

## Ecological Impact Assessment

For a proposed Strategic Housing Development on lands Delgany, Co. Wicklow



**FINAL REPORT**

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### Table of Contents

1. INTRODUCTION .....	3
1.1 Background .....	3
1.2 Relevant Legislation .....	4
2. METHODOLOGY .....	10
2.1 Desk Study and Consultation .....	10
2.2 Field Surveys .....	10
3. ECOLOGICAL IMPACT ASSESSMENT.....	13
3.1 Description of the Proposed Development.....	13
3.2 Identification of Sites of Conservation Importance .....	13
3.3 Receiving Environment - Habitats .....	19
3.4 Rare, Threatened and Protected Flora .....	23
3.5 Faunal Interest.....	24
3.6 Fisheries .....	27
4. CHARACTERISTICS OF THE PROPOSED DEVELOPMENT .....	28
5. POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT .....	29
5.1 Potential Impacts on Habitats.....	29
5.2 Potential Impacts on Fauna.....	30
6. A DO NOTHING SCENARIO.....	31
7. REMEDIAL OR REDUCTIVE MEASURES.....	31
7.1 Mitigation by Avoidance.....	31
7.2 Tree Protection .....	31
7.3 Lighting Design .....	32
7.4 Planting of Native Species.....	33
7.5 Provision of Roosting and Nesting Opportunities .....	35
7.6 Wetland Creation - SUDS Measures .....	35
7.7 Sediment Control.....	35
7.8 Contractor Briefing.....	37
7.9 Invasive Species .....	37
7.10 Protection Measures for Birds.....	38
7.11 Protection Measures for Bat Roosts - Buildings .....	38
7.12 Protection Measures for Bat Roosts - Trees .....	44
7.13 Protection Measures for Bat Foraging and Commuting .....	45
7.14 Soil Handling .....	45
7.15 Ecological Clerk of Works .....	46
8. PREDICTED IMPACT OF THE PROPOSED DEVELOPMENT .....	47
9. CONCLUSION .....	48
10. REFERENCES .....	49
11. APPENDIX 1 - BAT DEROGATION LICENCE .....	51

## Ecological Impact Assessment

For a proposed Strategic Housing Development on lands Delgany, Co. Wicklow

### 1. INTRODUCTION

#### 1.1 Background

Faith Wilson Ecological Consultant has prepared an Ecological Impact Assessment for a proposed Strategic Housing Development on lands previously owned by the Carmelites in Delgany, Co. Wicklow as shown in **Figure 1** below.



**Figure 1.** The proposed development lands in Delgany as outlined in red.

## 1.2 Relevant Legislation

### 1.2.1 Nature Conservation Designations

#### *International Conservation Designations*

Special Areas of Conservation (SACs) are habitats of international significance that have been identified by NPWS and submitted for designation to the EU. SAC is a statutory designation, which has a legal basis under the EU Habitats Directive (92/43/EEC) as transposed into Irish law through the European Communities (Natural Habitats) Regulations, 1997, which were amended in 1998, 2005 and 2011. The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in the Court of Justice of the European Union (CJEU) judgements.

A Special Protection Area (SPA) is a statutory designation, which has a legal basis under the EU Birds Directive (79/409/EEC). The primary objective of SPAs is to maintain or enhance the favourable conservation status of the birds for which the SPAs have been designated.

#### *National Conservation Designations*

Proposed NHAs are habitats or sites of interest to wildlife that have been identified by NPWS. These sites become NHAs once they have been formally advertised and land owners have been notified of their designation. NHAs are protected under the Wildlife (Amendment) Act, 2000, from the date they are formally proposed. NHA is a statutory designation according to the Wildlife (Amended) Act, 2000 and requires consultation with NPWS if any development impacts on a pNHA.

### 1.2.2 Bats

Eleven species of bats occur in Ireland and all are protected under both national and international law.

#### Wildlife Act 1976

In the Republic, under Schedule 5 of the Wildlife Act 1976, all bats and their roosts are protected by law. It is unlawful to disturb either without the appropriate licence. The Act was amended in 2000.

#### Bern and Bonn Convention

Ireland has also ratified two international conventions, which afford protection to bats amongst other fauna. These are known as the 'Bern' and 'Bonn' Conventions. The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), exists to conserve all species and their habitats, including bats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries, which covers certain species of bat.

### EU Habitats Directive

All bat species are given strict protection under Annex IV of the EU Habitats Directive, whilst the lesser horseshoe bat (*Rhinolophus hipposideros*) and greater horseshoe bat (*Rhinolophus ferrumequinum*) are given further protection under Annex II of the EU Habitats Directive. Both are listed as a species of community interest that is in need of strict protection and for which E.U. nations must designate Special Areas of Conservation (SACs). The latter is only known from a single site and no breeding populations have been recorded to date. The former are a species of the western seaboard of Ireland and have not yet been recorded on the east coast.

The principal pressures on Irish bat species have been identified as follows:

- urbanized areas (e.g. light pollution);
- bridge/viaduct repairs;
- pesticides usage;
- removal of hedges, scrub, forestry;
- water pollution;
- other pollution and human impacts (e.g. renovation of dwellings with roosts);
- infillings of ditches, dykes, ponds, pools and marshes;
- management of aquatic and bank vegetation for drainage purposes;
- abandonment of pastoral systems;
- speleology and vandalism;
- communication routes: roads; and
- inappropriate forestry management.

### **1.2.3 Badgers**

Badgers (*Meles meles*) are common and widespread in Ireland, and are found in all lowland habitats where the soil is dry and not subject to flooding (Hayden and Harrington, 2000). Badgers are social animals that live in complex underground tunnel systems called setts. Badger territories may vary in size from about 60-200 ha (Smal, 1995).

Badgers and their setts legally are protected under the provisions of the Wildlife Act, 1976, and the Wildlife Amendment Act, 2000. It is an offence to intentionally kill or injure a protected species or to wilfully interfere with or destroy the breeding site or resting place of a protected wild animal. It is standard best practice to ensure that mitigation measures are taken to limit impacts on badgers and badger populations during developments.

The removal of badgers from affected setts and subsequent destruction of these setts must be conducted under licence by experienced badger experts or other suitably qualified personnel. The National Parks and Wildlife Service (NPWS) of the Department of the Environment, Heritage and Local Government grant licences to the experts undertaking the badger operations and not to the developer or contractor. An application for a wildlife licence should be submitted to the NPWS with the relevant ecological information from the detailed badger survey. At least three weeks is normally required to process a licence application, but early discussions with NPWS can expedite the procedure. Conditions are usually attached to each wildlife licence granted in

respect of badgers. It is normal practice to impose seasonal constraints e.g. that breeding setts are not interfered with or disturbed during the badger breeding season (December to June inclusive). No active sett should be interfered with or disturbed during the breeding season as any sett category may contain cubs. Closure of setts during the breeding season requires monitoring to demonstrate no sett activity occurs.

#### 1.2.4 Invasive Species

Until recently there has been no legal framework for the control or eradication of non-native invasive species in the Republic of Ireland. The Birds and Habitats Regulations (2011) which were signed on 21st September 2011 by the then Minister for Arts, Heritage and the Gaeltacht Jimmy Deenihan, included new legislation on invasive and non-native species in Sections 49 and 50.

Since then the EU Regulation on Invasive Alien Species (EU Regulation 1143/2014) also came into force on the 3<sup>rd</sup> August 2016.

*The plant and animal species to which the Birds and Habitats Regulations (2011) apply are presented in Schedule Three. Part 1 details the plants species, while Part 3 outlines those animal or plant vector materials and are presented below.*

#### Third Schedule: Part 1 Plants

##### **Non-native species subject to restrictions under Regulations 49 and 50.**

First column	Second column	Third column
Common name	Scientific name	Geographical application
American skunk-cabbage	<i>Lysichiton americanus</i>	Throughout the State
A red alga	<i>Grateloupia doryphora</i>	Throughout the State
Brazilian giant-rhubarb	<i>Gunnera manicata</i>	Throughout the State
Broad-leaved rush	<i>Juncus planifolius</i>	Throughout the State
Cape pondweed	<i>Aponogeton distachyos</i>	Throughout the State
Cord-grasses	<i>Spartina</i> (all species and hybrids)	Throughout the State
Curly waterweed	<i>Lagarosiphon major</i>	Throughout the State
Dwarf eel-grass	<i>Zostera japonica</i>	Throughout the State
Fanwort	<i>Cabomba caroliniana</i>	Throughout the State
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Throughout the State
Fringed water-lily	<i>Nymphoides peltata</i>	Throughout the State
Giant hogweed	<i>Heracleum mantegazzianum</i>	Throughout the State
Giant knotweed	<i>Fallopia sachalinensis</i>	Throughout the State
Giant-rhubarb	<i>Gunnera tinctoria</i>	Throughout the State
Giant salvinia	<i>Salvinia molesta</i>	Throughout the State
Himalayan balsam	<i>Impatiens glandulifera</i>	Throughout the State
Himalayan knotweed	<i>Persicaria wallichii</i>	Throughout the State
Hottentot-fig	<i>Carpobrotus edulis</i>	Throughout the State
Japanese knotweed	<i>Fallopia japonica</i>	Throughout the State
Large-flowered waterweed	<i>Egeria densa</i>	Throughout the State
Mile-a-minute weed	<i>Persicaria perfoliata</i>	Throughout the State
New Zealand pigmyweed	<i>Crassula helmsii</i>	Throughout the State

First column	Second column	Third column
Common name	Scientific name	Geographical application
Parrot's feather	<i>Myriophyllum aquaticum</i>	Throughout the State
Rhododendron	<i>Rhododendron ponticum</i>	Throughout the State
Salmonberry	<i>Rubus spectabilis</i>	Throughout the State
Sea-buckthorn	<i>Hippophae rhamnoides</i>	Throughout the State
Spanish bluebell	<i>Hyacinthoides hispanica</i>	Throughout the State
Three-cornered leek	<i>Allium triquetrum</i>	Throughout the State
Wakame	<i>Undaria pinnatifida</i>	Throughout the State
Water chestnut	<i>Trapa natans</i>	Throughout the State
Water fern	<i>Azolla filiculoides</i>	Throughout the State
Water lettuce	<i>Pistia stratiotes</i>	Throughout the State
Water-primrose	<i>Ludwigia</i> (all species)	Throughout the State
Waterweeds	<i>Elodea</i> (all species)	Throughout the State
Wireweed	<i>Sargassum muticum</i>	Throughout the State

### EU Regulation 1143/2014 on Invasive Alien Species

On 14 July 2016 the European Commission published Commission Implementing Regulation 2016/1141 which sets out an initial list of 37 species to which EU Invasive Alien Species Regulation 1143/2014 will apply. The associated restrictions and obligations came into force on 3rd August 2016.

Three distinct types of measures are envisaged under the Directive, which follow an internationally agreed hierarchical approach to combatting IAS:

- Prevention: a number of robust measures aimed at preventing IAS of Union concern from entering the EU, either intentionally or unintentionally.
- Early detection and rapid eradication: Member States must put in place a surveillance system to detect the presence of IAS of Union concern as early as possible and take rapid eradication measures to prevent them from establishing.
- Management: some IAS of Union concern are already well-established in certain Member States and concerted management action is needed so that they do not spread any further and to minimize the harm they cause.

**Plant species** listed on the directive include:

- American skunk cabbage *Lysichiton americanus*
- Asiatic tearthumb *Persicaria perfoliata* (*Polygonum perfoliatum*)
- Curly waterweed *Lagarosiphon major*
- Eastern Baccharis *Baccharis halimifolia*
- Floating pennywort *Hydrocotyle ranunculoides*
- Floating primrose willow *Ludwigia peploides*
- Green cabomba *Cabomba caroliniana*
- Kudzu vine *Pueraria lobata*
- Parrot's feather *Myriophyllum aquaticum*
- Persian hogweed *Heracleum persicum*
- Sosnowski's hogweed *Heracleum sosnowskyi*
- Water hyacinth *Eichhornia crassipes*

- Water primrose *Ludwigia grandiflora*
- Whitetop weed *Parthenium hysterophorus*

**Animal species** listed on the directive include:

- Amur sleeper *Perccottus glenii*
- Asian hornet *Vespa velutina*
- Chinese mitten crab *Eriocheir sinensis*
- Coypu *Myocastor coypus*
- Fox squirrel *Sciurus niger*
- Grey squirrel *Sciurus carolinensis*
- Indian house crow *Corvus splendens*
- Marbled crayfish *Procambarus* spp.
- Muntjac deer *Muntiacus reevesii*
- North american bullfrog *Lithobates (Rana) catesbeianus*
- Pallas's squirrel *Callosciurus erythraeus*
- Raccoon *Procyon lotor*
- Red swamp crayfish *Procambarus clarkii*
- Red-eared terrapin/slider *Trachemys scripta elegans*
- Ruddy duck *Oxyura jamaicensis*
- Sacred ibis *Threskiornis aethiopicus*
- Siberian chipmunk *Tamias sibiricus*
- Signal crayfish *Pacifastacus leniusculus*
- Small Asian mongoose *Herpestes javanicus*
- South American coati *Nasua nasua*
- Spiny-cheek crayfish *Orconectes limosus*
- Topmouth gudgeon *Pseudorasbora parva*
- Virile crayfish *Orconectes virilis*

On 13 July 2017 the European Commission published Commission Implementing Regulation 2017/1263 which added a further 12 species to the current list of 37 species regulated under the EU Invasive Alien Species Regulation (1143/2014).

These are:

**Plant species**

- Alligator weed (*Alternanthera philoxeroides*)
- Milkweed (*Asclepias syriaca*)
- Nuttall's waterweed (*Elodea nuttallii*)
- Chilean rhubarb (*Gunnera tinctoria*)
- Giant hogweed (*Heracleum mantegazzianum*)
- Himalayan balsam (*Impatiens glandulifera*)
- Japanese stiltgrass (*Microstegium vimineum*)
- Broadleaf watermilfoil (*Myriophyllum heterophyllum*)
- Crimson fountaingrass (*Pennisetum setaceum*)

**Animal species**

- Egyptian goose (*Alopochen aegyptiacus*)
- Raccoon dog (*Nyctereutes procyonoides*)
- Muskrat (*Ondatra zibethicus*)

The associated restrictions and obligations came into force from 2 August 2017 for all these species apart from the Raccoon dog, which came into force on 2 February 2019.

A detailed survey for all species listed above was conducted.

*Other Invasive Species*

The main guidance document that has been prepared dealing with invasive species/noxious weeds on sites is the NRA '*Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*' which was published in 2010. This document details other non-native species of note. A detailed survey for such species was conducted.

## **2. METHODOLOGY**

### **2.1 Desk Study and Consultation**

A desk study was carried out to collate the available information on the ecological environment potentially impacted by the proposed development at Delgany.

A GIS study was undertaken to determine the proximity of the proposed development at Delgany to designated areas for conservation utilising the online National Parks and Wildlife Service (NPWS) website database.

The National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht (DCHG) database of designated conservation areas were also checked with regard to the location of the lands at Delgany.

Information on protected species of fauna and flora listed for protection under Annex II of the EU Habitats Directive (92/43/EEC), Annex I of the Birds Directive (79/409/EEC) and the Wildlife Act 1976 (as amended) was also sought from NPWS, the National Biodiversity Data Centre, publications and other sources.

Recent, high resolution, colour aerial photographs were used to identify habitats of conservation value.

### **2.2 Field Surveys**

The site was visited in August, September, October and November 2019 and again in June and August 2020 by Faith Wilson.

The first visit in August 2019 was done to survey and map the habitats present using the habitat survey and mapping techniques described by Smith *et al.* (2011) and described using the Heritage Council Habitat Classification (Fossitt, 2000). This survey also documented the extent of known invasive species on site (primarily Japanese knotweed) so that their treatment could continue and also focused on plant species, many of which were still in flower.

A dedicated large mammal survey was carried out during the site visits using the techniques as prescribed in Ecological Survey Techniques for Protected Flora and Fauna (NRA, 2008). This entailed searching for and identification of signs, tracks and droppings of various mammals (including otter, badger, pine marten, Irish stoat, Irish hare, red squirrel, hedgehog and pygmy shrew along with non-native species such as fallow and sika deer, American mink, grey squirrel and rabbit) within the site. Badger setts, trails and foraging areas were looked for along the field boundaries, drainage ditches and hedgerows within the property.

Birds were assessed during the course of the main habitat surveys.

## **Bats**

The bat survey consisted of three elements – a desktop review and consultation with Bat Conservation Ireland, an inspection of trees within the site for their potential to support roosting bats, an inspection of the buildings and structures on site, a bat detector survey at dawn and dusk, which was carried out on 1<sup>st</sup> and 2<sup>nd</sup> October 2019 with subsequent surveys on 17<sup>th</sup> June 2020 when access to the church was provided and a general walkover of the lands was completed.

### ***Desktop Review and Consultation***

The Bat Conservation Ireland Database of bat records was searched for records of bats from the general area.

### ***Potential Roosts in Trees***

Trees within the site were assessed for their potential use by bats using the following standard criteria, which were created by bat specialists from Bat Conservation Ireland for use in the assessments of tree roosts on large infrastructural projects and are summarised in NRA (2006):

- Presence or absence of bat droppings (these can be hard to find amongst leaf litter or may be washed away following periods of wet weather),
- Bat droppings may also be seen as a black streak beneath holes, cracks, branches, etc.,
- Presence or absence of smooth edges with dark marks at potential entrances to roosts,
- Presence or absence of urine stains at potential entrances to roosts,
- Presence of natural cracks and rot holes in the trunk or boughs of the tree,
- Hollow trees,
- Presence or absence of creepers such as ivy or honeysuckle on trees (ivy clad trees are often used by bat species such as pipistrelles as roosts),
- Presence or absence of loose bark such as that of sycamore, or flaky bark on coniferous species such as cedars, cypress and Scot's pine,
- Presence or absence of bracket fungi which may indicate a rotten or potentially hollow centre to the tree,
- Known bat roosts previously identified,
- Trees with storm or machinery damage or broken boughs,
- Clutter level - where the branches and trunk are easily accessible, this is considered a better tree for bat roosts,
- Adjoining habitat - if there are a variety of feeding opportunities for bats, this increases the potential of a tree as a bat roost,
- Adjoining potential roosts / known roosts. This raises the likelihood of a tree being of benefit as bats may move roosts if the roost becomes too hot or cold during roosting and a nearby alternative roost is highly desirable.

### ***Building Survey***

The exterior and internal attics of the buildings were examined for signs of roosting bats on the 1<sup>st</sup> October 2019. The attics of both the old house and the newer residential wing were internally inspected for signs of roosting bats.

The interior of the church was examined on 17<sup>th</sup> June 2020.

***Detector Survey***

A bat detector survey was carried out at dusk on 1<sup>st</sup> October 2019 and dawn on 2<sup>nd</sup> October 2019 using three types of bat detectors - two Batbox Duet Heterodyne/Frequency Division detectors and a Pettersson D100 Heterodyne detector.

The emergence of bats in the general area of the site at dusk was monitored and a walkover survey of the lands was conducted. Dawn swarming activity was also examined.

A second dusk emergence detector survey of the church and wider environs of the property was completed on 17<sup>th</sup> June 2020.

Bat activity is predominantly bi-modal, with bats taking advantage of increased insect numbers on the wing during the periods after dusk and before dawn, (there is usually a lull in activity in the middle of the night). While this holds true for 'hawking' species (bats that capture prey in the open air), 'gleaning' species such as brown long-eared (*Plecotus auritus*), Natterer's (*Myotis nattereri*) and Whiskered/Brandt's bats (*Myotis mystacinus/brandtii*) remain active throughout the night, as prey is available on foliage for longer periods.

### 3. ECOLOGICAL IMPACT ASSESSMENT

#### 3.1 Description of the Proposed Development

This Ecological Impact Assessment relates to a planning application by Drumakilla Limited for the development of housing on lands of c.6 ha at Delgany, Co. Wicklow as shown on **Figure 1** above.

The proposed development will consist of 232 no. residential units, a crèche, a community facility, a management office, demolition works, new entrances, landscaping, parking and site development works as shown on **Figure 2** below.



**Figure 2. Proposed housing development at Delgany.**

#### 3.2 Identification of Sites of Conservation Importance

The lands proposed for development at Delgany (henceforth referred to as the site) are not currently designated for any nature conservation purposes.

##### *International/National Conservation Designations*

Any Natura 2000 sites within or adjacent to the proposed development lands at Delgany and any Natura 2000 sites within the likely zone of impact of the proposed development (a 15km radius) including any downstream were identified as part of the Report for Screening for Appropriate Assessment, which was prepared to accompany this planning application (Wilson, 2020). 11 Natura 2000 sites have been identified. These are summarised in **Table 3.2.1** and shown on **Figure 3** below.



- Carrigower Bog pNHA (Site Code: 000716)
- Dalkey Coastal Zone And Killiney Hill pNHA (Site Code: 001206)
- Dargle River Valley pNHA (Site Code: 001754)
- Devil's Glen pNHA (Site Code: 000718)
- Dingle Glen pNHA (Site Code: 001207)
- Glen of the Downs pNHA (Site Code: 000719)
- Glencree Valley pNHA (Site Code: 001755)
- Great Sugarloaf pNHA (Site Code: 001769)
- Kilmacanogue Marsh pNHA (Site Code: 000724)
- Knocksink Wood pNHA (Site Code: 000725)
- Loughlinstown Woods pNHA (Site Code: 001211)
- Powerscourt Waterfall pNHA (Site Code: 001767)
- Powerscourt Woodland pNHA (Site Code: 001768)
- The Murrough pNHA (Site Code: 000730)
- Vartry Reservoir pNHA (Site Code: 001771)

Proposed NHAs are also habitats or sites of interest to wildlife that have been identified by NPWS. These sites become NHAs once they have been formally advertised and land owners have been notified of their designation. NHAs are protected under the Wildlife (Amendment) Act, 2000, from the date they are formally proposed. NHA is a statutory designation according to the Wildlife Act 1976 (as amended) and requires consultation with NPWS if any development impacts on a pNHA.

NHAs are considered to be of national importance, while SACs and SPAs are of international importance for nature conservation.

There are no ecological or hydrological links between the Carmelite lands in Delgany, Co. Wicklow and these or any other pNHA.

#### **Natura 2000 Site Conservation Objectives:**

Detailed site management plans are available for many of the Natura 2000 sites identified as outlined in the reference list, and generic conservation objectives are identified for those remaining. The conservation objectives for each of the Natura 2000 sites outlined above are summarised below in **Table 3.2.1**.

A Report for Screening for Appropriate Assessment was prepared to accompany this planning application (Wilson, 2020). That report examined the generic and detailed conservation objectives for each Natura 2000 site and the attributes and targets for each conservation objective and has not identified any potential risk of significant impact on any of these targets.

**Table 3.2.1. Sites of international conservation importance within a 15km radius of the lands at Delgany.**

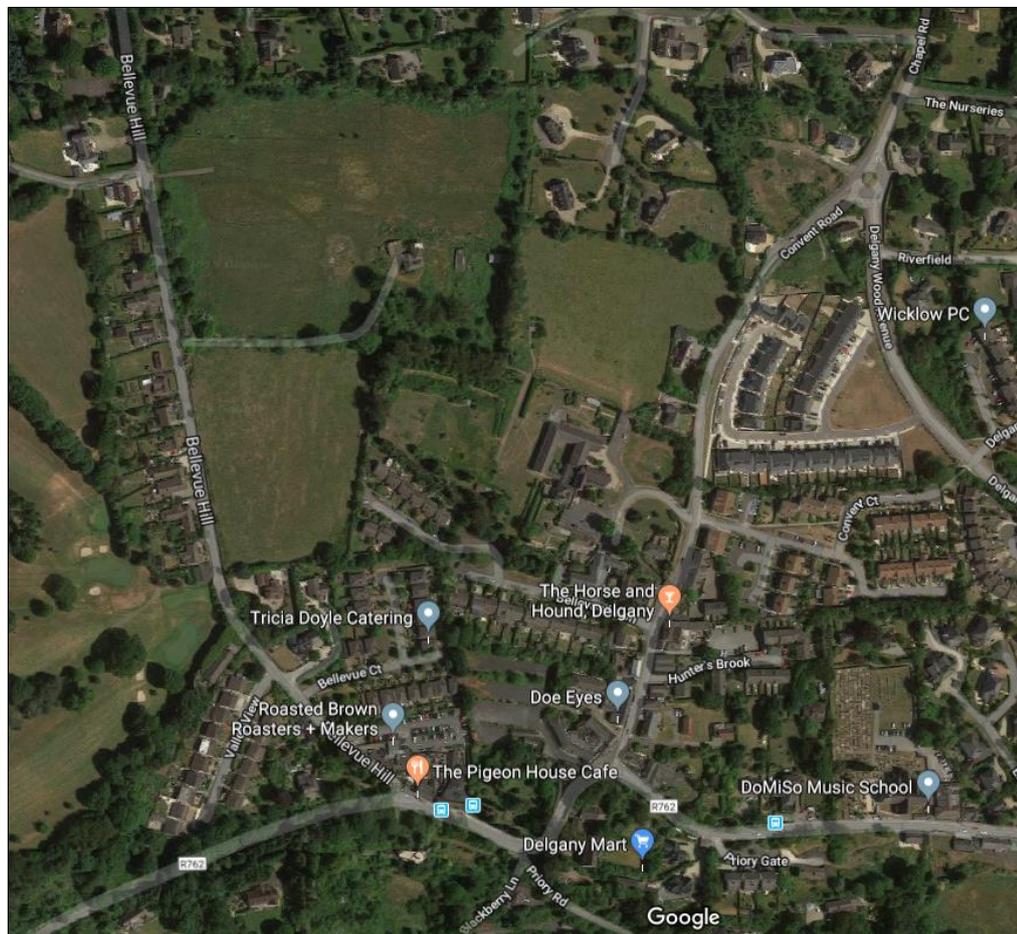
Site Code	Site Name and Designation	Approximate distance from the Carmelite lands at Delgany, Co. Wicklow	Conservation Interest (summarised from site synopsis)
000719	Glen of the Downs SAC	0.5km south west	<ul style="list-style-type: none"> <li>• (91A0) Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles.</li> </ul>
000714	Bray Head SAC	3km NE	<ul style="list-style-type: none"> <li>• (1230) Vegetated sea cliffs of the Atlantic and Baltic coasts,</li> <li>• (4030) European dry heaths,</li> <li>• (6210) Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>) (*important orchid sites).</li> </ul>
000716	Carrigower Bog SAC	5km SW	<ul style="list-style-type: none"> <li>• (7140) Transition mires and quaking bogs.</li> </ul>
002249	The Murrrough Wetlands SAC	4km SE	<ul style="list-style-type: none"> <li>• (1210) Annual vegetation of drift lines,</li> <li>• (1220) Perennial vegetation of stony banks,</li> <li>• (1330) Atlantic salt meadows (<i>Glauco Puccinellietalia maritima</i>),</li> <li>• (1410) Mediterranean salt meadows (<i>Juncetalia maritimi</i>),</li> <li>• (7210) * Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i>,</li> <li>• (7230) Alkaline fens.</li> </ul>
004186	The Murrrough SPA	4.5km SE	<ul style="list-style-type: none"> <li>• Red-throated Diver (<i>Gavia stellata</i>),</li> <li>• Greylag Goose (<i>Anser anser</i>),</li> <li>• Light-bellied Brent Goose (<i>Branta bernicla hrota</i>),</li> <li>• Wigeon (<i>Anas penelope</i>),</li> <li>• Teal (<i>Anas crecca</i>),</li> <li>• Black-headed Gull (<i>Chroicocephalus ridibundus</i>),</li> <li>• Herring Gull (<i>Larus argentatus</i>),</li> <li>• Little Tern (<i>Sterna albifrons</i>),</li> <li>• Wetlands &amp; Waterbirds.</li> </ul>

Site Code	Site Name and Designation	Approximate distance from the Carmelite lands at Delgany, Co. Wicklow	Conservation Interest (summarised from site synopsis)
000725	Knocksink Wood SAC	8.5km N	<ul style="list-style-type: none"> <li>• (7220) Petrifying springs with tufa formation (<i>Cratoneurion</i>),</li> <li>• (910E0) Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae).</li> </ul>
000713	Ballyman Glen SAC	8.6km N	<ul style="list-style-type: none"> <li>• (7220) Petrifying springs with tufa formation (<i>Cratoneurion</i>),</li> <li>• (7230) Alkaline fens.</li> </ul>
002122	Wicklow Mountains SAC	7.5km W	<ul style="list-style-type: none"> <li>• (3130) Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoeto-Nanojuncetea</li> <li>• (3160) Natural dystrophic lakes and ponds,</li> <li>• (4010) Northern Atlantic wet heaths with <i>Erica tetralix</i>,</li> <li>• (4030) European dry heaths,</li> <li>• (4060) Alpine and Boreal heaths,</li> <li>• (6230) Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas,</li> <li>• (7130) Blanket bog (*active only),</li> <li>• (8110) Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>),</li> <li>• (8210) Calcareous rocky slopes with chasmophytic vegetation,</li> <li>• (8220) Siliceous rocky slopes with chasmophytic vegetation,</li> <li>• (9990) Blanket bog (not active),</li> <li>• (1355) Otter (<i>Lutra lutra</i>),</li> <li>• Peregrine falcon (<i>Falco peregrinus</i>),</li> <li>• Merlin (<i>Falco columbarius</i>).</li> </ul>
004040	Wicklow Mountains SPA	7.4km W	<ul style="list-style-type: none"> <li>• Peregrine falcon (<i>Falco peregrinus</i>),</li> <li>• Merlin (<i>Falco columbarius</i>),</li> <li>• Ring Ouzel (<i>Turdus torquatus</i>),</li> <li>• Red Grouse (<i>Lagopus lagopus</i>).</li> </ul>

Site Code	Site Name and Designation	Approximate distance from the Carmelite lands at Delgany, Co. Wicklow	Conservation Interest (summarised from site synopsis)
003000	Rockabill to Dalkey Island SAC	12.6km N	<ul style="list-style-type: none"> <li>• Reefs [1170],</li> <li>• Harbour porpoise (<i>Phocoena phocoena</i>) [1351].</li> </ul>
004172	Dalkey Islands SPA	15km N	<ul style="list-style-type: none"> <li>• Roseate Tern (<i>Sterna dougallii</i>),</li> <li>• Common Tern (<i>Sterna hirundo</i>),</li> <li>• Arctic Tern (<i>Sterna paradisaea</i>).</li> </ul>

### 3.3 Receiving Environment - Habitats

The lands at Delgany are located in the heart of Delgany Village on lands between Convent Road and Bellevue Hill and are surrounded by existing housing, local shops and schools as can be seen on **Figure 4** below.



**Figure 4. Delgany Village (Google Maps).**

The lands are bounded to the east and west by local roads (and associated housing), to the north by undeveloped lands associated with Gorteen, and to the south by housing developments and village shops.

The modern residential convent buildings, a gothic revival chapel, a 19<sup>th</sup> century two storey house and associated stables/outbuildings, a 19<sup>th</sup> century gatelodge, and a single storey 20<sup>th</sup> century bungalow are found in a cluster in the centre of the site with tarmacadamed parking areas and driveway. Immature planting of Ash, Birch, Beech, Oak, Alder, and Whitebeam forms screening for the convent from the road. Several Lawson cypress are also planted here.

The grassland surrounding the convent in this location is closely mown and is best described as **Amenity Grassland (GA2)**. Some of the lawn on the sloped banks at the rear of the residential block is quite species rich, with large amounts of yarrow (*Achillea millefolium*) present. This area had been left unmown during the Covid19 restrictions whereas when it was first examined

it had been closely mown. Various ornamental planting is found within the grounds with an old orchard, artificial pond (now dry), flowerbeds and shrubs. The grounds are bounded by a high wall to the east of the residential block and beyond this is an agricultural field which is mown for haylage/silage.



Figure 5. Habitat map of the Carmelite Lands.

To the rear of the convent is a small paddock of **rough grassland (GS2)**, which has developed as this area is no longer intensively managed/mown. Species recorded here include Perennial rye-grass (*Lolium perenne*), Red fescue (*Festuca rubra*), Common meadow grass (*Poa pratensis*), Creeping bent (*Agrostis stolonifera*), Meadow fescue (*Festuca pratensis*), False oat-grass (*Arrhenatherum elatius*), Cock's-foot grass (*Dactylis glomerata*), Timothy-grass (*Phleum pratense*), White clover (*Trifolium repens*), Teasel (*Dipsacus fullonum*), Docks (*Rumex* sp.), Cleavers (*Galium aparine*), dandelion (*Taraxacum* agg.), Germander speedwell (*Veronica chamaedrys*), Yellow clover (*Trifolium dubium*), Bush vetch (*Vicia sepium*), Hogweed (*Heracleum sphondylium*), Herb Robert (*Geranium robertianum*), Hairy willowherb (*Epilobium hirsutum*), Nettle (*Urtica dioica*), Ragwort (*Senecio jacobaea*), Creeping cinquefoil (*Potentilla reptans*), Creeping buttercup (*Ranunculus repens*) and Nipplewort (*Lapsana communis*).

North of the convent is a field which has been improved from the perspective of agriculture (**Improved agricultural grassland GA1**). A **hedgerow (WL1)** on an **earthen bank (BL2)** is found along the eastern boundary of the field adjoining the local road and private residences. The dominant species here are mature Hawthorn (*Crataegus monogyna*), mature Ivy (*Hedera helix*), Blackthorn (*Prunus spinosa*), Bramble (*Rubus fruticosus* agg.). There are patches of dense Bramble spreading from this hedgerow in the south eastern corner of this field and the invasive species Old man's beard (*Clematis vitalba*) was found here.

Ground flora beneath the hedgerow was relatively poor and consisted of docks (*Rumex* sp.), ivy, Cow parsley (*Anthriscus sylvestris*), Ground ivy (*Glechoma hederacea*), Wood avens (*Geum urbanum*), Ribwort plantain (*Plantago lanceolata*), Yorkshire fog (*Holcus lanatus*), Barren strawberry (*Potentilla sterilis*), Dandelion (*Taraxacum* agg.), Chickweed (*Stellaria media*) and ferns. The non-native Winter heliotrope (*Petasites fragrans*) which is invasive in nature, was found along the north eastern corner of this field boundary.

The northern boundary of the northern field is dominated by a **treeline (WL2)** of mature Sycamore (*Acer pseudoplatanus*), with mature and semi-mature Ash (*Fraxinus excelsior*), below this is an understorey of Elder (*Sambucus nigra*), mature Hawthorn (*Crataegus monogyna*), Ash which has been pollarded, Bramble (*Rubus fruticosus* agg.) and occasional Gorse (*Ulex europaeus*).

The northern field has been improved from an agricultural perspective and supports Creeping buttercup (*Ranunculus repens*), creeping thistle (*Cirsium repens*), white clover (*Trifolium repens*), Yorkshire fog (*Holcus lanatus*), and hawkbit (*Leontodon* sp.). This field is mown for haylage/silage.

The western boundary of this field consists of a **treeline (WL2)** adjoining the Richview House lands. Tree species here include; mature Sycamore, Ash and Scots pine (*Pinus sylvestris*), with Elder and very dense Bramble at the base. Ornamental species recorded in this treeline include variegated holly, fuchsia, and various cypress conifers. There is a change in ground height between these two lands. Large areas of creeping thistle, nettle and bramble are found extending into the field from this area.

Adjacent to this treeline along an old post and wire fence line, which extends east into the field. Along this fence is a stand of Japanese knotweed (*Fallopia japonica*). This stand was known to the Carmelites and has been receiving appropriate treatment. A small area of Japanese knotweed also extends into the adjoining field and was clearly delineated on the ground to ensure that it was not disturbed during any agricultural operations.

A narrow band of rough ground along the western margin of this field supports vegetation most closely akin to **dry grassy verge vegetation (GS2)** with Hogweed (*Heracleum sphondylium*), Meadow buttercup (*Ranunculus acris*), Ragwort (*Senecio jacobaea*), Creeping cinquefoil (*Potentilla reptans*), extensive Hedge bindweed (*Calystegia sepium*), Red clover (*Trifolium pratense*), Dandelion (*Taraxacum* agg.), Cock's-foot grass (*Dactylis glomerata*), Creeping bent (*Agrostis stolonifera*), Yorkshire fog (*Holcus lanatus*), Creeping thistle, Bramble, Bush Vetch (*Vicia sepium*), Tufted vetch (*Vicia cracca*), Red fescue (*Festuca rubra*), Yarrow (*Achillea millefolium*), Canadian fleabane (*Conyza canadensis*), Nettle (*Urtica dioica*), Spear thistle (*Cirsium vulgare*), and some seedlings of Sycamore. An ESB powerline crosses over this area. A small dilapidated timber cabin is located here with various ornamental planting of trees and shrubs including Mountain ash (*Sorbus* sp.), NZ cabbage palm (*Cordyline australis*), and various cypress (*Cupressus* sp.).

The structure, diversity of species and maturity of these boundary hedgerows/treelines provides an important corridor for wildlife to move

through the area, to forage, breed and roost as well as visual screening for these lands. Some of the trees in the northern and western treelines have potential to support roosting bats.

Within the enclosed grounds of the convent there are a number of other features as follows:

A **treeline (WL2)** of mature Monterey cypress (*Cupressus macrocarpa*) and Lawson cypress (*Cupressus lawsoniana*) is found adjacent to a high wall and a diverted watercourse and these features form the northern boundary of the site between the Richview House and the Carmelite lands. Species at the base of these trees include dense Ivy, Nettle, the invasive non-native plant species Montbretia, Elder, occasional Hogweed, and ornamental Iris. Many of the Monterey cypress are beginning to drop their branches, which is typical of this species at this age.

To the south of this is a large earthen berm, which was formed with excavated material from the property when the new residential building was constructed. This was planted with Scots pine (*Pinus sylvestris*), oak (*Quercus* sp.), bay laurel (*Prunus lusitanica*), beech (*Fagus sylvatica*), self-seeded ash, willows, oak, NZ cabbage tree, birch (*Betula pubescens*) and sycamore, which forms an area of **immature woodland WN2**. Very dense ivy, bramble and Herb Robert are found growing on the berm along with various ornamental shrubs including Fuchsia, Hydrangea, Gaultheria and Dogwood.

This treeline then extends south and includes mature multi-stemmed Sycamore, Monterey cypress (*Cupressus macrocarpa*), Lawson cypress (*Cupressus lawsoniana*), mature Lime (*Tilia cordata*), Fuchsia, and the invasive non-native Cherry laurel (*Prunus laurocerasus*).

Various buildings (dilapidated timber cabins and timber chalets) which were used as meditative structures by the nuns are located in the grounds and areas of ornamental planting of shrubs, fruit trees and flower beds are common. These areas have been mapped as **WS3 ornamental shrub**.

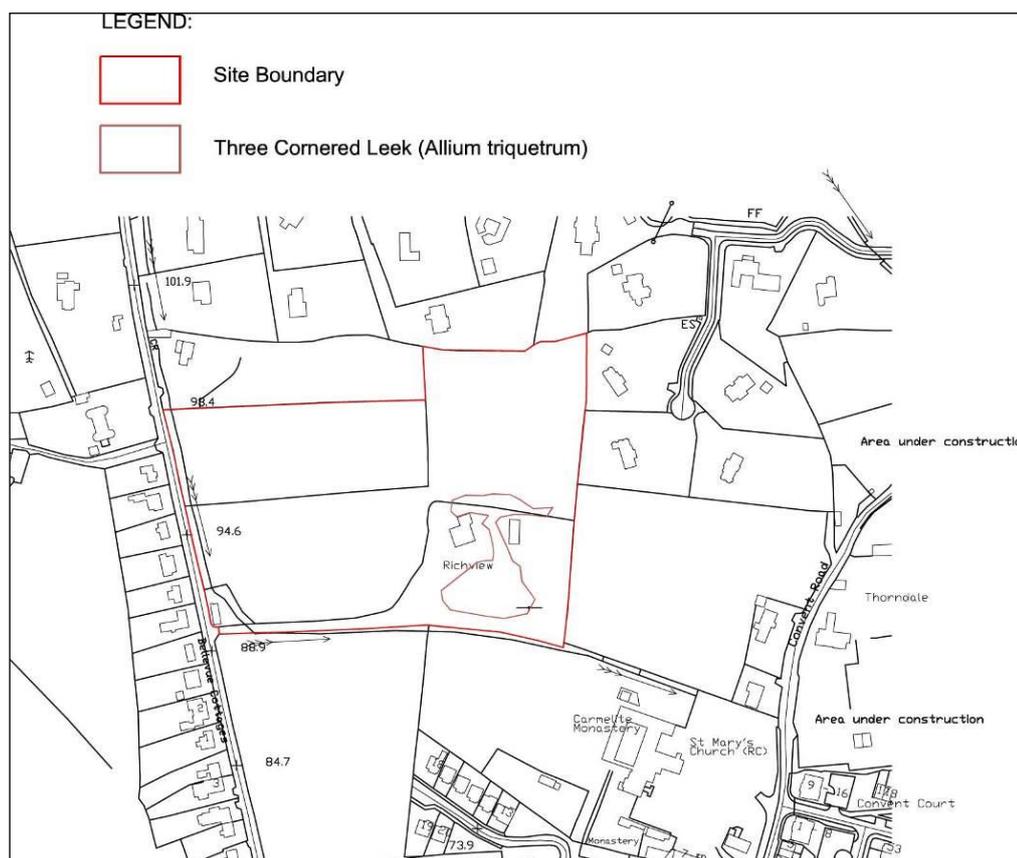
The western boundary of the western field is delineated by a **stonewall (BL1)** with frequent Winter heliotrope (*Petasites fragrans*) along the earthen bank at its base adjoining the road to Bellevue Hill. Ivy growing on this wall has been treated and cut. The field here has been improved from the perspective of agriculture and is dominated by Yorkshire fog (*Holcus lanatus*), Cock's foot (*Dactylis glomerata*), Creeping buttercup (*Ranunculus repens*), White clover (*Trifolium repens*), Ribwort plantain (*Plantago lanceolata*), Red clover (*Trifolium pratense*), Creeping bent (*Agrostis stolonifera*), Red fescue (*Festuca rubra*), Common chickweed (*Cerastium glomeratum*) and Hogweed (*Heracleum sphondylium*).

Along the margins and near the base of wall are Docks (*Rumex* sp.), Nettle (*Urtica dioica*), Nipplewort (*Lapsana communis*), clumps of Bramble (*Rubus fruticosus* agg.), Angelica (*Angelica sylvestris*), Herb Robert (*Geranium robertianum*), Groundsel (*Senecio vulgaris*), Ragwort (*Senecio jacobaea*), Pineappleweed (*Matricaria discoidea*), and a single elder (*Sambuccus nigra*) bush.

The northern boundary of this field adjoining Richview is a **hedgerow (WL1)** growing on an **earthen bank (BL2)** with Cherry laurel (*Prunus laurocerasus*), Bramble (*Rubus fruticosus* agg.), Holly (*Ilex aquifolium*), mature Ivy (*Hedera helix*), Dog rose (*Rosa canina*), Hawthorn (*Crataegus monogyna*), Snowberry bush (*Symphoricarpos alba*), and some semi-mature and mature Ash (*Fraxinus excelsior*) and Sycamore (*Acer pseudoplatanus*) at the eastern end with a small **stream FW2** flowing at the base.

A tall wall forms the eastern boundary of this field with patches of Bramble at it's base. A **hedgerow (WL1)** growing along a chain link fence forms the boundary with Bellevue Lawn and contains Bramble, Nettle, Leylandii, Cotoneaster, Dog Rose, and multi-stemmed Sycamore. At the south eastern corner is a very mature specimen Oak and a mixture of fencing materials and scattered Bramble, Ash, Bamboo, Sycamore and Buddleia.

To the north of the site in the former grounds and garden of Richview House is a population of the invasive species Three cornered leek (*Allium triquetrum*), which was recorded there by this author in 2015 as shown on **Figure 6** below.



**Figure 6. The indicative extent of three cornered leek in the adjoining gardens at Richview House.**

### 3.4 Rare, Threatened and Protected Flora

A review of the National Parks and Wildlife Service online database has several records of rare, threatened and protected flora from the 10km square in which the lands at Delgany is located (O21). These include:

- Red hemp nettle (*Galeopsis angustifolia*)
- Bog orchid (*Hammarbya paludosa*)
- Round prickly headed poppy (*Papaver hybridum*)
- Penny royal (*Mentha pulegium*)
- Annual knawel (*Scleranthus annuus*)
- Killarney fern (*Trichomanes speciosum*)

There is no suitable habitat for any of these species within the proposed development lands and the above records relate to other locations.

### 3.5 Faunal Interest

#### Mammals

The terrestrial fauna within the grounds of the property consists of very few species because of the high walls and gates which surround the convent – these prevent many non-volant mammals from accessing the area.

The main interest in the site for non-volant mammals is therefore in the two agricultural fields, the watercourse and surrounding hedgerows and treelines which support species such as brown rat, long tailed field mouse, house mouse, rabbits and fox. Other common fauna that would be expected include hedgehog, Irish stoat and pygmy shrew.

There was no evidence of any badger setts or foraging activity on site. No evidence of otter was recorded on the small watercourse that runs through the site.

#### Bats

The Bat Conservation Ireland Database of bat records was searched for records of bats from the area. The database contains records of roosts, ad hoc observations and the results of surveys such as the BATLAS 2010 project and the All Ireland Daubenton's Monitoring Project.

A variety of bat species have been recorded either foraging or commuting from the wider landscape within a 10km radius of Delgany village, and these include:

- Brown long eared bat (*Plecotus auritus*),
- Natterer's bat (*Myotis nattereri*),
- Whiskered bat (*Myotis mystacinus*),
- Daubenton's bat (*Myotis daubentonii*),
- Leisler's bat (*Nyctalus leisleri*)
- Soprano pipistrelle (*Pipistrellus pygmaeus*),
- Common pipistrelle (*Pipistrellus pipistrellus*),
- Unidentified pipistrelle species, and
- Unidentified *Myotis* species.

The Carmelite lands have never been surveyed using detectors for bats until the present survey but the following species have been recorded from the lands at Bellevue to the west of the site.

These include; Leisler's bat, brown long-eared bat, soprano pipistrelle, common pipistrelle, an unidentified pipistrelle species, an unidentified *Myotis* species and Natterer's bat.

### **Building Roosts**

The building inspections confirmed the use of both the 19<sup>th</sup> century two storey house and the modern residential building and the church by roosting bats.

Pipistrelle droppings were found in small numbers in the attics of both the 19<sup>th</sup> century two storey house and the modern residential building. It is not thought that a maternity roost is present in either building.

No bats were recorded emerging at dusk or returning to any of the buildings at dawn but the first survey was conducted late in the season and bats have typically left buildings by October/November so this is not surprising.

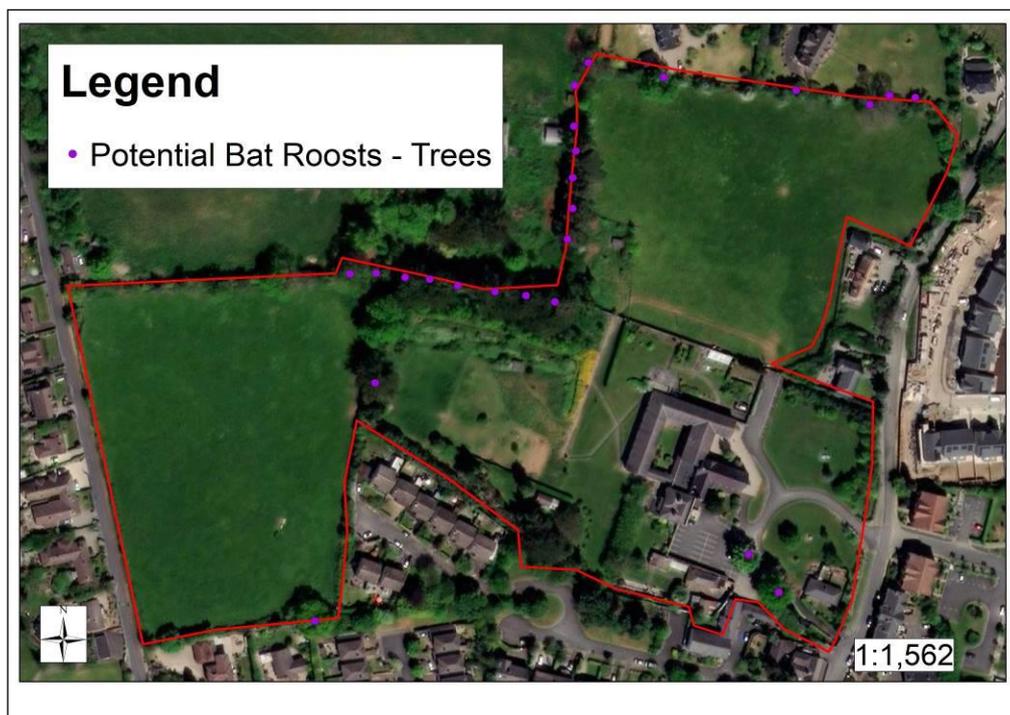
Brown long eared bats were recorded utilising the church for roosting purposes – the bats are located between the roof rafters/trusses and the front gable wall of the church and their droppings can be seen there.

These were the only confirmed roosts found within the site.

A number of other buildings within the site such as the felt roofed timber cabin, the cabins, the potting shed and the old farmyard buildings were examined and would also offer limited roosting opportunity for bats. These buildings may be used during the summer months on occasion by individual bats.

### **Tree Roosts**

There are several mature trees within the site, particularly along the northern boundary treeline adjoining Richview House and the private residences to the north which have potential to support roosting bats – these are shown below on **Figure 7**.



**Figure 7. Potential tree roosts.**

### **Detector Survey**

A bat detector survey was conducted on the 1<sup>st</sup> and 2<sup>nd</sup> October 2019 when bat activity across the site was monitored using bat detectors. Three species of bat were found to use the site for hunting and foraging purposes.

The most frequent of these were common pipistrelle and soprano pipistrelle both of which were recorded foraging along the perimeter treelines and hedgerows and over the fields. Leisler's bat, was recorded early in the night and approached the site from adjoining lands to the south.

Small numbers of Brown long eared bats were recorded emerging from the church building on the 17<sup>th</sup> June 2020 at height. Brown long eared bats are hard to detect on a bat detector so the actual number of bats present could not accurately be determined.

This survey also reconfirmed the presence of Leisler's bat, common pipistrelle and soprano pipistrelle using the site as previously noted.

No additional roosts beyond those detailed above were confirmed in any of the buildings during this survey. Further details are provided in the bat report (Wilson, 2020), which accompanies the planning application.

### **Birds**

The bird fauna recorded was typical of lands of this type in a semi-urban area. Species recorded include robin, woodpigeon, jackdaw, blackbird, wren, blue tit, song thrush, chaffinch, starling and greenfinch. Corvid species recorded on site include; rook, magpie, hooded crow and jackdaw. House martins were recorded nesting on the monastery gable wall.

Pied wagtails were recorded on the tarmacadamed grounds surrounding the convent, while redwing and fieldfare may visit during the winter months.

Birds of prey such as buzzard and sparrowhawk were recorded and other summer visitors, such as swallow and swift would be expected.

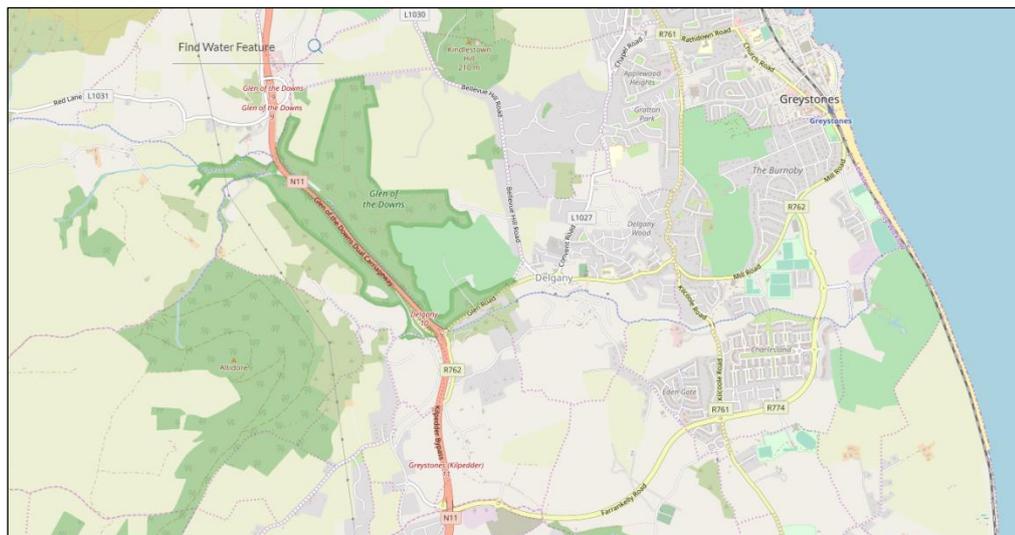
### **Amphibians**

The artificial pond within the grounds was drained of water so did not support any aquatic flora or fauna. There was no evidence of newts or frogs within the site during any of the surveys but they would be expected if breeding conditions within the pond was restored.

## **3.6 Fisheries**

The lands at Delgany are located within the Ovoca - Vartry catchment (Catchment 10) and within the Newcastle (Wicklow) sub-catchment (SC\_010).

According to the EPA Envision Map Viewer, the closest mapped watercourse to the site is that of Three Trout Stream (IE\_EA\_10T030580) which rises west of the lands in the Glen of the Downs and then flows in an easterly direction, passing below Delgany Village as shown on **Figure 8** below.



**Figure 8. Watercourses in the area.**

The water quality of the Three Trout Stream is currently unknown but the watercourse is classified as a stream 'Not At Risk' of not achieving 'Good Status' under the Water Framework Directive.

#### 4. CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of 232 no. residential units, a crèche, a community facility, a management office, demolition works, new entrances, landscaping, parking and site development works as shown on **Figure 9** below.



**Figure 9. Proposed site layout at Delgany.**

## 5. POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

The development of what was undeveloped agricultural fields and lands associated with the convent to that of an urban environment dominated by housing and infrastructure will ultimately result in loss of biodiversity in the immediate locality.

Potential impacts on flora and fauna arise during both the Construction and Operational Phases of the proposed development. The activities associated with the proposed development that has the potential to affect the ecology of the site and surrounding area include:

- Direct Habitat Loss;
- Disturbance;
- Fragmentation; and
- Potential Water Pollution.

### 5.1 Potential Impacts on Habitats

#### **Construction Phase:**

No habitat designated for nature conservation purposes, or plant species protected under the Floral Protection Order 2015, will be impacted by the proposed development of these lands, which would be deemed of local importance for biodiversity.

In general the development has been sensitively designed in respect to ecology and many of the boundary features have been retained within the site. Some of the trees are unsuitable for long term retention and these will be removed. There is still the potential for the loss of retained habitats and vegetation of importance to wildlife along the site boundaries arising from the site clearance works unless protective measures are put in place prior to the commencement of construction activities on the site.

Areas of immature planting, grassland habitats and areas of ornamental shrubs and grassland associated with the gardens will be permanently lost.

The other main potential impacts during this phase arise from the physical disturbance of the soil at and adjacent to the site during construction. There is potential for run-off from the site to the small watercourse which flows through the site which is an important faunal habitat unless some remedial measures are put in place.

#### **Operational Phase:**

All waste water from the development will be discharged to the mains foul water system and the development will be served by the main water supply.

Over time the landscaping plantings will mature and provide cover and habitat for birds, invertebrates and other fauna within the site.

## 5.2 Potential Impacts on Fauna

There are potential impacts on several legally protected species found within the site arising from its development – these include bats as well as on fauna in general. There are potential impacts on protected fauna such as bats through the loss of roosts, foraging habitats and a decrease in invertebrate diversity within the environs of the site resulting from the loss of vegetation.

### *Bats*

The use by four species of bats listed under Annex IV of the EU Habitats Directive, of the grounds for foraging and hunting purposes and the use of both the 19<sup>th</sup> century two storey house, the modern residential building and the church for roosting purposes were confirmed from the surveys conducted.

Pipistrelle droppings were found in small numbers in the attics of both the 19<sup>th</sup> century two storey house, the modern residential building and brown long eared bats are recorded using the church. Other buildings which have the potential to support roosting bats have also been identified. No tree roosts were confirmed during any of the surveys but a number of trees which have the potential to support roosting bats have been identified and are considered further under the mitigation measures section.

The principal pressures on Irish bat species have been identified as follows:

- urbanized areas (e.g. light pollution)
- bridge/viaduct repairs
- pesticides usage
- removal of hedges, scrub, forestry
- water pollution
- other pollution and human impacts (e.g. renovation of dwellings with roosts)
- infillings of ditches, dykes, ponds, pools and marshes
- management of aquatic and bank vegetation for drainage purposes
- abandonment of pastoral systems
- speleology and vandalism
- communication routes: roads
- forestry management

The potential impacts on bats arising from the development of the site include:

- Loss of roosts in the buildings.
- Loss of potential tree roosts within the site.
- Potential barrier to bat activity on the site from inappropriate lighting.
- Loss of foraging areas for three species of bats.

### **Potential Impacts on Birds**

There will be losses of breeding habitat and foraging areas for birds as large areas of grassland and some sections of hedgerows/scrub habitats and trees will be lost. The development of an urbanised habitat with houses, gardens, etc. within the site will in the long term favour those species which adapt to garden habitats as they mature such as common garden birds (robin, blackbird, blue tit, etc.) or those associated with buildings and built surfaces (such as pied

wagtail, house sparrow, house martins, swallows, etc. once provision for them is made).

## 6. A DO NOTHING SCENARIO

Under a 'do-nothing' scenario the lands surrounding the convent would continue to be managed for amenity/recreation, with the fields managed for agricultural purposes, which would result in little change to the flora and fauna. If these lands are left unmanaged areas of rank grassland, would increase which would be replaced by scrub and ultimately woodland over time.

## 7. REMEDIAL OR REDUCTIVE MEASURES

### 7.1 Mitigation by Avoidance

The principal mitigation that should be considered in any development is avoidance of impact. Direct impacts on the watercourse and adjoining hedgerows have also been avoided.

Detailed consideration was also given to avoiding any direct or indirect impacts on the northern boundary treeline when developing the site layout. One building was omitted and the site layout was altered to allow this boundary to be fully retained and augmented with additional native planting to strengthen its ecological function.

This has ameliorated some of the potential impacts for both flora and fauna within the red line boundary of the site.

### 7.2 Tree and Habitat Protection

Protective fencing will be erected in advance of any construction works commencing outside the drip-line of the canopy of retained trees and vegetation along the site boundaries in order to prevent damage by machinery, compaction of soil, etc. in accordance with BS 5837:2012 as shown on **Figure 10** below. This will be signed off on by a qualified arborist or ecologist to ensure it has been erected properly before any machinery is allowed on site. No ground clearance, earth moving, stock-piling or machinery movement will occur within these protected areas. Protective silt fencing will also be erected to protect the stream in advance of any construction works commencing.



Figure 10. Tree protection measures (Tree Management Services).

### 7.3 Lighting Design

Many species of bats and other mammals are sensitive to lighting and will avoid areas which are illuminated. The design recommendations from the BCT (2010) for wildlife-friendly lighting have been incorporated into the lighting design for the scheme by the project lighting designers and in general any lighting used in the development does not overspill onto the retained boundary treelines thereby ensuring that a dark corridor for foraging and commuting bats and movement for other wildlife is maintained.

If any additional lighting is required around the property for security or safety it will be placed below tree canopy height to a lower level and where practicable it should be provided by bollard lighting. This would reduce the illumination of trees and other foraging habitats and ensure these areas remain dark for bats to forage in.

Design recommendations from the BCT (2010) for wildlife-friendly lighting include:

1. Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light.
2. Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal.
3. Use narrow spectrum bulbs to lower the range of species affected by lighting.
4. Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation.
5. Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the

luminaire or with accessories, such as hoods, cowls, louvers and shields to direct the light.

6. Reduce the height of lighting columns. Light at a low level reduces ecological impact. However, higher mounting heights allow lower main beam angles, which can assist in reducing glare.
7. For pedestrian lighting, use low level lighting that is directional as possible and below 3 lux at ground level.
8. Limit the times that lights are on to provide some dark periods for wildlife.
9. Use lighting design computer programs and professional lighting designers to predict where light spill will occur.
10. In general any lighting used in the development should not overspill onto the adjoining trees and woodland thereby ensuring that a dark corridor for foraging and commuting bats and movement for other wildlife is maintained.

In addition:

11. Luminaires will be dimmable LED (light emitting diode) fittings with High performance optics to provide high visual comfort.
12. Luminaires will be selected to ensure that when installed there shall be zero direct upward light emitted to the sky (all output shall be at or below 90° to the horizontal to help prevent sky glow from light pollution of the night sky).
13. Luminaires will be selected to ensure that there is no light spill from the proposed development onto the retained areas of linear vegetation and boundary features.
14. The light emitted from these fittings shall have no photo biological risk and shall be categorised as “Exempt Group” in relation to emissions of Blue light, Infrared and Ultra Violet Radiation in accordance with EN 62741:2008.
15. All luminaires shall have a Luminous intensity Classification of between G4 and G6 to IS EN 13201-2:2003(E) / BS 5489-1:2013.
16. The recommendations of the Institution of Lighting Professionals and Bat Conservation Trust “Bats and Lighting in the UK” documentation and Bat Conservation Ireland Guidance Notes for planners, engineers, architects and developers December 2010 will be met.

These guidelines have been implemented in the project lighting design.

#### **7.4 Planting of Native Species**

The landscaping proposals for the development (including the planting of trees and shrubs) were developed in conjunction with the project ecologist and include the use of native and local plant species such as hawthorn, blackthorn, spindle, Wych elm, holly, hazel, guelder rose, willows, oak, ash, and elder. These species will be planted to create new hedgerows, and to augment and reinstate gaps in hedgerows and treelines along the site boundaries as shown on **Figure 11** below.

The species used will be native and of local origin, using certified stock, which is available from nurseries who supply stock for the Native Woodland Scheme.

Additional planting was recommended to strengthen areas within the site for wildlife and biodiversity and to reinstate green infrastructure across the site where feasible. Further details are provided in the accompanying landscaping drawings.

Climbers such as honeysuckle (*Lonicera periclymenum*) are beneficial to moths and other nocturnal insects while shrubs such as Hebe and Buddleja are beneficial to daytime and some night insects.

Landscaping proposals should consider providing nectar rich flowers for insects across the season.

Suitable spring flowers include: bluebell, bugle, crab apple, flowering cherry and currant, forget-me-not (*Myosotis*), hellebore (*Helleborus corsicus*, *H. foetidus*), *Pulmonaria*, rhododendron, rosemary, *Viburnum*, thrift (*Armeria maritima*).

Early-summer flowers include; *Aquilegia*, *Astilbe*, *Campanula*, comfrey, everlasting sweet pea (*Lathyrus latifolius*), fennel, foxglove, *Geranium*, *Potentilla*, snapdragon, *Stachys*, teasel, thyme, Viper's bugloss (*Echium vulgare*), *Verbascum*.

Late-summer flowers include; *Angelica*, *Aster*, cardoon, Cornflower (*Centaurea*), dahlia (single-flowered), *Delphinium*, *Eryngium*, Fuchsia, globe thistle (*Echinops*), heather, ivy, lavender, penstemon, scabious, sedum, *Verbena bonariensis*.



Figure 11. Landscaping design for the site (PC Roche).

## 7.5 Provision of Roosting and Nesting Opportunities

Nesting and roosting opportunities will be provided for both bats and birds within the new development as appropriate. These will include the erection of 40 no. artificial nest boxes and 10 no. bat boxes, which will be accommodated on trees within the site. These will be specified by an ecologist and erected under their supervision. Bat access panels will be incorporated into the new buildings within the site as appropriate.

## 7.6 Wetland Creation - SUDS Measures

The small stream that flows through the site will be retained in its open state and will be widened in parts to increase the area of riparian habitat, planted with native species and provide a corridor for wildlife as can be seen on **Figure 11** above. It is proposed to create a wetland attenuation area at the end of this small watercourse as part of SUDS measures for the site and this will be further enhanced for wildlife through suitable planting.

Suitable species for planting in the wetland have been specified by the project ecologist to the landscape designer and include:

Marginals - Yellow flag iris (*Iris pseudacorus*), Marsh marigold (*Caltha palustris*), Water plantain (*Alisma plantago-aquatica*), Water forget-me-not (*Myosotis scorpioides*), Brooklime (*Veronica beccabunga*), Bogbean (*Menyanthes trifoliata*), Ragged robin (*Lychnis flos-cuculi*).

Emergents - Greater spearwort (*Ranunculus lingua*), Branched bur-reed (*Sparganium erectum*), Purple loosestrife (*Lythrum salicaria*), Water mint (*Mentha aquatica*).

Care should be taken when purchasing aquatic plants from nurseries as many species have the potential to become invasive. Attention is drawn to the invasive species listed under the Birds and Natural Habitats Regulations 2011.

## 7.7 Sediment Control

Sediment control practices are used on building sites to prevent sand, soil, cement and other building materials from reaching streams and ditches. Even a small amount of pollution from a site can cause significant environmental damage by killing aquatic life, silting up streams and blocking storm water pipes. Storm water can contain many pollutants which can enter our local drainage ditches, streams, rivers and marine systems, causing harm to native animals, plants, fish breeding habitats and recreational areas.

Soil erosion, sediment and litter from building sites can be major sources of storm water pollution, and can cause:

- significant harm to the environment
- weed infestation of waterways caused by sediment settling in watercourses and ditches and transporting nutrients
- loss of valuable topsoil
- significant public safety problems when washed onto roads and intersections

- blocked drains creating flooding and increased maintenance costs
- damage to recreational and commercial fishing downstream.

Sediment control usually requires little effort and results in:

- Cleaner waterways and healthier aquatic life.
- Improved site conditions.
- Improved wet weather working conditions.
- Reduced wet weather construction delays.
- Reduced losses from material stockpiles.
- Fewer mud and dust problems.

Good site management in relation to sediment control during the construction phase should prevent this from occurring and possible mitigation measures for consideration are outlined below. Other measures to be implemented on site include briefing of all site contractors regarding the sensitivity of the watercourse within the site and the need for strict site management in relation to potential run off.

**Minimising site disturbance:**

Prevention is better than cure. Careful design and an efficient construction sequence will minimise disturbance to the site. This will save money and reduce environmental impact.

Design to avoid excessive cut and fill, unnecessary clearing of vegetation and to preserve existing site drainage patterns. Clear only those areas necessary for building work to occur. Preserve grassed areas and vegetation where possible. This helps filter sediment from storm water run off before it reaches the drainage system and stops rain turning exposed soil into mud. Delay removing vegetation or commencing earthworks until just before building activities start. Avoid building activities that involve soil disturbance during periods of expected heavy or lengthy rainfall.

**Implement sediment control:**

Install sediment control measures before commencing any excavation or earth moving. Regularly maintain them until construction is complete and the site is stabilised.

*Firstly divert uncontaminated storm water away from the work area.*

Avoid contamination of storm water and the watercourse within the site with sediment. Use diversion devices to reduce the volume of storm water reaching the disturbed area. Consideration may need to be given to the creation of a diversion channel to divert uncontaminated storm water around the disturbed area. Construct the channel uphill of the disturbed area with a bank on the lower side. Regularly remove sediment from the channel. Line the channel with erosion control mats or turf to prevent soil erosion or use check dams constructed from sand or gravel filled bags.

*Minimise the potential for erosion*

Construct a single vehicle entry/exit pad to minimise tracking of sediment onto roadways. Use a 150mm (minimum) layer of 40mm recycled aggregate or crushed rock. A raised hump across the entry/exit pad can be used to direct

storm water run-off into a sediment trap to the side of the pad. Protect materials that may erode, particularly sand and soil stockpiles, with waterproof coverings. Contain waste in covered bins or traps made from geotextile fabric. Locate stockpiles of building materials away from drainage paths and uphill of sediment barriers. Divert run-off around stockpiles unavoidably located in drainage paths using a perimeter bank uphill. Use biodegradable erosion control mats to protect exposed earth.

*Prevent sediment-contaminated water leaving the site*

Use barriers to trap coarse sediment at all points where storm water leaves the site, before it can wash into drains or the watercourse on site. Relocate sediment on site or dispose of it suitably. Remove accidental spills of soil or other material immediately. Maintain vegetation elsewhere on the site in a healthy state as it can function as an additional filter for sediment. Cut brick, tile or masonry on a pervious surface such as grass or loosened soil within the property boundary. The same applies when cleaning equipment. Waste concrete, paint and other solutions used on site should be properly disposed of so they do not contaminate storm water.

## **7.8 Contractor Briefing**

All site contractors will be briefed regarding the biodiversity value of the boundary hedgerows and retained trees to ensure that there are no accidental or unintentional actions conducted during the project construction that could lead to a reduction in water quality/damage to same. Such matters often arise through ignorance or by accident rather than as a result of an intentional action.

## **7.9 Invasive Species**

A series of detailed management measures for the following invasive species (which were recorded on site) have been developed:

- Japanese knotweed
- Old man's beard
- Cherry laurel
- Snowberry bush
- Winter heliotrope
- Montbretia

The Japanese knotweed stand within the site has been the subject of previous treatment by the Carmelites and ongoing treatment measures. These are further detailed in the invasive species survey and management plan prepared for the site (Wilson, 2020).

Should earth or other material be brought to site this material should be screened to confirm that no invasive species such as Japanese knotweed or other species as described on <http://www.invasivespeciesireland.com/> are present. All machinery and plant entering the site should be cleaned to ensure that no fragments of Japanese knotweed or seeds of other invasive species are brought on to the site in line with the Birds and Natural Habitats Regulations 2011.

#### 7.10 Protection Measures for Birds

Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, restricts the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife, from 1 March to 31 August. **No clearance of vegetation suitable for nesting birds within the site (shrubs, bramble tangles, etc.) will take place during this period. Should such clearance be required than the area proposed for clearance should be inspected by an ecologist to ascertain if any nesting birds are present.**

#### 7.11 Protection Measures for Bat Roosts - Buildings

##### **Buildings scheduled for Demolition**

The buildings on site proposed for demolition include the modern residential building, the gatelodge, the 1970s building and the various garden cabins and outbuildings. The residential building is a confirmed bat roost.

**A bat derogation license is therefore required for the proposed demolition of this building. This has been provided by National Parks and Wildlife Service – see Appendix 1.**

##### *Bat Survey*

The residential building, which is scheduled for demolition and replacement, will be resurveyed for bats prior to any proposed demolition works as some time may have elapsed between the present survey and these works once planning permission is granted. This survey will take place during the summer months in 2020 when bat numbers are likely to be higher in buildings.

##### *Building Demolition*

A precautionary approach to the demolition of this building can then be prepared whereby the roof will be stripped manually with the expectation that bats may be present. One side of the roof will be removed and then the building left overnight before the other side is removed. This work will be done during the winter months (i.e. October – March) when bat numbers are known to be lower in buildings and will also avoid the bird breeding season.

##### **Buildings scheduled for Retention**

The church, gatelodge and 19<sup>th</sup> century house are scheduled for retention and reuse. The 19<sup>th</sup> century house is used by pipistrelle bats for roosting purposes and the church is used by brown long eared bats.

**A bat derogation license is therefore required for any works to these buildings. This has been provided by National Parks and Wildlife Service and is presented in Appendix 1.**

*Bat Survey*

These buildings, which are scheduled for retention and reuse, will be resurveyed for bats prior to any proposed works as some time may have elapsed between the present survey and these works once planning permission is granted.

*Retention/enhancement of bat roosts in the main part of the building*

There are several potential access points utilised by bats to the attic in the two storey 19<sup>th</sup> century house. Works to the attic and roof in terms of removal of existing attic ceiling coverings, creation of a ventilation gap and installation of insulation, replacement of slates, works to ridge tiles, flashings, fascia, etc. all have potential impacts on the access points for bats to the attic so these will be done under the supervision of a licensed bat specialist.

These works will be scheduled for during the winter months (i.e. October - March) when bat numbers are known to be lower in buildings.

A dedicated roosting space within the renovated building will be created/retained for bats. The bats recorded to date appear to be crevice dwelling species. The general fabric of the roof space will remain accessible to bats and not be closed off and sealed up particularly at the wall plate/roof interface.

Any works to the roof/ceiling of the church could also potentially impact on bats. At present the only proposed works in the church is to create a removable floor screen that can be used to partition off the main space in the church. This will not have any impacts on the bat roost.

Access points to the existing roost and the roost design has followed the best practice guidance as set out below in **Figures 12 to 17** (Source: Dr Carol Williams of the Bat Conservation Trust (2010). Biodiversity for Low and Zero Carbon Buildings A Technical Guide for New Build).

Access points to the roosting locations will not be illuminated.

A site meeting will be required with the contractor prior to any works commencing on the buildings to explain the concept of the roost design and the requirements of the bats.

Bat/bird species	Access dimensions	Roost/nesting dimensions	Height of entry
Crevice-dwelling bats	15–20 mm (h) x 20–50 mm (w)	Any size as long as some components of the area are crevices about 20–30 mm as the width of the gap  Greater total areas of about 1 sq m would be useful for nursery (summer) roosts  Male roosts contain smaller numbers of bats or even individual bats  Roof void dwelling bats need timber joists or beams on which to roost	2–7 m
Bats needing a flying area	15–20 mm (h) x 20–50 mm (w)	2–2.8 m (h) x 5 m (w) x 5 m (l) not trussed to allow flight. Ideally 2.8 m height, but a height of 2 m may be acceptable in some circumstances. To incorporate roost crevices dimensions as above with crevice-dwelling bats	Over 2 m
Horseshoe bats	Lesser horseshoes 300 mm (w) x 200 mm (h)  Greater horseshoes 400 mm (w) x 300 mm (h)	2–2.8 m (h) x 5 m (w) x 5 m (l) not trussed to allow flight. Ideally 2.8 m height, but a height of 2 m may be acceptable in some circumstances	Over 2 m

**Figure 12. General outline of bat roosting and nesting requirements.**

Aspect of roost	Temperature °C		Materials and other comments
	Summer	Winter	
Summer nursery roosts on most southerly or westerly aspect for solar heating  Male roosts and winter hibernation roosts on northerly aspect	30–40 (daytime)	0–6	Rough (for grip)  Non-toxic or corrosive  No risk of entanglement  Suitable thermal properties (reducing 24-hour fluctuations), but allowing maximum thermal gain for summer roosts  Access not lit by artificial lighting
The crevice-roosting provision within the roost to be located on the south or west side for solar heating. The flight area not as important	30–40	0–6	
The roost is most likely to be in a roof space and this should have an orientation that allows a south-facing solar gain or, better still, an L-shape to allow temperature-range choice	30–40	6–10	

**Figure 13. General outline of bat roosting and nesting requirements (contd.).**

3.12.1 **Roof space**

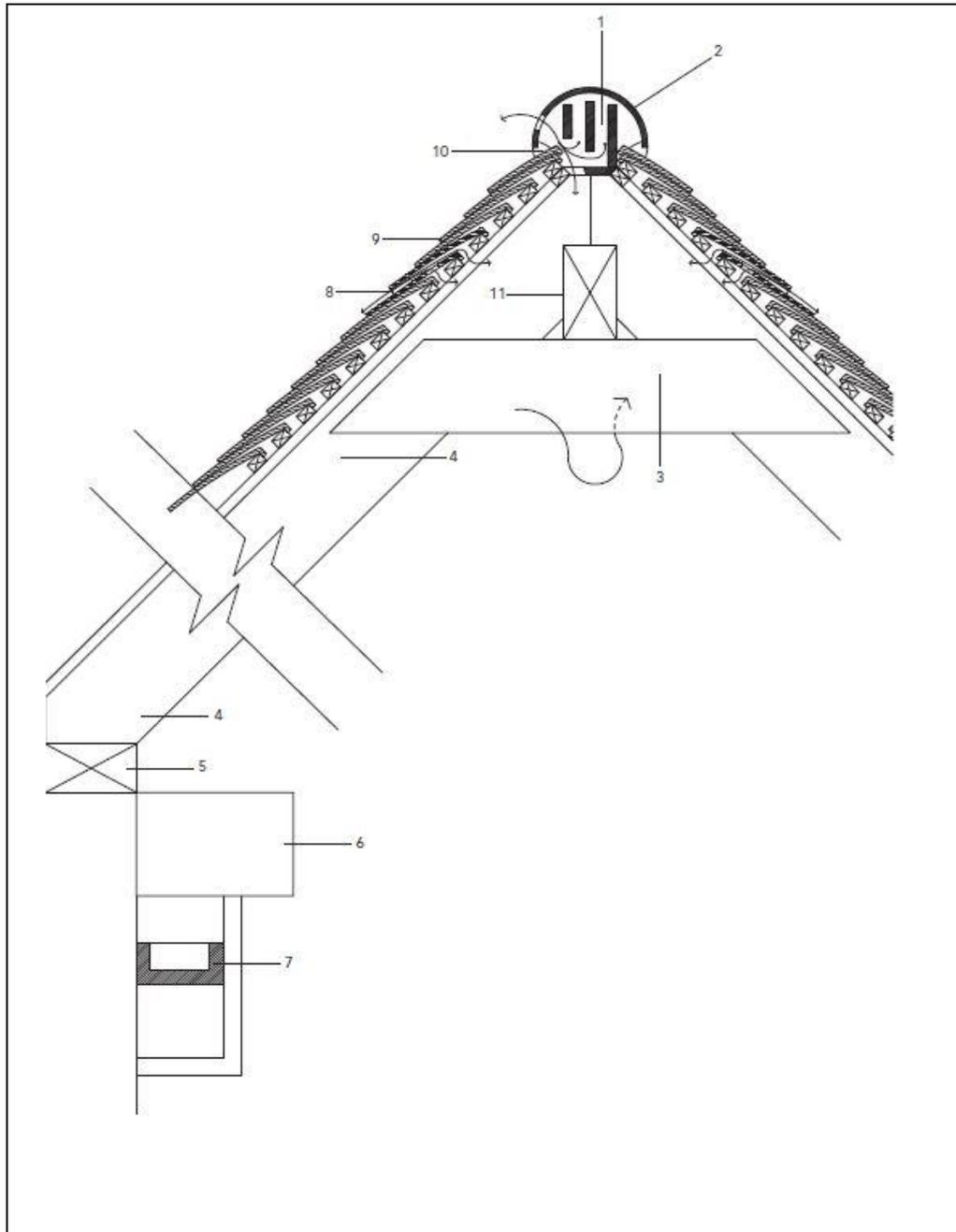
Drawing Nos 5 and 6 provide provision for crevice-dwelling bats in a roof design that uses tiles and allows access to the space between the tiles/slates and the U value envelope. Included in these figures are examples of the placement of some of the ready-made products, as well as bespoke bat-roosting areas.

Drawing No. 5

Roofspace 1 – solid wall construction at roof eaves and ridge providing places for bats and birds (uninsulated outbuilding)

- 1 Ridge roost, similar materials to (3c)
- 1a Option: Could be empty ridge tile space with closed ends and ways through to next ridge tile space
- 2 Handmade clay ridge tile with bat access
- 3 Bat roost fixed to side of rafters below ridge beam, 2 boards spaced apart, 15–20 mm minimum, 25–30 mm maximum
- 3a Option: Reclaimed, locally grown or FSC temperate softwood scraps
- 3b Option: FSC WBP water boil proof plywood strips
- 3c Option: Cement-wood particle board, Roughened/grooved surface for climbing and hanging
- 4 Reclaimed, locally grown or FSC temperate softwood rafters, 200 mm (avoid trussed rafters)
- 5 Reclaimed, locally grown or FSC temperate durable hardwood wall plate
- 6 As (7)
- 7 Potential roost/nest box/platform positions (not necessarily all together, along length of building) some face fixed, some sheltering under others
- 8 Bat access tile set, 18 mm gap x 165 mm long
- 9 Handmade clay plain tile roofing, 265 mm x 160 mm x 10 mm
- 10 Mortar bedding
- 11 Reclaimed, locally grown or FSC Oak or durable hardwood ridge purlin

**Figure 14. Example of build up in roof space for crevice dwelling bats in an uninsulated roof space.**



**Figure 15.** Drawing showing detailed design of roof space for crevice dwelling bats in an uninsulated space.

<b>Drawing No. 6</b>	
<b>Roofspace 2 – Insulated cavity wall and pitched roof</b>	
<b>providing places for bats and small birds</b>	
1	Additional layer of underlay below gap supported on FSC board on battens
2	'Pro clima Intello Plus' ATL Air tightness layer, polyolefine, lapped and sealed joints
3	Cellulose fibre insulation, 3 x 100 mm
4	Drylining ceiling board
5	Reclaimed, locally grown or FSC temperate softwood wall plate, 75 x 100 mm with GMS holding down straps
6	Air tight parge coat: clay, lime or gypsum, 5–8 mm or plaster
7	Cellular clay blockwork inner leaf, 100 mm
8	Reclaimed, locally grown or FSC temperate softwood wall plate, 100 x 75 mm
9	Full fill cavity wall insulation, 3 x 100 mm rock mineral fibre
10	Option: 2 part long wall tie, austenitic stainless steel (304 equivalent), 400 mm
10a	Option: 'MagmaTech TeploTie Type 4', extruded basalt and fibre long wall tie, 425 x 6.5 dia. mm
11	Fired clay facing brick outer leaf, 102 x 215 x 65 mm
12	'RoofBLOCK masonry roof overhang system' Hollow precast 'eco-concrete' eaves/verge system incorporating bird or bat roosts (modified size required and shown here)
13	Gutter galvanized mild steel (half round)
14	Reclaimed, locally grown or FSC temperate softwood rafters, 200 mm (avoid trussed rafters)
15	Bat access tile set, 18 mm gap x 165 long mm
16	Cement-wood particle board, Roughened/grooved surface for climbing and hanging
17	'Pro clima Solitex Plus' WTL Wind Tightness Layer vapour permeable roofing underlay (breathing roof), lapped and sealed joints
17a	Gap in underlay (17) below bat access tile set (15)
18	Reclaimed, locally grown or FSC temperate durable species softwood roof tiling battens
19	Handmade clay plain tile roofing, 265 x 160 x 10 mm

**Figure 16. Example of build up in roof space for crevice dwelling bats in an insulated roof space.**

#### *Water tanks*

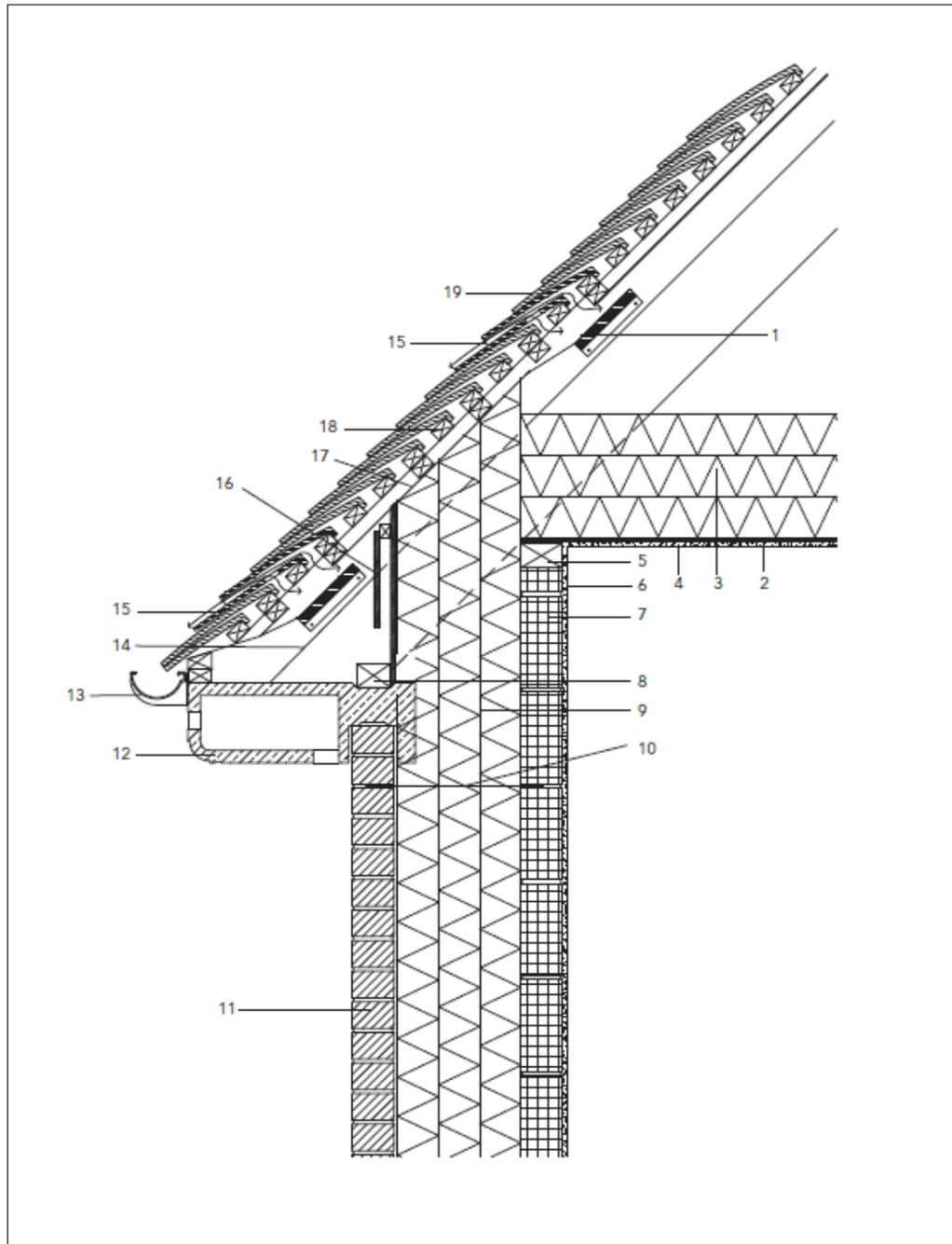
Should any water tanks be sited within the roof space of the property they will be permanently covered to prevent future accidental drowning of and contamination by bats.

#### *Timber treatment*

Should any necessary timber treatment operations e.g. within the roof space, be required this will be carried out during the winter months - November to March and under the supervision of the bat specialist. Only bat safe poisons will be used. Should bats be discovered during the then the work will cease immediately. The developer and building contractor will ensure that only bat safe, pre-treated timbers are used where necessary during renovations to the roof space.

#### *Insecticides*

Should any of the timbers or roof spaces within the buildings require the use of insecticides only bat safe insecticides will be used.



**Figure 17. Drawing showing detailed design of roof space for crevice dwelling bats in an insulated space.**

### **7.12 Protection Measures for Bat Roosts - Trees**

A number of mature trees within the site and on the site boundaries have been identified as having the potential to support roosting bats. The majority of these trees are to be retained in full and will be afforded protection during construction as detailed above. Should the removal of any of these trees be required they will be further assessed by a licensed bat specialist who will determine how they should be felled. Tree felling of potential bat roosts will be conducted during the winter months of October and November to avoid both the bird breeding season and the maternity/hibernation periods for bats.

### 7.13 Protection Measures for Bat Foraging and Commuting

Boundary areas of hedgerows, native vegetation, immature and mature trees have been retained surrounding the site and will be afforded protection during the works as shown on the tree protection drawing in **Figure 9** above. These areas support large numbers of invertebrates on which both bats and birds rely for feeding and foraging and also provide cover and shelter for a variety of species.

### 7.14 Soil Handling

Soil should be handled with care as it is a living entity. The topsoil and subsoil layers will be stripped, stored and maintained separately. Topsoil will be temporarily stored upon geotextile such as Terram 1000 ([www.terram.com](http://www.terram.com)). The contractor should submit proposals for supplier and product, which should be a nonwoven geotextile manufactured from UV stabilised, high tenacity, virgin polypropylene fibres that have been both mechanically and thermally bonded with a minimum of 5 years lifespan in all soil conditions. Note that soil levels within the root spread of those trees that are to be retained should not be raised. From this temporary storage heap the topsoil should be distributed as required for landscaping purposes. In general the topsoil should not be firmed, consolidated or compacted when laying. Tipping and grading to approximate levels should be done in one operation with minimum of trafficking by plant.

The topsoil, which is to be retained and reused should not be mixed with: subsoil, stone, hardcore, rubbish or material from demolition work, or the other grades of topsoil, including those contaminated with non-native invasive species. The topsoil should be handled in the driest condition possible. Topsoil should not be handled during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to BS 1377-2.

Depending on how long the construction period is expected to last it might be necessary to seed the stored topsoil to prevent weed establishment. A recommended mixture is: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass and 10% Brown top bent. This should be applied to the manufacturer's recommendations (min. 15g/m<sup>2</sup>) and the following wildflower mix @ 5g/m<sup>2</sup> added:

- Native Origin Irish Wildflower Seed Mixture - Product Code/Name: MM12 Wild Flora for Raw Impoverished Sub Soil
- Supplier: Design by Nature [www.wildflowers.ie](http://www.wildflowers.ie)
- Species List: Bird's-foot Trefoil, Black Medick, Corn Marigold, Corn Pansy, Corn Poppy, Corncockle, Cornflower, Cowslip, Devil's Bit Scabious, Eyebright, Meadow Buttercup, Fleabane, Greater Trefoil, Lesser Knapweed, Scented Mayweed, Meadowsweet, Ox-eye Daisy, Purple Loosestrife, Ragged Robin, Red Rattle, Red Bartsia, Red Clover, Ribwort Plantain, Rough Hawksbit, Sorrel, St. John's-wort, White Champion, Wild Angelica, Wild Carrot, Yarrow, Yellow Rattle, Lady's Smock, Yellow Clover.

### **7.15 Ecological Clerk of Works**

An ecological clerk of works will be appointed to oversee and sign off on the various mitigation measures outlined in this report.

Monitoring of the bat mitigation measures will be completed post-construction works. All mitigation measures will be checked to determine that they were successful. A full summer bat survey will be completed post-works. Any alterations required to any of the mitigation measures can be remediated or improved as required.

## 8. PREDICTED IMPACT OF THE PROPOSED DEVELOPMENT

When assessing the ecological impacts and effects, reference was made to the following characteristics as required:

- positive or negative
- extent
- magnitude
- duration
- frequency and timing
- reversibility.

The proposed development of the former Carmelite lands have been assessed from the perspective of ecology and detailed mitigation measures have been presented to reduce impacts on species of European and national conservation interest present in the vicinity of the proposed development and surrounding lands.

If the entire site was cleared for development and no mitigation measures implemented to protect flora and fauna this would have destroyed all aspects of biodiversity within the site and at a local scale within the environs of Delgany village. This would have had very serious negative ecological impacts, which would have had long term effects across the entire site.

Ultimately these lands have been zoned in the Delgany LAP for significant development as a new area for residential housing. The development of these lands is therefore an element of the planned urbanisation of a previously relatively rural environment with subsequent losses for biodiversity within the site.

Given the LAP zoning of the site for residential development the proposed development design takes into account the ecology, trees and protected structures with a view to minimising the ecological effects of developing these lands. The project team of architects, engineers and landscape architects have worked to mitigate the effects within the constraints of the site.

Significant mitigation measures have been implemented through the development of the project layout and design to avoid and reduce direct impacts (for example on the boundary hedgerows and treelines and the stream), to ameliorate impacts (through the timing of works such as clearance of vegetation and works to confirmed and potential bat roosts) and to design mitigation measures such as the creation of new areas of native woodland and wildflower planting, and integrated bird and bat nesting and roosting opportunities.

No habitat designated for nature conservation purposes, or plant species protected under the Floral Protection Order 2015, will be impacted by the proposed development of these lands, which would be deemed of local importance for biodiversity.

The landscape architects design proposals include significant tree planting and the planting of native hedgerow and pollinator friendly planting within the

development in addition to enhancements along the watercourse within the site.

Ultimately the development which will be constructed in accordance with the County Development Plan and LAP will result in the urbanisation of a previously rural environment with subsequent losses for biodiversity within the site. Species which adapt readily to urban environments will remain in the general area.

Given the implementation of the above mitigation measures the overall impacts on flora and fauna have been reduced.

## 9. CONCLUSION

The proposed development of housing on the lands at Delgany has been assessed from the perspective of ecology and detailed mitigation measures have been presented to reduce impacts on same in the vicinity of the proposed development and surrounding lands.

**This report recommends that the above mitigation measures be reflected in the Construction Management Plan/Method Statements prepared for the site and for an ecologist to be engaged to review same prior to the commencement of the development.**

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## 11. APPENDIX 1 – BAT DEROGATION LICENCE



An Roinn Cultúir,  
Oidhreacht agus Gaeltachta  
Department of Culture,  
Heritage and the Gaeltacht

**Licence No.: DER/BAT 2020 – 9**

**EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS,  
2011 (S.I. No 477 of 2011)**

### **DEROGATION LICENCE**

Granted under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, hereinafter referred to as “the Habitats Regulations”.

The Minister for Culture, Heritage and the Gaeltacht, in exercise of the powers conferred on her by Regulation 54 of the Habitats Regulations hereby grants to **Drumkilla Ltd.**, supervised by **Faith Wilson Environmental Consultant B.Sc (Hons) CEnv MCIEEM** or another qualified agent, a licence. It is stated that:

(A) this licence is to be granted for the purpose of protecting wild fauna and conserving natural habitats, and

(B) there is no satisfactory alternative, and the action authorised by this licence will not be detrimental to the maintenance of the population of **BATS** referred to below at a favourable conservation status in their natural range.

The licence is issued in respect of the following **bat species**:

- |                        |                                  |
|------------------------|----------------------------------|
| • common pipistrelle   | <i>Pipistrellus pipistrellus</i> |
| • soprano pipistrelle  | <i>Pipistrellus pygmaeus</i>     |
| • brown long-eared bat | <i>Plecotus auritus</i>          |

This licence authorises the following:

- (a) roost disturbance;
- (b) damage or destruction of breeding sites or resting places;

(“the authorised action(s”).

**This licence is subject to the terms and conditions set out overleaf.**

#### Terms and Conditions

1. This licence is granted solely to allow the activities specified in connection with the **proposed strategic housing development** located at **Delgany, Co. Wicklow**, for **Drumkilla Ltd.**
2. All activities authorised by this licence, and all equipment used in connection herewith, shall be carried out, constructed and maintained (as the case may be) so as to avoid unnecessary injury or distress to any species of **BAT**.
3. This licence may be modified or revoked, for stated reasons, at any time.
4. The mitigation measures outlined in the application report (**Environmental Impact Assessment for a proposed strategic housing development on lands, Delgany, Co. Wicklow, 7. remedial or reductive measures, 7.11 Protection Measures for Bat Roosts – Buildings, 7.12 Protective Measures for Bat Roosts – Trees, 7.13 Protective Measures for Bat Foraging and Commuting, pp 30-37**), together with any changes or clarification agreed in correspondence between NPWS and the agent or applicant, are to be carried out. Strict adherence must be paid to all the proposed measures in the application.
5. The residential building due for demolition will be re-surveyed for bats during the summer months of 2020 when bat numbers are likely higher.
6. The works will be supervised by a licensed bat specialist **agent**.
7. This licence shall be produced for inspection on a request being made on that behalf by a member of An Garda Síochána or an authorised NPWS officer appointed under Regulation 4 of the Habitats Regulations.
8. The local National Parks and Wildlife Service field officer **Jason Monaghan** [jason.monaghan@chg.gov.ie](mailto:jason.monaghan@chg.gov.ie), **087-09661639** should be contacted prior to the commencement of any activity, and if bats are detected on site during the course of the work, under the terms of this licence.
9. A report shall be submitted to Wildlife Licensing Unit, National Parks and Wildlife Service Department of Culture, Heritage and the Gaeltacht, R. 2.03, 90 North King Street, Smithfield, Dublin 7, D07 N7CV on completion of the actions which this licence authorises, describing the activities carried out in pursuance of this licence.



**Gerry Leckey**  
(a person authorised by the Minister to sign on her behalf)

**21/07/2020**

Wildlife Licensing Unit  
National Parks and Wildlife Service  
Department of Culture, Heritage and the Gaeltacht  
R. 2.03  
90 North King Street  
Smithfield  
Dublin 7  
D07 N7CV

**NOTES (1 to 2).**

- This licence is granted for the period specified and subject to compliance with the conditions specified. Anything done other than in accordance with the terms of this licence may constitute an offence.
- This licence applies to **bats** and to no other species.