
Ecological Impact Assessment

Proposed residential development at
Burgage More, Blessington, Co. Wicklow

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Executive Summary

This Ecological Impact Assessment has been prepared by NM Ecology Ltd on behalf of Wicklow County Council (the applicant), as part of a planning application for a site at Burgage More in Blessington. The proposed development will involve the construction of 106 new residential units. The aim of this report is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, including designated sites, habitats, flora and fauna.

The *Poulaphouca Reservoir* SPA is located approx. 250 m to the east of the Site. A potential pathway to the SPA via groundwater was considered, but not found to be feasible. Winter bird surveys were carried out, and neither of the SPA bird species were recorded using the Site. Therefore, the proposed development will have no impact on the SPA or any other designated sites. A *Screening for Appropriate Assessment* report accompanies this application.

The main habitats within the Site are improved agricultural grassland and treelines. These habitats are common and widespread in the surrounding area, and are of negligible ecological importance. No protected plants or legally-restricted invasive species (e.g. Japanese knotweed) were recorded.

Some common bird species were recorded in the site, and it is likely that birds nest in the trees around the margins of the Site. Impacts on nesting birds will be avoided by scheduling site clearance works outside the nesting season, or by carrying out a pre-felling survey.

Some common bat species forage along treelines around the margins of the Site. Bat-sensitive lighting techniques will be implemented to minimise disturbance of foraging habitat, so there should not be a significant change in bat activity within the Site. Two bat boxes (used by three common pipistrelle bats) are located on retained trees within the site, but they will not be affected by the proposed development.

Some potential ecological enhancements are proposed, including the planting of native plant species (to benefit pollinators and birds) and the provision of bird boxes. If the ecological enhancement measures can be implemented, it may be possible to have a positive effect on local biodiversity.

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1 Introduction

1.1 Assessment brief

The aim of this Ecological Impact Assessment (EclA) is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, including 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 resources 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
- Propose the steps 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 EclA, 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 thirteen years of professional experience, including ten 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 (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

The objective of this assessment is to identify any ecological features that may pose a constraint to the proposed development. It 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 problematic non-native plant species (e.g. Japanese Knotweed)
 - 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
- Valuation of ecological features, review of legal considerations, and selection 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
- *A Report for the purposes of Appropriate Assessment Screening* for the Site carried out by Moore Group in April 2019
- *A Winter Bird Survey Report 2021* for the Site prepared by MKO consultants
- Bedrock, soil, subsoil, ground water and surface water maps from the Geological Survey of Ireland webmapping service (www.gsi.ie/mapping.htm), the National Biodiversity Data Centre (<http://maps.biodiversityireland.ie/>), and the Environmental Protection Agency web viewer (<http://gis.epa.ie/Envision/>)
- Maps and details of designated sites from www.npws.ie
- Biological records from the National Biodiversity Data Centre online mapping service
- The *Wicklow County Development Plan 2016 - 2022*, and details of permitted or proposed developments from the local authority's 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* (8th edition, Parnell & Curtis 2012), *Grasses, Sedges Rushes and Ferns of the British Isles and northwestern Europe* (Rose

1989) 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 in May and June 2021, and a site inspection was carried out on 26 May 2021. The survey was carried out within the boundaries of the Site, and adjacent lands were inspected visually within a 10-20m buffer.

Bat survey

A bat survey was carried out at dusk on the 11th of June, comprising a transect survey around the margins of the field. Survey methods were developed using *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Bat Conservation Trust, 3rd edition, 2016). Bats were recorded using an Echo Meter 3 detector (Wildlife Acoustics Inc). Weather conditions at the time of survey were suitable for bats, with warm temperatures, light winds and no rain.

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 ecological 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 (2019)

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 of Ireland
County	County Wicklow
Local	Blessington and the surrounding area
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 EclA 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 the purposes of this report we have only assessed impacts on ecological features that are 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) 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 EclA, 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). Based on these measures, any residual impacts are then described.

3 Development proposals

3.1 Characteristics of the proposed development

The proposed development will consist of 106 no. residential units, ranging from one-bedroom to three-bedroom units. The primary access point will be from Burgage More road, and it will lead to paved internal roads and parking spaces. Communal outdoor space will be provided. Most of the boundary trees will be retained and incorporated into the development, but some will be felled for safety reasons.

Foul water will be discharged to a local authority foul sewer on Burgage More road and conveyed to the Blessington Waste Water Treatment Works. Surface water runoff from roofs and paved surfaces will be discharged to a soakaway.

3.2 Other developments in the area (potential in-combination effects)

The Site is not zoned as part of the *Wicklow County Development Plan 2016 – 2022*. Live and recently approved planning applications in the vicinity of the Site were reviewed on the online planning records of Wicklow County Council (DCC), but none were found.

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 rural setting to the south of Blessington town. It currently consists of a single field of improved grassland surrounded by treelines.

The northern and eastern boundaries of the Site adjoin similar agricultural fields. The western boundary is marked by Burgage More Road, and the southern boundary by residential gardens and a horse-training facility. The broader surroundings consist mainly of agricultural land, low-density housing, and Poulaphouca Reservoir.

Geology and soils

The Site is underlain by coarse greywacke & shale, which is a poor aquifer. Subsoils are limestone gravel, and soils are a fine loamy drift with siliceous stones.

Hydrology

There are no watercourses in the vicinity of the Site, nor any drainage ditches around the margins of the field. The closest watercourse is an unnamed stream located approx. 600 m to the north-west. The main surface water feature in the area is the Poulaphouca Reservoir (also known as Pollaphouca or Blessington Lake), which is approx. 250 m east of the Site. It is an active reservoir that supplies drinking water to the Dublin area.

Under the Water Framework Directive status assessments 2013 – 2018, Poulaphouca Lake is of Good status.

4.2 Designated sites

The proposed development is not located within or adjacent to any designated sites. Potential indirect impacts were considered within a potential zone of influence of 5km¹. The locations of relevant sites are shown in Figure 1, and details are provided in Table 2.

¹ We consider a potential zone of influence of 5km to be proportionate for the Site due to the moderate scale of the proposed development and its suburban / rural setting.

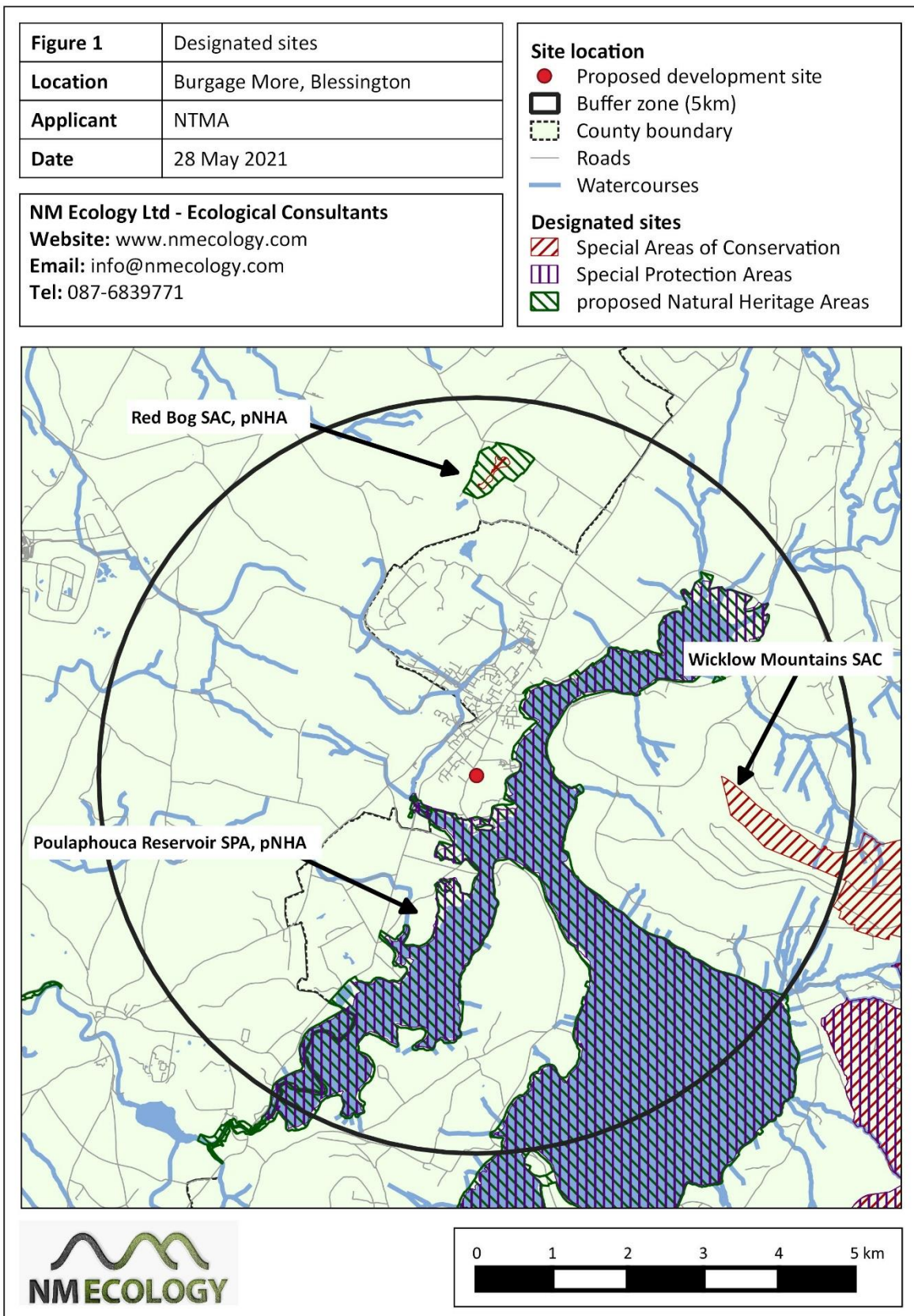


Table 2: Designated sites within 5 km of the Site

Site Name	Distance	Reasons for designation
Poulaphouca Reservoir SPA / pNHA (4063)	0.25 km east	Key habitats: freshwater lake and nearby agricultural grasslands Special conservation interests: greylag goose, lesser black-backed gull
Wicklow Mountains SAC (2122)	3.3 km east	Annex I Habitats: oligotrophic waters of sandy plains, natural dystrophic lakes and ponds, northern Atlantic wet heaths with <i>Erica tetralix</i> , European dry heaths, Alpine and Boreal heaths, Calaminarian grasslands of the <i>Violetalia calaminariae</i> , Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas, blanket bogs, siliceous scree of the montane to snow levels, calcareous rocky slopes with chasmophytic vegetation, siliceous rocky slopes with chasmophytic vegetation, old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles Annex II Species: otter
Red Bog SAC, pNHA (397)	3.8 km north	Annex I Habitats: transition mires and quaking bogs Annex II Species: none

Potential pathways for indirect impacts on designated sites

Indirect impacts can occur if there is a viable pathway between the source (the Site) and the receptor (the habitats and species for which a site has been designated). The most common pathway for impacts is surface water, e.g. if a pollutant is washed into a river and carried downstream into a designated 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 impacts can be several kilometres, but for air and land it is rarely more than one hundred metres. An appraisal of potential pathways to nearby designated sites is provided below.

The *Poulaphouca Reservoir SPA* is located approx. 250 m east of the Site. The SPA has been designated for an overwintering population of greylag geese, and a winter roost of lesser black-backed gull. There are no rivers, streams or drainage ditches linking the Site and the reservoir, so a pathway via surface water can be ruled out. Groundwater could potentially provide a pathway, considering that the soils are relatively well-drained. A pathway over land is not considered feasible due to the 250 m distance and the drainage capacity of underlying soils. Air can be ruled out as a pathway at this distance.

The *Wicklow Mountains SAC* is located 3.3 km east of the Site. It has been designated to protect a range of upland habitats including heath, bog, lakes, scree and woodland, as well as otters. It is located at a higher elevation than the Site and in a different river catchment,

so pathways via surface water and ground water can be ruled out. Pathways via land or air can also be ruled out due to distance.

The *Red Bog* SAC, pNHA is located 3.8 km north of the Site. It was designated to protect a wetland complex of lake, fen and bog (referred to jointly as transition mire habitat). It is located in a separate river catchment, so a pathway surface water can be ruled out. Pathways via groundwater, land and air can be ruled out due to distance.

In summary, a potential pathway via groundwater was identified between the Site and the *Poulaphouca Reservoir* SPA. This will be assessed in greater detail in Section 5.

4.3 Phase 1 Habitat Survey

Habitats within the Site were classified using *A Guide to Habitats in Ireland* (Fossitt 2000). A habitat map is not provided, because the distribution of habitats can clearly be discerned from aerial photography and the descriptions outlined below.

Improved agricultural grassland (GA1)

The Site covers a single field of agricultural pasture, which is grazed by cattle to a sward height of less than 5 cm. It is dominated by perennial rye-grass *Lolium perenne*, with abundant Yorkshire-fog *Holcus lanatus* and sweet vernal-grass *Anthoxanthum odoratum*, and occasional creeping thistle *Cirsium arvense*, creeping buttercup *Ranunculus repens*, meadow buttercup *Ranunculus acris*, creeping bent *Agrostis stolonifera*, white clover *Trifolium repens* and common ragwort *Senecio jacobaea*.

Improved agricultural grasslands are very common in rural areas, and all species listed above are common and widespread in Ireland, so the habitat is of Negligible ecological importance.

Treelines (WL2)

The field is lined by trees and tall shrubs on the northern, eastern and southern boundaries. They would originally have been planted as hedgerows, but due to a lack of regular cutting, shrubs such as hawthorn *Crataegus monogyna* have grown into trees, with very sparse growth at ground level. For this reason, they are referred to here as treelines rather than hedgerows. They are not stock proof, as cattle can freely walk through them. The dominant species is hawthorn, with frequent ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus* trees. There is no shrub layer or ground flora.

Along the western boundary (adjoining Burgage More road) there is an earth bank of approx. 1.5 m height. It supports some mature sycamores, and has patches of dense brambles in places. It also has some field margin / hedgerow species such as primrose *Primula vulgaris*, germander speedwell *Veronica chamaedrys*, nettle *Urtica dioica*, wood avens *Geum urbanum* and butterbur *Petasites hybridus*.

Treelines and hedgerows are widespread in rural areas. The treelines at this Site have a poor structure and relatively low species richness, so they are considered to be of Negligible importance. However, they may have secondary value for nesting birds, as outlined in Section 4.4.

Spoil and bare ground (ED2)

There is a small yard of bare earth at the Site entrance. It is heavily poached by cattle, and had some standing water at the time of survey. This habitat is unvegetated, and thus of Negligible importance.

Rare or protected flora

No rare or protected plants were encountered during field surveys.

Invasive plant species

No Japanese knotweed or any other restricted invasive species (as listed on the third schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011*) were recorded during the site inspection.

4.4 Protected fauna

Birds

Common countryside / garden birds

A small number of birds were observed during the survey: woodpigeon, wren and blackbird. It is likely that some other common rural birds will use the Site, including corvids, finches, tits and other common passerine species. It is likely that some species nest in the trees around the margins of the Site. Nonetheless, the Site is considered to be of Negligible importance for common bird species, as similar habitats are widespread in the surrounding area.

Birds associated with SPAs

The Site is approx. 250 m from the *Poulaphouca Reservoir SPA*, which has been designated for overwintering populations of greylag goose and lesser black-backed gull. The population of greylag geese is of note, because this species typically feeds on agricultural land, particularly cereal stubble and grassland. The following is noted in the site synopsis for the *Poulaphouca Reservoir SPA*: "*Poulaphouca Reservoir is of national importance for its Greylag Goose population, which is one of the largest in the country. The site provides the main roost for the birds, with feeding occurring mostly on improved grassland outside of the site.*" In theory the agricultural grassland within the Site could provide potential feeding habitat for this species, so further desktop and field assessments were carried out.

A previous Appropriate Assessment screening report was carried out for the Site in 2019 by Moore Group. The following was stated in the report: *“Consultation with the NPWS for the existing Blessington Greenway by the author established that the main concentration of Geese is located in the area of Threecastles to the north of the lake. Thus, disturbance impacts are unlikely in this area of Burgage More.”* The Threecastles area is located 4.5 km north-east of the Site.

In order to confirm the presence or absence of SPA bird species from the Site, a series of bird surveys were carried out by MKO Planning and Environmental Consultants between January and March 2021. Six surveys were carried out in total, each comprising a Vantage Point survey and a Transect Survey to search for goose droppings. No greylag geese were observed during any of the surveys, and no goose droppings were found during transect surveys. Lesser black-backed gulls were observed on three occasions (ranging from 1 – 6 birds on each occasion) flying within 500m of the Site, but not passing directly over the Site. Therefore, we conclude that the Site is of no importance for either of the qualifying interests of the *Poulaphouca Reservoir* SPA. A full outline of methods and results is provided in the *Winter Bird Survey Report 2021* that accompanies this application.

Other bird observations

Although the primary focus of the 2021 bird surveys was the special conservation interests of the SPA, notes were also made on activity by raptor species. Sparrowhawks were observed hunting within the Site on three occasions, and kestrel on one occasion. Buzzards were observed on seven occasions, and the following was noted in the report: *“A pair of buzzards were observed displaying over the woodland area to the south of the proposed development area on two occasions. A single buzzard was also observed flying over the site on a further five occasions. The buzzard pair observed to the south of the proposed development showed territorial behaviour and may use the area of woodland, 150m south of the proposed development site, for nesting.”*

All three species forage over large areas, and there is alternative hunting habitat in the surrounding area, so the Site is of Negligible importance for these species.

Terrestrial mammals

No terrestrial mammals were observed during field surveys, nor any characteristic field signs of protected species (e.g. badger setts). There are desktop records of a number of protected mammal species in the surrounding 10 km square (N91), including red deer, otter, badger, pine marten, hedgehog and red squirrel. The suitability of the Site for these species is discussed below.

Otters are primarily associated with aquatic habitats, particularly large rivers, lakes and coastal areas. As there are no suitable waterbodies within or adjacent to the Site, it is of Negligible importance for otters.

Badgers are common in rural areas, and they may feed within, or pass through, the Site on occasion. However, there are no badger setts within the Site, and no field signs of this species were found during the site inspection, so the Site is of Negligible importance for badgers.

Red deer, pine marten and red squirrel are usually associated with woodland habitats and/or areas with dense vegetation. The treelines around the margins of the Site are discontinuous, and do not provide a corridor between larger areas of woodland, so the Site is of Negligible importance for all three species.

Hedgehogs are often found in hedgerows, scrub or other habitat with dense cover at ground level. The treelines around the margins of the Site have very little cover at ground level, so they are of Negligible importance for hedgehogs.

Bats

Potential roost features

The site formerly contained a derelict agricultural storage building that supported a small roost of pipistrelle bats. Due to safety concerns the structure was demolished in 2021, subject to a derogation licence issued by the National Parks and Wildlife Service. Three live bats were removed from the structure during demolition works and transferred to bat boxes, which were installed on trees in the vicinity of the Site.

There are currently no buildings, bridges or other man-made structures within the Site. Trees were inspected from ground level to identify any crevices or cavities suitable for roosting bats, but no suitable features were found, so none of the trees are considered to be suitable for roosting bats.

Results of transect survey

A transect survey was undertaken along the treelines around the boundary of the Site. Moderate activity of four bat species was recorded: soprano pipistrelle, common pipistrelle, Leisler's bat and a *Myotis* sp., probably Daubenton's bat. All Irish bat species are listed as 'least concern' on the Irish red list of terrestrial mammals (Marnell et al 2019). Nonetheless, as part of a broader expanse of agricultural land in the surrounding area, the site is considered to be of Local importance for bats.

Reptiles and amphibians

No reptiles or amphibians were observed during the site survey. Considering the lack of wetland breeding sites for amphibians, and that all habitats within the Site boundary are

well-represented in the surrounding landscape, it is considered to be of Negligible importance for these taxa.

Terrestrial invertebrates

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

4.5 Potential limitations and information gaps

The site inspection was carried out in the ideal survey season for most flora and fauna, so this assessment is not considered to have any 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 / conservation 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	Valuation	Legal status*	Important feature?
<i>Poulaphouca Reservoir SPA</i>	International	HR	Yes
Other designated sites	International	HR / WA	No
Improved agricultural grassland (GA1)	Negligible	-	No
Treelines (WL2)	Negligible	-	Secondary value for fauna
Spoil and bare ground (ED2)	Negligible	-	No
Rare and protected flora	Negligible	-	No
Invasive species	Negligible	-	No
Birds	Negligible	WA	Yes
Terrestrial mammals	Negligible	-	No
Bats	Local	HR, WA	Yes
Reptiles and amphibians	Negligible	-	No
Invertebrates	Negligible	-	No

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

5 Predicted Impacts of the Proposed Development

5.1 Potential indirect impacts on the *Poulaphouca Reservoir SPA* (construction phase)

A potential pathway via groundwater was identified in Section 4.2 between the Site and the *Poulaphouca Reservoir SPA*. The bedrock underlying the Site has low permeability (it is a poor aquifer), but the soils appear to be well-drained. This suggests that rainfall (or other surface water) at the Site will percolate to ground and flow laterally through the subsoil / soil. The *Poulaphouca Reservoir SPA* is located approx. 250 m to the east of the Site, and is at a lower altitude, so it is possible that groundwater will seep in that direction.

However, it is important to note that any waterborne pollutants that percolate to ground during the construction of the proposed development would be filtered by 250 m of intervening soils prior to reaching the reservoir. Most pollutants would be filtered to negligible concentrations within that distance. Even if there was a large-scale pollution event within the Site, it is expected that only trace quantities of pollutants would reach the reservoir.

The qualifying interests of the SPA are greylag geese and lesser black-backed gulls. It has been established in Section 4.4 that greylag geese feed primarily on agricultural lands outside the SPA, not on aquatic vegetation. Lesser black-backed gulls are omnivorous species, whose diet is described on the Birdwatch Ireland website as “*a wide variety of prey including fish from the sea, waste from fisheries, rubbish from landfill sites, insects in flight, young birds and food from other birds*”. On this basis, neither species appears to feed exclusively on plants or animals in the reservoir, and thus neither would be at risk of ingesting pollutants generated during the construction of the proposed development.

Overall, considering that any pollutants generated during construction works would be filtered prior to reaching the reservoir, and that aquatic organisms within the reservoir are not the primary sources of nutrition for the SPA’s qualifying interests, it is not considered possible that any pollutants from the Site could negatively affect the qualifying interests of the SPA. Therefore, we conclude that the proposed development poses no risk of impacts on the *Poulaphouca Reservoir SPA*.

5.2 Disturbance of nesting birds / breeding fauna (construction phase)

The treelines around the boundary of the Site may be used by nesting birds. If site clearance works are carried out during the bird nesting season (between March and August, inclusive), it is possible that active nests could be destroyed. The killing of any birds, or the disturbance of their nesting sites, would constitute an offence under the *Wildlife Act 1976* (as amended).

5.3 Disturbance of roosting bats (construction phase)

Bat boxes are present on two of the mature trees within the development, which contained three live pipistrelle bats in 2021 (two bats roosting in one box, and one bat in the other). Both trees will be retained during construction work and incorporated into the landscaping scheme for the development. No artificial lighting will be located in the vicinity of either box.

There will be no direct or indirect impacts on either bat box or the bats that roost within them, so there will be no significant ecological impact and no offence under the *EC (Birds and Natural Habitats) Regulations 2011* (as amended).

5.4 Displacement / disturbance of foraging bats (operational phase)

Common bat species forage within the Site and immediate surroundings. Artificial lighting will be required for the proposed development to provide safe access for cars and pedestrians. If any such lighting is directed towards the trees around the boundary of the Site, it is likely that it could displace bats from the area. This could have a significant impact on local bat populations.

5.5 Potential in-combination impacts with other developments (all phases)

No developments or planning application were identified in the surrounding area that could potentially lead to in-combination effects.

6 Proposed mitigation measures

6.1 Protection of birds during site clearance works

Under Section 22 of the *Wildlife Act 1976* (as amended), it is an offence to kill or injure a protected bird, or to disturb their nests. Most birds nest between March and August (inclusive), so it is strongly recommended that all tree felling and 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 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.

6.2 Provision of bat-sensitive lighting

Bats are highly sensitive to artificial lighting, and may be displaced from the Site if lights are particularly intense, or if they are directed towards important habitat features. However, if 'bat-sensitive' lighting techniques are incorporated into the lighting plan, bats should continue to use the Site.

'Bat-sensitive lighting' for this development would have the following design principles, which are taken from the *Bats and Lighting* guidelines (BCT 2018):

- Zero-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least effect on bats. Mercury or metal halide bulbs will not be used.
- All external lights will be fitted with directional hoods and/or luminaires to direct the light onto targeted areas and to prevent unnecessary light-spill.
- No lights will be directed towards the trees around the boundaries of the Site
- Where lighting is required for pedestrian safety (e.g. at site entrances and internal paths), lights will be installed at a low level, e.g. on lighting poles of up to one metre in height. Lights will be directed onto ground level, with no light spill above the horizontal. Lux levels will be the minimum required for pedestrian safety
- External lights at site entrances will be fitted with motion sensors and timers in order to provide light only when required. Constant, overnight lights will not be permitted.

These measures will apply both to temporary lighting during the construction of the proposed development, and to permanent lighting during the operation of the development. In order to ensure that these techniques are effective, and that bat mitigation measures can be balanced with public safety requirements, the developer's ecologist will liaise with the contractor on the lighting design.

7 Residual Impacts

Tree felling and other site clearance works will take place outside the season of peak nesting activity in birds, or the area will be surveyed by an ecologist to confirm that no protected fauna are present. As a result, there will be no impact on nesting birds, and no legal offence under the *Wildlife Act 1976* (as amended).

Bat-sensitive lighting techniques will be incorporated into the lighting plan to avoid light-spill in areas that are likely to be used by bats. As a result, there should be no significant change in bat activity within the Site.

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.

8 References

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