Ecological Impact Assessment

Proposed Residential Development at Far Finisklin, Co. Sligo

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Executive Summary

This Ecological Impact Assessment has been prepared by NM Ecology Ltd on behalf of Sligo County Council (the applicant), as part of a planning application at Far Finisklin, Co. Sligo. The proposed development will involve the demolition of some buildings, the clearance of parts of the site, the renovation and conversion of a derelict structure (Rathellen House) and the construction of up to 63 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 Site is not within or adjacent to any designated sites. Potential pathways via surface water and groundwater were identified to three designated sites: the *Cummeen Strand / Drumcliff Bay* SAC / pNHA and the *Cummeen Strand* SPA. In response, a range of pollution-prevention measures will be implemented during construction works to prevent significant impacts on these sites. A Natura Impact Statement accompanies the application.

The main habitats within the Site are improved agricultural grassland, broadleaved woodland, hedgerow and scrub. The woodland is of local importance, but other habitats are of negligible importance. The majority of the woodland habitat will be retained, and additional tree planting will take place throughout the remainder of the Site, so there will be a neutral impact overall.

Two patches of Japanese Knotweed were identified within the Site. An Invasive Species Management Plan accompanies this application, which will address the management of Japanese Knotweed prior to, during and following the construction of the proposed development.

A single whiskered bat was found roosting in one of the outbuildings that is proposed for demolition. A series of mitigation measures will be implemented in advance of demolition works to ensure that the bat is not harmed, and that alternative roosting opportunities are provided. A derogation licence has been granted, and is provided as an appendix to this report. Bat-sensitive lighting techniques will be incorporated into the lighting plan in order to avoid light-spill into areas that are likely to be used by bats, and to allow them to continue using the site after construction.

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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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, 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 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

Nick Marchant

All reports were written by Nick Marchant, the principal ecologist of NM Ecology Ltd. He has fourteen years of professional experience, including eleven 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.

Dr Caroline Shiel

Bat surveys were carried out by Dr Caroline Shiel. She has over 30 years' experience of bat surveys for academic and commercial purposes. She has a PhD in "*Diet, foraging and activity at the roosts of Leisler's bat*", awarded by NUI Galway. She is a founding member of Bat Conservation Ireland and is currently a director and vice-chair of the organisation. She is also a member of the Heritage Council's panel of bat experts.

She regularly carries out bat surveys throughout Ireland, particularly of masonry bridges and heritage buildings. She holds a five-year bat specialist's licence (Sections 22 & 23) from National Parks and Wildlife Service.

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 *Hydrological Assessment Report* prepared by RPS Group in 2021
- A *Winter Bird Survey Report 2021* prepared by MKO consultants in 2021
- 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 *Sligo County Development Plan* 2017 - 2023, the *Sligo & Environs Local Area Plan* 2010-2016 (which has been extended, pending an update), 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 between May and August 2021. Surveys for most ecological features were carried out on 1st June 2021, and a badger survey was carried out on 21st January 2022. The survey was carried out within the boundaries of the Site, and adjacent lands were inspected visually within a 10-20m buffer.

Bat surveys

Survey methods were developed using *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Bat Conservation Trust, 3rd edition, 2016). At the outset of the project, a preliminary appraisal of all structures and trees was carried out to assess their suitability for roosting bats. A series of bat surveys were then carried out by Caroline Shiel (accompanied by her assistant Maurice Connolly) in the summer of 2021. The following surveys were carried out:

- An emergence and re-entry survey on 25th and 26th May
- An emergence survey on 28th June
- An emergence and re-entry survey on 17th and 18th July

Conditions were suitable for bats during all of these surveys, with no wind or 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	The north-west of Ireland
County	County Sligo
Local	Sligo Town 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 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 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 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). Based on these measures, any residual impacts are then described.

3 Development Proposals

3.1 Characteristics of the proposed development

The proposed development will involve the demolition of some derelict outbuildings, and the clearance of much of the remainder of the site. An existing structure (known as Rathellen House) and an associated outbuilding will be renovated and converted into 6 no. residential units. 57 no. new residential units will be constructed in the remainder of the site, comprising a mixture of 2 – 5 bedroom houses and 1 - 2 bedroom duplex apartments. In total, this will comprise 63 no. residential units.

The primary access point will be from Sea Road, and it will lead to paved internal roads and on-street parking spaces. A cycle path will run along the western and northern sides of the Site. Part of Sea Road will be re-aligned to accommodate public transport. Existing mature trees in the north of the Site will be retained and incorporated into a large area of public open space. New residences will have private gardens.

Figure 1. Site and immediate surroundings

Foul water will be discharged to a local authority foul sewer on Sea Road and conveyed to the Sligo Waste Water Treatment Works. Surface water runoff from roofs and paved surfaces will be discharged to an underground infiltration tank in the north of the site, with smaller soakaways to the rear of dwellings. Rainwater on green areas will percolate to groundwater.

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

The Site is located in a suburban setting on the south-western outskirts of Sligo Town. In the *Sligo Environs Development Plan* 2010 - 2016 (which has been extended), it is zoned as a low / medium density residential area, and as a strategic land reserve. The surrounding area is under moderate development pressure, particularly to the south and east.

Live and recently-approved planning applications in the vicinity of the Site were reviewed on the online planning records of Sligo County Council. The following were identified:

- Planning reference 2182: Permission granted in 2021 for a single-storey building extension and the alteration of waste facilities at a manufacturing facility to the east of the Site;
- 18100: Permission granted in 2018 for a minor expansion of works at a pharmaceutical facility approx. 10 m south-west of the Site;
- 18458: Permission granted in 2019 for a cold-storage facility and reconfiguration of parking facilities approx. 600 m south-east of the Site;
- 1577: Permission granted in 2015 for the continuation of work and retention of buildings at a scrap metal yard approx. 400m north-east of the Site;
- 17243: Permission granted in 2017 for an expansion of operations at a hazardous waste treatment facility located approx. 750 m east of the Site.

It is expected that all of these developments will have been completed by the time the proposed development commences, but it is possible that one or more may be constructed at the same time.

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 the townland of Far Finisklin, which is on the south-western outskirts of Sligo Town. It currently contains a derelict building and associated outbuildings, as well as fields of grassland surrounded by mature treelines and hedgerows (Figure 1).

The northern boundary of the Site is formed by Far Finisklin Road, the western boundary by Sea Road, the southern boundary by an An Post Delivery Centre, and the eastern boundary by open pasture land. Most land to the north and west of the Site is in agricultural usage, but most land to the south and east consists of industrial facilities and housing estates.

Geology and soils

The Site is underlain by limestone and shale (described as 'dark fine limestone & calcareous shale' on the GSI website). The bedrock is a locally-important aquifer. Subsoils are metamorphic till, and soils are a coarse loamy drift with limestones (Mullabane series).

Existing land elevations within the Site range from 6.0 m OD to 9.5 m OD (Malin), sloping from the south (high point) to the north (low point). In the Hydrological Assessment Report for the Site (RPS Group, 2021), it is noted that "*Storm runoff from the Site currently infiltrates to the ground, and any excess runoff drains northward and eventually discharges into Sligo Estuary as overland flow.*"

Hydrology

There are no rivers or streams within or adjacent to the Site. There is a drainage ditch on the northern boundary of the Site, which drains north-east towards the coast, and is culverted under Far Finisklin Road.

The closest watercourse is the Knappagh Stream, which is located approx. 250 m south-west of the proposed development. It flows north-west and meets the coast approx. 750 m downstream. However, considering its distance from the Site, and that the Site slopes toward the north, there is not considered to be any connection to this stream.

The main surface water feature of the surrounding area is the transitional waters of the Garvogue Estuary / Cummeen Strand Bay, which are located approx. 200 m north of the Site at the closest point.

Under the Water Framework Directive status assessments 2013 – 2018, the transitional waters of the Garvogue Estuary / Cummeen Strand are of Moderate status, the offshore coastal waters of Good status, and the Knappagh Stream is not monitored.

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 5km[1]. The locations of relevant sites are shown in Figure 3, and details are provided in Table 2.

Table 2: Designated sites within 5 km of the Site

[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.

Site name	Distance	Reasons for designation
Cummeen Strand / Drumcliff Bay SAC, pNHA (site code 627)	0.1 km north	**Annex I Habitats:** estuaries; mudflats and sandflats; embryonic shifting dunes; shifting dunes with *Ammophila arenaria*; fixed coastal dunes with herbaceous vegetation; *Juniperus communis* formations on heaths or calcareous grasslands; petrifying springs with tufa formation (Cratoneurion) **Annex II Species:** narrow-mouthed whorl snail, sea lamprey; river lamprey; common seal
Cummeen Strand SPA (4035)	0.1 km north	**Habitats:** coastal wetlands **Special conservation interests:** wintering populations of light-bellied brent goose, oystercatcher and redshank
Lough Gill SAC, pNHA (1976)	1.9 km east	**Annex I Habitats:** natural eutrophic lakes; old sessile oak woods; alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* **Annex II Species:** white-clawed crayfish, sea lamprey, brook lamprey, river lamprey, Atlantic salmon, otter
Drumcliff Bay SPA (4013)	3.8 km north	**Habitats:** coastal wetlands **Special conservation interests:** wintering populations of sanderling and bar-tailed godwit
Knocknarea Mountain and Glen pNHA (1670)	4.6 km south-west	Limestone cliffs, grassland and semi-natural woodland, supporting a range of rare plant species

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 the designated sites in Table 2 is provided below.

Figure 2	Designated sites
Location	Far Finisklin, Sligo
Applicant	Sligo County Council
Date	16 Sep 2021

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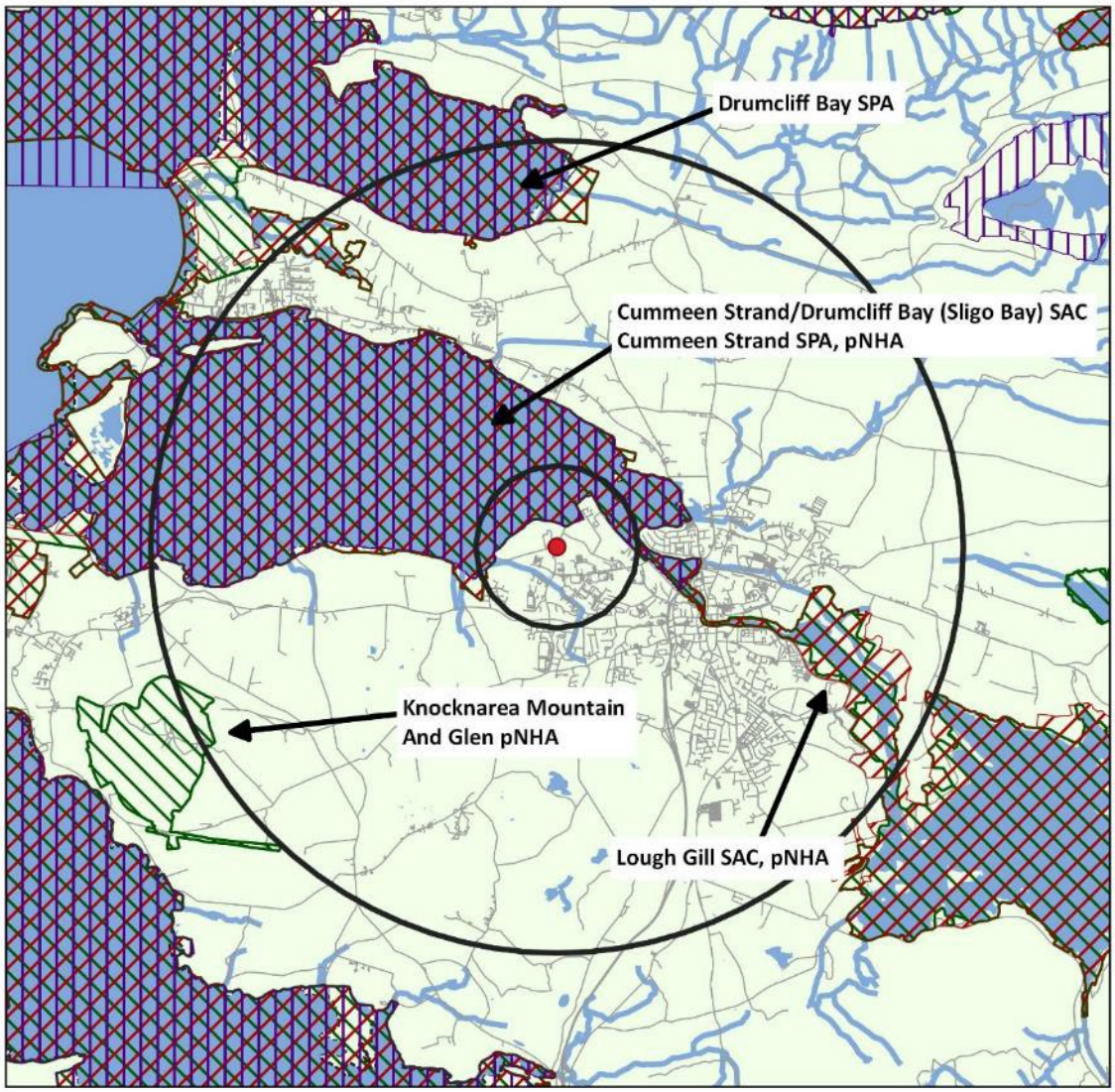
Site location
- Proposed development site
- Buffer zones (1km, 5km)
- Roads
- Watercourses

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



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0 1 2 3 4 5 km

The *Cummeen Strand / Drumcliff Bay* SAC / pNHA and the *Cummeen Strand* SPA are located approx. 200 m north of the Site. The SAC has been designated for the protection of estuarine / tidal habitats, including sand dunes, juniper heaths / grasslands and petrifying springs. The SPA has been designated for the protection of over-wintering migrant populations of brent geese, oystercatchers, redshank and other coastal bird species. No rivers or streams directly link the Site with the SAC / SPA, but it is noted in the Hydrological Assessment Report for the Site (RPS Group 2021) that "*excess runoff* [from the Site] *drains northward and eventually discharges into Sligo Estuary as overland flow*". There may also be surface water pathways to coastal waters via the drainage ditch in the north of the Site, or via other drains along adjoining roads. Considering that the bedrock is a locally-important aquifer and that the underlying soils are relatively free-draining, it is also possible that there could be a groundwater pathway to coastal waters. Air is not considered a feasible pathway, because windborne dust is unlikely to reach the coast in detectable concentrations.

The *Lough Gill* SAC / pNHA is located approx. 1.9 km east of the Site, and includes both the lake and the freshwater section of the Garvogue River. The SAC has been designated for the protection of the lake, associated woodlands, and a number of aquatic species. There is no surface water pathway between the Site and this SAC, because the SAC is upstream on the Garvogue River. Pathways via groundwater, land or air can be ruled out due to the distances involved.

The *Drumcliff Bay* SPA is located approx. 3.8 km north of the Site. It has been designated for the protection of over-wintering migrant populations of sanderling, bar-tailed godwit and other coastal bird species. There is no surface water pathway between the Site and the SPA, as the SPA is located in a separate bay. Considering the distances involved, pathways via groundwater, land and air can be ruled out.

An additional SPA - *Ballysadare Bay* SPA - is located approx. 6 km south-west of the Site. It has been designated for the protection of over-wintering migrant populations of brent geese, grey plover, dunlin, bar-tailed godwit, redshank and other coastal bird species. As above, there is no surface water pathway between the Site and the SPA, as the SPA is located in a separate bay. Considering the distances involved, pathways via groundwater, land and air can be ruled out.

The *Knocknarea Mountain and Glen* pNHA is located 4.6 km south-west of the Site, and has been designated for the protection of a limestone cliffs, grasslands and semi-natural woodland. There are no rivers or other surface water features linking the Site and pNHA, so a surface water pathway can be ruled out. Pathways via groundwater, land and air can be ruled out due to distance.

In summary, potential pathways via surface water and groundwater were identified between the Site and two Natura 2000 sites: the *Cummeen Strand / Drumcliff Bay* SAC and the

Cummeen Strand SPA. Potential impacts on these sites will be considered in Section 5 of this document, and in the accompanying Natura Impact Statement.

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 from the descriptions outlined below.

Improved agricultural grassland (WD1)

This habitat occurs in the north and south of the Site, around the main house, and in a patch in the east of the Site. It is likely to have been used as a grazing pasture in the past, and/or as an amenity lawn / meadow. At the time of survey the grass was approx. 5 – 10 cm in height, and had not recently been mowed or grazed. The ground was wet underfoot, suggesting that the soil is poorly drained.

Yorkshire-fog *Holcus lanatus* and creeping buttercup *Ranunculus repens* are dominant, and white clover *Trifolium repens* is abundant. Frequent species include broad-leaved dock *Rumex obtusifolius*, meadow foxtail *Alopecurus pratensis* and sweet vernal-grass *Anthoxanthum odoratum*, while field horsetail *Equisetum arvense* and daisy *Bellis perennis* are locally-frequent. Occasional species include common sorrel *Rumex acetosa*, field forget-me-not *Myosotis arvensis*, common mouse-ear *Cerastium fontanum*, broad-leaved willowherb *Epilobium montanum* and ribwort plantain *Plantago lanceolata*.

A small patch of meadow near the eastern boundary of the Site has a very similar species composition, but common hogweed *Heracleum sphondylium* is also frequent.

Although this habitat currently resembles a meadow, its species composition is typical of improved agricultural grassland, and species of 'dry meadows and grassy verges' or similar habitats (e.g. false oat-grass *Arrhenatherum elatius*, common knapweed *Centaurea nigra*, meadow vetchling *Lathyrus pratensis*) are absent. All plant species recorded are common and widespread throughout Ireland. Therefore, this habitat is considered to be of Negligible ecological importance.

Mixed broadleaved woodland (WD1)

There are a number of large mature trees along the western boundary of the Site, and to the north of the house. Most are beech *Fagus sylvatica* or sycamore *Acer pseudoplatanus*, with smaller numbers of holm oak *Quercus ilex* and conifers. There is no shrub layer, and no leafy growth below 1.5 – 2 m from ground level, suggesting previous grazing by cattle or horses.

The ground flora includes many of the species in the 'improved agricultural grassland' (see above), but there are a number of other species indicative of woodland, as outlined below. Ivy *Hedera hibernica* is abundant in places, and there are some patches of dense snowberry

Symphoricarpos albus and bramble *Rubus fruticosus*. Frequent species include false oat-grass, giant fescue *Festuca gigantea*, curled dock *Rumex crispus*, herb-Robert *Geranium robertianum* and dandelion *Taraxacum officinale*, and occasional species include bluebells *Hyacinthoides non-scripta* and male-fern *Dryopteris filix-mas*. Rare species (in the context of the DAFOR scale) include primrose *Primula vulgaris*, common dog-violet *Viola riviniana*, and Spanish bluebell *Hyacinthoides hispanica*.

There are some other areas of woodland in the east of the Site that have a more diverse mix of (planted) species, including a small former orchard of apple trees *Malus domestica*. Some of the areas in the east of the Site have a shrub layer of dense brambles.

The trees in this habitat are predominantly non-native, but some are of considerable size and age, which is unusual in the surrounding area. There are also some ground flora typical of long-established woodland. Therefore, this habitat is considered to be of Local importance. The trees also have secondary importance for fauna, as discussed in Section 4.4.

Hedgerow (WL1)

There are hedgerows along the southern and eastern boundaries of the Site. They have not been cut on a regular basis, and many of the shrubs resemble trees. The dominant species is hawthorn *Crataegus monogyna*, and sycamore is occasional. Bramble is locally dominant in the shrub layer. In the ground layer, bush vetch *Vicia sepium* is locally abundant, nettle *Urtica dioica* is frequent, and the following species are occasional: hogweed, germander speedwell *Veronica chamaedrys*, curled dock, Hart's-tongue *Phyllitis scolopendrium*, Lords-and-Ladies *Arum maculatum* and cow parsley *Anthriscus sylvestris*.

Hedgerows are widespread in the surrounding area, and all plant species are common throughout Ireland, so this habitat is considered to be of Negligible importance. However, it has secondary importance for fauna, as discussed in Section 4.4.

Scrub (WS1)

There are patches of dense bramble scrub throughout the Site in hedgerows, broadleaved woodland, and alongside walls in the enclosed garden in the centre of the Site. Bramble is the dominant species, and there are few other plants. Some areas have sparse shrubs including grey willow *Salix cinerea* and hawthorn.

This habitat is widespread in the surrounding area, and consists of common plant species, so it is considered to be of Negligible importance. However, it has secondary importance for fauna, as discussed in Section 4.4.

Rare or protected flora

No rare or protected plants were encountered during field surveys.

Invasive plant species

Two patches of Japanese knotweed *Fallopia japonica* were found to the south of Rathellen House. Their locations are shown in Figure 3, and they can be described as follows:

- JK1 – Relatively small patch (5 m x 5 m) of semi-mature plants, located at the base of a wall. Some surface vegetation was scraped off this area in recent months, and moved to a small stockpile 5 m away.
- JK2 – Larger patch (10 m x 10 m) of mature plants at the base of a wall.

Figure 3. Japanese knotweed in the centre of the Site

Japanese knotweed is included on the third schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011*), under which it is an offence to spread any knotweed plants, or soil / spoil containing live knotweed fragments.

A number of other invasive non-native species were recorded during the site inspection, including cherry laurel *Prunus laurocerasus* and snowberry *Symphoricarpos albus*. These species are not listed on the *European Communities (Birds and Natural Habitats) Regulations* 2011, and thus do not have legal restrictions. They will be removed during site clearance works, and will not pose any significant problems to the proposed development, so they are not considered to be Important Ecological Features.

4.4 Protected fauna

4.4.1 Birds

Common countryside / garden birds

Some common countryside / suburban birds were observed during the survey: woodpigeon, jackdaw, magpie, rook, wren, blackbird, mistle thrush and chaffinch. It is likely that some other common rural birds will use the Site, including corvids, finches, tits and other common passerine species. No nests were observed during the site inspection, but it is certain that some species will nest in the trees and shrubs throughout the Site.

All of the above species are common and widespread, and are likely to be present in other rural areas surrounding the Site. The mixed broadleaved woodland is of limited value as foraging habitat for these birds, as most of the tree species are not native to Ireland. Therefore, the Site is considered to be of Negligible importance for common bird species.

Swifts, swallows and martins

Some swallow nests were observed in the outbuildings. Rathellen House could potentially be suitable for swifts, although none were seen or heard during the bat surveys in May, June and July 2021. No house martins were observed.

Swifts are included on the red list of Irish bird species (Gilbert et al. 2021) due to severe declines in their breeding population, and moderate declines in their breeding range. Swallows are on the amber list. The Site is considered to be of Local importance for these species.

Birds associated with SPAs

The Site is approx. 100 m from the *Cummeen Strand* SPA, which has been designated for overwintering populations of brent goose, oystercatcher and redshank. It is also approx. 3.8 km from the *Drumcliff Bay* SPA, which has been designated for overwintering populations of sanderling and bar-tailed godwit. The population of brent geese is of note, because this species typically feeds on agricultural land, particularly cereal stubble and improved

agricultural grassland. A series of bird surveys was carried out in early 2021 to determine whether the Site was of any importance for the SPA bird species.

Surveys were undertaken by MKO Planning and Environmental Consultants between January and March 2021. Six surveys were carried out in total, each of which comprised a Vantage Point survey, as well as a Transect Survey to search for goose droppings. No brent geese were observed during any of the surveys, and no goose droppings were found during transect surveys. An oystercatcher was observed in flight during one of the surveys, but it did not land at the Site. None of the other qualifying interests of nearby SPAs were recorded.

Therefore, we conclude that the Site is of no importance for the qualifying interests of the *Cummeen Strand* SPA, the *Drumcliff Bay* SPA or any designated sites. 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 other species. Herring gull, lesser black-backed gull and mallard were observed foraging in grassland areas within or in close proximity to the Site. These are common species that often feed or roost in grassland areas, so the Site is considered to be of Negligible importance for them.

Flocks of curlew were observed flying over the Site on a number of occasions, suggesting a potential commuting corridor. However, as these birds were in flight, and were not observed landing on the Site, the Site is of Negligible importance for them.

4.4.2 Terrestrial mammals

No terrestrial mammals were observed during field surveys. A winter survey for badgers and other mammals was carried out in January 2022, but no badger setts or any other characteristic field signs of protected species were recorded. There are desktop records of a number of protected mammal species in the surrounding 10 km square (G63), including fallow deer, otter, badger, pine marten, stoat, hare, hedgehog, red squirrel and pygmy shrew. 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.

Fallow deer, pine marten and red squirrel are usually associated with woodland habitats and/or areas with dense vegetation. The woodland within the Site is fragmented, and not connected to any larger areas of woodland in the surrounding area, so the Site is of Negligible importance for all three species.

A hare was observed during the site inspection in January 2022. The hedgerows and scrub could provide habitat for other small mammals including stoat, hedgehog and pygmy shrew. All four species are protected under the *Wildlife Act* 1976 (as amended). These species are secretive and/or nocturnal, and they do not have characteristic field signs, so it is very difficult to establish their presence during walkover surveys. Therefore, on a precautionary basis it will be assumed that one or more of these species will be present, and they are considered to be Important Ecological Features. However, it is unlikely that any of these species would use the Site in significant numbers, so it would be of no more than Local importance.

4.4.3 Bats

Potential roost features - buildings

The Site contains a derelict historical building known as Rathellen House. In the Landed Estates database it is described as follows: "*McTernan writes that Rathellen was built at the beginning of the nineteenth century as a dower house for the Wood of Woodville estate. It was purchased by Henry Lyons in 1860 and remained in the Lyons family until the 1940s*". It is a large two-storey house with a slate roof, parts of which have collapsed, revealing rotting timber joists. The exterior of the building is no longer weathertight, and the interior has been vandalised. Doors and windows have been boarded up in order to prevent further damage.

Rathellen House has many potential roosting sites for bats, including the attic space, soffit / fascia panels and under roof tiles. The poor condition of the roof reduces its suitability, but there are several undamaged sections that remain suitable. In accordance with the roost evaluation categories in Collins *et al.* (2016), it was considered to have high suitability for roosting bats.

There are also a number of outbuildings to the south-west of the house, which may previously have been stables, storage buildings and/or servants' quarters. They are one or two storeys in height, and of masonry construction. One structure has an intact roof of corrugated metal, but the roofs of all other structures have collapsed. There are trees growing through some of the buildings.

The walls of the outbuildings have a number of shallow cracks and crevices that would be suitable for small numbers of bats. Therefore, the outbuildings are considered to have low to moderate roost suitability.

Potential roost features - trees

There are a number of large mature trees within the Site, particularly along the western boundary and to the north of Rathellen House. Several of these trees have crevices or cavities suitable for roosting bats. Trees with moderate or high roost suitability are listed below, using the tree tags from the tree survey:

- High suitability
    - 0045 – Sycamore with a hollow trunk and large rotten limb
    - 0057 – Sycamore with trunk broken in two, remaining trunk rotting, many large knotholes
- Moderate suitability
    - 0043 – Sycamore with hollow lower limb
    - 0044 – Sycamore with hollow rotten trunk
    - 0046 – Sycamore with large hole in trunk, possibly hollow
    - 0047 – Beech with trunk broken in two, remaining trunk rotting
    - 0065 – Sycamore with rotten lower limb
    - 0075 – Beech with large rotting wound low on trunk
    - 0095 – Beech with trunk broken in two, remaining trunk rotting
    - 0980 – Holm oak with two large wounds low on trunk

Several other trees were considered to have low roost suitability, due to the presence of shallow crevices that could be suitable for individual bats. However, these trees are unlikely to support bats, and there are other trees with moderate or high suitability, so trees with low suitability are not listed individually.

First survey (May 2021)

An emergence and re-entry survey was carried out at Rathellen House on the 25th and 26th of May. Conditions were dry and calm but relatively cold, with a minimum temperature of 6.5 °C; this was typical of the weather in May, which was unseasonably cold. Two surveyors were present: one facing the northern side of the building, and a second covering the southern side.

No bats were recorded roosting within the building, and bat activity was low. At dusk a single soprano pipistrelle was detected foraging to the rear of the house around some old apple trees. A brief brown long-eared bat call was also detected around the apple trees. A single common pipistrelle was detected foraging on the drive at the front of the house. No other bat activity was recorded at dusk.

At dawn a single Soprano pipistrelle was detected to the rear of the house. No other activity was recorded at dawn.

An automated Songmeter SM4 detector was directed toward the outbuildings overnight. Intermittent calls of soprano pipistrelle and common pipistrelle were recorded, but no other species were detected.

Second survey (June 2021)

An emergence survey was carried out on 27th June. The focus of the survey was some mature trees in the west of the Site, but Rathellen House and the associated outbuildings were also surveyed later in the survey period. Conditions were dry, calm and warm. Two surveyors were present, each covering a separate group of trees.

Bat activity was very low during the survey, with only two soprano pipistrelles and a single common pipistrelle detected. A whiskered bat was recorded feeding around the outbuildings from shortly after sunset, and remained in the area for a period of time. It was considered likely that the bat was roosting in one of the outbuildings.

Third survey (July 2021)

An emergence and re-entry survey was carried out on the 17th and 18th of July. One surveyor focussed on the outbuildings and Rathellen House, while the second focussed on mature trees in the west of the Site. Conditions were dry, calm and warm.

Activity at dusk was low, with one Leisler's bat and two soprano pipistrelles recorded foraging over the Site. Approx. 40 minutes after sunset a whiskered bat was recorded flying along a wall at the rear of the outbuildings, and remained in the area for about 45 minutes.

At dawn two soprano pipistrelles were recorded foraging on the road to north and west of Site. No whiskered bat activity was recorded at dawn.

Evaluation

The Site was surveyed on a number of occasions during the peak period of bat activity, and in suitable weather conditions. The Site contains woodland, scrub and dry meadow habitats, all of which are ideal foraging habitats. In this context, the level of bat activity was surprisingly low. No more than four bats were recorded during any of the surveys.

A likely whiskered bat roost was detected in one of the outbuildings. The exact location could not be ascertained, as it emerged in darkness and was not recorded at dawn. However, it was considered most likely to be roosting in the westernmost outbuilding. The building has no roof, so the roost is likely to be in a crack in the wall. Only a single individual was recorded feeding at the Site, suggesting that it is a day roost of a non-breeding bat. No roosting bats were recorded in Rathellen House, the mature trees, or any other outbuildings.

4.4.4 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.

4.4.5 Terrestrial invertebrates

The habitats within the Site are common in suburban / rural 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?
Cummeen Strand / Drumcliff Bay SAC and *the Cummeen Strand SPA*	International	HR	Yes
Other designated sites	International	HR / WA	No
Improved agricultural grassland (GA1)	Negligible	-	No
Mixed broadleaved woodland (WD1)	Local	-	Yes
Hedgerow (WL1)	Negligible	-	Yes, secondary value for fauna
Scrub (WS1)	Negligible	-	
Rare and protected flora	Negligible	-	No
Invasive species	Negligible	HR	Yes
Birds, including swallows and swifts	Local	WA	Yes
Bats	Local	HR, WA	Yes
Stoat, hedgehog, hare and pygmy shrew	Local	WA	Yes
All other terrestrial mammals	Negligible	-	No
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 Designated sites

5.1.1 Potential changes in water quality (construction phase)

The construction of the proposed development will involve a range of activities, including the clearance of vegetation, demolition of derelict structures, earthworks, and the construction of new buildings and roads. These activities have potential to generate pollutants, including:

- Concrete and cement, which are composed of highly alkaline, corrosive fine sediments that are very harmful for aquatic fauna
- Suspended silt or other sediments, which can reduce water quality, harm aquatic fauna, and/or alter the flow of watercourses
- Hydrocarbons (oil, petrol, diesel, etc), solvents and other chemicals, which can be toxic to aquatic fauna

As the bedrock and soils underlying the Site appear to be relatively well-drained, it is expected that most rainfall on the Site percolates to ground. If any pollutants percolated to ground in this manner, it is possible that they could be carried 200 m north via groundwater to reach the *Cummeen Strand / Drumcliff Bay* SAC / pNHA and the *Cummeen Strand* SPA. In addition, during periods of high rainfall it is possible that runoff may flow 200 m north over land or via fieldside / roadside drainage channels to these designated sites.

A hypothetical impact assessment of potential pollution incidents is difficult, because any potential impacts would vary depending on the type of pollutant, its quantity, the rate at which it would be released, and the time of year. Minor pollution incidents would be diluted by other surface water or groundwater sources, reducing their concentration to negligible levels before they could affect any of the qualifying interests of the SAC or SPA. Only a very large pollution event (e.g. a significant fuel spill, or a prolonged release of suspended sediments) could potentially cause a significant effect on the SAC or SPA.

Nonetheless, in accordance with the precautionary principle, we conclude that there is a risk that a pollution incident during the construction of the proposed development could reach the *Cummeen Strand / Drumcliff Bay* SAC and the *Cummeen Strand* SPA in sufficient quantities to have a significant impact on the qualifying interests of one or both sites. Further details are provided in the accompanying Natura Impact Statement.

5.1.2 Potential changes in water quality (operational phase)

Foul water will be discharged to a local authority foul sewer on Sea Road and conveyed to the Sligo Waste Water Treatment Works (WWTW). The WWTW is located approx. 650m north-east of the Site, and discharges treated effluent to the Garvogue Estuary / Cummeen

Strand. The plant has a population equivalent of 50,000, and incorporates primary, secondary and tertiary treatment, including nutrient removal. The latest Annual Environmental Report on the EPA Wastewater Licensing Search website is from 2017, and it was reported that the WWTW was operating within its organic and hydraulic capacity at the time. It would have sufficient capacity to accommodate the proposed development. The WWTW was not compliant with the Emissions Limit Values for total phosphate, but was compliant for all other parameters. It is the responsibility of Irish Water to ensure that the WWTW is operating within its ELV limits, and that the treated effluent does not have an impact on surface water quality at the discharge point.

Surface water runoff from roofs and paved surfaces will be discharged to an underground infiltration tank in the north of the site, with smaller soakaways to the rear of dwellings. Rainwater on green areas will percolate to ground. Rainwater is considered to be free of pollutants, so it will not lead to negative impacts on receiving waters.

Consequently, it is concluded that foul water and surface water discharges during the operation of the development will not cause significant impacts on any designated sites.

5.1.3 Displacement of overwintering birds (construction and operational phases)

None of the qualifying interests of any nearby SPAs were recorded within the Site in early 2021 (Section 4.4). It is considered to have low suitability for brent geese and other species because fields of view are obstructed by trees. Therefore, there is no risk that any SPA bird species could be displaced from the Site.

5.1.4 Disturbance of overwintering birds (construction phase)

The construction of the proposed development will cause noise / vibration (loud or repetitive sounds) and visual disturbance (e.g. rapid or large-scale movements), which may cause birds to exhibit avoidance behaviour. Occasional sources of intense disturbance (e.g. a loud noise) could cause flocks of birds to take flight, which would deplete their energy reserves. Persistent sources of disturbance (e.g. piling or rock-breaking) could displace birds from feeding areas or roosting sites, which could increase competition for resources in undisturbed areas, and may cause them to move to other sites elsewhere in the bay.

However, considering that the Site is located approx. 200 m from the coast, that it is screened from the coast by woodland, hedgerows and/or scrub, and that there is a level of background human activity in the area (e.g. Sligo Harbour), there is a negligible risk that disturbance could lead to significant effects on the qualifying interests of any SPAs.

5.2 Clearance of habitats (construction phase)

The broadleaved woodland and mature trees are of Local ecological importance. Existing mature trees in the north and north-west of the Site will be retained and incorporated into an area of public open space. A line of mature sycamore trees along the south-western

boundary will need to be removed to allow the re-alignment of Sea Road. These will be compensated by planting new trees in the north of the Site, resulting in a neutral impact overall.

5.3 Spread of Japanese Knotweed (construction phase)

In the absence of control measures, construction work would be highly likely to spread Japanese Knotweed, which would result in an offence under the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

Other invasive species such as cherry laurel and snowberry will be cleared and chipped during site clearance works, so they do not require any additional measures.

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

The woodland, hedgerow and scrub may provide habitat for nesting birds and small mammals (stoat, hare, hedgehog and pygmy shrew). If the trees / shrubs are cleared during the bird nesting season (between March and August, inclusive), it is possible that active nests could be destroyed. The breeding season for most small mammals is similar. The killing of any birds or protected mammals, or the disturbance of their breeding sites, would constitute an offence under the *Wildlife Act* 1976 (as amended).

5.5 Disturbance of roosting bats (construction phase)

A roost of a single whiskered bat was recorded in one of the outbuildings to the south-west of Rathellen House. This outbuilding is proposed for demolition, as it cannot feasibly be renovated and modernised. The demolition of the structure could potentially kill or injure the whiskered bat, or (more likely) cause it to take flight in daytime, exposing it to a risk of predation. The demolition would also permanently remove the bat roost.

A number of mature trees have crevices or cavities suitable for roosting bats. The trees with highest suitability were surveyed, and no roosting bats were recorded. However, tree roosts are often highly seasonal and can be occupied only for short periods of time, so it is possible that one or more of the trees may be used as a roost in the future. Most trees will be retained and incorporated into the development, but some will be felled or pruned. This could result in the disturbance of a bat roost or death / injury to bats.

The killing of bats or destruction / disturbance of a roost would constitute an offence under the *European Communities (Birds and Natural Habitats) Regulations 2011 (as amended)* and the *Wildlife Act* 1976 (as amended).

5.6 Displacement / disturbance of bats (operational phase)

There were relatively low levels of bat foraging and commuting activity at the Site during the surveys in May, June and July 2021. However, there was sustained activity by whiskered bat in the vicinity of the roost.

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 bat roost or other buildings and mature trees, it is possible that it could displace bats from the area. This could have a significant impact on local bat populations.

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

Some consented developments in the surrounding area are listed in Section 3.2. It is expected that these developments will have been completed by the time the proposed development commences, but it is possible that some may be constructed at the same time.

If the proposed development was constructed at the same time as one or more of the developments above, it is possible that they could cause in-combination effects on water quality in the Garvogue Estuary / Cummeen Strand Bay, and on associated designated sites. It is very difficult to estimate the magnitude of potential in-combination effects, because it would be influenced by a number of unknown variables, e.g. how many developments were constructed concurrently, and the quantities of pollutants produced by each development. However, it is theoretically possible that they could cause significant negative in-combination effects on designated sites.

6 Proposed Mitigation Measures

6.1 Ecological Clerk of Works

The implementation of the mitigation strategy will require specialist ecological expertise, so the construction contractor will engage an Ecological Clerk of Works (ECoW). The role of the ECoW is to assist the contractor with the interpretation and implementation of these measures. The ECoW will not have a permanent presence on Site, but will carry out inspections on a regular basis (e.g. every two weeks) or as required by the contractor. The contractor must ensure that the ECoW has sufficient training and experience in all relevant ecological features.

6.2 Pollution-prevention measures

The following mitigation measures have been designed to avoid or minimise any negative impacts on water quality in the Garvogue Estuary / Cummeen Strand Bay by preventing fine sediments, concrete / cement, hydrocarbons or any other pollutants from reaching nearby drainage ditches or groundwater. This applies both to potential impacts from the proposed

development in isolation, and when considered in combination with other concurrent developments nearby. All are standard pollution control measures that are regularly used on construction sites in Ireland, and confidence in their success is high. They have been developed with reference to the following guidelines:

- *Guidelines on protection of fisheries during construction works in and adjacent to waters* (Inland Fisheries Ireland, 2016)
- *Pollution prevention guidelines: PPG5 - works and maintenance in or near water* (UK Environment Alliance, 2007)

Concrete and cement

These products are highly toxic to fauna, particularly fish and other aquatic / marine species. It is expected that some pouring and/or mixing of concrete or cement will be required during construction works, so the following measures will be implemented in order to retain all cement-based materials within the boundaries of the Site:

- Concrete pouring / mixing will only take place in dry weather conditions. It will be suspended if high-intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period or high winds)
- If any on-site mixing of concrete is required, it will only be carried out in the south of the Site, i.e. as far as possible from the coast. If any cement-based products will be stored on-site, they will be kept in a sheltered area in the south of the Site, and will be covered (e.g. with a thick plastic membrane) in order to prevent spread by wind
- Ready-mix lorries and larger plant will not be cleaned on-site; they will be taken to an appropriate off-site facility with capacity to capture and treat contaminated wash waters
- If any on-site cleaning of tools or concrete-batching plant is required, it will take place in the south of the Site. Wash waters will be discharged to an on-site soakaway area located as far as possible from the coast.

Suspended sediments

The term 'suspended sediments' refers to any silt, mud or other fine sediment that becomes dissolved in water. Water can be contaminated by suspended sediments (SS) from open earthworks and excavations (either from rainfall or groundwater seepage), from rainfall on soil/sediment stockpiles, or from the tyres / tracks of construction vehicles. In order to retain all contaminated waters within the boundary of the Site, the following measures will be implemented:

- Excavation works will be suspended if high intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period, or high winds).
- If any excavations need to be dewatered, the SS-contaminated water will be retained and treated within the boundary of the Site. It will be collected and pumped into a settlement tank / pond (or similar feature), left undisturbed until sediments have

settled, and then discharged via a buffered outflow to a soakaway in the south of the Site (i.e. as far as possible from the northern drainage ditch)

- Stockpiles of mud, sand or other fine sediments will be stored in the south of the Site, i.e. as far as possible from the northern drainage ditch. Stockpiles will be levelled and compacted, and will be covered with thick plastic membranes in order to limit wind/rainwater erosion
- Dust suppression measures will be implemented, as outlined in Section 8 of the IFI guidelines.

Hydrocarbons and chemicals

Hydrocarbons (oil, petrol, diesel, etc) and solvents are toxic to fauna. These chemicals can enter surface water or groundwater if they are accidentally spilled (e.g. during re-fuelling of machinery), or from leaking containers. In order to retain such materials within the boundaries of the Site, the following measures will be applied throughout the construction works:

- Any fuel, oil or chemical containers will be kept in the south of the Site, i.e. as far as possible from the coast. These pollutants are hazardous and must be stored in a designated bunded area that has sufficient capacity to retain any spills
- All machinery should be protected from vandalism and unauthorised interference, and will be turned off and securely locked overnight
- If any on-site re-fuelling is required, it will take place in the south of the Site in a bunded / impermeable area. Immobile plant will be refuelled over drip-trays
- While in operation, diesel pumps, generators or other similar equipment will be placed on drip trays to catch any leaks

Spill kits will be kept on-site. If any spills occur, appropriate measures will be taken to intercept hydrocarbons or chemicals on-site before they can leave the Site or soak to ground.

6.3 Protection of birds or 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 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 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.

6.4 Provision of nesting features for swifts

One of the reasons for the severe decline of swifts in Ireland is a lack of suitable nesting sites. Rathellen House is a relatively large structure, and is located in suitable foraging habitat for swifts, but the renovated structure is unlikely to have nesting sites. Therefore, when all renovation work is complete, pre-fabricated woodstone nesting boxes will be installed on each face (i.e. north, south, east and west) of Rathellen House.

6.5 Management of Japanese Knotweed

A stand-alone Invasive Species Management Plan accompanies this application. It includes a strategy for the management of Japanese Knotweed before, during and after the construction of the proposed development, including the following measures:

- Pre-construction herbicide treatment and monitoring
- Biosecurity measures for the construction phase
- Excavation of knotweed-contaminated soils for off-site treatment
- Monitoring the Site and spot-treating any re-growth

The measures outlined in the plan will avoid or minimise the spread of restricted invasive plant species during the construction of the development. This will ensure compliance with relevant legislation, the protection of the new structures, and minimal disruption of the proposed construction works.

6.6 Protection of the roosting whiskered bat

Impacts on roosting bats will be minimised through the timing of works, supervision by an ecologist, exclusion of roosting sites and (if required) manual removal of bats from the structure. Alternative roosting opportunities will be provided in a suitable area nearby, which will ensure that the whiskered bat can continue to roost in the area.

Derogation licence

The demolition of the outbuilding containing the whiskered bat roost will unavoidably cause disturbance of the bat roost. To permit this work, a derogation licence issued under Article 54 of the *EC (Birds and Natural Habitats) Regulations* 2011 (as amended) has been acquired from the National Parks and Wildlife Service for this development. The reference is DER/BAT/2021/102, and it will be valid until 30th November 2021; a copy of the licence is provided in Appendix 1. The applicant will apply for an extension or replacement to the licence in advance of the project, supported by additional bat surveys if required.

Timing of works

The demolition of the building will take place in spring (March or April) or autumn (September, October or November), as these are the periods in which bats are least sensitive to disturbance.

Provision of alternative roosting spaces

Prior to demolition, six bat boxes will be installed at a range of locations on the walls of Rathellen House and on mature trees within 50 m of the outbuildings. All boxes will be robust crevice-type models suitable for small bats, e.g. Schwegler 1FF models.

Exclusion of bats

A bat survey will be carried out prior to demolition, comprising an endoscope and / or emergence / re-entry survey of the building in which the whiskered bat was located. The aim of the survey will be to identify the exact roosting location within the walls of the structure. When the roosting location has been identified, a one-way exclusion tube will be put in place at the roost exit point. Any crevices that do not contain bats (to be ascertained using an endoscope) will be blocked. The surveyor will then wait one night to allow the bat to leave the roost, and will re-survey the buildings.

Supervised demolition of the house

When the exclusion process is complete, the ecologist will supervise the demolition of the structure, including the removal by hand of brickwork around the roosting site. If any bats are uncovered during this process they will be transferred to a cotton holding bag and placed in one of the bat boxes. Once all potential roost sites identified by the ecologist have been removed, the remainder of the structures can be demolished without further supervision.

6.7 Procedures for felling or pruning mature trees

It is possible that some of the mature trees within the Site could provide roosting opportunities for small numbers of bats. Based on the 2021 surveys there is no evidence that any bat roosts will be affected, so derogation from the *European Communities (Birds and Natural Habitats) Regulations* 2011 will not be required. However, some surveys will be required at the pre-felling stage in order to confirm that no roosts are present, and thus to ensure that a derogation is not required.

At least one month prior to the felling of these trees, the contractor will engage a bat specialist to carry out a detailed inspection of all mature trees listed in Section 4.4 of this report. The ecologist will inspect the trees at height using a mobile elevated working platform, ladder or ropes. Crevices or cavities will be inspected closely using an endoscope, torch or flexible mirror in order to search for any evidence of roosting bats. If potential roost features cannot be accessed safely, or if it is not possible to inspect the trees at height for any other reason, the ecologist will carry out emergence / re-entry surveys of selected trees from ground level.

If any bat roosts are discovered during this process, the ecologist will develop a case-specific mitigation strategy, and will apply to the National Parks and Wildlife Service for a derogation licence.

If the trees do not contain a bat roost, they can be felled or pruned immediately. Trees with low suitability for bats should be felled and left on the ground overnight before removal. Trees with moderate or high suitability for bats should be felled in sections by a tree surgeon, lowered to the ground, and inspected by the ecologist. The cut sections will then be left overnight before removal.

6.8 Bat-sensitive lighting

Bats are highly sensitive to artificial lighting, and they may be displaced from the Site if lights are of high intensity, or if they are directed towards trees. However, if 'bat-sensitive' lighting techniques are incorporated into the lighting plan, they would avoid or minimise any potential impacts.

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

- Zero-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least effect on bats. Lights will have a 'warm' tone, with minimal blue / UV content
- All external lights will be fitted with luminaires to direct the light downwards onto targeted areas and to prevent light-spill above the horizontal
- No lights will be directed towards any trees or bat boxes (refer to Section 6.4)
- External lighting on new residences 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.

7 Residual Impacts

Pollution-prevention measures will be implemented during the construction of the proposed development to prevent impacts on the *Cummeen Strand / Drumcliff Bay* SAC / pNHA and the *Cummeen Strand* SPA. In the Natura Impact Statement that accompanies this application, it was concluded that the proposed development will not cause significant negative impacts on the integrity of any Natura 2000 sites.

Tree felling and other 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. As a result, there will be no impact on local

bird or mammal populations, and no legal offence under the *Wildlife Act 1976* (as amended). Nesting boxes for swifts will be installed on the exterior of Rathellen House.

The Invasive Species Management Plan will ensure that Japanese Knotweed is not spread during construction works, and thus avoid an offence under the *EC (Birds and Natural Habitats) Regulations 2011*.

A small bat roost was identified in one of the outbuildings that is proposed for demolition. A series of mitigation measures will be implemented in advance of demolition works to ensure that that bat is not harmed, and that it has alternative roosting opportunities. These measures are permitted under a derogation licence (refer to Appendix 1), which will ensure that there is no offence under the *EC (Birds and Natural Habitats) Regulations* 2011.

Bat-sensitive lighting techniques will be incorporated into the lighting plan in order to avoid light-spill into areas that are likely to be used by bats. As a result, there should be no significant reduction 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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Appendix 1: Bat Derogation licence