

Ecological Impact Assessment (EclA) for Proposed Amendments to the
Large-scale Residential Development permitted under WCC Reg. Ref.
24/325 at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.



15th October 2026

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On behalf of: Castlethorn Construction

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Project	Ecological Impact Assessment (EclA) for Amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.		
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Introduction

Background

Ecological Impact Assessment (EclA) has been defined as ‘*the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components*’ (Treweek, 1999). “*The purpose of EclA is to provide decision-makers with clear and concise information about the likely ecological effects associated with a project and their significance both directly and in a wider context. Protecting and enhancing biodiversity and landscapes and maintaining natural processes depends upon input from ecologists and other specialists at all stages in the decision-making and planning process; from the early design of a project through implementation to its decommissioning*” (IEEM, 2010).

The following EclA has been prepared by Altemar Ltd. at the request of Castlethorn Construction. The project relates to the Amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.

Study Objectives

The objectives of this EclA are to:

1. Outline the project and any alternatives assessed;
2. Undertake a baseline ecological feature, resource and function assessment of the site and zone of influence;
3. Assess and define significance of the direct, indirect and cumulative ecological impacts of the project during its construction, lifetime and decommissioning stages;
4. Refine, where necessary, the project and propose mitigation measures to remove or reduce impacts through sustainable design and ecological planning; and
5. Suggest monitoring measures to follow up the implementation and success of mitigation measures and ecological outcomes.

The following guidelines have been used in preparation of this EclA:

- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018, updated 2024);
- Advice Notes on current practice in the preparation of EISs (EPA, 2003);
- Institute of Ecology and Environmental Management Guidelines for EIA (IEEM, 2005).

Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 31 years’ experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole “External Expert” to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds an MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and an NCEA National Certificate in Science (Aquaculture). This report has also been prepared by Frank Spellman (BSc Zoology, MSc Zoology). Frank has previous experience in carrying out a wide range of fauna surveys as both a sub-contractor and employee for consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, terrestrial non-avian mammal surveys, breeding/wintering bird surveys, and freshwater ecology surveys.

Description of the Proposed Project

The proposed development comprises amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 consisting 352no. residential units proposed in a mix of houses and apartment units comprising 334no. houses (44no. 2-bedroom, 241no. 3-bedroom and 49no. 4-bedroom) ranging from 2 to 3 storeys, 18no. apartments (6no. 1-bedroom and 12no. 2-bedroom) in 1no. 4 storey building, 1no. creche (c. 711 sqm) at ground floor of apartment Block A; and all associated and ancillary site development works including on site attenuation, hard and soft landscaping and boundary treatment works, including public open space; communal open space, public lighting; surface car parking; bicycle parking spaces/stores for houses and apartment units; 4no. ESB substations; bin stores; vehicular access via existing Northwood road and railway overbridge from Knockmore roundabout. The proposed development also includes road upgrade works to the existing railway overbridge and the western approach to same including the provision of a 2.5m footpath, 6m carriageway, safety barrier improvement works and other ancillary works required to facilitate these elements.

The proposed site outline, location, site masterplan, contextual elevations are demonstrated in Figures 1-4.

Landscape

The landscape strategy for the proposed development has been prepared by Doyle & O'Troithigh to accompany this planning application. The proposed landscape plan and landscape sections are demonstrated in Figures 5-15.



0 0.4 0.8 1.2 1.6 km

Project: Tinahask Upper, Arklow
 Location: Arklow, Co. Wicklow
 Date: 4th August 2026
 Drawn By: Bryan Deegan (Altamar)

ALTEMAR
 Marine & Environmental Consultancy

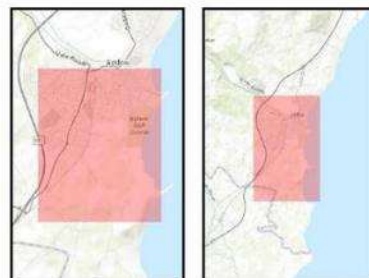


Figure 1. Site outline and location context.



0 0.2 0.4 0.6 0.8 km

Project: Tinahask Upper, Arklow
 Location: Arklow, Co. Wicklow
 Date: 4th August 2026
 Drawn By: Bryan Deegan (Altamar)

ALTEMAR
 Marine & Environmental Consultancy

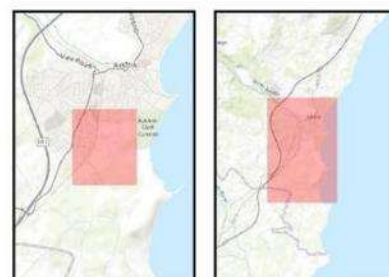


Figure 2. Site outline



Figure 4. Proposed Site Sections





Figure 6. Landscape Section 1



Figure 7. Landscape Section 2



Figure 8. Landscape Section 3



Figure 9. Landscape Section 4



Figure 10. Landscape Section 5



Figure 11. Landscape Section 6





Figure 14. Landscape Section 9



Figure 15. Landscape Section 10

Drainage

The drainage strategy for the proposed development has been prepared by Waterman Moylan Consulting Engineers for the proposed development. It states the following:

“Foul Water Drainage

Introduction

It is proposed to connect the wastewater from the site into Uisce Éireann foul water infrastructure at the northwest of the site. Due to the topography of the site, it is not possible to achieve a gravity connection into this network (Ground level at connection point 35.00m AOD). A foul pumping station will be constructed at the southeastern boundary, the lowest point of the site (15m AOD). The wastewater flows from each unit will outfall into the pumping station via gravity and then be pumped to a discharge manhole at the northwestern boundary via a ø200mm rising main.

A Pre Connection Enquiry was submitted for the subject site as part of this amendment application. A Confirmation of Feasibility (COF) was issued by Uisce Eireann on June 26th, 2026, under CDS26002695. The COF stated that a connection into the existing wastewater network is “feasible without infrastructure upgrades by Uisce Eireann.”

A foul pumping station was included in the granted permission (under WCC Ref: 24/325). The pumping station was located at the northeastern boundary of the site. Waterman Moylan has reviewed the topography of the site and it has proposed to relocate the pumping station to the lowest part of the site at the southeastern boundary. This allows for all units to outfall into the pumping station via gravity. The proposed location of the pumping station allows for a future connection from the school site at the south of the masterplan lands.

Proposed Foul Drainage and Calculations

The foul water drainage for the proposed development has been designed so that the minimum cleansing velocities outlined in the “Uisce Eireann Code of Practice for Wastewater Infrastructure” are achieved for all foul sewers. The peak foul flow is based on Irish Water recommended peak demand / flow factors which are provided in the Uisce Eireann ‘Code of Practice for Wastewater Infrastructure’. Pipe capacities and velocities have been calculated using the Colebrook-White formula with a roughness coefficient (Ks) of 1.5mm.

Surface Water Drainage

Introduction

The surface water management strategy has been carefully developed to incorporate nature-based Sustainable Urban Drainage Systems (SuDS) features throughout the site. These elements are integrated into the overall drainage network to facilitate natural attenuation and support water quality improvements. Features such as permeable paving, bio-retention tree pits, roadside swales, dry detention basins, and petrol interceptors have been strategically located across the development to manage runoff at source, reduce flow rates, and mimic the site's natural hydrological processes. This approach not only addresses surface water quantity and quality but also enhances local biodiversity and contributes positively to the site's visual and ecological character.

Existing Surface Water Drainage

The site is currently a green field in nature with a general slope from west to southeast. There is an existing ditch line which traverses the site naturally draining the site eastwards towards the Irish Sea via Arklow Golf Club lands. It is proposed to maintain this ditch line along the southern boundary, continuing to act as a natural drainage point for the subject site.

Proposed Surface Water Drainage

It is proposed to mimic the existing site drainage profile of the greenfield site by draining the surface water runoff via gravity to the south of the site, outfalling into the existing drainage ditch along the southern boundary of the site. The surface water strategy is to split the drainage areas into four catchments. Each catchment will have an attenuation system and a flow restriction device before outfalls into the existing ditch at the south of the site. To maintain the pre-development greenfield runoff rate, flow control devices will be installed upstream of the discharge point. The surface water strategy for the development has been carefully coordinated focusing on source control measures within a comprehensive surface water management train.

The proposed surface water drainage network discharges to the existing ditch line which ultimately outfalls into the Irish Sea via the Arklow Gold Club lands.

In accordance with the GSDS and Wicklow County Council requirements, the subject development's surface water outfall will be limited to a discharge rate of either 2 l/s/ha or the calculated QBAR (whichever is greater). This results in an allowable outflow rate of 8.47 l/s/ha.

It is proposed that the surface water runoff for the development will be intercepted, collected, slowed, and attenuated through the use of nature-based rainwater management and sustainable urban drainage systems (SUDS). The SUDS for this subject site are summarised below:

- Permeable paving to be used below parking bays within the development
- Bio-retention systems including tree-pits throughout the development
- Roadside swales throughout the development
- A Hydro-Brake upstream of the storm outfall

The proposed SUDS interventions have been implemented to ensure runoff is treated to the standards outlined in the Greater Dublin Strategic Drainage Study and to add value to the biodiversity potential of the development.'

The proposed drainage layout is demonstrated in Figures 16-17.

Flood Risk Assessment

A Site-Specific Flood Risk Assessment has been prepared by Waterman Moylan Engineering Consultants to accompany this planning application. This report concludes with the following:

"The subject site has been analysed for risks from tidal and fluvial flooding, pluvial flooding, groundwater, and drainage system failures due to human error or mechanical system failure. Table below presents the various residual flood risks involved. As the flood risk from all sources can be mitigated, reducing the flood risk to low or very low, the proposed development is considered acceptable in terms of flood risk."

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Coastal	Overland from East	Proposed Development	Negligible	Negligible	Negligible	None needed	Negligible
Fluvial	Overland from North	Proposed Development	Moderate	Moderate	Moderate	Section of stream to be backfilled; remainder to discharge at greenfield runoff rate	Low
Pluvial	Private and Public Drainage Systems	Proposed Development	Low	Low	Extremely Low	None needed	Low
Ground Water	Ground	Proposed Development	Low	Moderate	Low	None needed	Low
Human / Mechanical Error	Drainage network	Proposed Development	High	Moderate	High	Appropriate drainage design, setting FFLs & overland flood routing	Low

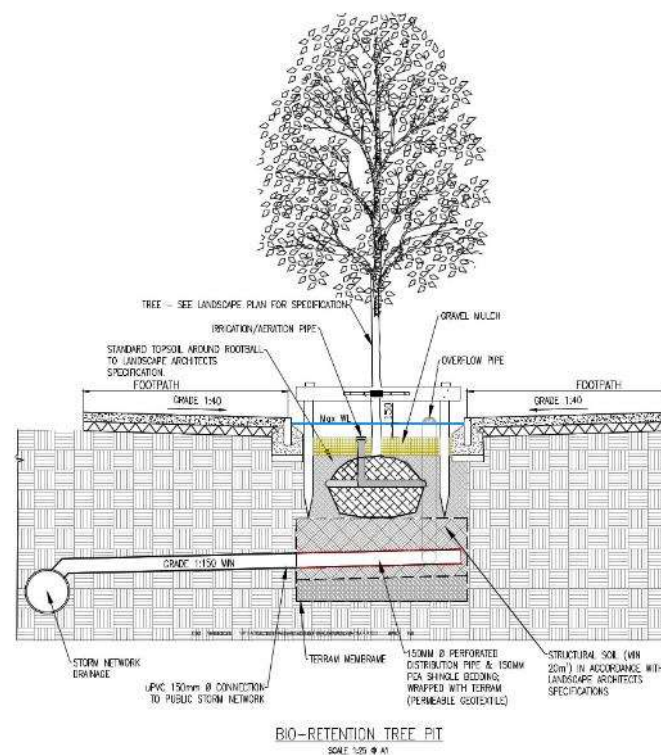
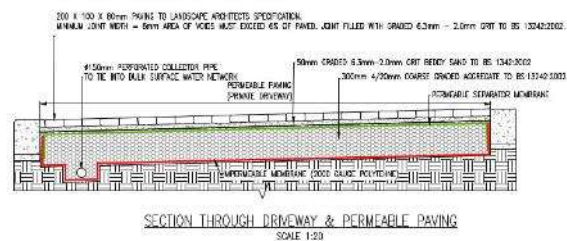
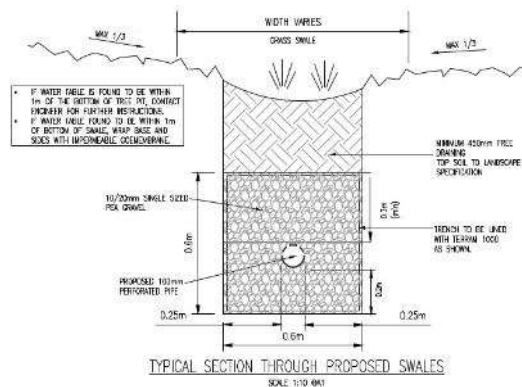
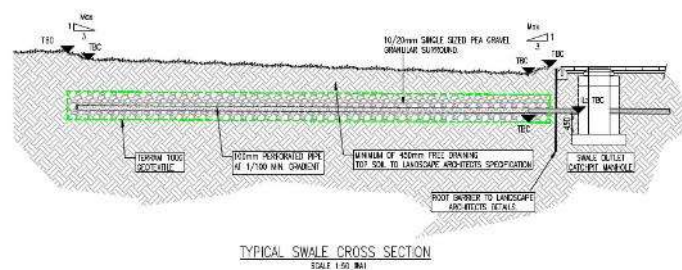
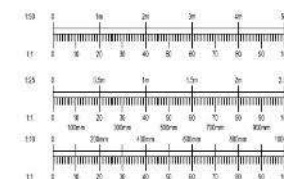


FIGURE 19.16: EXAMPLE OF INLETS TO ALLOW SURFACE WATER RUNOFF TO INFILTRATE INTO TREE PITS. TAKEN FROM CIRIA REPORT C753 THE SUDS MANUAL.



	NO. 1234	ANALYST'S NAME	AGE
Pat.	Date	Occupation	Sex

**MIXED USE DEVELOPMENT AT
TINAHASK UPPER, MONEY BIG &
MONEY LITTLE, ARKLOW, Co. WICKLOW**

PROPOSED SuDS DETAILS

CASTLETHORN



BLACK & HARTPONT BUILDINGS, 100, ALBION WAY, DON-
CASTLE, CO. DUBLIN. Tel: 01-999 1000
Email: info@black-hartpont.com

PLANNING					
Classification By:	NM	Approved:	IW	Supervisor's Sig:	25-
Order By:	MS	Date:	OCT. 2026	Scale # at AS SHOW	
Work - Chg/Iss - Volume - Line - Type - Rcd - Parity					
ARK - WAT - ZZ - XX - DR - P - 0215					

Figure 17. Proposed SuDS Details

Ecological Assessment Methodology

Desk Study

A desk study was undertaken to gather and assess ecological data prior to undertaking fieldwork elements. Sources of datasets and information included:

- The National Parks and Wildlife Service
- National Biodiversity Data Centre
- Satellite, aerial and 6" map imagery
- ESRI (QGIS)

A provisional desk-based assessment of the potential species and habitats of conservation importance was carried out in May 2023 and updated in May 2024, April 2025 and May 2026. Altemar assessed the project, the proposed construction methodology and the operation of the proposed development.

Spatial Scope and Zone of Influence

As outlined in CIEEM (2018) *'The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.'* In line with best practice guidance an initial zone of influence is set at a radius of 2km for non-linear projects (IEA, 1995).

The ZoI of the proposed project would be seen to be restricted to the site outline, with potential for minor localised noise and lighting impacts during construction which do not extend significantly beyond the site outline nor are they likely to have any significant effects on any designated conservation sites. The nearest European site to the subject site is 4.9 km away (Kilpatrick Sandhills SAC) (Figure 18). There are no Special Protection Areas (SPAs) within 15 km of the proposed development and no potential hydrological pathways from the proposed development site to any SPAs located further than 15 km (Figure 19). NHA's and pNHA's are seen in Figure 20. There are no Ramsar sites within 15km (Figure 21).

The nearest official EPA Water Framework Directive watercourse to the subject site is the Kilmurphy stream which flows through the western portion of the subject site and continues along the southern boundary prior to outfalling to the marine environment (Figure 22). During the course of multiple site visits, some of which were carried out within periods of heavy rainfall, it was found that this watercourse is a drainage channel that rarely has running water in it which rises c. 50m within the western boundary of the site. The potential hydrological pathways to designated sites are seen in Figures 23 (SAC) and 24 (pNHA).

Field Survey

Field surveys of the proposed development site at Arklow, were carried out by Altemar Ltd., Bryan Deegan (Ecologist), Frank Spellman (Ecologist), Emma Peters (Ecologist), Luke Dodebier (Ecologist) and Hugh Delaney (ornithologist). The purpose of the field surveys was to identify habitat types according to the Fossitt (2000) habitat classification and map their extent. In addition, more detailed information on the species composition and structure of habitats, conservation value and other data were gathered. The breeding bird survey is seen in Appendix I, Mammal Survey (Appendix II), bat surveys in Appendix III and wintering bird surveys (Appendix IV-VII). Survey dates are seen in Table 1.

Table 1. Survey dates.

Survey	Surveyor	Dates
Flora and Habitat	Bryan Deegan (MCIEEM) Emma Peters Luke Dodebier	8 th May 2023, 31 st July 2023, 14 th June 2025 & 18 th June 2026
Bat	Frank Spellman Luke Dodebier	29 th August 2023, 18 th June 2026, 23 rd June 2026
Mammal	Frank Spellman Emma Peters Luke Dodebier	14 th , 27 th , 28 th , 31 st July 2023 & 30 th November 2023, 6 th December 2024, 24 th October 2025.
Breeding Birds	Frank Spellman Luke Dodebier Emma Peters	14 th , 27 th , & 31 st July 2023. 9 th , 29 th May, 6 th , 14 th June and 2 nd July 2024. 18 th , 22 nd & 23 rd June 2026
Wintering Birds	Hugh Delaney (Ornithologist) Emma Peters Jack Doyle Luke Dodebier	24 th November 2022, 5 th December 2022, 28 th December 2022, 19 th January 2023, 29 th January 2023, 8 th February 2023, 19 th February 2023, 3 rd March 2023, 25 th March 2023. 21 st November 2023, 5 th December 2023, 19 th December 2023, 10 th January 2024, 26 th January 2024, 10 th February 2024, 26 th February 2024, 11 th March 2024, 27 th March 2024. 27 th November 2024, 6 th December 2024, 30 th January 2025, 20 th February 2025, 6 th March 2025 24 th October 2025, 30 th October 2025, 13 th November 2025, 25 th November 2025, 2 nd December 2025, 12 th December 2025, 9 th January 2026, 11 th February 2026.

Survey Limitations

The surveys covered appropriate seasons for flora, breeding birds, wintering birds, fauna and bat assessments. No limitations are foreseen in relation to the surveys carried out on site.

Consultation

The National Parks and Wildlife Service (NPWS) were consulted in relation to species and sites of conservation interest. Data of rare and threatened species were acquired from NPWS. The National Biodiversity Data Centre records were consulted for species of conservation significance.

Impact Assessment Significance Criteria

This section of the EclA examines the potential causes of impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The following terms are derived from EPA EIAR Guidance and are used in the assessment to describe the predicted and potential residual impacts on the ecology by the construction and operation of the proposed development.

Magnitude of effect and typical descriptions

Magnitude of effect (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial effect on attribute or a reduced risk of negative effect occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable

Importance	Ecological Valuation
	area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Quality of Effects	Effect Description
Negative /Adverse 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).
Neutral Effect	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Effect	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Significance of Effects

Significance of Effect	Description of Potential Effect
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 Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
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.

Duration and Frequency of Effect	Description
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 one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration

Describing the Probability of Effects	Description
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Results

Proximity to Designated Conservation Sites

The nearest European site to the subject site is 4.9 km away (Kilpatrick Sandhills SAC) (Figure 18). The nearest official EPA Water Framework Directive watercourse to the subject site is the Kilmurry stream which flows through the western portion of the subject site and continues along the southern boundary (Figure 22). It outfalls to the marine environment approximately 650 m from Arklow Rock-Askintinny pNHA (Figure 20). There are no Special Protection Areas (SPAs) or Ramsar Sites within 15 km of the proposed development and no potential hydrological pathways from the proposed development site to any SPAs or Ramsar Sites located further than 15 km (Figures 19 & 21).

European sites within 15 km and the distance from the proposed development to these sites are displayed in Table 2. Proposed Natural Heritage Areas within 15 km and the distances from the proposed development site are seen in table 3.

Table 2. European sites within 15km of the proposed site

Site Code	NATURA 2000 Site	Distance
<i>Special Areas of Conservation</i>		
IE0001742	Kilpatrick Sandhills SAC	4.9 km
IE0000729	Buckroney-Brittias Dunes and Fen SAC	6.1 km
IE0000781	Slaney River Valley SAC	11.8 km

Table 3. (proposed) NHAs within 15km of the proposed development site

Designation	Site Name	Distance
Proposed NHA	Arklow Rock-Askintinny	0.8 km
Proposed NHA	Arklow Town Marsh	1.3km
Proposed NHA	Arklow Sand Dunes	2.9 km
Proposed NHA	Avoca River Valley	3.2 km
Proposed NHA	Kilpatrick Sandhills	4.9 km
Proposed NHA	Buckroney-Brittias Dunes and Fen	6.1 km
Proposed NHA	Kilgorman River Marsh	7.4 km
Proposed NHA	Ballymoney Strand	10.6 km
Proposed NHA	Courtown Dunes and Glen	13.8 km
Proposed NHA	Avondale	14.9 km

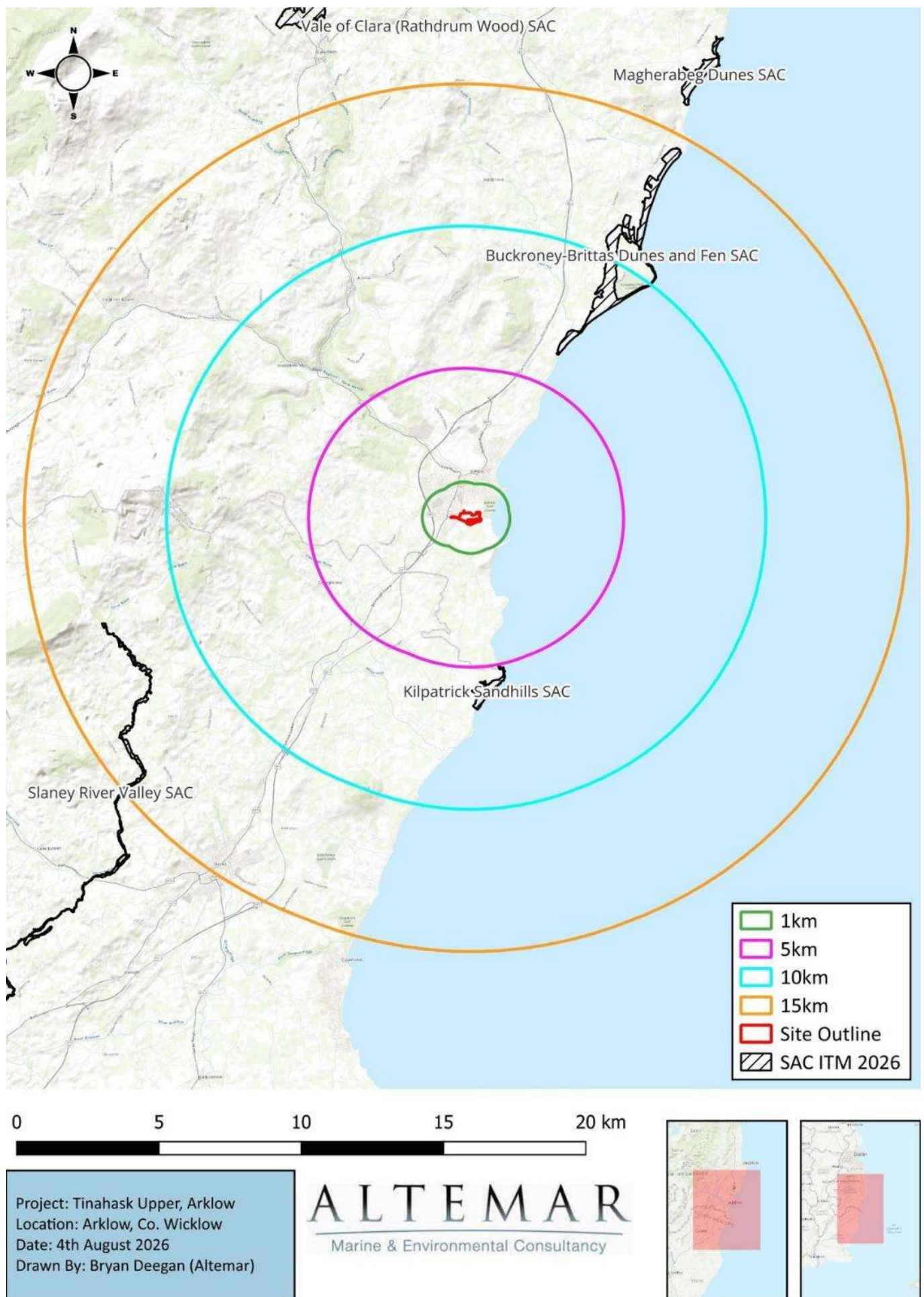


Figure 18. Special Areas of Conservation (SAC) within 15km of proposed development

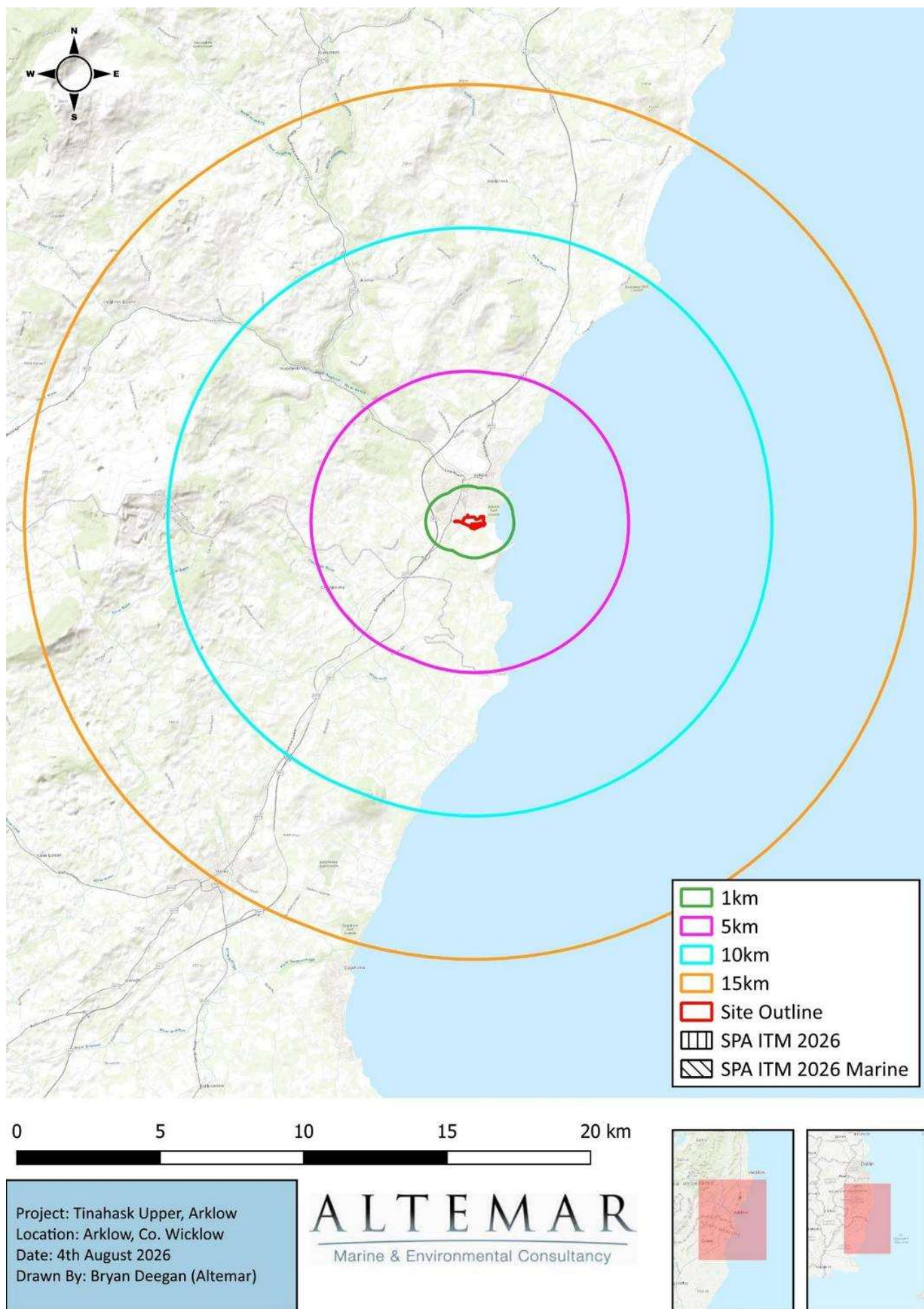


Figure 19. Special Protection Areas (SPA) within 15km of proposed development

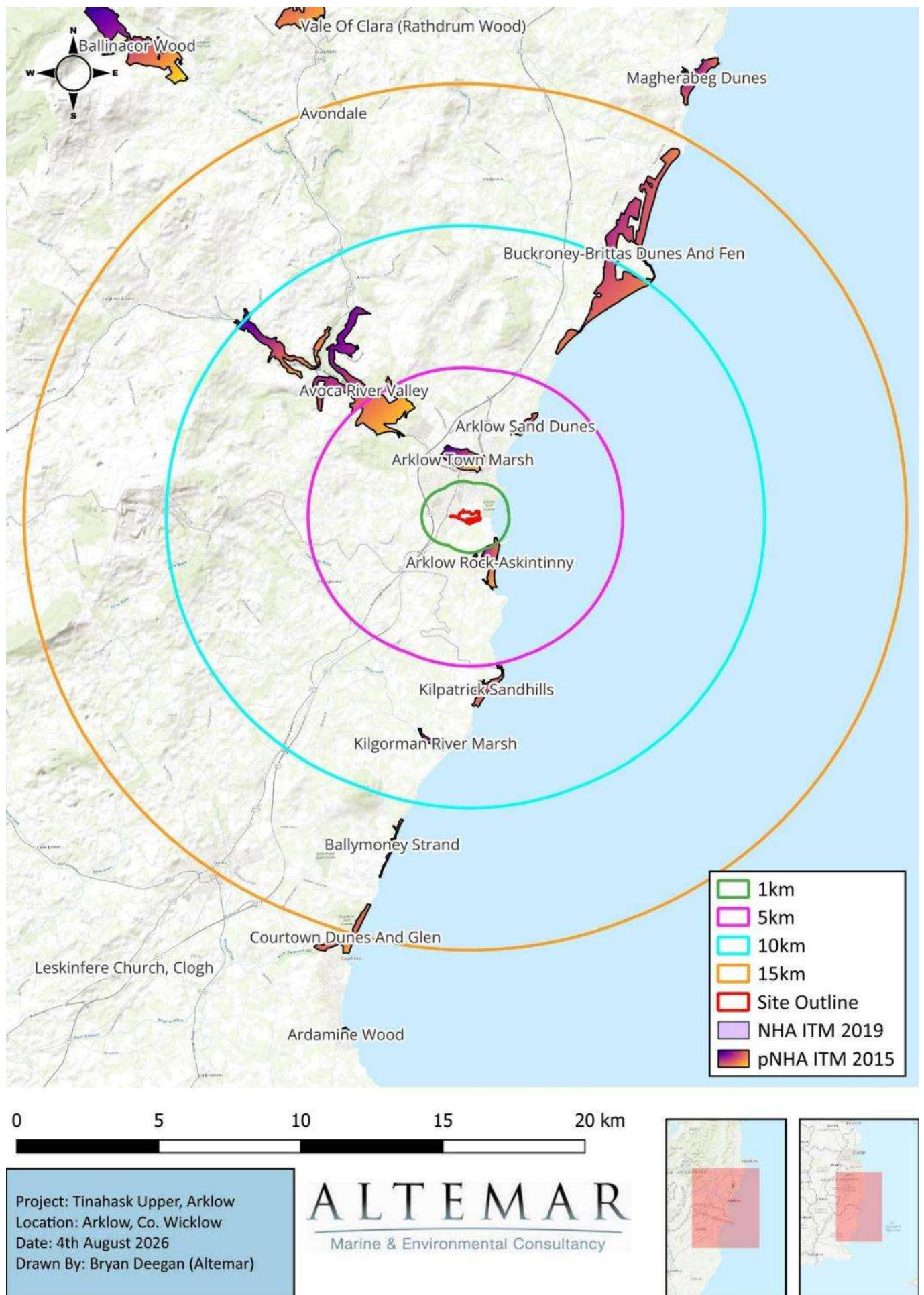


Figure 20. Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15km of proposed development

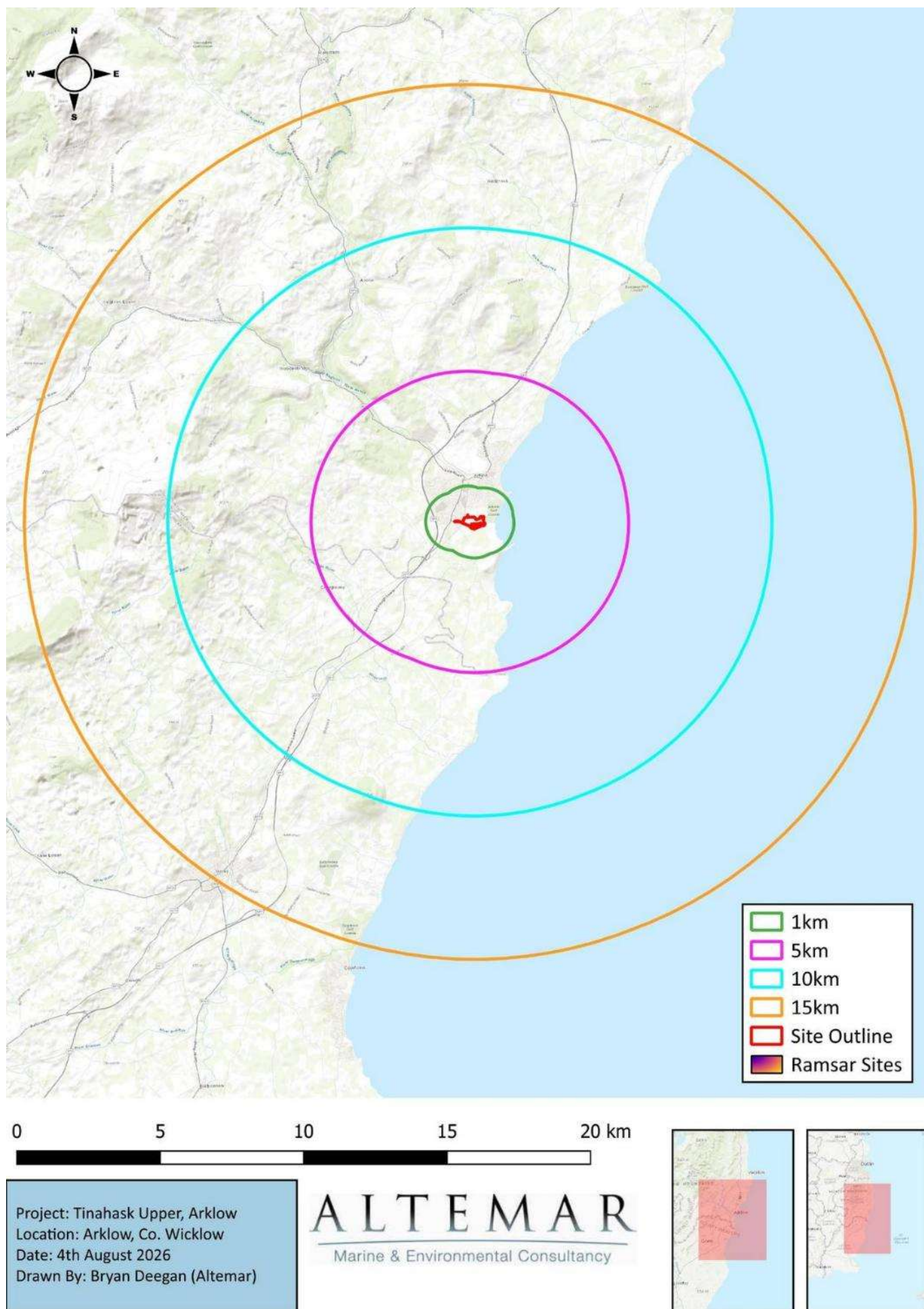


Figure 21. Ramsar sites within 15km of proposed development

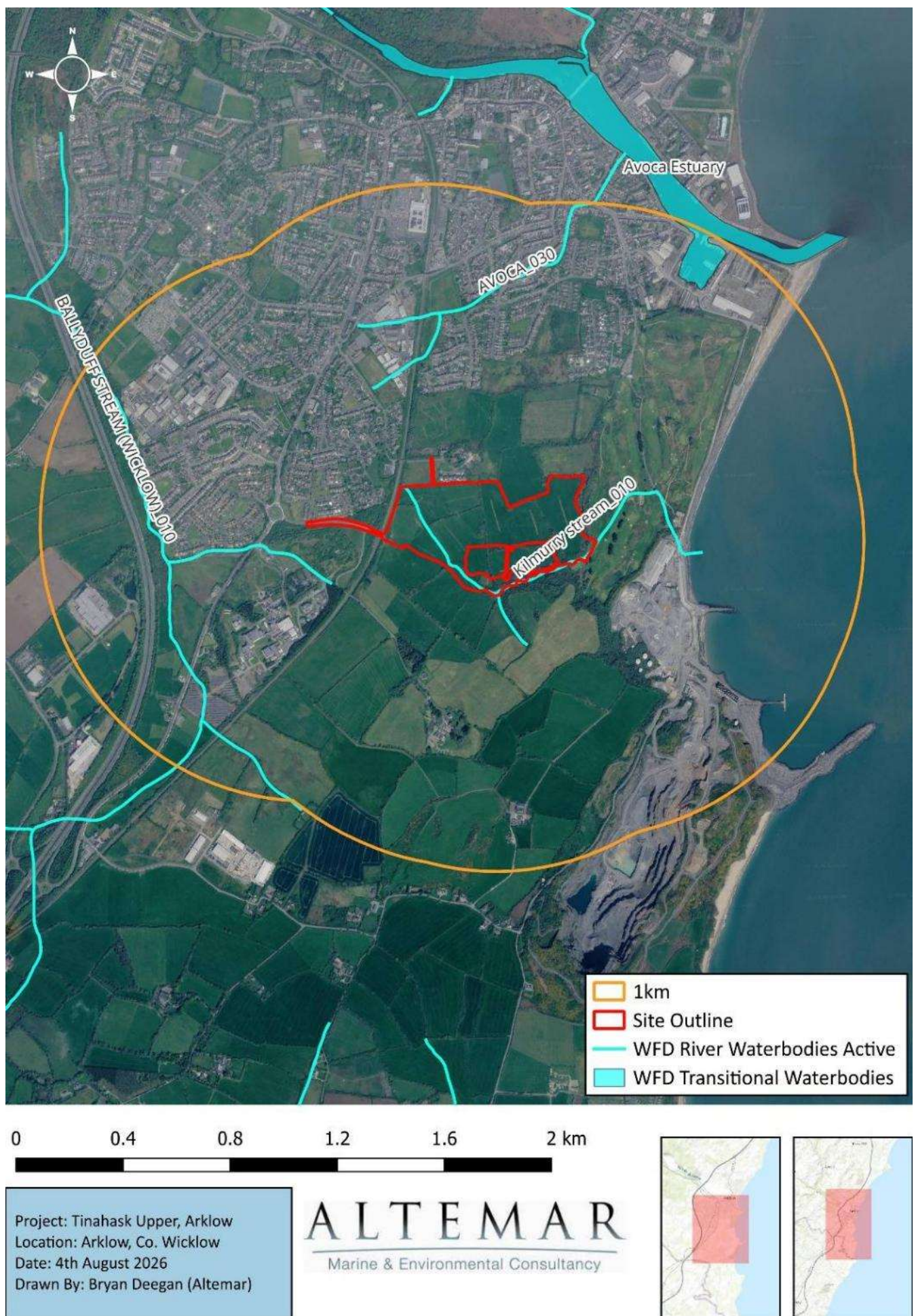


Figure 22. Watercourses within the proposed development

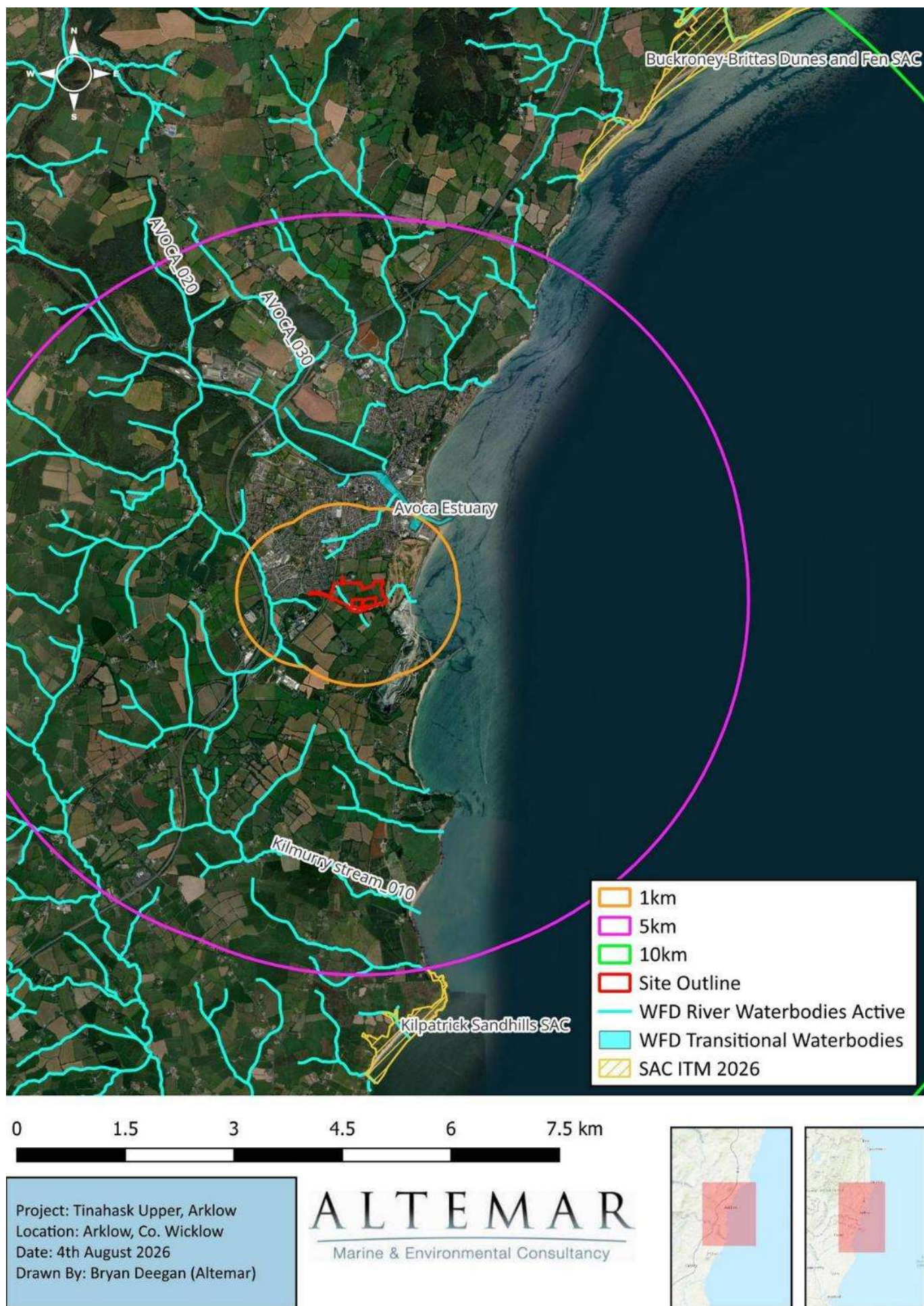


Figure 23. Watercourses and SACs and proximate to the proposed development site



Figure 24. Watercourses and pNHAs within 5km of proposed development (Boundary of development

Habitats and Species

A site assessment was carried out on numerous dates in 2023, 2024 and 2026. Habitats within the proposed site were classified according to Fossitt (2000) (Figure 25) based on a site visit on the 18th June 2026.

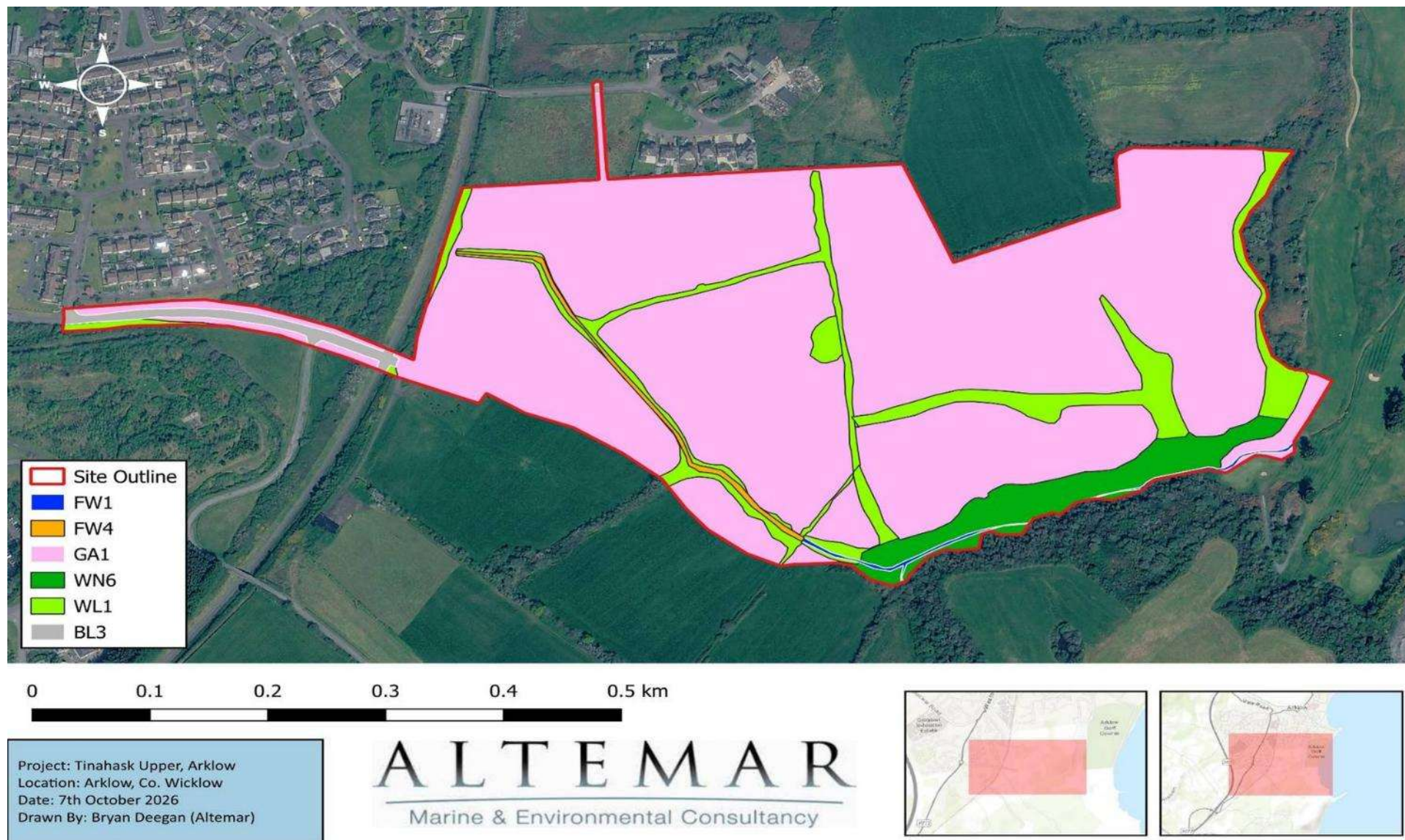


Figure 25. Fossitt (2000) Habitat map of proposed development site

GA1 - Agricultural grassland

The subject site was used for cattle grazing and hay/silage making. The agricultural grassland habitat covered the majority of the site comprising species such as daisy (*Bellis perennis*), nettles (*Urtica dioica*), thistles (*Cirsium spp.*), broad-leaved dock (*Rumex obtusifolius*), water dock (*Rumex hydrolapathum*), creeping cinquefoil (*Potentilla reptans*), creeping buttercup (*Ranunculus repens*), white clover (*Trifolium repens*), meadow buttercup (*Ranunculus acris*), yellow flag (*Iris pseudacorus*), Yorkshire fog (*Holcus lanatus*) and horsetail (*Equisetum spp.*).



Plate 1. Agricultural grassland.



Plate 2. Agricultural grassland

WS1- Scrub

A scrub habitat had formed in various places throughout the site. The species within this habitat included brambles (*Rubus fruticosus agg.*), gorse (*Ulex europaeus*), field rose (*Rosa arvensis*), hawthorn (*Crataegus monogyna*), honeysuckle (*Lonicera periclymenum*) and cotoneaster (*Cotoneaster sp.*). The ground cover vegetation was minimal due to cows using these areas to shelter from the wind.



Plate 3. Scrub habitat.

WL1/ WL2- Hedgerow/ Treelines

All of the fields onsite were bordered by a mixture of hedgerows and treelines. The main constituent species of the hedgerow were hawthorn (*Crataegus monogyna*), willow (*Salix sp.*), field rose (*Rosa arvensis*), brambles (*Rubus fruticosus agg.*), hazel (*Corylus avellana*), ivy (*Hedera helix*), gorse (*Ulex europaeus*) and blackthorn (*Prunus spinosa*). Tree species included oak (*Quercus sp.*), Ash (*Fraxinus excelsior*), Alder (*Alnus glutinosa*), Horse Chestnut (*Aesculus hippocastanum*) and elder (*Sambucus nigra*). Other species within this habitat included nettle (*Urtica dioica*), herb Robert (*Geranium robertianum*), thistles (*Cirsium spp.*), broad-leafed dock (*Rumex obtusifolius*), creeping buttercup (*Ranunculus repens*), great willowherb (*Epilobium hirsutum*) and male fern (*Dryopteris filix-mas*). Many European rabbits were seen throughout the site survey darting in and out of the hedgerow.



Plate 4. Hedgerow habitat.



Plate 5. Treeline habitat.

WN6 - Wet willow-alder-ash woodland

An early mature woodland traverses the southern site boundary, dominated by Goat Willow (*Salix caprea*). Other species recorded were Blackthorn (*Prunus spinosa*), Bramble (*Rubus fruticosus*), Dog Rose (*Rosa canina*), Common Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*), thistles (*Cirsium spp.*), broad-leaved dock (*Rumex obtusifolius*), creeping buttercup (*Ranunculus repens*), great willowherb (*Epilobium hirsutum*) and male fern (*Dryopteris filix-mas*).

BL3 - Built land and artificial surfaces

A small amount of roadway is present to the west and at the far north of the site, serving as access roads.

Evaluation of Habitats

The habitats on site are noted above. It should be noted that the Wet willow-alder-ash woodland and treelines would be seen as the most important habitats on site. The majority of the Wet willow-alder-ash woodland is to be retained. The watercourse on site appears to be a dry channel throughout much of the year and the volume of water in the watercourse would be dependent on groundwater levels within the catchment and the level of rainfall within the catchment. No flow of water was seen in the watercourse during any survey.

Plant Species

The plant species encountered at the various locations on site are detailed above. No rare plant species or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded within the proposed development site. No invasive species were noted on site.

Fauna

As seen in Appendix II a total of four mammal species were confirmed within the survey area by visual confirmation, camera trap footage and behavioural evidence: fox (*Vulpes vulpes*), hedgehog (*Erinaceus europaeus*), pine marten (*Martes martes*) and rabbit (*Oryctolagus cuniculus*). Of these, only fox, hedgehog and rabbit were observed within the proposed site outline. A pine marten individual was picked up by a camera trap in the Sitka spruce woodland in the south of the survey area, outside of the proposed site outline. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened terrestrial faunal species were recorded within the proposed site.

Bats

Bat surveys were carried out and the results of the surveys are seen in Appendix III. As outlined in Appendix III, 'The bat surveys comply with bat survey guidance documentation including Marnell et al (2022) and Collins (2023). The 2023 survey recorded a single Soprano Pipistrelle emerging from the woodland located southwest of the proposed development area and outside the site footprint. Other bat activity included Common Pipistrelle, Soprano Pipistrelle, Daubenton's Bat, and Natterer's Bat foraging within the wider survey area.

The 2026 surveys did not identify any bat roosts within the development site, and no bats were observed emerging from onsite trees. Bat activity comprised foraging and commuting of three bat species: Common Pipistrelle, Soprano Pipistrelle, and Leisler's Bat. Activity was concentrated along hedgerows, woodland edges, and linear vegetation features.

The site therefore provides habitat of local importance for commuting and foraging bats but is considered to be of low to moderate importance to the local bat population.'

Amphibians/Reptiles

The common frog (*Rana temporaria*) was not observed on site. However, there are features within or proximate to the site boundary and in particular the designated watercourse/drainage ditch within the proposed development site that could be important to frog species.

Wintering Birds

Wintering Bird surveys were carried out on site during the 2022/2023, 2023/2024, 2024/2025 and 2025/2026 wintering bird survey seasons (Appendices IV-VII).

2022/2023 Surveys

Between November 2022 and March 2023 9 winter bird surveys were undertaken at lands at Tinahask Lower, Arklow, Co Wicklow by Hugh Delaney, a freelance Ecologist (Birds primarily) having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is local to the Dun Laoghaire-Rathdown area in Dublin and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

As outlined in Appendix IV, *'In total 47 species were recorded over 9 surveys at the Tinahask Lower site, Arklow during the winter bird surveys in 2022-2023, two species red-listed as species listed as of conservation concern (per Birdwatch Ireland's species of conservation concern 2020-2026) were wintering Snipe and Redwing. Snipe were recorded around the site on all surveys, favoring the fields adjacent the main entrance and also in the southeast area of the site, numbers varied between 2 birds recorded on dates in November and March, 6-7 on other dates, and peak counts of 10 birds recorded on January 19th and 9 recorded on February 19th, areas of fields around the site appeared to be consistently wet throughout the winter and the birds appeared to be availing of this as a feeding opportunity. Redwing were also recorded on all surveys with numbers averaging between 40-60 birds with a peak count of 180 noted on January 19th. Wintering amber-listed species recorded included Herring Gull, Black-headed Gull, and Common Gull, these were recorded foraging on-site in small numbers only (almost all in single figures for each species). Red Kite was observed passing over the site on several dates, but not recorded foraging on-site, Buzzard was observed foraging on-site occasionally. Passerine species recorded were consistent throughout the surveys with the well-established hedgerow habitat affording a good range of species. Results suggest that the site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's).*

In total, 33 bird species (ten amber BoCCI, two red BoCCI) were recorded within a survey area encompassing the site outline, and areas to the north and south between Moneylands Farm and Church View/Abbey Heights residential areas during breeding bird surveys in July 2023. No breeding hotspots, or breeding amber/red listed species were observed within the proposed site outline.'

2023/2024 Surveys

Hugh Delaney carried out 9 wintering bird surveys between November 2023 and March 2024. As outlined in the conclusion section of Appendix V, *'In total 50 species were recorded over 9 surveys at Tinahask Lower, Arklow, during the winter bird surveys in 2023-2024, two species red-listed as species listed as of conservation concern (per Birdwatch Ireland's species of conservation concern 2020-2026) recorded on-site, were wintering Snipe and Redwing. Snipe were recorded around the site on all surveys, similar to previous surveys favoring the fields adjacent the main entrance and northwest and also in the south and southeast area of the site, numbers varied between 2-3 birds recorded on dates in November and March, to up to 13 on other dates, with the peak counts peak of 13 birds recorded on December 5th and January 10th, with the birds again utilizing the wetter areas on-site throughout the winter as a feeding opportunity. Redwing were also recorded on almost all surveys (except November) with peak counts of 75 on December 19th and 145+ on January 10th. Wintering amber-listed species recorded included Herring Gull, Black-headed Gull, and Common Gull, these were recorded foraging on-site in small numbers only (almost all in single figures for each species). Red Kite was observed passing over the site again on several dates, but not recorded foraging on-site, Buzzard was observed foraging on-site occasionally. Passerine species recorded were consistent throughout the surveys with the well-established hedgerow habitat affording a good range of species.*

Results suggest that the site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's).'

2024/2025 Surveys

As outlined in Appendix VI, 'A total of 38 species were recorded within, above and immediately adjacent to the survey area across 5 surveys. Twenty-six green, ten amber and two red bird species of conservation concern in Ireland (BoCCI) were recorded either within, over and immediately adjacent to the survey area. Foraging was recorded on only a few occasions and in small numbers. No species was recorded in numbers approaching the 1% national or international thresholds.

The site is dominated by cattle-grazed and silage grassland enclosed by hedgerows, and is considered to be of low importance for wintering birds. The proposed development will result in the loss of some foraging habitat used by red- and amber-listed species. However, this loss is not considered significant, given the small numbers of birds recorded, the extent of similar grassland habitat in the surrounding rural landscape, and the proposed landscape plan, which will continue to provide foraging opportunities within the site. Any displacement is expected to occur at site level rather than local level.

Out of an abundance of caution, mitigation measures are recommended. These include retaining hedgerows and treelines where possible, providing compensatory planting where they are lost, and using seed mixes that support foraging by red- and amber-listed species. With these measures fully implemented, no significant impacts on wintering birds are predicted, including on the Qualifying Interests of nearby Special Protection Areas.'

2025/2026 Surveys

*As outlined in Appendix VII, 'A total of 34 species were recorded within, above and adjacent to the survey area across eight surveys. Twenty-four green, eight amber and two red species of conservation concern were recorded either within, over or immediately adjacent to the survey area boundary. Two red-listed species of conservation concern in Ireland, meadow pipit (*Anthus pratensis*) and snipe (*Gallinago gallinago*) were recorded within and adjacent to the site outline/survey area. Foraging was recorded on only a few occasions and in small numbers. No species was recorded in numbers approaching the 1% national or international thresholds.*

The site is dominated by cattle-grazed and silage grassland enclosed by hedgerows, and is considered to be of low importance for wintering birds. The proposed development will result in the loss of some foraging habitat used by red- and amber-listed species. However, this loss is not considered significant, given the small numbers of birds recorded, the extent of similar grassland habitat in the surrounding rural landscape, and the proposed landscape plan, which will continue to provide foraging opportunities within the site. Any displacement is expected to occur at site level rather than local level.

Out of an abundance of caution, mitigation measures are recommended. These include retaining hedgerows and treelines where possible, providing compensatory planting where they are lost, and using seed mixes that support foraging by red- and amber-listed species. With these measures fully implemented, no significant impacts on wintering birds are predicted, including on the Qualifying Interests of nearby Special Protection Areas.'

Breeding Birds

Breeding bird surveys were carried out on site. Results are demonstrated in Appendix I.

Historic Records of Biodiversity

The National Biodiversity Data Centre's online viewer was consulted in order to determine the extent of biodiversity and/or species of interest in the area. First, an assessment of the site specific area was carried out and it recorded no species of interest in the site area. Following this a 2km² grid was assessed. Table 4 provides a list of all species recorded in both grid areas that possess a specific designation, such as Invasive Species or Protected Species.

Table 4. Recorded species, associated designations and grid references

Species name	Date of last record	Title of dataset	Designation
Barn Owl (<i>Tyto alba</i>)	12/06/2021	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
House Martin (<i>Delichon urbicum</i>)	23/09/2009	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Merlin (<i>Falco columbarius</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Red Kite (<i>Milvus milvus</i>)	13/04/2019	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Japanese Knotweed (<i>Fallopia japonica</i>)	09/11/2007	The Flora of County Wexford	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Brown Long-eared Bat (<i>Plecotus auritus</i>)	16/10/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	02/09/2013	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (<i>Meles meles</i>)	02/09/2013	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
Lesser Noctule (<i>Nyctalus leisleri</i>)	12/07/2005	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	12/07/2005	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
West European Hedgehog (<i>Erinaceus europaeus</i>)	30/06/2021	Hedgehogs of Ireland	Protected Species: Wildlife Acts
Brown Rat (<i>Rattus norvegicus</i>)	26/04/2017	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
European Otter (<i>Lutra lutra</i>)	09/02/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

Species name	Date of last record	Title of dataset	Designation
West European Hedgehog (<i>Erinaceus europaeus</i>)	08/07/2021	Hedgehogs of Ireland	Protected Species: Wildlife Acts
Common Garden Snail (<i>Cornu aspersum</i>)	23/10/2005	All Ireland Non-Marine Molluscan Database	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Wrinkled Snail (<i>Candidula intersepta</i>)	23/10/2005	All Ireland Non-Marine Molluscan Database	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Common Porpoise (<i>Phocoena phocoena</i>)	23/12/2017	IWDG Casual Cetacean Sightings	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts Threatened Species: OSPAR Convention
Common Seal (<i>Phoca vitulina</i>)	16/07/2016	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
Andrena (Andrena) praecox	10/04/1925	Bees of Ireland	Threatened Species: Vulnerable
Barbut's Cuckoo Bee (<i>Bombus (Psithyrus) barbutellus</i>)	01/08/1925	Bees of Ireland	Threatened Species: Endangered
Great Yellow Bumble Bee (<i>Bombus (Subterraneobombus) distinguendus</i>)	01/08/1925	Bees of Ireland	Threatened Species: Endangered
Hill Cuckoo Bee (<i>Bombus (Psithyrus) rupestris</i>)	01/08/1925	Bees of Ireland	Threatened Species: Endangered
Large Red Tailed Bumble Bee (<i>Bombus (Melanobombus) lapidarius</i>)	22/07/2018	Bees of Ireland	Threatened Species: Near threatened
Small Heath (<i>Coenonympha pamphilus</i>)	26/08/2013	Atlas of Butterflies in Ireland 2021	Threatened Species: Near threatened
<i>Donacia marginata</i>	31/12/1900	Water Beetles of Ireland	Threatened Species: Near threatened
Hydrocyphon deflexicollis	31/07/1921	Water Beetles of Ireland	Threatened Species: Endangered
Zircon Reed Beetle (<i>Donacia aquatica</i>)	31/12/1900	Water Beetles of Ireland	Threatened Species: Vulnerable
Dwarf Spike-rush (<i>Eleocharis parvula</i>)	31/12/1929	BSBI tetrad data for Ireland	Threatened Species: Endangered
Japanese Knotweed (<i>Fallopia japonica</i>)	17/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Rhododendron ponticum	17/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Sycamore (<i>Acer pseudoplatanus</i>)	11/01/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Wild Clary (<i>Salvia verbenaca</i>)	14/08/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Least concern

Species name	Date of last record	Title of dataset	Designation
Yellow Horned-poppy (Glaucium flavum)	15/06/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Thornback Ray (Raja clavata)	18/10/2014	Irish Federation of Sea Anglers Catch Data	Threatened Species: OSPAR Convention
Atlantic Cod (Gadus morhua)	18/10/2014	Irish Federation of Sea Anglers Catch Data	Threatened Species: OSPAR Convention
Barn Swallow (Hirundo rustica)	12/08/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Black-headed Gull (Chroicocephalus ridibundus)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Common Coot (Fulica atra)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Goldeneye (Bucephala clangula)	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Linnet (Carduelis cannabina)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Pochard (Aythya ferina)	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Starling (Sturnus vulgaris)	12/08/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Swift (Apus apus)	12/08/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Wood Pigeon (Columba palumbus)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Eurasian Curlew (Numenius arquata)	09/08/2017	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List

Species name	Date of last record	Title of dataset	Designation
Eurasian Reed Warbler (Acrocephalus scirpaceus)	07/07/2012	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Great Black-backed Gull (Larus marinus)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Great Cormorant (Phalacrocorax carbo)	15/07/2016	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Greylag Goose (Anser anser)	17/06/2020	Birds of Ireland	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Herring Gull (Larus argentatus)	12/08/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
House Martin (Delichon urbicum)	12/08/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow (Passer domesticus)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Lesser Black-backed Gull (Larus fuscus)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Little Egret (Egretta garzetta)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
Little Grebe (Tachybaptus ruficollis)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mallard (Anas platyrhynchos)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Mew Gull (Larus canus)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mute Swan (Cygnus olor)	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Northern Lapwing (Vanellus vanellus)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species:

Species name	Date of last record	Title of dataset	Designation
			Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Northern Wheatear (<i>Oenanthe oenanthe</i>)	16/03/2022	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Red Kite (<i>Milvus milvus</i>)	10/02/2016	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Rock Pigeon (<i>Columba livia</i>)	12/08/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
Sand Martin (<i>Riparia riparia</i>)	01/04/2018	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Frog (<i>Rana temporaria</i>)	28/04/2003	Irish National Frog Database	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
Species name	Date of last record	Title of dataset	Designation
American Mink (<i>Mustela vison</i>)	31/10/2014	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (<i>Meles meles</i>)	31/12/2012	Badger Setts of Ireland Database	Protected Species: Wildlife Acts
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	03/04/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Jenkins' Spire Snail (<i>Potamopyrgus antipodarum</i>)	12/07/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Andrena (<i>Andrena</i>) <i>fucata</i>	04/06/1926	Bees of Ireland	Threatened Species: Near threatened
Andrena (<i>Leucandrena</i>) <i>barbilabris</i>	15/04/1927	Bees of Ireland	Threatened Species: Near threatened
Andrena (<i>Melandrena</i>) <i>nigroaenea</i>	18/04/1930	Bees of Ireland	Threatened Species: Vulnerable
Andrena (<i>Oreomelissa</i>) <i>coitana</i>	31/07/1930	Bee Records for Ireland (BWARS)	Threatened Species: Vulnerable
Andrena (<i>Ptilandrena</i>) <i>angustior</i>	13/06/1926	Bees of Ireland	Threatened Species: Vulnerable
Barbut's Cuckoo Bee (<i>Bombus</i> (<i>Psithyrus</i>) <i>barbutellus</i>)	12/06/1926	Bees of Ireland	Threatened Species: Endangered
Colletes (<i>Colletes</i>) <i>similis</i>	12/07/1929	Bees of Ireland	Threatened Species: Near threatened
Field Cuckoo Bee (<i>Bombus</i> (<i>Psithyrus</i>) <i>campestris</i>)	01/08/1925	Bees of Ireland	Threatened Species: Vulnerable
Great Yellow Bumble Bee (<i>Bombus</i> (<i>Subterraneobombus</i>) <i>distinguendus</i>)	31/12/1896	Bees of Ireland	Threatened Species: Endangered

Species name	Date of last record	Title of dataset	Designation
Hylaeus (Prosopis) brevicornis	20/07/1929	Bees of Ireland	Threatened Species: Endangered
Megachile (Xanthosarus) maritima	20/07/1929	Bees of Ireland	Threatened Species: Near threatened
Moss Carder-bee (Bombus (Thoracomus) muscorum)	31/08/1925	Bees of Ireland	Threatened Species: Near threatened
Nomada obtusifrons	31/07/1930	Bee Records for Ireland (BWARS)	Threatened Species: Endangered
Northern Colletes (Colletes (Colletes) floralis)	02/07/1927	Bees of Ireland	Threatened Species: Vulnerable
Red-tailed Carder Bee (Bombus (Thoracomus) rudarius)	31/08/1925	Bees of Ireland	Threatened Species: Vulnerable
Japanese Rose (Rosa rugosa)	01/09/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Three-cornered Garlic (Allium triquetrum)	22/04/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Common Wood Pigeon (Columba palumbus)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Mute Swan (Cygnus olor)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Red Kite (Milvus milvus)	28/06/2015	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Frog (Rana temporaria)	15/05/2018	Amphibians and reptiles of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
American Mink (Mustela vison)	31/10/2014	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (Meles meles)	31/12/2012	Badger Setts of Ireland Database	Protected Species: Wildlife Acts
Pipistrelle (Pipistrellus pipistrellus sensu lato)	03/04/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Jenkins' Spire Snail (Potamopyrgus antipodarum)	12/07/2018	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Andrena (Andrena) fucata	04/06/1926	Bees of Ireland	Threatened Species: Near threatened
Andrena (Leucandrena) barbilabris	15/04/1927	Bees of Ireland	Threatened Species: Near threatened

Species name	Date of last record	Title of dataset	Designation
Andrena (Melandrena) nigroaenea	18/04/1930	Bees of Ireland	Threatened Species: Vulnerable
Andrena (Oreomelissa) coitana	31/07/1930	Bee Records for Ireland (BWARS)	Threatened Species: Vulnerable
Andrena (Ptilandrena) angustior	13/06/1926	Bees of Ireland	Threatened Species: Vulnerable
Barbut's Cuckoo Bee (Bombus (Psithyrus) barbutellus)	12/06/1926	Bees of Ireland	Threatened Species: Endangered
Colletes (Colletes) similis	12/07/1929	Bees of Ireland	Threatened Species: Near threatened
Field Cuckoo Bee (Bombus (Psithyrus) campestris)	01/08/1925	Bees of Ireland	Threatened Species: Vulnerable
Great Yellow Bumble Bee (Bombus (Subterraneobombus) distinguendus)	31/12/1896	Bees of Ireland	Threatened Species: Endangered
Hylaeus (Prosopis) brevicornis	20/07/1929	Bees of Ireland	Threatened Species: Endangered
Megachile (Xanthosarus) maritima	20/07/1929	Bees of Ireland	Threatened Species: Near threatened
Moss Carder-bee (Bombus (Thoracombus) muscorum)	31/08/1925	Bees of Ireland	Threatened Species: Near threatened
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Red-tailed Carder Bee (Bombus (Thoracombus) ruderarius)	31/08/1925	Bees of Ireland	Threatened Species: Vulnerable
Japanese Rose (<i>Rosa rugosa</i>)	01/09/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
Three-cornered Garlic (<i>Allium triquetrum</i>)	22/04/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Common Wood Pigeon (<i>Columba palumbus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Mute Swan (<i>Cygnus olor</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Red Kite (<i>Milvus milvus</i>)	28/06/2015	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Frog (<i>Rana temporaria</i>)	15/05/2018	Amphibians and reptiles of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts

Potential Impacts

This report has been prepared to outline the construction and operational phase measures in addition to detailing the potential impacts on sensitive receptors within the Zone of Influence (ZOI) in the absence of mitigation measures.

Potential Construction Impacts

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of the site's internal habitats. The removal of these habitats will result in a loss of species of low biodiversity importance. There is the potential for contaminants and pollutants to enter the Kilmurry Stream (an intermittent watercourse that runs through the west and south of the proposed site) and significantly impact on biodiversity at Arklow Rock-Askintinny pNHA in the absence of mitigation.

Designated Conservation sites within 15km

Noise pollution created during the construction of the residential development will be localised to the immediate site area and will not have a likely significant effect on the conservation objectives of the features of interest of any European sites. Surface water from the proposed development shall discharge to the Kilmurry Stream and outfall to marine environment approximately 650m from Arklow Rock-Askintinny pNHA. Landscaping works are proposed in this area. Surface water from the proposed development will enter the Irish Sea, which is adjacent to Avoca Estuary and Arklow Rock-Askintinny pNHA. Flocculation and estuarine circulation patterns will occur within the Avoca Estuary and the Irish Sea. It should be noted that a minimum 5m Riparian Buffer will be implemented from the adjacent watercourse along the southern boundary of the subject site. In the absence of mitigation, pollutants, silt laden run off or dust which enter the surface water network will be dispersed or diluted within the marine environment, to negligible levels, prior to reaching any European sites.

There will, therefore, be an indirect pathway from the proposed development site to European sites within the Irish Sea (Specifically: Buckroney-Brittis Dunes and Fen SAC, Kilpatrick Sandhills SAC). There are no Special Protection Areas (SPAs) or Ramsar Sites within 15 km of the proposed development and no potential hydrological pathways from the proposed development site to any SPAs or Ramsar Sites located further than 15 km.

Foul wastewater will be directed to the Arklow Wastewater Treatment Plant (WwTP). Foul wastewater drainage will ultimately be treated along this public network. The treated effluent from the new Arklow WwTP will discharge to the Irish Sea. There will, therefore, be an indirect pathway from the proposed development site to European sites within the Irish Sea (Specifically: Buckroney-Brittis Dunes and Fen SAC, Kilpatrick Sandhills SAC). However, given the distance from the site to European sites (4.9 km minimum distance), any pollutants, silt laden run off or dust will be dispersed or diluted within the marine environment to negligible levels prior to reaching European sites.

Potential Impacts in the absence of mitigation: Minor Adverse / National / negative Impact / Not significant / short-term. Mitigation is required to protect designated sites.

Biodiversity

In the absence of mitigation, the impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced.

Terrestrial mammalian species

Loss of habitat and habitat fragmentation may affect some common mammalian species. The majority of the woodland is being retained.

Potential Impacts in the absence of mitigation: Minor adverse / site / Negative Impact / Not significant / long term. Mitigation is needed in the form of a pre-construction inspection for terrestrial mammals of conservation importance.

Flora

No protected flora was noted on site. Site clearance will remove the majority of flora species on site. The wet willow-alder-ash woodland will predominantly be preserved and incorporated into the landscape strategy.

Potential Impacts in the absence of mitigation: Low adverse / site / Negative Impact / Not Significant / Short term.

Bat Fauna

Bats were noted on site. However, no trees of bat roosting potential are to be felled or buildings of bat roosting potential are to be demolished as part of the proposed development. Lighting during construction could impact on foraging corridors if not carried out sensitively. As outlined in Appendix III, *'No confirmed bat roosts were identified within the proposed development footprint during either of the 2023 or 2026 surveys. Consequently, direct impacts on bat roosts are not anticipated and a derogation licence from the National Parks and Wildlife Service (NPWS) will not be required.'*

The arboricultural proposals retain substantial areas of hedgerow and woodland habitat across the site, including important boundary features and woodland areas identified as ecological corridors. Landscape planting proposed as part of the development will further strengthen habitat connectivity throughout the site.

The removal of trees and the increase in lighting on site will not result in a significant negative impact on bat foraging. However, there may be negative impacts on bat flight corridors between roosting and foraging areas. Foraging on site was detected, however, incorporation of bat-friendly lighting, preservation of the treeline along the riparian zone and incorporation of corridors via green areas in the landscape design throughout the site will facilitate a continuation of foraging within the site outline.'

Potential Impacts in the absence of mitigation: Minor adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of the control of light spill during construction.

Aquatic Biodiversity

The Kilmurry stream runs through the west and southern portions of the site. In the absence of mitigation there is potential for negative impacts on this watercourse due to the surface water drainage strategy for surface runoff and pollution to enter the watercourse and cause downstream impacts on biodiversity. It should be noted that although this watercourse is mapped under the Water Framework Directive, as noted in the Habitats and Species section of this report this drainage channel rarely contains flowing water and appears to be the remains of part of a historical stream which drained the larger Arklow area. Considering the impermanent nature of this watercourse and its restricted catchment of only the lands within the site boundary, a minimum 5m buffer will be adequate and should be maintained from this stream during construction.

A small pond onsite contains stagnant water as they do not possess an inlet or an outlet due to the underlying impermeable subsoil. These ponds appear to provide a discharge point for surface water runoff

from lands directly adjacent to them within the proposed site boundary. The removal of this pond is not expected to significantly impact on the local ecology of the area as they did not contain any aquatic species of conservation importance during surveys and new ponds will be created as part of the proposed development.

Potential Impacts in the absence of mitigation: Minor adverse / Local/ Negative Impact / Slight Effects / short term.

Bird Fauna

Due to the presence of breeding birds on site the construction will result in a loss of foraging and nesting habitat for breeding birds. As noted in the breeding bird report (Appendix I), vegetation around the pond in the southeast of the site was a hotspot for breeding birds. However, no breeding hotspots, or breeding of amber/red listed species were observed within the proposed site outline. Mitigation measures are proposed. Works involving removal of vegetation on site shall be undertaken outside of the breeding bird season (1st March – 31st August). The removal of these ponds is not foreseen to negatively impact the ecology of the area as no bird species of conservation importance are dependent on these ponds. The creation of new ponds in addition to landscaping works involving green areas, wildflower meadows and trees, and several new stormwater attenuation systems will improve the drainage of the site and help to minimise the ecological impact of the development.

Wintering bird surveys were carried out over four seasons (2022/2023 to 2025/2026; Appendices IV-VII). Red-listed Snipe and Meadow Pipit and amber-listed gulls were recorded within and adjacent to the site, generally in small numbers, although peak counts of up to 13 Snipe were recorded in 2022/2023 and 2023/2024. The proposed development will result in the loss of some grassland foraging habitat used by these species. Given the numbers recorded, the extent of similar grassland habitat in the surrounding rural landscape and the retention of hedgerows, woodland and open space within the landscape plan, this loss is not considered significant. No species was recorded in numbers approaching the 1% national or international thresholds, and the site is not considered to be of importance for the Qualifying Interests of any SPA.

Potential Impacts in the absence of mitigation: Low adverse / Local / Negative Impact / Not significant / long term. Mitigation is needed in the form of controlled site clearance and the provision of compensatory nesting habitat.

Potential Operational Impacts

Once developed, the site would be seen as a stable ecological environment. Planting of native species will be important to re-establish nesting and foraging habitats lost. Proximate bat species will be sensitive to light spill.

Appropriate measures should be taken to prevent light spill, contaminated surface water run-off and dust entering into adjacent habitats, and in particular the Kilmurry stream needs to be protected due to the potential for downstream impacts on the watercourse and marine environment. The new drainage networks will have to comply with SUDS and County Council requirements and, as a result, would have negligible impact on habitats and species surrounding the proposed development site.

Designated Conservation sites within 15km

The proposed development includes a sustainable drainage strategy. There are no designated European sites downstream of the project which could potentially be impacted by the operational phase of the proposed development. Surface water during operation will be discharged to the Kilmurry stream, which discharges to the marine environment less than 1 km north of Arklow Rock-Askintinny pNHA. In the absence of mitigation, flocculation, settlement and mixing will occur and any pollutants, silt laden run off or dust would be settled and dispersed to negligible levels within the marine environment and would not impact on European sites. However, standard operational mitigation measures will be required to comply with the Water Pollution Acts and protect Arklow Rock-Askintinny pNHA.

Potential Impacts in the absence of mitigation: Minor Adverse / Local / Negative Impact / Not significant / Long-term. Mitigation is not specifically required to protect designated sites.

Biodiversity

Biodiversity value of the site will improve as landscaping matures.

Terrestrial mammalian species

Hedgehog and pine marten (protected under the Wildlife Acts) were recorded within the survey area; however, no resting places of protected mammals were noted in the vicinity of the proposed works. Increased disturbance would be noted on site which may deter mammals from entering the site.

Potential Impacts in the absence of mitigation: Low adverse / local/ Negative Impact / Not significant / long term.

Flora

No protected flora was noted on site. Landscaping will increase flora diversity.

Potential Impacts in the absence of mitigation: Neutral / site / Not significant / long-term

Bat Fauna

The proposed development will change the local environment as new structures are to be erected and some of the existing vegetation will be removed. Species expected to occur onsite should persist. A sensitive lighting and landscape strategy has been prepared to incorporate bat foraging on site. Further details are outlined in Appendix III.

Potential Impacts in the absence of mitigation: Low adverse / International /Negative Impact / Not significant / long term.

Aquatic Biodiversity

Standard measures will be in place in relation to surface water discharges. No additional mitigation is required.

Potential Impacts in the absence of mitigation: Low adverse / local / Negative Impact / Not significant / long term

Bird Fauna

The proposed development will change the local environment as new structures are to be erected. The buildings will have solid exteriors, including sections of concrete and glass. These buildings would be clearly visible to bird species and would not pose a significant collision risk. However, the presence of buildings on site and increased human activity may reduce the potential for breeding birds to forage. Wintering birds recorded on site, including small numbers of red-listed Snipe and Meadow Pipit, are likely to be displaced from the developed areas; however, similar grassland habitat is widely available in the surrounding rural landscape and the retained hedgerows, woodland and landscaped open spaces will continue to provide foraging opportunities.

Potential Impacts in the absence of mitigation: Low adverse / site / Negative Impact / Not significant / long term. Mitigation is required.

Mitigation Measures & Monitoring

Standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (Zoi) including the Kilmurry stream, Arklow Rock-Askintinny pNHA, downstream biodiversity, and local biodiversity within / and proximate to the subject site. These measures are outlined in Table 6. It should be noted that the measures in relation to the protection of the Kilmurry stream will be robust.

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
Watercourses Biodiversity	• Habitat degradation • Dust deposition • Pollution • Silt ingress from site runoff • Downstream impacts • Negative impacts on aquatic fauna	A Preliminary Construction Environmental Management Plan has been prepared by Waterman Moylan Consulting Engineers for the proposed development. It outlines the following mitigation measures: <i>Air Quality and Climate</i> <i>The contractor will be required to implement the following measures in relation to air quality and climate during construction:</i> • <i>Implementation of standard mitigation, including the following measures:</i> • <i>Spraying of exposed earthworks and site haul roads during dry weather.</i> • <i>Provision of wheel washes at exit points.</i> • <i>Covering of stockpiles.</i> • <i>Control of vehicle speeds, speed restrictions and vehicle access.</i> • <i>Sweeping of hard surface roads.</i> • <i>Generators will be located away from sensitive receptors insofar as practicable.</i> • <i>Stockpiles will be located as far as possible from sensitive receptors and covered and/or dampened during dry weather.</i> • <i>Employee awareness is also an important means of controlling dust on site. Staff training and the management of operations will ensure that all dust suppression methods are implemented and continuously inspected.</i> • <i>Should asbestos be uncovered on site during construction, the asbestos-containing material (ACM) will be double-bagged and removed from the site by a competent contractor and disposed of in accordance with the relevant procedures and legislation.</i> Noise and Vibration <i>The Noise and Vibration Management Plan (NVMP) will outline how the appointed Contractor(s) will comply with the noise criteria set out in this Plan and will deal specifically with construction activities in a strategic manner to remove or reduce significant noise and vibration impacts associated with the construction of the proposed development.</i> <i>The NVMP will detail the provision and installation of localised acoustic screens, the best practice noise measures that the appointed Contractor(s) will be required to adhere to for construction activities and the noise and vibration monitoring programme that the appointed Contractor(s) will be required to undertake during the construction works.</i>

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		<i>In addition, the appointed Contractor(s) will prepare detailed method statements addressing the likely ground-borne noise and vibration levels that will be generated as a result of the construction activities once the specific details of the proposed plant items and construction methodologies are known.</i> <i>Where considered necessary, structural surveys will be undertaken at sensitive receptors in close proximity to the works to establish their condition and tolerance for vibration impacts.</i> <i>The contractor will implement the following measures in relation to noise and vibration during construction:</i> <i>• A site representative shall be appointed to be responsible for matters relating to noise and vibration.</i> <i>• Specific noise abatement measures will be put in place by the Contractor and will comply with the recommendations of the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001 and 2016.</i> <i>• Temporary infrastructure such as haul roads will be constructed with materials that minimise noise and vibration, and haul roads will be designed to minimise reversing.</i> <i>• Internal haul roads will be well maintained.</i> <i>• Unnecessary revving of engines will be avoided.</i> <i>• Plant and equipment will be switched off when not required.</i> <i>• Rubber linings will be used in chutes and dumpers etc. to reduce noise.</i> <i>• Drop heights of materials shall be minimised.</i> <i>• Generators will be located away from sensitive receivers and will be enclosed.</i> <i>• Equipment, construction methods and programming will be carefully selected with the objective of reducing noise and vibration where possible.</i> <i>• Only equipment, including road vehicles, conforming to relevant national or international standards, directives and recommendations on noise and vibration emissions, will be used.</i> <i>• Plant and vehicles shall be started sequentially rather than all together.</i> <i>• Where interchangeable, electrically powered plant, which is quieter than diesel or petrol-driven plant, will be selected.</i> <i>• Anti-vibration mountings will be fitted, where practicable, to rotating and/or impacting equipment.</i> <i>• Percussive piling will be avoided except where there is an overriding justification.</i> <i>• Noise-control equipment such as jackets, shrouds, hoods, and doors will be used.</i> <i>• Plant will be located, as far as is reasonably practicable, away from receptors or as close as possible to noise barriers or hoardings where these are located between the source and receptor.</i> <i>• Regular and effective maintenance by trained personnel will be carried out to reduce noise and/or vibration from plant and machinery.</i>

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• All plant will be maintained regularly to comply with relevant national or international standards and will be operated in a manner that minimises noise emissions. • Air lines will be maintained and checked regularly to prevent leaks. • All audible warning systems and alarms will be designed to minimise noise. Non-audible warning systems such as cab-mounted CCTV or banksmen may be used in preference. If required, audible warning systems will be switched to the minimum setting required by the Health and Safety • Authority and where practicable 'white noise' reversing alarms will be used in place of the usual 'siren' style reversing alert. • Appropriate hoarding will be provided around construction works. • Rotary drills and bursters actuated by hydraulic or electrical power will be used for excavating hard material. In some instances, chemical bursting may be used where nearby sensitive structures are particularly vulnerable to vibration from pneumatic breakers etc. • All materials, particularly steelwork, will be handled in a manner that minimises noise. • Materials will be stored as far as possible away from sensitive receptors and resilient mats will be used around steel handling areas. • During construction, regular inspections will be undertaken to ensure that the noise and vibration minimising methods, plant and mitigation identified in the specimen design stage are adopted on site and are working effectively. If applicable, construction method inspections will be integrated into any health and safety or quality surveillance regime. • Typically, site activities will be limited to 08.00 – 18.00, Monday to Friday; and 08.00 – 13.00, Saturday. Any works outside these core working hours will be agreed in advance with Wicklow County Council. The planning of such works will have regard to nearby sensitive receptors. • Noise monitoring will be undertaken at the start of each new activity to determine compliance with limit values. This may involve monitoring on a daily basis initially (for the first three weeks), but subject to satisfactory results, this could be relaxed to once or twice weekly, depending on the site activities. The frequency will be increased again if particularly noisy activities are undertaken. • Environmental noise monitoring will be undertaken only by suitably trained and experienced staff. <i>Land and Soils</i> <i>The contractor will implement the following measures in relation to land and soils during construction: The adopted construction techniques will comply with the requirements of statutory bodies, including the Building Control (Amendment) Regulations, Health and Safety Authority inspections, and the Employer's Requirements.</i>

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		<i>Precautionary measures will be taken to contain any areas within the site boundary at risk of contaminated run-off.</i> <i>Potential pollutants shall be adequately secured against vandalism and will be provided with proper containment according to the relevant codes of practice. Any spillages will be immediately contained and contaminated soil shall be removed from the proposed development and properly disposed of in an appropriately licensed facility.</i> <i>Dust generation shall be kept to a minimum through the wetting down of haul roads as required and other dust suppression measures.</i> <i>Any stockpiles of earthworks and site clearance material shall be stored on impermeable surfaces and covered with appropriate materials.</i> <i>Silt traps shall be placed in gullies to capture any excess silt in the run-off from working areas.</i> <i>Soil and water pollution will be minimised by the implementation of good housekeeping (daily site clean-ups, use of disposal bins, etc.) and the proper use, storage and disposal of potentially polluting substances and their containers as well as good construction practices in accordance with CIRIA guidance, including CIRIA C532 Control of Water Pollution from Construction Sites.</i> <i>A contingency plan for pollution emergencies will also be developed by the contractor prior to the commencement of the works and regularly updated during construction. This contingency plan will identify the actions to be taken in the event of a pollution incident in accordance with the CIRIA guidance which requires the following to be addressed:</i> <i>• Containment measures.</i> <i>• Emergency discharge routes.</i> <i>• List of appropriate equipment and clean-up materials.</i> <i>• Maintenance schedule for equipment.</i> <i>• Details of trained staff, location and provision for 24-hour cover.</i> <i>• Details of staff responsibilities.</i> <i>• Notification procedures to inform the EPA or Environment Section of Wicklow County Council.</i> <i>• Audit and review schedule.</i> <i>• Telephone numbers of statutory water consultees.</i> <i>• List of specialist pollution clean-up companies and their telephone numbers.</i> <i>Water</i> <i>The contractor will implement the following measures in relation to water during construction:</i>

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• <i>During construction and as required, surface water runoff will be collected by the temporary drainage system installed by the contractor and then treated or desilted on-site before discharge.</i> • <i>Earthworks operations will be carried out such that the surfaces are designed with adequate slope to promote safe runoff and prevent flooding.</i> • <i>Good housekeeping such as site clean ups, use of disposal bins, etc. will be adopted in construction areas.</i> • <i>In order to prevent accidental release of hazardous materials such as fuels, cleaning agents, etc. into surface water during construction, all hazardous materials will be stored within appropriately bunded containment areas designed to retain spillages.</i> • <i>Temporary bunds will be used for storage of oil/diesel.</i> In addition, the following mitigation measures will be implemented during construction: Construction Phase Mitigation • Prior to commencement on site a project ecologist will be appointed to oversee all construction works. • A preconstruction inspection for mammals will be carried out. • Local watercourses and drains will be protected from dust, silt and surface water throughout the works. • Local silt traps established throughout site. • Mitigation measures on site include dust control, stockpiling away from watercourse and drains • Stockpiling of loose materials will be kept to a minimum of 40m from watercourses and drains. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, ditches or the watercourse, excavations and other locations where it may cause pollution. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality. • During the construction works silt traps will be put in place in the vicinity of all runoff channels of the stream to prevent sediment entering the watercourse.

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• Petrochemical interception and bunds in refuelling area • On-site inspections to be carried out by project ecologist. • Maintenance of any drainage structures (e.g. de-silting operations) will not result in the release of contaminated water to the surface water network. • All works within 30m of the watercourse will require written consent from the project ecologist. • No unfiltered discharges will be made to the watercourse during or after the works • Silt traps established throughout site including a double silt fence between the site and the watercourse. • Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks. • The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained. • The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area. • A project ecologist will be appointed and be consulted in relation to all onsite drainage during construction works. • Dewatering of excavations may be necessary. Appropriate monitoring of groundwater levels during site works will be undertaken. Standard construction phase filtering of surface water for suspended solids will be carried out. Unfiltered surface water discharges or runoff are not permitted from the site into the watercourse during the works. • Concrete trucks, cement mixers or drums/bins are only permitted to wash out in designated wash out area greater than 50m from sensitive receptors including drains and drainage ditches. • Abstraction of water from watercourses will not be permitted. • Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis. • All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. Daily environmental toolbox talks / briefing sessions will be conducted to outline the relevant environmental control measures and to identify any environment risk areas/works.

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• Environmental risks due to construction and operation of the proposed development do potentially exist, particularly in relation to runoff from the sloping site and drains that could lead to the watercourse. Ecological supervision will be required during excavation and enabling works stages. Silt interception measures will be in place to ensure that the watercourses are not impacted during works and in particular during the site clearance and reprofiling stages. Landscaping of the areas of the site proximate to the watercourse will take place immediately following any re-profiling, to act as a buffer to protect the watercourse and marsh. • If in flow, turbidity, oxygen and photographic monitoring of the watercourse (upstream, within & downstream of works) will take place twice daily during works and the results supervised by the project ecologist. This would be particularly important following high rainfall events. • Materials, plant and equipment shall be stored in the proposed site compound location; • Plant and equipment will not be parked within 50m of the watercourse at the end of the working day; • Hazardous liquid materials or materials with potential to generate run-off shall not be stored within 50m of the watercourse. • All oils, fuels and other hazardous liquid materials shall be clearly labelled and stored in an upright position in an enclosed bunded area within the proposed development site compound. The capacity of the bunded area shall conform with EPA Guidelines – hold 110% of the contents or 110% of the largest container whichever is greater; • Fuel may be stored in the designated bunded area or in fuel bowsters located in the proposed compound location. Fuel bowsters shall be double skinned and equipped with certificates of conformity or integrity tested, in good condition and have no signs of leaks or spillages; • Smaller quantities of fuel may be carried/stored in clearly labelled metal jerry cans. Green for diesel and red for petrol and mixes. The jerry cans shall be in good condition and have secure lockable lids. The jerry cans shall be stored in a drip tray when not in use. They will not be stored within 50m of the watercourse. • Drip trays will be turned upside down if not in use to prevent the collection of rainwater; • Waters collected in drip trays will be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements; • Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips;

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• Re-fuelling of machinery, plant or equipment will be carried out in the site compound as per the appointed Construction Contractor re-fuelling controls; • The appointed Construction Contractor EERP will be implemented in the event of a material spillage; • All persons working will receive work specific induction in relation to material storage arrangements and actions to be taken in the event of an accidental spillage. Daily environmental toolbox talks / briefing sessions will be conducted for all persons working to outline the relevant environmental control measures and to identify any environment risk areas/works. • No entry of solids to the associated stream or drainage network during the connection of pipework to the public water system. • Landscaping of the Riparian corridor will be carried out to the satisfaction of the project ecologist. Operational Phase Mitigation • A project ecologist will be appointed to oversee completion of all landscape and drainage works. • Petrochemical interception will be inspected by the project ecologist to ensure compliance with Water Pollution Acts.
Birds (National Protection)	• Removal of nesting habitat. • Removal of foraging habitat. • Destruction and/or disturbance to nests (injury/death). • Predation.	• Vegetation clearance will be undertaken outside the bird nesting season (1st March – 31st August), in accordance with relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2023). Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent. • 25 Nest boxes placed on site to compensate for resource loss. • Planting will provide suitable cover for nesting birds and encourage insect diversity that would sustain birds. • Hedgerows and treelines will be retained where possible. Where removal cannot be avoided, compensatory native hedgerow and tree planting will be provided. Meadow and open-space planting will include native seed-bearing and invertebrate-supporting species, with seed mixes reviewed and approved by the project ecologist, to maintain foraging for wintering red- and amber-listed species. • During construction light falling upon any areas of benefit to birds will not exceed 3 lux to ensure that resting and nesting species are not unnecessarily disrupted. All lighting during construction phase will be to the satisfaction of the project ecologist, will be pointed inwards to the site and will be downward facing so as not to impact on surrounding habitats.

Table 5. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
Bats (International Protection)	• Removal of roosting/foraging habitat. • Lighting Impacts	• Lighting at all stages should be done sensitively on site with no direct lighting of treelines or hedgerows. • Post Construction assessment/compliance with proposed lighting strategy. • A pre-construction assessment of trees to be felled will be carried out. If bats are found a Derogation Licence will be sought and conditions applied. • A post construction lighting assessment will be carried out by the project ecologist.
Amphibians	• Death/injury	• A pre-construction inspection will be carried out by a suitably qualified ecologist.
Mammals	• Death/injury • Destruction of resting/breeding places • Disturbance	• A pre-construction inspection will be conducted to ensure that there are no badger setts on site. Badgers may also construct new setts in the period between this survey and development proceeding. • Lighting at all stages should be done sensitively on site with no direct lighting of treelines. • Post Construction assessment/compliance with proposed lighting strategy. • The river corridor should be screened from disturbance during construction.

Adverse Effects likely to occur from the project (post mitigation)

Standard construction and operational mitigation measures are proposed. These would ensure that water entering the surface water drainage network and the Kilmurry stream is clean and uncontaminated. However, early implementation of ecological supervision, prior to initial mobilisation and enabling works is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation, bat mitigation and the protection of riparian and marine habitats.

With the successful implementation of standard mitigation measures to limit surface water impacts and biodiversity mitigation/supervision, no significant impacts are foreseen from the construction or operation of the proposed project on terrestrial or aquatic ecology. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works. It would be expected that bat foraging may be locally reduced within the site but this would be deemed not to be significant. The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on terrestrial biodiversity, aquatic biodiversity and bats through the application of the standard construction and operational phase controls as outlined above. In particular, mitigation measures to ensure compliance with Water Pollution Acts and prevent silt and pollution entering the Kilmurry Stream and the Irish Sea will satisfactorily address the potential impacts on downstream biodiversity.

No significant adverse impacts on the conservation objectives of European sites are likely, even in the absence of the mitigation measures outlined above, as there is a significant distance between the proposed development site and European Sites and mixing, settlement and flocculation within the Irish Sea will occur and any pollutants, silt laden run off or dust will be diluted and dispersed to negligible levels prior to reaching European sites. Landscaping works are proposed to incorporate the woodland in the south of the site and the associated impacts would be seen to be relatively minor in nature.

It is essential that these measures outlined are complied with, to ensure that the proposed development does not have “downstream” environmental impacts on the Kilmurry Stream and Arklow Rock-Askintinny pNHA in addition to local biodiversity.

Cumulative Impacts

The following is a list of planning application(s) as identified on the Department of Housing, Local Government and Heritage’s ‘National ¹Planning Application Database’ portal (Table 6).

Table 6. Planning applications proximate to the subject site

Ref. No.	Address	Proposal
2560399	Moneylands, Gorey Road, Arklow, Co. Wicklow, Y14 E284	1) construction of a single storey extension to existing office building. 2) construction of a single storey extension to existing production building and 3) all associated and ancillary works, including reconfiguration of existing external steps and footpaths and connections to existing surface water collection network, all at existing facility.
24352	Tinahask, Townland of Tinahask Upper, Arklow	Part 8 - to construct 74 No. Social Housing Units and all associated works. The accommodation shall consist of the following: 2 No. four bedroom storey and a half unit, 17 No. three bedroom two storey units, 45 No. two bedroom two storey units, 2 No. one bedroom apartments in a two storey unit and 8 No. one bedroom single storey units. (Please see the Site Notice for details in relation to submissions or observations in respect to the proposed development).

¹ <https://housinggov.ie/maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8dc>

Ref. No.	Address	Proposal
23485	IDA Business Park, Ballynattin, Arklow	To erect a 532m2 commercial building comprising a 432m2 manufacturing/industrial unit with an ancillary 100m2 office space along with all associated site development works including storage yard, car parking and connect to the existing services.
2360167	Gorey Road, Arklow, Co. Wicklow	Erect 14,500.77 m2 of photovoltaic panels on a ground mounted system with all associated site works at Servier (Ireland) Industries Limited. The development will comprise of a 2.0 MWp Solar PV farm on 3.36 hectares of land located to the south of our existing pharmaceutical manufacturing plant. The electricity generated will be used by Servier (Ireland) Industries Limited. The development will comprise of photovoltaic panels with ground mounted frames together with all ancillary cabling and electrical infrastructure; 1 no. transformer cabin; 1 no. spare parts cabin; using all temporary ways and temporary construction compound / set-down area included on the application.
2362	Site located to the north and northeast of the existing, Kish Business Park, Arklow	Amendments to the information and communication technology (ICT) facility development permitted under Reg. Ref. 20/1088. The proposed amendments comprise the following: Provision of a three-storey Battery Energy Storage System (BESS) building with a gross floor area (GFA) of c.13,787 sq.m, located to the southeast of the permitted ICT Building 3. The proposed building will accommodate battery storage rooms and circulation areas, with photovoltaic panels at roof level, and with an overall height of c.16.8 metres. Associated buildings including a single storey power trunk building (to accommodate a control room and cable rooms, with a GFA of c.539 sq.m and an overall height of c.5.3 metres), a single storey BESS switch room building (to accommodate control rooms and a relay room, with GFA of c.396 sq.m and an overall height of c.5.3 metres) and a transformer compound area to the southwest of the proposed BESS facility. Provision of a fire water storage area and a single storey fire pump house with a GFA of c.39 sq.m to the northeast of the BESS facility. All associated amendments including new amendments to the internal access routes, landscaping and planting, boundary treatments, lighting, and all associated and ancillary works.
22243	Kish Business Park, Clogga Road, Arklow	(i) Single storey industrial unit (Gross Area 2,380sqm) in lieu of that allowed under PPR21/951 and (ii) new car park and timber storage compound and all associated site works.
2560384	IDA Business Park, Ballynattin, Arklow	Erect a 8,875m2 manufacturing & engineering industrial extension with 1,020m2 additional office space to the side of the existing 5,550m2 manufacturing & engineering industrial & office building along with all associated site development works.
221127	Arklow Credit Union Park, Emoclew Road, Arklow	Installation & construction of a new 40m X 25m all weather astro-turf soccer training pitch to include the erection of 4 No. total 10m high floodlight posts in each corner of the pitch together with 3m high fencing & 5m high protective netting to the perimeter of same all connecting into existing services and including all associated site works.
2560350	Site Located northeast of the existing Kish Business Park, Arklow, Co. Wicklow	Amendments to the Battery Energy Storage System (BESS) permitted on site, under WCC Reg. Ref.: 23/62 (an amendment to WCC Reg. Ref.: 20/1088, which was subsequently further amended under WCC Reg. Ref.: 24/ 88). The proposed amendments comprise the following: • The provision of a BESS compound with a total area of c. 1.2 ha which will accommodate self-contained batteries and integral fire suppression equipment, climate control equipment and associated electrical components (in place of the previously permitted three-storey BESS structure and adjacent ancillary structures). • A single storey BESS Switchroom located to the south of the BESS facility with a total gross floor area (GFA) of c. 191 sq.m and total height of c. 5.3m accommodating a control room, relay room, and cable basement. • Water Services Plant and Storage equipment located to the north-east of the BESS comprising a single-storey fire pump house with a total GFA of c. 39 sq.m and total height of c. 3.1m, and 2 no. fire hydrant and water storage tanks with a total height of c. 10.3m. • All associated amendments including amendments to internal access routes, landscaping and planting, boundary treatments, the provision of an acoustic barrier to the south of the BESS compound, lighting, and all associated ancillary works. The operation of the development on site will require an EPA Industrial Emissions Directive (IE) Licence.
201088	North & Northeast of Kish Business Park,	Proposed development, for which a ten-year permission is sought, consists of the following: Demolition of existing outbuildings on the subject site, along with all site clearance and enabling works; Construction of 3 no. part one storey, part two storey,

Ref. No.	Address	Proposal
	Arklow, Co. Wicklow	information and communication technology (ICT) facility buildings, each with a gross floor area (GFA) of C. 22,210 sq. m (66,630 sq. m GAF in total), and with a height (to parapet level) of c. 10.4 metres; Each of the 3 no. ICT facility buildings will accommodate ICT equipment rooms, associated electrical and mechanical equipment rooms, loading bays, maintenance and storage space, office administration areas, and staff facilities; Emergency generators (20 no. for each ICT facility building), flue stacks and associated plant are provided in fenced compounds adjacent to each ICT facility; Extension of the existing road serving Kish Business Park to access the subject site, with gated access points to the proposed ICT facility development to be provided off this roadway on its eastern side. The proposed roadway will form part of the inner relief road planned under Objective IT7 of the Arklow Town and Environs LAP 2018-2024; Construction of internal road network and circulation areas, footpaths, provision of 180 no. car parking spaces (60 no. spaces to serve each ICT facility) and 18 no. cycle parking spaces; Landscaping and planting, boundary treatments, lighting, security fencing, gatehouse (with a GFA of 175 sq. m), and all associated site works including underground foul and storm water drainage network, attenuation and percolation areas, and utility cables, on an application site area measuring c. 24.16 hectares. Site located to the North & Northeast of the existing Kish Business Park.
2488	Site located to the north and northeast of the existing Kish Business Park, Arklow, Co. Wicklow	Alterations to the development permitted under Reg. Ref. 20/1088, as amended by Reg. Ref. 23/62, and will supersede the permitted information and communications technology (ICT) facility buildings permitted on site. In summary, the development comprises the replacement of the 3 no. part one and part two storey ICT facility buildings permitted on site, with 5 no. part two and part three storey ICT facility buildings with a reduced building footprint, along with an energy centre compound. The Battery Energy Storage System permitted under Reg. Ref. 23/62 and the substation and transmission line connections permitted under ABP Ref. 315200-22 will be unaffected by the proposed alterations. An Environmental Impact Assessment Report (EIAR) has been prepared and will be submitted to the planning Authority with the planning application. An EPA-Industrial Emissions Directive (IE) licence will be applied for to facilitate the operation of the proposed development.

Based on a review of the planning application viewer there are no developments of significance proposed in proximity of the proposed development. Given this, it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on European sites will be seen as a result of the proposed development alone or in combination with other projects.

Residual Impacts and Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the potential impacts on the sensitive receptors through the application of the standard construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a minor adverse, not significant, long-term residual impact on the ecology of the area and locality overall. This is primarily as a result of the loss of terrestrial habitats on site, offset by the creation of additional biodiversity features including sensitive landscaping and lighting strategy.

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Appendix I - Breeding Bird Assessment for Amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.



7th October 2026

Prepared by: Emma Peters of Altemar Ltd.
On behalf of: Castlethorn Construction

Document Control Sheet			
Client	Castlethorn Construction		
Project	Breeding bird assessment for Amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.		
Report	Breeding Bird Assessment		
Date	7 th October 2026		
Version 1	Author	Reviewed	Date
Final	Emma Peters	Bryan Deegan	7 th October 2026

Summary

Structure:	There are no pre-existing structures within the proposed site.
Location:	Tinahask, Money Little & Money Big, Arklow, Co. Wicklow
Bird species breeding:	2023 survey - Linnet, magpie, robin, song thrush, spotted flycatcher, swallow, woodpigeon & wren. 2024 survey - Blackbird, blackcap, buzzard, dunnoek, goldfinch, house sparrow, starling, sedge warbler, woodpigeon and wren. 2026 survey – blackbird, blackcap, chiffchaff, robin, song thrush and wren.
Proposed work:	Residential development.
Impact on breeding birds:	In 2023, the hotspots of breeding activity observed within the survey area were the Sitka spruce woodland in the south, vegetation around the pond in the southeast, hedgerow (hawthorn, ivy & bramble) in the centre of the northern half and woodland/scrub in the north of the site. In 2024, the hotspots of breeding activity observed within the survey area were the hedgerow (hawthorn, ivy & bramble) in the centre of the northern half, the scrub along the southeast boundary of survey area, the dense bramble scrub in north of northeast portion of the site, the hedgerow along the northeast boundary of proposed site outline and the central latitudinal hedgerow (hawthorn, ivy & bramble) south of survey area. No breeding hotspots, or breeding amber/red listed species were observed within the proposed site outline. In 2026, hotspots were recorded within the site outline. Works involving removal of vegetation on site shall be undertaken outside of the breeding bird season (1st March – 31st August).
Surveys by:	Frank Spellman, Luke Dodebier and Emma Peters.
Survey dates:	14th, 27th, 28th & 31st July 2023. 9th, 29th May, 6th, 14th June and 2nd July 2024. 18th, 22nd & 23rd June 2026

Receiving environment

Background

The proposed development comprises amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 consisting of 352no. residential units proposed in a mix of houses and apartment units comprising 334no. houses (44no. 2-bedroom, 241no. 3-bedroom and 49no. 4-bedroom) ranging from 2 to 3 storeys, 18no. apartments (6no. 1-bedroom and 12no. 2-bedroom) in 1no. 4 storey building, 1no. creche (c. 711 sqm) at ground floor of apartment Block A; and all associated and ancillary site development works including on site attenuation, hard and soft landscaping and boundary treatment works, including public open space; communal open space, public lighting; surface car parking; bicycle parking spaces/stores for houses and apartment units; 4no. ESB substations; bin stores; vehicular access via existing Northwood road and railway overbridge from Knockmore roundabout. The proposed development also includes road upgrade works to the existing railway overbridge and the western approach to same including the provision of a 2.5m footpath, 6m carriageway, safety barrier improvement works and other ancillary works required to facilitate these elements.

The proposed site outline, location, and masterplan are demonstrated in figures 1-2.

Lighting

The lighting strategy has been prepared by Sabre Electrical Services Ltd.

The proposed lighting strategy is demonstrated in figure 3 & 4.

Landscape

The landscape plans for the proposed site have been prepared by Doyle & O'Troithigh.

The landscape strategy incorporates 14 green areas, a vegetated buffer zone with tree planting between train tracks and the development, wildflower beds, landscape bunds, open recreational spaces, and public parks throughout. A large portion of existing vegetation overgrowth will also be retained and incorporated into parkland in the south of the site, which will include both wild and mown grass areas, as well as an attenuation pond surrounded by wildflower beds and planted trees.

Deciduous and perennial tree/shrub planting will occur throughout the site, in particular along roads and paths, between amenity spaces, in new green areas and public parks, as well as public lawns and car parking areas. Species to be planted include European hornbeam, silver birch, English oak, horse chestnut, mountain ash, thorny olive, beech hedge, and bay laurel.

The proposed landscape plan is demonstrated in figure 5.



Figure 1. Proposed site outline and survey area.



Figure 4. Proposed lighting plan (incl. Isolux lines) (sheet 2)



Figure 5. Landscape Plan

Competency of assessor

This Report has been prepared by Emma Peters (BSc Environmental Science). Emma has experience in bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys and is a member of Bat Conservation Ireland. She is skilled in habitat identification, native and non-native species identification, terrestrial mammal surveys and breeding/wintering bird surveys.

Legislative context

The Wildlife Act 1976 protects wild birds in Ireland. Based on this legislation it is an offence to wilfully interfere with or destroy wild birds and their nests and eggs (other than the wild species mentioned in the Third Schedule of this Act). Under this legislation it is an offence for any person who *“wilfully takes or removes the eggs or nest of a protected wild bird otherwise than under and in accordance with such a licence, wilfully destroys, injures or mutilates the eggs or nest of a protected wild bird, wilfully disturbs a protected wild bird on or near a nest containing eggs or unflown young.”*

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Council Directive 2009/147/EC 2010 on the conservation of wild birds provides for the conservation of wild birds by, among other things, classifying important ornithological sites as Special Protection Areas. The Directive relates to the conservation of all species of naturally occurring birds in the wild state, their eggs, nests and habitats in the European territory of the Member States. The Directive prohibits in particular:

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs even if empty;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of this Directive;
- keeping birds of species the hunting and capture of which is prohibited.

Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), notwithstanding any consent, statutory or otherwise, given to a person by a public authority or held by a person, except in accordance with a licence granted by the Minister under Regulation 54, a person who in respect of the species referred to in Part 1 of the First Schedule:

- deliberately captures or kills any specimen of these species in the wild,
- deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,
- deliberately takes or destroys eggs of those species from the wild,
- damages or destroys a breeding site or resting place of such an animal, or
- keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive, shall be guilty of an offence.

Breeding bird survey

This report presents the results of four site visits by Frank Spellman on the 14th, 27th, 28th & 31st July 2023, five site visits by Emma Peters on the 9th, 29th May, 6th, 14th June and 2nd July 2024 and three site visits by Luke Dodebier on the 18th, 22nd & 23rd June 2026. A breeding bird transect survey was carried out on each occasion.

Survey methodology

This Breeding bird survey was carried out based on the BTO Common Bird Census (Bibby *et al.*, 2000 and Gilbert *et al.*, 1998) and following CIEEM guidelines.

A 15-minute settlement period was given following arrival to allow resumption of bird activity after any possible disturbance caused by arrival to the site. Various features such as woodlands, hedgerows, tree lines, grasslands and a watercourse were present within the survey area. A single transect following the full perimeter of the survey area was carried out on each occasion, covering all areas and features available for breeding activity within and adjacent to the survey area. Each survey was carried out by a single surveyor.

The survey area was divided into two areas for access purposes, one encompassing the southern half of survey area south of the residential estate and farmhouse, and the northern half everything north of this area. The southern half was accessed via Moneylands Farm, and the northern half accessed from Church View and Abbey Heights. Transects around the perimeter of all fields and features within the overall survey area were carried out, with transect direction varying depending on the location of livestock on each occasion. Movements were carried out slowly, with pauses every few metres as appropriate to identify and locate birds through movements and calls, continuing once all birds within an area/feature had been recorded.

Each transect took 4.5 – 6 hours to complete, ending once all areas/features had been surveyed. Care was taken not to double count any observations. All surveys were initiated shortly after dawn, with transects beginning at alternating ends of the survey area to account for differences in bird activity levels between dawn and late morning.

The initial survey on 14th July 2023 was abandoned after only covering the southern half of the site due to deteriorating weather conditions which were not conducive to conducting breeding bird surveys, and so a further three full surveys were carried out.

Survey results

Habitats of breeding bird potential

A desk and ground level breeding habitat assessment was carried out and used to examine the structures and vegetation on site for features that could provide breeding habitat. Potential nesting features include woodlands, heavy ivy growth, tree lines, scrub, hedgerows, grassland, buildings/sheds with openings, rooftops etc. All vegetated areas and man-made structures on site were assessed for breeding bird potential.

Areas of high breeding bird potential included the woodlands, treelines, hedgerows and structures throughout the survey area and its boundaries.

Breeding activity survey 2023

A total of 33 species were recorded within the survey area across four surveys. Eight of these species were confirmed breeding during at least one survey.

21 green-listed bird species of conservation concern were recorded within the survey area. Breeding activity was confirmed for five of these species: magpie, robin, song thrush, woodpigeon and wren.

Ten amber-listed bird species of conservation concern were recorded within the survey area: black-headed gull, goldcrest, herring gull, house martin, house sparrow, linnet, spotted flycatcher, starling, swallow, and willow warbler. Breeding activity was confirmed for three of these species: linnet, spotted flycatcher and swallow.

Two red listed bird species of conservation concern were recorded within the survey area: red kite and swift. No breeding activity for these species was observed across the survey area during any surveys.

Two species were observed breeding within the proposed site outline: wren and woodpigeon. Both species are green listed BoCCI. Breeding wrens were observed within the hedgerow along the site outline in the northwest bounding the railway line, as well as the hedgerow/woodland in the east of the site outline. Woodpigeon was observed breeding within pussywillow in the center of the site and within a hedgerow along the northeastern boundary of the site.

Table 1. Species confirmed breeding on site (2023).

Common name	BTO	Latin name	BoCCI
Linnet	LI	<i>Carduelis cannabina</i>	Amber
Magpie	MG	<i>Pica pica</i>	Green
Robin	R.	<i>Erithacus rubecula</i>	Green
Song Thrush	ST	<i>Turdus philomelos</i>	Green
Spotted Flycatcher	SF	<i>Muscicapa striata</i>	Amber
Swallow	SL	<i>Hirundo rustica</i>	Amber
Woodpigeon	WP	<i>Columba palumbus</i>	Green
Wren	WR	<i>Troglodytes troglodytes</i>	Green

Breeding activity survey 2024

A total of 37 species were recorded within the survey area across five surveys. Ten of these species were confirmed breeding during at least one survey.

25 green-listed bird species of conservation concern were recorded within the survey area. Breeding activity was confirmed for eight of these species: Buzzard, blackbird, blackcap, dunnock, goldfinch, sedge warbler, woodpigeon and wren.

11 amber-listed bird species of conservation concern were recorded within the survey area: black-headed gull, goldcrest, herring gull, house martin, house sparrow, linnet, pied flycatcher, spotted flycatcher, starling, swallow, and willow warbler. Breeding activity was confirmed for two of these species: house sparrow and starling.

One red listed bird species of conservation concern was recorded within the survey area: Meadow pipit. No breeding activity for this species was observed across the survey area during any surveys.

Three species were observed breeding within the proposed site outline: Blackbird, blackcap and wren. All three species are green listed BoCCI. Breeding wrens were observed within the hedgerow along the site outline in the northeast, as well as within the hedgerow/woodland along the east boundary of site outline. Blackbirds were observed breeding within the most northwestern latitudinal hedgerow of the site outline, as well as within the hedgerow along the site outline in the northeast. Breeding blackcaps were observed within the hedgerow along the site outline in the northeast.

Table 2. Species confirmed breeding on site (2024).

Common name	BTO	Latin name	BoCCI
Buzzard	BZ	<i>Buteo buteo</i>	Green
Blackcap	BC	<i>Sylvia atricapilla</i>	Green
Blackbird	B.	<i>Turdus merula</i>	Green
Dunnoek	D.	<i>Prunella modularis</i>	Green
Goldfinch	GO	<i>Carduelis carduelis</i>	Green
House Sparrow	HS	<i>Passer domesticus</i>	Amber
Starling	SG	<i>Sturnus vulgaris</i>	Amber
Sedge Warbler	SW	<i>Acrocephalus schoenobaenus</i>	Green
Woodpigeon	WP	<i>Columba palumbus</i>	Green
Wren	WR	<i>Troglodytes troglodytes</i>	Green

Breeding activity survey 2026

A total of 26 species were recorded within the survey area across three surveys. Six of these species were confirmed breeding during at least one survey.

16 green-listed bird species of conservation concern were recorded within the survey area. Breeding activity was confirmed for six of these species: Blackbird, blackcap, chiffchaff, robin, song thrush and wren.

Nine amber-listed bird species of conservation concern were recorded within the survey area: black-headed gull, common gull, goldcrest, herring gull, house martin, house sparrow, linnet, starling, and willow warbler.

One red listed bird species of conservation concern was recorded within the survey area: Meadow pipit. No breeding activity for this species was observed across the survey area during any surveys.

Six species were observed breeding within the proposed site outline. All six species are green listed BoCCI.

Table 3. Species confirmed breeding on site (2026).

Common name	BTO	Latin name	BoCCI
Blackcap	BC	<i>Sylvia atricapilla</i>	Green
Blackbird	B.	<i>Turdus merula</i>	Green
Chiffchaff	CC.	<i>Phylloscopus collybita</i>	Green
Robin	R.	<i>Erithacus rubecula</i>	Green
Song Thrush	ST	<i>Turdus philomelos</i>	Green
Wren	WR	<i>Troglodytes troglodytes</i>	Green

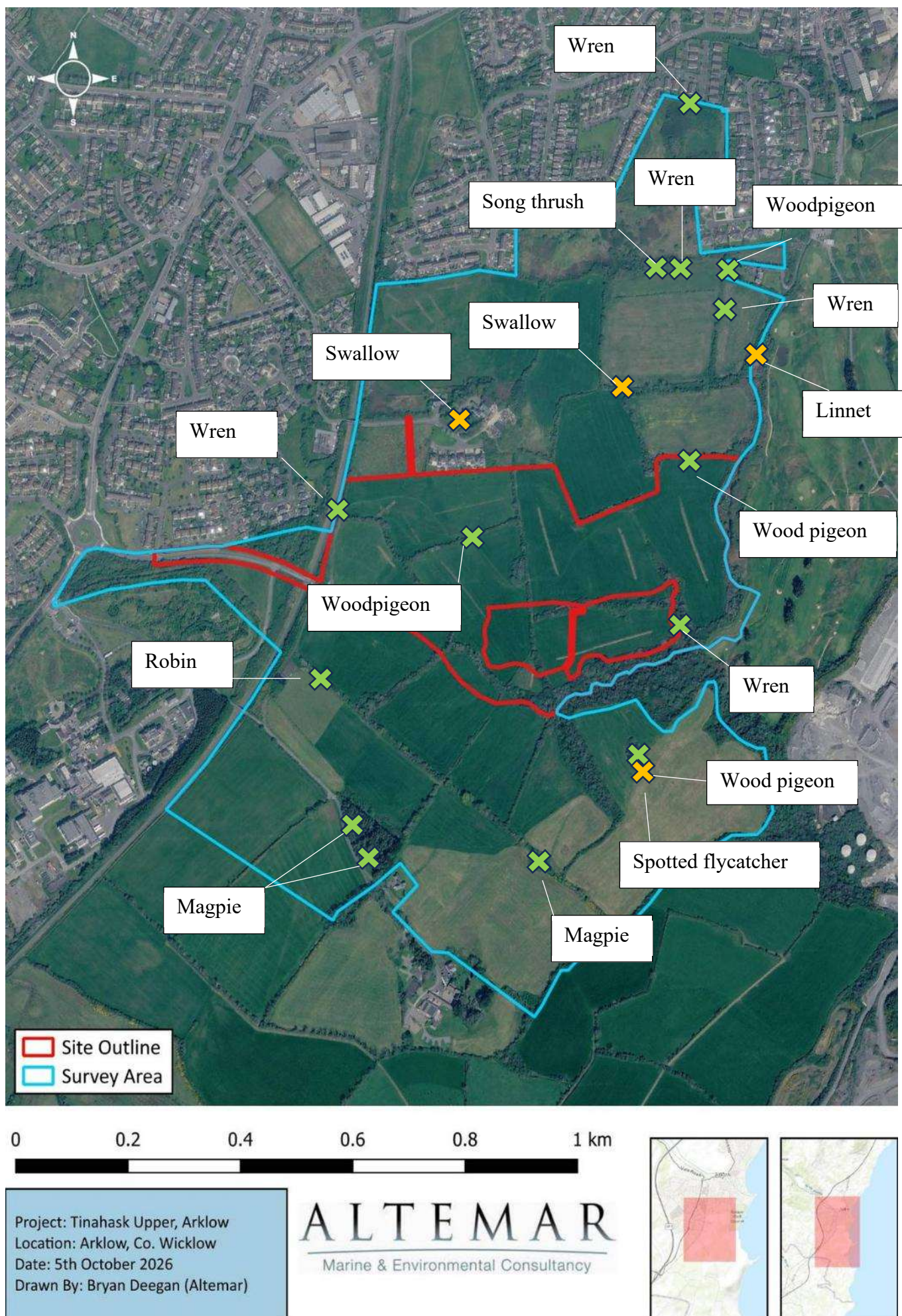
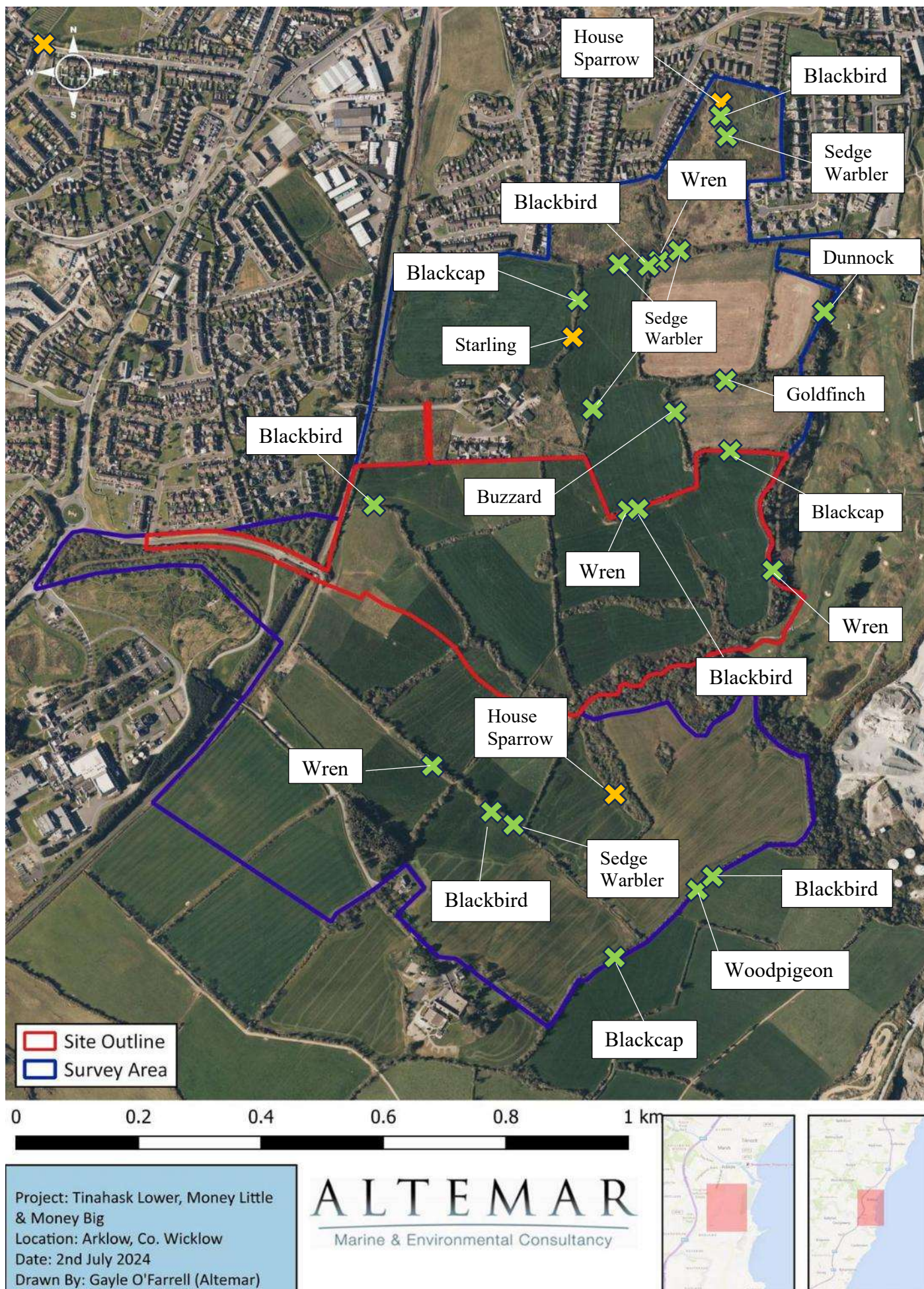


Figure 6: Bird breeding locations indicated by crosses, coloured according to BoCCI status. (2023 survey)



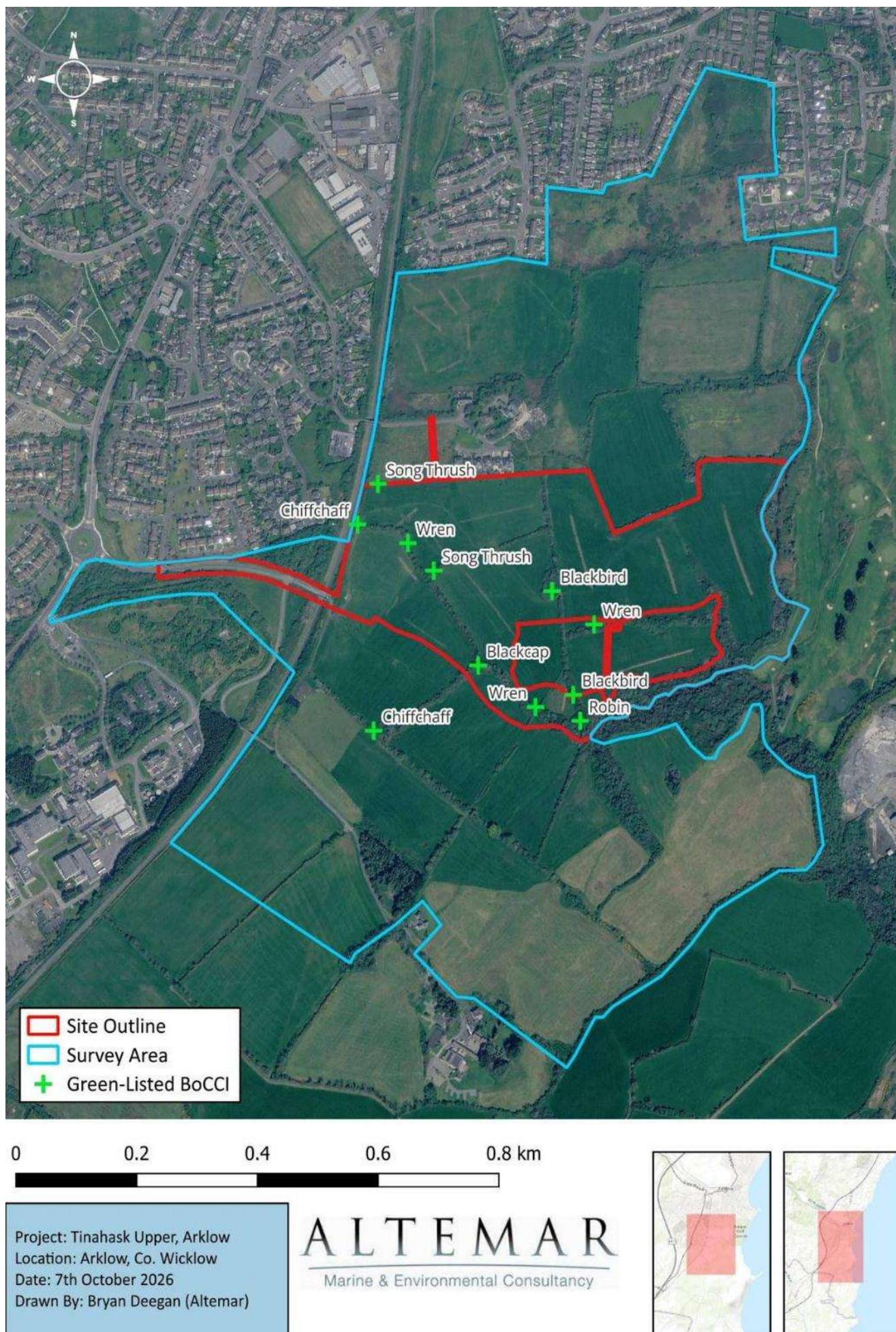
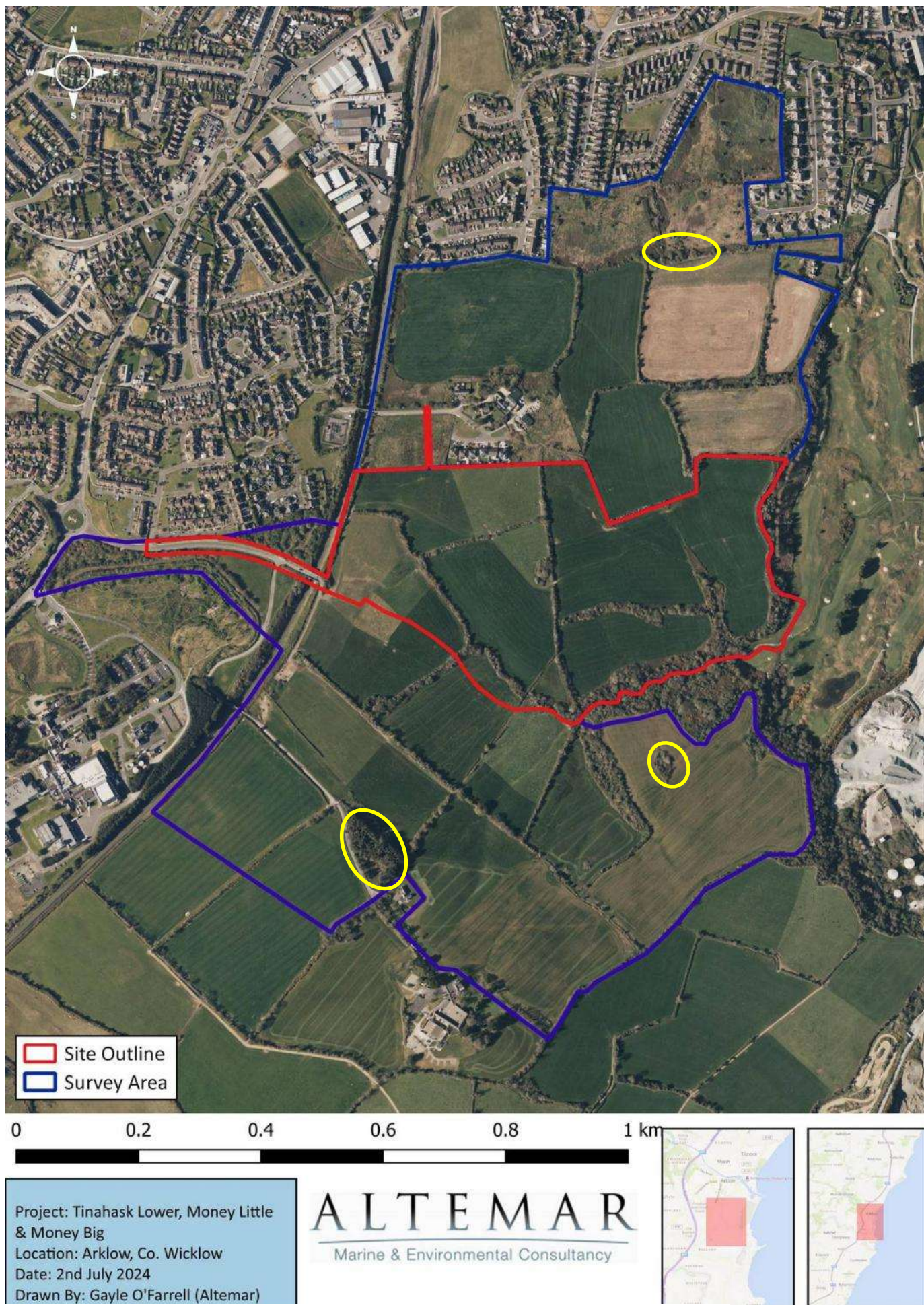


Figure 8: Bird breeding locations coloured according to BoCCI status. (2026 survey)



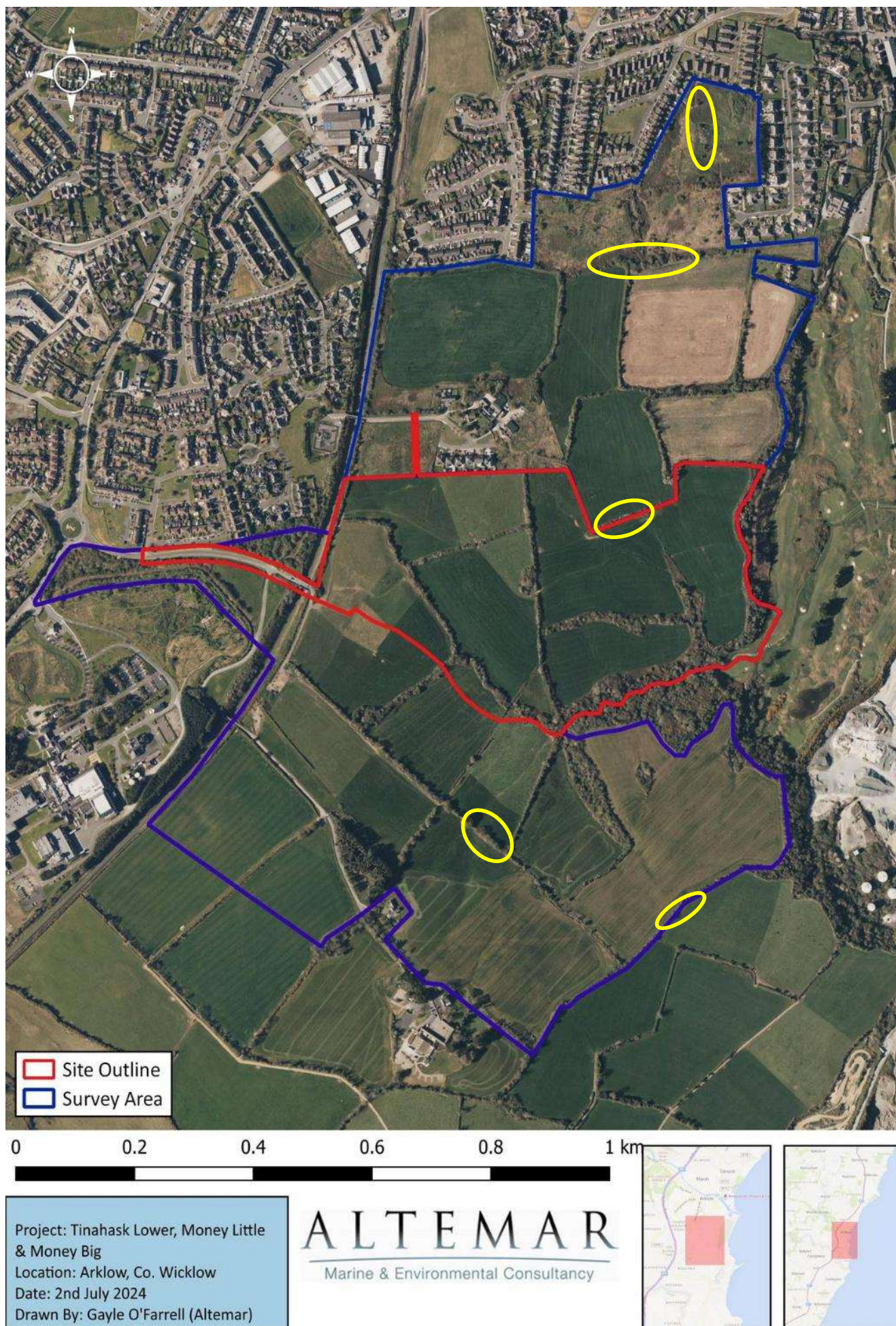


Figure 10: Breeding hotspot areas for all species (in yellow) (2024 survey).

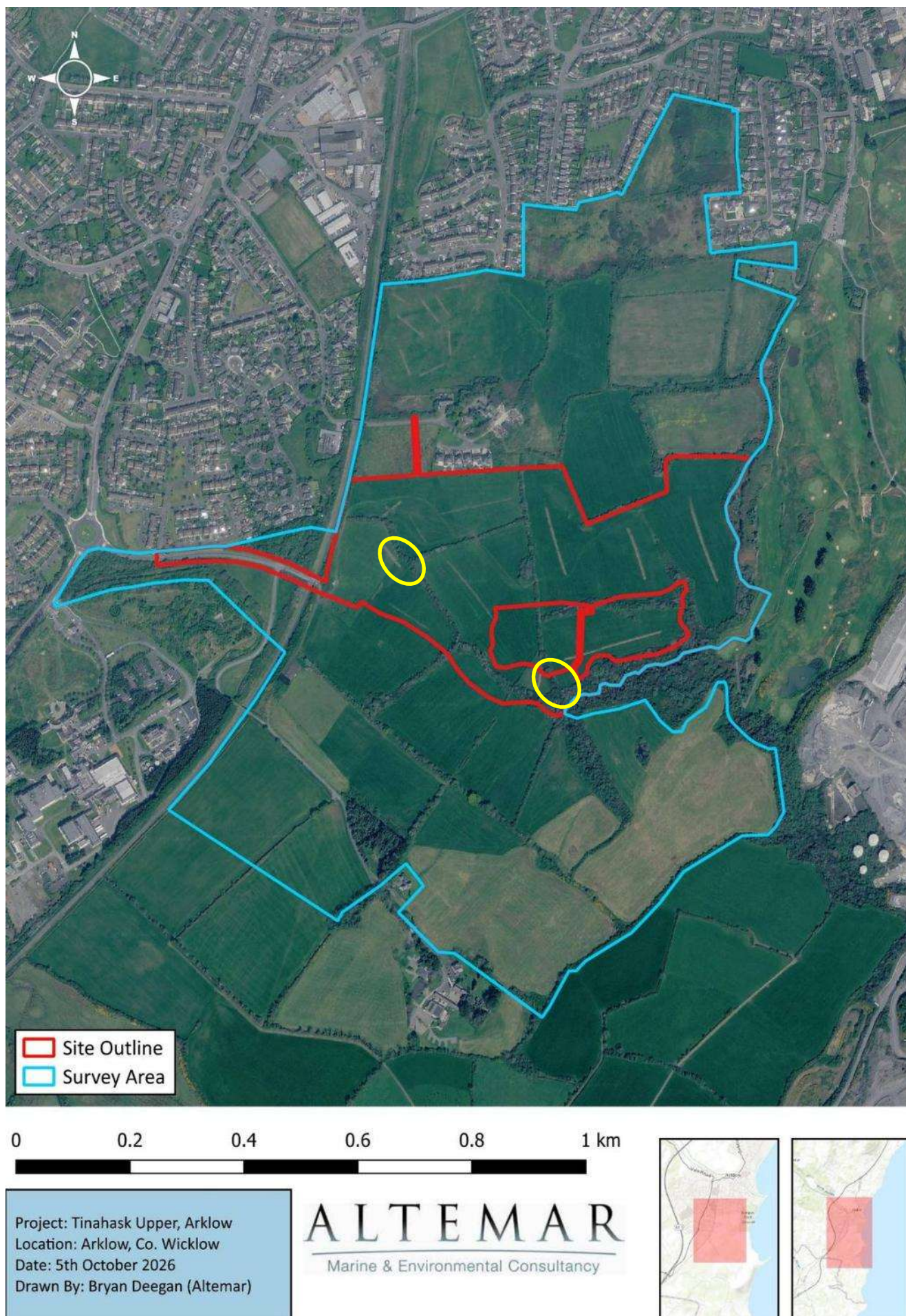


Figure 10: Breeding hotspot areas for all species (in yellow) (2026 survey).

Breeding bird assessment findings

Review of local bird records

The review of existing bird records (sourced from NBDC Database) within a 8 km² grid (Reference grids T27F, T27G, T27K, T27L) encompassing the study area reveals that 84 known bird species have been observed locally, of which 25 are currently amber and 11 are red listed BoCCI (*Table 2*).

Table 3: Status of bird species within 8 km² (grids T27F, T27G, T27K, T27L)

Species Name	Record Count	Date of Last Record	Dataset	BoCCI Status
Barn Owl (<i>Tyto alba</i>)	1	12/06/2021	Birds of Ireland	Red
Barn Swallow (<i>Hirundo rustica</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Amber
Barn Swallow (<i>Hirundo rustica</i>)	4	12/08/2020	Birds of Ireland	Amber
Black Kite (<i>Milvus migrans</i>)	1	23/08/2008	Rare birds of Ireland	n/a
Black-billed Magpie (<i>Pica pica</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Black-billed Magpie (<i>Pica pica</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Black-billed Magpie (<i>Pica pica</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Blackcap (<i>Sylvia atricapilla</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	2	23/07/2017	Birds of Ireland	Amber
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	8	17/06/2020	Birds of Ireland	Amber
Blue Tit (<i>Cyanistes caeruleus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Blue Tit (<i>Cyanistes caeruleus</i>)	4	23/07/2017	Birds of Ireland	Green
Blue Tit (<i>Cyanistes caeruleus</i>)	2	09/06/2017	Birds of Ireland	Green
Chaffinch (<i>Fringilla coelebs</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Chaffinch (<i>Fringilla coelebs</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Chaffinch (<i>Fringilla coelebs</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Coal Tit (<i>Periparus ater</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Coal Tit (<i>Periparus ater</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Blackbird (<i>Turdus merula</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Blackbird (<i>Turdus merula</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Blackbird (<i>Turdus merula</i>)	4	17/06/2020	Birds of Ireland	Green
Common Bullfinch (<i>Pyrrhula pyrrhula</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Bullfinch (<i>Pyrrhula pyrrhula</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Bullfinch (<i>Pyrrhula pyrrhula</i>)	1	17/06/2020	Birds of Ireland	Green
Common Buzzard (<i>Buteo buteo</i>)	3	21/04/2018	Birds of Ireland	Green
Common Chiffchaff (<i>Phylloscopus collybita</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Green
Common Chiffchaff (<i>Phylloscopus collybita</i>)	2	17/06/2020	Birds of Ireland	Green
Common Coot (<i>Fulica atra</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Amber
Common Goldeneye (<i>Bucephala clangula</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	Red
Common Linnet (<i>Carduelis cannabina</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Amber
Common Linnet (<i>Carduelis cannabina</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Common Moorhen (<i>Gallinula chloropus</i>)	7	17/06/2020	Birds of Ireland	Green
Common Pheasant (<i>Phasianus colchicus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Pochard (<i>Aythya ferina</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	Red
Common Raven (<i>Corvus corax</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Starling (<i>Sturnus vulgaris</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Amber
Common Starling (<i>Sturnus vulgaris</i>)	3	12/08/2020	Birds of Ireland	Amber
Common Swift (<i>Apus apus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Red
Common Swift (<i>Apus apus</i>)	2	12/08/2020	Birds of Ireland	Red
Common Whitethroat (<i>Sylvia communis</i>)	1	28/06/2009	Birds of Ireland	Green
Common Wood Pigeon (<i>Columba palumbus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green

Common Wood Pigeon (<i>Columba palumbus</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Common Wood Pigeon (<i>Columba palumbus</i>)	3	17/06/2020	Birds of Ireland	Green
Eurasian Collared Dove (<i>Streptopelia decaocto</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Eurasian Collared Dove (<i>Streptopelia decaocto</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Eurasian Curlew (<i>Numenius arquata</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Red
Eurasian Curlew (<i>Numenius arquata</i>)	1	09/08/2017	Birds of Ireland	Red
Eurasian Golden Oriole (<i>Oriolus oriolus</i>)	1	31/12/1827	Rare birds of Ireland	Green
Eurasian Jackdaw (<i>Corvus monedula</i>)	1	04/04/2018	Birds of Ireland	Green
Eurasian Jackdaw (<i>Corvus monedula</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Eurasian Jackdaw (<i>Corvus monedula</i>)	3	17/06/2020	Birds of Ireland	Green
Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Red
Eurasian Reed Warbler (<i>Acrocephalus scirpaceus</i>)	4	07/07/2012	Birds of Ireland	Green
European Goldfinch (<i>Carduelis carduelis</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
European Greenfinch (<i>Carduelis chloris</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Amber
European Greenfinch (<i>Carduelis chloris</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
European Robin (<i>Erithacus rubecula</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
European Robin (<i>Erithacus rubecula</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
European Robin (<i>Erithacus rubecula</i>)	4	17/06/2020	Birds of Ireland	Green
Goldcrest (<i>Regulus regulus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Goldcrest (<i>Regulus regulus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Great Black-backed Gull (<i>Larus marinus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Great Black-backed Gull (<i>Larus marinus</i>)	4	17/06/2020	Birds of Ireland	Green
Great Cormorant (<i>Phalacrocorax carbo</i>)	2	23/07/2017	Birds of Ireland	Amber
Great Cormorant (<i>Phalacrocorax carbo</i>)	4	15/07/2016	Birds of Ireland	Amber
Great Spotted Woodpecker (<i>Dendrocopos major</i>)	1	01/09/2021	Birds of Ireland	Green
Great Spotted Woodpecker (<i>Dendrocopos major</i>)	1	17/10/1972	Rare birds of Ireland	Green
Great Tit (<i>Parus major</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Great Tit (<i>Parus major</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Great Tit (<i>Parus major</i>)	2	17/06/2020	Birds of Ireland	Green
Grey Heron (<i>Ardea cinerea</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Grey Heron (<i>Ardea cinerea</i>)	4	17/06/2020	Birds of Ireland	Green
Grey Wagtail (<i>Motacilla cinerea</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Red
Greylag Goose (<i>Anser anser</i>)	6	17/06/2020	Birds of Ireland	Amber
Hedge Accentor (<i>Prunella modularis</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Hedge Accentor (<i>Prunella modularis</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Herring Gull (<i>Larus argentatus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Herring Gull (<i>Larus argentatus</i>)	6	12/08/2020	Birds of Ireland	Amber
Hooded Crow (<i>Corvus cornix</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Hooded Crow (<i>Corvus cornix</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Hooded Crow (<i>Corvus cornix</i>)	4	17/06/2020	Birds of Ireland	Green
House Martin (<i>Delichon urbicum</i>)	1	23/09/2009	Birds of Ireland	Amber
House Martin (<i>Delichon urbicum</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
House Martin (<i>Delichon urbicum</i>)	2	12/08/2020	Birds of Ireland	Amber
House Sparrow (<i>Passer domesticus</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Amber
House Sparrow (<i>Passer domesticus</i>)	2	17/06/2020	Birds of Ireland	Amber
Iceland Gull (<i>Larus glaucoideus</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	n/a
Laughing Gull (<i>Larus atricilla</i>)	1	25/01/2006	Rare birds of Ireland	n/a
Lesser Black-backed Gull (<i>Larus fuscus</i>)	3	17/06/2020	Birds of Ireland	Amber
Lesser Redpoll (<i>Carduelis cabaret</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Little Egret (<i>Egretta garzetta</i>)	1	17/06/2020	Birds of Ireland	Green
Little Grebe (<i>Tachybaptus ruficollis</i>)	4	17/06/2020	Birds of Ireland	Green
Long-tailed Tit (<i>Aegithalos caudatus</i>)	1	09/06/2017	Birds of Ireland	Green
Mallard (<i>Anas platyrhynchos</i>)	9	17/06/2020	Birds of Ireland	Amber
Meadow Pipit (<i>Anthus pratensis</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Red

Merlin (<i>Falco columbarius</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Mew Gull (<i>Larus canus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Mew Gull (<i>Larus canus</i>)	5	17/06/2020	Birds of Ireland	Amber
Mistle Thrush (<i>Turdus viscivorus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Mistle Thrush (<i>Turdus viscivorus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Montagu's Harrier (<i>Circus pygargus</i>)	1	21/08/1893	Rare birds of Ireland	Green
Mute Swan (<i>Cygnus olor</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Mute Swan (<i>Cygnus olor</i>)	9	17/06/2020	Birds of Ireland	Amber
Northern Fulmar (<i>Fulmarus glacialis</i>)	4	25/05/2019	Birds of Ireland	Amber
Northern Gannet (<i>Morus bassanus</i>)	1	06/06/2017	Birds of Ireland	Amber
Northern Lapwing (<i>Vanellus vanellus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Red
Northern Wheatear (<i>Oenanthe oenanthe</i>)	3	16/03/2022	Birds of Ireland	Amber
Peregrine Falcon (<i>Falco peregrinus</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Pied Wagtail (<i>Motacilla alba</i> subsp. <i>yarrellii</i>)	2	12/08/2020	Birds of Ireland	Green
Red Kite (<i>Milvus milvus</i>)	1	13/04/2019	Birds of Ireland	Red
Red Kite (<i>Milvus milvus</i>)	2	28/06/2015	Birds of Ireland	Red
Red Kite (<i>Milvus milvus</i>)	1	10/02/2016	Birds of Ireland	Red
Red-rumped Swallow (<i>Cecropis daurica</i>)	1	20/04/1992	Rare birds of Ireland	n/a
Red-throated Diver (<i>Gavia stellata</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Redwing (<i>Turdus iliacus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Red
Reed Bunting (<i>Emberiza schoeniclus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Green
Reed Bunting (<i>Emberiza schoeniclus</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Ringed Plover (<i>Charadrius hiaticula</i>)	1	25/05/2019	Birds of Ireland	Amber
Rock Pigeon (<i>Columba livia</i>)	1	12/08/2020	Birds of Ireland	Green
Rock Pipit (<i>Anthus petrosus</i>)	1	25/05/2019	Birds of Ireland	Green
Rook (<i>Corvus frugilegus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Rook (<i>Corvus frugilegus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Rook (<i>Corvus frugilegus</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
Rook (<i>Corvus frugilegus</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Rosy Starling (<i>Sturnus roseus</i>)	1	16/07/2008	Rare birds of Ireland	n/a
Sand Martin (<i>Riparia riparia</i>)	1	10/08/2017	Birds of Ireland	Amber
Sand Martin (<i>Riparia riparia</i>)	2	01/04/2018	Birds of Ireland	Amber
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Green
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Sky Lark (<i>Alauda arvensis</i>)	1	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Amber
Song Thrush (<i>Turdus philomelos</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Song Thrush (<i>Turdus philomelos</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Song Thrush (<i>Turdus philomelos</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
Stonechat (<i>Saxicola torquata</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Stonechat (<i>Saxicola torquata</i>)	4	16/01/2018	Birds of Ireland	Green
White Wagtail (<i>Motacilla alba</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Green
White Wagtail (<i>Motacilla alba</i>)	3	31/12/2011	Bird Atlas 2007 - 2011	Green
White Wagtail (<i>Motacilla alba</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Willow Warbler (<i>Phylloscopus trochilus</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Amber
Willow Warbler (<i>Phylloscopus trochilus</i>)	1	31/12/2011	Bird Atlas 2007 - 2011	Amber
Winter Wren (<i>Troglodytes troglodytes</i>)	2	31/12/2011	Bird Atlas 2007 - 2011	Green
Winter Wren (<i>Troglodytes troglodytes</i>)	3	17/06/2020	Birds of Ireland	Green

Mitigation

In the interest of preserving both confirmed and potential breeding bird habitat on site, the following mitigation measures will be applied.

- Works involving removal of vegetation on site shall be undertaken outside of the breeding bird season (1st March – 31st August).
- As habitats such as hedgerows, standalone trees, tree lines and woodlands must be removed, replacement habitats have been incorporated into the landscape design for the proposed development using similar species to those removed. Retention of existing habitats will be maximized.
- Retention of much of the existing overgrowth in the south of the proposed site will retain the most valuable breeding habitat for birds currently present within the proposed site.

Conclusion

Four breeding bird surveys were carried out at this site in 2023, five surveys were carried out in 2024 and three surveys were carried out in 2026. The bird surveys comply with bird survey guidance documentation including BTO Common Bird Census (Bibby *et al.*, 2000 and Gilbert *et al.*, 1998) and following CIEEM guidelines. Weather conditions impacted the survey on the 14th July 2023 but were favourable during each of the following surveys in 2023, 2024 and 2026.

In 2023, a total of 33 species were recorded within the survey area across the four surveys. Eight of these species were confirmed breeding during at least one survey.

21 green-listed bird species of conservation concern were recorded within the survey area. Breeding activity was confirmed for five of these species: magpie, robin, song thrush, woodpigeon and wren.

Ten amber-listed bird species of conservation concern were recorded within the survey area: black-headed gull, goldcrest, herring gull, house martin, house sparrow, linnet, spotted flycatcher, starling, swallow, and willow warbler. Breeding activity was confirmed for three of these species: linnet, spotted flycatcher and swallow.

Two red listed bird species of conservation concern were recorded within the survey area: red kite and swift (above the site). No breeding activity for these species was observed across the survey area during any surveys.

The hotspots of breeding activity observed within the survey area (Figure 9) were the Sitka spruce woodland in the south, vegetation around the pond in the southeast, hedgerow (hawthorn, ivy & bramble) in the center of the northern half and woodland/scrub in the north of the site. No breeding hotspots, or breeding amber/red listed species were observed within the proposed site outline. Mitigation measures are proposed. Works involving removal of vegetation on site shall be undertaken outside of the breeding bird season (1st March – 31st August).

In 2024, a total of 35 species were recorded within the survey area across five surveys. Ten of these species were confirmed breeding during at least one survey.

25 green-listed bird species of conservation concern were recorded within the survey area. Breeding activity was confirmed for eight of these species: Buzzard, blackbird, blackcap, dunnoek, goldfinch, sedge warbler, woodpigeon and wren.

11 amber-listed bird species of conservation concern were recorded within the survey area: black-headed gull, goldcrest, herring gull, house martin, house sparrow, linnet, pied flycatcher, spotted flycatcher, starling, swallow, and willow warbler. Breeding activity was confirmed for two of these species: house sparrow and starling.

One red listed bird species of conservation concern was recorded within the survey area: Meadow pipit. No breeding activity for this species was observed across the survey area during any surveys.

Three species were observed breeding within the proposed site outline: Blackbird, blackcap and wren. All three species are green listed BoCCI. Breeding wrens were observed within the hedgerow along the site outline in the northeast, as well as within the hedgerow/woodland along the east boundary of site outline. Blackbirds were observed breeding within the most northwestern latitudinal hedgerow of the site outline, as well as within the hedgerow along the site outline in the northeast. Breeding blackcaps were observed within the hedgerow along the site outline in the northeast.

In 2026, a total of 26 species were recorded within the survey area across three surveys. Six of these species were confirmed breeding during at least one survey.

16 green-listed bird species of conservation concern were recorded within the survey area. Breeding activity was confirmed for six of these species: Blackbird, blackcap, chiffchaff, robin, song thrush and wren.

Nine amber-listed bird species of conservation concern were recorded within the survey area: black-headed gull, goldcrest, herring gull, house martin, house sparrow, linnet, starling, and willow warbler.

One red listed bird species of conservation concern was recorded within the survey area: Meadow pipit. No breeding activity for this species was observed across the survey area during any surveys.

Six species were observed breeding within the proposed site outline. All six species are green listed BoCCI.

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Appendix II - Non-avian mammal impact assessment for a proposed development at Tinahask Lower, Money Little and Money Big, Arklow, Co. Wicklow.



7th October 2026

Prepared by: Frank Spellman of Altemar Ltd.
On behalf of: Castlethorn Construction

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Document Control Sheet			
Client	Castlethorn Construction		
Project	Badger/mammal impact assessment for a proposed development at Tinahask Lower, Money Little and Money Big, Arklow, Co. Wicklow		
Report	Badger/mammal Impact Assessment		
Date	7th October 2026		
Version	Author	Reviewed	Date
Final	Frank Spellman	Bryan Deegan	7th October 2026

Summary

Structure:	There are no pre-existing structures within the proposed site.
Location:	Tinahask Lower, Money Little and Money Big, Arklow, Co. Wicklow.
Mammal species present:	Rabbit (<i>Oryctolagus cuniculus</i>), fox (<i>Vulpes vulpes</i>), pine marten (<i>Martes martes</i>) & hedgehog (<i>Erinaceus europaeus</i>).
Proposed work:	Residential development.
Impact on non-avian mammals:	The removal of trees and hedgerows on site will result in a low adverse effect on non-avian mammals. The proposed site is deemed not to be of significant importance to local non-avian mammal species. A pre-construction survey for terrestrial mammals of conservation importance will be carried out. An NPWS derogation licence is not required. The existing masterplan and landscape design in its current form should allow the species expected to occur onsite and in the surrounding area to persist.
Surveys by:	Frank Spellman, Emma Peters and Luke Dodebier.
Survey dates:	14 th , 27 th , 28 th , 31 st July 2023 & 30 th November 2023, 6th December 2024, 24 th October 2025.

Receiving environment

Background

The proposed development comprises amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 consisting of 352no. residential units proposed in a mix of houses and apartment units comprising 334no. houses (44no. 2-bedroom, 241no. 3-bedroom and 49no. 4-bedroom) ranging from 2 to 3 storeys, 18no. apartments (6no. 1-bedroom and 12no. 2-bedroom) in 1no. 4 storey building, 1no. creche (c. 711 sqm) at ground floor of apartment Block A; and all associated and ancillary site development works including on site attenuation, hard and soft landscaping and boundary treatment works, including public open space; communal open space, public lighting; surface car parking; bicycle parking spaces/stores for houses and apartment units; 4no. ESB substations; bin stores; vehicular access via existing Northwood road and railway overbridge from Knockmore roundabout. The proposed development also includes road upgrade works to the existing railway overbridge and the western approach to same including the provision of a 2.5m footpath, 6m carriageway, safety barrier improvement works and other ancillary works required to facilitate these elements.

The proposed site outline, location, and masterplan are demonstrated in figures 1-2.

Lighting

The lighting strategy has been prepared by Sabre Electrical Services Ltd.

The proposed lighting strategy is demonstrated in figure 3 & 4.

Landscape

The landscape plan for the proposed site has been prepared by Doyle O'Troithigh Landscape Architects.

The landscape strategy incorporates 14 green areas, a vegetated buffer zone with tree planting between train tracks and the development, wildflower beds, landscape bunds, open recreational spaces, and public parks throughout. A large portion of existing vegetation overgrowth will also be retained and incorporated into parkland in the south of the site, which will include both wild and mown grass areas, as well as an attenuation pond surrounded by wildflower beds and planted trees.

Deciduous and perennial tree/shrub planting will occur throughout the site, in particular along roads and paths, between amenity spaces, in new green areas and public parks, as well as public lawns and car parking areas. Species to be planted include European hornbeam, silver birch, English oak, horse chestnut, mountain ash, thorny olive, beech hedge, and bay laurel.

The proposed landscape plan is demonstrated in figures 5.



Figure 1. Proposed site outline and survey area.





Figure 4. Proposed lighting plan (incl. Isolux lines) (sheet 2)



Figure 5. Overall landscape plan

Competency of assessor

This report has been prepared by Frank Spellman (BSc Zoology, MSc Zoology). Frank has previous experience in carrying out a wide range of fauna surveys as both a sub-contractor and employee for consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, terrestrial non-avian mammal surveys, breeding/wintering bird surveys, and freshwater ecology surveys. The desk and field surveys were carried out using techniques approved and recommended by CIEEM.

Legislative context

A number of mammalian species are protected under the Wildlife Acts 1976 to 2023. These include species such as badger, Irish stoat, Irish hare, otter, hedgehog and pygmy shrew.

The badger is also a Red Data Book species but it is a relatively common species and ubiquitous through much of the Irish countryside (Smal, 1995).

It is standard best practice to make special provisions for badgers affected by development. Whilst the species is common in much of the Irish landscape, badgers are notable for their practice of constructing large underground tunnel and chamber systems (setts). Provisions are made for their humane removal or for their conservation on site where feasible or practicable. The Wildlife [Amendment] Act (2000-2012) protects all resting places of protected species.

Otters are protected under the Irish Wildlife Acts and are also listed under Annex II and Annex IV of the EU Habitats Directive.

Otters are relatively common in Ireland and they do occur on most rivers in this country. Protection of this species is important and provisions are made to ensure that holts are not interfered with except under especial circumstances and to ensure the quality of their foraging habitat.

Non-avian mammal survey

This report presents the results of site visits by Frank Spellman on the 14th, 27th, 28th, 31st July 2023 & 30th November 2023, by Emma Peters on the 6th December 2024, and by Luke Dodebier on 24th October 2025. A badger/mammal transect survey was carried out on each occasion. Surveys were carried out using techniques approved and recommended by CIEEM.

Survey methodology

These non-avian mammal surveys were carried out based on techniques approved and recommended by CIEEM.

Due to the large size of the survey area with various features such as agricultural grassland, hedgerows, woodlands, and tree lines throughout, a single transect following the full perimeter was carried out, further circumnavigating all areas and features within the survey area.

Each transect began at the parking area of Moneylands Farm Hotel for the southern half of the survey area, and Church View estate for the northern half. Survey transect directions alternated between clockwise and anti-clockwise upon each visit, following the contours of hedgerows/tree lines along the outer perimeter, while further circumnavigating all features such as hedgerows, tree lines, woodlands, and fields. Movements were carried out slowly, with pauses to observe open spaces, further following trails to determine their direction and investigate recipient areas for potential dens/setts/scat/prints/scrapes/latrines etc. Camera traps were placed where high evidence of mammal activity and/or an active den/sett was likely. Each visit took 4.5 to 6 hours to complete. Directions taken and starting points alternated between clockwise/anticlockwise and south/north respectively.

Survey results

Habitats of non-avian mammal potential

A ground level habitat assessment was carried out and used to examine the structures and vegetation on site for features that could facilitate badgers/mammals. Potential features include heavy scrub, hedgerows, grassland, woodlands etc. All vegetated areas on site were assessed for evidence of non-avian mammals.

Areas of high non-avian mammal potential included the Sitka spruce woodland in the south of the survey area, the woodland to the east of the survey area, and hedgerows and treelines throughout.

Non-avian mammal surveys.

A total of four mammal species were confirmed within the survey area by visual confirmation and camera trap footage: fox (*Vulpes vulpes*), hedgehog (*Erinaceus europaeus*), pine marten (*Martes martes*) and rabbit (*Oryctolagus cuniculus*). These are visually represented in Figure 6. It should be noted Hugh Delaney recorded sightings of Irish Hare during the 2022/2023 and 2023/2024 wintering bird surveys.

A potential area of high mammal activity was observed within the Sitka spruce woodland in the south of the survey area. Mammal activity was evident by the number of trails visible within the woodland. Understory flora made navigation through this area difficult. A camera trap was placed facing an area of high trail activity adjacent to overturned trees that could potentially provide refuge. Foxes and an individual pine marten were observed.

A deceased hedgehog was observed in an agricultural field in the east of the survey area north of the eastern woodland. A moderate level of desiccation and lack of foraging evidence on the carcass suggested recent mortality.

A fox individual was observed moving into the field boundary in the southwest of the same field as the deceased hedgehog.

Two European rabbit individuals were observed in the center of the survey area, with multiple entrance holes evident within the adjacent hedgerows.

A potential disused badger/fox sett/den was observed in the south of the survey area, as a hole in the earthen berm within a hedgerow. A camera trap was placed to record its use status. A fox was observed passing by the camera multiple times, without entering the hole. No other mammal was observed passing the camera at this location.

A suspected badger latrine was observed within the southeast of the site outline between an agricultural field and woodland in the east of the survey area. This was identified as a small clearing in scrub with trampled vegetation and small depressions in the soil. Although no recent use was evident (lack of fresh faeces, fresh depressions or worn ground), a camera trap was placed in this area to assess badger activity. No badger or other mammal species was recorded utilising this area. No evidence of badger or other mammal activity was observed within the adjacent woodland or its perimeter.

A mammal forelimb and scapula were identified within the same field as the hedgehog carcass. Although a small patch of black fur remained on the limb, it had been heavily scavenged, and an absence of the remaining carcass suggests these had been moved here by a scavenger from elsewhere. A comparison of the scapula and forelimb morphology suggested this animal to likely be a domestic or feral juvenile goat. Birds of prey (buzzard, red kite, long-eared owl) and scavengers (fox, corvid species) were observed throughout the survey area and would be capable of carrying items of this size over considerable distances.

Entrances to hedgerows indicating mammal movements were observed in the center and west of the survey area. The size, shape and trail characteristics indicated fox as being the species responsible.



Figure 14: Non-avian mammal activity/evidence observed.

Non-avian mammal assessment findings

Review of local mammal records

The review of existing terrestrial mammal records (sourced from NBDC Database) within a 8km² grid (Reference grid T27F, T27G, T27K, T27L) encompassing the study area reveals that seven known Irish species have been observed locally (Table 1).

Table 1: Status of mammal species within the 8km² grid (T27F, T27G,

Species Name	Record Count	Date of Last Record	Designation
Brown Rat (<i>Rattus norvegicus</i>)	1	26/04/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
European Otter (<i>Lutra lutra</i>)	1	09/02/2015	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
West European Hedgehog (<i>Erinaceus europaeus</i>)	11	08/07/2021	Protected Species: Wildlife Acts
Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	1	02/09/2013	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (<i>Meles meles</i>)	8	02/09/2013	Protected Species: Wildlife Acts
Red Fox (<i>Vulpes vulpes</i>)	1	18/06/2016	
West European Hedgehog (<i>Erinaceus europaeus</i>)	1	30/06/2021	Protected Species: Wildlife Acts
American Mink (<i>Mustela vison</i>)	1	31/10/2014	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (<i>Meles meles</i>)	2	31/12/2012	Protected Species: Wildlife Acts
Eurasian Badger (<i>Meles meles</i>)	2	31/12/2012	Protected Species: Wildlife Acts
West European Hedgehog (<i>Erinaceus europaeus</i>)	1	02/06/2020	Protected Species: Wildlife Acts

Evaluation of results

The mammal surveys comply with CIEEM guidelines.

A total of four mammal species were confirmed within the survey area by visual confirmation, camera trap footage and behavioural evidence: fox (*Vulpes vulpes*), hedgehog (*Erinaceus europaeus*), pine marten (*Martes martes*) and rabbit (*Oryctolagus cuniculus*). Of these, only fox, hedgehog and rabbit were observed within the proposed site outline.

A pine marten individual was picked up by a camera trap in 2023 in the Sitka spruce woodland in the south of the survey area, outside of the proposed site outline.

Foxes were observed in the south and center of the survey area during transects and by camera trap footage. Only one individual was observed within the proposed site outline.

A hedgehog carcass in a moderate state of decomposition was observed in agricultural grassland in the east of the survey area. This observation is located within the southeast of the proposed site outline.

An unidentified mammal forelimb and scapula were observed in the east of the site, likely left at this location by a scavenger. Morphological comparisons of the scapula and limb suggest this likely belonged to a juvenile domestic/feral goat.

Two European rabbits were observed in the center of the survey area, one of which lies inside the proposed site outline.

Potential impact of the development on non-avian mammals

The removal of trees and hedgerows will not result in a significant negative impact on non-avian mammals. However, there may be negative impacts on mammal corridors due to the loss of hedgerows. The incorporation and location of green areas throughout, retention of riparian vegetation in the south, and proposed buffer zone along the railway in the west should maintain corridors for mammals throughout the site during operation. As there were no setts/dens/resting places of protected species observed within the survey area or proposed site outline, neither an exclusion zone, nor an NPWS derogation licence is required.

Mitigation measures

The proposed site outline within the survey area is of low importance to the local non-avian mammal population. No badgers or signs of recent badger activity were recorded within the survey area and therefore, no mitigation measures regarding this species are needed during the proposed construction works. The pine marten individual was recorded within the Sitka spruce woodland outside of the proposed site outline and therefore no mitigation measures regarding this species are needed during the proposed works. Hedgehog was recorded (deceased) within the proposed site outline, however preservation of the riparian woodland in the south of the site and green spaces throughout the proposed design plan will facilitate habitat and movement of this species throughout the site during construction and operation. There is also no requirement for a *National Parks and Wildlife Service* derogation licence application to allow the planned works. The proposed landscape design will facilitate the movement of all non-avian mammals through and around the site via green areas, buffer zone along the existing railway track and preservation of the riparian corridor in the south of the proposed site.

Out of an abundance of caution, the following mitigation measures will be implemented:

- A pre-construction survey will be carried out for terrestrial mammals of conservation importance. If terrestrial mammals of conservation importance are noted on site NPWS will be consulted in relation to removal and the appropriate permissions obtained.

Predicted residual impact of planned development

The removal of trees and hedgerows on site will result in a low adverse effect on non-avian mammals. The proposed site is deemed not to be of significant importance to local non-avian mammal species. A pre-construction survey will be carried out for terrestrial mammals of conservation importance. An NPWS derogation licence is not required. The proposed masterplan, lighting, and landscape design in its current form should allow the species expected to occur onsite and in the surrounding area to persist.

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Appendix II(A) Non-avian Mammal Sightings



Plate 1. Deceased hedgehog in east of survey



Plate 2: Fox in Sitka spruce



Plate 3: Pine marten (top right corner) recorded within Sitka spruce woodland in south of survey

Appendix III - Bat Fauna Impact Assessment

Bat Fauna Impact Assessment for a Proposed Large-Scale Residential Development at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow



6th October 2026

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

On behalf of: Castlethorn Construction

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Document Control Sheet			
Client	Castlethorn Construction		
Project	Bat Fauna Impact Assessment for a Proposed Large-Scale Residential Development at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow		
Report	Bat Fauna Impact Assessment		
Date			
Version	Author	Reviewed	Date
Final			

Summary

Structure:	The site is predominantly agricultural fields and boundary hedgerows. There are no pre-existing structures within the proposed site.
Location:	Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow
Bat species present:	Common pipistrelle (<i>Pipistrellus pipistrellus</i>), Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>), Daubenton's bat (<i>Myotis daubentonii</i>), Natterer's bat (<i>Myotis nattereri</i>), and Leisler's Bat.
Proposed work:	Large-scale residential development.
Impact on bats:	There is no evidence of a current bat roost on site, therefore no negative impacts on bat roosts are expected to result from the proposed development. As no confirmed bat roosts were noted on site, a derogation licence is also not required for the proposed felling of trees. The likelihood of bat collision is not significant as the materials proposed are generally solid and would have good acoustic properties to reflect echolocation signals. As a result, the buildings would be clearly visible to bat species. Works on site will result in a short-term modification of the site in the vicinity of the existing foraging areas. However, the site is deemed to be of low importance to foraging bats considering the scale of the development, implementation of corridors via green areas, preservation of riparian woodland in the south, and lack of previously existing bat records in this area. The vegetation subject for removal on site is of low bat roosting potential. Following implementation of the sensitive lighting strategy to reduce light intensity and the proposed landscape strategy, the species expected to occur onsite and in the surrounding area should persist. The impact of the proposed development on bats will be Low Adverse/Site/Negative/Not Significant/long term.
Survey by:	Frank Spellman and Luke Dodebier
Survey date:	29 th August 2023, 18 th June 2026, and 23 rd June 2026.

Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 30 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Marnell, Kelleher and Mullen (2022)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 4th Edition (Collins, J. (Ed.) 2023) and Marnell, Kelleher and Mullen (2022), Bat Mitigation Guidelines for Ireland V2 (which update and replace the Bat Mitigation Guidelines for Ireland published in 2006).

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

Legislative Context

Wildlife Act 1976 (as amended by, inter alia, the Wildlife (Amendment) Act 2000).

Bats in Ireland are protected by the Wildlife (Amendment) Act 2000. Based on this legislation it is an offence to wilfully interfere with or destroy the breeding or resting place of any species of bat. Under this legislation it is an offence to *“Intentionally kill, injure or take a bat, possess or control any live or dead specimen or anything derived from a bat, wilfully interfere with any structure or place used for breeding or resting by a bat, wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.”*

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). See Art.73 of the 2011 Regulations which revokes the 1997 Regulations.

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

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

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

Project Description

Development Description

The proposed development comprises amendments to the Large-scale Residential Development permitted under WCC Reg. Ref. 24/325 consisting of 352no. residential units proposed in a mix of houses and apartment units comprising 334no. houses (44no. 2-bedroom, 241no. 3-bedroom and 49no. 4-bedroom) ranging from 2 to 3 storeys, 18no. apartments (6no. 1-bedroom and 12no. 2-bedroom) in 1no. 4 storey building, 1no. creche (c. 711 sqm) at ground floor of apartment Block A; and all associated and ancillary site development works including on site attenuation, hard and soft landscaping and boundary treatment works, including public open space; communal open space, public lighting; surface car parking; bicycle parking spaces/stores for houses and apartment units; 4no. ESB substations; bin stores; vehicular access via existing Northwood road and railway overbridge from Knockmore roundabout. The proposed development also includes road upgrade works to the existing railway overbridge and the western approach to same including the provision of a 2.5m footpath, 6m carriageway, safety barrier improvement works and other ancillary works required to facilitate these elements.

The site outline, site location, and proposed site masterplan are shown in Figures 1-3.

Arborist

An Arboricultural Assessment has been prepared by Arborist Associates Ltd. for the development and outlined the following:

“Summary of Survey Findings

The site is predominantly defined by historic field boundary hedgerows, many of which are of substantial length and width and in most places, these hedgerows have expanded out into the adjoining fields as agricultural management and maintenance have reduced over time, and this has resulted in broad hedgerows.

Running through the site lands are a number of townland boundaries with one running in a general east to west direction across the site area which is formed by hedge Nos.5, 10, 20, 21 & 23 and Woodland Nos.1 & 2 areas. This feature further enhances the cultural, historical, and landscape significance of the hedgerow network across the site area.

The hedgerows are generally associated with traditional ditch field boundaries, whereby material excavated to form the ditches was deposited centrally or to one side to from the hedgerow banks upon which the hedges were established on. The ditches remain evident throughout much of the site and, in places, are deep and densely vegetated with Bramble and other associated scrub species. Many of these hedgerows are of particularly good quality and contribute significantly to the ecological, landscape, and arboricultural value of the site. They are generally well-structured, exhibiting good species diversity, with limited evidence of extensive dead sections, fragmentation, or dominance by a single species.

*A number of trees are present within the field boundary hedgerows with the predominant species recorded being Oak (*Quercus robur*), Ash (*Fraxinus excelsior*), Beech (*Fagus sylvatica*), Field Maple (*Acer campestre*), and Goat Willow (*Salix caprea*). The largest quantity of trees within the site area are located within the hedgerows (Nos.2–3) along the southern boundary of the overall site area.*

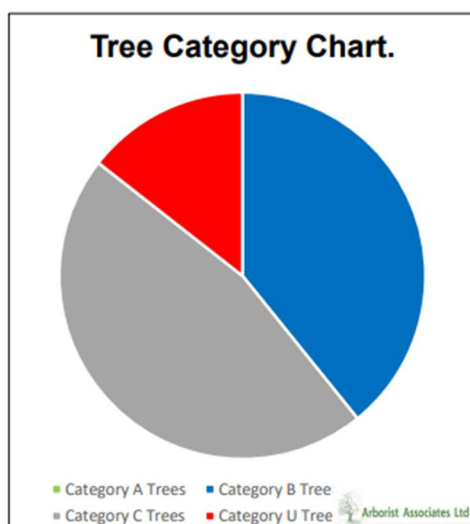
*Many of the trees and hedgerows exhibit a low, broad, and compact growth form and this may be attributed to by the coastal position and impacts from coastal winds and sea spray. The hedgerows are generally dense and full-bodied, a characteristic likely influenced by the site's exposed coastal location and long-term wind exposure. The areas identified as Woodland Nos.1, 2 & 3 are a particularly distinctive feature of the area and these would have developed naturally with the most prominent tree species being Goat Willow with other species such as Blackthorn (*Prunus spinosa*) and Bramble developing around the outer edges.*

Overall, the site contains an excellent example of traditional native field boundary hedgerows and associated ditch systems, reflecting historic land management practices. While the number of individual trees across the

site is relatively limited, there is significant opportunity to strengthen and enhance tree cover through targeted planting within the existing hedgerow network.

The following table and pie chart give a breakdown of the category grading given to the trees as per BS5837 2012.

Category Grade	Tree Nos.
Category U 14 Trees	Tree Nos. 66, 70, 79, 80, 97, 98, 99, 100, 152, 153, 154, 155, 157 & Tree No.11.
Category A 0 Trees	No Trees. --
Category B 19 Trees + 3 Woodland Areas+ 16 Hedges	Tree Nos. 65, Tree No.1, 2, 3, 68, 71, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, 86, 87, 89 & Tree No.12. Woodland No. 1, 2 & 3. Tree Group No. 1 Hedge Nos. 1, 2A, 2B, 3, 4, 6, 8, 10, 11, 19, 20, 21, 22, 23, 25, 26, 27A & 27B.
Category C 29 Trees + 14 Hedges + 2 Scrub Areas	Tree Nos. 63, 64, 67, 69, 72, 73, 88, Tree No.4, 5, 90, 91, 92, 93, 94, Tree No.6, 95, 96, 156, Tree No. 7, 8, 9, 158, 159, 160, 161, 162, Tree No.10 & 13. Hedge Nos. 5, 7, 9A, 9B, 12, 13, 14, 15, 16, 17,18, 24, 28, 29 & 30. Scrub Area Nos. 1 & 2.
Total	62 Trees + 30 Hedges + 3 Woodland Areas + 2 Scrub Areas



Vegetation Removal

The following table gives a breakdown of the tree and hedge vegetation that will need to be removed to facilitate the proposed development.

Hedge Nos.	Category Grade	Meters	Area	Tree Nos.
Hedge No.5	C2/C3	c.50m		
Hedge No.6	B2	c.15m		
Woodland Blocks 1 & 2	B2/B3		c.180m ²	
Hedge No.8	B2	c.83m		
Hedge No.9A	C2	c.55m		T4 & 5 (C1)
Hedge No.11	B2	c.98		
Hedge No.18	C2	c.15m		
Hedge No. 20	B2/B3	c.110m		T96 (C1)
Hedge No.21	B2/B3	c.212m		
Hedge No.22	B2	c.38m		T97 (U), T98 (U), T99 (U) & T100 (U)
Hedge No.23	B2/B3	c.12m		T7 (C1), T8 (C1)
Hedge No.25	B2	c.142m		
Tree Group No.1	B2		c.170m ²	
Hedge No.26	B2	c.152m		
Hedge No.27 (A & B)	B2	c.212m		
Totals		1,194m	350m²	9 Trees

So, in summary, 9No. individual trees consisting of 4No. Category 'U' and 5No. category 'C' plus 1,194 linear meters of hedging and c.350m² of woodland/group areas are being proposed for removal to accommodate the proposed development or as part of active management.

The loss of the above tree and hedge vegetation is to be mitigated against within the landscaping of this completed development with the use of trees, shrubs, hedging, herbaceous and bulb planting.

This planting as part of the landscaping will complement the development and its incorporation into the surrounding area. It will also help to provide good quality and sustainable long-term tree cover and as it establishes and grows in size, it will be continuously mitigating any negative impacts created with the loss of the existing tree and hedge vegetation to facilitate the proposed development.

The design of the landscape areas within the completed development is focused on tree, woodland and hedge planting as mitigation for the existing tree and hedge vegetation loss particularly along the boundaries. A mix of tree species, forms and sizes including the use of semi- mature trees will form a strong and unifying element to the landscape areas.

To facilitate the proposed development layout, it will be necessary to remove some section of the townland boundaries and in the landscaping of the completed development, the position of these townland boundaries will be identified either with new tree and hedge planting or by place markers to identify their historic locations.

Tree Retention

For the tree and hedge vegetation proposed for retention, all necessary mitigation measures will need to be put in place in order to prevent or reduce impact to its very minimum. Mitigation measures used will need to include the erection of protective fencing at the very start of the works, ground protection installation within root zones where fencing cannot be erected to enclose the entire root zones, monitoring of the site works by the project Arboriculturist throughout the construction process and the use of tree friendly techniques and products for the construction process."

The tree retention and protection plan, retention and removal plan, and survey and constraints plan are demonstrated in Figures 4-6 respectively.



Figure 1. Site Outline



0 0.4 0.8 1.2 1.6 km

Project: Tinahask Upper, Arklow
 Location: Arklow, Co. Wicklow
 Date: 4th August 2026
 Drawn By: Bryan Deegan (Altamar)

ALTEMAR
 Marine & Environmental Consultancy

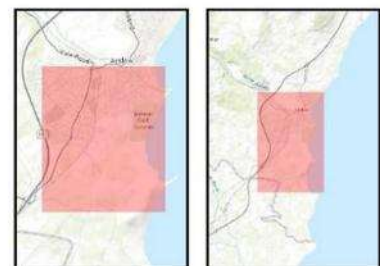


Figure 2. Site Location



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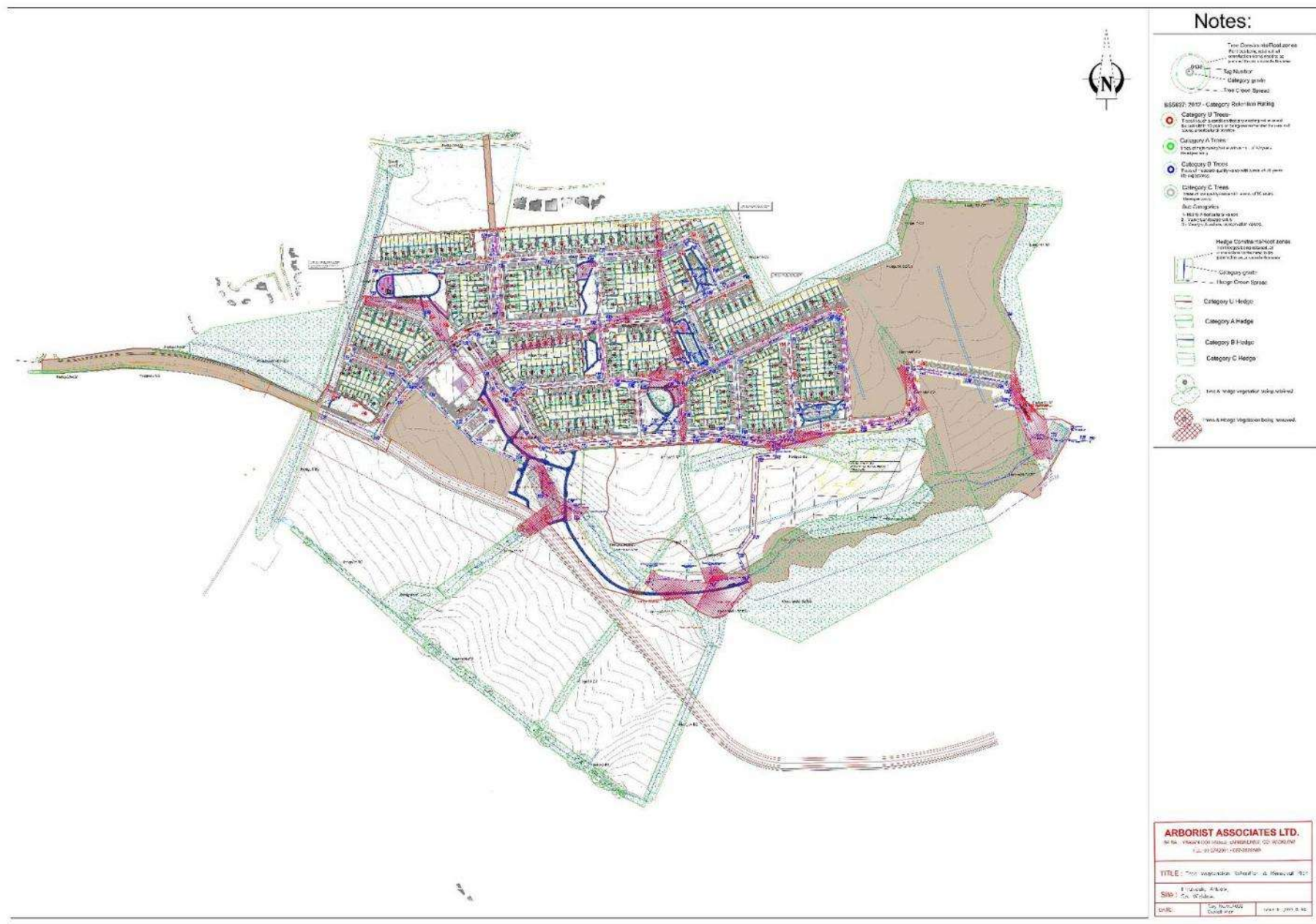


Figure 5. Tree Retention and Removal Plan

Lighting

A lighting report has been prepared by Sabre Electrical Services Ltd. for the proposed development. The lighting design has been modelled to meet the relevant EN13201 categories for roads, residential areas, and junctions.

The following luminaires are being used for this development:

Luminaire A Data



Supplier	C U Phosco
Type	P863-128-R2E-730-W3-550-71W
Lamp(s)	730SS
Lamp Flux (klm)	9.92
File Name	P863-128-R2E-730-W3-550-71W.ies
Maintenance Factor	0.91
Imax70,80,90(cd/klm)	463.7, 84.3, 0.0
No. in Project	3

Luminaire B Data



Supplier	C U Phosco
Type	P863-128-R2E-730-W3-350-46W
Lamp(s)	730SS
Lamp Flux (klm)	6.50
File Name	P863-128-R2E-730-W3-350-46W.ies
Maintenance Factor	0.91
Imax70,80,90(cd/klm)	463.7, 84.3, 0.0
No. in Project	27

Luminaire C Data



Supplier	C U Phosco
Type	E950-28-LP-L33-730-C0600-15W
Lamp(s)	730N
Lamp Flux (klm)	2.53
File Name	E950-28-LP-L33-730-C0600-15W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	714.9, 133.2, 3.9
No. in Project	6

Luminaire D Data



Supplier	C U Phosco
Type	E950-28-P4A-730-B2-C0300-8W
Lamp(s)	730N
Lamp Flux (klm)	1.01
File Name	E950-28-P4A-730-B2-C0300-8W.ies
Maintenance Factor	0.88
Imax70,80,90(cd/klm)	709.7, 142.6, 0.4
No. in Project	38

Luminaire E Data



Supplier	C U Phosco
Type	E950-28-P4A-730-C0600-15W
Lamp(s)	730N
Lamp Flux (klm)	2.25
File Name	E950-28-P4A-730-C0600-15W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	659.3, 183.1, 0.3
No. in Project	44

Luminaire F Data



Supplier	C U Phosco
Type	E950-28-F2A-730-B2-C0600-15W
Lamp(s)	730N
Lamp Flux (klm)	1.87
File Name	E950-28-F2A-730-B2-C0600-15W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	708.0, 79.8, 0.4
No. in Project	5

Luminaire G Data



Supplier	C U Phosco
Type	E950-28-P4A-730-B2-C0250-7W
Lamp(s)	730N
Lamp Flux (klm)	0.85
File Name	E950-28-P4A-730-B2-C0250-7W.ies
Maintenance Factor	0.88
Imax70,80,90(cd/klm)	709.7, 142.6, 0.4
No. in Project	2

Luminaire H Data

Supplier	C U Phosco
Type	E950-28-P4A-730-FB-C0600-15W
Lamp(s)	730N
Lamp Flux (klm)	1.72
File Name	E950-28-P4A-730-FB-C0600-15W.ies
Maintenance Factor	0.82
Imax70,80,90(cd/klm)	552.0, 164.2, 0.4
No. in Project	5

The light spill analysis is demonstrated in Figures 7 and 8.



Figure 7. Public Lighting Layout (Sheet 1)



Figure 8. Public Lighting Layout (Sheet 2)

Bat Survey

This report presents the results of a site visit by Frank Spellman and Jack Doyle on the 29th of August 2023 and Luke Dodebier on the 18th and 23rd of June 2026. A bat emergent and detector survey was carried out. Trees on site were examined for bat roosting potential.

Survey methodology

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

The survey involved the methodologies outlined in Collins (2023) which included the roost inspection methodologies i.e. external methodology outlined in section 5.2.4. of the guidelines. In addition, the methodologies for Presence absence surveys (Section 7) were carried out for dusk emergent surveys.

As outlined in Collins (2023) *'The bat active period is generally considered to be between April and October inclusive (although the season is likely to be shorter in northern latitudes). However, because bats wake up during mild conditions, bat activity can also be recorded during winter months.'*

Survey Results

Trees as Potential Bat Roost

A ground level roost assessment was carried out, both in 2023 and 2026, and used to examine the trees on site for features that could form bat roosts. Potential roosting features include heavy ivy growth, broken limbs, areas of decay, vertical or horizontal cracks, cracks in bark etc. All trees on site were assessed for bat roosting potential.

2023 Survey

The 2023 survey concluded the following in relation to potential bat roosts:

"Large trees located throughout the survey area were considered of low bat roosting potential. The woodland in the southwest of the survey area was considered to be of high bat roosting potential, and a Soprano pipistrelle roost is suspected within this woodland following the emergent survey. No bats, evidence of bats or bat roosts were identified in any onsite trees or tree lines. A derogation license is therefore not required for the removal of trees on the proposed site."

2026 Surveys

No confirmed bat roosts were recorded in any of the onsite trees during the ground level assessment. No trees of bat roosting potential were recorded on site.

Emergent/Detector Surveys

2023 Survey

The emergent survey carried out by Frank Spellman and Jack Doyle on the 29th of August 2023 stated the following:

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

As outlined in Collins (2023) in relation to weather conditions ‘The aim should be to carry out surveys in conditions that are close to optimal (sunset temperature 10°C or above, no rain or strong wind.), particularly when only one survey is planned.... Where surveys are carried out when the temperature at sunset is below 10°C should be justified by the ecologist and the effect on bat behaviour considered.’ There were no constraints in relation to the survey carried out. All areas of the site were accessible. Weather conditions were optimal for the emergent survey and acoustic transect survey.

At dusk, a bat detector survey was carried out onsite using an Echo Meter Touch 2 Pro detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations. The weather conditions were ideal for bat surveying for the emergent survey and for one complete survey area transect.

*A single Soprano pipistrelle (*Pipistrellus pygmaeus*) was noted emerging from the woodland in the southwest of the survey area. It was not possible to confirm the specific tree from which this individual emerged. Foraging activity by four species was detected along tree lines and hedgerows within the survey area (Figure 9). Partial illumination from the adjacent estates to the survey area in the north would have had a deterring effect on bat activity.”*

2026 Surveys

Emergent surveys were carried out on the 18th of June 2026 and 23rd of June 2026 by Luke Dodebier.

Both surveys were undertaken within the active bat season. Weather conditions were good with mild temperatures greater than 10°C after sunset. Winds did not exceed Beaufort 2. There was no precipitation during or preceding the surveys. Insects and bats were observed in flight for the duration of all surveys.

As outlined in Collins (2023) in relation to weather conditions: *‘The aim should be to carry out surveys in conditions that are close to optimal (with sunset temperature 10°C or above without heavy rain or strong wind.), particularly where low numbers of surveys are planned.... Surveys carried out in what we currently consider to be suboptimal conditions should be justified by the ecologist and the effect on bat behaviour considered.’* There were no constraints in relation to the survey carried out. All areas of the site were accessible, and weather conditions were optimal for bat assessments in the area surrounding the site. Winds were considered optimal for assessing foraging behaviour.

No bats were observed emerging from any onsite trees during the emergent survey. Bat activity was limited to foraging and commuting behaviour. Three bat species were seen foraging and commuting within the survey area (Common pipistrelle, Leisler’s Bat and Soprano Pipistrelle). Figures 10 and 11 show the results of the bat surveys conducted on the 18th and 23rd of June 2026, respectively.

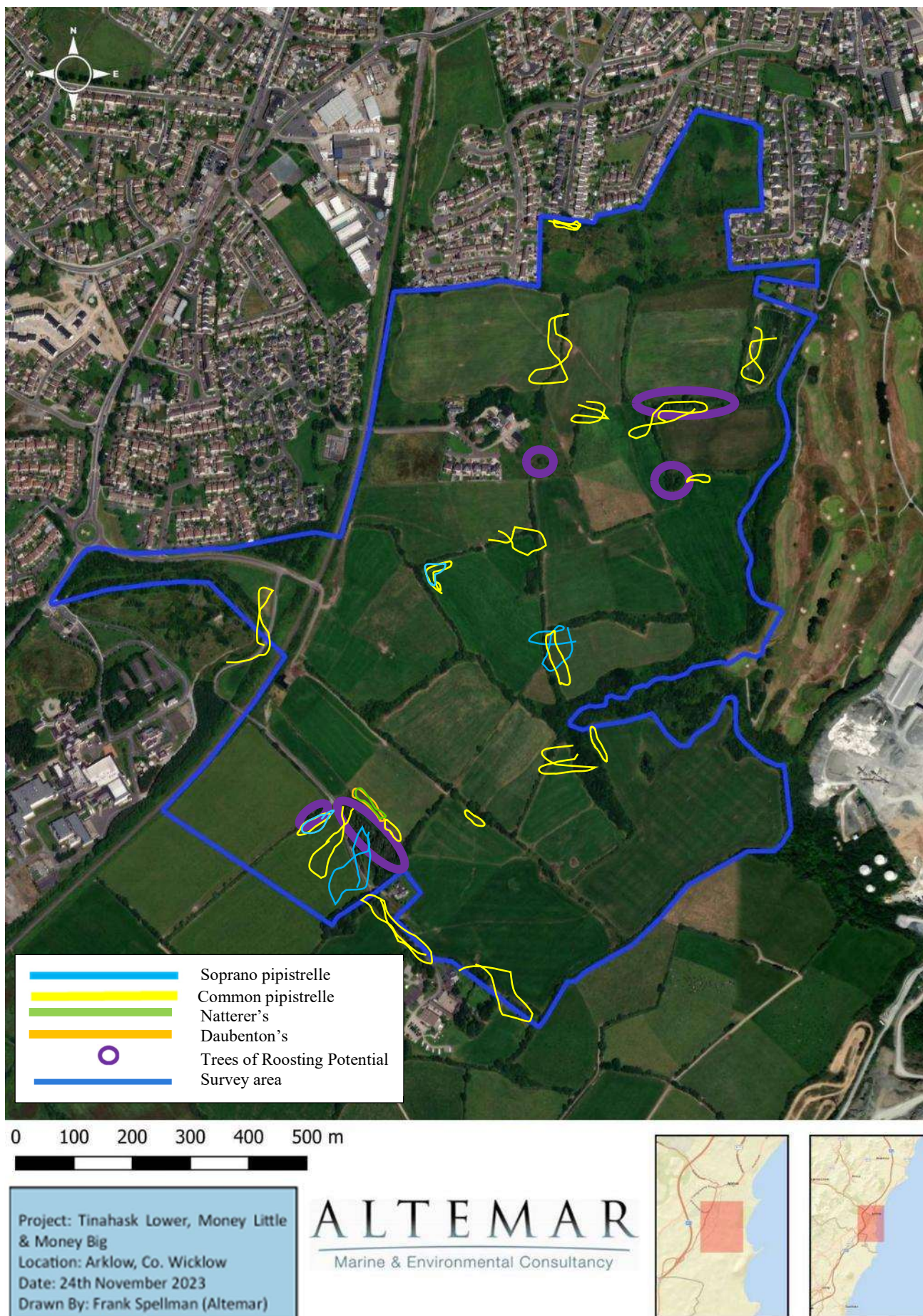


Figure 9. Bat Survey Recorded on the 29th of August 2023

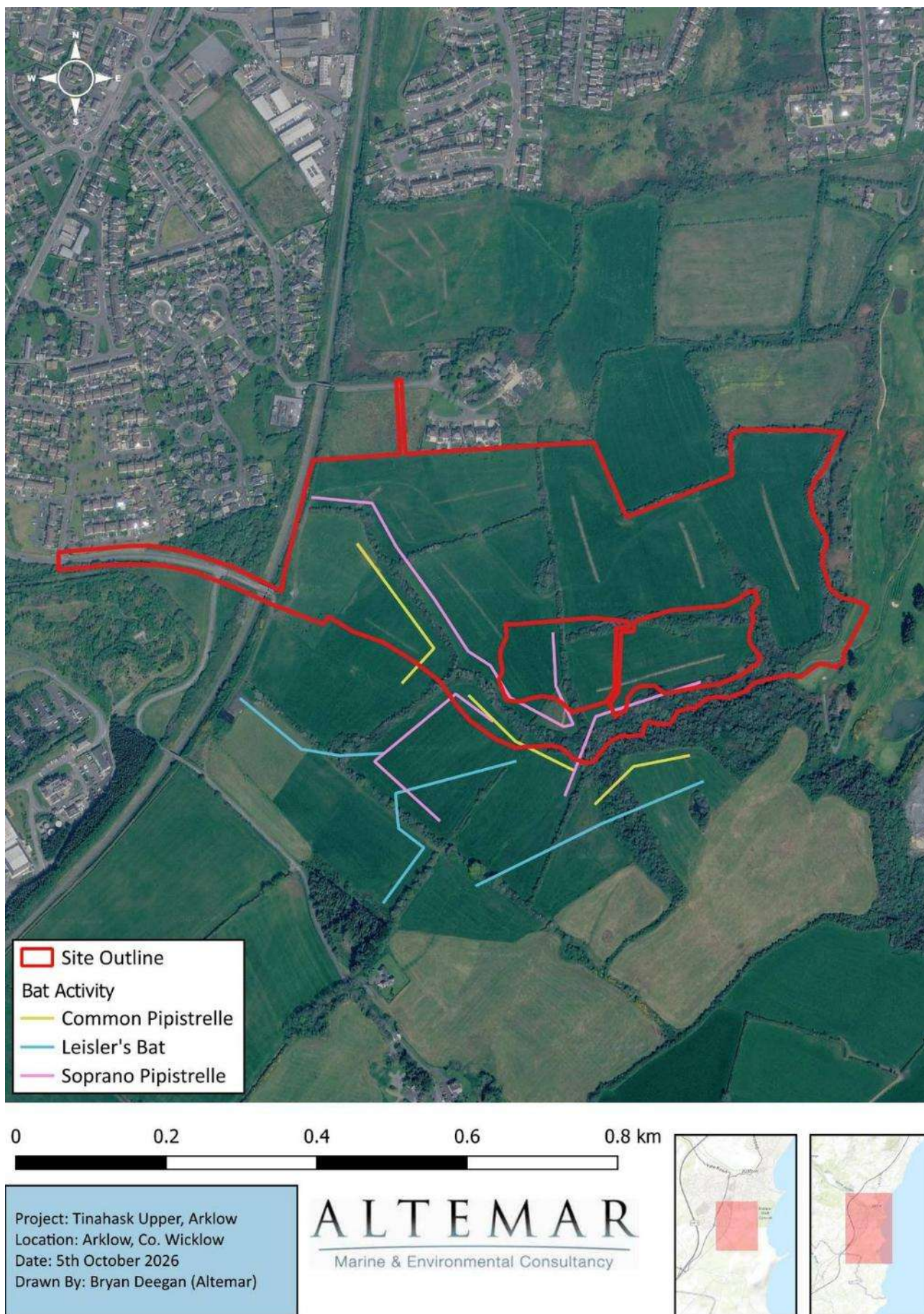


Figure 10. Bat Activity Recorded (18/06/2026)

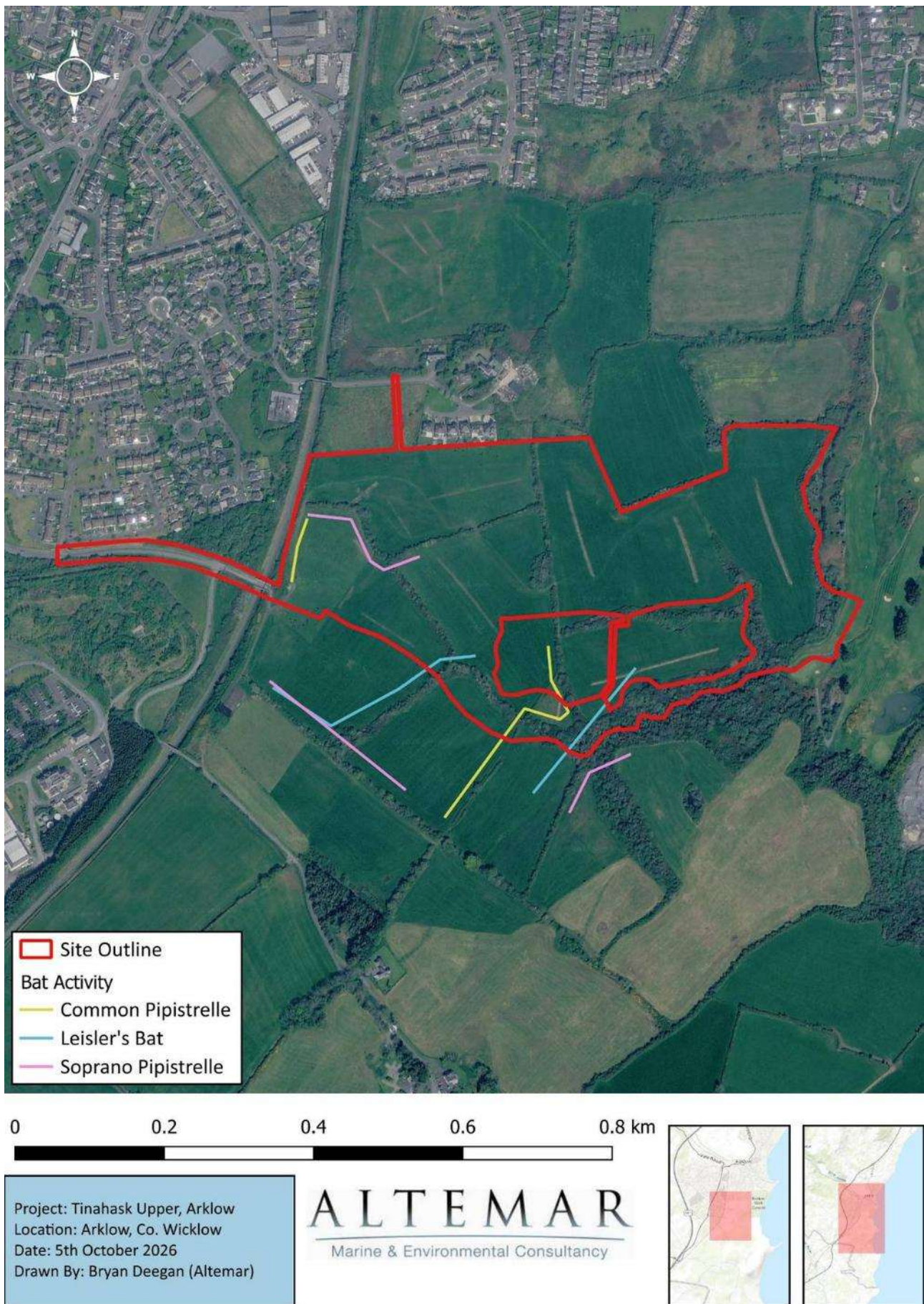


Figure 11. Bat Activity Recorded (23/06/2026)

Bat Assessment Findings

Review of local bat records

The review of existing bat records (sourced from Bat Conservation Ireland's National Bat Records Database) within a 4km² grid (Reference grid T2371, T2372, T2471, T2472) encompassing the study area reveals that none of the nine known Irish species have been observed locally. The National Biodiversity Data Centre's online viewer was consulted in order to determine whether there have been recorded bat sightings in the wider area. This is visually represented in Figures 12 -14. The following species were noted in the wider area: Common Pipistrelle (*Pipistrellus pipistrellus sensu lato*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Daubenton's Bat (*Myotis daubentonii*), Whiskered Bat (*Myotis mystacinus*), Brown Long-Eared Bat (*Plecotus auritus*) and Leisler's Bat (*Nyctalus leisleri*).



Figure 12. Common Pipistrelle (purple) and both Common Pipistrelle and Soprano Pipistrelle (orange) sightings according to the NBDC's online viewer (site location: red circle)



Figure 13. Daubenton's Bat (purple) and both Daubenton's Bat and Whiskered Bat (orange) sightings according to the NBDC's online viewer (site location: red circle)



Figure 14. Leisler's Bat (purple) and both Leisler's Bat and Brown Long Eared Bat (orange) sightings according to the NBDC's online viewer (site location: red circle)

Evaluation of Results

The bat surveys comply with bat survey guidance documentation including Marnell et al (2022) and Collins (2023). The 2023 survey recorded a single Soprano Pipistrelle emerging from the woodland located southwest of the proposed development area and outside the site footprint. Other bat activity included Common Pipistrelle, Soprano Pipistrelle, Daubenton's Bat, and Natterer's Bat foraging within the wider survey area.

The 2026 surveys did not identify any bat roosts within the development site, and no bats were observed emerging from onsite trees. Bat activity comprised foraging and commuting of three bat species: Common Pipistrelle, Soprano Pipistrelle, and Leisler's Bat. Activity was concentrated along hedgerows, woodland edges, and linear vegetation features.

The site therefore provides habitat of local importance for commuting and foraging bats but is considered to be of low to moderate importance to the local bat population.

Potential Impact of the development on Bats

No confirmed bat roosts were identified within the proposed development footprint during either of the 2023 or 2026 surveys. Consequently, direct impacts on bat roosts are not anticipated and a derogation licence from the National Parks and Wildlife Service (NPWS) will not be required.

The arboricultural proposals retain substantial areas of hedgerow and woodland habitat across the site, including important boundary features and woodland areas identified as ecological corridors. Landscape planting proposed as part of the development will further strengthen habitat connectivity throughout the site.

The removal of trees and the increase in lighting on site will not result in a significant negative impact on bat foraging. However, there may be negative impacts on bat flight corridors between roosting and foraging areas. Foraging on site was detected, however, incorporation of bat-friendly lighting, preservation of the treeline along the riparian zone and incorporation of corridors via green areas in the landscape design throughout the site will facilitate a continuation of foraging within the site outline.

Mitigation Measures

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

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

No bat roosts were identified within the proposed development footprint, and no derogation licence is required. The following precautionary measures will be implemented to ensure protection of bats and maintenance of habitat connectivity:

- Pre-Construction inspection for bats in trees of bat roosting potential will be undertaken by a suitably qualified bat ecologist.
- Retained hedgerows, woodland edges and tree lines will be protected throughout construction in accordance with the recommendations of the Arboricultural Assessment.
- During construction, lighting at all stages will be done sensitively with no direct lighting of hedgerows and treelines.
- Lighting during construction should only be used during working hours with no floodlighting of the site.

- All lighting during construction and operation will be carried out to the satisfaction of the project ecologist and shall avoid direct illumination of retained boundary vegetation, woodland habitats, and ecological corridors.
- The proposed landscape planting shall be implemented in full to maintain and enhance ecological connectivity across the site.

Predicted Residual Impact of Planned Development on Bats

There is no evidence of a current bat roost on site, therefore no negative impacts on bat roosts are expected to result from the proposed development. As no confirmed bat roosts were noted on site, a derogation licence is also not required for the proposed felling of trees. The likelihood of bat collision is not significant as the materials proposed are generally solid and would have good acoustic properties to reflect echolocation signals. As a result, the buildings would be clearly visible to bat species. Works on site will result in a short-term modification of the site in the vicinity of the existing foraging areas. However, the site is deemed to be of low importance to foraging bats considering the scale of the development, implementation of corridors via green areas, preservation of riparian woodland in the south, and lack of previously existing bat records in this area. The vegetation subject for removal on site is of low bat roosting potential. Following implementation of the sensitive lighting strategy to reduce light intensity and the proposed landscape strategy, the species expected to occur onsite and in the surrounding area should persist.

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Appendix IV Wintering Bird Assessment 2022/2023

Tinahask Lower Arklow (APP2) Winter Bird Surveys 2022-2023

Introduction

Between November 2022 and March 2023 9 winter bird surveys were undertaken at lands at Tinahask Lower, Arklow, Co Wicklow by Hugh Delaney, a freelance Ecologist (Birds primarily) having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is local to the Dun Laoghaire-Rathdown area in Dublin and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

Winter Bird Survey Methodology

Winter bird surveys are conducted from soon after sunrise until late in the afternoon, or alternatively started later in the day until sunset, the site is monitored throughout the survey period and all bird species utilizing the site recorded, including species flying through overhead.

Checks are also made on suitable habitat nearby or adjacent to the site for comparative purposes and to monitor any interchange of birds between sites. Target species (species of more special interest) utilizing the site are mapped and estimates of the time these species frequented the site recorded.

Site Location



Fig. Tinahask Lower, Arklow (APP2) outlined in red.

Site Description

Series of fields of grassland pasture, maintained for cattle grazing and silage production, bordered across much of the site by hedgerows, more extensive areas of hedgerow in central part and bordering the east side of the site. Single small pond situated in the field at the southeast corner of the site (visible as an islet in the image above).

Specific site survey methodology

Entire site traversed from north to south during surveys traversing field to field clockwise or anti-clockwise around site depending on light conditions, site traversed twice in course of surveys, vantage point observations challenging due to the undulating terrain of site, but short V.P. observations were made from the south end of site looking north from area marked Money Big on Fig. 1, which afforded an expansive view north and east over site.

November 24th, 2022

Sunrise- 08.05hrs/Sunset 16.17hrs. Weather – Wind F2 West, Cloud 4/8, Dry, 8c, Excellent visibility. On-site 08.15hrs – 14.15hrs.

Species recorded – Red Kite, Snipe, Black-headed Gull, Herring Gull, Woodpigeon, Skylark, Meadow Pipit, Pied Wagtail, Grey Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Coal Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Bullfinch.

10.00hrs-12.00hrs – Site traversed from northwest to southeast and back north on east side, Snipe (<1 flushed from field adjacent to main entrance to site). Red Kite (<1 passed south over middle of site at 11.20hrs). Herring Gull (<10) and Black-headed Gull (<12) noted passing over the site only mainly moving from south to northwest. Meadow Pipit (<10 noted foraging in fields along the north side of the site at 10.30hrs). Passerines present in the hedgerows included Chaffinch (<4 at east side of site), Goldfinch (<20 around site), Linnet (<5 at the east side), Bullfinch (<1 in middle of site), Goldcrest (<3), House Sparrow (<8 north boundary of site adjacent houses).

12.00hrs-14.15hrs – Snipe (<2 flushed from the southeast corner of site). Herring Gull (<4) and Black-headed Gull (<6) noted foraging at the northwest corner of site at 13.45hrs, small numbers of both Less than 10 each noted passing over site also. Mistle Thrush (<3) and Redwing (<15) noted foraging in fields at south end of site at 12.10hrs. Passerines present in hedgerow habitat around site including Goldcrest (<2 in Pine stand at south end of site), Goldfinch (<18), Greenfinch (<4), Chaffinch (<10), Woodpigeon (<20), Skylark (<3 noted passing west over the site during the day), Linnet (<12), Starling (<30), Great Tit (<2), Long-tailed Tit (<13). Meadow Pipit (<20) noted foraging in fields around the site. Raven (<2) noted in trees at the south boundary of site at 11.40hrs.

4 Hares noted during the day, 2 at the south end and 2 at the northwest part of site.

December 5th, 2022

Sunrise- 08.22hrs/Sunset 16.08hrs. Weather – Wind F3 East, Cloud 6/8, Light scattered showers, 7c, Excellent visibility. On-site 10.00hrs – 16.00hrs.

Species recorded – Buzzard, Snipe, Black-headed Gull, Common Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Grey Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Fieldfare, Blackbird, Goldcrest, Wren, Coal Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Bullfinch, Reed Bunting, Yellowhammer.

10.00hrs-12.00hrs – Site traversed from northwest to southeast and back north on east side, Snipe (<2) flushed from fields at northwest side of site (field north of main entrance). Snipe (<3 flushed from field adjacent to main entrance to site). Buzzard (<2 foraging in fields at the north end of the site). Redwing (>25), Song Thrush (<2), Blackbird (<5) and Reed Bunting (<1) noted foraging in fields at the north end of the site. Herring Gull (<15), Black-headed Gull (<6) and Common Gull (<3) noted passing over the site only. Passerines present in the hedgerows included Yellowhammer (<2 at north side of site), Chaffinch (<6 at west side of site), Bullfinch (<2 at east side of site), Goldcrest (<4 at stand of Pines at south side of site), House Sparrow (<5 north boundary of site adjacent houses).

12.00hrs-16.00hrs – Snipe (<2) flushed from fields in center of site and (1) at the south side of site. Buzzard (<1) noted soaring over the west side of the site at 14.25hrs. Black-headed Gull (<8) noted foraging at south side of site at 13.45hrs. Redwing (<40), Fieldfare (<20) and Song Thrush (<5) noted foraging in fields at south side of site adjacent Moneylands farm at 12.30hrs.

Passerines present in hedgerow habitat around site including Goldcrest (<2 in center of site), Goldfinch (<10), Chaffinch (<8), Woodpigeon (<25), Linnet (<5), Starling (<80), Coal Tit (<2), Long-tailed Tit (<4). Raven (<1) observed foraging at the east side of site at 14.10.

3 Hares noted during the day, 2 at the south end and 1 in the northeast corner of site.

December 28th, 2022

Sunrise- 08.40hrs/Sunset 16.12hrs. Weather – Wind F2 Southeast, Cloud 7/8, Light showers, 6c, Excellent visibility. On-site 08.30hrs – 12.00hrs.

Species recorded – Mallard, Buzzard, Snipe, Black-headed Gull, Common Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Grey Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Fieldfare, Blackbird, Goldcrest, Wren, Blue Tit, Long-tailed Tit, Magpie, Jackdaw,

Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Bullfinch, Yellowhammer.

08.30hrs-12.00hrs – Site traversed from northwest to southeast and back north on east side, Snipe (<2) flushed from fields at northwest side of site (field north of main entrance). Fieldfare (<20), Redwing (>35), Song Thrush (<5) and Blackbird (<10) noted foraging in fields bordering the north end of the site. Herring Gull (<12) and Common Gull (<6) foraging in the northeast corner field of the site. A pair of Mallard were flooded from a flooded ditch in the center of the site and flew north. Herring Gull (<22) and Black-headed Gull (<10) noted mainly passing over the site.

Passerines present in the hedgerows included Yellowhammer (<1 at east side of site), Greenfinch (<3 north end of site), Bullfinch (<2 at southeast corner of site), Goldcrest (<2 at center of site).

12.00hrs-14.30hrs – Snipe (<4) flushed from fields in center of site and an additional 2 flushed from fields at the north side of the site. Buzzard (<2) noted soaring over the west side of the site at 13.05hrs. Black-headed Gull (<6) and Common Gull (<4) noted foraging in fields at the south end of site at 13.00hrs. Redwing (<40), Fieldfare (<20), Song Thrush (<5) and Meadow Pipit (<15) noted foraging in fields at south side of site adjacent Moneylands farm at 12.30hrs. Passerines present in hedgerow habitat around site including Goldcrest (<4), Goldfinch (<20), Chaffinch (<10), Woodpigeon (<15), Linnet (<8), Starling (<100), Blue Tit (<5), Long-tailed Tit (<4). 2 Hares noted during the day in fields at the northeast side of the site (foraging and resting). Single Foxes noted in southeast and center of site.

January 19th, 2023

Sunrise- 08.29hrs/Sunset 16.43hrs. Weather – Wind F2 West, Cloud 3/8, Dry, 5c, Excellent visibility. On-site 10.30hrs – 16.30hrs.

Species recorded – Red Kite, Snipe, Black-headed Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Grey Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Fieldfare, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Bullfinch, Reed Bunting, Yellowhammer.

10.30hrs-12.00hrs – Site traversed from northwest to southeast and back north on east side, Snipe (<7) flushed from fields at northwest side of site (near main entrance), large numbers of thrushes foraging in fields at the southeast corner of the site (Redwing – 120, Fieldfare -25, Song Thrush – 20) also Meadow Pipit (<10) foraging in same area. Small numbers of Herring Gull (<20) and Black-headed Gull (<15) noted mainly passing over the site. Passerines present in the hedgerows included Yellowhammer (<2 at east side of site), Reed Bunting (<4 at east side of site), Goldcrest (<3 at south side of site).

12.00hrs-16.30hrs – Redwing (<50) foraging in center of site, Snipe (<3) flushed from fields in center of site and an additional 6 flushed from fields at the north side of the site. Red Kite (<1) noted soaring over the southeast corner of the site at 12.36hrs. Redwing (<60), Blackbird (<6) and Song Thrush (<5) noted foraging in fields at north side of site at 14.20hrs. Passerines present in hedgerow habitat around site including Dunnock (<10), Goldfinch (<25), Bullfinch (<4), Woodpigeon (<40), Linnet (<15), Goldcrest (<5) Starling (<50), Long-tailed Tit (<8). 5 Hares noted during the day in fields around the site (foraging and resting).

January 29th, 2023

Sunrise- 08.14hrs/Sunset 17.01hrs. Weather – Wind F4 West, Cloud 4/8, Dry, 7c, Excellent visibility. On-site 08.30hrs – 14.30hrs.

Species recorded – Red Kite, Buzzard, Snipe, Black-headed Gull, Herring Gull, Common Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Fieldfare, Blackbird, Goldcrest, Wren, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Siskin, Bullfinch, Reed Bunting, Yellowhammer.

08.30hrs-12.00hrs – Site traversed from north to east and then south around to west side, Snipe (<3) flushed from fields at northwest side of site (near main entrance). Redwing (<25), Fieldfare (<15) and Song Thrush (<5) noted foraging in fields along north side of the site. Buzzard (<2) flushed from field at the northeast corner of site at 11.15hrs. Small numbers of Herring Gull (<10), Common Gull (<4) and Black-headed Gull (<20) noted mainly passing over the site. Passerines present in the hedgerows included Yellowhammer (<4 at northeast side of site), Reed Bunting (<2 at east side of site), Bullfinch (<4 in middle of site), Linnet (<8 at east side of site), Siskin (<3 in middle of site), Mistle Thrush (<3 at east side of site).

12.00hrs-14.30hrs – Red Kite (<2) noted soaring in middle of site at 13.45hrs, the birds drifting off south. Redwing (<40), Fieldfare (<12), Blackbird (<10) and Song Thrush (<8) noted foraging in fields bordering the south side of the site at 13.30hrs. Passerines present in hedgerow habitat around site including Yellowhammer (<3 at south side of site), Reed Bunting (<2 at south side of site), Goldfinch (<15), Dunnock (<6), Chaffinch (<15), Bullfinch (<2), Woodpigeon (<50), Linnet (<25), Goldcrest (<6) Starling (<100), Blue Tit (<5), Long-tailed Tit (<10), Meadow Pipit (<15 mainly foraging in fields at south side of site). Snipe (<3) flushed from middle of site at 14.10hrs. Herring Gull (<4) and Common Gull (<1) noted foraging in field at southeast corner of site during afternoon. Buzzard (<2) noted soaring over north end of site at 14.20hrs.

3 Hares and 1 Fox noted around site during survey.

February 8th, 2023

Sunrise- 07.57hrs/Sunset 17.21hrs. Weather – Wind F2 Southwest, Cloud 6/8, Dry, 6c, Excellent visibility. On-site 10.30hrs – 17.00hrs.

Species recorded – Pheasant, Sparrowhawk, Buzzard, Snipe, Black-headed Gull, Herring Gull, Common Gull, Woodpigeon, Feral Pigeon, Meadow Pipit, Pied Wagtail, Grey Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Reed Bunting, Yellowhammer.

10.30hrs-12.00hrs – Site traversed from north to east and then south around to west side, Snipe (<2) flushed from field at northwest corner of site. Redwing (<10), Yellowhammer (<2), Song Thrush (<6), Mistle Thrush (<2), Meadow Pipit (<5) and Starling (<40) noted foraging in fields along north end of site. Sparrowhawk (<1) observed hunting at 11.50hrs at northeast corner of site. Small numbers of Herring Gull (<12), Common Gull (<8) and Black-headed Gull (<15) noted passing north over site, not observed to forage on-site. Passerines present in the hedgerows included Reed Bunting (<3 at north side of site), Chaffinch (<10 in middle of site), Linnet (<12 at east side of site), House Sparrow (<5 at north end of site), Goldcrest (<3 in middle of site), Pied Wagtail (<2), Grey Wagtail (<1 over site), Wren (<7), Robin (<5).

12.00hrs-17.00hrs – Snipe (<5) were flushed from middle and southeast corner of site during afternoon. Redwing (<45), Fieldfare (<10), Blackbird (<5), Song Thrush (<10) and Meadow Pipit (<14) were noted foraging in fields bordering the south side of the site during afternoon. Passerines present in hedgerow habitat around site including Yellowhammer (<2 at the southwest corner of site), Chaffinch (<20 in middle and southeast corner of site), Bullfinch (<4), Goldfinch (<30 foraging mainly in center of site) Rook (<25), Woodpigeon (<40), Linnet (<15), Goldcrest (<5), Blue Tit (<6), Long-tailed Tit (<6) and Great Tit (<2). Buzzard (<2) noted soaring over middle of site at 13.35hrs and a single soaring over northwest corner of site at 15.15hrs. Pheasant flushed from middle of site at 15.05hrs. Black-headed Gull (<8) noted foraging in fields intermittently during afternoon, with small numbers of Herring Gull (<10) and Common Gull (<5) noted passing north.

2 Hares noted at north end of site during survey, a Fox also observed at the south end.

February 19th, 2023

Sunrise- 07.35hrs/Sunset 17.43hrs. Weather – Wind F1 Southwest, Cloud 5/8, Dry, 8c, Excellent visibility. On-site 08.00hrs – 14.00hrs.

Species recorded – Red Kite, Buzzard, Sparrowhawk, Snipe, Black-headed Gull, Herring Gull, Common Gull, Feral Pigeon, Woodpigeon, Meadow Pipit, Pied Wagtail, Blackcap, Dunnock, Robin, Song Thrush, Redwing, Fieldfare, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Coal Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Goldfinch, Reed Bunting, Yellowhammer.

08.00hrs-12.00hrs – Site traversed from north to south and then around to west side and back north, Snipe (<5) flushed from field at northwest corner of site and field adjacent the main entrance. Yellowhammer (<3), Mistle Thrush (<2), Meadow Pipit (<10), Chaffinch (<8), Goldfinch (<20), Linnet (<15) and Reed Bunting (<2) noted foraging in fields along west side of site. Small numbers of Herring Gull (<15), Common Gull (<2) and Black-headed Gull (<25) noted passing over site, not observed to forage on-site. Buzzard (<2) noted soaring over the south side of the site at 10.15hrs. Redwing (<15), Fieldfare (<5), Song Thrush (<10), Starling (<35) and Meadow Pipit (<12) noted foraging along fields at the south end of the site. Two Snipe flushed from the southeast field at 11.05hrs. Blackcap (<1), Goldcrest (<2), Bullfinch (<2), Coal Tit (<1), Blue Tit (<4), Wren (<3), Robin (<5) and Pied Wagtail (<2) noted along east and center of site.

12.00hrs-14.00hrs – A Sparrowhawk (<1) was noted hunting at the north end of site at 13.15hrs. Snipe (<2) were flushed from field at the northeast of site at 12.45hrs. Red Kite (<1) drifted southeast over site from north at 13.40hrs. Redwing (<30) and Song Thrush (<5) noted foraging at fields bordering north end of site intermittently during afternoon. Other passerines recorded were Yellowhammer (<2 at northeast field), Reed Bunting (<1 at north end), Meadow Pipit (<6) and Pied Wagtail (<2) also at the north end. Herring, Black-headed and Common Gull noted passing over site mainly west and north in small numbers (<10).

3 Hares were noted around site during survey.

March 3rd, 2023

Sunrise- 07.08hrs/Sunset 18.06hrs. Weather – Wind F2 Northeast, Cloud 6/8, Dry, 7c, Excellent visibility. On-site 11.30hrs – 17.30hrs.

Species recorded – Buzzard, Snipe, Black-headed Gull, Herring Gull, Lesser black-backed Gull, Common Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Stonechat, Song Thrush, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, Chaffinch, Greenfinch, Linnet, Goldfinch, Reed Bunting, Yellowhammer.

11.30hrs-17.30hrs – Site traversed from west to east at the north side and then around to south side and back north, Snipe (<2) singles flushed from field at northwest corner of site and at northeast corner of site. Yellowhammer (<2), Mistle Thrush (<4), Meadow Pipit (<8), Chaffinch (<6), Goldfinch (<25), Greenfinch (<2), Linnet (<10) and Reed Bunting (<1) noted foraging in fields along north side of site. Buzzard (<2) soaring over center of site at 12.40hrs. Small numbers of Herring Gull (<10), Lesser black-backed Gull (<3), Common Gull (<6) and Black-headed Gull (<20) noted passing over site mainly moving north, not observed to forage on-site. Redwing (<14), Song Thrush (<7), Starling (<100) and Meadow Pipit (<5) noted foraging along fields at the south end of the site. Snipe (<2) flushed from the southeast field at 13.50hrs. Goldcrest (<3), Stonechat (<1), Blue Tit (<4), Great Tit (<3), Long-tailed Tit (<8), Wren (<2), Robin (<3) and Pied Wagtail (<2) noted along east and center of site. Raven (<2) passed south over middle of site at 15.15hrs.

1 Hare and 1 Fox were noted around site during survey.

March 25th, 2023

Sunrise- 06.16hrs/Sunset 18.46hrs. Weather – Wind F3 West, Cloud 7/8, Dry, 6c, Excellent visibility. On-site 07.30hrs – 13.30hrs.

Species recorded – Red Kite, Buzzard, Peregrine, Snipe, Black-headed Gull, Herring Gull, Lesser black-backed Gull, Common Gull, Woodpigeon, Skylark, Meadow Pipit, Pied Wagtail, Grey

Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Blackbird, Chiffchaff, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, Chaffinch, Greenfinch, Linnet, Goldfinch, Yellowhammer.

07.30hrs-13.30hrs – Site traversed from northwest to southwest and then around to east side and back north, Snipe (<1) single flushed from field at northwest corner of site. Yellowhammer (<3), Meadow Pipit (<20 including birds moving north on migration), Chaffinch (<5), Goldfinch (<10), Greenfinch (<1), Bullfinch (<2), Redpoll (<2), Linnet (<5) noted foraging in fields along west side of site. Small numbers of Herring Gull (<12), Lesser black-backed Gull (<11), Common Gull (<8) and Black-headed Gull (<25) noted passing over site mainly moving north, not observed to forage on-site. Redwing (<2), Mistle Thrush (<5), Song Thrush (3), Starling (<30) and Meadow Pipit (15) noted foraging along fields at the south end of the site. Red Kite (<1) observed soaring over east side of site at 11.15hrs and 12.35hrs. A Peregrine Falcon (<1) was observed passing over the northeast corner of the site going north at 11.56hrs. Blue Tit (<8), Great Tit (<2), Long-tailed Tit (<10), Wren (5), Robin (<3), Pied Wagtail (<2) and Grey Wagtail (<1) and Chiffchaff (<2) were noted along east and center of site. Skylark (<6 noted passing west over site during day, not noted to forage on-site). Robin and Blackbird (One pair each, were observed nest building in center of site).

4 Hare were noted around site during survey.

Comments and observations on survey results

In total 47 species were recorded over 9 surveys at the Tinahask Lower site, Arklow during the winter bird surveys in 2022-2023, two species red-listed as species listed as of conservation concern (per Birdwatch Ireland's species of conservation concern 2020-2026) were wintering **Snipe** and **Redwing**. Snipe were recorded around the site on all surveys, favoring the fields adjacent the main entrance and also in the southeast area of the site, numbers varied between 2 birds recorded on dates in November and March, 6-7 on other dates, and peak counts of 10 birds recorded on January 19th and 9 recorded on February 19th, areas of fields around the site appeared to be consistently wet throughout the winter and the birds appeared to be availing of this as a feeding opportunity. Redwing were also recorded on all surveys with numbers averaging between 40-60 birds with a peak count of 180 noted on January 19th. Wintering amber-listed species recorded included Herring Gull, Black-headed Gull, and Common Gull, these were recorded foraging on-site in small numbers only (almost all in single figures for each species). Red Kite was observed passing over the site on several dates, but not recorded foraging on-site, Buzzard was observed foraging on-site occasionally. Passerine species recorded were consistent throughout the surveys with the well-established hedgerow habitat affording a good range of species.

Results suggest that the site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's).

Tinahask Lower Arklow (APP2) Winter Bird Surveys 2023-2024

Introduction

Between November 2023 and March 2024 9 winter bird surveys were undertaken at lands at Tinahask Lower, Arklow, Co Wicklow by Hugh Delaney, a freelance Ecologist (Birds primarily) having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is local to the Dun Laoghaire-Rathdown area in Dublin and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

Winter Bird Survey Methodology

Winter bird surveys are conducted from soon after sunrise until late in the afternoon, or alternatively started later in the day until sunset, the site is monitored throughout the survey period and all bird species utilizing the site recorded, including species flying through overhead. Checks are also made on suitable habitat nearby or adjacent to the site for comparative purposes and to monitor any interchange of birds between sites. Target species (species of more special interest) utilizing the site are mapped and estimates of the time these species frequented the site recorded.

Site Location



Fig.1 Tinahask Lower, Arklow (APP2) outlined in red.

Site Description

Series of fields of grassland pasture, maintained for cattle grazing and silage production, bordered across much of the site by hedgerows, more extensive areas of hedgerow in central part and bordering the east side of the site. Single small pond situated in the field at the southeast corner of the site (visible as an islet in the image above).

Specific site survey methodology

Entire site traversed from north to south during surveys traversing field to field clockwise or anti-clockwise around site depending on light conditions, site traversed twice in course of surveys, vantage point observations challenging due to the undulating terrain of site, but short V.P. observations were made from the south end of site looking north from area marked Money Big on Fig. 1, which afforded an expansive view north and east over site.

November 21st, 2023

Sunrise- 08.00hrs/Sunset 16.20hrs. Weather – Wind F2 West, Cloud 5/8, Dry, 4c, Excellent visibility.
On-site 09.30hrs – 15.30hrs.

Species recorded –Red Kite, Buzzard, Snipe, Black-headed Gull, Herring Gull, Woodpigeon, Feral Pigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Redpoll, Goldfinch, Bullfinch.

10.00hrs-12.00hrs – Site traversed from northwest corner to southwest corner to southeast and back north on east side. Snipe (<2) flushed from fields at northwest side of site (near main entrance). At the north and west side of the site, Song Thrush (<3), Blackbird (<4), Goldfinch (<5), Redpoll (<1), Goldcrest (<2), Robin (<5), Dunnock (<3), Wren (<5), Pied Wagtail (<1), Meadow Pipit (<5), Blue Tit (<4), Long-tailed Tit (<6), Great Tit (<2) were observed foraging in the hedgerow and fields. Small numbers of Herring Gull (<10) were noted passing over the site, none observed foraging on-site. Red Kite (<1) was noted soaring over the center of site at 10.42hrs, then drifting south off-site. At the south end of the site Meadow Pipit (<10), Skylark (<4), Goldfinch (<20) and Linnet (<12) were noted foraging in fields there.

12.00hrs-16.00hrs – A Snipe was flushed from the center of the site at 13.55hrs. Buzzard (<1) passed northwest over site at 13.10hrs and one was flushed from the northwest corner of the site at 15.25hrs. At the east side of the site Blackbird (<3), Song Thrush (<2), Blue Tit (<4), Long-tailed Tit (>9), Bullfinch (<1), Chaffinch (<8), Goldfinch (<6), Bullfinch (<1), Redpoll (<2), Goldcrest (<3), Wren (<5), Robin (<3) and Dunnock (<5) were noted foraging, mostly in the center area associated with the large hedgerow 'ravine' in this area. Meadow Pipit (<6) and Mistle Thrush (<2) were noted foraging in the northeast field at 14.10hrs.

December 5th, 2023

Sunrise- 08.22hrs/Sunset 16.08hrs. Weather – Wind F2 Northwest, Cloud 4/8, Dry, 3c, Excellent visibility. On-site 09.30hrs – 15.30hrs.

Species recorded –Cormorant, Red Kite, Snipe, Black-headed Gull, Herring Gull, Woodpigeon, Feral Pigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Redwing, Fieldfare, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, House Sparrow, Chaffinch, Linnet, Redpoll, Goldfinch, Bullfinch, Reed Bunting.

09.30hrs-12.00hrs – Site traversed from northwest corner to southwest corner to southeast and back north on east side. Snipe (<6) flushed from fields at northwest side of site (near main entrance and east from here) and 3 more from fields along the west side of site. At the northwest end of the site Redwing (<10), Fieldfare (<5) and Song Thrush (<3) were observed foraging in fields. Small numbers of Herring Gull (<10) and Black-headed Gull (<6) were noted passing over the site, none observed foraging on-site. Red Kite (<2) were noted soaring over the southeast corner of the site at 11.15hrs. Passerines present in the hedgerows along the north and west sides of the site included Chaffinch (<4), Goldfinch (<8), Bullfinch (<1), Linnet (<7), Redpoll (<2), Blue Tit (<3), Great Tit (<2), Long-tailed Tit (>5), Robin (<2), Wren (<3), Dunnock (<5).

12.00hrs-15.30hrs – Snipe (<4) were flushed from the southeast corner of the site at 12.45hrs. Meadow Pipit (<6), Pied Wagtail (<1), Linnet (<15), Goldfinch (<10), Reed Bunting (<1) and Skylark (<3) were noted foraging in fields at the southeast end of the site. Buzzard (<2) noted perched and foraging on ground in center of site intermittently from 13.30hrs. A Cormorant flew northwest over the site at 14.05hrs. Raven (<3) flew south over the site at 13.20hrs. At the east and middle part of the site Goldcrest (<3), Robin (<5), Blue Tit (<3), Long-tailed Tit (<10), Wren (<5), Dunnock (<4), Blackbird (<6), Song Thrush (<2) were observed foraging.

December 19th, 2023

Sunrise- 08.36hrs/Sunset 16.07hrs. Weather – Wind F2 West, Cloud 3/8, Dry, 5c, Excellent visibility.
On-site 09.30hrs – 15.30hrs.

Species recorded – Buzzard, Snipe, Woodcock, Black-headed Gull, Common Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Stonechat, Song Thrush, Fieldfare, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Redpoll, Goldfinch, Greenfinch, Bullfinch, Reed Bunting, Yellowhammer, Skylark.

09.30hrs-12.00hrs – Site traversed from northwest to northeast to southeast and back north on west side. Snipe (<3) flushed from fields at northwest side of site (near main entrance and east from here) and 6 more from fields in the center and south side of site. At the north end of the site Redwing (<75), Fieldfare (<10), Song Thrush (<10) and Mistle Thrush (<1) were observed foraging in fields. Black-headed Gull (<4) noted foraging in the northwest corner of the site. Small numbers of Herring Gull (<20) and Black-headed Gull (<10) and Common Gull (<10) noted passing over the site, not observed foraging on-site except the aforementioned Black-headed. Passerines present in the hedgerows along the north and east sides of the site included Chaffinch (<6), House Sparrow (<5), Goldfinch (<8), Blue Tit (<3), Great Tit (<1), Long-tailed Tit (>8), Robin (<4), Starling (<15), Wren (<5), Dunnock (<5) all foraging at the east side of the site. A Woodcock (<1) was flushed from the middle part of site adjacent south side of the large hedgerow at 10.45hrs.

12.00hrs-15.30hrs – Snipe (<2) were flushed from the southwest corner of the site at 13.00hrs were likely birds not already recorded. Meadow Pipit (<10), Pied Wagtail (<2), Mistle Thrush (<2), Fieldfare (<4) and Skylark (<1) were noted foraging in fields at the south end of the site. Buzzard (<1) noted foraging in fields along the west side of site at 13.30hrs. Stonechat (<2), Song Thrush (<3), Blackbird (<5), Wren (<3), Robin (<4), Yellowhammer (<2), Reed Bunting (<1), Chaffinch (<5), Goldfinch (<13), Greenfinch (<2), Linnet (<4), Goldcrest (<2) noted along the west side of the site.

January 10th, 2024

Sunrise- 08.36hrs/Sunset 16.29hrs. Weather – Wind F3 East, Cloud 7/8, Dry, 4c, Excellent visibility.
On-site 09.00hrs – 15.00hrs.

Species recorded – Buzzard, Snipe, Pheasant, Black-headed Gull, Common Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Fieldfare, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Redpoll, Goldfinch, Greenfinch, Bullfinch, Reed Bunting, Yellowhammer.

09.00hrs-12.00hrs – Site traversed from northwest to northeast to southeast and back north on west side. Snipe (<8) flushed from fields at northwest side of site (near main entrance and east from here) and 5 more from fields in the south side of site. At the north end of the site Redwing (<45), Fieldfare (<20), Song Thrush (<14), Blackbird (<5) and Mistle Thrush (<2) were observed foraging in fields. Small numbers of Herring Gull (<15) and Black-headed Gull (<10) and Common Gull (<2) noted passing over the site. Black-headed Gull (<5) and Common Gull (<3) were observed foraging in the northeast corner of the site at 10.00hrs. Passerines present in the hedgerows along the north and east sides of the site included Reed Bunting (<1 at the north side), Goldcrest (<3 at east side of site in large hedgerow ravine), Chaffinch (<4), Starling (<40 foraging at the north fields), Greenfinch (<1), Goldfinch (<15), Blue Tit (<2), Long-tailed Tit (>4), Robin (<5), Wren (<3), Dunnock (<4) all foraging at the east side of the site.

12.00hrs-15.00hrs – Buzzard (<2) noted in trees at the southeast end of the site at 13.15hrs and probably same birds soaring over the center of the site at 14.45hrs. Pheasant (<2 at north end of site). Redwing (<100), Fieldfare (<18), Blackbird (<8), Song Thrush (<10) and Meadow Pipit (<15) noted foraging in fields at south side (mainly at the east side) of site at 13.30hrs. Passerines present in hedgerow habitat around site included Chaffinch (<15 mainly at west side along railway embankment), Goldfinch (<20 foraging in small flocks of 3-4 around site especially in center of site), Redpoll (<2), Bullfinch (<5 on the west side), House Sparrow (<6 at the north end of site), Woodpigeon (<20),

Goldcrest (<2 at south end,) Starling (<80 at north side of site), Long-tailed Tit (<10), Blue Tit (<2) and Great Tit (<2).

January 26th, 2024

Sunrise- 08.19hrs/Sunset 16.55hrs. Weather – Wind F3 Southwest, Cloud 3/8, Dry, 6c, Excellent visibility. On-site 10.45hrs – 16.45hrs.

Species recorded – Red Kite, Buzzard, Snipe, Black-headed Gull, Common Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Fieldfare, Blackbird, Goldcrest, Wren, Great Tit, Coal Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Linnet, Redpoll, Goldfinch, Bullfinch, Reed Bunting, Yellowhammer.

10.45hrs-12.00hrs – Site traversed from northwest to east to southeast and back north on east side, Snipe (<5) flushed from fields at northwest side of site (near main entrance) and 4 more from the southeast corner fields of the site. Thrush flock foraging in fields at the northeast corner of the site at 11.15hrs comprising of Redwing (<25), Fieldfare (<8) and Mistle Thrush (<2). Buzzard (<1) foraging in center of site at 11.50hrs. Small numbers of Herring Gull (<10) and Black-headed Gull (<12) and Common Gull (<8) noted mainly passing over the site. Passerines present in the hedgerows included Yellowhammer (<2 at east side of site), Reed Bunting (<2 at southeast corner of site), Goldcrest (<2 at south side of site), Blackbird (<12) and Song Thrush (<6), Chaffinch (<5), Starling (<60), Dunnock (<4) all foraging at the east side of the site.

12.00hrs-16.45hrs – Red Kite (<1) observed passing south over the center of site at 13.05hrs. Buzzard (<2) noted foraging intermittently in fields at the east side of the site during the afternoon. Snipe (<2) flushed from the southwest corner of the site at 13.15hrs. Redwing (<35), Fieldfare (<10), Blackbird (<5) and Song Thrush (<8) noted foraging in fields at north side of site at 14.00-14.40hrs. Passerines present in hedgerow habitat around site including Meadow Pipit (<10 mainly in south), Wren (<7), Chaffinch (<15 mainly at east side), Goldfinch (<20 foraging in small flocks around site), Bullfinch (<3 in southeast fields), Woodpigeon (<50), Linnet (<8 at west side of site adjacent railway), Redpoll (<2 at east side), Goldcrest (<3 at south end,) Starling (<80 in north and center of site), Long-tailed Tit (<6), Blue Tit (<5), Coal Tit (<1).

3 Hares noted during the day in fields around the site (foraging and resting). Also 2 Fox.

February 10th, 2024

Sunrise- 07.54hrs/Sunset 17.24hrs. Weather – Wind F2 East, Cloud 6/8, Dry, 4c, Excellent visibility. On-site 08.15hrs – 14.15hrs.

Species recorded – Mallard, Red Kite, Sparrowhawk, Buzzard, Snipe, Black-headed Gull, Common Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, House Sparrow, Chaffinch, Linnet, Redpoll, Goldfinch, Bullfinch, Yellowhammer.

08.15hrs-12.00hrs – Site traversed from northwest to southwest and back north on east side, Snipe (<3) flushed from fields at northwest side of site (near main entrance) and 3 more from the southeast corner fields of the site. Thrushes foraging in fields at the south end of the site comprising of Redwing (<40), Mistle Thrush (<4), Song Thrush (<10) and Blackbird (<7). Buzzard (<3) foraging around the site, 2 at the east side and another noted at the northwest corner of the site. Small numbers of Herring Gull (<15) and Black-headed Gull (<10) and Common Gull (<4) noted passing over the site, only Black-headed Gull (<3) noted foraging on-site at the south end in fields. Passerines present in the hedgerows included Yellowhammer (<3 at east side of site), Goldcrest (<2 at south side of site), Chaffinch (<8 at east side), Linnet (<5 at east side), Starling (<40 at south end), Dunnock (<6), Wren (<8), Robin (<6), Meadow Pipit (<10), Pied Wagtail (<2 at south end).

12.00hrs-14.15hrs – Mallard (<2) were flushed from the small pond in the southeast corner of the site. A Sparrowhawk was observed hunting in middle of site at 12.40hrs and again at the northwest corner of the site at 13.35hrs. Red Kite (<1) observed soaring over the east side of the site at 13.10hrs. Redwing (<8) and Meadow Pipit (<5) observed foraging at the northeast corner of the site. Passerines present in hedgerow habitat around site including Wren (<5), Goldfinch (<15 foraging in small flocks around site), Bullfinch (<2 in east fields), Woodpigeon (<30), Redpoll (<1 at south side), Starling (<80 in north and center of site), Long-tailed Tit (<6), Blue Tit (<5), Great Tit (<2). Black-headed Gull (<4) noted foraging in fields at the northeast corner of the site. Raven (<2) passed west over middle of site at 12.50hrs.

1 Hare noted during the day in fields around the site. Also 1 Fox.

February 26th, 2024

Sunrise- 07.20hrs/Sunset 17.56hrs. Weather – Wind F3 Northwest, Cloud 3/8, Dry, 3c, Excellent visibility. On-site 11.00hrs – 17.00hrs.

Species recorded – Red Kite, Buzzard, Snipe, Grey Heron, Pheasant, Black-headed Gull, Herring Gull, Common Gull, Feral Pigeon, Woodpigeon, Meadow Pipit, Pied Wagtail, Dunnock, Robin, Song Thrush, Redwing, Fieldfare, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Coal Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Starling, House Sparrow, Chaffinch, Bullfinch, Linnet, Goldfinch, Reed Bunting, Yellowhammer.

11.00hrs-12.00hrs – Site traversed from north to south at the west side and then around to east side and back north, Snipe (<4) flushed from field at northwest corner of site and field adjacent the main entrance. Yellowhammer (<2), Linnet (<8), Chaffinch (<11), Bullfinch (<1), House Sparrow (<4), Long-tailed Tit (<5), Reed Bunting (<2), Robin (<3), Wren (<2) and Dunnock (<4) noted foraging in hedgerows at northwest and west side of the site. Small numbers of Herring Gull (<8) and Black-headed Gull (<10) noted passing over site, not observed to forage on-site.

12.00hrs-17.00hrs – Snipe (<6) were flushed in fields at the southwest and south side of the site, birds as usual flushed from the waterlogged sections of fields mainly. A Red Kite was observed soaring over the middle of the site at 13.15hrs and again at 14.40hrs over the north end of the site. Minimum of 3 Buzzard observed around the site in the afternoon, observed foraging on ground in fields on the west side. Redwing (<22), Fieldfare (<10), Mistle Thrush (<1), Song Thrush (<5) and Blackbird (<3) observed foraging in fields at the south end of the site. A Grey Heron passed northwest over the west side of the site at 15.10hrs. Pheasant (<2) noted foraging in center of site at 13.45hrs. Passerines recorded around site included Meadow Pipit (<minimum of 25 mainly at the west and south fields), Woodpigeon (<25), Blue Tit (<5), Great Tit (<2 in center of site), Coal Tit (<1), Starling (two foraging flocks, one of 30 birds in south and another flock of 50 birds at the east side of site). Herring and Black-head Gull noted passing over site in small numbers, not observed foraging on-site.

2 Hares were noted around site during survey.

March 11th, 2024

Sunrise- 06.48hrs/Sunset 18.23hrs. Weather – Wind F1 South, Cloud 8/8, Dry, 8c, Excellent visibility. On-site 07.30hrs – 13.30hrs.

Species recorded – Buzzard, Snipe, Jack Snipe, Mallard, Pheasant, Black-headed Gull, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Chiffchaff, Dunnock, Robin, Stonechat, Song Thrush, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, Chaffinch, Linnet, Redpoll, Siskin, Goldfinch.

07.30hrs-12.00hrs – Site traversed from north side to south side at the west side and then around to east side and back north, Snipe (<8) single flushed from field at northwest corner of site and seven more in fields at the southeast and east side of the site. Mallard (<2) flushed from a ditch at the northwest corner of the site. Meadow Pipit (<4), Chiffchaff (<1), Chaffinch (<2), Goldfinch (<5), Linnet (<3), Stonechat (<3), Robin (<2), Goldcrest (<1), Great Tit (<2), Blackbird (<2), Dunnock (<2) and Redwing (<4) noted foraging along the west and southwest corner of site. Buzzard (<2) soaring over

conifers at south of site at 11.40hrs). Herring Gull (<5) noted passing over the site. Siskin (<3 in song in conifers at south end of the site), Goldcrest (<4 also in conifers at the south end). Mistle Thrush (<2), Pied Wagtail (<1), Blue Tit (<2), Redpoll (<2), Chiffchaff (<1), Blackbird (<3) noted foraging in fields at the southeast corner of the site. Raven (<1 calling from conifers at the south end of site at 11.30hrs).

12.00hrs-13.30hrs

Snipe (<1) flushed and Jack Snipe (<1) flushed from the northwest corner of the site at 12.42hrs. Pheasant (<1) and Buzzard (<1) also foraging around the center of the site at 12.15hrs.

1 Hare and 3 Fox were noted around site during survey.

March 27th, 2024

Sunrise- 06.09hrs/Sunset 18.51hrs. Weather – Wind F2 South, Cloud 6/8, Dry, 6c, Excellent visibility.
On-site 12.00hrs – 18.00hrs.

Species recorded – Buzzard, Red Kite, Snipe, Pheasant, Herring Gull, Woodpigeon, Meadow Pipit, Pied Wagtail, Chiffchaff, Dunnock, Robin, Stonechat, Song Thrush, Redwing, Mistle Thrush, Blackbird, Goldcrest, Wren, Great Tit, Blue Tit, Long-tailed Tit, Magpie, Jackdaw, Rook, Hooded Crow, Raven, Starling, Chaffinch, Linnet, Redpoll, Siskin, Greenfinch, Goldfinch.

12.00hrs-18.00hrs – Site traversed from north side to south side at the west side and then around to east side and back north, Snipe (<3) single flushed from field at northwest corner of site and 2 more in fields at the southeast corner of the site. Meadow Pipit (<6) Song Thrush (<3), Blue Tit (<4), Chaffinch (<4), Greenfinch (<1), Goldfinch (<8), Stonechat (<2), Robin (<4), Dunnock (<3), Blackbird (<2) were noted foraging along the west and southwest corner of site. Sparrowhawk (<1) hunting around center of site at 14.20hrs. Buzzard (<2) soaring around site intermittently throughout the afternoon and observed perched and calling from the conifers at the south end of the site, possibly a potential nest site location. Red Kite (<1) observed twice soaring over the west side of the site at 12.15hrs and at 14.05hrs at the northwest corner of the site. Stonechat (<2 a pair noted in the southwest corner of the site). Redwing (<2 noted foraging at the north end of the site at 16.10hrs). Mistle Thrush (<3, two at south end of site and 1 at the north end of the site). Chiffchaff (<4 noted in the hedgerows in the center of the site were likely newly arrived migrants). Robin (<3), Dunnock (<5) Song Thrush (<3), Blackbird (<2), Wren (<5), Long-tailed Tit (<8), Blue Tit (<4), Great Tit (<2), Goldcrest (<1), Goldfinch (<3) and Siskin (<1) all noted foraging along east side of the site, Blackbird and Long-tailed Tit were observed carrying nest building material. Raven (<1) flew west over the north end of the site at 12.25hrs and a pair were observed perched in trees at the southeast corner of the site at 15.50hrs.

2 Hare were noted on-site during survey (northwest corner the of site).

Comments and observations on survey results

In total 50 species were recorded over 9 surveys at Tinahask Lower, Arklow, during the winter bird surveys in 2023-2024, two species **red-listed** as species listed as of conservation concern (per Birdwatch Ireland's species of conservation concern 2020-2026) recorded on-site, were wintering **Snipe** and **Redwing**. Snipe were recorded around the site on all surveys, similar to previous surveys favoring the fields adjacent the main entrance and northwest and also in the south and southeast area of the site, numbers varied between 2-3 birds recorded on dates in November and March, to up to 13 on other dates, with the peak counts peak of 13 birds recorded on December 5th and January 10th, with the birds again utilizing the wetter areas on-site throughout the winter as a feeding opportunity. Redwing were also recorded on almost all surveys (except November) with peak counts of 75 on December 19th and 145+ on January 10th. Wintering amber-listed species recorded included Herring Gull, Black-headed Gull, and Common Gull, these were recorded foraging on-site in small numbers only (almost all in single figures for each species). Red Kite was observed passing over the site again on several dates, but not recorded foraging on-site, Buzzard was observed foraging on-site occasionally. Passerine species recorded were consistent throughout the surveys with the well-established hedgerow habitat affording a good range of species. Results suggest that the site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's).



2024/2025 Wintering Bird Assessment at Tinahask Upper, Money Big,
Money Little, Arklow, Co. Wicklow.



6th October 2026

Prepared by: Gayle O'Farrell of Altemar Ltd.
On behalf of: Castlethorn Construction

Document Control Sheet			
Client	Castlethorn Construction		
Project	2024/2025 Wintering Bird Assessment at at TinahaskAssessment at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.		
Report	Wintering Bird Assessment		
Date			
Version	Author	Reviewed	Date
Final	Gayle O'Farrell		

Summary

Structure/features:	The site is predominantly agricultural fields and boundary hedgerows. There are no pre-existing structures within the proposed site.
Location:	Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow
Bird species present:	Blackbird, Blackcap, Black-headed Gull, Blue tit, Bullfinch, Buzzard, Chaffinch, Chiffchaff, Coal tit, Common Gull, Dunnock, Feral Pigeon, Goldcrest, Goldfinch, Great tit, Greenfinch, Herring Gull, Hooded Crow, Jackdaw, Long-tailed tit, Magpie, Mallard, Meadow Pipit, Mistle Thrush, Moorhen, Mute Swan, Pheasant, Pied Wagtail, Reed Bunting, Robin, Rook, Snipe, Song thrush, Starling, Stonechat, Whooper Swan, Woodpigeon, Wren.
Proposed work:	Large-scale Residential Development
Surveys by:	Emma Peters & Jack Doyle of Altemar Ltd.
Survey dates:	27 th November 2024, 6 th December 2024, 30 th January 2025, 20 th February 2025 and 6 th March 2025.

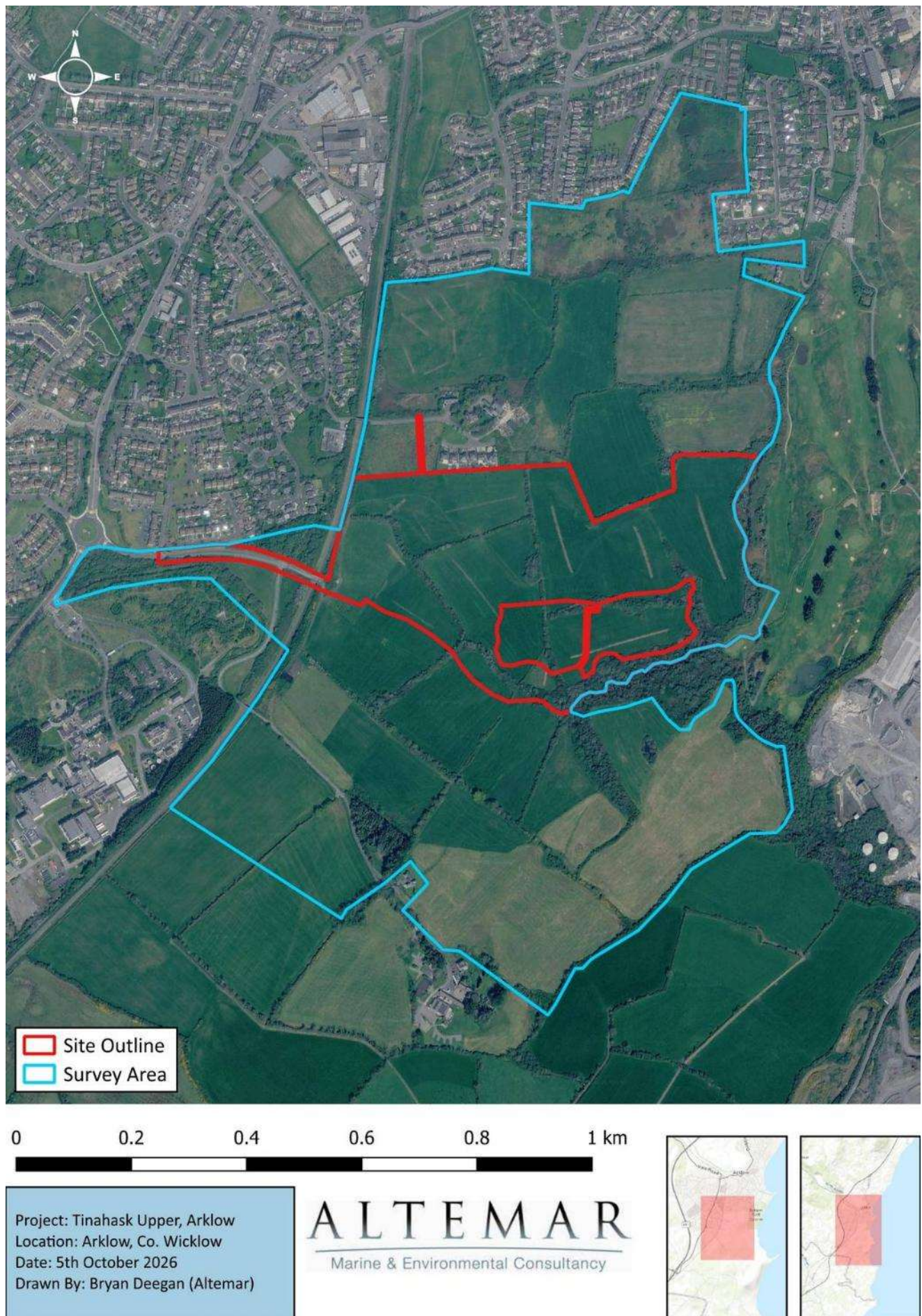


Figure 1. Site Outline and Survey Area

Competency of Assessor

Since its inception in 2001, Altamar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altamar, is an Environmental Scientist and Marine Biologist with 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently lead project ecologist for Project Pembroke and was contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds an MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and an NCEA National Certificate in Science (Aquaculture).

This Report has been contributed to by Emma Peters. Emma has carried out a range of wintering and breeding ornithological surveys in Ireland. Emma has experience in bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys and is a member of Bat Conservation Ireland. She is also skilled in habitat identification, native and non-native species identification and terrestrial mammal surveys.

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

Legislative context

The Wildlife Act 1976 protects wild birds in Ireland. Based on this legislation it is an offence to wilfully interfere with or destroy wild birds and their nests and eggs (other than the wild species mentioned in the Third Schedule of this Act). Under this legislation it is an offence for any person who *"wilfully takes or removes the eggs or nest of a protected wild bird otherwise than under and in accordance with such a licence, wilfully destroys, injures or mutilates the eggs or nest of a protected wild bird, wilfully disturbs a protected wild bird on or near a nest containing eggs or unflown young."*

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Council Directive 2009/147/EC 2010 on the conservation of wild birds provides for the conservation of wild birds by, among other things, classifying important ornithological sites as Special Protection Areas. The Directive relates to the conservation of all species of naturally occurring birds in the wild state, their eggs, nests and habitats in the European territory of the Member States. The Directive prohibits in particular:

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs even if empty;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of this Directive;
- keeping birds of species the hunting and capture of which is prohibited.

Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), notwithstanding any consent, statutory or otherwise, given to a person by a public authority or held by a person, except in accordance with a licence granted by the Minister under Regulation 54, a person who in respect of the species referred to in Part 1 of the First Schedule:

- deliberately captures or kills any specimen of these species in the wild,

- deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,
- deliberately takes or destroys eggs of those species from the wild,
- damages or destroys a breeding site or resting place of such an animal, or
- keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive, shall be guilty of an offence.

Wintering bird surveys

This report presents the methodology and results of 5 visits to Tinahask Upper, Arklow by Emma Peters and Jack Doyle between November 2024 and March 2025.

Survey methodology

Wintering bird surveys were carried out during the wintering bird season at Tinahask Upper in order to gather baseline data to assist in assessing the potential impacts on wintering birds from future proposed developments on the site, in particular those listed as Qualifying Interests of SPAs within 15 km and other amber/red-listed birds of conservation concern in Ireland (BoCCI). Potential impacts on wintering bird species include disturbance, destruction of foraging areas, destruction of roosting areas and collision risk during construction and operation (cranes, buildings etc.). These wintering bird surveys were carried out based on the BTO Common Bird Census (Bibby *et al.*, 2000 and Gilbert *et al.*, 1998) and I-WeBS Counter Manual: Guidelines for Irish Wetland Bird Survey counters (BWI & NPWS), following CIEEM guidelines.

A 15-minute settlement period was given following arrival to allow resumption of bird activity after any possible disturbance caused by arrival to the site. A roving transect survey around the perimeter was carried out on each occasion, providing clear views of all areas within and over that survey area. Flight lines, large flights, foraging, perching, bathing and any other observed behaviour by wintering bird species and other species observed within, over and immediately adjacent to the survey area were recorded. Each survey was carried out by a single surveyor. A pair of binoculars was used by the surveyor to identify and count birds at distance.

Care was taken not to double count any observations. Surveys were initiated at varying times (morning/midday/afternoon) to account for fluxes in bird activity and birds transiting to/from foraging and roosting areas. Local temperatures varied from 0 – 10°C. Winds varied from 2– 5 on the Beaufort scale. Weather conditions were favourable on all occasions.

Peak counts for the survey area were compared to 1% national and international population sizes of relevant species for which data was available. Foraging areas, flight paths, large flights and other observations were mapped according to field sheet records.



Figure 2. Survey Area and Vantage Points

Survey Results/Discussion

Habitats of Wintering Bird Potential

A desk and ground level wintering bird habitat assessment was carried out and used to examine the structures, features and vegetation on site that could provide wintering bird habitat. Potential features associated with foraging/roosting include agricultural fields, improved/amenity grassland, scrub, watercourses and drainage ditches. All open areas, vegetated areas, built areas and water-holding features within and immediately adjacent to the site were assessed for wintering bird potential.

The site comprises a series of fields dominated by grassland pasture, which are managed primarily for cattle grazing and silage production. The fields are generally enclosed by hedgerows, with more extensive and structurally developed hedgerows present through the central portion of the site and along the eastern boundary. These hedgerows provide additional opportunities for shelter, cover and foraging for wintering bird species, particularly species associated with farmland and hedgerow habitats. The relatively enclosed nature of the site and the absence of extensive areas of open arable ground limit its potential to support large aggregations of wintering waterbirds or farmland birds typically associated with open agricultural landscapes.

A small pond is located within the field at the south-eastern corner of the site. This feature provides a localised source of standing water and may provide limited opportunities for foraging and drinking by wintering bird species, although its relatively small size limits its potential to support significant numbers of wintering waterbirds.

Overall, the site provides low to moderate potential for wintering birds, primarily through its grassland fields, hedgerow network and small areas of standing water. The habitats present are considered more likely to support individual or small numbers of common and widespread farmland and garden-associated species rather than significant concentrations of wintering birds.

Wintering Bird Activity Survey

A total of 38 species were recorded within, above and immediately adjacent to the survey area across 5 surveys. Twenty-six green, ten amber and two red bird species of conservation concern in Ireland (BoCCI) were recorded either within, over and immediately adjacent to the survey area. Details regarding the status, behaviour and abundances of species recorded on/over/adjacent to the site relevant to the conservation interests of Special Protection Areas (SPAs) and red listed BoCCI are discussed below.

Meadow pipit (red BoCCI) was observed foraging mainly in the southeast portion of the survey area (Figure 3). Peak count was 28 individuals.

Snipe (red BoCCI) were recorded on seven occasions across five wintering bird surveys. All records related to birds flushed from the grassland within the survey area. (Figure 4). The maximum number of individuals recorded on any single survey was one. The repeated presence of snipe indicates that the site is used periodically by the species during the winter period, although the low numbers recorded and the absence of observed feeding activity suggest that the site is not of particular importance for supporting larger numbers of wintering snipe.

Black-headed Gull (amber BoCCI) was recorded on three occasions. Majority of observations were made of large flights above the survey area (Figure 5). No foraging of this species within the survey area was recorded. Peak count was 8 individuals.

Common Gull (amber BoCCI) was recorded on three occasions across three surveys in flight above the survey area (Figure 6). No observations of this species foraging were recorded within the survey area. Peak count was 5 individuals.

Herring Gull (amber BoCCI) was recorded during three surveys, with six observations made in total. All records related to birds transiting across the survey area or circling overhead. No herring gulls were observed foraging within the survey area. The peak count was ten individuals (Figure 7), indicating that the site is used occasionally for passage by the species but does not appear to provide a significant foraging resource for herring gull.

Mallard (amber BoCCI) was observed on one occasion in the southern portion of the survey area within the grassland (Figure 4). Peak count was one individual.

Starling (amber BoCCI) was recorded foraging in the site boundary on two occasions and on one occasion in the wider survey area. Peak count was 30 individuals. These observations indicate that the site and surrounding area provide some foraging opportunities for starling during the winter period.

Table 1. Species recorded within, above and/or immediately adjacent to the

Common Name	BTO	Latin Name	BoCCI
Blackbird	B.	<i>Turdus merula</i>	Green
Blackcap	BC	<i>Sylvia atricapilla</i>	Green
Black-headed gull	BH	<i>Chroicocephalus ridibundus</i>	Amber
Blue tit	BT	<i>Cyanistes caeruleus</i>	Green
Bullfinch	BF	<i>Pyrrhula pyrrhula</i>	Green
Buzzard	BZ	<i>Buteo buteo</i>	Green
Chaffinch	CH	<i>Fringilla coelebs</i>	Green
Chiffchaff	CC	<i>Phylloscopus collybita</i>	Green
Coal tit	CT	<i>Periparus ater</i>	Green
Common gull	CM	<i>Larus canus</i>	Amber
Dunnock	D.	<i>Prunella modularis</i>	Green
Feral pigeon	FP	<i>Columba livia f. domestica</i>	Green
Goldcrest	GC	<i>Regulus regulus</i>	Amber
Goldfinch	GO	<i>Carduelis carduelis</i>	Green
Great tit	GT	<i>Parus major</i>	Green
Greenfinch	GR	<i>Chloris chloris</i>	Amber
Herring gull	HG	<i>Larus argentatus</i>	Amber
Hooded crow	HC	<i>Corvus cornix</i>	Green
Jackdaw	JD	<i>Corvus monedula</i>	Green
Long-tailed tit	LT	<i>Aegithalos caudatus</i>	Green
Magpie	MG	<i>Pica pica</i>	Green
Mallard	MA	<i>Anas platyrhynchos</i>	Amber
Meadow pipit	MP	<i>Anthus pratensis</i>	Red
Mistle thrush	M.	<i>Turdus viscivorus</i>	Green
Moorhen	MH	<i>Gallinula chloropus</i>	Green
Mute swan	MS	<i>Cygnus olor</i>	Amber
Pheasant	PH	<i>Phasianus colchicus</i>	Green
Pied wagtail	PW	<i>Motacilla alba yarrellii</i>	Green
Reed bunting	RB	<i>Emberiza schoeniclus</i>	Green
Robin	R.	<i>Erithacus rubecula</i>	Green
Rook	RO	<i>Corvus frugilegus</i>	Green
Snipe	SN	<i>Gallinago gallinago</i>	Red
Song thrush	ST	<i>Turdus philomelos</i>	Green
Starling	SG	<i>Sturnus vulgaris</i>	Amber
Stonechat	SC	<i>Saxicola rubicola</i>	Amber
Whooper swan	WS	<i>Cygnus cygnus</i>	Amber
Woodpigeon	WP	<i>Columba palumbus</i>	Green
Wren	WR	<i>Troglodytes troglodytes</i>	Green

Table 2. Peak counts of bird species recorded within, above and/or immediately adjacent to the

Species	Peak count (2024/2025)	1% national	1% international
Blackbird	33		
Blackcap	5		
Black-headed gull	8		>10,000
Blue tit	9		
Bullfinch	5		
Buzzard	2		
Chaffinch	6		
Chiffchaff	3		
Coal tit	2		
Common gull	5		>10,000
Dunnock	17		
Feral pigeon	15		
Goldcrest	5		
Goldfinch	94		
Great tit	21		
Greenfinch	1		
Herring gull	10		>100,000
Hooded crow	48		
Jackdaw	73		
Long-tailed tit	24		
Magpie	28		
Mallard	1	280	53,000
Meadow pipit	28		
Mistle thrush	1		
Moorhen	3		
Mute swan	1		100
Pheasant	1		
Pied wagtail	4		
Reed bunting	2		
Robin	14		
Rook	42		
Snipe	1		>10,000
Song thrush	7		
Starling	30		
Stonechat	1		
Whooper swan	2		
Woodpigeon	111		
Wren	23		



Figure 3. Observations of Meadow Pipit on Site



Project: Tinahask Upper.
 Location: Arklow, Co. Wicklow
 Date: 1st October 2026.
 Drawn By: Emma Peters (Altamar).

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Figure 4. Observations of Snipe, Mallard, and Greenfinch on Site



Figure 5. Black-headed Gull Flightlines (m)

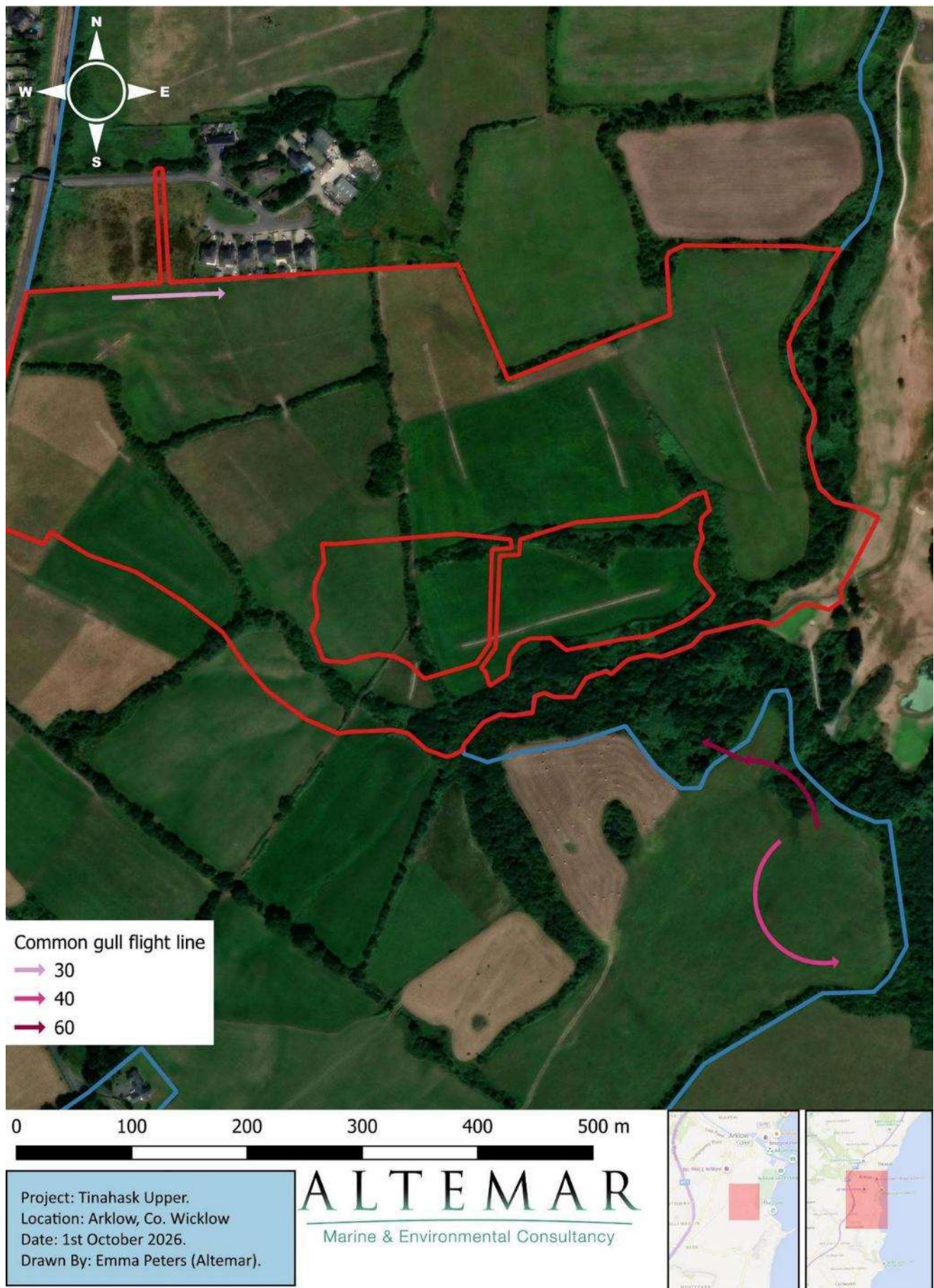


Figure 6. Common Gull Flightlines (m)

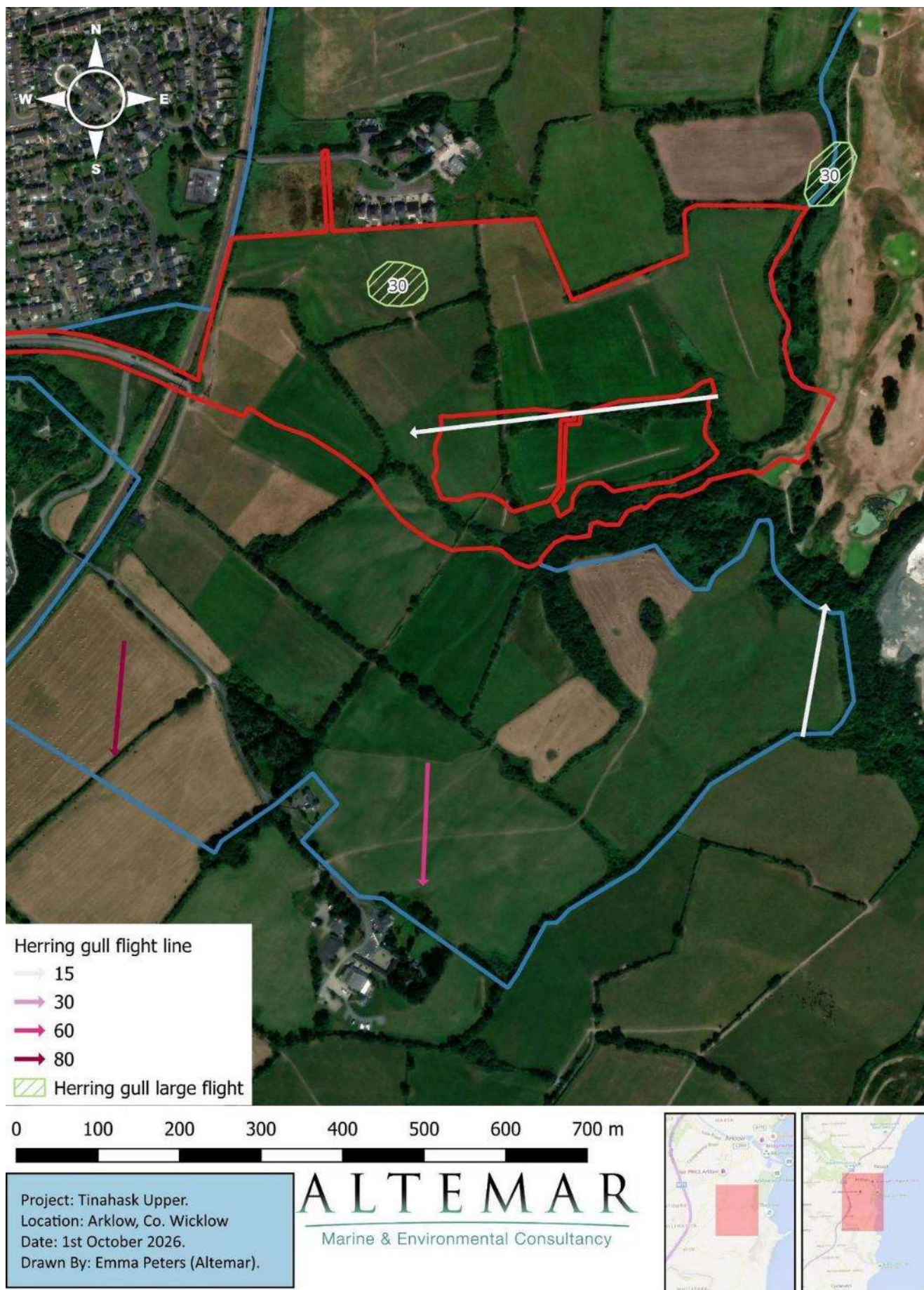


Figure 7. Herring Gull Flightlines (m)



Figure 8. Buzzard Flightline (m)



Project: Tinahask Upper.
 Location: Arklow, Co. Wicklow
 Date: 1st October 2026.
 Drawn By: Emma Peters (Altamar).

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Figure 9. Starling Foraging Areas

Wintering Bird Assessment Findings

Review of local bird records

The review of existing bird records (sourced from NBDC Database) within a 2 km² grid (Reference grids T27K) encompassing the study area reveals that 53 known bird species have previously been observed and recorded locally (*Table 3*).

Table 3: NBDC bird records within 2 km² (grids T27K)

Species name	Date of last record	Title of dataset	Designation
Blackbird (<i>Turdus merula</i>)	27/05/2024	Birds of Ireland	
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	07/10/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Blue Tit (<i>Cyanistes caeruleus</i>)	23/07/2017	Birds of Ireland	
Bullfinch (<i>Pyrrhula pyrrhula</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Buzzard (<i>Buteo buteo</i>)	23/04/2023	Birds of Ireland	
Chaffinch (<i>Fringilla coelebs</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Chiffchaff (<i>Phylloscopus collybita</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Coal Tit (<i>Periparus ater</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Collared Dove (<i>Streptopelia decaocto</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Common Gull (<i>Larus canus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Cormorant (<i>Phalacrocorax carbo</i>)	07/10/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Curlew (<i>Numenius arquata</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Dunnock (<i>Prunella modularis</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Fulmar (<i>Fulmarus glacialis</i>)	25/05/2019	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Gannet (<i>Morus bassanus</i>)	06/06/2017	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Goldcrest (<i>Regulus regulus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Species name	Date of last record	Title of dataset	Designation
Goldfinch (<i>Carduelis carduelis</i>)	07/10/2020	Birds of Ireland	
Great Black-backed Gull (<i>Larus marinus</i>)	27/05/2024	Birds of Ireland	
Great Tit (<i>Parus major</i>)	27/05/2024	Birds of Ireland	
Greenfinch (<i>Chloris chloris</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Grey Wagtail (<i>Motacilla cinerea</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Herring Gull (<i>Larus argentatus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Hooded Crow (<i>Corvus cornix</i>)	27/05/2024	Birds of Ireland	
House Martin (<i>Delichon urbicum</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow (<i>Passer domesticus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Jackdaw (<i>Coloeus monedula</i>)	27/05/2024	Birds of Ireland	
Linnet (<i>Linaria cannabina</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Magpie (<i>Pica pica</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Meadow Pipit (<i>Anthus pratensis</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Mistle Thrush (<i>Turdus viscivorus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts
Oystercatcher (<i>Haematopus ostralegus</i>)	07/10/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Peregrine (<i>Falco peregrinus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
Pheasant (<i>Phasianus colchicus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Pied Wagtail (<i>Motacilla alba</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Raven (<i>Corvus corax</i>)	27/05/2024	Birds of Ireland	

Species name	Date of last record	Title of dataset	Designation
Red-throated Diver (<i>Gavia stellata</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Redwing (<i>Turdus iliacus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Reed Bunting (<i>Emberiza schoeniclus</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Ringed Plover (<i>Charadrius hiaticula</i>)	25/05/2019	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Robin (<i>Erithacus rubecula</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts
Rock Pipit (<i>Anthus petrosus</i>)	27/05/2024	Birds of Ireland	
Rook (<i>Corvus frugilegus</i>)	27/05/2024	Birds of Ireland	
Sand Martin (<i>Riparia riparia</i>)	12/09/2018	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Skylark (<i>Alauda arvensis</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Song Thrush (<i>Turdus philomelos</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Starling (<i>Sturnus vulgaris</i>)	31/12/2011	Bird Atlas 2007 - 2011	Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Stonechat (<i>Saxicola rubicola</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts
Swallow (<i>Hirundo rustica</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Swift (<i>Apus apus</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Willow Warbler (<i>Phylloscopus trochilus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Woodpigeon (<i>Columba palumbus</i>)	27/05/2024	Birds of Ireland	

Species name	Date of last record	Title of dataset	Designation
Wren (<i>Troglodytes troglodytes</i>)	31/12/2011	Bird Atlas 2007 - 2011	

I-WeBS

I-WeBS National and Site Trends Report 1994/95 – 2019/20 report presents national and site-specific trends of wetland birds in Ireland. The nearest I-Webs sites are Avoca River/Arklow (OT399) and Arklow Ponds (OT002) (c. 1.2km). The proposed development site is not considered to be of relevance to any i-webs site. The national trends report is shown in Figure 10.

National Summary

Species	Trend (%)			Long Term Trend
	National - 5 Year	National - 12 Year	National - 25 Year	
Scaup	-33.6	-82.9	-89.2	Large Decline
Pochard	-19.8	-60.4	-79.1	Large Decline
Goldeneye	-32.5	-39.0	-66.9	Large Decline
Lapwing	-6.5	-45.1	-63.9	Large Decline
Gray Plover	-30.6	-39.4	-57.8	Large Decline
Golden Plover	-16.9	-58.1	-54.1	Large Decline
Dunlin	5.9	-21.2	-45.2	Moderate Decline
Curling	-9.4	-23.7	-43.1	Moderate Decline
Turnstone	-33.6	-46.0	-23.7	Intermediate Decline
Coot	-10.1	1.1	-23.2	Intermediate Decline
Mallard	-11.3	-19.7	-19.1	Intermediate Decline
Wigeon	0.9	-17.0	-16.2	Intermediate Decline
Tufted Duck	-20.7	-28.9	-17.9	Intermediate Decline
Red-breasted Merganser	-12.9	5.2	-14.7	Intermediate Decline
Pintail	-0.8	-6.9	-13.7	Intermediate Decline
Great Crested Grebe	-39.5	-6.1	-10.8	Intermediate Decline
Shoveler	23.0	-21.3	-10.8	Intermediate Decline
Knot	0.0	-12.2	-9.8	Intermediate Decline
Bar-tailed Godwit	-32.6	-13.9	-5.1	Intermediate Decline
Ringed Plover	-4.3	-26.8	-1.1	Intermediate Decline
Gray Heron	1.0	-4.9	6.6	Stable or Increasing
Redshank	-14.0	-28.4	6.7	Stable or Increasing
Shelduck	6.3	-0.8	9.3	Stable or Increasing
Oystercatcher	-17.5	-31.1	10.8	Stable or Increasing
Mute Swan	4.6	9.6	13.8	Stable or Increasing
Teal	1.8	5.7	19.4	Stable or Increasing
Purple Sandpiper	-36.4	-37.6	23.5	Stable or Increasing
Godwit	-26.5	4.3	24.4	Stable or Increasing
Little Grebe	6.1	16.7	36.2	Stable or Increasing
Greenshank	0.9	7.3	41.0	Stable or Increasing
Cormorant	38.5	8.4	42.9	Stable or Increasing
Sanderling	-23.8	-11.1	64.6	Stable or Increasing
Black-tailed Godwit	22.5	25.0	92.3	Stable or Increasing
Light-bellied Brant Goose	-11.2	1.2	93.3	Stable or Increasing
Little Egret	34.6	61.5	483.3	Stable or Increasing

Figure 10. I-WeBS National Trends Report.

Mitigation

The proposed site is of low importance to the local wintering bird population. There is the potential for negative impacts by loss of foraging habitat and during construction phase through collision risks to species transiting to and from foraging and roosting areas. Out of an abundance of caution, the following mitigation measures relevant to birds should be implemented to minimise any potential negative impact on biodiversity:

- Retention of hedgerows and treelines: Hedgerows and treelines will be retained where possible. Where removal cannot be avoided, compensatory native hedgerow and tree planting will be provided within the landscape plan to maintain shelter, cover and foraging opportunities.
- Foraging habitat within the landscape plan: Some grassland foraging habitat used by red and amber-listed species will be lost. To offset this, meadow and open-space planting within the development will include native seed-bearing and invertebrate-supporting species. The project ecologist will review and approve all seed mixes to make sure they provide suitable foraging for these species.

Conclusion

This report aims to build on the baseline data and provide information to assist in assessing the potential impact of proposed developments at Tinahask on wintering birds within/over/adjacent to the development area. This report presents the methodology and results of 5 visits to this location by Altamar Ltd. from November 2024 to March 2025.

A total of 38 species were recorded within, above and immediately adjacent to the survey area across 5 surveys. Twenty-six green, ten amber and two red bird species of conservation concern in Ireland (BoCCI) were recorded either within, over and immediately adjacent to the survey area. Foraging was recorded on only a few occasions and in small numbers. No species was recorded in numbers approaching the 1% national or international thresholds.

The site is dominated by cattle-grazed and silage grassland enclosed by hedgerows, and is considered to be of low importance for wintering birds. The proposed development will result in the loss of some foraging habitat used by red- and amber-listed species. However, this loss is not considered significant, given the small numbers of birds recorded, the extent of similar grassland habitat in the surrounding rural landscape, and the proposed landscape plan, which will continue to provide foraging opportunities within the site. Any displacement is expected to occur at site level rather than local level.

Out of an abundance of caution, mitigation measures are recommended. These include retaining hedgerows and treelines where possible, providing compensatory planting where they are lost, and using seed mixes that support foraging by red- and amber-listed species. With these measures fully implemented, no significant impacts on wintering birds are predicted, including on the Qualifying Interests of nearby Special Protection Areas.

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2025/2026 Wintering Bird Assessment at Tinahask Upper, Money Big,
Money Little, Arklow, Co. Wicklow



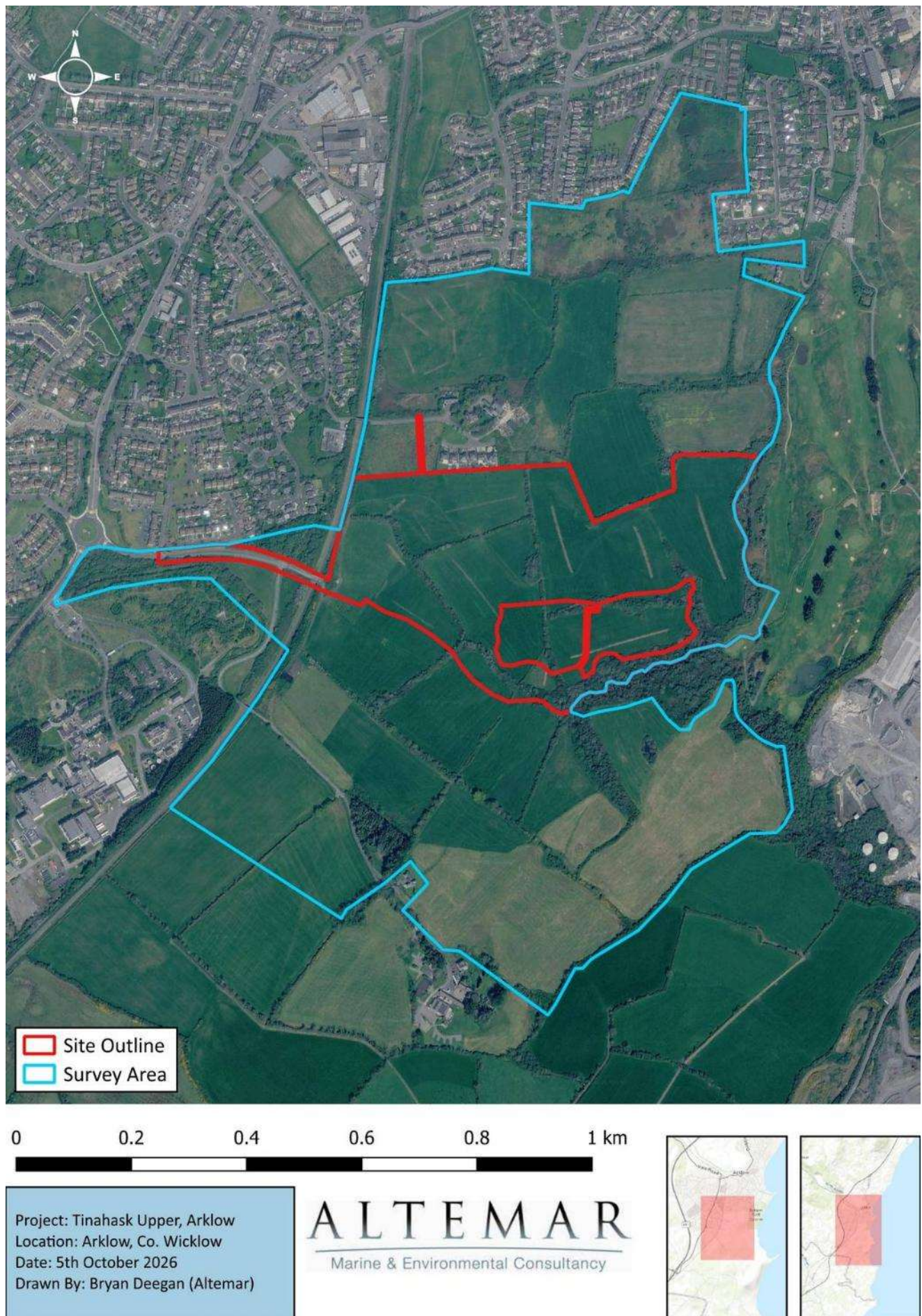
6th October 2026

Prepared by: Gayle O'Farrell of Altemar Ltd.
On behalf of: Castlethorn Construction

Document Control Sheet			
Client	Castlethorn Construction		
Project	2025/2026 Wintering Bird Assessment at Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow.		
Report	Wintering Bird Assessment		
Date	6 th October 2026		
Version	Author	Reviewed	Date
Final	Gayle O'Farrell	Bryan Deegan	6 th October 2026

Summary

Structure/features:	The site is predominantly agricultural fields and boundary hedgerows. There are no pre-existing structures within the proposed site.
Location:	Tinahask Upper, Money Big, Money Little, Arklow, Co. Wicklow
Bird species present:	Bullfinch, Buzzard, Blackbird, Black-headed Gull, Blue tit, Chaffinch, Coal tit, Cormorant, Dunnock, Goldfinch, Great Tit, Greenfinch, Heron, Herring Gull, Hooded Crow, House Sparrow, Jackdaw, Linnet, Long-tailed tit, Magpie, Meadow Pipit, Mistle thrush, Pheasant, Pied Wagtail, Redpoll, Robin, Rook, Snipe, Siskin, Skylark, Song Thrush, Starling, Woodpigeon, Wren.
Proposed work:	Large-scale Residential Development
Surveys by:	Emma Peters & Luke Dodebier of Altemar Ltd.
Survey dates:	24th October 2025, 30th October 2025, 13 th November 2025, 25 th November 2025, 2 nd December 2025, 12 th December 2025, 9 th January 2026, 11 th February 2026.



Competency of assessor

Since its inception in 2001, Altamar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altamar, is an Environmental Scientist and Marine Biologist with 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently lead project ecologist for Project Pembroke and was contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds an MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and an NCEA National Certificate in Science (Aquaculture).

Legislative context

The Wildlife Act 1976 protects wild birds in Ireland. Based on this legislation it is an offence to wilfully interfere with or destroy wild birds and their nests and eggs (other than the wild species mentioned in the Third Schedule of this Act). Under this legislation it is an offence for any person who *"wilfully takes or removes the eggs or nest of a protected wild bird otherwise than under and in accordance with such a licence, wilfully destroys, injures or mutilates the eggs or nest of a protected wild bird, wilfully disturbs a protected wild bird on or near a nest containing eggs or unflown young."*

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Council Directive 2009/147/EC 2010 on the conservation of wild birds provides for the conservation of wild birds by, among other things, classifying important ornithological sites as Special Protection Areas. The Directive relates to the conservation of all species of naturally occurring birds in the wild state, their eggs, nests and habitats in the European territory of the Member States. The Directive prohibits in particular:

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs even if empty;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of this Directive;
- keeping birds of species the hunting and capture of which is prohibited.

Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), notwithstanding any consent, statutory or otherwise, given to a person by a public authority or held by a person, except in accordance with a licence granted by the Minister under Regulation 54, a person who in respect of the species referred to in Part 1 of the First Schedule:

- deliberately captures or kills any specimen of these species in the wild,
- deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,
- deliberately takes or destroys eggs of those species from the wild,
- damages or destroys a breeding site or resting place of such an animal, or
- keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive, shall be guilty of an offence.

Wintering bird surveys

This report presents the methodology and results of 8 visits to Tinahask Upper by Emma Peters and Luke Dodebier between October 2025 and February 2026.

Survey methodology

Wintering bird surveys were carried out during the wintering bird season at Tinahask Upper in order to gather baseline data to assist in assessing the potential impacts on wintering birds from future proposed developments on the site, in particular those listed as Qualifying Interests of SPAs within 15 km and other amber/red-listed birds of conservation concern in Ireland (BoCCI). Potential impacts on wintering bird species include disturbance, destruction of foraging areas, destruction of roosting areas and collision risk during construction and operation (cranes, buildings etc.). These wintering bird surveys were carried out based on the BTO Common Bird Census (Bibby *et al.*, 2000 and Gilbert *et al.*, 1998) and I-WeBS Counter Manual: Guidelines for Irish Wetland Bird Survey counters (BWI & NPWS), following CIEEM guidelines.

A 15-minute settlement period was given following arrival to allow resumption of bird activity after any possible disturbance caused by arrival to the site. A roving transect survey around the perimeter was carried out on each occasion, providing clear views of all areas within and over that survey area. Flight lines, large flights, foraging, perching, bathing and any other observed behaviour by wintering bird species and other species observed within, over and immediately adjacent to the survey area were recorded. Each survey was carried out by a single surveyor. A pair of binoculars was used by the surveyor to identify and count birds at distance.

Care was taken not to double count any observations. Surveys were initiated at varying times (morning/midday/afternoon) to account for fluxes in bird activity and birds transiting to/from foraging and roosting areas. Local temperatures varied from 0 – 10°C. Winds varied from 2– 5 on the Beaufort scale. Weather conditions were favourable on all occasions.

Peak counts for the survey area were compared to 1% national and international population sizes of relevant species for which data was available. Foraging areas, flight paths, large flights and other observations were mapped according to field sheet records.

Survey results/discussion

Habitats of wintering bird potential

A desk and ground level wintering bird habitat assessment was carried out and used to examine the structures, features and vegetation on site that could provide wintering bird habitat. Potential features associated with foraging/roosting include agricultural fields, improved/amenity grassland, scrub, watercourses and drainage ditches. All open areas, vegetated areas, built areas and water-holding features within and immediately adjacent to the site were assessed for wintering bird potential.

The site comprises a series of fields dominated by grassland pasture, which are managed primarily for cattle grazing and silage production. The fields are generally enclosed by hedgerows, with more extensive and structurally developed hedgerows present through the central portion of the site and along the eastern boundary. These hedgerows provide additional opportunities for shelter, cover and foraging for wintering bird species, particularly species associated with farmland and hedgerow habitats. The relatively enclosed nature of the site and the absence of extensive areas of open arable ground limit its potential to support large aggregations of wintering waterbirds or farmland birds typically associated with open agricultural landscapes.

A small pond is located within the field at the south-eastern corner of the site. This feature provides a localised source of standing water and may provide limited opportunities for foraging and drinking by wintering bird species, although its relatively small size limits its potential to support significant numbers of wintering waterbirds.

Overall, the site provides low to moderate potential for wintering birds, primarily through its grassland fields, hedgerow network and small areas of standing water. The habitats present are considered more likely to support individual or small numbers of common and widespread farmland and garden-associated species rather than significant concentrations of wintering birds.



Figure 2. Survey area and vantage points (Blue

Wintering bird activity survey

A total of 34 species were recorded within, above and immediately adjacent to the survey area across 8 surveys. Twenty-four green, eight amber and two red bird species of conservation concern in Ireland (BoCCI) were recorded either within, over and immediately adjacent to the survey area. Details regarding the status, behaviour and abundances of species recorded on/over/adjacent to the site relevant to the conservation interests of Special Protection Areas (SPAs) and red listed BoCCI are discussed below.

Meadow pipit (red BoCCI) was observed during three surveys, perched on all occasions. This species was concentrated in the southern portion of the survey area, outside the site boundary. Peak count was 2 individuals.

Black-headed Gull (amber BoCCI) – was observed on two occasions during surveys. One flight path was recorded over the site. Black-headed gulls were noted foraging on site on one occasion, 3 within the central portion of the site. Peak count of this species was 3.

Herring Gull (amber BoCCI) – was observed across all 8 surveys. 17 observations were made of herring gull with most of the observations of them flying over the survey area. They were recorded foraging on two occasions in the central portion of the site. Peak count was 13 individuals.

Cormorant (amber BoCCI) - Cormorant was recorded on two occasions during the wintering bird surveys, with both records relating to a single individual transiting over the central portion of the site. The peak count was one individual. No cormorants were observed foraging, roosting or otherwise utilising habitats within the site.

Snipe (red BoCCI) – Snipe were recorded on eight occasions across six wintering bird surveys. All records related to birds flushed from the grassland within the survey area. The maximum number of individuals recorded on any single survey was two. The repeated presence of snipe indicates that the site is used periodically by the species during the winter period, although the low numbers recorded and the absence of observed feeding activity suggest that the site is not of particular importance for supporting larger numbers of wintering snipe.

Table 1. Species recorded within, above and/or immediately adjacent to the

Common name	BTO	Latin name	BoCCI
Buzzard	BZ	<i>Buteo buteo</i>	Green
Blackbird	B.	<i>Turdus merula</i>	Green
Black-headed Gull	BH.	<i>Chroicocephalus ridibundus</i>	Amber
Blue tit	BT	<i>Cyanistes caeruleus</i>	Green
Bullfinch	BF	<i>Pyrrhula pyrrhula</i>	Green
Chaffinch	CH	<i>Fringilla coelebs</i>	Green
Coal tit	CT	<i>Periparus ater</i>	Green
Cormorant	CA	<i>Phalacrocorax carbo</i>	Amber
Dunnoek	D.	<i>Prunella modularis</i>	Green
Goldfinch	GO	<i>Carduelis carduelis</i>	Green
Great Tit	GT	<i>Parus major</i>	Green
Greenfinch	GR	<i>Chloris chloris</i>	Amber
Heron	H.	<i>Ardea cinerea</i>	Green
Herring Gull	HG	<i>Larus argentatus</i>	Amber
Hooded Crow	HC	<i>Corvus cornix</i>	Green
House Sparrow	HS	<i>Passer domesticus</i>	Amber
Jackdaw	JD	<i>Corvus monedula</i>	Green
Linnet	LI	<i>Linaria cannabina</i>	Amber
Long-tailed tit	LT	<i>Aegithalos caudatus</i>	Green

Magpie	MG	<i>Pica pica</i>	Green
Meadow Pipit	MP	<i>Anthus pratensis</i>	Red
Mistle thrush	M.	<i>Turdus viscivorus</i>	Green
Pheasant	PH	<i>Phasianus colchicus</i>	Green
Pied Wagtail	PW	<i>Motacilla alba yarrellii</i>	Green
Redpoll (Lesser)	LR	<i>Acanthis cabaret</i>	Green
Robin	R.	<i>Erithacus rubecula</i>	Green
Rook	RO	<i>Corvus frugilegus</i>	Green
Siskin	SK	<i>Spinus spinus</i>	Green
Skylark	S.	<i>Alauda arvensis</i>	Amber
Snipe	SN	<i>Gallinago gallinago</i>	Red
Song Thrush	ST	<i>Turdus philomelos</i>	Green
Starling	SG	<i>Sturnus vulgaris</i>	Amber
Woodpigeon	WP	<i>Columba palumbus</i>	Green
Wren	WR	<i>Troglodytes troglodytes</i>	Green

Table 2. Peak counts of bird species recorded within, above and/or immediately adjacent to the

Species	Peak count (2025/2026)	1% national	1% international
Buzzard	1		
Blackbird	8		
Black-headed Gull	3		>10,000
Blue tit	6		
Bullfinch	1		
Chaffinch	7		
Coal tit	2		
Cormorant	1	110	>1,200
Dunnoek	9		
Goldfinch	32		
Great Tit	4		
Greenfinch	3		
Grey Heron	1	25	5,000
Herring Gull	13		>100,000
Hooded Crow	17		
House Sparrow	4		
Jackdaw	24		
Linnet	56		
Long-tailed tit	6		
Magpie	16		
Meadow Pipit	2		
Mistle thrush	1		
Pheasant	2		
Pied Wagtail	2		
Redpoll (Lesser)	1		
Robin	12		
Rook	14		
Siskin	3		

Skylark	17		
Snipe	2		>10,000
Song Thrush	4		
Starling	62		
Woodpigeon	36		
Wren	16		

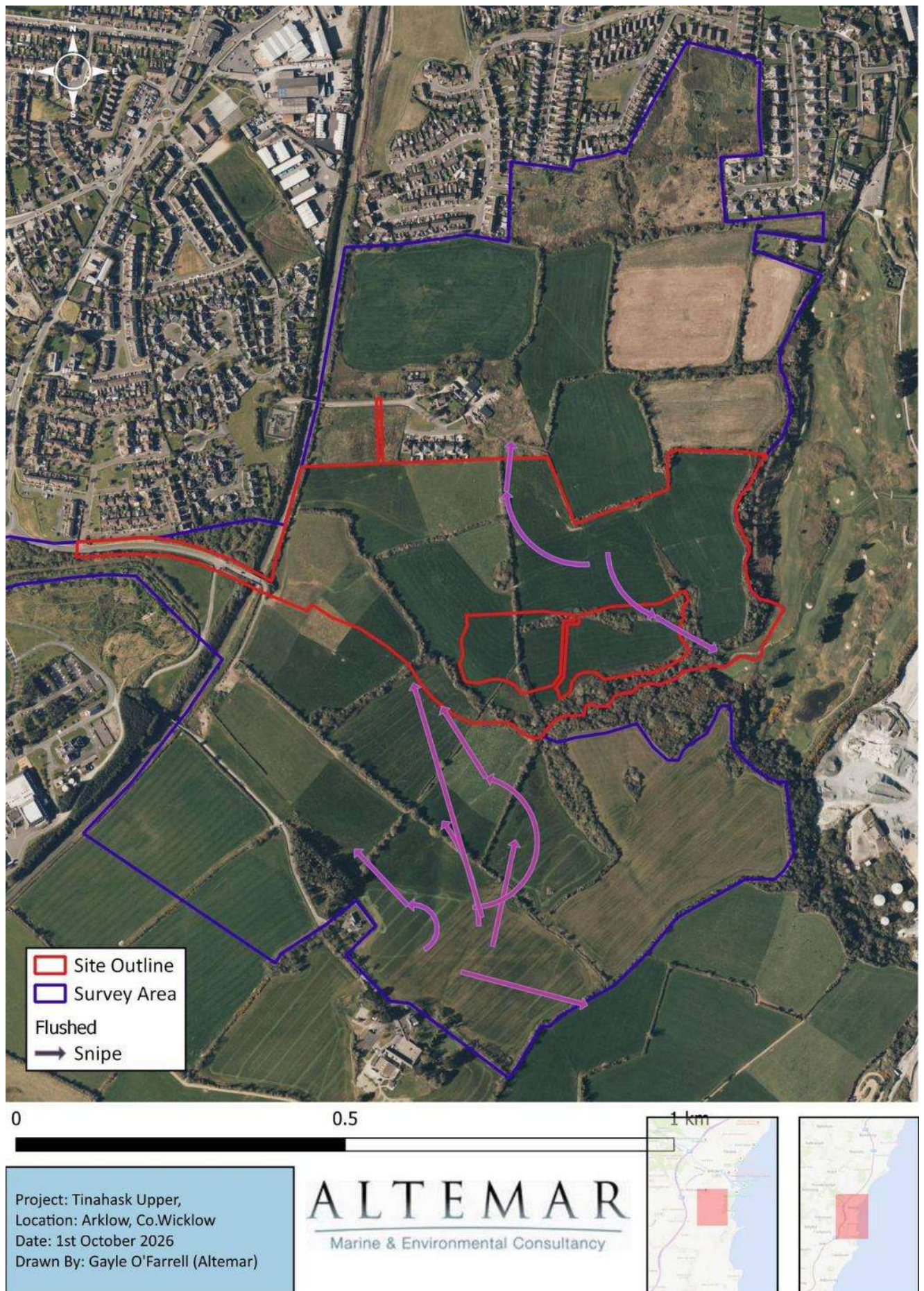


Figure 3. Map demonstrating observations of snipe on site.



Figure 4. Map demonstrating observations of cormorant on site.



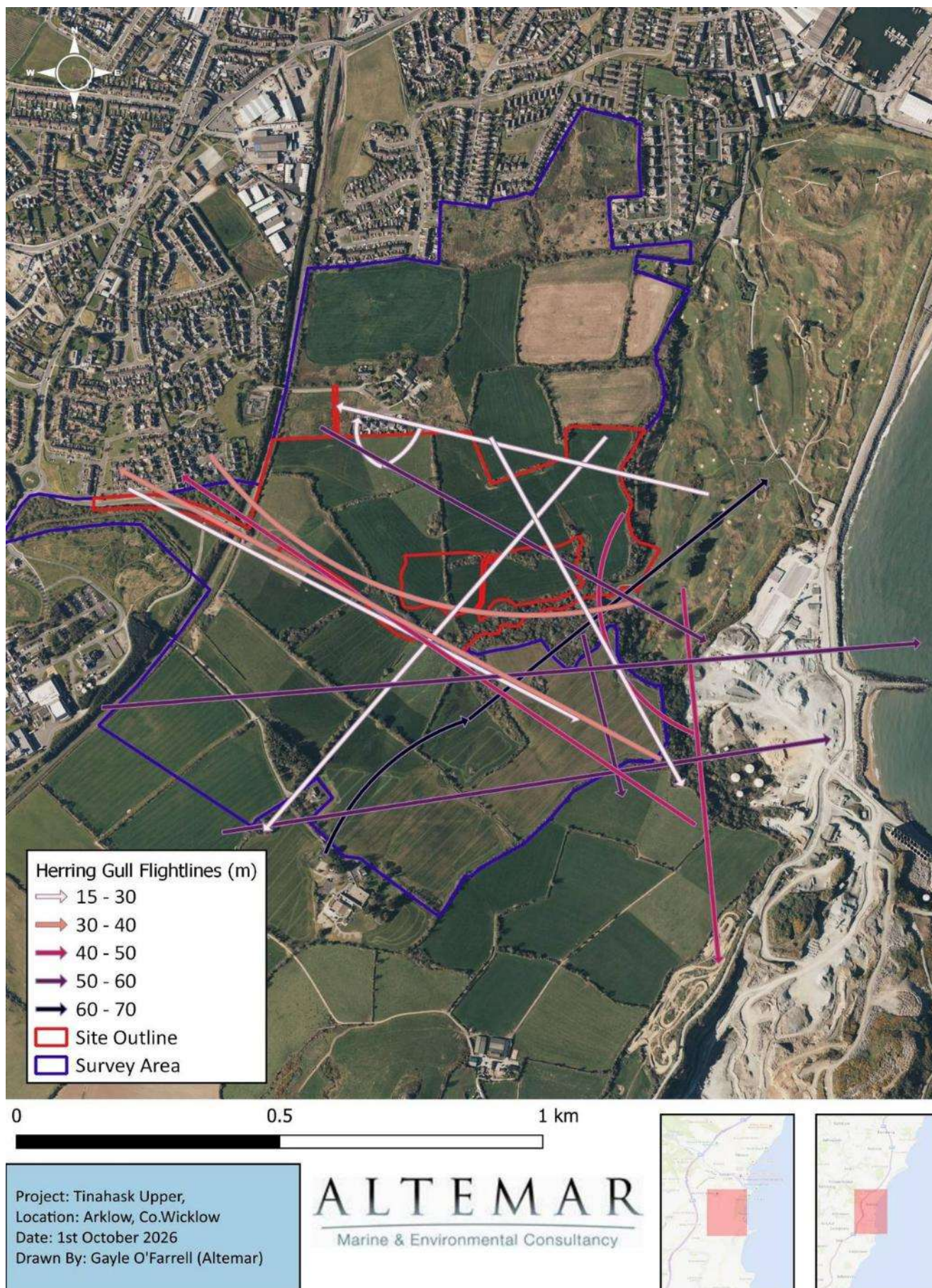


Figure 6. Map demonstrating Herring Gull (HG) flightlines on site.



Figure 7. Map demonstrating Meadow Pipit perched on site.

Wintering bird assessment findings

Review of local bird records

The review of existing bird records (sourced from NBDC Database) within a 2 km² grid (Reference grids T27K) encompassing the study area reveals that 53 known bird species have previously been observed and recorded locally (*Table 3*).

Table 3: NBDC bird records within 2 km² (grids T27K)

Species name	Date of last record	Title of dataset	Designation
Blackbird (<i>Turdus merula</i>)	27/05/2024	Birds of Ireland	
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	07/10/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Blue Tit (<i>Cyanistes caeruleus</i>)	23/07/2017	Birds of Ireland	
Bullfinch (<i>Pyrrhula pyrrhula</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Buzzard (<i>Buteo buteo</i>)	23/04/2023	Birds of Ireland	
Chaffinch (<i>Fringilla coelebs</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Chiffchaff (<i>Phylloscopus collybita</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Coal Tit (<i>Periparus ater</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Collared Dove (<i>Streptopelia decaocto</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Common Gull (<i>Larus canus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Cormorant (<i>Phalacrocorax carbo</i>)	07/10/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Curlew (<i>Numenius arquata</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Dunnock (<i>Prunella modularis</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Fulmar (<i>Fulmarus glacialis</i>)	25/05/2019	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Gannet (<i>Morus bassanus</i>)	06/06/2017	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Species name	Date of last record	Title of dataset	Designation
Goldcrest (Regulus regulus)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Goldfinch (Carduelis carduelis)	07/10/2020	Birds of Ireland	
Great Black-backed Gull (Larus marinus)	27/05/2024	Birds of Ireland	
Great Tit (Parus major)	27/05/2024	Birds of Ireland	
Greenfinch (Chloris chloris)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Grey Wagtail (Motacilla cinerea)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Herring Gull (Larus argentatus)	31/12/2011	Bird Atlas 2007 - 2011	Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Hooded Crow (Corvus cornix)	27/05/2024	Birds of Ireland	
House Martin (Delichon urbicum)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow (Passer domesticus)	31/12/2011	Bird Atlas 2007 - 2011	Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Jackdaw (Coloeus monedula)	27/05/2024	Birds of Ireland	
Linnet (Linaria cannabina)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Magpie (Pica pica)	31/12/2011	Bird Atlas 2007 - 2011	
Meadow Pipit (Anthus pratensis)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Mistle Thrush (Turdus viscivorus)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts
Oystercatcher (Haematopus ostralegus)	07/10/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Peregrine (Falco peregrinus)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species

Species name	Date of last record	Title of dataset	Designation
Pheasant (<i>Phasianus colchicus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Pied Wagtail (<i>Motacilla alba</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Raven (<i>Corvus corax</i>)	27/05/2024	Birds of Ireland	
Red-throated Diver (<i>Gavia stellata</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Redwing (<i>Turdus iliacus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Reed Bunting (<i>Emberiza schoeniclus</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Ringed Plover (<i>Charadrius hiaticula</i>)	25/05/2019	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Robin (<i>Erithacus rubecula</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts
Rock Pipit (<i>Anthus petrosus</i>)	27/05/2024	Birds of Ireland	
Rook (<i>Corvus frugilegus</i>)	27/05/2024	Birds of Ireland	
Sand Martin (<i>Riparia riparia</i>)	12/09/2018	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	
Skylark (<i>Alauda arvensis</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Song Thrush (<i>Turdus philomelos</i>)	31/12/2011	Bird Atlas 2007 - 2011	
Starling (<i>Sturnus vulgaris</i>)	31/12/2011	Bird Atlas 2007 - 2011	Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Stonechat (<i>Saxicola rubicola</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts

Species name	Date of last record	Title of dataset	Designation
Swallow (<i>Hirundo rustica</i>)	27/05/2024	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Swift (<i>Apus apus</i>)	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Willow Warbler (<i>Phylloscopus trochilus</i>)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Woodpigeon (<i>Columba palumbus</i>)	27/05/2024	Birds of Ireland	
Wren (<i>Troglodytes troglodytes</i>)	31/12/2011	Bird Atlas 2007 - 2011	

I-WeBS

I-WeBS National and Site Trends Report 1994/95 – 2019/20 report presents national and site-specific trends of wetland birds in Ireland. The nearest I-Webs sites are Avoca River/Arklow (OT399) and Arklow Ponds (OT002) (c. 1.2km). The proposed development site is not considered to be of relevance to any i-webs site. The national trends report is shown in Figure 8.

National Summary

Species	Trend (%)			Long Term Trend
	National - 5 Year	National - 12 Year	National - 25 Year	
Scaup	-33.6	-82.9	-89.2	Large Decline
Pochard	-19.8	-60.4	-79.1	Large Decline
Goldeneye	-32.5	-39.0	-66.9	Large Decline
Lapwing	-6.5	-45.1	-63.9	Large Decline
Gray Plover	-30.6	-39.4	-57.8	Large Decline
Golden Plover	-16.9	-58.1	-54.1	Large Decline
Dunlin	5.9	-21.2	-45.2	Moderate Decline
Curling	-9.4	-23.7	-43.1	Moderate Decline
Turnstone	-33.6	-46.0	-23.7	Intermediate Decline
Coot	-10.1	1.1	-23.2	Intermediate Decline
Mallard	-11.3	-19.7	-19.1	Intermediate Decline
Wigeon	0.9	-17.0	-16.2	Intermediate Decline
Tufted Duck	-20.7	-28.9	-17.9	Intermediate Decline
Red-breasted Merganser	-12.9	5.2	-14.7	Intermediate Decline
Pintail	-0.8	-6.9	-13.7	Intermediate Decline
Great Crested Grebe	-39.5	-6.1	-10.8	Intermediate Decline
Shoveler	23.0	-21.3	-10.8	Intermediate Decline
Knot	0.0	-12.2	-9.8	Intermediate Decline
Bar-tailed Godwit	-32.6	-13.9	-5.1	Intermediate Decline
Ringed Plover	-4.3	-26.8	-1.1	Intermediate Decline
Gray Heron	1.0	-4.9	6.6	Stable or Increasing
Redshank	-14.0	-28.4	6.7	Stable or Increasing
Shelduck	6.3	-0.8	9.3	Stable or Increasing
Oystercatcher	-17.5	-31.1	10.8	Stable or Increasing
Mute Swan	4.6	9.6	13.8	Stable or Increasing
Teal	1.8	5.7	19.4	Stable or Increasing
Purple Sandpiper	-36.4	-37.6	23.5	Stable or Increasing
Godwit	-26.5	4.3	24.4	Stable or Increasing
Little Grebe	6.1	16.7	36.2	Stable or Increasing
Greenshank	0.9	7.3	41.0	Stable or Increasing
Cormorant	38.5	8.4	42.9	Stable or Increasing
Sanderling	-23.8	-11.1	64.6	Stable or Increasing
Black-tailed Godwit	22.5	25.0	92.3	Stable or Increasing
Light-bellied Brant Goose	-11.2	1.2	93.3	Stable or Increasing
Little Egret	34.6	61.5	483.3	Stable or Increasing

Figure 8. I-WeBS National Trends Report.

Mitigation

The proposed site is of low importance to the local wintering bird population. There is the potential for negative impacts by loss of foraging habitat and during construction phase through collision risks to species transiting to and from foraging and roosting areas. Out of an abundance of caution, the following mitigation measures relevant to birds should be implemented to minimise any potential negative impact on biodiversity:

- Retention of hedgerows and treelines: Hedgerows and treelines will be retained where possible. Where removal cannot be avoided, compensatory native hedgerow and tree planting will be provided within the landscape plan to maintain shelter, cover and foraging opportunities.
- Foraging habitat within the landscape plan: Some grassland foraging habitat used by red and amber-listed species will be lost. To offset this, meadow and open-space planting within the development will include native seed-bearing and invertebrate-supporting species. The project ecologist will review and approve all seed mixes to make sure they provide suitable foraging for these species.

Conclusion

This report aims to build on the baseline data and provide information to assist in assessing the potential impact of proposed developments at Tinahask on wintering birds within/over/adjacent to the development area. This report presents the methodology and results of 8 visits to this location by Altemar Ltd. from October 2025 to February 2026.

A total of 34 species were recorded within, above and adjacent to the survey area across eight surveys. Twenty-four green, eight amber and two red species of conservation concern were recorded either within, over or immediately adjacent to the survey area boundary. Two red-listed species of conservation concern in Ireland, meadow pipit (*Anthus pratensis*) and snipe (*Gallinago gallinago*) were recorded within and adjacent to the site outline/survey area. Foraging was recorded on only a few occasions and in small numbers. No species was recorded in numbers approaching the 1% national or international thresholds.

The site is dominated by cattle-grazed and silage grassland enclosed by hedgerows, and is considered to be of low importance for wintering birds. The proposed development will result in the loss of some foraging habitat used by red- and amber-listed species. However, this loss is not considered significant, given the small numbers of birds recorded, the extent of similar grassland habitat in the surrounding rural landscape, and the proposed landscape plan, which will continue to provide foraging opportunities within the site. Any displacement is expected to occur at site level rather than local level.

Out of an abundance of caution, mitigation measures are recommended. These include retaining hedgerows and treelines where possible, providing compensatory planting where they are lost, and using seed mixes that support foraging by red- and amber-listed species. With these measures fully implemented, no significant impacts on wintering birds are predicted, including on the Qualifying Interests of nearby Special Protection Areas.

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