Ecological Impact Assessment

Large Scale Residential Development

Courtstown

Little Island

Cork

Report prepared for Ruden Homes Limited

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18th June 2024

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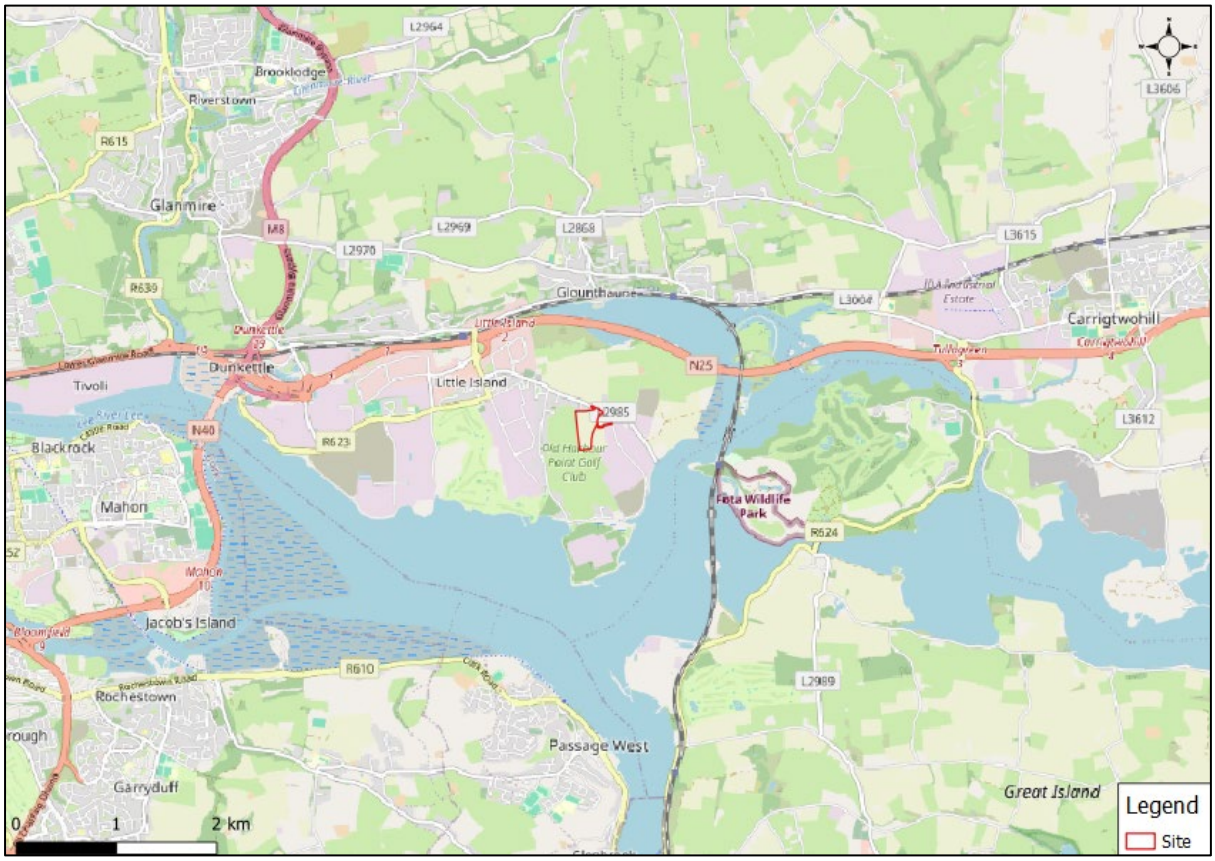
1 Introduction

Greenleaf Ecology was commissioned by Ruden Homes Limited to undertake an Ecological Impact Assessment (EcIA) of the proposed Large Scale Residential Development at Courtstown, Little Island, Cork. The location of the proposed site is illustrated in Figure 1-1.

Figure 1-1: Site Location Map



The purpose of this EcIA is to:

- Establish baseline ecological data for the Proposed Development site;
- Determine the ecological value of the identified ecological features;
- Identify, describe and assess the likely significant effects of the Proposed Development on biodiversity;
- Propose effective mitigation measures to avoid, prevent or reduce and, if possible, offset adverse effects on biodiversity; and
- Identify any residual effects predicted to arise after mitigation

1.1 Statement of Competence

This ecological impact assessment was carried out by Karen Banks, MCIEEM. Karen is an ecologist with Greenleaf Ecology and has 18 years' experience in the field of ecological assessment. Karen has extensive experience in the production of Ecological Impact Assessments (EcIA) including those for transport infrastructure, small to large scale housing and mixed-use developments, flood alleviation schemes and wind farms. Karen is an experienced and licenced bat surveyor and has conducted bat survey and assessment for numerous projects, including bridge repair and replacement works, domestic dwelling repair and demolition works and large-scale energy and infrastructure projects.

1.2 Description of Proposed Project

Permission for the following Large Scale Residential Development (LRD) comprising:

- The construction of 172 no. residential units to include 146 no. dwelling houses (with 83 no. dwelling houses to include the option for constructing a ground floor extension to the rear); 6 no. duplex units; and 20 no. apartments.
- Provision of 1 no. creche and 4 no. commercial units.
- Upgrading of the existing vehicular access to the site and the creation of a signalised junction on Ballytrasna Part Road (L-2985-0), including footpaths, cycle lanes and pedestrian crossing points, to facilitate access into the site,
- The provision of a new distributor road, including footpaths and cycle lanes, connecting the proposed residential development with Ballytrasna Park Road.
- All associated infrastructure and ancillary development works to include the provision of roads, footpaths and cycle lanes as well as the provision of vehicular connections to adjoining lands with pedestrian/cycle facilities; Proposed diversion and undergrounding of the existing 10KV overhead electricity line and associated poles traversing the site; landscaping & amenity areas, lighting, drainage and services connections; bicycle and car parking; bin storage; and boundary treatments including fencing and landscape buffer of mixed native hedge planting along the eastern boundary of the site.

1.2.1 Surface Water

SuDS features to be adopted include:

- Permeable Paving: Where carparking spaces are provided, these will be constructed in the form of permeable paving, with an overflow provided to the public surface water sewer.
- Swales: Where practical, the landscape will be provided with swales, as indicated on the drainage drawing enclosed within the Civil Engineering Report (MMOS, 2024). Surface water gullies on the estate roads will be directed to these swales to allow for infiltration and cleaning of surface water. An overflow pipe back to the main surface water runs will be provided to prevent against flooding in scenarios where the swales are overwhelmed during periods of excessive rainfall.

The proposed development will consist of a new dedicated surface water drainage system to collect generated runoff from roof and hardstanding areas, water runoff will discharge by gravity to the SUDS features adopted above and the below ground gravity surface water sewers. Runoff for both areas will combine into the local drainage and the surface water will flow into two online storm water attenuation tanks.

The proposed attenuation tanks provided on site are sized to accept 1 in 100 year rainfall event (with additional capacity for 20% increase for climate change). Discharge is limited to the expected flow rate from a greenfield area. The site will contain 2 No. attenuation tanks which have all been designed based on the percentage area drained as a proportion of the entire site.

The restricted outfall from the attenuation tank will then flow by gravity into the existing surface water network located on the Harbour Point Business Park Road.

1.2.2 Foul Water

The proposed foul sewer system will consist of a new 150/225 mm diameter UPVC Pipe located within the site that will collect foul drainage from the units and will outfall to the existing foul sewer network located on Harbour Point Business Park Road.

Feasibility of connection has been confirmed with Irish Water. As stated within the Civil Engineering Report (MMOS, 2024), the current PE load collected by Carrigrennan WWTP is 274780 PE. The PE load from this proposed development has been calculated by MMOS using the flow in l/sec which equates to a load of 612 PE. Hence the proposed development will cause a minor increase of 0.2% on the loading of the Carrigrennan WWTP.

2 Methodology

2.1 Relevant Planning Policy and Legislation

This report has been prepared with regards to the following legislation, policy documents and guidelines as relevant:

- CIEEM (2017) Guidelines for Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester;
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester;
- DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government;
- European Communities (2018) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- European Commission Notice Brussels C(2021) 6913 final 'Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (EC, 2021);
- EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. European Commission;
- EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission;
- EPA (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports. Environmental Protection Agency;
- EPA (2003), Advice Notes on current practice in the preparation of Environmental Impact Statements. Environmental Protection Agency;
- Fossitt, J., 2000. A Guide to Habitats in Ireland. The Heritage Council, Kilkenny;
- National Parks and Wildlife Service (NPWS) (2019) The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht;
- NRA (2008) Environmental Impact Assessment of National Road Schemes – A Practical Guide Rev. 1. National Roads Authority;
- NRA (2009) Guidelines for the Assessment of Ecological Impacts of National Road Schemes Rev. 2. National Roads Authority;
- NRA (2008) NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes). National Roads Authority; and
- NRA Environmental Assessment and Construction Guidelines (both adopted and draft versions)

Studies were also carried out in accordance with the following legislation:

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive (79/409/EEC as amended (Birds Directive)) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011;

- European Communities (Environmental Impact Assessment) Regulations, 1989 to 2006;
- European Communities (Environmental Liability) Regulations, 2008 (S.I. No. 547 of 2008);
- European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 84 of 1988);
- Flora Protection Order, 2022;
- Planning and Development Act (as amended);
- Water Framework Directive (2000/60/EC); and
- Wildlife Act 1976, as amended.

2.2 Desk Study

The sources of published and unpublished material that were consulted as part of the desk study for the purposes of the ecological appraisal are as follows:-

- Review of the National Parks & Wildlife Service (NPWS) natural heritage database for designated areas of ecological interest and sites of nature conservation importance within the proposed site and its environs;
- Review of Ordnance Survey maps and ortho-photography;
- Review of the National Biodiversity Data Centre (NBDC) database for records of rare and protected species within a 0.5km radius of the proposed site, including:
  - Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur) as identified in the EU Habitats Directive;
  - The presence of species of flora and fauna as identified and strictly protected under the European Communities (Birds and Natural Habitats) Regulations, 2011; and
  - Species of fauna and flora which are protected under the Wildlife Acts (as amended), 'Protected species and natural habitats' as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008;
- Review of the NBDC database of records of bats within a 4km radius of the proposed site[1];
- 1:50,000 Ordnance Survey (OS) Map; Discovery Series; and
- Environmental Protection Agency mapping (http://gis.epa.ie/Envision).

[1] A 4km radius search distance was selected to encompass records of bat roosts within Core Sustenance Zones (CSZ) of the site for Irish species of bat. A CSZ refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the conservation status of the colony using the roost (Collins, 2016).

2.3 Field Survey

A walkover survey of the proposed site was carried out by ecologist Ms Karen Banks on the 26th March 2024 and 2nd June 2024. Flora and habitats within the proposed site were surveyed using the methodology outlined in the guidance document *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al*., 2011). The habitats found in the proposed site (shown on Figure 3-4), were classified in accordance with the guidelines set out in '*A Guide to Habitats in Ireland*' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. The classification is a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. The classification is hierarchical and operates at three levels, outlining the correlation between its habitat categories and the phytosociological units (plant communities) of botanical classifications. Dominant species, indicator species and/or species of conservation interest were recorded and species recorded were given both their Latin and common names, following the nomenclature as given in the '*New flora of the British Isles*' (Stace, 2021). Habitat potentially linked to European Annex I habitats was assessed based on the *Interpretation Manual of EU Habitats* (European Commission, 2013) and *The Status of EU Protected Habitats and Species in Ireland* (NPWS, 2019).

A survey for invasive species was conducted during the habitat and botanical survey undertaken on the 2nd June 2024. This survey included the identification and mapping of Invasive Alien Plant Species (IAPS). This survey was conducted in accordance with the NRA publication "*Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads*".

The site walkover conducted on the 26th March 2024 and 2nd June 2024 included an assessment of the presence, or likely presence, of protected species. The survey was conducted in accordance with the standard protected species survey guidelines contained in the National Roads Authority publication '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*' (2009). The surveys were conducted for areas of habitat that might support protected mammals in addition to recording any field signs, such as well-used pathways, droppings, places of shelter and features or areas likely to be of particular value as foraging resources. Any badger setts present were recorded during the site walkover, along with potential pine marten den sites. In addition, the suitability of the habitat for pygmy shrew, hedgehog, Irish stoat, pine marten, amphibians and invertebrates were recorded.

Targeted faunal surveys were undertaken as detailed in Section 2.3.1 to Section 2.3.3 below.

The field survey area encompassed the arable field the proposed site is located within and adjoining locations for proposed site access, and wayleaves as illustrated in Figure 2-1.

Figure 2-1: LRD Courtstown- survey area

2.3.1 Avifauna Survey

Winter bird survey at the proposed site was undertaken by Limosa Environmental in February and March 2024. A copy of the winter bird survey report is enclosed in Appendix B.

The survey was conducted over survey area (Figure 2-1). The field was in arable use at the time of survey (Fossitt code BC1), containing winter stubble.

A series of short replicate survey periods was considered to be a better method for this survey than fewer, longer count sessions; the aim being to enhance/maximise data collection over various days, times and tidal stages. Therefore, eight separate 1-3 hour survey sessions were completed.

On each survey visit the survey proceeded with a one-hour vantage point watch over the site. The site was scanned using binoculars from a vantage point to the north (existing entrance to the field) (the 'look-see' basis (Bibby et al. 2000)). Following the vantage point watch, the field was then walked and visually searched for signs of feeding waterbirds such as droppings or feeding signs. All bird species were recorded using the 'parks method' of survey as set out by Chamberlain et al. (2007).

During each visit, the field observer walked along a survey route that took her to within 50m of every point of the site. All bird species seen and heard were recorded onto a field map (aerial photo) using the species code (two letter system developed by the British Trust for Ornithology (BTO)). The habitat that each bird was located within was recorded. The bird's behaviour was also recorded where possible, and birds flying over and obviously not interacting with the site were recorded separately.

Bird survey fieldwork was carried out at various times of the day and in suitable weather conditions (dry, light winds), although given the period of bad wet weather during the early part of 2024, some surveys encountered rain.

A breeding bird survey of the proposed site was undertaken on 26th March 2024, 21st April 2024 and 2nd June 2024 by Greenleaf Ecology. The entire site was surveyed, taking in to account suitable habitat areas as previously identified in the desktop study. All species that were seen or heard were recorded. All bird locations, numbers and behaviour were recorded by annotating field maps and taking notes. Breeding evidence such as singing males, agitated behaviour, carrying food and recently fledged young was recorded. The breeding status of all species encountered during surveys were classified into four categories: Confirmed (Br), Probable (Pr), Possible (Po) and Nonbreeder (N), based on British Trust for Ornithology (BTO) categories of breeding evidence, as detailed in Table 2-1. The surveys were conducted under dry, calm and light weather conditions.

The conservation status of bird species recorded was considered in respect of the following: Birds of Conservation Concern in Ireland (BoCCI) Red, Amber and Green lists (see Gilbert *et al*, 2021) and EU Birds Directive Annex I list.

Table 2-1: BTO Categories of Breeding Bird Evidence

Breeding Status	**Confirmed Breeder (Br)**	**Probable Breeder (Pr)**	**Possible Breeder (Po)**	**Non-Breeder (N)**
Observed behaviours	Distraction display or injury feigning (DD)	Pair in suitable nesting habitat (P)	Observed in suitable nesting habitat (H)	Flying Over (F)
	Used nest or eggshells found from current season (UN)	Permanent Territory (T)	Singing Male (S)	Migrant (M)
	Recently fledged young or downy young (FL)	Courtship and Display (D)		Summering non-breeder (U)
	Adults entering or leaving nest site indicating occupied nest (ON)	Visiting probable nest site (N)		
	Adult carrying faecal sac or food for young (FF)	Agitated Behaviour (A)		
	Nest containing eggs (NE)	Brood patch of incubating bird (I)		
	Nest with young seen or heard (NY)	Nest Building or excavating nest hole (B)		

2.3.2 Badger Survey

A badger survey was conducted within the proposed site on 26th March 2024 and 2nd June 2024. The badger survey was conducted in accordance with Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009).

Field signs of badger activity are characteristic and sometimes quite obvious and can include tufts of hair caught on barbed wire fences and scrub, conspicuous badger paths, footprints, small excavated

pits or latrines in which droppings are deposited, scratch marks on trees, and snuffle holes, which are small scrapes where badgers have searched for insects and plant tubers (NRA, 2009).

Notes were made on signs of other mammals in order to deduce the likelihood of faint tracks and/or feeding signs belonging to badgers. The objectives of the badger survey were to:

- Confirm whether or not badger setts occur within the area surveyed.
- Confirm where possible the status of any setts identified in survey.
- Describe field signs of badger activity.

The results of the badger survey completed on 26th March 2024 indicated that there was no evidence of badger at the proposed site and no ambiguous signs such as large burrows or faint mammal tracks with no other evidence. Rabbit warrens and rabbits were evident across the site boundaries. In view of these initial findings, camera trapping at the proposed site was not considered necessary.

2.3.3 Bat Survey

Bat surveys of the proposed site were undertaken between March and June 2024 and were cognisant of the following guidelines:

- Collins, J. (ed.) (2023). *Bat Surveys for Professional ecologists: Good Practice Guidelines (4th ed.).* The Bat Conservation Trust, London; and
- Marnell, F., Kelleher, C. & Mullen, E. (2022) *Bat mitigation guidelines for Ireland v2.* Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

2.3.3.1 Preliminary Roost Assessment

Trees

The trees within the proposed site were surveyed in conjunction with the site walkover for potential roost sites and signs of bats. A detailed inspection of the exterior of trees was undertaken to look for features that bats could use for roosting (Potential Roost Features, or PRFs) from ground level. The aim of the survey was to determine the actual or potential presence of bats and the need for further survey and/or mitigation.

A detailed inspection of each tree within the site was undertaken. The inspection was carried out in daylight hours from ground level, and information was compiled about the tree, PRFs and evidence of bats. All trees with PRFs were numbered and marked on a map and a description of each PRF observed was recorded. PRFs that may be used by bats include:

- Rot holes;
- Hazard beams;
- Other horizontal or vertical cracks or splits (e.g. frost cracks) in stems or branches;
- Lifting bark;
- Knotholes arising from naturally shed branches or branches previously pruned back to the branch collar;
- Man-made holes (e.g. flush cuts) or cavities created by branches tearing out from parent stems;
- Cankers in which cavities have developed;
- Other hollows or cavities;
- Double leaders forming compression forks with included bark and potential cavities;

- Gaps between overlapping stems or branches;
- Partially detached ivy with stem diameters in excess of 50mm; and
- Bat or bird boxes.

Signs of a bat roost (excluding the actual presence of bats), include:

- Bat droppings in, around or below a PRF;
- Odour emanating from a PRF;
- Audible squeaking at dusk or in warm weather; and
- Staining below the PRF.

It should be noted that bats or bat droppings are the only conclusive evidence of a roost and many roosts have no external signs. During this survey, PRFs were surveyed by a bat ecologist from ground level to ascertain their potential to support roosting bats. Trees were categorised according to the highest suitability PRF present. The criteria for categorisation of suitability for bats is described further in Table 2-1.

Table 2-2: Suitability of Habitats for Bats

Suitability	**Description** **Roosting habitats in structures**	**Potential flight paths and foraging habitats**
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/ suitable shelter at all ground/ underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/ protection for flight-lines, or generate/ shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation- the categorisation described in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts e.g. maternity or classic cool/ stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.3.3.2 Bat Activity Survey

Bat activity surveys were conducted at the proposed site and its environs using an Anabat Walkabout detector, which records bat echolocation calls directly on to an internal SD memory card. Each time a bat is detected, an individual time-stamped (date and time to the second) file is recorded. Data were then downloaded and bat calls were later analysed by Anabat Insight sound analysis software version 2.0.1.

Dusk activity surveys (from sunset, for a minimum of 90 minutes) were conducted. These surveys enable a determination of the approximate numbers and species of bats present within the site, areas used for foraging and commuting routes to and from roosts. The approximate flying height and direction taken by bats were estimated and detailed where possible.

Assessment of bat activity was undertaken in May and June 2024. A total of 2 dusk activity surveys were completed on 10th May 2024 and 5th June 2024. Both surveys were conducted in optimum weather conditions (avoiding periods of very heavy rain, strong winds (> Beaufort Force 5), mists and dusk temperatures below (10°C).

In order to supplement the information gathered from the manual activity surveys, a Passive Monitoring System of bat detection was also deployed for this survey scheme (i.e. a bat detector is left in the field, there is no observer present and bats which pass near enough to the monitoring unit are recorded and their calls are stored for later analysis). This results in a far greater sampling effort over a shorter period of time. It should be noted that passive (also referred to as static) detectors provide an indices of the amount of use bats make of an area, and quantify bat activity rather than abundance (i.e. 100 bat passes could be from 100 bats passing or one bat passing 100 times). Passive monitoring was completed using the Anabat Swift bat monitor. Bats are identified by their ultrasonic calls. This detector system records bat ultrasonic calls on a continuous basis and stores the information onto an internal SD card. Each time a bat is detected, an individual time-stamped (date and time to the second) file is recorded.

Two Anabat Swift monitors were deployed for 5 nights and were located on trees at the west and south of the site. The detectors were set to record from approximately 30 minutes before sunset until sunrise. Data were then downloaded and bat echolocation calls were later analysed by the Anabat Insight software analysis programme. Each time-stamped file was analysed and the species of bat recorded was noted as a bat pass. The location of the passive monitoring is illustrated in Figure 2-2.

Figure 2-2: LRD Courtstown- location of passive monitoring for bats May & June 2024

2.3.4 Survey Limitations

All surveys were conducted within suitable weather conditions at the appropriate time of year. The bat activity survey was conducted within the spring and summer seasons; survey within the autumn season was not undertaken due to project timeframe constraints. As detailed in Section 2.3.3, the bat survey completed comprised a potential bat roost habitat survey, spring and summer activity transects and spring and summer broad spectrum passive monitoring. As detailed in Section 3.2.4, a low number and diversity of bats was recorded at the site in the spring and summer seasons. It is considered that the survey information gathered is sufficient to enable an assessment of the ecological value of the proposed site for bats based on professional judgement of this author (Karen Banks, MCIEEM, professional experience detailed in Section 1.1).

No significant limitations to survey date gathered are noted.

2.4 Impact Assessment Criteria

The information gathered from desk study and survey has been used to make an ecological impact assessment (EcIA) of the proposed development upon the identified ecological features. The EcIA has been undertaken following the methodology set out in CIEEM (2018). EcIA is based upon a source-pathway-receptor model, where the source is defined as the individual elements of the proposed development that have the potential to affect identified ecological features. The pathway is defined as the means or route by which a source can affect the ecological features. An ecological feature is defined as the species, habitat or ecologically functioning unit of natural heritage importance. Each element can exist independently however an effect is created where there is a linkage between the source, pathway and feature.

A significant effect is defined in CIEEM (2018) as:

"*an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features'…. or for biodiversity in general*".

Further, BS 42020:2013 states that if an effect is sufficiently important to be given weight in the planning balance or to warrant the imposition of a planning condition, e.g. to provide or guarantee necessary mitigation measures, it is likely to be "significant" in that context at the level under consideration. The converse is also true: insignificant effects would not warrant a refusal of permission or the imposition of conditions.

The geographical reference used for ecological valuation is adapted from CIEEM (2018) as summarised in Table 2-3.

Table 2-3: Geographical Reference for Ecological Valuation (CIEEM, 2018)

Ecological Value	Geographical Scale of Importance
International	International or European scale
National	The Republic of Ireland or the island of Ireland scale (depending on the bat species)
Regional	Province scale
County	County scale
Local	Proposed site and immediate surroundings

3 Receiving Environment

3.1 Designated Sites

A review of European designated sites within a 15km radius of the proposed development was undertaken (www.npws.ie). Special Areas of Conservation (SACs) are sites of international importance due to the presence of Annex I habitats and / or Annex II species listed under the EU Habitats Directive. Special Protection Areas (SPAs) are designated for birds based on the presence of internationally significant populations of listed bird species.

A review of nationally designated sites within a 5km radius of the site was undertaken. Natural Heritage Areas (NHAs) are sites deemed to be of national ecological importance and are afforded protection under the Wildlife (Amendment Act) 2000. The proposed Natural Heritage Area (pNHA) have not been statutorily proposed or designated, however do have some protection under Agri Environmental Options Scheme (AEOS), Coillte, County Development Plans and Licensing Authorities.

There are three European Sites within 15km of the proposed site. A review of nationally designated sites indicates that there are no Natural Heritage Areas within 5km of the proposed development. There are five pNHAs within 5km of the proposed development. A list of European sites recorded within 15km of the proposed development is presented in Table 3-1 and nationally designated sites within 5km are presented in Table 3-2. European sites are illustrated in Figure 3-1 and Proposed Natural Heritage Areas are illustrated in Figure 3-2.

Table 3-1: European Sites within 15km of the Proposed Development

Site Name and Code	Qualifying Interests	Distance from Grid Connection Route (km)[2]	Connectivity
Great Island Channel SAC (001058)	**Annex I Habitats** Mudflats and sandflats not covered by seawater at low tide (1140) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (1330)	0.6km	There is no connectivity via surface water. The proposed site and small sections of this SAC are both located within the Little Island Ground waterbody. The proposed site and this SAC are in relatively close proximity.
Blackwater River (Cork/Waterford) (Site Code: 002170)	**Annex I Habitats** Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Perennial vegetation of stony banks [1220] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	14.9km	There is no connectivity via surface water, groundwater or any other pathway.

[2] Distance measured "as the crow flies"

	Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] **Taxus baccata* woods of the British Isles [91J0] **Annex II Species** *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra planeri* (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Alosa fallax fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355] *Trichomanes speciosum* (Killarney Fern) [1421]		
Cork Harbour SPA (004030)	**Bird Species:** Little grebe (*Tachybaptus ruficollis*) [wintering] Great crested Grebe (*Podiceps cristatus*) [wintering] Cormorant (*Phalacrocorax carbo*) [wintering] Grey heron (*Ardea cinerea*) [wintering] Shelduck (*Tadorna tadorna*) [wintering] Wigeon (*Anas penelope*) [wintering] Teal (*Anas crecca*) [wintering] Pintail (*Anas acuta*) [wintering] Shoveler (*Anas clypeata*) [wintering] Red-breasted Merganser (*Mergus serrator*) [wintering] Oystercatcher (*Haematopus ostralegus*) [wintering] Golden Plover (*Pluvialis apricaria*) [wintering] Grey Plover (*Pluvialis squatarola*) [wintering]	0.6km	There is no connectivity via surface water. The proposed site and small sections of this SPA are both located within the Little Island Ground waterbody. The proposed site and this SPA are in relatively close proximity.

	Lapwing (*Vanellus vanellus*) [wintering] Dunlin (*Calidris alpina*) [wintering] Black-tailed Godwit (*Limosa limosa*) [wintering] Bar-tailed Godwit (*Limosa lapponica*) [wintering] Curlew (*Numenius arquata*) [wintering] Redshank (*Tringa totanus*) [wintering] Black-headed Gull (*Chroicocephalus ridibundus*) [wintering] Common Gull (*Larus canus*) [wintering] Lesser Black-backed Gull (*Larus fuscus*) [wintering] Common Tern (*Sterna hirundo*) [breeding] Wetlands		

Table 3-2: Nationally designated sites within 5km of the proposed development

Site Name and Code	**Qualifying Features**	**Distance from proposed works**	**Connectivity**
Glanmire Wood pNHA (Site Code: 001054)	Glanmire Wood occurs on the east bank of the Glashaboy River, immediately south of Glanmire village. The main habitat of interest is mixed broad-leaved woodlands dominated by oak (*Quercus* sp.), beech (*Fagus sylvatica*) and sycamore (*Acer pseudoplatanus*) with a few conifers. This site is of interest because this type of woodland is rare in east Cork.	4.2km	There is no connectivity via surface water, groundwater or any other pathway.
Douglas River Estuary pNHA (Site Code: 001046)	This is a large site situated in the north-west corner of Cork Harbour, stretching from Blackrock to Passage West. It is an integral part of Cork Harbour, which contains several other N.H.A.'s. This site occurs within the upper harbour and consists of extensive mudflats, formed from fine silts, bisected by the Douglas River. Damp grassland occurs on part of the southern side, extending to some low islands which are inundated in extreme tides. This site is of interest because it is an essential part of the Cork Harbour complex and contains much higher densities of waders than would be expected from its relative size. It is ranked as the second most important area within the harbour.	2.2km	There is no connectivity via surface water, groundwater or any other pathway.

Dunkettle Shore pNHA (Site Code: 001082)	This site is located at the mouth of Glashaboy River, where it meets the Lee estuary, on the eastern edge of Cork city. It is adjacent to Glanmire Wood, N.H.A., and is an integral part of Cork harbour, which contains several other N.H.A.'s. The site is of value because its mudflats provide an important feeding ground for waterfowl and it acts as a significant roost for birds in the upper harbour. Furthermore, it is an integral part of Cork harbour which is an internationally important wetland, regularly holding flocks of over 20,000 waterfowl.	2.5km	There is no connectivity via surface water, groundwater or any other pathway.
Rockfarm Quarry, Little Island pNHA (001074)	Rock Farm Quarry is located c. 9km west of Cork City on the southern shore of Little Island in the River Lee estuary. The area is of considerable interest botanically because of its species diversity and the presence of 'rarities' for the region, such as Dense-flowered Orchid and Portland Spurge.	0.54km	There is no connectivity via surface water. The proposed site and part of this pNHA are both located within the Little Island Ground waterbody. The proposed site and this pNHA are in relatively close proximity.
Great Island Channel pNHA (001058)	See Great Island Channel SAC	0.6km	There is no connectivity via surface water. The proposed site and small sections of this pNHA are both located within the Little Island Ground waterbody. The proposed site and this pNHA are in relatively close proximity.

Figure 3-1: European Sites within 15km of the Proposed Site

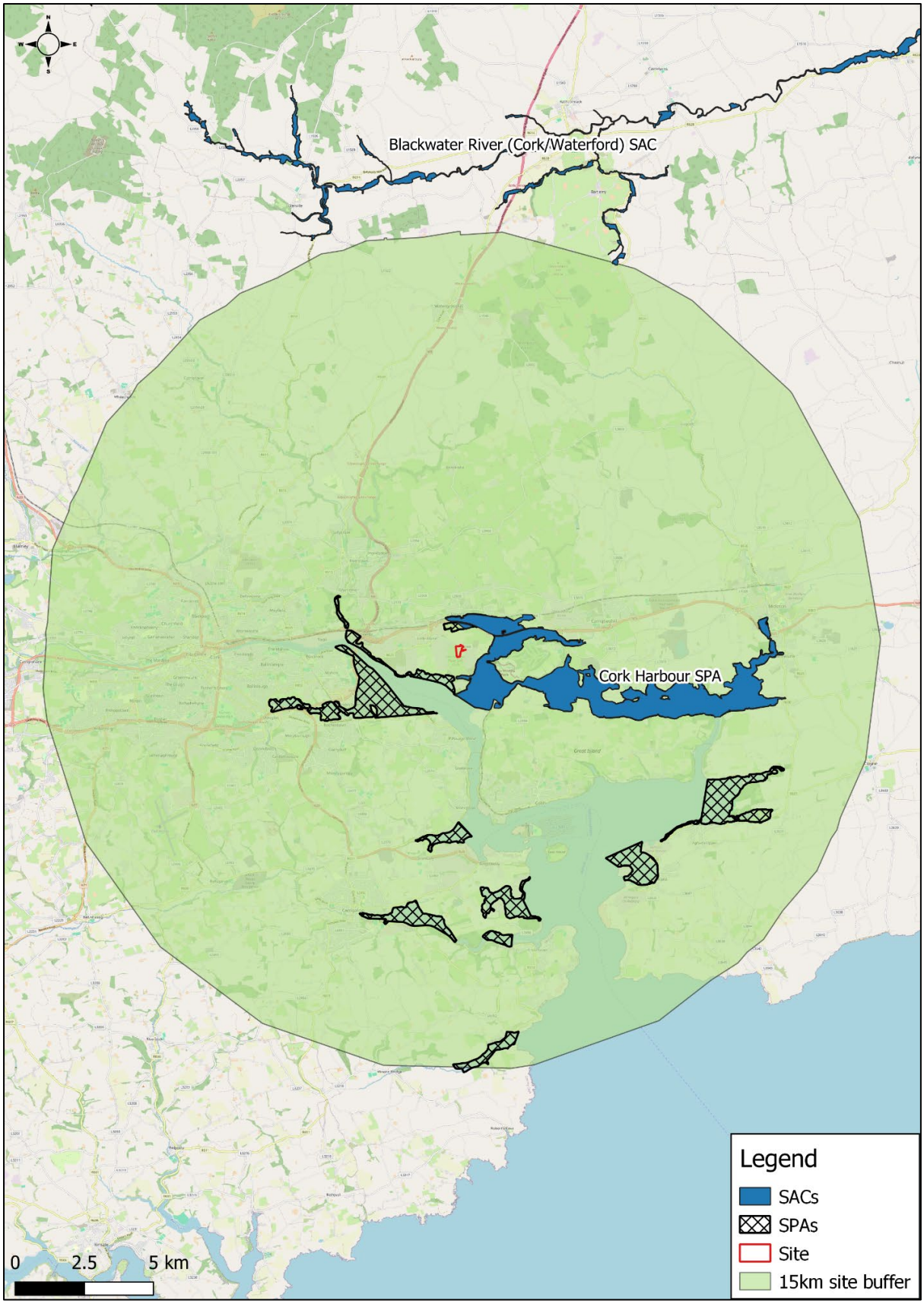
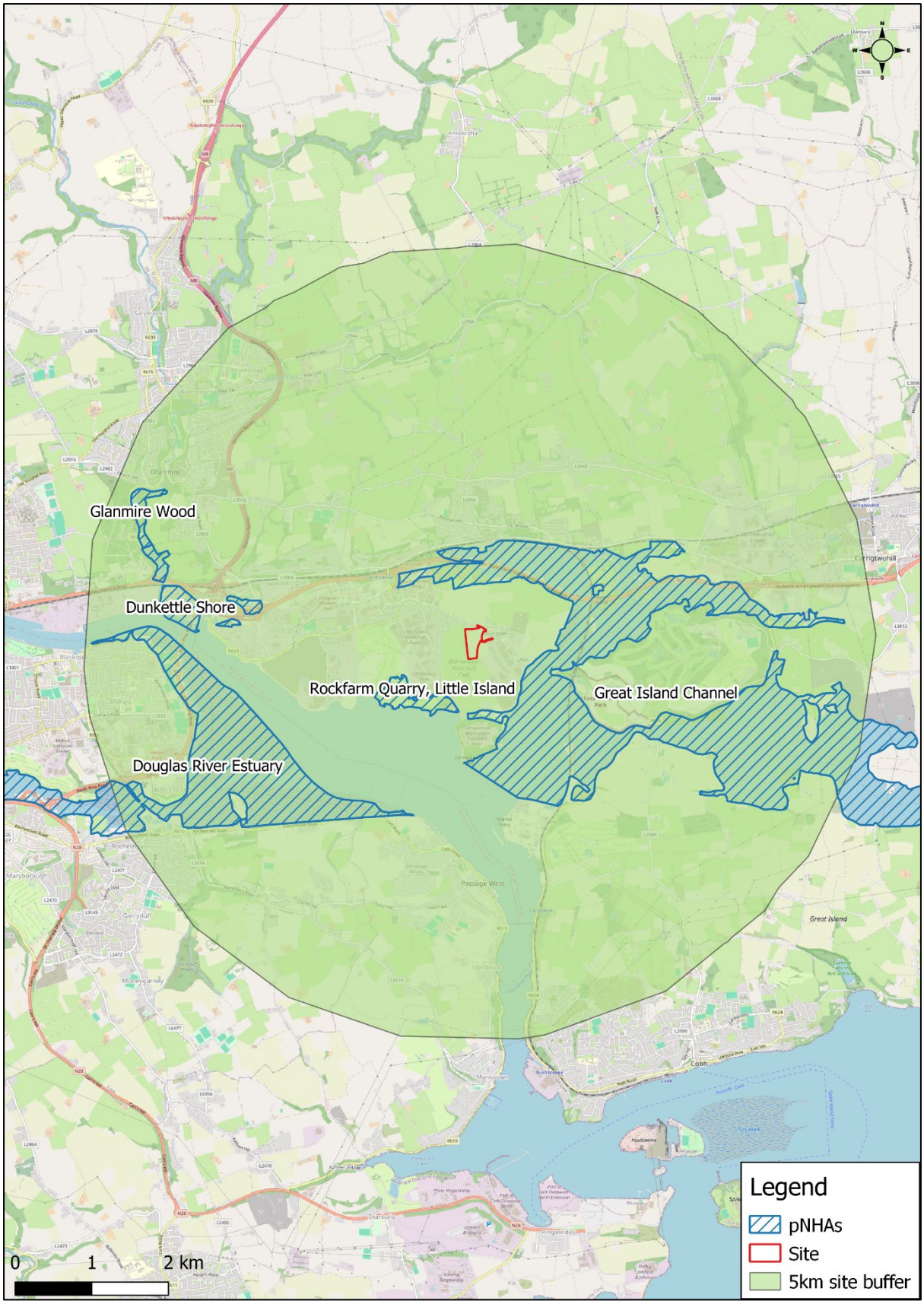


Figure 3-2: Nationally Designated Sites within 5km of the Proposed Site



3.2 Terrestrial Ecology

3.2.1 Habitats

The survey area comprises an arable field (BC1) bound by treelines (WL2) to the north, west and south and a hedgerow (WL1) to the east. The habitats recorded within the survey area are described below.

Arable crops (BC1)

The survey area comprises a single arable field. A wide field margin is present at the north of the survey area, with False Oat-grass (*Arrhenatherum elatius*), Smooth Meadow-grass (*Poa pratensis*) and Yorkshire Fog (*Holcus lanatus*). Herbs present here include Bush Vetch (*Vicia sativa*), Field Bindweed (*Convolvulus arvensis*), Silverweed (*Potentilla anserina*), Creeping Buttercup (*Ranunculus repens*), Curled Dock (*Rumex crispus*), Broad-leaved Dock (*R. obtusifolius*), Germander Speedwell (*Veronica chamaedrys*), Creeping Thistle (*Cirsium arvense*) and Ribwort Plantain (*Plantago lanceolata*). The field margin has been encroached by scrub including Bramble (*Rubus fruticosus*), Willow (*Salix cinerea*) and Sycamore (*Acer pseudoplatanus*) saplings.

Hedgerow (WL1)

The eastern boundary of the survey area comprises a hedgerow dominated by Blackthorn (*Prunus spinosa*), with occasional Dog-rose (*Rosa canina*), Willow, Hawthorn (*Crataegus monogyna*) and Elder (*Sambucus nigra*). At the north-east of the survey area, the hedgerow is thick with good structure, however the southern half of the hedgerow includes large gaps dominated by Bramble, with locally frequent Gorse (*Ulex europaeus*), Nettle (*Urtica dioica*) and Bracken (*Pteridium aquilinum*).

At the location of the wayleave, the hedgerow comprises a large gap in shrub species, is dominated by Bramble, Bracken and Nettle and is of poor structure and low floristic value.

The field is cultivated to the hedgerow base and the hedgerow appears to be managed by side flailing.

Overall, the hedgerow at the east of the survey area boundary is of low conservation significance.

Treelines (WL2)

There are no trees located within the survey area. The following text describes the treelines present adjacent to the sod and stone wall bounding most of the survey area (outside of the survey area).

The south of the survey area is bound by a sod and stone wall with Hawthorn, Blackthorn, Elder and Ash (*Fraxinus excelsior*) standards behind the wall. Large Bramble dominated gaps are present on the southern boundary, with Nettle and Bracken abundant locally.

A sod and stone wall with Elder, Hawthorn, Blackthorn, Dog-rose and occasional Beech (*Fagus sylvatica*) are present adjacent to the western boundary. To the west of the site boundary, linear woodland is present comprising species including Lawson Cypress (*Chamaecyparis lawsoniana*), Beech, Sycamore, Poplar (*Poplus* spp), Pine (*Pinus* spp), Ash and Larch (*Larix* spp).

The northern site boundary comprises a sod and stone wall and garden fencing with Elder, Hawthorn, garden shrubs and Sitka Spruce.

Ivy is locally abundant on exposed areas of the stone walls with occasional Soft Shield-fern.

The treelines primarily comprise shrubs that have not been managed to form hedgerows and have grown out to form treelines.

Lime trees have been planted along the verge of the L2985 road to the east and west of the existing site entrance.

Buildings and artificial surfaces (BL3)

The proposed site extents eastwards along a wayleave to include buildings and artificial surfaces within the Harbourmount Business Park and northwards to the L2985 road.

The habitats within the proposed site are illustrated in Figure 3-3 and a habitat map is included in Figure 3-4.

1. Edge of arable field and thick Blackthorn hedge at north-east of survey area

2. Large Bramble, Nettle and Bracken dominated gap within hedgerow at the wayleave at east of site

3. Extensive rabbit warrens present at field boundary

4. Lawson Cypress within treeline at south-west of the survey area

5. Mature Hawthorn at north-east of survey area

6. Line of mature Hawthorn and Sitka Spruce at northern boundary

Figure 3-3: LRD Courtstown- habitats present within the survey area

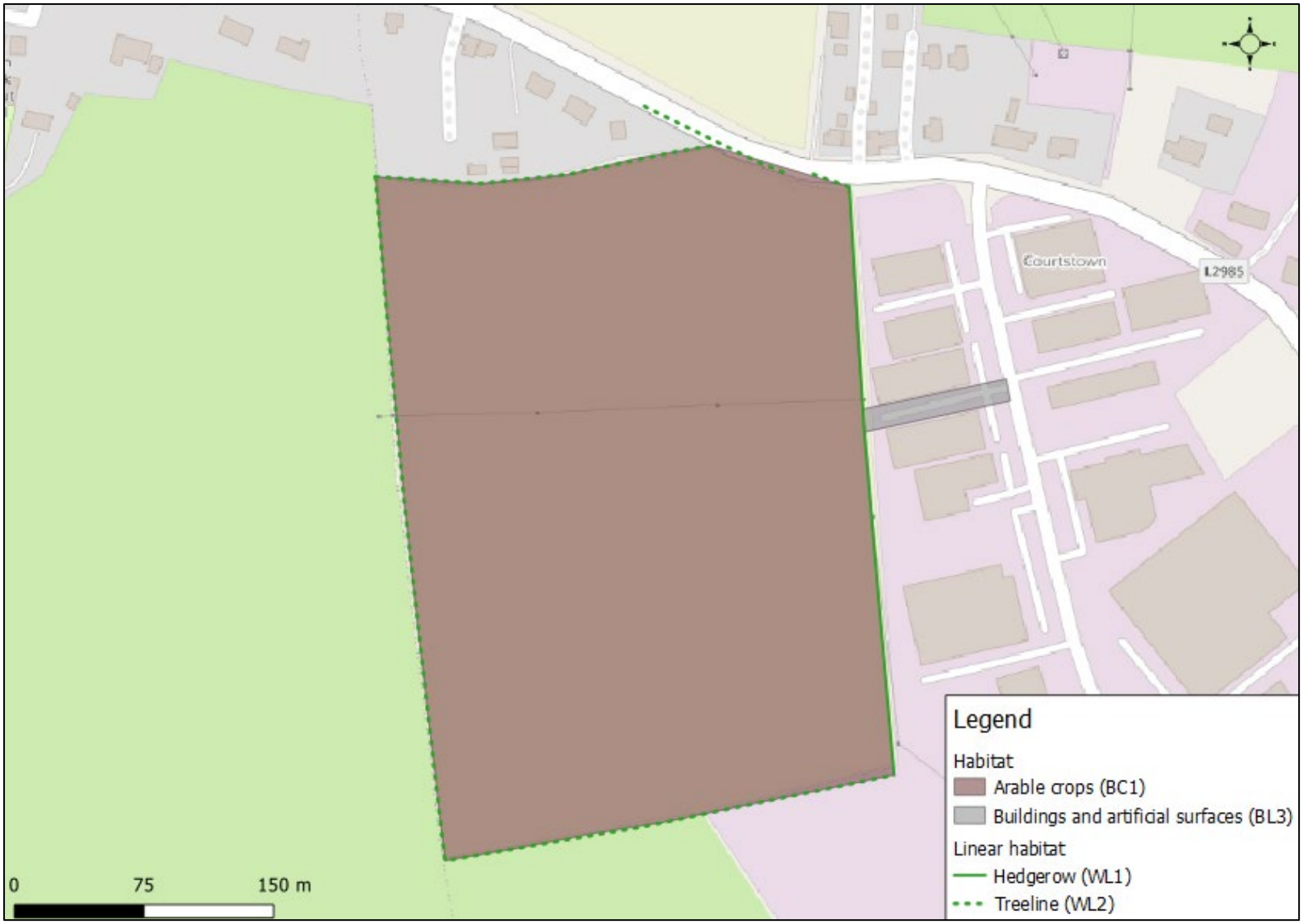


Figure 3-4: LRD Courtstown- habitat map

3.2.2 Species

This section describes the species that have been recorded historically within 0.5km of the proposed development, results from site surveys and the potential for the proposed site to support protected species. Species records extracted from the NBDC database are included in Appendix A.

3.2.2.1 Amphibians and Reptiles

The NBDC hold historical records of common frog and smooth from the vicinity of the proposed development, last recorded in the 10km OS grid square within which the site is located (W77) in 1979 and 1975 respectively. No signs of newt or frog were observed on site and there is no permanent standing water on the site.

3.2.2.2 Avifauna

The proposed site is located in close proximity to Cork Harbour, as such, a number of bird species of conservation concern have been recorded within the vicinity of the proposed site, including coastal wintering waterbirds and waders (see Appendix A and Appendix B).

Wintering Birds

A total of 32 bird species were recorded during the winter surveys. No Annex I species (EU Bird's Directive) were recorded. The species list includes ten species that are listed as Birds of Conservation Concern in Ireland (Gilbert et al. 2021), including four that are Red-listed and are of highest concern (Stock Dove, Snipe, Kestrel and Meadow Pipit). The species list includes all birds recorded, including those in adjacent habitats. More detailed results on species, numbers and their locations are provided in Appendix B.

No Special Conservation Interest (SCI) species listed for Cork Harbour SPA were recorded within the site. One waterbird was recorded within the site overall - Snipe. This Red-listed wading bird was recorded on one survey visit only in March 2024, and a single individual was flushed from the site during the walkover survey. No other signs of use of the field by waterbirds (e.g. droppings, feeding signs) were observed during any of the walkover surveys.

Three gull species (Great Black-backed, Herring and Common) were recorded flying over the site but were not interacting with the site.

28 non-waterbird bird species were recorded overall. Of these, one species, Raven, was recorded in flight over the site only.

Nine species were recorded inside the site, including notably, the Red-listed Stock Dove. A total of 19 species were recorded within the site boundaries, a notable species being the Buzzard. Another raptor species Kestrel (Red-listed) was recorded in flight, but on one occasion was flying/hovering over the site, therefore actively foraging over the site. A total of 15 species were recorded within adjacent habitats, largely within habitats to the south and east (former golf course). Some of the most notable observations are detailed below.

Stock Dove – this passerine, a member of the dove and pigeon family, was observed foraging within the site on one survey occasion (7 individuals). It is a resident breeding bird. Stock Doves are associated with arable farmland and open woodland, hence the habitats within and surrounding the site are highly suitable for this species. This species has declined by over 50% in the Republic of Ireland during the lifetime of the Countryside Bird Survey (Lewis et al. 2019b) and is consequently a Red-listed species of highest conservation concern. Smiddy et al. (2022) states that flocks of 10-20 individuals are regularly recorded around Cork Harbour, and in East Cork.

Sparrowhawk – this raptor was recorded perched in a tree within the former Golf Course on one survey occasion. The species is found across a range of habitats where there is sufficient cover (trees) and small mammal species to prey upon. This species is currently exhibiting a moderate decrease in population size within the Republic of Ireland.

Buzzard – this raptor was observed on six survey visits. It was recorded flying (hunting) over the site once, the remaining observations were of birds (2 maximum) within the former Golf Course. On the 7th March, a pair of Buzzards was observed carrying nesting material and flying into the trees to the south of the site. This suggests that Buzzards may be breeding close to the site.

Kestrel – a Kestrel (Red-listed) was observed on two survey occasions, once in flight in adjacent habitats and on one occasion hovering over the site, actively searching for prey. This species is in decline in Ireland (Lewis et al. 2019b).

Crows – Five members of the crow family were recorded (Magpie, Jackdaw, Rook, Hooded Crow and Raven), the latter species recorded in flight over the site only. Most records were from the site boundaries, or birds in flight over the site.

Finches – five members of the finch family were recorded (Chaffinch, Bullfinch, Greenfinch, Linnet, Goldfinch). The most common species were Goldfinch and Chaffinch, and most records were from the site boundaries.

Breeding Birds

A total of sixteen bird species were recorded during the breeding bird survey undertaken on 26th March 2024, 21st April 2024 and 2nd June 2024 (Table 3-3), all of which are considered to be of least conservation priority on the Birds of Conservation Concern Ireland (BoCCI) (Gilbert et al, 2021). No species considered to be of highest conservation priority (Red Listed), or SCI species for Cork Harbour SPA were observed during the surveys. Of the species recorded in the survey area, Wren was displaying behaviours indicating that they were probably breeding at the western and southern boundary. Rook was observed with nesting material in its beak, however the Rook flew out of the site with the material.

Table 3-3: Summary of Bird Species Recorded and their Breeding and Conservation (BoCCI) Status

Common Name	Scientific Name	Breeding Status	Conservation Status[3]
Blackbird	*Turdus merula*	Po	Green
Blackcap	*Sylvia atricapilla*	Po	Green
Blue tit	*Parus caeruleus*	Po	Green
Bullfinch	*Pyrrhula pyrrhula*	Po	Green
Buzzard	*Buteo buteo*	N	Green
Chaffinch	*Fringilla coelebs*	Po	Green
Dunnock	*Prunella modularis*	Po	Green
Goldfinch	*Carduelis carduelis*	Po	Green
Great tit	*Parus major*	Po	Green
Hooded crow	*Corvus cornix*	N	Green
Long-tailed Tit	*Aegithalus caudatus*	Po	Green
Magpie	*Pica pica*	N	Green

[3] Follows status attributed within Gilbert, G., Stanbury, A. & Lewis, L. (2021) Birds of Conservation Concern in Ireland 4: 2020–2026. Irish Birds 43, 1-22.

Robin	*Erithacus rubecula*	Po	Green
Rook	*Corvus frugilegus*	N	Green
Wood pigeon	*Columba palumbus*	Po	Green
Wren	*Troglodytes troglodytes*	Pr	Green

3.2.2.3 Flora

There are no records of protected species of vascular plants or bryophytes within the vicinity of the proposed site. No protected species of flora were recorded within the survey area during the surveys.

3.2.2.4 Invasive Species

Japanese Knotweed has both been recorded c.0.6km to the south-east of the proposed site, last recorded in 2020. No species invasive plant species were recorded within the survey area or its immediate environs.

3.2.3 Invertebrates

The NBDC holds records of Marsh Fritillary from OS 10km grid square W77, last recorded in 1990. No protected species of invertebrate were recorded within the survey area and the habitats at the proposed site are not suitable to support Marsh Fritillary.

3.2.4 Bats

There are no records of bats from within a 0.5km radius of the proposed site on the NBDC database. A review of existing bat records within 4km of the proposed site (sourced from Bat Conservation Ireland's National Bat Records Database and the National Lesser Horseshoe Bat Database) reveals that, currently, seven of the ten known Irish bat species have been observed within a 4km radius. These include common pipistrelle (*Pipistrellus pipistrellus sensu stricto*), soprano pipistrelle (*P. pygmaeus*), Leisler's bat (*Nyctalus leisleri*), brown long-eared (*Plecotus auritus*), Daubenton's (*Myotis daubentonii*), Natterer's (*M. nattereri*) and whiskered bat (*M. mystacinus*), as detailed in Table 3-2 below. There are no records of bats roosting within a 4km radius of the proposed site (Table 3-2).

The bat landscape association model (Lundy *et al,* 2011) suggests that the proposed site is part of a landscape that is of moderate to high suitability for bats including common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), brown long-eared (*Plecotus auritus*), Leisler's (*Nyctalus leisleri*), Daubenton's (*Myotis daubentonii*), natterer's (*M. nattereri*) and whiskered bat (*M. mystacinus*). The proposed site and its environs are of low suitability for Nathusius' pipistrelle (*Pipistrellus nathusii*) and is outside of the distribution range of lesser horseshoe bat (*Rhinolophus hipposideros*).

Table 3-4 outlines records of each bat species within the proposed site and its wider environs.

Table 3-4: NBDC and NPWS bat records from within a 4km radius of the proposed site

Common name	Scientific name	Present within 4km radius of the site (Y/N)	Known roosts (1km OS Grid Square)	Date Last Recorded	Source
Pipistrelle species	*Pipistrellus pipistrellus sensu lato*	Y	None	16/09/2015	Bat Conservation Ireland
Common pipistrelle	*Pipistrellus pipistrellus sensu stricto*	Y	None	26/06/2018	Bat Conservation Ireland
Soprano pipistrelle	*Pipistrellus pygmaeus*	Y	W7372	26/06/2018	Bat Conservation Ireland
Nathusius' pipistrelle	*Pipistrellus nathusii*	N	-	-	-
Leisler's bat	*Nyctalus leisleri*	Y	W7372	26/06/2018	Bat Conservation Ireland
Brown long-eared bat	*Plecotus auritus*	Y	W7872	06/07/2018	Bat Conservation Ireland
Daubenton's bat	*Myotis daubentonii*	Y	None	22/05/2010	Bat Conservation Ireland
Natterer's bat	*Myotis nattereri*	Y	W7872	06/07/2018	Bat Conservation Ireland
Whiskered bat	*Myotis mystacinus*	Y	None	22/05/2010	Bat Conservation Ireland
Lesser horseshoe bat	*Rhinolophus hipposideros*	N	-	-	-
Brandt's bat	*Myotis brandtii*	N	-	-	-

Five mature Ash trees are present adjacent to the southern survey area boundary; no potential roosting features suitable for multiple numbers of bats were recorded within these trees, however there is potential for individual bats to roost behind heavy Ivy growth on an opportunistic basis in warmer months of the year.

The passive monitors, which were left recording at the south of the survey area (PM1) and the western survey area boundary (PM2), recorded four species of bat, namely common pipistrelle, soprano pipistrelle, Leisler's bat and brown long-eared bat. Common pipistrelle was the most frequently recorded species, followed by soprano pipistrelle then Leisler's bat. Common pipistrelle and soprano pipistrelle were recorded from c.23 minutes after sunset at the north-west of the survey area, indicating the likely presence of a roost in the vicinity of the site. Brown long-eared bat was recorded on one occasion on PM2 (Table 3-3).

Three species of bat were recorded foraging and commuting within the survey area during the activity surveys undertaken on 10th May and 5th June 2024: common pipistrelle, soprano pipistrelle and Leisler's bat. A single common pipistrelle and a single soprano pipistrelle were recorded from c.22 minutes after sunset foraging along the treeline at the north-west survey area boundary; these bats likely emerged from one of the dwellings to the north of the proposed site, outside the site boundary. Soprano pipistrelle and common pipistrelle were recorded occasionally in low numbers foraging along the survey area boundary and Leisler's bat was recorded occasionally foraging overhead.

Overall, a low number of calls and a low diversity of species was recorded within the survey area during the activity surveys and monitoring completed at the survey area in May and June 2024.

Table 3-5 provides a summary of bat species recorded within the survey area during the passive monitoring surveys.

Table 3-5: Summary table of bat species recorded during the activity surveys and passive monitoring within the survey area at Courtstown, 2024

Date	Spring		Summer		Total
	PM1 (05/05/2024-09/05/2024)	PM2 (05/05/2024-09/05/2024)	PM1 (05/06/2024-09/06/2024)	PM2 (05/06/2024-09/06/2024)	
Common Pipistrelle	282 (33%)	394 (54%)	217 (55%)	1700 (78%)	2,593 (62%)
Soprano Pipistrelle	364 (42%)	100 (14%)	63 (16%)	286 (13%)	813 (20%)
Pipistrelle species[4]	0	0	2 (1%)	0	2 (0%)
Leisler's bat	211 (25%)	241 (33%)	112 (28%)	203 (9%)	767 (18%)
Brown Long-eared Bat	0	0	1 (0%)	0	1 (0%)
NoID	0	0	1 (0%)	1 (0%)	2 (0%)
Total	857 (100%)	735 (100%)	396 (100%)	2190 (100%)	4,178 (100%)

3.2.5 Otter

Otter has been recorded within the 10k OS grid square within which the site is located (W77), last recorded in 1990. It is likely that otter forage along the shore of Lough Mahon to the south and east of the site. The proposed site is separated from Lough Mahon by a distance of c.0.6km and there are no watercourses or waterbodies at the proposed site. No evidence of otter was recorded within the survey area.

3.2.6 Other Mammals

Badger has been recorded within the 10k OS grid square within which the site is located (W77), last recorded in 1990. No evidence of badger was recorded within the survey area.

Red squirrel has been recorded at Little Island, last recorded c.0.5km to the south of the site in 2022. The trees adjacent to the proposed site boundary provide suitable habitat for red squirrel, however, no evidence of this species was recorded during the survey.

The NBDC hold historical records of hedgehog from the environs of the site, last recorded in 1968. No evidence of hedgehog was recorded within the survey area; however the habitats present adjacent to the site boundary are suitable to support this species.

Evidence of mammals recorded within the survey area was limited to rabbits, which have dug several warrens within the boundary across the survey area.

[4] *Pipistrellus* spp. which have frequency of maximum energy, FMAXE, of c. 50kHz which cannot reliably be assigned to Common Pipistrelle (typical FMAXE of c. 45kHz) or Soprano Pipistrelle (FMAXE c. 55kHz)

3.3 Hydrology

3.3.1 Water Bodies

The proposed site is located within the Tibbstown_010 River Sub Basin. Lough Mahon is a transitional water body situated c.0.6 km to the south-east of the proposed site; this waterbody flows into the coastal waters of Cork Harbour c.6 km downstream of its location in the environs of the proposed site.

The proposed project overlies the Little Island Ground Waterbody (GWB).

No watercourses or active drainage ditches are present within the proposed site and its immediate environs.

3.4 Summary of Ecological Evaluation

Table 3-6 summarises all identified ecological features. Ecological features have been identified as being at risk of potentially significant impacts via a source-pathway-receptor link. Ecological features are valued as being of local ecological value or above as per the criteria set out in Table 2-3**.**

Table 3-6: Ecological Features within the proposed site and it's receiving environment

Site/ Habitat/ Species	Ecological Value[5]	Ecological Feature
European Site	International. Cork Harbour SPA and Great Island Channel SAC are proximal to the proposed site.	Yes
Natural Heritage Area	National. Great Island Channel pNHA and Rock Farm Quarry, Little Island pNHA are proximal to the proposed site.	Yes
Arable crops (BC1)	The arable field is managed intensively and is of poor floristic value. This habitat is considered to be of low ecological value.	No
Buildings and artificial surfaces (BL3)	Negligible ecological value.	No
Hedgerows (WL1)	The hedgerow at the proposed site is of poor floristic value and structure. However, the hedgerow does provide suitable habitat for nesting birds and connectivity in the landscape. As such, the hedgerows at the proposed site is considered to be of local ecological value.	Yes
Treeline (WL2)	The treelines adjacent to the proposed site boundary provide suitable habitat for nesting birds and provide connectivity in the landscape. Treelines adjacent to the proposed site boundary are considered to be of local ecological value.	Yes
Amphibians & Reptiles	No evidence of amphibians and reptiles was recorded within the site and there is no suitable breeding habitat.	No
Avifauna	Four BoCCI red list species were recorded at the site during winter bird surveys and a range of common and widespread bird species were recorded during that breeding bird surveys. Avifauna as they occur within the proposed site are considered to be of local ecological value.	Yes
Bats	No evidence of roosting bats was recorded within the proposed site, however, four species of bat commute to the site to forage. Bats, as they occur at the proposed site, are considered to be of local ecological value.	Yes

[5] In accordance with CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Coastal, Freshwater and Marine. The Institute for Ecology and Environmental Management.

Badger	No evidence of badger was observed within the site and the proposed site is of low suitability to provide shelter for this species. However, there is potential that the proposed site forms part of the foraging area for a local badger population. Badger, as they occur at the proposed site and its environs, are considered to be of local ecological value.	Yes
Other protected species of mammal	No evidence of other protected species of mammal was recorded at the proposed site.	No

4 Potential Impacts of the Proposed Development

This section identifies in detail the potential impact of the proposed development on habitats and species of conservation value (i.e. ecological features as identified in Table 3-6) that have been identified as present, or that have the potential to be present, at its receiving environment.

4.1 Construction Phase

The ecological features that, in the absence of mitigation, may potentially be impacted by the construction phase of the proposed development and the significance of these impacts are set out in the following sections.

4.1.1 Designated Sites

The potential for likely significant effects on European Sites is considered within the Report to Inform Appropriate Assessment Screening (AAS) accompanying the planning application. The AAS concluded that:

"*The proposed Large Scale Residential Development, Courtstown, Little Island, Cork, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European site, in light of their conservation objectives. Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.*"

Great Island Channel SAC is also designated as a pNHA. Potential impacts on this designated site are assessed within the AAS.

There is no surface water connectivity between the proposed development and Rockfarm Quarry, Little Island pNHA, however the proposed site and this pNHA are both located within the Little Island ground waterbody. Rockfarm Quarry is of conservation interest for its botanical interest; no groundwater dependent ecosystems are listed as a feature of interest for this pNHA. In consideration of the nature of the proposed development (residential development), the separation distance (0.54km) and the lack of groundwater dependant ecosystems within Rockfarm Quarry, Little Island pNHA, no significant effects on this nationally designated site are expected to occur as a result of the proposed development.

There are no connecting pathways between the proposed development and any other pNHA.

No significant adverse effects on designated sites are expected during the construction phase.

4.1.2 Habitats

4.1.2.1 Hedgerows

It is not proposed to remove any hedgerows to facilitate the proposed development. Further, as stated in the Arboricultural Impact Assessment Report (Arbor Care, 2024), all trees to be retained will be protected by establishing an exclusion zone around the root protection area. Therefore, there will be no significant effects on hedgerows during the construction phase.

4.1.2.2 Treeline

The existing boundary treelines and vegetation are being retained; tree removal will be limited to 14 No. Lime trees planted along the L2985 road to facilitate the creation of the new distributor road servicing the proposed development.

The landscaping plan includes the following proposals:

- New tree planting (272 No.)
- Native species rich grassland and semi-shade flowering areas (3,815m^2)

- Mixed native hedgerow and woodland planting (1,230m^2)
- Biofiltration bed planting - seasonal rich pollinator supporting (1,760m^2)
- Mixed shrub planting (985m^2); and
- Single species clipped hedge planting (3no. species) (1,215m^2)

The removal of 14 No. Lime trees will result in a slight temporary to short term adverse effect on treelines locally. However, with the protection of trees and shrubs to be retained within the treelines and hedgerows at the proposed site and the successful implementation of the landscaping plan, as summarised above, there will be a net gain in native broadleaved trees. The proposed development has the potential to result in a positive impact on treelines, and biodiversity in general, in the medium to long-term.

4.1.3 Species

4.1.3.1 Avifauna

The bird species recorded within the site were predominantly common and widespread species in the Irish countryside. Exceptions to this were the BoCCI Red List species Stock Dove, Snipe, Kestrel and Meadow Pipit. These species were recorded during the winter surveys but were not recorded breeding within the site or on its boundaries. No SCI species for Cork Harbour SPA were recorded within the proposed site and its immediate environs.

The existing boundary treelines and vegetation are being retained; tree removal will be limited to 14 No. Lime trees planted along the L2985 road. As such, impacts to birds recorded within the site (the majority of which were in the site boundaries) is likely to be minor (slight negative impact at a local level). Disturbance during the construction phase could prevent birds from breeding within the site boundaries during this period. This is likely to result in a short-term (one breeding season) disruption to nesting (temporary slight negative impact). However, population-level effects (i.e. significant impacts) are highly unlikely.

4.1.3.2 Bats

Loss of Roosting Habitat

Features suitable for roosting bats at the proposed site were limited to potential opportunistic roosting for single bats in warmer months of the year within heavy Ivy growth on 5 no. Ash trees adjacent to the southern site boundary. It is proposed to retain and protect these trees, therefore, no significant impacts on roosting bats are expected to arise from the proposed works.

Loss of Foraging Habitat

The loss of linear woodland habitat during construction can impact on foraging and commuting bats and reduce available foraging areas. The existing boundary treelines and vegetation are being retained; tree removal will be limited to 14 No. Lime trees planted along the L2985 road. In view of the limited proposed tree removal, there will be no significant effects on bats as a result of the loss of foraging and commuting habitat during the construction phase.

Lighting

Studies have found that lighting can cause avoidance of an area for commuting bats and can prevent or reduce foraging for species including brown long-eared bat[6]. In the absence of mitigation, disturbance of bats due to lighting used during the construction phase would have an indirect,

[6] Stone E.L. (2013) Bats and Lighting: Overview of current evidence and mitigation.

significant negative impact at the local level. The impact would be temporary and would persist for the duration of construction.

4.1.3.3 Badger

No evidence of badger was recorded within the proposed site. The site is of low suitability to provide shelter for badgers, however there is potential that the proposed site forms part of the foraging territory of the local badger population. In the absence of mitigation, the construction of the proposed development has the potential to disturb badgers if present at the time of construction. This would be a minor temporary impact locally. However, population-level effects (i.e. significant impacts) are highly unlikely.

4.1.3.4 Invasive Species

No invasive plant species were recorded within the proposed site. Therefore, the proposed development is not expected to result in the spread of invasive plant species during the construction phase.

4.2 Operational Phase

4.2.1 Designated Sites

No potential for significant adverse effects on European or nationally designated sites has been identified during the operational phase (for further information please refer to the AAS report accompanying the planning application).

4.2.2 Habitats

4.2.3 Hedgerows

There will be no significant adverse effects on hedgerows during the operational phase.

As detailed in Section 4.1.2.2, with the effective implementation of the landscaping plan, there will be a net gain in native species of broadleaved trees and species rich grassland at the proposed site. As the landscaping matures during the operational phase, there is potential for a positive effect on biodiversity in general at the site.

4.2.4 Treelines

There will be no significant adverse effects on treelines during the operational phase.

With the effective implementation of the landscaping plan, there will be a net gain in native species of broadleaved trees and species rich grassland at the proposed site. As the landscaping matures during the operational phase, there is potential for a positive effect on biodiversity in general at the site.

4.2.5 Species

4.2.5.1 Avifauna

The loss of foraging habitat for Kestrel, Meadow Pipit, Stock Dove and Snipe during winter will be a permanent slight negative impact. Given the presence of alternative foraging habitat within agricultural lands in the surrounding landscape, it is expected that these species will distribute across the wider landscape and not be significantly impacted by the loss of the site during the operational phase.

The existing treelines and hedgerows at the site boundaries are to be retained (as noted previously, tree removal will be limited to 14 No. Lime trees planted along the L2985 road). Therefore, once the construction phase is complete (which will cause a temporary disturbance), bird species assemblages within the treelines are expected to be similar to the baseline conditions. Given the extensive planting

programme proposed as part of the landscape design, habitats for birds are likely to improve with a mosaic of trees, shrubs and species rich grassland areas during the operational phase.

4.2.5.2 Bats

The proposed development will increase light levels within the site. As noted in Section 4.1.3.2, increased lighting may reduce the availability of feeding sites for bats and would be a long-term significant adverse impact at a local level.

4.2.5.3 Badger

There is potential that the proposed site forms part of the foraging territory of the local badger population. In the absence of mitigation, there is potential for the proposed development to result in a reduction in available foraging habitat for badger. In view of the available foraging badger habitat within agricultural lands in the wider landscape, this would be a minor temporary impact locally. However, population-level effects (i.e. significant impacts) are highly unlikely.

5 Mitigation

5.1 Construction Phase

5.1.1 General Control Measures

The control measures for the proposed development will follow the following current best practice guidelines:

- H. Masters-Williams et al (2001) Control of water pollution from construction sites. Guidance for consultants and contractors (C532). CIRIA.
- Murnane *et al* (2002) Control of Water Pollution from Construction Sites- Guide to Good Practice. SP156.

5.1.2 Designated Sites

No significant adverse effects on designated sites are expected to arise during the construction phase, therefore no specific mitigation measures are required.

5.1.3 Habitats

No significant adverse effects on habitats are expected to arise during the construction phase, therefore no specific mitigation measures are required.

5.1.4 Species

5.1.4.1 Avifauna

14 No. Lime trees will be removed along the L2985 road and there is potential that pruning work will be required. No clearance of trees, shrubs or other removal of vegetation on site shall occur during the bird breeding season from 1st March to 31st August.

5.1.4.2 Bats

Loss of foraging habitat

Trees that are being retained at the site shall be protected during clearance and construction works in line with British Standard BS5937-2012. No further specific mitigation measures are required.

Lighting

Lighting - to minimise disturbance to bats and other fauna that are active at night, construction operations during the hours of darkness should be kept to a minimum. In circumstances where, during the bat activity period (April to September), daylight hours stretch beyond the likely permitted hours of operation on site, there will be no requirement for lighting to be used on the site during this period.

5.1.4.3 Badger

No evidence of badger was recorded at the proposed site and the site is of low suitability to provide shelter for badger. However, as a precautionary measure, a pre-construction survey shall be undertaken prior to the commencement of construction to identify active badger setts occurring within the site.

In the event of badger setts being identified within proximity to the proposed works area, the following mitigation measures are proposed to ensure no disturbance of the local badger population during the construction phase of the proposed works (NRA 2005):

- A buffer distance of 10m from sett entrances should be employed in instances where light works such as digging by hand or in the event of scrub clearance.
- A buffer distance of 20m from Badger sett entrances should be incorporated where light machinery (generally wheeled vehicles) are in operation within the site.

- A buffer distance of 30m from Badger setts should be employed where heavy machinery is in operation within the site.
- None of the above activities should be undertaken within 50m of active setts during the breeding season (1st December to 31st June inclusive).
- In the unforeseen event that the project requires works to be undertaken within the recommended buffer distances outlined above, further measures as outlined in NRA (2009) will be adopted in liaison with local NPWS staff.

5.1.4.4 Invasive Plant Species

No invasive plant species were identified on site during the site walkover. However, the following precautionary measures are recommended:

- Biosecurity measures will be undertaken to prevent the importation of invasive species from contaminated areas into the study area:
    - For any material entering the site, the supplier must provide an assurance that it is free of invasive species.
    - Machinery or plant to be inspected upon arrival and departure from site and cleaned when necessary.
    - Ensure all site users are aware of invasive species management plan and treatment methodologies. This can be achieved through "toolbox talks" before works begin on the site.
    - Adequate site hygiene signage should be erected in relation to the management of non-native invasive species material.

5.2 Operational Phase

5.2.1 Designated Sites

No significant adverse effects on designated sites are expected to arise during the operational phase, therefore no specific mitigation measures are required.

5.2.2 Habitats

No significant adverse effects on habitats are expected to arise during the operational phase, therefore no specific mitigation measures are required.

5.2.3 Species

5.2.3.1 Bats

Foraging Habitat

The proposed landscaping plan includes for the planting of native species of trees, shrubs and species rich grassland areas, as such habitats for foraging bats are likely to improve during the operational phase. No further specific mitigation measures are required.

Lighting

The protection of dark refuges is essential for bats, particularly in urban and suburban areas. Careful design of the lighting will be important to ensure that the residential development does not create barriers for bats commuting and foraging at the site, while maintaining health and safety requirements for human use. This is particularly important for bat foraging/commuting habitat along retained hedgerows and treelines at the site.

The following general principals will be followed in relation to the overall lighting plan for the proposed development site:

- Lighting design will be flexible and be able to fully take into account the presence of protected species. Therefore, appropriate lighting shall be used within the proposed development and adjacent areas with more sensitive lighting regimes deployed in wildlife sensitive areas, including the foraging areas for bats along hedgerows and treelines.
- Dark buffer zones will be used to separate habitats or features from lighting by forming a dark perimeter around them. This shall be used for habitat features noted as foraging and commuting areas for bats. Light spill onto foraging habitat (i.e. hedgerow and treelines) shall be avoided.
- Buffer zones will be used to protect dark buffer zones and rely on ensuring light levels (levels of illuminance measured in lux) within a certain distance of a feature do not exceed certain defined limits. The buffer zone can be further subdivided into zones of increasing illuminance limit radiating away from the feature or habitat that requires to be protected. This will apply along foraging habitat.

Luminaire design is extremely important to achieve an appropriate lighting regime. Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following will be considered when choosing luminaires. This is taken from the most recent BCT Lighting Guidelines (BCT, 2023).

- All luminaires used will lack UV elements to reduce impact.
- LED luminaires will be used due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins) is recommended to reduce the blue light component.
- Light sources shall feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.
- Column heights shall be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01.
- Luminaires shall always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting shall be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

For the proposed development at Courtstown, dark areas will be retained within back gardens, including the treeline at the north-west of the proposed site where the light sensitive species brown long-eared bat was recorded.

5.3 Residual Impacts

Provided that the mitigation measures provided in Section 5 of this report are effectively implemented, there will be no significant adverse residual effects on flora and fauna as a result of the proposed Large Scale Residential Development at Courtstown, Little Island.

With the successful implementation of the proposed landscaping plan, there will be a net gain in native species of broadleaved trees, species rich grassland and a pollinator supporting biofiltration bed. It is anticipated that the proposed development will result in biodiversity net gain in the medium to long term.

6 Conclusion

Provided that the mitigation measures provided in Section 5 of this report are effectively implemented, it is not anticipated that there will be any significant adverse effects on ecological features as a result of the proposed Large Scale Residential Development at Courtstown, Little Island.

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Appendix A: NBDC Records

NBDC Species Records from within 500m of the Proposed Dwelling

Species name	Date of last record	Designation
Common Frog (*Rana temporaria*)	31/12/1979	Annex V, Wildlife Acts
Smooth Newt (*Lissotriton vulgaris*)	30/06/1975	Wildlife Acts
Barn Owl (*Tyto alba*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Barn Swallow (*Hirundo rustica*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Bar-tailed Godwit (*Limosa lapponica*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Black-headed Gull (*Larus ridibundus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Black-legged Kittiwake (*Rissa tridactyla*)	29/02/1984	Wildlife Act, Birds of Conservation Concern - Amber List
Black-tailed Godwit (*Limosa limosa*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Brent Goose (*Branta bernicla*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Coot (*Fulica atra*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Goldeneye (*Bucephala clangula*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Greenshank (*Tringa nebularia*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Kestrel (*Falco tinnunculus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Kingfisher (*Alcedo atthis*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Common Linnet (*Carduelis cannabina*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Pheasant (*Phasianus colchicus*)	31/12/2011	Wildlife Acts
Common Redshank (*Tringa totanus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Common Sandpiper (*Actitis hypoleucos*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Shelduck (*Tadorna tadorna*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Snipe (*Gallinago gallinago*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Starling (*Sturnus vulgaris*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Swift (*Apus apus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Common Tern (*Sterna hirundo*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List

Common Wood Pigeon (*Columba palumbus*)	31/12/2011	Wildlife Acts
Corn Crake (*Crex crex*)	31/07/1972	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Red List
Dunlin (*Calidris alpina*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Eurasian Curlew (*Numenius arquata*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Eurasian Oystercatcher (*Haematopus ostralegus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Eurasian Teal (*Anas crecca*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Eurasian Wigeon (*Anas penelope*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Eurasian Woodcock (*Scolopax rusticola*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
European Golden Plover (*Pluvialis apricaria*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Red List
Garganey (*Anas querquedula*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Goosander (*Mergus merganser*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Great Black-backed Gull (*Larus marinus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Great Cormorant (*Phalacrocorax carbo*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Great Crested Grebe (*Podiceps cristatus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Great Northern Diver (*Gavia immer*)	31/12/2011	Wildlife Acts, Annex I Bird Species
Greater Scaup (*Aythya marila*)	29/02/1984	Wildlife Acts, Birds of Conservation Concern - Amber List
Grey Plover *(Pluvialis squatarola*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Greylag Goose (*Anser anser*)	31/07/1991	Invasive Species Regulation S.I. 477 (Ireland), Wildlife Acts, Birds of Conservation Concern - Amber List
Hen Harrier (*Circus cyaneus*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Herring Gull (*Larus argentatus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
House Martin (*Delichon urbicum*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
House Sparrow (*Passer domesticus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Jack Snipe (*Lymnocryptes minimus*)	29/02/1984	Wildlife Acts
Lesser Black-backed Gull (*Larus fuscus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Little Egret (*Egretta garzetta)*	31/12/2011	Wildlife Acts, Annex I Bird Species
Little Grebe (*Tachybaptus ruficollis*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List

Little Gull (*Larus minutus*)	29/02/1984	Wildlife Acts, Annex I Bird Species
Long-tailed Duck (*Clangula hyemalis*)	31/12/2011	Wildlife Acts
Mallard (*Anas platyrhynchos*)	31/12/2011	Wildlife Acts
Mediterranean Gull (*Larus melanocephalus*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Merlin (*Falco columbarius*)	31/07/1972	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Mew Gull (*Larus canus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Mute Swan (*Cygnus olor*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Northern Lapwing (*Vanellus vanellus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Northern Shoveler (*Anas clypeata*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Northern Wheatear (*Oenanthe oenanthe*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Peregrine Falcon (*Falco peregrinus*)	31/12/2011	Wildlife Acts, Annex I Bird Species
Red Knot (*Calidris canutus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Red-breasted Merganser (*Mergus serrator*)	31/12/2011	Wildlife Act
Red-throated Diver (*Gavia stellata*)	31/12/2011	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Ringed Plover (*Charadrius hiaticula*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Rock Pigeon (*Columba livia*)	31/12/2011	Wildlife Acts
Ruddy Duck (*Oxyura jamaicensis*)	31/12/2011	High Impact Invasive Species, Invasive Species EU Regulation No. 1143/2014, Invasive Species Regulation S.I. 477 (Ireland)
Sand Martin (*Riparia riparia*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Short-eared Owl (*Asio flammeus*)	29/02/1984	Wildlife Acts, Annex I Bird Species, Birds of Conservation Concern - Amber List
Sky Lark (*Alauda arvensis*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Spotted Flycatcher (*Muscicapa striata*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Stock Pigeon (*Columba oenas*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Tufted Duck (*Aythya fuligula*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Water Rail (*Rallus aquaticus*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Amber List
Yellowhammer (*Emberiza citrinella*)	31/12/2011	Wildlife Acts, Birds of Conservation Concern - Red List
Japanese Knotweed (*Fallopia japonica*)	05/03/2020	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Marsh Fritillary (*Euphydryas aurinia*)	31/12/1990	Annex II

American Mink (*Mustela vison*)	31/12/1989	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Bank Vole (*Myodes glareolus*)	31/12/1992	Medium Impact Invasive Species
Brown Rat (*Rattus norvegicus*)	31/12/1968	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland)
Eurasian Badger (*Meles meles*)	24/04/1990	Wildlife Acts
Eurasian Red Squirrel (*Sciurus vulgaris*)	12/06/2022	Wildlife Acts
European Otter (Lutra lutra)	24/04/1990	Annex II, Annex IV, Wildlife Acts
European Rabbit (*Oryctolagus cuniculus*)	31/12/1968	Medium Impact Invasive Species
Fallow Deer (*Dama dama*)	31/12/2008	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland), Wildlife Acts
House Mouse (*Mus musculus*)	31/12/1968	High Impact Invasive Species
Sika Deer (*Cervus nippon*)	31/12/2008	High Impact Invasive Species, Invasive Species Regulation S.I. 477 (Ireland), Wildlife Acts
West European Hedgehog (*Erinaceus europaeus*)	31/12/1968	Wildlife Acts

Appendix B Winter Bird Survey Report

Winter bird survey at a site at Courtstown, Little Island, Co. Cork.

Limosa Environmental
ecological & environmental consultancy

April 2024

Revision	Report Reference	Description	Author(s)	Checked by	Date
A (Draft)	RP24-GW207-09-A	Report	L J Lewis	LJL	18th April 2024
0 (Final)	RP24-GW207-09-0	Report	L J Lewis	LJL	19th April 2024

Limosa Environmental (2024) Winter waterbird survey at a site at Courtstown, Little Island, Co. Cork. April 2024.

Front Cover photo: Ballytrasna Park Road (L2985), Courtstown, Little Island, March 2024.

Contents

1. Introduction and background

Limosa Environmental was commissioned to undertake a winter waterbird survey at a site at Courtstown, Little Island, Co. Cork. The survey was commissioned to provide information to assist in the process of Appropriate Assessment screening (AA screening) of a proposed residential development at the site (Figure 1).

The obligation to undertake Appropriate Assessment arises from Articles 6 (3) and (4) of European Union (EU) Council Directive 92/43/EEC (Habitats Directive) and transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 (S.I. 355/2015). Screening is the first stage of an Appropriate Assessment (AA) and aims to establish whether a proposed plan or project (in this case a project) either alone or in combination with other plans or projects, could have significant negative effects on a Natura 2000 site in view of the site's conservation objectives. At Stage 2 (Appropriate Assessment), the impact of a project or plan alone and in combination with other projects or plans on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function (DoEHLG, 2009).

Natura 2000 sites are Special Areas of Conservation (SACs) designated under the EU Habitats Directive,[1] and Special Protection Areas (SPAs), designated under the EU Birds Directive.[2] As signatories to these Directives, Ireland like other EU Member states, has designated prime areas of ecological importance as SACs and SPAs and these are part of a network of sites of 'community importance' for biodiversity across the EU called the 'Natura 2000' network.

The proposed project lies close to Cork Harbour Special Protection Area (SPA Site Code 4030) (Figure 2). While this designated site covers marine and intertidal habitats of Cork Harbour, there is a requirement during the AA process to consider '*ex-situ* factors' i.e. the possibility that waterbird species listed for the SPA may utilise terrestrial habitats around the harbour, and as a consequence, may be impacted by development of the site.

The SPA Conservation Objectives Document for Cork Harbour SPA (NPWS 2014a) states the following: '*several of the listed waterbird species may at times use habitats situated within the immediate hinterland of the SPA or in areas outside of the SPA but ecologically connected to it. The reliance on these habitats will vary from species to species and from site to site. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and/or a reduction in their numbers'*.

During field surveys, carried out across the months February to March 2024, we recorded observations of waterbirds and other bird species within the site and on the site boundaries. This report details the results of this survey.

[1] Council Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna, as amended by Council Directive 97/62/EC. The Directive was transposed into Irish law by the European Communities (Natural Habitats) Regulations 2011, amended and later consolidated by the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021.
[2] Directive 2009/147/EC (Birds Directive) on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended).

Figure 1. Location of survey site (red line boundary) and proximity of Cork Harbour Special Protection Area (yellow shading) and Great Island Channel Special Area of Conservation (grey hatching).

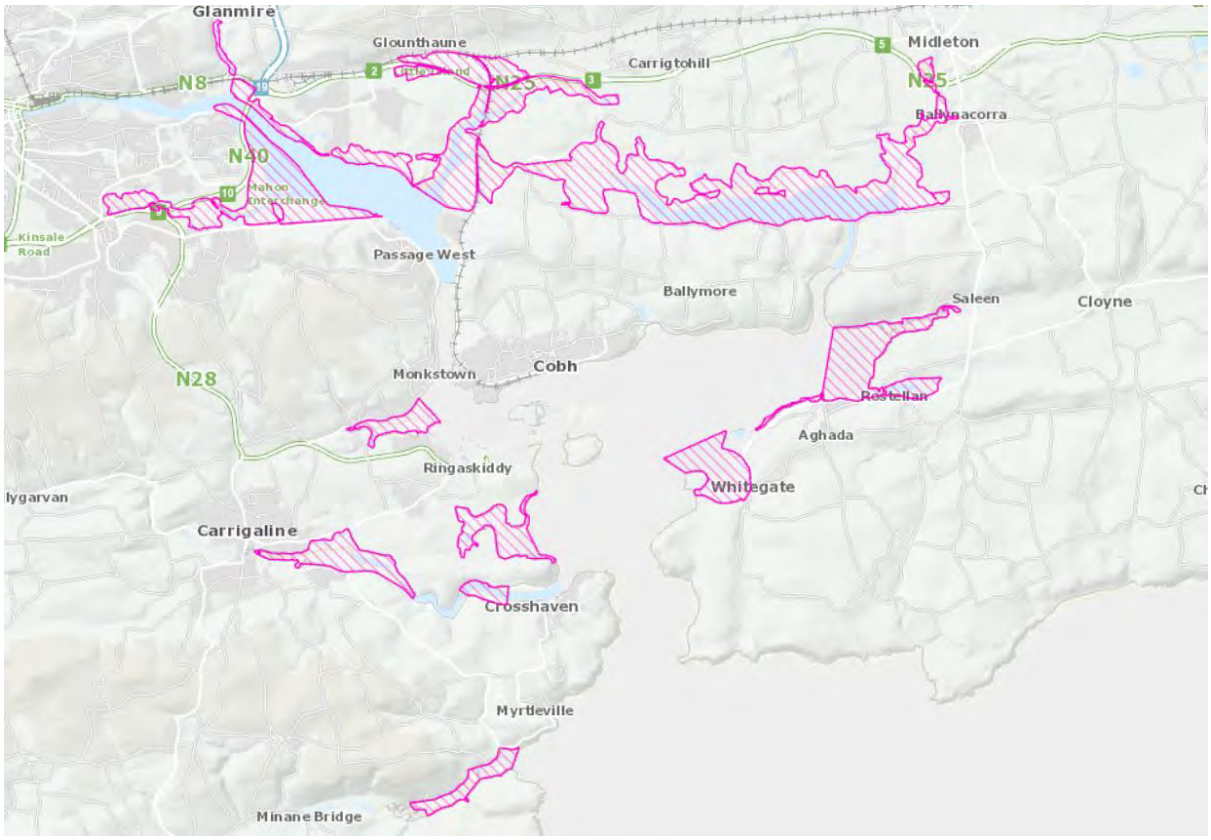

Figure 2. Cork Harbour Special Protection Area (Source: NPWS Designations Viewer/Esri).

2. Methods

2.1 Survey site

The survey site is located on Little Island at Grid Reference W 76861 71935 (Figure 3). The site is accessed from the north along the L2985 local road. The survey was conducted over the entire site (agricultural field). The field was in arable use at the time of survey (Fossitt code BC1), containing winter stubble.

Figure 3. Survey site.

2.2 Field survey methods

A series of short replicate survey periods was considered to be a better method for this survey than fewer, longer count sessions; the aim being to enhance/maximise data collection over various days, times and tidal stages. Therefore, eight separate 1-3 hour survey sessions were completed (Table 1).

Table 1. Survey dates and times.

Day	Visit	Date	Start time	Finish time	Cloud %	Wind (Force)	Rain	Visibility
1	1	15/02/2024	9.00	11.30	100	0-1	Drizzle	Good
1	2	15/02/2024	12.00	14.00	60	0-1	None	Good
2	3	29/02/2024	11.00	13.00	100	2	None	Good
3	4	07/03/2024	8.40	10.30	100	1-2	None	Good
3	5	07/03/2024	12.50	14.15	100	1-2	None	Good
4	6	22/03/2024	11.00	13.00	60	3-4	None	Good
5	7	25/03/2024	8.30	9.53	100	1	Drizzle	Good
5	8	25/03/2024	12.30	13.53	100	2	Drizzle	Good

On each survey visit the survey proceeded with a one-hour vantage point watch over the site. The site was scanned using binoculars from a vantage point to the north (existing entrance to the field) (the 'look-see' basis (Bibby et al. 2000)). Following the vantage point watch, the field was then walked and visually searched for signs of feeding waterbirds such as droppings or feeding signs.

Given the time spent on site, we decided to record all bird species during the surveys. We used the 'parks method' of survey as set out by Chamberlain et al. (2007). This method was considered more suitable for this site than a line transect through the middle of the site, because the latter may run the risk of not adequately picking up birds in the boundary treelines/woodland, especially those species that are relatively 'quiet' e.g. Treecreeper *Certhia familiaris* and Goldcrest *Regulus regulus*.

During each visit, the field observer walked along a survey route that took her to within 50m of every point of the site. All bird species seen and heard were recorded onto a field map (aerial photo) using the species code (two letter system developed by the British Trust for Ornithology (BTO)). The habitat that each bird was located within was recorded. The bird's behaviour was also recorded where possible, and birds flying over and obviously not interacting with the site were recorded separately.

Bird survey fieldwork was carried out at various times of the day and in suitable weather conditions (dry, light winds), although given the period of bad wet weather during the early part of 2024, some surveys encountered rain.

2.3 Data analysis and reporting

Following each field survey, the raw data were transcribed from the field maps into MS Excel. At the end of the survey season, the data were compiled, validated and entered into a MS Access database from where data summaries could be produced.

This report aims to provide a baseline of the wintering birds within the site. The report summarises the bird assemblage and highlights important species, aggregations, and habitats as appropriate. Where mentioned, habitat names and codes follow Fossitt (2000). Bird species common names are

used in the report text; Latin names are provided in Tables 2 and 6. A statement of the competency of the author of this report is given in Appendix 1.

3. Background to Cork Harbour Special Protection Area

3.1 Overview

Cork Harbour Special Protection Area (SPA) is a large, sheltered bay system, which stretches from the two main estuaries of the River Lee, near Cork City in the northwest, and the Owenacurra River, near Midleton in the northeast, southwards as far as Roches Point. It is a complex site and encompasses many other estuaries and inlets including the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poulnabibe inlets.

Cork Harbour is regarded as an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top ten sites in the country (Fitzgerald et al. 2020). At the time of site designation, the site supported Black-tailed Godwit *Limosa limosa islandica*, and Redshank *Tringa totanus* in numbers of international importance, while a further 20 non-breeding (wintering) waterbird species occurred in numbers of national importance. Annex I species Common Tern *Sterna hirundo* has a breeding population within Cork Harbour, and this species is also listed as a Special Conservation Interest (SCI) for this SPA (NPWS, 2014b).

The Special Conservation Interest (SCI) species for Cork Harbour SPA are listed in Table 2 together with their baseline data[3] and conservation importance, in terms of All-Ireland importance or international importance, at the time of site designation. Also included is the recent five-year mean peak count (2017/18 – 2021/22) as published by the Irish Wetland Bird Survey (I-WeBS). These recent data show that Black-tailed Godwits still occur in numbers of international importance, while 17 other waterbird species occur in numbers of national (all-Ireland) importance. Of the wildfowl and wader species, Grey Plover now occurs in numbers that are below the national threshold.

Note that the thresholds used to determine numbers of national or international importance are applicable to the timing of the survey. All-Ireland thresholds currently follow (Burke et al. 2019) while international thresholds currently follow AEWA (2022). No thresholds are produced for gull and tern species.

[3] Baseline data based on the Irish Wetland Bird Survey (I-WeBS).

Table 2. Waterbird Special Conservation Interest (SCI) species for Cork Harbour SPA (* denotes numbers of all-Ireland importance; ** denotes numbers of international importance). Annex I species are shown in bold font.

Special Conservation Interest Species	**Baseline Data** (Mean peak 1995/96 – 1999/00 I-WeBS) (Source: NPWS, 2014b)	**Conservation Status during baseline period** (Source: NPWS, 2014b)	**Recent Data** 5-year mean peak number 2017/18 – 2021/22 (Source: I-WeBS)
Shelduck (*Tadorna tadorna*)	2,009	All-Ireland Importance	823*
Wigeon (*Anas penelope*)	1,791	All-Ireland Importance	1,302*
Teal (*Anas crecca*)	1,065	All-Ireland Importance	1,442*
Pintail (*Anas acuta*)	57	All-Ireland Importance	25*
Shoveler (*Anas clypeata*)	103	All-Ireland Importance	22*
Red-breasted Merganser (*Mergus serrator*)	121	All-Ireland Importance	53*
Little Grebe (*Tachybaptus ruficollis*)	57	All-Ireland Importance	82*
Great Crested Grebe (*Podiceps cristatus*)	253	All-Ireland Importance	124*
Cormorant (*Phalacrocorax carbo*)	521	All-Ireland Importance	252*
Grey Heron (*Ardea cinerea*)	80	All-Ireland Importance	104*
Oystercatcher (*Haematopus ostralegus*)	1,809	All-Ireland Importance	1,176*
Golden Plover (*Pluvialis apricaria*)	3,342	All-Ireland Importance	1,727*
Grey Plover (*Pluvialis squatarola*)	95	All-Ireland Importance	14
Lapwing (*Vanellus vanellus*)	7,569	All-Ireland Importance	1,157*
Dunlin (*Calidris alpina*)	9,621	All-Ireland Importance	3,647*
Black-tailed Godwit (*Limosa limosa*)	1,896	International Importance	2,996**
Bar-tailed Godwit (*Limosa lapponica*)	233	All-Ireland Importance	320*
Curlew (*Numenius arquata*)	2,237	All-Ireland Importance	1,043*
Redshank (*Tringa totanus*)	2,149	International Importance	1,582*
Black-headed Gull (*Chroicocephalus ridibundus*)	3,640	All-Ireland Importance	3,827
Common Gull (*Larus canus*)	1,562	All-Ireland Importance	260
Lesser Black-backed Gull (*Larus fuscus*)	783	All-Ireland Importance	204
Common Tern (*Sterna hirundo*)	102 breeding pairs	All-Ireland Importance	n/a

3.2 Conservation objectives

For coastal SPA sites, conservation objectives are defined for attributes relating to waterbird species populations, and for attributes related to the maintenance and protection of habitats that support them. These attributes are (1) population trend; (2) population distribution, and (3) habitat range and area. Site-specific conservation objectives for Cork Harbour SPA were published in 2014 and are shown in Table 3.

Table 3. Conservation Objectives – Cork Harbour SPA (after NPWS, 2014a, 2014b)

Objective 1 *To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for the SPA.*	*To be favourable, the long-term population trend for each waterbird Special Conservation Interest species should be stable or increasing. Waterbird populations are deemed to be unfavourable when they have declined by 25% or more, as assessed by the most recent population trend analysis.*
	To be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation
Objective 2 *To maintain the favourable conservation condition of the wetland habitat at the SPA as a resource for the regularly occurring migratory waterbirds that use it.*	*To be favourable, the permanent area occupied by the wetland habitat (2,587 ha) should be stable and not significantly less than the measured area, other than that occurring from natural patterns of variation.*

3.3 Conservation status

The conservation status of non-breeding[4] waterbird species of Cork Harbour SPA in relation to Objective 1a (population trend) is provided in the Conservation Objectives supporting document (NPWS, 2014b) and shown in Table 4a below. However, this conservation status assessment would now be considered out of date. As site trends, as published by I-WeBS, are not available for Cork Harbour (https://birdwatchireland.ie/app/uploads/2023/08/iwebs_trends_report.html), the current, and national trend for each of the waterbird SCI species is shown in Table 4b.

Table 4a. Waterbird Special Conservation Interest (SCI) species for Cork Harbour SPA and current conservation status (condition)

Conservation status (condition): Population Trend	SCI Species
Highly Unfavourable >50% decline	Pintail, Shoveler, Red-breasted Merganser, Cormorant, Grey Plover, Lapwing, Black-headed Gull, Common Gull and Lesser Black-backed Gull.
Unfavourable Decline of 25% – 49.9%	Shelduck, Wigeon, Great Crested Grebe, Dunlin, Curlew and Redshank.
(Intermediate) Unfavourable Decline 1% to 24.9%	Teal, Grey Heron and Oystercatcher.
Favourable Stable/increasing	Little Grebe, Golden Plover, Black-tailed Godwit and Bar-tailed Godwit.

[4] Conservation status is not given for the breeding population of Common Tern.

Table 4b. Current national trend for each of the waterbird SCI species based on I-WeBS data 1994/95 – 2019/20 (Kennedy et al. 2023).

Special Conservation Interest Species	Current 23-year national trend (after Kennedy et al. 2023)	Trend Classification
Shelduck	Increase (9.3%)	Stable or Increasing
Wigeon	Decline (18.2%)	Intermediate decline
Teal	Increase (19.4%)	Stable or Increasing
Pintail	Decline (-13.7%)	Intermediate decline
Shoveler	Decline (-10.8%)	Intermediate decline
Red-breasted Merganser	Decline (-14.7%)	Intermediate decline
Little Grebe	Increase (+38.2%)	Stable or Increasing
Great Crested Grebe	Decline (-10.8%)	Intermediate decline
Cormorant	Increase (42.9%)	Stable or Increasing
Grey Heron	Increase (+6.6%)	Stable or Increasing
Oystercatcher	Increase (+10.8%)	Stable or Increasing
Golden Plover	Decline (-58.8%)	Large decline
Grey Plover	Decline (-54.1%)	Large decline
Lapwing	Decline (-63.9%)	Large decline
Dunlin	Decline (-45.2%)	Moderate decline
Black-tailed Godwit	Increase (+92.3%)	Stable or Increasing
Bar-tailed Godwit	Decline (-5.1%)	Intermediate decline
Curlew	Decline (-43.1%)	Moderate decline
Redshank	Increase (+6.7%)	Stable or Increasing
Black-headed Gull	Unknown	-
Common Gull	Unknown	-
Lesser Black-backed Gull	Unknown	-
Common Tern	Unknown	-

3.4 Potential for Cork Harbour SCIs to occur within the site

Not all waterbird SCIs of Cork Harbour SPA could occur within the site due to their ecology, behaviour, preferred habitat etc. Table 5 shows the likelihood of the waterbird species listed for Cork Harbour SPA to use inland terrestrial sites for either foraging or roosting; this assessment was based on species ecology and habitat preferences.

Table 5. Potential for the waterbird SCI species listed for Cork Harbour SPA to utilise terrestrial agricultural lands for foraging or roosting.

Special Conservation Interest Species Cork Harbour SPA	Potential to use inland terrestrial sites for foraging or roosting
Shelduck	Although the species will breed at inland sites it would be unusual to find Shelduck within an agricultural stubble field.
Wigeon	A dabbling duck and herbivore, Wigeon can be found foraging in wet pastures, however the subject site is considered unsuitable for use by this species.
Teal	Widespread species on wetlands with good cover, such as reedbeds. Wide variety of habitats, both coastal and inland, and usually below an altitude of 200 metres, including coastal lagoons and estuaries and inland marshes, lakes, ponds and turloughs. Inland terrestrial foraging is not a well-known occurrence in Ireland however and the subject site is unlikely to be used to any extent by this species.
Pintail	Across their range, during the nonbreeding season, Pintails may use flooded and dry agricultural fields, lakes, reservoirs, estuaries, saltmarshes, freshwater and brackish wetlands, and bays. Inland terrestrial foraging is not a well-known occurrence in Ireland however and the subject site is unlikely to be used to any extent by this species.
Shoveler	Shoveler are mainly planktivorous, and typically filter the upper centimetres of the water column to collect zooplankton (e.g. Guillemain, Fritz & Guillon 2000). The subject site is considered unsuitable for use by this species.
Red-breasted Merganser	Feed mainly on fish and considered almost a wholly aquatic species. The subject site is considered unsuitable for use by this species.
Little Grebe	Wintering habitat includes ephemeral wetlands, sheltered coasts, estuaries and coastal lakes and lagoons. The subject site is considered unsuitable for use by this species.
Great Crested Grebe	Considered almost a wholly aquatic species. The subject site is considered unsuitable for use by this species.
Cormorant	Aquatic species, marine, coastal and freshwater. The subject site is considered unsuitable for use by this species.
Grey Heron	Although a largely aquatic species (coastal and freshwater), Grey Herons can be found in terrestrial sites foraging on earthworms. Possibility therefore that this species could be found in inland agricultural fields at times.
Oystercatcher	Wading bird species that is frequently found in terrestrial habitats when foraging. The hard and compacted nature of the soil in the subject site may lead to it being unsuitable for foraging however.
Golden Plover	Wading bird that often frequents terrestrial habitats such as grassland, arable crops and winter stubbles (e.g. Mason & McDonald, 1999, Gillings, 2003). We cannot rule out the possibility that this species utilises the subject site from time to time.
Grey Plover	Considered a coastal/intertidal species during winter but there is now some evidence of movement inland, especially during the night and when such a species may make movements along with other species such as Lapwing or Golden Plover. Ther subject site is unlikely to be used to any great extent though.
Lapwing	Wading bird that often frequents terrestrial habitats such as grassland, arable crops and winter stubbles (e.g. Mason & McDonald, 1999, Gillings, 2003). We cannot rule out the possibility that this species utilises the subject site from time to time.
Dunlin	Considered almost wholly dependent on intertidal habitats. The subject site is considered unsuitable for use by this species.
Black-tailed Godwit	Wading bird species that is frequently found in terrestrial habitats when foraging. The hard and compacted nature of the soil in the subject site may lead to it being unsuitable for foraging however.

Bar-tailed Godwit	Considered almost wholly dependent on intertidal habitats. The subject site is considered unsuitable for use by this species.
Curlew	Wading bird species that is frequently found in terrestrial habitats when foraging for earthworms. The hard and compacted nature of the soil in the subject site may lead to it being unsuitable for such a foraging wader though.
Redshank	Wading bird species that is sometimes found in terrestrial habitats when foraging, but generally close to wetlands.
Black-headed Gull	A gull species that will readily feed in terrestrial habitats. Often move onto land to follow tractors after ploughing or spreading manure. The subject site has some potential to be used by gull species at certain times.
Common Gull	A gull species that will readily feed in terrestrial habitats. Often move onto land to follow tractors after ploughing or spreading manure. The subject site has some potential to be used by gull species at certain times.
Lesser Black-backed Gull	A gull species that will readily feed in terrestrial habitats. Often move onto land to follow tractors after ploughing or spreading manure. The subject site has some potential to be used by gull species at certain times.
Common Tern	Seabird species. The subject site is considered unsuitable for use by this species.

4. Survey results

4.1 Species diversity

A total of 32 bird species was recorded during the winter surveys (Table 6). No Annex I species (EU Bird's Directive) were recorded. The species list includes ten species that are listed as *Birds of Conservation Concern in Ireland* (Gilbert et al. 2021), including four that are Red-listed and are of highest concern (Stock Dove, Snipe, Kestrel and Meadow Pipit). Note that the species list includes all birds recorded, including those in adjacent habitats. More detailed results on species, numbers and their locations are provided below.

4.2 Waterbirds

No Special Conservation Interest (SCI) species listed for Cork Harbour SPA were recorded within the site. One waterbird was recorded within the site overall - Snipe. This Red-listed wading bird was recorded on one survey visit only in March 2024, and a single individual was flushed from the site during the walkover survey. No other signs of use of the field by waterbirds (e.g. droppings, feeding signs) were observed during any of the walkover surveys.

Three gull species (Great Black-backed, Herring and Common) were recorded flying over the site but were not interacting with the site (Table 6).

Table 6. A list of all bird species recorded during the winter survey. Species are listed by taxonomic order, and Red and Amber-listed species under 'Birds of Conservation Concern 4' (Gilbert et al. 2021) are shown.

Family	Code	Species Common Name	Latin Name	BoCCI 2021
Pigeons, Doves	FP	Feral Pigeon	*Columba livia*	
Pigeons, Doves	SD	Stock Dove	*Columba oenas*	Red
Pigeons, Doves	WP	Woodpigeon	*Columba palumbus*	
Sandpipers, Snipes	SN	Snipe	*Gallinago gallinago*	Red
Gulls, Terns,	CM	Common Gull	*Larus canus*	Amber
Gulls, Terns,	GB	Great Black-backed Gull	*Larus marinus*	
Gulls, Terns,	HG	Herring Gull	*Larus argentatus*	Amber
Raptors	SH	Sparrowhawk	*Accipiter nisus*	
Raptors	BZ	Buzzard	*Buteo buteo*	
Raptors	K.	Kestrel	*Falco tinnunculus*	Red
Crows, Jays	MG	Magpie	*Pica pica*	
Crows, Jays	JD	Jackdaw	*Coloeus monedula*	
Crows, Jays	RO	Rook	*Corvus frugilegus*	
Crows, Jays	HC	Hooded Crow	*Corvus cornix*	
Crows, Jays	RN	Raven	*Corvus corax*	
Tits	BT	Blue Tit	*Cyanistes caeruleus*	
Tits	GT	Great Tit	*Parus major*	
Wrens	WR	Wren	*Troglodytes troglodytes*	
Starlings	SG	Starling	*Sturnus vulgaris*	Amber
Thrushes	ST	Song Thrush	*Turdus philomelos*	
Thrushes	B.	Blackbird	*Turdus merula*	
Chats, Old World Flycatchers	R.	Robin	*Erithacus rubecula*	
Chats, Old World Flycatchers	SC	Stonechat	*Saxicola rubicola*	
Old World Sparrows	HS	House Sparrow	*Passer domesticus*	Amber
Accentors	D.	Dunnock	*Prunella modularis*	
Wagtails, Pipits	PW	Pied Wagtail	*Motacilla alba*	
Wagtails, Pipits	MP	Meadow Pipit	*Anthus pratensis*	Red
Finches	CH	Chaffinch	*Fringilla coelebs*	
Finches	BF	Bullfinch	*Pyrrhula pyrrhula*	
Finches	GR	Greenfinch	*Chloris chloris*	Amber
Finches	LI	Linnet	*Linaria cannabina*	Amber
Finches	GO	Goldfinch	*Carduelis carduelis*	

4.3 Other bird species

28 non-waterbird bird species was recorded overall. Of these, one species, Raven, was recorded in flight over the site only (Table 7).

Nine species were recorded inside the site, including notably, the Red-listed Stock Dove. A total of 19 species was recorded within the site boundaries, a notable species being the Buzzard. Another raptor species Kestrel (Red-listed) was recorded in flight, but on one occasion was flying/hovering over the site, therefore actively foraging over the site. A total of 15 species was recorded within adjacent habitats, largely within habitats to the south and east (former golf course). Some of the most notable observations are detailed below.

Table 7. Peak number of birds recorded within any one survey visit, along with their location (within site, site boundaries, adjacent habitats, or in flight), highlighting Red and Amber-listed species under 'Birds of Conservation Concern 4' (Gilbert et al. 2021).

Species Common Name	Latin Name	BoCCI 2021	Within site	Site boundary	Adjacent habitats	In flight
Feral Pigeon	*Columba livia*		3			4
Stock Dove	*Columba oenas*	Red	7			
Woodpigeon	*Columba palumbus*		16	4	1	21
Sparrowhawk	*Accipiter nisus*				1	
Buzzard	*Buteo buteo*			1	1	2
Kestrel	*Falco tinnunculus*	Red			1	1
Magpie	*Pica pica*			1	1	4
Jackdaw	*Coloeus monedula*			2		13
Rook	*Corvus frugilegus*		1		2	40
Hooded Crow	*Corvus cornix*		4	4	3	4
Raven	*Corvus corax*					1
Blue Tit	*Cyanistes caeruleus*			3		
Great Tit	*Parus major*			2	1	
Wren	*Troglodytes troglodytes*			5		
Starling	*Sturnus vulgaris*	Amber		3	4	1
Song Thrush	*Turdus philomelos*			1		
Blackbird	*Turdus merula*		2	3	1	1
Robin	*Erithacus rubecula*		1	6		
Stonechat	*Saxicola rubicola*			1		
House Sparrow	*Passer domesticus*	Amber		4		
Dunnock	*Prunella modularis*			3	1	
Pied Wagtail	*Motacilla alba*				1	1
Meadow Pipit	*Anthus pratensis*	Red	1			
Chaffinch	*Fringilla coelebs*		1	6	1	1
Bullfinch	*Pyrrhula pyrrhula*			2		
Greenfinch	*Chloris chloris*	Amber		1		
Linnet	*Linaria cannabina*	Amber			2	
Goldfinch	*Carduelis carduelis*			7	1	3

Stock Dove – this passerine, a member of the dove and pigeon family, was observed foraging within the site on one survey occasion (7 individuals). It is a resident breeding bird. Stock Doves are associated with arable farmland and open woodland, hence the habitats within and surrounding the site are highly suitable for this species. This species has declined by over 50% in the Republic of Ireland during the lifetime of the Countryside Bird Survey (Lewis et al. 2019b) and is consequently a Red-listed species of highest conservation concern. Smiddy et al. (2022) states that flocks of 10-20 individuals are regularly recorded around Cork Harbour, and in East Cork.

Sparrowhawk – this raptor was recorded perched in a tree within the former Golf Course on one survey occasion. The species is found across a range of habitats where there is sufficient cover (trees)

and small mammal species to prey upon. This species is currently exhibiting a moderate decrease in population size within the Republic of Ireland.[5]

Buzzard – this raptor was observed on six survey visits. It was recorded flying (hunting) over the site once, the remaining observations were of birds (2 maximum) within the former Golf Course. On the 7th March, a pair of Buzzards was observed carrying nesting material and flying into the trees to the south of the site. This suggests that Buzzards may be breeding close to the site.

Kestrel – a Kestrel (Red-listed) was observed on two survey occasions, once in flight in adjacent habitats and on one occasion hovering over the site, actively searching for prey. This species is in decline in Ireland (Lewis et al. 2019b).

Crows – Five members of the crow family were recorded (Magpie, Jackdaw, Rook, Hooded Crow and Raven), the latter species recorded in flight over the site only. Most records were from the site boundaries, or birds in flight over the site.

Finches – five members of the finch family were recorded (Chaffinch, Bullfinch, Greenfinch, Linnet, Goldfinch). The most common species were Goldfinch and Chaffinch, and most records were from the site boundaries.

5. Discussion

While survey work can only be considered a 'snap-shot' view, the multiple site visits conducted during this winter bird survey adds confidence to the conclusion that the subject site is unlikely to be used by SCI species of Cork Harbour SPA, to an extent that would be considered a significant negative impact upon their populations. We have also considered the habitat type of the subject site (a stubble field) and the ecology of the waterbirds listed for Cork Harbour SPA, and relatively few species would likely utilise the site. Also of note is that the site (field) is used by local people for dog walking (*pers. obs*) and this may result in a reduced likelihood of the field being used by large numbers of birds.

The site and adjacent habitats were found to have a relatively diverse assemblage of passerine bird species however. The avian assemblage is likely benefitting from the expanse of open wooded grassland to the south and east of the former Golf Course.

Overall, the subject site is considered unsuitable for use by the majority of species listed for Cork Harbour SPA. For those species that are known to utilise terrestrial habitats, we conclude that it is highly unlikely that the subject site at Courtstown, Little Island is used by wintering waterbird species listed for Cork Harbour SPA to an extent that would lead to adverse negative impacts upon the species and impacts upon their conservation objectives.

[5] https://birdwatchireland.ie/our-work/surveys-research/research-surveys/countryside-bird-survey/countryside-bird-population-indicators/

6. References and information sources

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Appendix 1

Lesley Jane Lewis has a first-class honours degree in zoology and a PhD in estuarine and waterbird ecology, both from University College Cork.

Lesley has run the ecological consultancy business 'Limosa Environmental' since 2004. Seeking to work on larger projects than a sole ecologist can, Lesley started this business with the aim of putting together teams of specialist ecologists to cover all necessary aspects of ecology needed on projects. In addition to staff management, Lesley has also managed all financial, health and safety and risk management duties in relation to the operation of the business. To date she has gained considerable experience working on a range of contracts including Environmental Impact Assessments, Ecological Assessments (EcIA), Stage I Screening for Appropriate Assessment and Natura Impact Statements (NIS). While coastal ecology and waterbirds have always been a key part of work, Lesley has worked on a variety of projects from road developments, windfarms, housing developments to industrial projects with clients such as county councils and state agencies as well as private developers.

In addition to Limosa Environmental, Lesley has worked on a part-time basis for BirdWatch Ireland since 2009. Between 2009 and 2014, Lesley was employed by BirdWatch Ireland but was contracted to the National Parks & Wildlife Service (NPWS) as a waterbird ecologist. In this role Lesley was responsible for the design and implementation of the NPWS baseline low tide waterbird survey programme. Lesley was the project manager for the programme of surveys that ran over three winters (2009/10, 2010/11 and 2011/12) with surveys undertaken across 32 coastal Special Protection Areas (SPAs). Data collected from the low tide waterbird survey programme were analysed and used in the process of formulating conservation objectives for coastal SPAs. Lesley worked on all aspects of this process from the initial stages of conception and development, data analysis, through to the production of conservation objectives documents for all 32 coastal SPAs and the publication of standard low-tide survey methods for waterbirds in Ireland. From 2014 onwards, Lesley worked on various aspects of the Irish Wetland Bird Survey (I-WeBS) project. In addition, she worked on other BWI projects including those concerning forestry birds and seabirds; in 2015 acting as assistant project manager on the Seabird4 survey (survey of cliff-nesting seabirds 2015, NPWS). Since 2017, Lesley has been the project manager for the Irish Wetland Bird Survey (I-WeBS) and the Countryside Bird Survey (CBS).

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