Ecological Impact Assessment

Proposed Residential Development at Coolaghknock Glebe, Kildare Town, Co. Kildare

16 May 2024

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Executive Summary

This Ecological Impact Assessment has been prepared by NM Ecology Ltd on behalf of the Kildare County Council regarding a proposed residential development at Coolaghknock Glebe, Kildare Town. The proposed development will involve the construction of 131 dwellings, a creche, and associated works. The aim of this report is to identify and evaluate the impacts of the proposed development on ecosystems and their components, including designated sites, habitats, flora and fauna.

Designated sites

There are no designated sites in the vicinity of the Site. The *Curragh* proposed Natural Heritage Area is located approx. 300 m to the north-east, but it has no connection to the Site. Three other designated sites were identified approx. 3 – 5 km away, but there are no surface water (or other) pathways connecting them to the Site, so any risk of impacts can be ruled out.

A *Screening for Appropriate Assessment* report accompanies the application. It was concluded that the proposed development will not be likely to have a significant effect on any European sites.

Habitats and flora

Habitats within the proposed development site include hedgerow, neutral grassland and artificial surfaces. The hedgerows are considered to be of Local ecological importance, but other habitats are of Negligible importance. The majority of existing hedgerows will be retained and incorporated into the development, but it will be necessary to clear some internal hedgerows. This will be compensated by the planting of a new native hedgerow along the north-eastern boundary of the Site, resulting in an overall neutral effect on hedgerows.

The landscaping scheme for the proposed development will include an infiltration basin, hedgerows, street trees and orchards. These measures will compensate for the loss of baseline vegetation, and will introduce some features that are not currently present at the site, resulting in a net gain in the biodiversity value of the Site.

No legally-restricted invasive plant species (e.g. Japanese knotweed) were recorded at the site.

Fauna

A live hedgehog was encountered during one of the surveys. Other small mammal species such as stoat, pygmy shrew and Irish hare could potentially also use the site. No field signs of otters, badgers or other large terrestrial mammals were identified. Some common and widespread bird species were recorded, but only one species was of conservation importance (barn swallow). To

avoid impacts on small mammals and nesting birds it is recommended that site clearance works take place outside the nesting / breeding season, or that a pre-clearance survey is carried out.

A bat activity survey was carried out in August 2023. The farmland to the north-east of the Site, including the hedgerow on the north-eastern boundary, appears to be a foraging area of Local importance for common pipistrelle bats. Bat-sensitive lighting has been proposed in this area to avoid disturbance of foraging bats.

Conclusion

Subject to the successful implementation of these measures, we conclude that the proposed development will not cause any significant negative impacts on designated sites, habitats, legally protected species, or any other features of ecological importance.

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1 Introduction

1.1 Assessment brief

The aim of this Ecological Impact Assessment (EcIA) is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components. This includes designated sites, habitats, flora and fauna. It has been prepared in accordance with the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (2018), which is the primary resource used by members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The purpose of this document is to:

- Provide an objective and transparent assessment of the potential ecological impacts of the proposed development for all interested parties, including planning authorities and the general public,
- Facilitate objective and transparent determination of the consequences of the development in terms of national, regional and local policies relevant to ecology, and,
- Propose the steps that will be taken to adhere to legal requirements relating to designated sites and legally protected species (CIEEM 2018).

Although the above guidelines provide a framework for EcIA, many processes rely on the professional judgement of an ecologist, including survey design, the valuation of ecological features, and the characterisation of impacts. An outline of the author's experience, training and accreditation is provided in the following section, which support his competency to make such judgements.

1.2 Statement of authority

All surveying and reporting was carried out by Nick Marchant, the principal ecologist of NM Ecology Ltd. He has sixteen years of professional experience, including thirteen years as an ecological consultant, one year as a local authority biodiversity officer, and two years managing an NGO in Indonesia. He provides ecological assessments for developments throughout Ireland and Northern Ireland, including wind farms, infrastructural projects (roads, water pipelines, greenways, etc.), and a range of residential and commercial developments.

He has an MSc in Ecosystem Conservation and Landscape Management from NUI Galway and a BSc in Environmental Science from Queens University Belfast. He is a member of the Chartered Institute of Ecology and Environmental Management, and operates in accordance with their code of professional conduct.

2 Methods

2.1 Scoping

An Ecological Impact Assessment involves the following steps:

- Identification of designated sites within an appropriate zone of influence
- A walkover survey incorporating the following elements:
  - Classification and mapping of habitats
  - A search for rare / protected flora, and for invasive plant species
  - A search for field signs of rare or protected fauna (e.g. badgers), and habitat suitability assessments for species that are secretive, nocturnal or seasonal
  - Specialist surveys (e.g. bats, breeding birds) where appropriate
- Valuation of ecological features, review of legal considerations, and identification of important ecological features
- Assessment of impacts on important ecological features and development of appropriate mitigation strategies

2.2 Data collection and walkover survey

A desk-based scoping study was carried out using data from the following sources:

- Plans and specifications for the proposed development
- Bedrock, soil, subsoil, ground water and surface water maps from the Geological Survey of Ireland webmapping service, the National Biodiversity Data Centre, and the Environmental Protection Agency web viewer
- Maps and details of designated sites from www.npws.ie
- Biological records from the National Biodiversity Data Centre online mapping service
- The *Kildare County Development Plan* 2023 - 2029, *Kildare Town Local Area Plan* 2023 – 2029, and details of permitted or proposed developments from their online planning records

The following resources were used for the walkover surveys:

- Habitat surveys were carried out in accordance with the *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al 2011), and using the classification system of *A Guide to the Habitats of Ireland* (Fossitt 2000)
- Flora were identified using *Webb's An Irish Flora* (Parnell & Curtis 2012) and *The Vegetation Key to the British Flora* (Poland & Clement 2009). Nomenclature follows the plant crib of the Botanical Society of the British Isles (BSBI 2007). The abundance and extent of species is described using the DAFOR scale (Dominant, Abundant, Frequent, Occasional, Rare)
- Fauna surveys followed the methods outlined in the *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA 2006), with reference to other species-specific methods as appropriate.

Desktop data from internet resources was accessed between June and November 2023. A multi-disciplinary survey was carried out on 14 June, and a bat survey on 30 August.

Bat survey

The bat activity survey was carried out at dusk on 30 August 2023. It involved a slow-paced walk around the boundaries and interior of the site for one hour in the post-sunset period, recording any bat passes using a handheld bat detector (Anabat Walkabout, Titley Scientific Inc.). Survey methods were developed using *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Bat Conservation Trust, 3rd edition, 2016). Weather conditions were suitable for a bat survey: with a sunset temperature of 15 °C and light winds. There was some light drizzle for approx. 5 minutes near the end of the survey, but the remainder of the survey period was dry.

2.3 Valuation of ecological features

Based on the information collected during desktop and walkover surveys, the ecologist assigns an ecological importance to each feature based on its conservation status at different geographical scales (Table 1). For example, a site may be of National importance for a given species if it supports a significant proportion (e.g. 5%) of the total national population of that species.

Table 1: The six-level ecological valuation scheme used in the CIEEM guidelines (2018)

Ecological value	Geographical scale of importance
International	International or European scale
National	The Republic of Ireland or the island of Ireland
Regional	Leinster, and/or the east midlands of Ireland
County	County Kildare
Local	Suburban areas around Kildare Town
Negligible	None, the feature is common and widespread

It is accepted that any development will have an impact on the receiving environment, but the significance of the impact will depend on the importance of the ecological features that would be affected. The following is outlined in the CIEEM guidelines: "*one of the key challenges in an EcIA is to decide which ecological features (habitats, species, ecosystems and their functions/processes) are important and should be subject to detailed assessment. Such ecological features will be those that are considered to be important and potentially affected by the project. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to impacts from the development, and that will remain viable and sustainable."*

For this report we have only assessed impacts on ecological features of Local importance or higher (refer to Table 1), or those that receive legal protection. These features are termed 'important ecological features' and are listed in Section 4.6. Impacts on features of Negligible ecological importance (e.g. amenity grasslands) that do not receive legal protection are not considered to be significant, so they are not included in the impact assessment.

2.4 Ecological Impact Assessment

Potential direct, indirect or cumulative impacts on ecological features can be described in relation to their magnitude, extent, duration, reversibility and timing/frequency, as outlined in the CIEEM (2018) guidelines. Depending on the type of impact and the sensitivities of the important ecological feature, the ecologist may determine that the impact would have a 'significant effect'. The following definitions are provided in the CIEEM guidelines: "*A significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project*". "*For the purpose of EcIA, a 'significant negative effect' is an effect that undermines biodiversity conservation objectives for 'important ecological features', or for biodiversity in general."*. Where significant impacts are identified, measures will be taken to avoid, minimise or compensate for impacts (where possible). Subject to these measures, the EcIA concludes with a summary of residual impacts.

3 Development proposals

3.1 Description of the proposed development

The proposed development will comprise 131 no. residential units and a creche. Road access will be from Connagh Road at the north-western boundary, and internal roads and parking areas will be provided. Public open space will be created in the south-west of the Site, and houses will have private gardens.

Foul water from the proposed development will be connected to a local authority pumping station in the south-west of the Site, which will convey it to the Kildare Town Waste Water Treatment Plant (WWTP). In the latest Annual Environmental Report for the WWTP, it is reported that the WWTP is operating within its organic capacity and hydraulic capacity, and the effluent is compliant with the Emission Limit Values in its wastewater discharge licence.

Rainwater runoff from roofs and other impermeable surfaces will be channelled to an infiltration basin in the south of the Site, and discharged at a controlled rate to an existing soakaway to the north of the pumping station. The system will include an oil and hydrocarbon interceptor.

3.2 Other nearby developments (potential in-combination effects)

Live and recently-approved planning applications in the vicinity of the Site were reviewed on the online planning records of Kildare County Council, but the only applications in the vicinity of the Site were for small-scale works associated with existing buildings, e.g. residential extensions. Therefore, no potential in-combination effects were identified.

4 The Receiving Environment

4.1 Environmental setting

Site location and surroundings

The proposed development site (hereafter referred to as 'the Site') is located in a suburban area in the east of Kildare Town. It consists of agricultural grasslands surrounded by hedgerows and modern concrete walls. The north-western and south-western boundaries of the Site adjoin the Coolaghknock housing estate, and there are agricultural pastures on all other sides.

The broader surroundings are characterised by suburban housing, farmland (predominantly pastures and paddocks for horse husbandry, and some cattle grazing) and industrial facilities. The Curragh is located to the east of the Site.

Geology and soils

The underlying bedrock is limestone ('cherty often dolomitised limestone' on the GSI database), which is a regionally-important, karstified aquifer. Subsoils are limestone gravel (also a regionally important aquifer), and soils are a fine loamy drift.

Hydrology

The EPA database of rivers and streams does not show any watercourses within or adjacent to the Site. None were observed during surveys.

One of the key characteristics of 'The Curragh' region is the high drainage capacity of its bedrock, subsoils and soils, which means that any rainwater soaks rapidly to ground. There are few rivers, streams or other surface water bodies in the region.

The closest watercourse is the Tully Stream (a tributary of the River Barrow), which is approx. 1.8 km south of the Site at the closest point. Due to its distance from the Site and the presence of intervening buildings and roads, it can be concluded that the Site has no connection to the Tully Stream.

In summary, the Site has no connection to any watercourses.

4.2 Designated sites

A map of European sites in the surrounding area is provided in Figure 1, and details of the relevant sites are provided in Table 2.

Table 2: Designated sites shown in Figure 1

Site Name	Distance	Reasons for designation
Curragh pNHA (site code 392)	0.3 km north	Large expanse of lowland acid grassland, with pockets of wet heath and dry heath. The site supports rare fungi communities, populations of over-wintering golden plover, and Irish hare
Pollardstown Fen SAC, pNHA (396)	3.7 km north-east	**Annex I habitats:** alkaline fens, calcareous fens with *Cladium mariscus* and species of the Caricion davallianae, petrifying springs with tufa formation **Annex II species:** Narrow-mouthed Whorl Snail *Vertigo angustior*, Desmoulin's Whorl Snail *Vertigo moulinsiana*, Geyer's Whorl Snail (Vertigo geyeri)
Grand Canal pNHA (2104)	4.7 km north-east	Diversity of habitats, ecological connectivity, and protected aquatic plant species (Opposite-leaved Pondweed *Groenlandia densa*)

The Site is not within or adjacent to any designated sites, so there is no possibility of direct impacts.

Potential indirect impacts were considered using the *source-pathway-receptor* approach, which reviews *pathways* (e.g. surface water) between the *source* (the Site) and the *receptor* (a European site). The most common pathway is surface water, which typically occurs when a pollutant is washed into a river and carried downstream into a European site. Other potential pathways are groundwater, air (e.g. airborne dust or sound waves), or land (e.g. flow of liquids, vibration). The zone of effect for hydrological effects can be several kilometres, but for air and land it is rarely more than one hundred metres.

Figure 1	Designated sites
Location	Coolaghknock Glebe, Kildare Town
Applicant	NDFA
Date	17 Nov 2023

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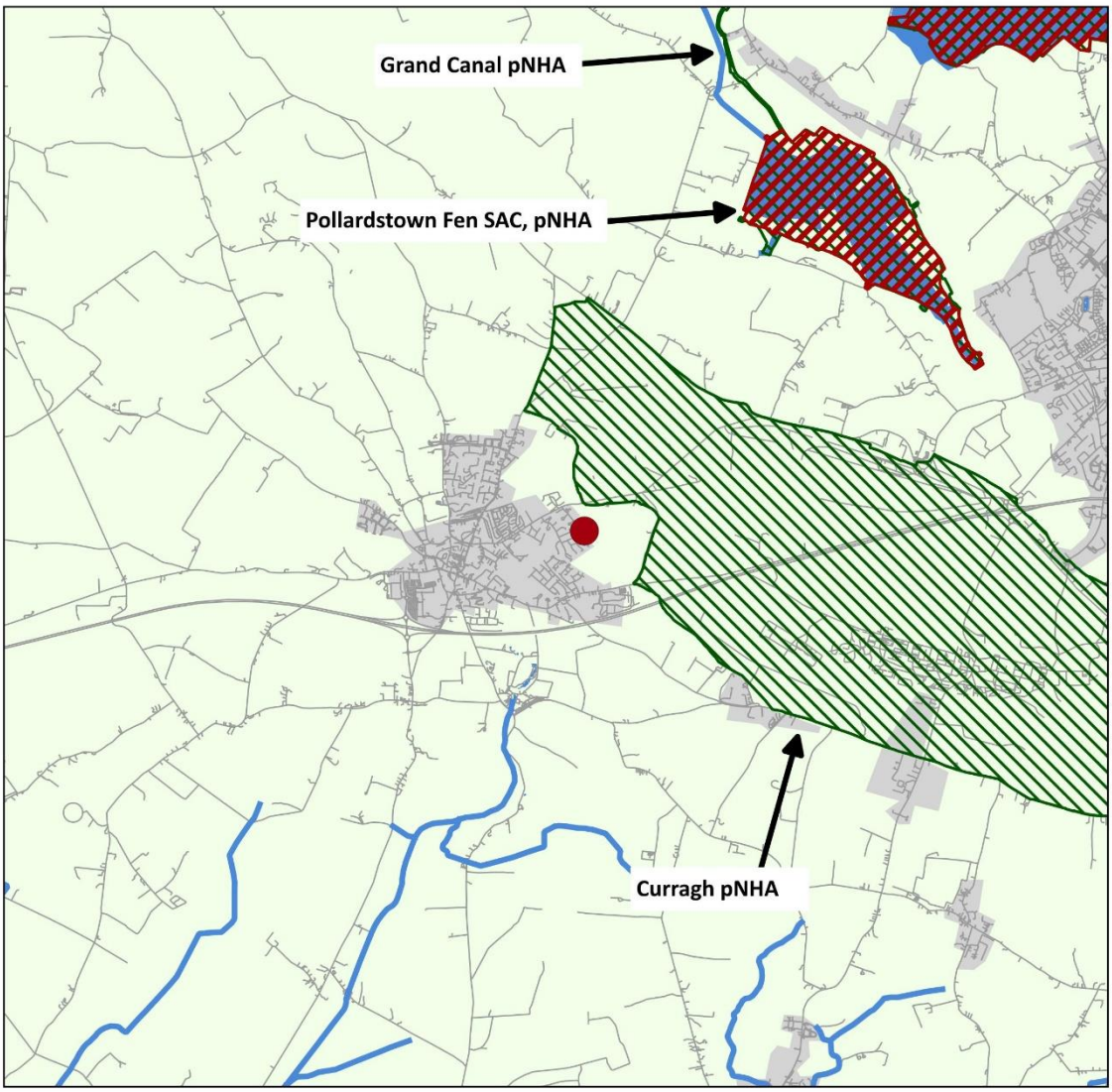
Site location
- Proposed development site
- Roads
- Watercourses

Designated sites
- Special Areas of Conservation
- Special Protection Areas
- Natural Heritage Areas (proposed)



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0 1 2 3 4 5 km

The *Curragh* pNHA

The pNHA is located 300 m north of the Site at the closest point. It was designated to protect acid grassland and heath habitats, rare fungi, golden plover and Irish hare. None of these habitats or species were recorded within the Site (refer to Sections 4.3 and 4.4), so the proposed development poses no risk of direct impacts on them.

As noted in Section 4.1, there are no surface water (or other) pathways linking the Site and the pNHA. The bedrock and soils underlying the Site are highly permeable and are similar to those underlying the Curragh, so it is likely that they are part of the same groundwater body. However, the *Curragh* pNHA was designated to protect terrestrial habitats and species, none of which have any interaction with groundwater. Distances are too great for land or air pathways. Therefore, all potential pathways for indirect impacts can be ruled out.

In summary, the proposed development poses no risk of impacts on the *Curragh* pNHA.

Potential pathways to other designated sites

The following pathways were considered:

- Surface water: there are no rivers or streams within or adjacent to the Site (refer to Section 2.1 and Figure 1)
- Groundwater: ruled out due to distance
- Land: ruled out due to distance
- Air: ruled out due to distance

In summary, no pathways were identified between the Site and any designated sites.

4.3 Habitats and flora

Habitats were classified using *A Guide to Habitats in Ireland* (Fossitt, 2000). The abundance of individual species was recorded using the DAFOR scale: Dominant, Abundant, Frequent, Occasional or Rare. A habitat map is shown in Figure 2.

Figure 2	Habitat map
Location	Coolaghknock Glebe
Applicant	NDFA
Date	17 Nov 2023

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Coolaghknock Habitat map
- Buildings and artificial surfaces (BL3)
- Neutral grassland (GS1)
- Hedgerow (WL1)
- Site boundary

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0 20 40 60 80 100 m

4.3.1 Phase 1 habitat survey

Hedgerow (WL1)

Hedgerows line all boundaries of the Site except a part of the north-eastern boundary. There is also a section of hedgerow through the centre of the Site that formerly divided it into two separate fields. The hedgerows in the centre of the Site, as well as those along the southern-western and north-eastern boundaries are visible on 1st Edition Ordnance Survey Maps (created in 1829 – 1841), which means that they have been present at this location for at least 180 years.

All hedgerows are dominated by hawthorn *Crataegus monogyna*. Elder *Sambucus nigra* is also co-dominant along the south-western boundary, and bramble *Rubus fruticosa* ag. is co-dominant in the south-eastern hedgerow. Dog-rose *Rosa canina* and grey willow *Salix cinerea* are frequent to occasional. Immature field maple *Acer campestre* is frequent along the north-western boundary, while sycamore *Acer pseudoplatanus* and beech *Fagus sylvatica* are frequent and occasional as emergent trees in other parts of the Site. Ivy *Hedera hibernica* is dominant in the canopy. No characteristic hedgerow ground flora was recorded.

This habitat is common and widespread in agricultural areas, but due to the age of the hedgerow it is considered to be of Local ecological importance. It also has secondary value for fauna (refer to Section 3.4).

Neutral grassland (GS1)

Aerial photography was reviewed to assess former land uses. It has a long history of agriculture, particularly livestock grazing. The central hedgerow formerly divided it into two separate fields, which were managed differently. The north-western field was used as a grazing pasture until the Coolaghknock housing estate was constructed in approx. 2005 – 2010. The south-eastern field appears to have been cultivated (e.g. for silage production) between 2000 and 2005. In approx. 2008 the site was separated from the adjacent farm by a wall of concrete blocks and the foul water pumping station was constructed. These construction works disturbed the soil in large parts of the Site. Since that time the Site has not been intensively managed, with some low-intensity sheep grazing, but also with periods in which there has been no management. For these reasons the habitat is considered to be neutral grassland (GS1) rather than improved agricultural grassland (GA1).

The south-eastern field is dominated by Yorkshire-fog *Holcus lanatus*. Frequent species include false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata*, sweet vernal-grass *Anthoxanthum odoratum*, white clover *Trifolium repens* and creeping thistle *Cirsium repens*. Occasional species include meadow foxtail *Alopecurus pratensis*, crested dog's-tail *Cynosurus cristatus*, common bent *Agrostis capillaris*, red bartsia *Odontites vernus*, nettle *Urtica dioica*, germander speedwell *Veronica chamaedrys*, lesser stitchwort *Stellaria graminea*, creeping buttercup *Ranunculus repens*, ribwort plantain *Plantago lanceolata* and

lesser trefoil *Trifolium dubium*. Rare species (in the context of the DAFOR scale) include hard rush *Juncus inflexus* and common sorrel *Rumex acetosa*.

The soil in the north-west of the Site appears more fertile, likely due to an application of fertiliser. The area is dominated by perennial rye-grass *Lolium perenne*, as well as abundant meadow foxtail, Yorkshire-fog and nettle. Creeping thistle is frequent, while hard rush and cock's-foot are occasional.

All of the above species are common and widespread in the surrounding area, so the habitat is considered to be of Negligible importance.

Buildings and artificial surfaces (BL3)

An artificial road through the centre of the Site provides access to the foul water pump station in the south of the Site. There is also a wall of concrete blocks along part of the north-eastern boundary of the southern field.

These features do not have vegetation and are of Negligible importance.

4.3.2 Rare or protected flora

No rare or protected plants were encountered.

4.3.3 Invasive plant species

No Japanese Knotweed *Fallopia japonica* or any other invasive plant species listed on the third schedule of the European Communities (Birds and Natural Habitats) Regulations 2011) were recorded within the Site.

4.4 Protected fauna

4.4.1 Terrestrial mammals

A live hedgehog was encountered in the grassland in the north-west of the Site during the bat survey on 30 August. The hedgerows could potentially be suitable for other small mammals such as pygmy shrew and / or stoat, and the grassland may be suitable for Irish hare. All of these species are shy and secretive, and they do not leave distinctive field signs, so it is very difficult to confirm their presence or absence during walkover surveys. Therefore, based on the suitability of habitats within the Site, we consider it likely to be of Local importance for the species listed above. All species are protected under the *Wildlife Act* 1976 (as amended).

No field signs of any other mammals were observed during the site inspections. There are no waterbodies suitable for otters. The hedgerows around the boundary of the Site were searched for badger setts, mammal paths, latrines, etc, but none were found. The Site does

not contain woodland habitat suitable for deer, red squirrels or pine martens. Therefore, the Site is of no importance for any other protected mammal species.

4.4.2 Bats

Bats are common and widespread in Ireland. During the day they roost in buildings, bridges and mature trees. At night they forage around wetlands (lakes, rivers, swamps), woodland and hedgerows. They typically avoid urban areas (particularly areas with artificial lighting) and open habitats such as grasslands.

Potential roost features

There are no buildings, bridges or other built structures within the Site. Buildings around the margins of the Site are modern and illuminated by streetlights, so they are considered unsuitable for roosting bats. No cavities, crevices or other potential roost features were identified on any of the mature trees. Therefore, the Site and its immediate surroundings are of Negligible importance for roosting bats.

Foraging / commuting habitat

The hedgerows were considered to be suitable for foraging bats, so a bat activity survey was carried out. The survey took place on 30 August, which is within the season of peak foraging activity for bats (typically May to September). Weather conditions were suitable for a bat survey, with a sunset temperature 15 ^{o}C and light winds. There was some light drizzle for approx. 5 minutes near the end of the survey, but the remainder of the survey period was dry.

Common pipistrelle was the only species recorded; this is the most common and widespread bat species in Ireland. Frequent foraging activity was recorded along the north-eastern hedgerow, likely as part of a foraging territory over the farmland to the north-east. Activity levels were much lower in the remainder of the Site, with only occasional passes by common pipistrelles around the margins of the south-eastern field.

The farmland to the north-east of the Site, including along the hedgerow on the north-eastern boundary, appears to be of Local importance for foraging / commuting bats. The remainder of the Site appears to be of Negligible importance.

4.4.3 Birds

There are no Special Protection Areas in the surrounding area, so there is no risk that any associated species could use the Site.

Some common species were observed during the surveys, including magpie, jackdaw, woodpigeon, black-headed gull, blackbird, wren and swallow. Swallows are included on the Amber list of the current Birds of Conservation Concern in Ireland (Gilbert et al. 2021) because they are of unfavourable status at a European level (included on the SPEC 3 list).

However, they are very widespread in Ireland, and they do not nest within the Site, so it is not considered to be of any particular importance for this species.

Overall, the Site is of Negligible importance for bird species. Birds and their nests are protected under the *Wildlife Act* 1976 (as amended), and it is possible that some species could nest within the hedgerows around the boundaries of the Site.

4.4.4 Fish and aquatic fauna

There are no waterbodies in the vicinity of the Site, so it is of no importance for fish or other aquatic fauna.

4.4.5 Reptiles and amphibians

No reptiles or amphibians were observed during the survey, nor any ponds or other permanent wetland features suitable for breeding. Therefore, the Site is of Negligible importance for these taxa.

4.4.6 Terrestrial invertebrates

The habitats within the Site are common in rural / suburban landscapes in Ireland, so it is considered to be of Negligible importance for invertebrates.

4.5 Potential limitations and information gaps

Field surveys were carried out in June and August, which are ideal months for ecological surveys. Therefore, the surveys are not considered to have any limitations or information gaps.

4.6 Identification of important ecological features

Table 3 provides a summary of all ecological features identified on the Site, including their importance and legal status. For the purposes of this impact assessment, any features that are of Local ecological importance, or that receive legal protection, are considered to be 'important ecological features', and will be addressed in the impact assessment.

Table 3: Important ecological features within the Site

Ecological feature	Importance	Legal status	Important feature?
Designated sites	N.A.	HR, WA	No
Hedgerows (WL1)	Local	-	Yes
Neutral grassland (GS1)	Negligible	-	No
Buildings and artificial surfaces (BL3)	Negligible	-	No
Rare / protected flora	N.A.	-	No

Ecological feature	Importance	Legal status	Important feature?
Invasive plant species	N.A.	-	No
Small mammals (hedgehog, stoat, pygmy shrew)	Local	WA	Yes
All other terrestrial mammals	Negligible	HR, WA	No
Bats (roosting)	N.A.	HR, WA	No
Bats (foraging)	Local	HR, WA	Yes
Birds (including nesting habitat)	Negligible	WA	Yes
Fish and aquatic fauna	N.A.	WA	No
Reptiles and amphibians	Negligible	-	No
Invertebrates	Negligible	-	No

** HR – EC (Birds and Natural Habitats) Regulations 2011; WA – Wildlife Act 1976*

In summary, the important ecological features identified in this assessment are hedgerows, foraging bats, small mammals and nesting birds. Potential impacts on these features are considered in Section 5. All other ecological features discussed in Section 4 are considered to be of Negligible ecological importance, so they do not need to be considered further in this assessment.

5 Predicted Impacts of the Proposed Development

5.1 Retention, removal and replacement of hedgerow habitat

The majority of existing hedgerows on the south-western, south-eastern and part of the north-western boundaries will be retained and incorporated into the public open space for the proposed development. Root protection zones will be installed around these trees and shrubs to prevent inadvertent damage during construction works.

A hedgerow along the north-western boundary and an internal hedgerow in the centre of the Site will be removed. The loss of these features will be compensated by the planting of a new native hedgerow along the remainder of the noth-eastern boundary. The length of new hedgerow will be approximately equal to the sections removed.

In summary, the majority of existing hedgerows will be retained, and new hedgerow planting will compensate for the small sections of hedgerow that will be removed, so the development as a whole is expected to have a neutral impact on this habitat.

5.2 Disturbance of breeding birds and mammals

Under Sections 22 and 23 of the *Wildlife Act* 1976 (as amended), it is an offence to kill or injure a protected bird or mammal, or to disturb their breeding / resting places. Most birds nest between March and August (inclusive), and the breeding season for most small mammals is similar. Therefore, it is strongly recommended that site clearance works are carried out between September and February (inclusive), i.e. outside the nesting season. If this is not possible, an ecologist will survey the affected areas in advance to assess whether any breeding birds or mammals are present. If any are encountered, vegetation clearance will be delayed until the breeding attempt has been completed, i.e. after chicks have fledged and a nest has been abandoned.

5.3 Bat foraging habitat

The farmland to the north-east of the Site, including along the hedgerow on the north-eastern boundary, appears to be a feeding area of Local importance for common pipistrelle bats. However, the existing and proposed hedgerow along the north-eastern boundary will provide screening for the foraging habitat. The retained hedgerows on the south-western and south-eastern boundaries will be unlit and will remain suitable for foraging bats. Therefore, there will be no impact on foraging bats.

5.4 Biodiversity enhancement measures

The *Landscape and Biodiversity Plan* for the proposed development (prepared by Mitchell & Associates, 2024) includes some biodiversity-enhancment measures that will be implemented as part of the landscaping scheme, including:

- Retention and management of hedgerows on the south-western, south-eastern and part of the north-eastern boundaries. A new native hedgerow will be planted along the remainder of the north-eastern boundary. All hedgerows will be trimmed every 2 – 5 years, cutting no more than 66% of the hedgerow in any year to retain some fruits for birds
- Planting of native trees and shrubs in landscaped areas, including rowan *Sorbus aucuparia*, pedunculate oak *Quercus robur*, bird cherry *Prunus padus*, crab-apple *Malus sylvestris* and hazel *Corylus avellana*
- Planting of native wetland vegetation in the surface-water infiltration basin in the south of the Site
- Management of grasslands as meadows, notably around the infiltration basin and in the east of the Site
- Swales will be managed as meadows, and will include check dams (typically large rocks), and filter strips planted with broadleaved trees
- Installation of bird nest boxes in public open space
- Provision of a hedgehog box in the retained hedgerow on the south-western boundary of the site

- Provision of small openings (13 x 13 cm) at the south-eastern boundary fence and in fences between private gardens to provide access for small mammals

These measures will compensate for removal of existing neutral grassland and some hedgerows. They will also introduce some habitats that are not currently present at the Site, notably a pond with wetland vegetation. When compared to the baseline environment, they are considered likely to have a slight positive effect on the biodiversity value of the Site.

5.5 Potential cumulative / in-combination impacts

No developments were identified in Section 3.2 that could potentially lead to in-combination effects.

6 Proposed mitigation measures

6.1 Protection of birds and small mammals during site clearance works

Under Sections 22 and 23 of the *Wildlife Act* 1976 (as amended), it is an offence to kill or injure a protected bird or mammal, or to disturb their breeding / resting places. Most birds nest between March and August (inclusive), and the breeding season for most small mammals is similar. Therefore, it is strongly recommended that site clearance works are carried out between September and February (inclusive), i.e. outside the nesting season. If this is not possible, an ecologist will survey the affected areas in advance in order to assess whether any breeding birds or mammals are present. If any are encountered, vegetation clearance will be delayed until the breeding attempt has been completed, i.e. after chicks have fledged and a nest has been abandoned.

7 Residual Impacts

The majority of hedgerow within the Site will be retained, and new hedgerow planting will compensate for the small sections of hedgerow that will be removed. The landscaping scheme for the proposed development will include an infiltration basin, trees, shrubs and meadows. When considered as a whole, the proposed development will have a slight positive effect on the biodiversity value of the Site.

Site clearance works will take place outside the season of peak breeding activity in birds and mammals, or the area will be surveyed by an ecologist to confirm that no protected fauna are present. This will avoid any direct impacts on breeding birds or small mammals, and prevent a legal offence under the *Wildlife Act 1976* (as amended).

The key areas used by foraging bats are outside the proposed development and will be screened by hedgerows, so they will not be affected by the proposed development.

Subject to the successful implementation of these measures, it can be concluded that the proposed development will not cause any significant negative impacts on designated sites, habitats, legally protected species, or any other features of ecological importance.

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