16-49-58	Blackbird	1	Singing	53.39828	-7.31356	Flying
2025-05-04-16-50-12	Chaffinch	1	Singing	53.39824	-7.31392	Flying
2025-05-04-16-50-48	Chaffinch	1	Singing	53.39887	-7.31283	Flying
2025-05-04-16-51-04	Blackbird	1	Alarm calling	53.39867	-7.31266	Flying
2025-05-04-16-51-20	Blackcap	1	singing	53.3984	-7.31285	Flying
2025-05-04-16-52-06	Song Thrush	1	Suitable nesting habitat	53.39889	-7.31315	Flying
2025-05-04-16-52-40	Chaffinch	1	Calling	53.39836	-7.31316	Flying
2025-05-04-16-54-06	Robin	1	Singing	53.39971	-7.31407	Flying
2025-05-04-16-54-29	Yellowhammer	1	Calling	53.3997	-7.31468	Flying
2025-05-04-16-54-51	Great Tit	1	Singing	53.39912	-7.31282	Flying
2025-05-04-16-55-47	Wood Pigeon	2	Suitable nesting habitat	53.39977	-7.31337	Flying
2025-05-04-16-57-25	Blue Tit	2	Suitable nesting habitat	53.39851	-7.31207	Flying
2025-05-04-16-57-48	Chaffinch	1	Singing	53.3985	-7.31264	Flying
2025-05-04-16-58-07	Chaffinch	1	Calling	53.39866	-7.31149	Flying
2025-05-04-16-59-10	Chaffinch	1	Calling	53.39971	-7.31105	Flying
2025-05-04-16-59-27	Blackbird	1	Singing	53.39971	-7.31097	Flying
2025-05-04-17-00-32	Winter Wren	1	Singing	53.39885	-7.31033	Flying
2025-05-04-17-01-46	Blackbird	1	Alarm calling	53.3992	-7.30919	Flying
2025-05-04-17-02-02	Chaffinch	1	Calling	53.39963	-7.30928	Flying
2025-05-04-17-02-17	Robin	1	Singing	53.39951	-7.30927	Flying
2025-05-04-17-02-47	Winter Wren	1	Singing	53.39907	-7.30919	Flying
2025-05-04-17-07-47	Blackbird	1	Singing	53.40006	-7.31133	Flying

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2025-05-04-17-08-04	Robin	1	Singing	53.40013	-7.30936	Flying
2025-05-04-17-08-28	Song Thrush	1	Singing	53.39986	-7.30932	Flying
2025-05-04-17-08-51	Blackcap	1	Singing	53.40018	-7.30936	Flying
2025-05-04-17-09-15	Blackbird	1	Singing	53.40036	-7.30943	Flying
2025-05-04-17-10-59	Chaffinch	1	Singing	53.4007	-7.30948	Flying
2025-05-04-17-11-16	Dunnock	1	Singing	53.40077	-7.30949	Flying
2025-05-04-17-12-25	Chaffinch	1	Calling	53.40095	-7.30954	Flying
2025-05-04-17-12-52	Blue Tit	1	Calling	53.40099	-7.30954	Flying
2025-05-04-17-14-38	Goldfinch	1	In suitable nesting habitat	53.40133	-7.30959	Flying
2025-05-04-17-15-09	Blackbird	1	Singing	53.40146	-7.30962	Flying
2025-05-04-17-15-25	Chaffinch	1	Calling	53.40189	-7.3097	Flying
2025-05-04-17-17-30	Chaffinch	1	Singing	53.40168	-7.30968	Flying
2025-05-04-17-18-24	Barn Swallow	3	Foraging	53.40149	-7.31187	Flying
2025-05-04-17-21-28	Blackbird	1	Calling	53.40254	-7.30963	Flying
2025-05-04-17-23-25	Robin	1	Singing	53.40284	-7.30988	Flying
2025-05-04-17-23-51	Winter Wren	1	Alarm calling	53.40254	-7.30985	Flying
2025-05-04-17-24-12	Dunnock	1	Singing	53.40324	-7.30997	Flying
2025-05-04-17-24-32	Chaffinch	1	Singing	53.40331	-7.31069	Flying
2025-05-04-17-28-30	Winter Wren	1	Singing	53.40323	-7.31332	Flying
2025-05-04-17-28-49	Robin	2	In suitable nesting habitat	53.40328	-7.31362	Flying
2025-05-04-17-30-33	Yellowhammer	1	Calling	53.40404	-7.31539	Flying
2025-05-04-17-30-51	Blackbird	1	Alarm calling	53.40423	-7.31556	Flying
2025-05-04-17-32-47	Winter Wren	1	Alarm calling	53.40427	-7.31198	Flying
2025-05-04-17-33-19	Blackbird	1	Alarm calling	53.40373	-7.31206	Flying
2025-05-04-17-33-46	Winter Wren	1	Singing	53.40352	-7.31216	Flying
2025-05-04-17-34-04	Jackdaw	1	Flying over the site	53.40369	-7.31097	Flying
2025-05-04-17-35-10	Chaffinch	1	Singing	53.40513	-7.31173	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-04-17-35-29	Winter Wren	1	Alarm calling	53.40527	-7.31277	Flying
2025-05-04-17-35-50	Robin	1	Singing	53.40534	-7.31307	Flying
2025-05-04-17-36-18	Blackbird	1	In suitable nesting habitat	53.4047	-7.31171	Flying
2025-05-04-17-37-29	Chaffinch	1	Calling	53.40539	-7.3135	Flying
2025-05-04-17-37-45	Yellowhammer	1	Calling	53.40539	-7.31326	Flying
2025-05-04-17-38-06	Blackcap	1	Singing	53.40523	-7.31412	Flying
2025-05-04-17-39-03	Robin	1	Singing	53.40485	-7.31451	Flying
2025-05-04-17-41-32	Jackdaw	6	In suitable nesting habitat	53.40397	-7.31549	Flying
2025-05-04-17-43-13	Tree Sparrow	2	With food	53.40397	-7.31549	Flying
2025-05-04-17-43-42	Song Thrush	1	alarm calling	53.40394	-7.31602	Flying
2025-05-04-17-44-27	Blackbird	1	Foraging	53.4037	-7.31615	Flying
2025-05-04-17-44-46	Tree Sparrow	1	Foraging	53.40357	-7.31617	Flying
2025-05-04-17-45-34	Chaffinch	2	In suitable nesting habitat	53.404	-7.31581	Flying
2025-05-04-17-46-57	Barn Swallow	2	Foraging	53.4028	-7.31628	Flying
2025-05-04-17-47-42	Meadow Pipit	2	Unsuitable nesting habitat	53.40251	-7.31575	Flying
2025-05-04-17-48-31	Chaffinch	1	Singing	53.40269	-7.31764	Flying
2025-05-04-17-48-58	Robin	1	Singing	53.40224	-7.31751	Flying
2025-05-04-17-50-15	Meadow Pipit	2	In suitable nesting habitat	53.40195	-7.31536	Flying
2025-05-04-17-51-35	Song Thrush	1	Singing	53.40052	-7.31665	Flying
2025-05-04-17-54-07	Winter Wren	1	Singing	53.40008	-7.31639	Flying
2025-05-04-17-54-23	Robin	1	Singing	53.39992	-7.31636	Flying
2025-05-05-09-54-20	Linnet	1	Male singing	53.40581	-7.31948	Flying
2025-05-05-09-54-48	Yellowhammer	1	Male and female foraging around sheep feeders	53.4061	-7.31964	Flying
2025-05-05-09-55-50	Dunnock	1	Singing	53.40623	-7.31971	Flying
2025-05-05-10-01-22	Mistle Thrush	1	Singing	53.4071	-7.31976	Flying
2025-05-05-10-04-15	Blackbird	1	Foraging	53.40711	-7.31975	Flying

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2025-05-05-10-04-41	Yellowhammer	1	Singing	53.40549	-7.32063	Flying
2025-05-05-10-05-40	Mistle Thrush	1	Alarm calling	53.40575	-7.31944	Flying
2025-05-05-10-07-21	Dunnock	1	Foraging on track	53.40697	-7.31978	Flying
2025-05-05-10-08-11	Meadow Pipit	1	Singing	53.40704	-7.32126	Flying
2025-05-05-10-12-04	Blackbird	1	Alarm calling	53.40733	-7.3198	Flying
2025-05-05-10-14-59	Winter Wren	1	Singing	53.40747	-7.31979	Flying
2025-05-05-10-15-22	Chaffinch	1	Singing	53.40722	-7.31977	Flying
2025-05-05-10-15-55	Barn Swallow	1	Foraging	53.40762	-7.32109	Flying
2025-05-05-10-20-36	Starling	1	In suitable nesting habitat	53.40868	-7.32142	Flying
2025-05-05-10-21-31	Linnet	1	Flying over the site	53.4082	-7.3207	Flying
2025-05-05-10-22-04	Goldfinch	1	Singing	53.4083	-7.32018	Flying
2025-05-05-10-22-27	Mistle Thrush	1	singing	53.40835	-7.31986	Flying
2025-05-05-10-23-09	Dunnock	1	Singing	53.40814	-7.3201	Flying
2025-05-05-10-23-28	Blackbird	1	Alarm calling	53.40804	-7.3198	Flying
2025-05-05-10-24-44	Blackcap	1	Foraging	53.4081	-7.32014	Flying
2025-05-05-10-26-04	Goldfinch	1	Foraging	53.40847	-7.32056	Flying
2025-05-05-10-28-09	Mistle Thrush	1	On the ground Foraging	53.40905	-7.32005	Flying
2025-05-05-10-29-20	Blackbird	1	On the ground foraging	53.40928	-7.31991	Flying
2025-05-05-10-29-50	Blackbird	1	Flying along hedgerow	53.40858	-7.32022	Flying
2025-05-05-10-30-25	Chaffinch	1	Singing	53.40899	-7.32113	Flying
2025-05-05-10-30-45	Winter Wren	1	Singing	53.40891	-7.32001	Flying
2025-05-05-10-33-35	Robin	1	Singing	53.4097	-7.3207	Flying
2025-05-05-10-33-54	Chaffinch	1	Singing	53.4096	-7.32002	Flying
2025-05-05-10-34-46	Jackdaw	1	Flying N over the site	53.40757	-7.3219	Flying
2025-05-05-10-41-54	Winter Wren	1	Singing	53.40872	-7.32079	Flying
2025-05-05-10-42-29	Robin	1	Singing	53.40866	-7.3204	Flying
2025-05-05-10-42-48	Blue Tit	1	Singing	53.40929	-7.32093	Flying

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2025-05-05-10-44-45	Chaffinch	1	Singing	53.40978	-7.32131	Flying
2025-05-05-10-45-04	Greenfinch	1	calling	53.40957	-7.32117	Flying
2025-05-05-10-45-32	Song Thrush	1	Singing	53.40976	-7.32166	Flying
2025-05-05-10-45-58	Robin	1	singing	53.4094	-7.32117	Flying
2025-05-05-10-46-24	Blackbird	1	Alarm calling	53.40988	-7.32148	Flying
2025-05-05-10-47-34	Starling	1	Foraging	53.40934	-7.32177	Flying
2025-05-05-10-48-32	Robin	1	Singing	53.40979	-7.32199	Flying
2025-05-05-10-49-19	Winter Wren	1	Singing	53.40983	-7.32235	Flying
2025-05-05-10-50-15	Wood Pigeon	1	Perched in suitable nesting habitat	53.40848	-7.32604	Flying
2025-05-05-10-50-52	Wood Pigeon	1	Flying through the site	53.40983	-7.32399	Flying
2025-05-05-10-52-27	Blackbird	1	Foraging	53.40991	-7.32366	Flying
2025-05-05-10-52-54	Chaffinch	1	Singing	53.40993	-7.32325	Flying
2025-05-05-10-53-14	Blackbird	1	Singing	53.40994	-7.32489	Flying
2025-05-05-10-56-14	Robin	1	Singing	53.40992	-7.3244	Flying
2025-05-05-10-56-44	Greenfinch	1	Calling	53.40999	-7.32404	Flying
2025-05-05-10-57-12	Yellowhammer	1	Male flying through the site calling	53.40912	-7.32437	Flying
2025-05-05-10-59-23	Goldfinch	1	Foraging	53.40994	-7.32512	Flying
2025-05-05-10-59-53	Chaffinch	1	Singing	53.41002	-7.32531	Flying
2025-05-05-11-00-11	Chaffinch	1	Singing	53.41007	-7.3258	Flying
2025-05-05-11-00-49	Great Tit	1	Singing	53.41006	-7.3274	Flying
2025-05-05-11-01-09	Song Thrush	1	Singing	53.41006	-7.32563	Flying
2025-05-05-11-03-36	Blackcap	1	Singing	53.41008	-7.32603	Flying
2025-05-05-11-03-59	Winter Wren	1	Calling	53.41003	-7.32588	Flying
2025-05-05-11-04-27	Barn Swallow	1	Foraging	53.40948	-7.32644	Flying
2025-05-05-11-05-02	Mistle Thrush	1	Alarm calling	53.41036	-7.32732	Flying
2025-05-05-11-06-09	Winter Wren	1	Singing	53.40945	-7.32762	Flying
2025-05-05-11-06-49	Chaffinch	1	Singing	53.41045	-7.32711	Flying

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2025-05-05-11-08-20	Starling	1	seen leaving suitable nesting habitat	53.40959	-7.32756	Flying
2025-05-05-11-10-41	Blackbird	1	Territorial dispute	53.40899	-7.32771	Flying
2025-05-05-11-11-30	Chaffinch	1	Calling	53.40817	-7.32729	Flying
2025-05-05-11-11-52	Wood Pigeon	1	Perched in suitable nesting habitat	53.40837	-7.32738	Flying
2025-05-05-11-12-36	Winter Wren	1	Singing	53.40818	-7.32687	Flying
2025-05-05-11-13-24	Blackcap	1	Singing	53.40861	-7.32776	Flying
2025-05-05-11-13-44	Winter Wren	1	Singing	53.4085	-7.32766	Flying
2025-05-05-11-14-16	Blackbird	1	Flying along hedgerow	53.40827	-7.32736	Flying
2025-05-05-11-15-24	Winter Wren	1	Singing	53.40804	-7.32727	Flying
2025-05-05-11-15-49	Blackcap	1	Singing	53.40812	-7.3274	Flying
2025-05-05-11-18-02	Blackbird	1	Singing	53.40771	-7.3272	Flying
2025-05-05-11-18-29	Meadow Pipit	1	On ground	53.40787	-7.32462	Flying
2025-05-05-11-21-11	Meadow Pipit	1	Displaying	53.40644	-7.32581	Flying
2025-05-05-11-23-19	Meadow Pipit	1	Displaying	53.40573	-7.32507	Flying
2025-05-05-11-24-30	Chaffinch	1	Singing	53.40506	-7.32619	Flying
2025-05-05-11-24-52	Dunnock	1	Foraging	53.4055	-7.32639	Flying
2025-05-05-11-31-35	Winter Wren	1	Singing	53.40435	-7.3258	Flying
2025-05-05-11-32-34	Tree Sparrow	1	Foraging	53.40444	-7.32541	Flying
2025-05-05-11-34-41	Great Tit	1	Calling	53.40447	-7.32422	Flying
2025-05-05-11-35-04	Mistle Thrush	1	Singing	53.40466	-7.32367	Flying
2025-05-05-11-35-31	Winter Wren	1	Singing	53.40463	-7.3239	Flying
2025-05-05-11-36-03	Winter Wren	1	Alarm calling	53.40476	-7.32419	Flying
2025-05-05-11-38-31	Meadow Pipit	1	In suitable nesting habitat	53.40582	-7.3237	Flying
2025-05-05-11-40-50	Meadow Pipit	1	Territorial dispute	53.40654	-7.32307	Flying
2025-05-05-11-43-17	Winter Wren	1	Singing	53.40734	-7.32312	Flying
2025-05-05-11-43-43	Meadow Pipit	1	Displaying	53.40699	-7.32424	Flying
2025-05-05-11-44-28	Mistle Thrush	1	Singing	53.4082	-7.32436	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-11-45-56	Yellowhammer	1	Male and female perched in suitable habitat	53.40821	-7.32376	Flying
2025-05-05-11-48-13	Dunnock	1	Calling	53.40829	-7.3229	Flying
2025-05-05-11-48-30	Chaffinch	1	Singing	53.40836	-7.32238	Flying
2025-05-05-11-50-03	Linnet	1	Territorial dispute	53.40801	-7.32332	Flying
2025-05-05-11-52-49	Blackbird	1	Calling	53.40842	-7.32183	Flying
2025-05-05-11-57-00	Blackbird	1	Singing	53.40547	-7.32272	Flying
2025-05-05-11-57-16	Winter Wren	1	Foraging	53.40519	-7.32245	Flying
2025-05-05-11-57-41	Meadow Pipit	1	Displaying	53.40614	-7.32236	Flying
2025-05-05-11-58-13	Robin	1	Singing	53.40514	-7.32272	Flying
2025-05-05-11-58-35	House Martin	1	Foraging	53.40553	-7.32214	Flying
2025-05-05-12-00-08	Robin	1	Singing	53.40548	-7.32129	Flying
2025-05-05-12-04-44	Linnet	1	Gathering nest material	53.40625	-7.31979	Flying
2025-05-05-12-05-52	Tree Sparrow	1	Territorial dispute	53.40606	-7.31929	Flying
2025-05-05-12-06-50	Starling	1	Foraging	53.40629	-7.3188	Flying
2025-05-05-12-07-31	Yellowhammer	1	On the ground foraging	53.40624	-7.31863	Flying
2025-05-05-12-09-04	Tree Sparrow	1	Calling from suitable nesting habitat	53.40635	-7.31814	Flying
2025-05-05-12-09-37	Robin	1	Singing	53.4064	-7.31797	Flying
2025-05-05-12-12-18	Rook	1	Flying over	53.40864	-7.31908	Flying
2025-05-05-12-15-28	Chiffchaff	1	Singing	53.40881	-7.31574	Flying
2025-05-05-12-16-40	Winter Wren	1	Singing	53.40942	-7.31865	Flying
2025-05-05-12-17-08	Blackbird	1	Singing	53.40947	-7.31904	Flying
2025-05-05-12-17-26	Buzzard	1	Circling in suitable nesting habitat, circled over the site	53.40994	-7.32003	Flying
2025-05-05-12-18-16	Blackcap	1	Singing	53.40963	-7.32027	Flying
2025-05-05-12-21-05	Blackbird	1	Singing	53.40914	-7.31695	Flying
2025-05-05-12-21-21	Chaffinch	1	Singing	53.40891	-7.31591	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-12-21-44	Chaffinch	1	Singing	53.40869	-7.31571	Flying
2025-05-05-12-22-12	Yellowhammer	1	Calling	53.40877	-7.31573	Flying
2025-05-05-12-23-01	Blackbird	1	Singing	53.40934	-7.31625	Flying
2025-05-05-12-23-18	Blackbird	1	Alarm calling	53.40921	-7.31654	Flying
2025-05-05-12-23-40	Chaffinch	1	Calling	53.40915	-7.31663	Flying
2025-05-05-12-24-01	Winter Wren	1	Singing	53.40914	-7.31649	Flying
2025-05-05-12-24-41	Chiffchaff	1	Singing	53.40937	-7.31604	Flying
2025-05-05-12-25-15	Winter Wren	1	Singing	53.40935	-7.3163	Flying
2025-05-05-12-25-35	Winter Wren	1	Singing	53.40941	-7.31583	Flying
2025-05-05-12-26-09	Chiffchaff	1	Singing	53.40945	-7.31538	Flying
2025-05-05-12-26-47	Chaffinch	1	Singing	53.40933	-7.31487	Flying
2025-05-05-12-27-47	Blackbird	1	In suitable nesting habitat	53.40909	-7.31438	Flying
2025-05-05-12-28-38	Winter Wren	1	Singing	53.40905	-7.31425	Flying
2025-05-05-12-29-50	Chiffchaff	1	Singing	53.40882	-7.31344	Flying
2025-05-05-12-30-25	Winter Wren	1	Singing	53.40863	-7.31298	Flying
2025-05-05-12-34-25	Winter Wren	1	Singing	53.40853	-7.31263	Flying
2025-05-05-12-34-45	Robin	1	In suitable nesting habitat	53.40842	-7.31238	Flying
2025-05-05-12-35-22	Chiffchaff	1	Singing	53.40836	-7.31217	Flying
2025-05-05-12-35-39	Starling	1	With food	53.40865	-7.31275	Flying
2025-05-05-12-36-49	Blackbird	1	Alarm calling	53.40836	-7.31183	Flying
2025-05-05-12-37-17	Blackcap	1	Singing	53.40838	-7.31148	Flying
2025-05-05-12-37-43	Barn Swallow	1	Foraging	53.40823	-7.31347	Flying
2025-05-05-12-39-48	Chaffinch	1	Singing	53.40797	-7.31533	Flying
2025-05-05-12-40-23	Starling	1	On the ground foraging	53.40813	-7.31494	Flying
2025-05-05-12-41-00	Winter Wren	1	Singing	53.40814	-7.31539	Flying
2025-05-05-12-50-37	Starling	1	#NAME?	53.40718	-7.31518	Flying
2025-05-05-12-58-09	Chaffinch	1	Singing	53.40828	-7.31551	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-12-58-43	Tree Sparrow	1	foraging	53.40738	-7.31431	Flying
2025-05-05-14-13-47	Tree Sparrow	1	Nesting material	53.40473	-7.32287	Flying
2025-05-05-14-14-26	Starling	1	Alarm calling	53.40454	-7.32283	Flying
2025-05-05-14-14-51	Tree Sparrow	1	Alarm calling	53.40451	-7.32301	Flying
2025-05-05-14-15-58	Tree Sparrow	1	Perched in suitable habitat	53.40461	-7.3231	Flying
2025-05-05-14-16-48	Blackbird	1	Singing	53.40421	-7.32392	Flying
2025-05-05-14-17-17	Blackbird	1	Singing	53.40419	-7.32256	Flying
2025-05-05-14-18-46	Greenfinch	1	Calling	53.40427	-7.32416	Flying
2025-05-05-14-19-13	Goldfinch	1	Singing	53.40401	-7.32427	Flying
2025-05-05-14-20-31	Blackbird	1	Alarm calling	53.40383	-7.32383	Flying
2025-05-05-14-20-54	Chaffinch	1	Singing	53.40387	-7.32421	Flying
2025-05-05-14-21-49	Song Thrush	1	Singing	53.40377	-7.32405	Flying
2025-05-05-14-22-13	Goldfinch	1	Singing	53.40386	-7.32396	Flying
2025-05-05-14-24-54	Blackbird	1	Alarm calling	53.4029	-7.32215	Flying
2025-05-05-14-25-17	Chaffinch	1	Calling	53.40271	-7.32212	Flying
2025-05-05-14-25-54	Chaffinch	1	Singing	53.40206	-7.32247	Flying
2025-05-05-14-26-26	Blackcap	1	Singing	53.40209	-7.32202	Flying
2025-05-05-14-26-43	Chaffinch	1	Singing	53.40213	-7.32177	Flying
2025-05-05-14-27-29	Wood Pigeon	1	Flushed from suitable nesting habitat	53.40212	-7.32226	Flying
2025-05-05-14-29-17	Yellowhammer	1	Calling	53.40189	-7.32434	Flying
2025-05-05-14-30-50	Linnet	1	Flying over the site	53.40195	-7.32363	Flying
2025-05-05-14-31-26	Robin	1	Singing	53.40151	-7.32369	Flying
2025-05-05-14-33-34	Chaffinch	1	Male perched in suitable habitat	53.40263	-7.32552	Flying
2025-05-05-14-35-39	Winter Wren	1	Calling	53.40303	-7.32529	Flying
2025-05-05-14-35-57	Goldcrest	1	Calling	53.40278	-7.32512	Flying
2025-05-05-14-37-01	Chaffinch	1	Singing	53.40415	-7.32586	Flying
2025-05-05-14-37-34	Winter Wren	1	Calling	53.40324	-7.32545	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-14-38-52	Robin	1	Foraging	53.40386	-7.32572	Flying
2025-05-05-14-39-57	Yellowhammer	1	Calling	53.40431	-7.3259	Flying
2025-05-05-14-40-36	Blackbird	1	In suitable habitat	53.40412	-7.32445	Flying
2025-05-05-14-42-01	Chaffinch	1	Calling	53.40402	-7.3244	Flying
2025-05-05-14-42-44	Wood Pigeon	1	Flushed from suitable nesting habitat	53.40402	-7.32384	Flying
2025-05-05-14-43-53	Blackbird	1	In suitable nesting habitat	53.40436	-7.32394	Flying
2025-05-05-14-45-54	Blackbird	1	Male foraging	53.40452	-7.32349	Flying
2025-05-05-14-46-49	Blackbird	1	Singing	53.40449	-7.32402	Flying
2025-05-05-14-50-51	Chaffinch	1	In suitable nesting habitat	53.4046	-7.32268	Flying
2025-05-05-14-51-22	Tree Sparrow	1	In suitable nesting habitat	53.40446	-7.3226	Flying
2025-05-05-14-53-03	Linnet	1	Woth food	53.40466	-7.3221	Flying
2025-05-05-14-53-54	Robin	1	Singing	53.40409	-7.3225	Flying
2025-05-05-14-54-29	Blackbird	1	Foraging	53.40413	-7.3217	Flying
2025-05-05-14-55-47	Linnet	1	On ground foraging	53.4036	-7.32227	Flying
2025-05-05-14-57-55	Blackbird	1	Alarm calling	53.40329	-7.32223	Flying
2025-05-05-14-58-19	Winter Wren	1	Singing	53.40314	-7.32226	Flying
2025-05-05-14-58-40	Robin	1	singing	53.40303	-7.32219	Flying
2025-05-05-14-59-58	Starling	1	With food	53.40306	-7.32127	Flying
2025-05-05-15-00-40	Chaffinch	1	Singing	53.40306	-7.32227	Flying
2025-05-05-15-01-40	Blackcap	1	Singing	53.40226	-7.32127	Flying
2025-05-05-15-02-05	Blackbird	1	Singing	53.40246	-7.32195	Flying
2025-05-05-15-02-40	Wood Pigeon	1	2Flushed from suitable nesting habitat	53.40225	-7.32147	Flying
2025-05-05-15-04-15	Blackbird	1	Singing	53.40255	-7.32089	Flying
2025-05-05-15-05-05	Winter Wren	1	Singing	53.40279	-7.32031	Flying
2025-05-05-15-05-27	Blackcap	1	Singing	53.40293	-7.32038	Flying
2025-05-05-15-05-48	Blackbird	1	Singing	53.4027	-7.32038	Flying
2025-05-05-15-06-59	Robin	1	Calling	53.40333	-7.32064	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-15-08-22	Starling	1	Foraging 1 with food	53.40377	-7.32044	Flying
2025-05-05-15-09-02	Robin	1	Suitable nesting habitat	53.40392	-7.31892	Flying
2025-05-05-15-09-44	Barn Swallow	1	Foraging	53.40328	-7.31981	Flying
2025-05-05-15-10-50	Robin	1	Singing	53.40334	-7.31917	Flying
2025-05-05-15-11-39	Robin	1	Singing	53.40302	-7.31952	Flying
2025-05-05-15-12-12	Blackbird	1	Alarm calling	53.40292	-7.31969	Flying
2025-05-05-15-12-45	Tree Sparrow	1	In suitable nesting habitat	53.40318	-7.31932	Flying
2025-05-05-15-14-45	Chaffinch	1	Singing	53.40478	-7.31924	Flying
2025-05-05-15-15-08	Barn Swallow	1	Foraging	53.40429	-7.31927	Flying
2025-05-05-15-15-36	Blackcap	1	Singing	53.40487	-7.31969	Flying
2025-05-05-15-16-03	Winter Wren	1	Alarm	53.4045	-7.31895	Flying
2025-05-05-15-16-30	Song Thrush	1	Calling in suitable nesting habitat	53.4042	-7.31882	Flying
2025-05-05-15-18-12	Robin	1	Singing	53.40472	-7.31906	Flying
2025-05-05-15-18-34	Wood Pigeon	1	Flushed from suitable nesting habitat	53.40467	-7.31904	Flying
2025-05-05-15-19-31	Blackbird	1	Alarm calling	53.40503	-7.31918	Flying
2025-05-05-15-19-53	Chaffinch	1	Singing	53.40523	-7.31928	Flying
2025-05-05-15-20-13	Blackcap	1	Singing	53.40512	-7.31924	Flying
2025-05-05-15-21-15	Yellowhammer	1	Singing	53.40538	-7.3169	Flying
2025-05-05-15-22-16	Blackcap	1	Singing	53.40552	-7.31936	Flying
2025-05-05-15-22-34	Robin	1	Calling	53.40543	-7.31936	Flying
2025-05-05-15-22-34	Blackbird	1	-	53.40543	-7.31936	Flying
2025-05-05-15-23-42	Dunnock	1	Foraging	53.40571	-7.31867	Flying
2025-05-05-15-25-01	Robin	1	Singing	53.40617	-7.31764	Flying
2025-05-05-15-25-20	Chaffinch	1	Calling	53.40589	-7.31751	Flying
2025-05-05-15-25-42	Yellowhammer	1	Males territorial dispute	53.40604	-7.31804	Flying
2025-05-05-15-26-24	Wood Pigeon	1	Flushed from suitable nesting habitat	53.40605	-7.31756	Flying
2025-05-05-15-27-11	Robin	1	Calling	53.4061	-7.31849	Flying

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2025-05-05-15-28-02	Blackbird	1	In suitable nesting habitat	53.40522	-7.31744	Flying
2025-05-05-15-28-43	Linnet	1	Perched on wire calling	53.40603	-7.3188	Flying
2025-05-05-15-29-40	Song Thrush	1	Singing	53.40511	-7.31803	Flying
2025-05-05-15-30-03	Chaffinch	1	Flying W	53.40519	-7.31777	Flying
2025-05-05-15-31-20	Dunnock	1	Calling	53.40551	-7.31734	Flying
2025-05-05-15-31-49	Robin	1	Singing	53.405	-7.31849	Flying
2025-05-05-15-33-03	Robin	1	Singing	53.40531	-7.31715	Flying
2025-05-05-15-33-24	Magpie	1	Foraging	53.40549	-7.317	Flying
2025-05-05-15-33-54	Robin	1	Singing	53.4054	-7.31726	Flying
2025-05-05-15-34-16	Blackbird	1	Alarm calling	53.40576	-7.3158	Flying
2025-05-05-15-34-41	Winter Wren	1	Calling	53.40562	-7.31731	Flying
2025-05-05-15-35-47	Jackdaw	1	flying over the site	53.40648	-7.31658	Flying
2025-05-05-15-36-25	Tree Sparrow	1	In suitable nesting habitat	53.40642	-7.31636	Flying
2025-05-05-15-37-08	Linnet	1	Flying E	53.40594	-7.31679	Flying
2025-05-05-15-37-33	Robin	1	Singing	53.4056	-7.31582	Flying
2025-05-05-15-38-02	Blackbird	1	Singing	53.40553	-7.31621	Flying
2025-05-05-15-41-09	Barn Swallow	1	Foraging	53.40448	-7.31679	Flying
2025-05-05-15-41-39	Jackdaw	1	Flying over	53.40488	-7.31604	Flying
2025-05-05-15-42-31	Blackbird	1	Suitable nesting habitat	53.40451	-7.31614	Flying
2025-05-05-15-44-21	Starling	1	Flying over	53.40444	-7.31809	Flying
2025-05-05-15-45-02	Blackbird	1	Singing	53.40497	-7.31856	Flying
2025-05-05-15-45-18	Blackcap	1	Singing	53.40497	-7.31862	Flying
2025-05-05-15-45-52	Chaffinch	1	Calling	53.40461	-7.31899	Flying
2025-05-05-15-47-46	Chaffinch	1	In suitable nesting habitat	53.40476	-7.31965	Flying
2025-05-05-15-49-49	Linnet	1	Flew out of suitable nesting habitat	53.4045	-7.32125	Flying
2025-05-05-15-51-24	Starling	1	Foraging	53.40519	-7.32178	Flying
2025-05-05-15-51-53	Robin	1	Singing	53.40532	-7.32123	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-16-29-12	Chaffinch	1	In suitable nesting habitat	53.39841	-7.31595	Flying
2025-05-05-16-32-52	Goldfinch	1	Singing	53.39842	-7.31606	Flying
2025-05-05-16-33-10	Winter Wren	1	Alarm calling	53.39843	-7.31583	Flying
2025-05-05-16-33-42	Blackcap	1	Singinh	53.39848	-7.31598	Flying
2025-05-05-16-35-23	Goldfinch	1	Singing	53.39805	-7.31614	Flying
2025-05-05-16-35-57	Chaffinch	1	singing	53.39796	-7.31599	Flying
2025-05-05-16-38-33	Mistle Thrush	1	Flying over the site	53.3977	-7.31755	Flying
2025-05-05-16-40-15	Robin	1	Calling	53.39763	-7.31787	Flying
2025-05-05-16-42-18	Chaffinch	1	Singing	53.39838	-7.31761	Flying
2025-05-05-16-43-04	Buzzard	1	Circling soaring flew E	53.39983	-7.3201	Flying
2025-05-05-16-44-01	Winter Wren	1	Singing	53.39755	-7.31917	Flying
2025-05-05-16-45-18	Blackcap	1	Singing	53.39852	-7.31788	Flying
2025-05-05-16-45-35	Winter Wren	1	Calling	53.3984	-7.31862	Flying
2025-05-05-16-45-58	Chaffinch	1	Calling	53.39855	-7.31872	Flying
2025-05-05-16-46-53	Blackcap	1	Singing	53.39878	-7.31879	Flying
2025-05-05-16-47-49	Chaffinch	1	Flew E	53.39904	-7.31888	Flying
2025-05-05-16-49-10	Blackbird	1	Alarm calling	53.39946	-7.31885	Flying
2025-05-05-16-49-30	Blackcap	1	Singing	53.3998	-7.31856	Flying
2025-05-05-16-49-54	Winter Wren	1	Alarm calling	53.39952	-7.31941	Flying
2025-05-05-16-51-20	Winter Wren	1	Alarm calling	53.39961	-7.31871	Flying
2025-05-05-16-52-29	Blackcap	1	Singing	53.40006	-7.31872	Flying
2025-05-05-16-53-30	Song Thrush	1	Alarm	53.40031	-7.31889	Flying
2025-05-05-16-54-13	Chaffinch	1	In suitable nesting habitat	53.40047	-7.31893	Flying
2025-05-05-16-56-35	Blackbird	1	With food	53.401	-7.31872	Flying
2025-05-05-16-56-53	Winter Wren	1	Calling	53.40084	-7.31876	Flying
2025-05-05-16-57-57	House Martin	1	Foraging	53.40053	-7.31919	Flying
2025-05-05-16-58-30	Linnet	1	Flying over site	53.40094	-7.31891	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-16-59-00	Winter Wren	1	Alarm calling	53.40108	-7.31859	Flying
2025-05-05-16-59-31	Mistle Thrush	1	Singing	53.40104	-7.31865	Flying
2025-05-05-17-00-21	Goldfinch	1	foraging	53.401	-7.31887	Flying
2025-05-05-17-00-50	Mistle Thrush	1	Alarm calling	53.40137	-7.31846	Flying
2025-05-05-17-01-31	Tree Sparrow	1	Unsuitable nesting habitat	53.40127	-7.31843	Flying
2025-05-05-17-01-59	Starling	1	With food	53.40111	-7.31844	Flying
2025-05-05-17-04-21	Mistle Thrush	1	In suitable habitat	53.40119	-7.31841	Flying
2025-05-05-17-05-53	Blackcap	1	Singing	53.40174	-7.3185	Flying
2025-05-05-17-06-08	Tree Sparrow	1	Calling in suitable nesting habitat	53.4018	-7.31857	Flying
2025-05-05-17-08-05	Wood Pigeon	1	Flushed from suitable habitat	53.40268	-7.31848	Flying
2025-05-05-17-08-34	Robin	1	Singing	53.4028	-7.31853	Flying
2025-05-05-17-09-00	Winter Wren	1	Alarm calling	53.40236	-7.31851	Flying
2025-05-05-17-09-26	Tree Sparrow	1	Calling in suitable habitat	53.40275	-7.31889	Flying
2025-05-05-17-10-07	Winter Wren	1	Singing	53.4026	-7.31849	Flying
2025-05-05-17-11-36	Mistle Thrush	1	Singing	53.4027	-7.32038	Flying
2025-05-05-17-12-39	Tree Sparrow	1	1 WITH FOOD	53.40254	-7.31968	Flying
2025-05-05-17-18-48	Robin	1	singing	53.40163	-7.32311	Flying
2025-05-05-17-19-13	Blackcap	1	Singing	53.40152	-7.32326	Flying
2025-05-05-17-20-06	Blue Tit	1	Foraging	53.40176	-7.323	Flying
2025-05-05-17-21-32	Robin	1	Foraging	53.40131	-7.32344	Flying
2025-05-05-17-22-04	Winter Wren	1	Singing	53.40161	-7.32398	Flying
2025-05-05-17-23-11	Pied Wagtail	1	Flying over site	53.40046	-7.32264	Flying
2025-05-05-17-23-51	Song Thrush	1	Singing	53.40052	-7.32352	Flying
2025-05-05-17-24-13	Winter Wren	1	Singing	53.40066	-7.32353	Flying
2025-05-05-17-24-33	Pheasant	1	In suitable habitat	53.4003	-7.32398	Flying
2025-05-05-17-32-21	Raven	1	Alarm calling	53.39865	-7.32074	Flying
2025-05-05-17-33-40	Meadow Pipit	1	Calling	53.39977	-7.32292	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-05-17-34-15	Goldfinch	1	Foraging	53.39974	-7.32229	Flying
2025-05-05-17-34-39	Meadow Pipit	1	In suitable nesting habitat	53.39963	-7.32165	Flying
2025-05-05-17-35-50	Blackbird	1	In suitable nesting habitat	53.39914	-7.32189	Flying
2025-05-05-17-43-51	Yellowhammer	1	Foraging in field	53.39777	-7.31821	Flying
2025-05-05-17-47-14	Greenfinch	1	Territorial dispute	53.3982	-7.31613	Flying
2025-05-05-17-51-06	Greenfinch	1	Calling	53.39958	-7.31734	Flying
2025-05-05-17-51-44	Yellowhammer	1	Calling	53.39943	-7.31791	Flying
2025-05-05-17-52-24	Linnet	1	Perched in suitable habitat	53.39841	-7.31786	Flying
2025-05-05-17-53-03	Blackbird	1	Alarm	53.39936	-7.31828	Flying
2025-05-05-17-54-12	Robin	1	In suitable nesting habitat	53.3994	-7.31633	Flying
2025-05-05-17-54-56	Song Thrush	1	Singing	53.39964	-7.31693	Flying
2025-05-05-17-56-53	Chaffinch	1	Calling	53.39971	-7.31653	Flying
2025-05-06-10-00-59	Goldcrest	1	Calling	53.40217	-7.33245	Flying
2025-05-06-10-04-45	Starling	1	With food	53.40217	-7.33252	Flying
2025-05-06-10-05-07	Winter Wren	1	Alarm calling	53.40215	-7.33233	Flying
2025-05-06-10-05-48	Winter Wren	1	Alarm calling	53.40198	-7.332	Flying
2025-05-06-10-06-12	Chaffinch	1	Sign in	53.40189	-7.33173	Flying
2025-05-06-10-06-43	Song Thrush	1	Singing	53.40194	-7.33188	Flying
2025-05-06-10-07-07	Chaffinch	1	Calling	53.40202	-7.33236	Flying
2025-05-06-10-09-23	Blackcap	1	Singing	53.40176	-7.33107	Flying
2025-05-06-10-09-44	Mistle Thrush	1	Singing	53.40173	-7.33093	Flying
2025-05-06-10-10-19	Blackbird	1	In suitable nesting habitat	53.40256	-7.3317	Flying
2025-05-06-10-11-25	Yellowhammer	1	Singing	53.40308	-7.32969	Flying
2025-05-06-10-12-45	Blackbird	1	With food	53.40303	-7.32986	Flying
2025-05-06-10-13-19	Chaffinch	1	Singing	53.40165	-7.33068	Flying
2025-05-06-10-14-26	Blackcap	1	Singing	53.40157	-7.33028	Flying
2025-05-06-10-15-51	Robin	1	Singing	53.40268	-7.3291	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-10-16-31	Raven	1	Flying over the site	53.4009	-7.32741	Flying
2025-05-06-10-17-48	Chaffinch	1	In suitable nesting habitat	53.40136	-7.32994	Flying
2025-05-06-10-19-19	Winter Wren	1	Singing	53.40294	-7.33004	Flying
2025-05-06-10-19-44	Winter Wren	1	Singing	53.40302	-7.32935	Flying
2025-05-06-10-20-03	Chaffinch	1	Singing	53.40244	-7.32886	Flying
2025-05-06-10-21-55	Blackbird	1	Singing	53.40253	-7.32847	Flying
2025-05-06-10-22-35	Golden Plover	1	Singing	53.40247	-7.32871	Flying
2025-05-06-10-23-03	Wood Pigeon	2	Flushed from suitable nesting habitat	53.40249	-7.32902	Flying
2025-05-06-10-23-43	Winter Wren	1	Singing	53.40248	-7.32855	Flying
2025-05-06-10-24-55	Goldcrest	1	Calling	53.40255	-7.32835	Flying
2025-05-06-10-25-18	Winter Wren	1	Singing	53.40253	-7.32845	Flying
2025-05-06-10-25-37	Robin	1	Singing	53.40264	-7.32778	Flying
2025-05-06-10-25-59	Chaffinch	1	Singing	53.4026	-7.32771	Flying
2025-05-06-10-26-18	Wood Pigeon	2	Perched on suitable habitat	53.40251	-7.32765	Flying
2025-05-06-10-27-34	Blackbird	1	Alarm	53.40257	-7.3277	Flying
2025-05-06-10-30-59	Winter Wren	1	Singing	53.40158	-7.32709	Flying
2025-05-06-10-32-45	Chaffinch	1	Calling	53.40065	-7.32707	Flying
2025-05-06-10-34-10	Rook	2	Flying over site	53.40123	-7.32643	Flying
2025-05-06-10-37-11	Chaffinch	1	Female with food	53.40082	-7.32801	Flying
2025-05-06-10-38-00	Starling	2	Alarm calling	53.40109	-7.32854	Flying
2025-05-06-10-39-17	Blue Tit	1	Foraging	53.40115	-7.32874	Flying
2025-05-06-10-40-45	Starling	1	With food	53.40124	-7.32897	Flying
2025-05-06-10-41-12	Winter Wren	1	Singing	53.40127	-7.32916	Flying
2025-05-06-10-42-49	Goldcrest	1	Calling	53.40073	-7.32813	Flying
2025-05-06-10-44-09	Blackcap	1	Singing	53.40066	-7.32742	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-10-44-36	Blackcap	1	Singing	53.40047	-7.32825	Flying
2025-05-06-10-45-31	Blue Tit	1	Alarm calling	53.40028	-7.32834	Flying
2025-05-06-10-46-17	Winter Wren	1	Singing	53.40037	-7.32831	Flying
2025-05-06-10-47-24	Blue Tit	2	Territorial dispute	53.40005	-7.32892	Flying
2025-05-06-10-48-01	Blackbird	1	Alarm calling	53.40009	-7.32846	Flying
2025-05-06-10-49-02	Magpie	1	With food	53.40018	-7.32839	Flying
2025-05-06-10-49-36	Blue Tit	1	Alarm calling	53.40022	-7.32836	Flying
2025-05-06-10-51-32	Goldcrest	1	Flying in suitable nesting habitat	53.39992	-7.32855	Flying
2025-05-06-10-52-11	Blue Tit	1	Calling	53.39983	-7.32869	Flying
2025-05-06-10-52-38	Blackbird	1	Calling	53.39962	-7.32866	Flying
2025-05-06-10-53-06	Chaffinch	1	Singing	53.39966	-7.32879	Flying
2025-05-06-10-54-12	Chaffinch	1	Singing	53.39983	-7.32916	Flying
2025-05-06-10-54-31	Winter Wren	1	Singing	53.39997	-7.32946	Flying
2025-05-06-10-54-48	Robin	1	Singing	53.40117	-7.32889	Flying
2025-05-06-10-55-33	Bullfinch	1	Flying through the site	53.40085	-7.32939	Flying
2025-05-06-10-57-24	Wood Pigeon	2	Flushed from suitable nesting habitat	53.4003	-7.3301	Flying
2025-05-06-10-58-23	Chaffinch	2	Foraging	53.40036	-7.33017	Flying
2025-05-06-10-59-51	Chaffinch	1	Calling	53.40049	-7.33087	Flying
2025-05-06-11-00-38	Blackbird	1	Alarm calling	53.40052	-7.33101	Flying
2025-05-06-11-02-04	Blackbird	1	Singing	53.40018	-7.33077	Flying
2025-05-06-11-02-24	Goldcrest	1	Calling	53.40026	-7.33069	Flying
2025-05-06-11-03-12	Chaffinch	1	Singing	53.40013	-7.33086	Flying
2025-05-06-11-03-40	Song Thrush	2	In suitable nesting habitat	53.40022	-7.33076	Flying
2025-05-06-11-04-16	Chaffinch	1	Singing	53.39995	-7.3311	Flying
2025-05-06-11-04-44	Blackbird	1	Singing	53.3993	-7.33248	Flying
2025-05-06-11-05-42	Robin	1	Singing	53.39977	-7.33132	Flying
2025-05-06-11-07-06	Blue Tit	2	Foraging	53.39956	-7.33166	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-11-07-50	Blackbird	1	Singing	53.3994	-7.33186	Flying
2025-05-06-11-08-54	Blackcap	1	Singing	53.39927	-7.33214	Flying
2025-05-06-11-09-12	Chaffinch	1	Singing	53.39934	-7.33196	Flying
2025-05-06-11-09-29	Winter Wren	1	Singing	53.39944	-7.33181	Flying
2025-05-06-11-09-47	Robin	1	Singing	53.3993	-7.33255	Flying
2025-05-06-11-10-22	Great Tit	1	Singing	53.40072	-7.33151	Flying
2025-05-06-11-13-25	Blackbird	1	With food	53.40043	-7.33429	Flying
2025-05-06-11-14-17	Mistle Thrush	1	Alarm calling	53.40078	-7.33562	Flying
2025-05-06-11-15-27	Chaffinch	1	Calling	53.39998	-7.33435	Flying
2025-05-06-11-17-18	Magpie	1	Mobbed by misters	53.40081	-7.33559	Flying
2025-05-06-11-17-44	Blackbird	1	Alarm calling	53.40084	-7.33546	Flying
2025-05-06-11-18-14	Blue Tit	1	Singing	53.40032	-7.33501	Flying
2025-05-06-11-18-52	Goldcrest	1	In suitable nesting habitat	53.40091	-7.33545	Flying
2025-05-06-11-19-21	Wood Pigeon	1	Perched in suitable nesting habitat	53.40068	-7.33573	Flying
2025-05-06-11-20-03	Blackbird	1	Alarm calling	53.40038	-7.33518	Flying
2025-05-06-11-20-34	Winter Wren	1	Singing	53.40048	-7.33543	Flying
2025-05-06-11-20-54	Blackcap	1	Singing	53.39997	-7.33495	Flying
2025-05-06-11-22-01	Song Thrush	1	Singing	53.3999	-7.3352	Flying
2025-05-06-11-22-59	Winter Wren	1	Singing	53.40097	-7.33523	Flying
2025-05-06-11-23-21	Blackbird	1	Singing	53.40101	-7.33508	Flying
2025-05-06-11-26-09	Barn Swallow	1	Foraging	53.40109	-7.33376	Flying
2025-05-06-11-27-21	Blackbird	3	Territorial dispute	53.40135	-7.33424	Flying
2025-05-06-11-28-49	Song Thrush	1	Singing	53.40125	-7.33315	Flying
2025-05-06-11-29-26	Chaffinch	1	Singing	53.40151	-7.33383	Flying
2025-05-06-11-31-21	Chaffinch	1	Calling	53.40137	-7.33349	Flying
2025-05-06-11-32-30	Robin	1	Calling	53.40161	-7.33361	Flying
2025-05-06-11-32-56	Blackbird	1	Singing	53.4018	-7.33353	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-11-35-58	Blackbird	1	Singing	53.4019	-7.33324	Flying
2025-05-06-11-36-14	Winter Wren	1	Alarm calling	53.40185	-7.3333	Flying
2025-05-06-11-36-47	Chaffinch	1	singing	53.40197	-7.333	Flying
2025-05-06-11-37-11	Mistle Thrush	1	Singing	53.40205	-7.33289	Flying
2025-05-06-11-42-17	Blackbird	1	Alarm calling	53.40196	-7.33386	Flying
2025-05-06-11-43-28	Robin	1	Singing	53.40164	-7.33389	Flying
2025-05-06-11-46-35	Chaffinch	1	Calling	53.40104	-7.33638	Flying
2025-05-06-11-46-55	Chaffinch	1	Calling	53.40126	-7.33647	Flying
2025-05-06-11-47-32	Blackcap	1	Singing	53.4012	-7.33667	Flying
2025-05-06-11-47-52	Blackbird	1	In suitable nest habitat	53.40111	-7.33662	Flying
2025-05-06-11-49-33	Winter Wren	1	Singing	53.40087	-7.33614	Flying
2025-05-06-11-49-55	Winter Wren	1	Singing	53.40073	-7.33589	Flying
2025-05-06-11-58-53	Blackbird	1	In suitable nesting habitat	53.4001	-7.33765	Flying
2025-05-06-11-59-36	Tree Sparrow	2	In suitable nesting habitat	53.40069	-7.33763	Flying
2025-05-06-12-00-15	Song Thrush	1	Singing	53.39976	-7.33716	Flying
2025-05-06-12-00-39	Chaffinch	1	Calling	53.40047	-7.338	Flying
2025-05-06-12-02-51	Chaffinch	1	Singing	53.40023	-7.33765	Flying
2025-05-06-12-03-09	Goldcrest	1	Calling	53.40032	-7.33783	Flying
2025-05-06-12-03-35	Wood Pigeon	1	Perched in suitable nesting habitat	53.40097	-7.33639	Flying
2025-05-06-12-04-54	Winter Wren	1	Singing	53.40016	-7.3377	Flying
2025-05-06-12-05-16	Blackbird	1	Foraging	53.4001	-7.33625	Flying
2025-05-06-12-05-36	Starling	2	Foraging	53.39985	-7.33662	Flying
2025-05-06-12-09-53	Robin	1	Singing	53.40077	-7.3384	Flying
2025-05-06-12-11-43	Starling	2	With food	53.40077	-7.33768	Flying
2025-05-06-12-12-15	Song Thrush	1	Foraging	53.40078	-7.33712	Flying
2025-05-06-12-12-49	Mistle Thrush	1	Singing	53.39972	-7.33622	Flying
2025-05-06-12-14-54	House Martin	1	Collecting nest material	53.40083	-7.33768	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-12-15-57	Barn Swallow	2	Collecting nest material	53.40087	-7.33772	Flying
2025-05-06-12-16-25	Blackbird	Alarm	-	53.40094	-7.33763	Flying
2025-05-06-12-16-43	Tree Sparrow	2	In suitable nesting habitat	53.40098	-7.33746	Flying
2025-05-06-12-40-14	Raven	3	2Chicks sitting in the nest adult with food	53.39676	-7.32768	Breeding
2025-05-06-12-41-05	Yellowhammer	1	Singing	53.39737	-7.32805	Flying
2025-05-06-12-41-31	Dunnock	1	Singing	53.39656	-7.32809	Flying
2025-05-06-12-46-53	Blackbird	1	Foraging	53.3968	-7.32999	Flying
2025-05-06-12-47-54	Dunnock	2	Foraging	53.39638	-7.32917	Flying
2025-05-06-12-50-38	Chaffinch	1	Flying through the site	53.39633	-7.33064	Flying
2025-05-06-12-52-35	Blackbird	1	Alarm calling	53.39686	-7.33391	Flying
2025-05-06-12-52-52	Chiffchaff	1	Singing	53.39701	-7.33384	Flying
2025-05-06-12-53-10	Chaffinch	1	Singing	53.39684	-7.33435	Flying
2025-05-06-12-56-21	Chiffchaff	1	Singing	53.39707	-7.33479	Flying
2025-05-06-12-57-37	Chaffinch	1	Singing	53.39594	-7.33654	Flying
2025-05-06-12-58-54	Winter Wren	1	Singing	53.39646	-7.33675	Flying
2025-05-06-12-59-47	Great Tit	1	singing	53.39617	-7.33667	Flying
2025-05-06-13-02-12	Winter Wren	1	Singing	53.3968	-7.33658	Flying
2025-05-06-13-02-32	Robin	1	Calling	53.39692	-7.3365	Flying
2025-05-06-13-03-22	Blackcap	1	Singing	53.39718	-7.33486	Flying
2025-05-06-13-04-11	Robin	1	Singing	53.39734	-7.33645	Flying
2025-05-06-13-04-32	Chiffchaff	1	Singing	53.39796	-7.33624	Flying
2025-05-06-13-05-42	Chaffinch	1	Singing	53.39811	-7.33613	Flying
2025-05-06-13-07-00	Chaffinch	1	Singing	53.39735	-7.33473	Flying
2025-05-06-13-08-54	Blackbird	1	Alarm calling	53.3973	-7.33402	Flying
2025-05-06-13-09-16	Blackbird	1	Calling	53.39726	-7.33441	Flying
2025-05-06-13-09-35	Chaffinch	1	Calling	53.3973	-7.33371	Flying
2025-05-06-13-10-28	Chaffinch	2	Foraging	53.39668	-7.33396	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-13-12-13	Blue Tit	2	Foraging	53.39693	-7.33464	Flying
2025-05-06-13-14-01	Winter Wren	1	Singing	53.39715	-7.33482	Flying
2025-05-06-13-16-52	Dunnock	1	Singing	53.39824	-7.33385	Flying
2025-05-06-13-17-14	Blackbird	1	Singing	53.39828	-7.33614	Flying
2025-05-06-13-19-37	Buzzard	1	On suitable nesting habitat	53.4002	-7.33541	Flying
2025-05-06-13-20-34	Raven	1	Alarm calling	53.40037	-7.33301	Flying
2025-05-06-13-21-24	Song Thrush	1	Singing	53.39849	-7.33616	Flying
2025-05-06-13-21-47	Winter Wren	1	Singing	53.39835	-7.3362	Flying
2025-05-06-13-22-43	Blackcap	1	Singing	53.39869	-7.33628	Flying
2025-05-06-13-23-02	Blackbird	1	Singing	53.3986	-7.33623	Flying
2025-05-06-13-23-28	Blackbird	1	Alarm calling	53.3996	-7.33651	Flying
2025-05-06-13-24-01	Blackcap	1	Singing	53.399	-7.3364	Flying
2025-05-06-13-24-16	Chaffinch	1	Singing	53.39895	-7.33644	Flying
2025-05-06-13-24-36	Blackcap	1	Singing	53.39965	-7.3363	Flying
2025-05-06-13-25-50	Robin	1	Singing	53.39959	-7.33669	Flying
2025-05-06-13-26-19	Winter Wren	1	Singing	53.39968	-7.33615	Flying
2025-05-06-13-27-35	Blackcap	1	Singing	53.39977	-7.33584	Flying
2025-05-06-13-27-52	Robin	1	Singing	53.39969	-7.33604	Flying
2025-05-06-13-29-57	Blackbird	1	Singing	53.40006	-7.3348	Flying
2025-05-06-13-30-23	Robin	1	Singing	53.39971	-7.33368	Flying
2025-05-06-13-32-55	Chaffinch	2	Calling	53.3996	-7.3334	Flying
2025-05-06-13-33-22	Blackbird	1	Calling	53.39954	-7.33319	Flying
2025-05-06-13-38-48	Chaffinch	1	Singing	53.40008	-7.3298	Flying
2025-05-06-13-39-52	Blue Tit	1	Foraging	53.40032	-7.33016	Flying
2025-05-06-13-42-59	Robin	1	Foraging	53.39927	-7.32824	Flying
2025-05-06-13-46-49	Chaffinch	1	Foraging	53.39934	-7.32757	Flying
2025-05-06-13-48-29	Blackbird	1	Alarm calling	53.39934	-7.32583	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-13-50-22	Winter Wren	1	Calling	53.39936	-7.3265	Flying
2025-05-06-13-50-41	Robin	1	Singing	53.39936	-7.32647	Flying
2025-05-06-13-51-07	Dunnock	1	Foraging	53.39936	-7.32632	Flying
2025-05-06-13-55-11	Blackbird	2	In suitable nesting habitat	53.39939	-7.32615	Flying
2025-05-06-13-55-41	Winter Wren	1	Singing	53.39932	-7.32587	Flying
2025-05-06-13-57-31	Dunnock	1	With food	53.39882	-7.3265	Flying
2025-05-06-13-58-34	Chaffinch	1	Calling	53.39854	-7.32602	Flying
2025-05-06-14-00-25	Linnet	2	foraging	53.39908	-7.32545	Flying
2025-05-06-14-01-03	Raven	2	Alarm calling	53.40008	-7.32418	Flying
2025-05-06-14-02-18	Goldcrest	1	Calling	53.39995	-7.32479	Flying
2025-05-06-14-02-26	Winter Wren	1	Singing	53.39945	-7.32528	Flying
2025-05-06-14-02-47	Goldfinch	1	Singing	53.39955	-7.3252	Flying
2025-05-06-14-03-09	Chaffinch	1f	With food	53.39936	-7.32535	Flying
2025-05-06-14-04-02	Chaffinch	1	Singing	53.3996	-7.32524	Flying
2025-05-06-14-09-05	Winter Wren	1	Singing	53.39813	-7.3266	Flying
2025-05-06-14-10-15	Chaffinch	1	Flying SE with food	53.39779	-7.32695	Flying
2025-05-06-14-11-20	Chaffinch	1	Foraging	53.39749	-7.32745	Flying
2025-05-06-14-13-07	Yellowhammer	1	Calling	53.39778	-7.32713	Flying
2025-05-06-14-13-55	Linnet	1	Flying over site	53.39729	-7.32782	Flying
2025-05-06-14-52-21	Yellowhammer	1	Singing	53.40386	-7.30814	Flying
2025-05-06-14-52-59	Barn Swallow	12	12 counted in suitable nesting habitat could be more	53.4038	-7.30866	Flying
2025-05-06-14-54-08	Jackdaw	6	In this area	53.40383	-7.30896	Flying
2025-05-06-14-57-23	Winter Wren	1	Singing	53.40402	-7.30833	Flying
2025-05-06-14-57-45	Starling	1	With food	53.40377	-7.30812	Flying
2025-05-06-15-02-23	Song Thrush	1	Singing	53.40289	-7.30987	Flying
2025-05-06-15-08-53	Yellowhammer	1	Calling	53.40276	-7.30783	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-15-09-33	Dunnock	1	Calling	53.4027	-7.30782	Flying
2025-05-06-15-09-52	Chaffinch	1	Singing	53.40273	-7.30778	Flying
2025-05-06-15-10-13	Dunnock	1	Calling	53.40259	-7.30782	Flying
2025-05-06-15-10-34	Chaffinch	1	Singing	53.40249	-7.30776	Flying
2025-05-06-15-12-28	Chaffinch	1	Calling	53.40211	-7.30765	Flying
2025-05-06-15-12-46	Winter Wren	1	Singing	53.40224	-7.30772	Flying
2025-05-06-15-13-49	Blackbird	1	Singing	53.4019	-7.30762	Flying
2025-05-06-15-15-08	Winter Wren	1	Calling	53.40149	-7.30744	Flying
2025-05-06-15-19-41	Blackbird	1	In suitable habitat	53.40092	-7.30729	Flying
2025-05-06-15-21-04	Robin	1	Calling	53.4008	-7.30723	Flying
2025-05-06-15-21-21	Robin	1	Singing	53.4006	-7.30721	Flying
2025-05-06-15-21-44	Winter Wren	1	Alarm calling	53.40053	-7.30719	Flying
2025-05-06-15-23-58	Blackbird	1	Alarm calling	53.40021	-7.30726	Flying
2025-05-06-15-24-22	Chaffinch	1	Singing	53.40019	-7.30707	Flying
2025-05-06-15-24-40	Blackbird	1	Calling	53.40034	-7.30713	Flying
2025-05-06-15-26-26	Song Thrush	1	In suitable nesting habitat	53.39996	-7.30699	Flying
2025-05-06-15-27-27	Blackbird	1	In suitable nesting habitat	53.39981	-7.30696	Flying
2025-05-06-15-29-01	Chaffinch	1	Singing	53.39923	-7.30802	Flying
2025-05-06-15-29-21	Winter Wren	1	Singing	53.39929	-7.30763	Flying
2025-05-06-15-29-40	Robin	1	Singing	53.3992	-7.30821	Flying
2025-05-06-15-30-48	Winter Wren	1	Singing	53.39942	-7.30702	Flying
2025-05-06-15-31-12	Blackcap	1	Singing	53.39946	-7.30674	Flying
2025-05-06-15-36-04	Robin	1	Singing	53.39998	-7.30433	Flying
2025-05-06-15-36-40	Blackbird	1	Singing	53.40025	-7.30368	Flying
2025-05-06-15-36-57	Chaffinch	1	Singing	53.40034	-7.30369	Flying
2025-05-06-15-38-11	Song Thrush	1	Foraging	53.40091	-7.30394	Flying
2025-05-06-15-41-14	Winter Wren	1	Singing	53.40102	-7.30398	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-15-41-41	Chaffinch	1	Singing	53.40071	-7.30386	Flying
2025-05-06-15-42-03	Blackcap	1	Singing	53.40098	-7.30398	Flying
2025-05-06-15-44-58	Blue Tit	2	Foraging	53.40158	-7.30424	Flying
2025-05-06-15-45-17	Song Thrush	1	Singing	53.40143	-7.30415	Flying
2025-05-06-15-45-38	Blackbird	1	Foraging	53.40213	-7.30448	Flying
2025-05-06-15-46-05	Robin	1	Singing	53.4015	-7.30419	Flying
2025-05-06-15-46-42	Starling	With food	-	53.40193	-7.30507	Flying
2025-05-06-15-47-22	Winter Wren	1	Singing	53.4013	-7.30408	Flying
2025-05-06-15-48-17	Yellowhammer	1	Singing	53.40181	-7.30533	Flying
2025-05-06-15-49-52	Chaffinch	1	Singing	53.40199	-7.30574	Flying
2025-05-06-15-50-10	Winter Wren	1	In suitable nesting habitat	53.40203	-7.30581	Flying
2025-05-06-15-57-28	Blackbird	1	Singing	53.40276	-7.30722	Flying
2025-05-06-15-59-11	Greenfinch	1	Calling	53.40271	-7.30712	Flying
2025-05-06-16-00-10	Chaffinch	1	Singing	53.40231	-7.30627	Flying
2025-05-06-16-00-27	Chaffinch	1	Calling	53.40232	-7.30633	Flying
2025-05-06-16-01-05	Blackbird	1	Singing	53.4024	-7.30651	Flying
2025-05-06-16-02-39	Robin	1	Singing	53.4027	-7.30525	Flying
2025-05-06-16-03-01	Robin	1	Singing	53.40308	-7.3048	Flying
2025-05-06-16-03-27	Blue Tit	1	Alarm calling	53.40262	-7.30536	Flying
2025-05-06-16-04-24	Blackbird	1	Singing	53.40295	-7.30483	Flying
2025-05-06-16-04-39	Chaffinch	1	Singing	53.40287	-7.30488	Flying
2025-05-06-16-06-12	Robin	1	Singing	53.40352	-7.30479	Flying
2025-05-06-16-07-11	Chaffinch	1	Calling	53.40372	-7.30465	Flying
2025-05-06-16-07-37	Mistle Thrush	1	Alarm calling	53.40383	-7.30463	Flying
2025-05-06-16-07-59	Blackbird	1	Alarm calling	53.40389	-7.30455	Flying
2025-05-06-16-09-53	Wood Pigeon	1	Flushed from suitable nesting habitat	53.40505	-7.30445	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-16-10-35	Blackbird	1	Alarm calling	53.40592	-7.30421	Flying
2025-05-06-16-12-05	Blackbird	1	Foraging	53.40516	-7.30439	Flying
2025-05-06-16-13-33	Tree Sparrow	2	Singing	53.40603	-7.3045	Flying
2025-05-06-16-14-05	Blackbird	1	In suitable nesting habitat	53.40619	-7.30553	Flying
2025-05-06-16-15-08	Robin	1	Singing	53.40643	-7.30664	Flying
2025-05-06-16-17-40	Blackbird	1	Singing	53.40626	-7.30745	Flying
2025-05-06-16-17-59	Barn Swallow	5	Foraging	53.40559	-7.30606	Flying
2025-05-06-16-18-29	Robin	1	Singing	53.40647	-7.30754	Flying
2025-05-06-16-19-31	Pied Wagtail	2	Foraging	53.4069	-7.30835	Flying
2025-05-06-16-34-42	Yellowhammer	1	Singing	53.40741	-7.31136	Flying
2025-05-06-16-35-30	Chaffinch	1	Singing	53.40764	-7.31103	Flying
2025-05-06-16-35-50	Winter Wren	1	Alarm calling	53.40754	-7.31058	Flying
2025-05-06-16-37-14	Blue Tit	1	Alarm calling	53.40758	-7.31069	Flying
2025-05-06-16-37-42	Blackbird	1	Alarm calling	53.40722	-7.31168	Flying
2025-05-06-16-38-23	Yellowhammer	2	Foraging male and female	53.40729	-7.31159	Flying
2025-05-06-16-39-50	Chaffinch	1	Singing	53.40682	-7.31229	Flying
2025-05-06-16-41-16	Chaffinch	1	Singing	53.40651	-7.3127	Flying
2025-05-06-16-41-35	Blackbird	1	Singing	53.40645	-7.3128	Flying
2025-05-06-16-41-49	Barn Swallow	2	Foraging	53.40611	-7.31182	Flying
2025-05-06-16-43-30	Robin	1	Singing	53.4061	-7.31322	Flying
2025-05-06-16-43-48	Wood Pigeon	1	Perched in suitable nesting habitat	53.40607	-7.31336	Flying
2025-05-06-16-44-21	Blackbird	1	Calling	53.40527	-7.3122	Flying
2025-05-06-16-45-23	Blackbird	1	Calling	53.40567	-7.31381	Flying
2025-05-06-16-45-47	Jackdaw	3	Flying over site	53.40461	-7.31097	Flying
2025-05-06-16-48-00	Chaffinch	1	Singing	53.40523	-7.312	Flying
2025-05-06-16-49-06	Robin	1	Singing	53.40507	-7.31185	Flying
2025-05-06-16-49-53	Chaffinch	1	Singing	53.40504	-7.31131	Flying

Date	Species	No's	Note	Latitude	Longitude	Breeding_
2025-05-06-16-51-05	Winter Wren	1	Singing	53.40495	-7.31074	Flying
2025-05-06-16-51-51	Blackbird	1	Singing	53.40492	-7.31052	Flying
2025-05-06-16-53-00	Blackbird	1	Singing	53.40464	-7.30969	Flying
2025-05-06-16-57-39	Yellowhammer	1	Singing	53.40546	-7.3069	Flying

Table 9-5: Hinterland results

Date	Species	No. Obs	Note	Lat	Lon
15/10/2024	Mute Swan	17	-	53.3879	-7.31614
15/10/2024	Northern Lapwing	7	-	53.44868	-7.43405
15/10/2024	Little Grebe	7	-	53.50826	-7.4055
15/10/2024	Coot	250	-	53.48483	-7.39578
15/10/2024	Great Crested Grebe	11	-	53.47268	-7.27346
15/10/2024	Winter Wren	4	-	53.40836	-7.28962
15/10/2024	Mew Gull	1	-	53.37677	-7.27932
15/10/2024	Herring Gull	1	-	53.37887	-7.26949
15/10/2024	Mute Swan	17	-	53.40088	-7.26321
15/10/2024	Northern Lapwing	7	-	53.42968	-7.3077
15/10/2024	Little Grebe	7	-	53.46358	-7.30619
15/10/2024	Coot	250	-	53.46246	-7.30655
15/10/2024	Great Crested Grebe	11	-	53.46307	-7.30675
15/10/2024	Great Cormorant	3	-	53.43445	-7.3544
15/10/2024	Winter Wren	4	-	53.38683	-7.31385
15/10/2024	Mew Gull	1	-	53.39177	-7.34832
15/10/2024	Herring Gull	1	-	53.39616	-7.34756
15/10/2024	Grey Heron	1	-		

Date	Species	No. Obs	Note	Lat	Lon
15/10/2024	Mallard	17	-	53.39903	-7.3019
15/10/2024	Mute Swan	2	-	53.39903	-7.3019
15/10/2024	Blackbird	2	-	53.39903	-7.3019
15/10/2024	Moorhen	1	-	53.39903	-7.3019
15/10/2024	Black-headed Gull	17	-	53.39903	-7.3019
15/10/2024	Little Grebe	5	-	53.39903	-7.3019
15/10/2024	Coot	400	-	53.39904	-7.30167
15/10/2024	Mallard	52	-	53.39903	-7.3019
15/10/2024	Great Cormorant	1	-	53.39903	-7.3019
15/10/2024	Golden Plover	134	-	53.37646	-7.24743
15/10/2024	Buzzard	1	-	53.37646	-7.24743
15/10/2024	Curlew	16	-	53.37646	-7.24743
15/10/2024	Northern Lapwing	235	-	53.37646	-7.24743
15/10/2024	Mallard	400	-	53.37646	-7.24743
15/10/2024	Golden Plover	4	-	53.3768	-7.24481
15/10/2024	Great Cormorant	1	-	53.3768	-7.24481
15/10/2024	Little Grebe	1	-	53.3768	-7.24481
15/10/2024	Mallard	2	-	53.3768	-7.24481
15/10/2024	Kestrel	1	-	53.3768	-7.24481
15/10/2024	Golden Plover	6	-	53.37969	-7.26816
16/11/2024	Northern Lapwing	37	-	53.37969	-7.26816
16/11/2024	Little Grebe	8	-	53.37671	-7.27929
16/11/2024	Great Crested Grebe	10	-	53.37671	-7.27929
16/11/2024	Water Rail	2	-	53.37673	-7.27919
16/11/2024	Mute Swan	26	-	53.37671	-7.27929
16/11/2024	Coot	34	-	53.37665	-7.27923

Date	Species	No. Obs	Note	Lat	Lon
16/11/2024	Great Cormorant	7	-	53.37877	-7.26965
16/11/2024	Mallard	9	-	53.37877	-7.26965
16/11/2024	Great Cormorant	7	-	53.37878	-7.2696
16/11/2024	Mallard	9	-	53.34008	-7.31069
16/11/2024	Teal	5	-	53.39903	-7.3019
16/11/2024	Black-headed Gull	5	-	53.39903	-7.3019
16/11/2024	Black-headed Gull	42	-	53.39903	-7.3019
16/11/2024	Mallard	2	-	53.39903	-7.3019
16/11/2024	Mute Swan	1	-	53.39903	-7.3019
16/11/2024	Mute Swan	31	-	53.39903	-7.3019
16/11/2024	Black-headed Gull	22	-	53.39903	-7.3019
16/11/2024	Great Crested Grebe	33	-	53.39903	-7.3019
16/11/2024	Coot	38	-	53.39903	-7.3019
16/11/2024	Whooper Swan	7	-	53.39903	-7.3019
16/11/2024	Goldeneye	6	-	53.39903	-7.3019
16/11/2024	Little Grebe	47	-	53.39889	-7.3018
16/11/2024	Great Cormorant	10	-	53.39903	-7.3019
18/12/2024	Kestrel	1	Hunting near turbine	53.37528	-7.24083
19/12/2024	Whooper Swan	48	Swimming on bog pond	53.38022	-7.24944
20/12/2024	Northern Lapwing	110	Flying around the turbines & quarry lakes, then landed on island within quarry lake	53.37814	-7.2826
21/12/2024	Moorhen	1	-	53.37645	-7.24705
22/12/2024	Golden Plover	15	Perched in tiled field	53.3393	-7.2912
23/12/2024	Northern Lapwing	34	Perched in field	53.40874	-7.28873
25/01/2025	Golden Plover	4	Flew over	53.34019	-7.28883
25/01/2025	Tufted Duck	2	One male & 1 juvenile. On artificial pond, feeding/ diving	53.37953	-7.2677
25/01/2025	Curlew	6	In field with cattle and lapwing	53.37559	-7.28238
25/01/2025	Northern Lapwing	136	-	53.37591	-7.28189

Date	Species	No. Obs	Note	Lat	Lon
25/01/2025	Northern Lapwing	36	In field with bull	53.37301	-7.26861
25/01/2025	Whooper Swan	63	Grazing on GA1	53.37408	-7.26314
25/01/2025	Starling	30	No lapwing	53.40866	-7.28962
25/01/2025	Mallard	4	-	53.39913	-7.30136
25/01/2025	Mute Swan	2	-	53.39927	-7.30176
25/01/2025	Grey Heron	1	-	53.47703	-7.27214
25/01/2025	Great Black-backed Gull	3	-	53.47512	-7.27295
25/01/2025	Lesser Black-backed Gull	5	Also large flocks of starling, jackdaw, rook, redwing	53.46225	-7.30526
25/01/2025	Mew Gull	15	-	53.46236	-7.30555
25/01/2025	Herring Gull	5	Perched in field	53.4621	-7.30535
25/01/2025	Black-headed Gull	150	Perched in field	53.46211	-7.30492
25/01/2025	Northern Lapwing	57	Walking around field with sheep	53.46247	-7.3051
25/01/2025	Mew Gull	7	-	53.46292	-7.31721
25/01/2025	Golden Plover	8	Large open fields above lough Ennell. Disturbance sound so lots of flocks flying. 8 GP seen, no flocks settled	53.46855	-7.31766
12/03/2025	Tufted Duck	25	-	53.34016	-7.31085
12/03/2025	Little Grebe	2	On bog pond	53.39144	-7.28027
12/03/2025	Mute Swan	2	-	53.3765	-7.24698
12/03/2025	Whooper Swan	30	-	53.37658	-7.24688
12/03/2025	Mute Swan	2	-	53.37693	-7.29055
12/03/2025	Black-headed Gull	5	-	53.38078	-7.25209
12/03/2025	Mute Swan	1	-	53.3797	-7.24688
12/03/2025	Wigeon	4	-	53.37697	-7.24329
12/03/2025	Coot	2	-	53.4745	-7.27264
12/03/2025	Mallard	2	-	53.47475	-7.27256
12/03/2025	Wigeon	5	-	53.47466	-7.27275
12/03/2025	Teal	9	-	53.463	-7.30669

Date	Species	No. Obs	Note	Lat	Lon
12/03/2025	Coot	1	-	53.46278	-7.30685
12/03/2025	Mallard	11	-	53.46253	-7.30672
12/03/2025	Buzzard	1	Hunting over bog	53.46311	-7.30635
28/04/2025	Mute Swan	2	-	53.37774	-7.26132
28/04/2025	Black-headed Gull	4	By quarry	53.39903	-7.3019
28/04/2025	Buzzard	1	Flying	53.37646	-7.24743
28/04/2025	Kestrel	1	Hunting	53.37969	-7.26816
28/04/2025	Little Grebe	1	Sound from reeds	53.4084	-7.28929
28/04/2025	Coot	1	-	53.37671	-7.27929
28/04/2025	Mallard	2	-	53.37877	-7.26965
28/04/2025	Buzzard	1	-	53.34008	-7.31069
28/04/2025	Buzzard	1	-	53.47648	-7.27074
28/04/2025	Sparrowhawk	1	-	53.34178	-7.25962
28/04/2025	Buzzard	1	-	53.38095	-7.2766
28/04/2025	Buzzard	1	-	53.39333	-7.27271
14/05/2025	Rook	20	Nesting	53.45604	-7.36312
14/05/2025	Rook	20	No birds of interest	53.41028	-7.35452
14/05/2025	Black-headed Gull	1	-	53.41768	-7.29937
14/05/2025	Kestrel	1	-	53.46069	-7.32556
14/05/2025	Kestrel	1	-	53.44725	-7.34533
14/05/2025	Buzzard	3	Flying over woodland. One being mobbed by HC	53.44573	-7.34079
14/05/2025	Buzzard	1	Soaring high	53.43477	-7.35744
14/05/2025	Buzzard	1	Flew up out of field	53.39835	-7.29312
14/05/2025	Black-headed Gull	2	Flew disappeared behind tree canopy to east	53.39949	-7.27197
14/05/2025	Black-headed Gull	2	Heading the same direction as last two	53.39278	-7.27107
14/05/2025	Black-headed Gull	1	Flying south	53.39291	-7.26929

Date	Species	No. Obs	Note	Lat	Lon
14/05/2025	Black-headed Gull	1	Flying south	53.3933	-7.25974
14/05/2025	Mute Swan	2	-	53.39312	-7.26596
14/05/2025	Mute Swan	2	Pair on quarry lake in very busy area	53.37707	-7.24269
14/05/2025	Tufted Duck	8	4 pairs on quarry lake	53.38057	-7.27569
14/05/2025	Little Grebe	3	3 birds, two showing aggressive behaviour to each other, so probably pair & and extra male	53.37969	-7.2683
14/05/2025	Northern Lapwing	1	Flew over bog fighting with 2 HC, then landed on raised bit of bog in heather and remained there.	53.37963	-7.26728
14/05/2025	Northern Lapwing	2	Lapwing flying over bog then landing on bog	53.38847	-7.30265
14/05/2025	Northern Lapwing	1	Seen sitting on what appears to be nest. Very close to people and diggers cutting turf	53.38632	-7.3
14/05/2025	Buzzard	1	Over woodland	53.38585	-7.30837

APPENDIX 6.3

Project Admiral Castlelost

Ecological Impact Assessment on

Water Courses, Badgers, Otters and Non-Volant Mammals

Prepared By:

Moore Group -
Environmental Services

On behalf of:
Lumcloon Energy Limited (LEL)

Job Number 24005
27 February 2026

Project Proponent	Lumcloon Energy Limited (LEL)
Project	Project Admiral Castlelost
Title	Project Admiral Castlelost Ecological Impact Assessment on Water Courses, Badgers, Otters and Non-Volant Mammals

Project Number	24005	**Document Ref**	24005 Project Admiral Ecology Report Rev0	
Revision	**Description**	**Author**		**Date**
Rev0	Revised per RFI	G. O'Donohoe		27 February 2026
Moore Archaeological and Environmental Services Limited				

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1. INTRODUCTION

Moore Group was commissioned by Lumcloon Energy Limited (LEL) to formulate a response to a Request for Further Information by Westmeath Co. CO. in regard to the construction and operation of Data Centre Facility and Decentralised Energy Resource at Gneevebane, Oldtown, Farthingstown, Castlelost, and Kiltotan and Collinstown Rochfortbridge, County Westmeath; (hereafter referred to as the Proposed Development).

This report provides information on ecological features if present within the potential Zone of Influence of the Proposed Development, of particular significance, primarily designated habitats and species, including Water Courses, Badgers, Otters and Non-Volant Mammals.

This report was compiled by Ger O'Donohoe M.Sc. of Moore Group providing information on habitats in the study area. Ger is the principal ecologist with Moore Group and has over 30 years' experience in ecological impact assessment. He graduated from ATU Galway in 1993 with a B.Sc. in Applied Freshwater & Marine Biology and subsequently worked in environmental consultancy while completing an M.Sc. in Environmental Sciences, graduating from Trinity College, Dublin in 1999. (He also has over 15 years' experience of carrying out bat surveys and has completed the Bat Conservation Ireland, Bat Detector Workshop which is the standard training for the carrying out of bat surveys in Ireland and follows the Bat Conservation Ireland 'Bat Survey Guidelines' - Aughney *et al.*, 2008'. In addition, Ger is an active member of the Galway Bat Group and Bat Conservation Ireland, which monitors bat populations in Ireland, and facilitates the education of bat communities to the public.

The following important ecological receptors were considered in planning and designing the project, and in assessing its likely ecological effects:

- Sites with nature conservation designations, including proposed NHAs, the reasons for their designation, and their conservation objectives, where available;
- Annex IV (Habitats Directive) species of fauna and flora, and their breeding sites and resting places, which are strictly protected under the European Communities (Birds and Natural Habitats) Regulations, 2011;
- Other species of fauna and flora which are protected under the Wildlife Acts, 1976-2012;
- Other habitats of ecological value in a national to local context, including rocky habitats in the general area;
- Stepping stones and ecological corridors encapsulated by Article 10 of the Habitats Directive.

The report has been compiled in compliance with the European Communities Legal requirements and follows EPA Guidelines on Information to be contained in an EIAR (EPA, 2022) and on Transport Infrastructure Ireland TII policy and guidance outlined in Section 2.

The site location is presented in Figure 1 below.

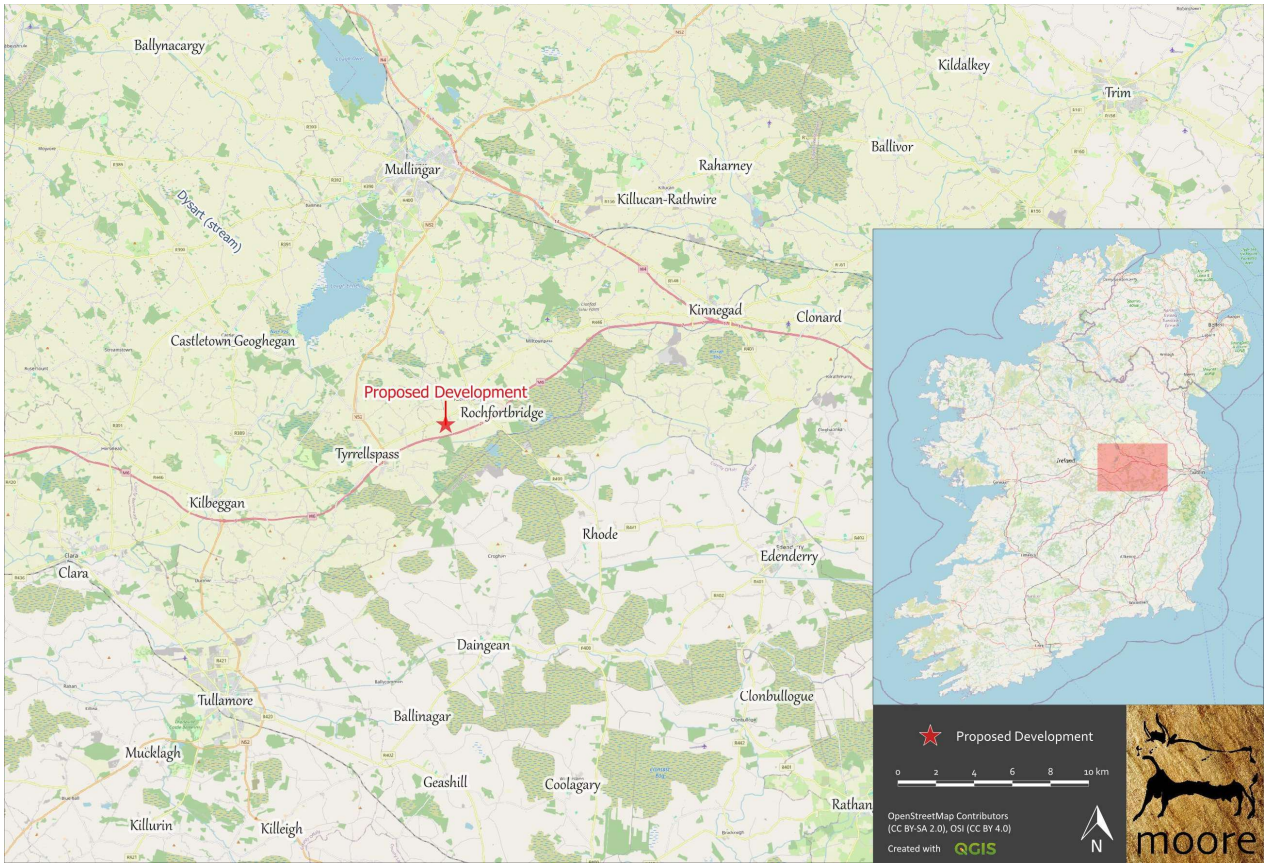

Figure 1. Showing the site location at Kiltotan, Collinstown Oldtown, Co. Westmeath.

2. ASSESSMENT METHODOLOGY

2.1. POLICY & LEGISLATION

2.1.1. EU Habitats Directive

The "*Habitats Directive*" (Council Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union. The Habitats Directive provides for the designation, conservation and protection of sites comprising Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), collectively forming the Natura 2000 network of 'European sites'. Article 3 of the Habitats Directive obliges Member States to designate as SACs sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II of the Habitats Directive. Article 10 of the Habitats Directive requires that Member States endeavour to improve the ecological coherence of the Natura 2000 network to manage and conserve features of the landscape which are of major importance for wild fauna and flora, for example ecological corridors or stepping-stones which are important for the migration, dispersal and genetic exchange of species.

Article 6(2) obliges Member States to take the necessary measures to avoid the deterioration of an SAC, or disturbance of a species for which the site is designated. Article 6(3) sets out the requirement for an

"Appropriate Assessment", to ensure that a proposed plan or project will not have an adverse effect on the integrity of a SAC. Article 7 applies the requirements of Article 6(2) and 6(3) of the Habitats Directive to SPAs designated under the Birds Directive.

In addition, and separate to the Appropriate Assessment requirements, Article 12 of the Habitats Directive obliges Member States to establish a regime of strict protection for certain species listed in Annex IV of the Directive, wherever they occur within their natural range. The protection for species under Article 12 of the Habitats Directive is not confined to the boundary of SACs. Species listed in Annex IV include the otter.

2.1.2. Wildlife Acts 1976 - 2024[1]

The primary domestic legislation providing for the protection of wildlife in general, and wild birds in particular, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976, as amended. The aims of the Wildlife Act, according to the National Parks and Wildlife Service (NPWS) are "... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims." All wild bird species are protected under the Act. The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) made significant amendments to the Wildlife Acts to ensure consistency with the Habitats and Birds Directives.

2.1.3. Westmeath County Council Planning Policies & Objectives

This EcIA was prepared with consideration of the policies and objectives of the Westmeath County Development Plan 2021-2027 in regard to Biodiversity; Chapter 12 Natural Heritage and Green Infrastructure.

2.2. SURVEY METHODOLOGY

2.2.1. Desk Study

The assessment was carried out in three stages, firstly through desktop assessment to determine existing records in relation to habitats and species present in the potential Zone of Influence of the Proposed Development. This included research on the NPWS metadata website, the National Biodiversity Data Centre (NBDC) database and a literature review of published information on flora and fauna occurring in the development area.

[1] Wildlife Act 1976, as amended. Administrative consolidation of the Wildlife Act 1976, Law Reform Commission (2024)

Sources of information that were used to collate data on biodiversity in the potential Zone of Influence are listed below:

- The following mapping and Geographical Information Systems (GIS) data sources, as required:
  - National Parks & Wildlife (NPWS) protected site boundary data;
  - Ordnance Survey of Ireland (OSI) mapping and aerial photography;
  - OSI/ Environmental Protection Agency (EPA) rivers and streams, and catchments;
  - Open Street Maps;
  - Digital Elevation Model over Europe (EU-DEM);
  - Google Earth and Bing aerial photography 1995-2026;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including:
  - Natura 2000 - Standard Data Form;
  - Conservation Objectives;
  - Site Synopses;
- National Biodiversity Data Centre records;
  - Online database of rare, threatened and protected species;
  - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2019); and
- Relevant Development Plans in neighbouring areas:
  - Westmeath County Development Plan 2021-2027

2.2.2. Field Study

The second phase of the survey involved site visits on the following dates to establish the existing environment in the footprint of the proposed development area.

20/08/24 Habitats, Badgers and Otters Surveys

31/10/24 Habitats and Badgers Surveys

01/04/25 Spring Habitats, Badgers and Otters Surveys

07/05/25 Habitats and Badger Surveys

Areas which were highlighted during desktop assessment were investigated in closer detail according to the Heritage Council Best Practice Guidance for Habitat Survey and Mapping (Smith *et al*., 2011). Habitats in the proposed development area were classified according to the Heritage Council publication "*A Guide to Habitats in Ireland*" (Fossitt, 2000). This publication sets out a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. This form of classification uses codes to classify different habitats

based on the plant species present. Species recorded in this report are given in both their Latin and English names. Latin names for plant species follow the nomenclature of "*An Irish Flora"* (Parnell & Curtis, 2012).

Signs of mammals such as badgers and otters were searched for while surveying the study area noting any sights, signs or any activity in the vicinity especially along adjacent boundaries.

Badger Survey Methodology

The following methodology used during fieldwork and site surveying was adopted from Scottish Nature and included information provided in Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes by Transport Infrastructure Ireland formerly NRA (2006).

Initial Field Surveys

Badger surveys should be undertaken within an area of search extending 1km from the periphery of the proposed development area. Within this area of search all fence lines, woodland and scrub habitats should be systematically surveyed for evidence of badgers in the form of:

- Faeces: badgers usually deposit faeces in characteristic excavated pits, concentrations of which (latrine sites) are typically found at home range boundaries.
- Setts, comprising either single isolated holes or a series of holes, likely to be interconnected underground.
- Paths between setts or leading to feeding areas.
- Scratching posts at the base of tree trunks.
- Snuffle holes (small scrapes where badgers have searched for insects, earthworms and plant tubers).
- Day nests (bundles of grass and other vegetation where badgers may sleep above ground).
- Hair traces.
- Footprints

When found, activity levels at setts should be scored using the following criteria:

- Number of well used holes (with one or more of the features : well worn entrance; freshly excavated soil; bedding material)
- Number of partially used holes (leaves or twigs in entrance and/or mosses and other plants growing in or around entrance)
- Number of disused holes (partially or completely blocked, with considerable amount of excavation required for reoccupation).

Setts should also be classified using the conventions shown in the following criteria.

Sett Type	Definition

Main	Several holes with large spoil heaps and obvious paths emanating from and between sett entrances
Annexe	Normally less than 150m from main sett, comprising several holes. May not be in use all the time, even if main sett is very active.
Subsidiary	Usually at least 50m from main sett with no obvious paths connecting to other setts. May only be used intermittently
Outlier	Little spoil outside holes. No obvious paths connecting to other setts and only used sporadically. May be used by foxes and rabbits.

Otter Survey Methodology

The following methodology used during fieldwork and site surveying was adopted from Guidelines for the treatment of otters prior to the construction of national road schemes by Transport Infrastructure Ireland formerly NRA (2006).

A walkover otter survey was undertaken on watercourses within the vicinity of the proposed development on. The survey area comprised 1.3km of linear riverine habitat (inclusive of both banks where accessible) on the Castlejordan River and 1.5km of drainage ditches leading to the Kiltonan Stream and 1.1km of the Kiltonan Stream.

The survey was completed during optimal conditions (dry, mild, bright and settled) which ensured that a good representation of habitat marked by otter could be recorded in the field, including territorial marking or marking of feeding areas. The survey also deliberately coincided with a prolonged dry period to minimise rain washout of otter signs (spraint, smears etc.). Water levels were low (at base flows) during the survey period.

Any otter sign is logged by type, location (GPS), condition and approximate age for later interpretation to distinguish differences in habitat use and activity. Spraints were subjectively assessed as either fresh (very recent), mixed-age (recent & older spraints, typically indicative of a regular marking site) or old (spraint degrading and not recently deposited). Furthermore, indicative counts of spraint (i.e. number of individual spraints) and the number of sprainting sites (often separate clusters in one area) are noted. This helps indicate the frequency of otter marking that can clarify preferential use of habitat over time. High marking frequency often demarcates important territory.

2.2.3. Site Evaluation and Impact Assessment

The final part of the assessment involves an evaluation of the study area and determination of the potential impacts on the habitats of the study area. This part of the assessment forms the basis for Impact Assessment and is based on the following guidelines and publications:

- Guidelines for Ecological Impact Assessment in the UK And Ireland Terrestrial, Freshwater, Coastal and Marine Version 1.3 - Updated September 2024 (CIEEM, 2024);
- EPA Guidelines on Information to be contained in an EIAR (EPA, 2022);
- Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011);
- Ecological Surveying Techniques for Protected Flora & Fauna (NRA, 2008);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, December 2009, Rev 2010);
- Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC (EC, 2007).

While prepared for linear projects the TII Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009) are still relevant and outlines the methodology for evaluating ecological impacts of the project in the present report. According to the TII Guidelines, the Ecological Study should address:

- Designated conservation areas and sites proposed for designation within the zone(s) of influence of any of the Project options,
- All the main inland surface waters (e.g. rivers, streams, canals, lakes and tanks) that are intersected by any of the route corridor options, including their fisheries value and any relevant designations,
- Aquifers and dependent systems and turloughs and their subterranean water systems,
- Any known or potentially important sites for rare or protected flora or fauna that occur along or within the zone(s) of influence of any of the route options,
- Any other sites of ecological value, that are not designated, along or in close proximity to any of the route corridor options,
- Any other relevant conservation designations or programmes (e.g. catchment management schemes, habitat restoration or creation projects, community conservation projects, etc.),
- Any other features of particular ecological or conservation significance along any of the route options.

The TII Guidelines set out a method of evaluating the importance of sites identified and in turn the evaluation of the significance of impacts. The Evaluation Scheme is presented in Appendix 1 for reference.

Impact Assessment is then based on CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland, 2024.

3. PROJECT DESCRIPTION

The Proposed Development consists of a Data Centre Facility and Decentralised Energy Resource within an overall development boundary area of 243 hectares comprising:

- 1 No. Security control building (floor area 23.5m^2).
- 6 No. new data buildings including administration blocks (each 228m x 62m x 18m high), 6 No. MV switch room buildings, within a secure campus having an area of 39 hectares, 1 No. fire water tank (Volume: 2000m^3), pump house and proprietary modular water treatment plant.
- 6 No. fuel cell towers (each 89m x 29m x 20m high), 2 No. chilled water tanks (Volume: 1000m^3 each), pump house, ancillary water tank (Volume: 2000m3), carbon dioxide process building (30.7m x 15.7m x 11.3m high) and 16 No. carbon dioxide storage tanks (100 tonnes each).
- Ancillary equipment compound including a storage building (30.7m x 10.7m x 9.7m high), 2 No. diesel generators, fire water tank (Volume: 2000m^3) and pump house and proprietary modular water treatment plant.
- Above ground gas installation (AGI) compound including a boiler/instrument kiosk, regulator/metal skid kiosk and connection to the existing gas network within the site.
- 33kV IPP building (60.9m x 18.4m x 16.8m high), 1 No. telecoms tower 36m high and compound.
- Fuel cell IPP building (40m x 9.8m x 7.1m high) and compound.
- Solar farm IPP building (30m x 9.8m x 7.1m high) and compound.
- Battery compound including 138 No. battery enclosures & 138 No. medium voltage power stations (MVPS), IPP building (40m x 9.8m x 7.1m high) and fire water tank (Volume: 500m^3).
- Proprietary modular water treatment plant serving the solar farm IPP building and battery compound IPP building.
- Solar farm (168 hectares) to the east of the data campus facility including solar arrays measuring (10.2m x 6.9m), (20.4m x 6.9m) & (30.6 x 6.9m), 45 No. medium voltage power stations (MVPS), 5 No. weather stations, river crossings, internal gravel access roads, security fencing and gates, 3 No. temporary construction compounds, cable crossings in the R446, L11272 & L51251 public roads, and cable crossing under the M6 using horizontal directional drilling.
- Connection to public sewer under the R446 public road.
- New emergency only access/egress from the R446 public road.
- Access/egress to the data centre campus facility through the existing Castlelost Flexgen and GIS substation access to the R446.
- Demolition of the existing derelict dwelling and agricultural sheds.

- All associated site works.

Figure 2 shows a detailed view of the existing site on high resolution aerial photography. Figure 3 shows the layout of the proposed development.

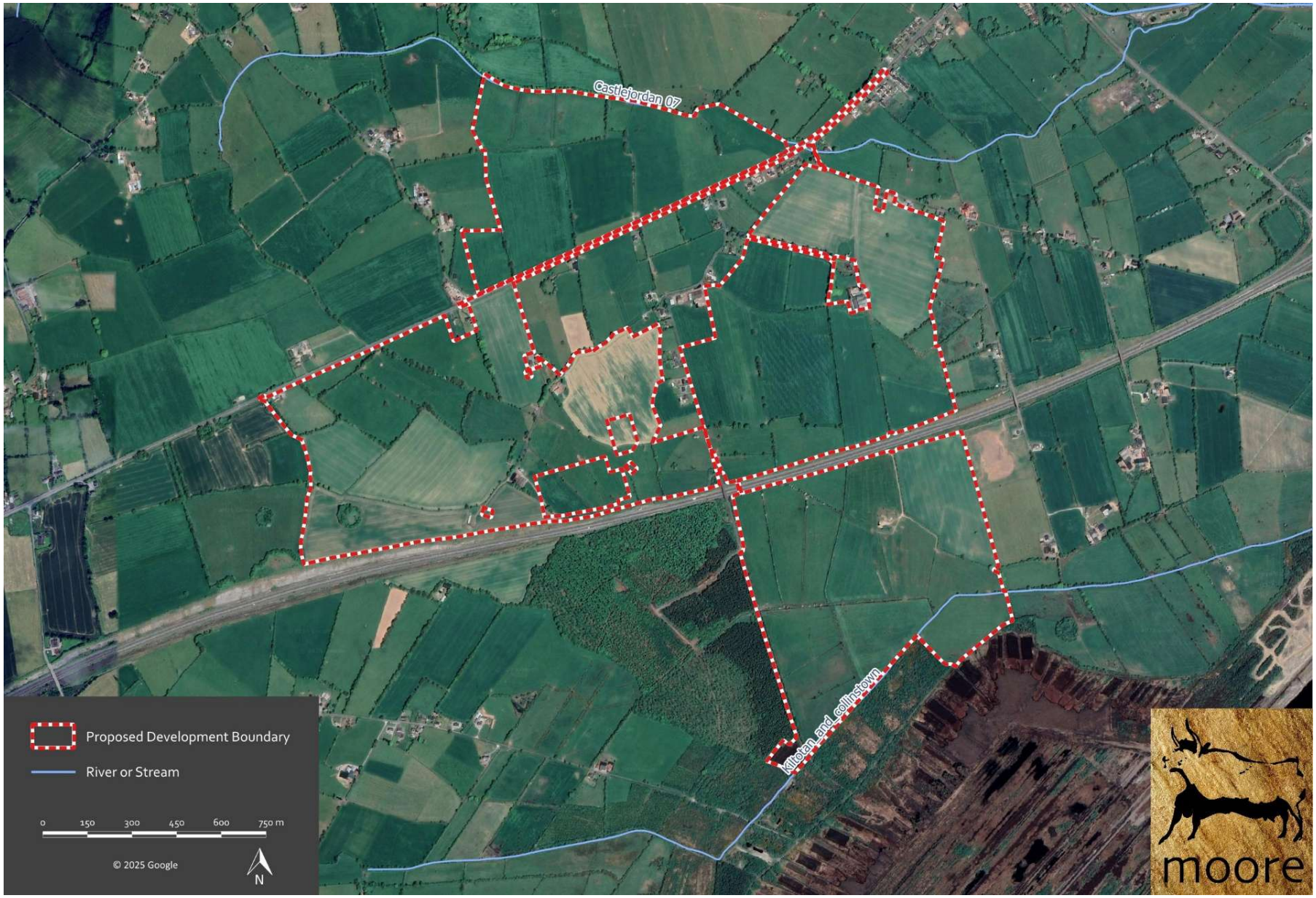

Figure 2. Location of proposed residential development on recent aerial photography showing the Castlejordan River to the north and Kiltonan Stream to the south.

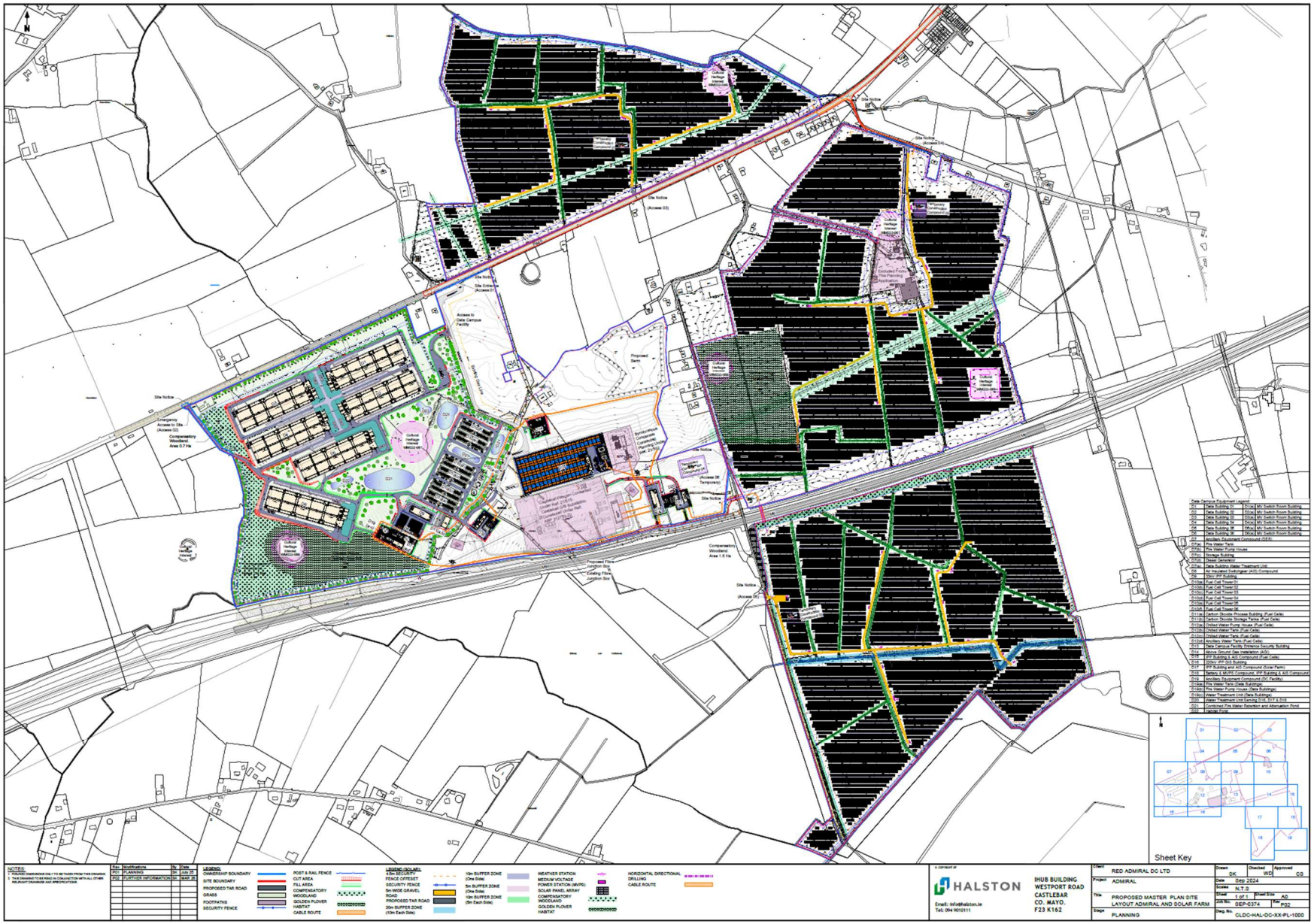

Figure 3. Showing the layout of the Proposed Development.

4. EXISTING ENVIRONMENT

4.1. WATER COURSES

4.1.1. Castlejordan Stream

The Castlejordan Stream runs along the northern boundary of the site, and has been significantly modified, with steep uniform sides. A line of mature Beech (*Fagus sylvatica*) trees lines the northern bank, with Bramble (*Rubus fruticosus*), False Oat-Grass (*Arrhenatherum elatius*) and Great Willowherb (*Epilobium hirsutum*) along the southern bank. Poached areas where animals access to drink supported Brooklime and Lesser Spearwort. Species present in the sluggish watercourse include abundant Fool's Water Cress (*Apium nodiflorum*) and Water Cress (*Nasturtium officinale*), with some Floating Sweet Grass (*Glyceria fluitans*). The stream has a muddy base and little flow and does not appear to have any fisheries value. No signs of otter were observed along the stream.

4.1.2. Kiltonan Stream

The Kiltotan Stream flows along the southern boundary of the site, and through a small section of the southeastern part of the site. The stream has been artificially straightened and deepened and presents a typical uniform profile, with steep sides. The watercourse is heavily overgrown in parts, with Grey Willow (*Salix cinerea*), Downy Birch (Betula pubescens) and Bramble invading from the cutover bog to the south. Instream vegetation includes large areas of Common Duckweed and Fool's Water Cress. The stream displayed no obvious flow, and has a soft peaty substrate, with no obvious fisheries value. No signs of otter were observed along the stream.

4.1.3. Drainage Ditches

This habitat classification applies to drainage ditches within and bounding the site, as well as the unnamed channelised minor stream entering the southern site from the west.

These ditches are of depths from 1 to 3m, with steep sides, and generally with little flow. Species present includes Fool's Water Cress (*Apium nodiflorum*), Water Cress (*Nasturtium officinale*), Angelica (*Angelica sylvestris*), Branched Bur-reed (*Sparganium erectum*), Iris (*Iris pseudacorus*)and Reed Canary Grass (*Phalaris arundinacea*). Occasional poached muddy margins where animals drink also support Brooklime (*Veronica beccabunga*) and Lesser Spearwort (*Ranunculus flammula*).

4.2. BADGERS

The National Biodiversity Centre Database was consulted on 27 February 2026 for records of badgers in the zone of influence of the Proposed Development. There are several records from the Bord na Mona site at Derrygreenagh to the southeast of the M6 Motorway outside and to the southeast of the portion of the site proposed for solar farm development.

There are no records in the intensively managed farmland fields to the north of the M6.

The site boundaries were surveyed and no setts were recorded.

4.3. OTTERS

The National Biodiversity Centre Database was consulted on 27 February 2026 for records of otters on all water courses in the zone of influence of the Proposed Development. There is one historical record (1982) for signs of otters ('2 Count of Droppings') on the Rochfortbridge Stream which flows from the north hinterland to join the Castlejordan Stream to the south and east of Rochfortbridge. A later record from the Rochfortbridge Stream.at the Bridge North of Rochfortbridge recorded 'two spraints on a grass tuft by cattle drinking access 25m u/s from bridge' on 16/09/2005. There are no records on the Castlejordan Stream upstream or with 150m downstream of the that section of the site proposed for solar farm development.

There is one historical record (1982) for otter signs ('2 droppings') on the Kiltonan Stream at NGR N467386, where it leaves the Proposed Development site upstream of the Bord na Mona lands at Derrygreenagh.

A Bord na Mona 'Commission Survey' from 23/03/2015 recorded a Spraint a further 2.6km downstream at the bridge on the R400 corresponding to the county boundary.

The surveys conducted during fieldwork on the water courses including drainage ditches, the Castlejordan Stream and the Kiltonan Stream did not reveal any signs of otter usage. No resting places, slides, spraints or latrines were recorded.

4.4. NON-VOLANT MAMMALS

There are anecdotal references to deer, pine marten, and hares in comments on the initial application. There were no specific signs of these species recorded during habitat surveys.

Pine martens are more likely to occur in densely forested habitats and on scrubby peatland which does not occur on site. They have been recorded in peatland and fringing woodland far outside the subject site.

Hares and foxes are frequent inhabitants of hedgerows and while no hares were observed, they may be present foraging on open fields. Fox scats were observed and typical scent markings were recorded. However, this species is not protected.

There are no records of red deer from the surrounding area. Any anecdotal records may refer to fallow deer, an invasive species, which have been recorded in Bord na Mona woodland to the far south and east.

5. ASSESSMENT OF IMPACTS

5.1. WATER COURSES

Water courses were assessed for fisheries value in terms of potential foraging and food sources for otters. Fisheries value determination is based on a broad appraisal/overview of the upstream and downstream habitat at each site. This was undertaken to evaluate the wider contribution to salmonid and lamprey spawning and general fisheries habitat. River habitat surveys and fisheries assessments were also carried out utilising elements of the approaches in the River Habitat Survey Methodology (Environment Agency, 2003[2]) and Fishery Assessment Methodology (O'Grady, 2006[3]) to broadly characterise the stream sites (*i.e.* channel profiles, substrata *etc*.).

The Castlejordan Stream is a relatively small water course, more of a farmland stream rather than a river. It has a mud/clay substrate for much of its course and its banks are heavily vegetated in sections with adjacent Hawthorn and Bramble. It has no fisheries value and limited value for otter usage. It joins the Rochfortbridge Stream downstream and east of Rochfortbridge and flows on to the Yellow River flowing through large areas of former Bord na Mona peatland and on to the River Boyne not reaching the River Boyne European sites until east of the Royal Canal over 30km downstream.

The most recent EPA water quality data (2024) for the Castlejordan Stream are recorded upstream of that section of the solar far at Mongagh Bridge to the west as Q3 'Poor' and similarly downstream of Rochfortbridge again as Poor. This status indicates 'Slight pollution' and is 'Unsatisfactory'. The Q value increases marginally to Q3-4 'Moderate' downstream of the peatland areas at Baltinoran Bridge, most likely due to dilution factors. This status indicates 'Moderate pollution' and is 'Unsatisfactory'.

The Kiltonan stream is largely channelised in the portion of the site where the solar farm is proposed and has a mud/peaty substrate. It has no fisheries value and no value for otter usage. The Kiltonan Stream is not monitored by the EPA. It joins the Castlejordan and the above record at Baltinoran Bridge is the nearest and most recent indication of water quality.

The drainage ditches recorded have a predominantly mud/clay substrate. They have no fisheries value and no value for otter usage.

[2] Environment Agency (2003) River Habitat Survey in Britain and Ireland. Field Survey Guidance Manual: 2003 Version (2022 Reprint).
[3] O'Grady, M.F. (2006). Channels and challenges: enhancing Salmonid rivers. Irish Fresh- water Fisheries Ecology and Management Series: Number 4. Central Fisheries Board, Dublin.

5.2. IMPACT ASSESSMENT

5.2.1. Direct Impacts

Water Courses

There are only two main crossings proposed (Bridge 1 and 2) and these are clear span, with no interaction with the water course below, i.e. the Kiltotan stream.

Other proposed crossings of minor field drains will be served by placement of short sections of round precast concrete culvert with minimal intervention in the field drain.

There is a very tentative pathway from the Solar Farm aspect of the Proposed Development via the Castlejordan and Yellow River which flows northeast to the River Boyne albeit at a very large distance downstream, over 30 river km.

The main lamprey populations in the River Boyne are currently protected within the existing SAC boundary area[4].

Salmon spawn in clean gravels. There is restricted habitat for salmon in the Boyne and the water courses located adjacent to the Proposed Development do not support spawning habitat.

Fauna

Otters

The water courses located adjacent to the Proposed Development do not support suitable foraging habitat for Otters.

There will be no direct or indirect impact on otters.

Badgers

There were no active badger setts found on site. Fox earths can often be confused with badger setts to the untrained eye. While there were many signs of fox movement throughout the Proposed Development areas, these species are no protected. There will be no direct or indirect impact on badgers.

Non-volant Mammals

There will be no direct or indirect impact on mammals such as deer, pine marten, hares or foxes.

[4] O'Connor W. (2006) A survey of juvenile lamprey populations in the Boyne Catchment. Irish Wildlife Manuals, No. 24 National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

5.2.2. Indirect Impacts

There are only two main crossings (Bridge 1 and 2) and these are clear span, with no interaction with the water course below, i.e. the Kiltotan Stream.

Other proposed crossings of minor field drains will be served by placement of short sections of round precast concrete culvert with minimal intervention in the field drain.

The possibility of contaminated surface water reaching the River Boyne is extremely low given the design of the solar panels to be set back from all water courses, the very large distance downstream over 30 river km and the high degree of dilution in that distance.

To this end, the River Boyne and two associated European sites are considered to be outside the Zone of Influence of the Proposed Development.

Solar farms can be mistaken as water by birds and aquatic species, and this issue has been addressed by appropriate design. Insects that lay eggs on water, (e.g. mayflies, stoneflies) may mistake solar panels for water bodies, due to reflection of polarised light . Under certain circumstances, insects have been found to lay eggs on their surfaces, reducing their reproductive success and food availability for birds, fish and other aquatic invertebrates. A laboratory study undertaken by Grief & Siemers (2010) showed that that bats attempted to drink from the panels and occasionally collided with them. If plates were vertically aligned, they often crashed into them when attempting to fly through them. There is evidence that this potential effect can be mitigated by a non-polarising white grid, partitioning on solar panels to reduce or eliminate their reflection of polarised light . Thus, this measure has been included as a design feature to avoid potential effects on commuting bats.

RSPB (2014) states 'Solar farms can be mistaken as water by birds and aquatic species, and this issue has been addressed by appropriate design. Insects that lay eggs on water, (e.g. mayflies, stoneflies) may mistake solar panels for water bodies, due to reflection of polarised light'. It should be noted they also state they are in favour of solar given the impacts climate change is having on bird life.

There are only three Special Conservation Interest Annexed Bird species listed for European sites in the zone of influence. Given, there are no supporting habitats for two of (Pochard and Tufted Duck) and limited supporting habitats for Coot at the Proposed Development site and the above listed design features, there are no predicted negative effects on these birds.

6. IN-COMBINATION EFFECTS

In addition to these listed proposed developments other Projects in the zone of influence considered include:

- Gas Pigging Station development (Ref no 25/60006); (Operational)
- Underground Gas transmission line connection which was an application to the Commission for Regulation of Utilities (CRU) (Operational)
- Yellow River Wind Farm (Operational)

These developments were tested at either AA Screening or Stage 2 AA and significant effects excluded. The Proposed Development will not have a significant effect on local Biodiversity or on any European site and therefore in-combination effects with these developments can be excluded.

7. CONCLUSIONS

There are no significant impacts predicted from the proposed development on habitats, flora, fauna or biodiversity.

8. REFERENCES

Guidelines for Ecological Impact Assessment in the UK And Ireland Terrestrial, Freshwater, Coastal and Marine Version 1.3 - Updated September 2024 (CIEEM, 2024).

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EPA (2022) EPA Guidelines on Information to be contained in an EIAR; EPA, May 2022.

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European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43EEC. European Commission, Brussels.

European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive '92/43/EEC: Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interests, compensatory measures, overall coherence and opinion of the Commission. European Commission, Brussels.

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Appendix 1 TII Evaluation of Habitats

Ecological valuation: Examples

International Importance:

- 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.
- Proposed Special Protection Area (pSPA).
- Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended).
- Features essential to maintaining the coherence of the Natura 2000 Network.[4]
- Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.
- Resident or regularly occurring populations (assessed to be important at the national level)[5] of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.
- Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).
- World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).
- Biosphere Reserve (UNESCO Man & The Biosphere Programme).
- Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).
- Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
- Biogenetic Reserve under the Council of Europe.
- European Diploma Site under the Council of Europe.
- Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).[6]

National Importance:

- Site designated or proposed as a Natural Heritage Area (NHA).
- Statutory Nature Reserve.
- Refuge for Fauna and Flora protected under the Wildlife Acts.
- National Park.
- Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.
- Resident or regularly occurring populations (assessed to be important at the national level)[7] of the following:
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing 'viable areas'[8] of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

- Area of Special Amenity.[9]
- Area subject to a Tree Preservation Order.
- Area of High Amenity, or equivalent, designated under the County Development Plan.
- Resident or regularly occurring populations (assessed to be important at the County level)[10] of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.
- County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP,[11] if this has been prepared.
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

Local Importance (higher value):

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;
- Resident or regularly occurring populations (assessed to be important at the Local level)[12] of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

Appendix 2 Site Photos

Photo 1. Showing the Castletown Stream adjacent to the site as a slow flowing wide ditch with abundant Brooklime.

Photo 2. Showing the Kiltonan Stream as a slow flowing wide ditch with watercress and Lemna spp.