

Dingle House, Ballycorus Road, Kilternan, Dublin 18

Bat Survey



FINAL REPORT

30th July 2024

(amended September 2024)



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Table of Contents

1.	INTRODUCTION	3
1.1	Background	3
1.2	Relevant Legislation	6
1.2.1	Bats.....	6
2.	METHODOLOGY	7
2.1	Desk Study & Field Surveys	7
3.	RESULTS.....	9
3.1	Desktop Survey.....	9
3.2	Field Surveys	11
3.2.1	Receiving Environment	11
3.2.2	Building Inspection – 7th May 2024.....	12
3.2.3	Potential Bat Roosts in Trees – 7th May 2024	20
3.2.4	Detector Survey – 7th May 2024	20
3.2.5	Lighting.....	21
3.2.6	Detector Survey – 29th May 2024.....	22
4.	ASSESSMENT OF SIGNIFICANCE.....	23
5.	MITIGATION MEASURES	24
5.1.1	Measure 1: Confirmed Roosts – Main House - Timing of Works.....	24
5.1.2	Measure 2: Site Meeting Before Works Commence	25
5.1.3	Measure 3: Resurvey	25
5.1.4	Measure 4: Roof Stripping/Repairs to the L shaped extension	25
5.1.5	Measure 5: Avoidance of Impact.....	25
5.1.6	Measure 6: Provision of an Alternative Roost.....	25
5.1.7	Measure 7: Extension Demolition	28
5.1.8	Measure 8: Swallow Nests in the ‘Dog Shed’, the ‘Wood Shed’ and the former dairy ‘Store’	28
5.1.9	Measure 9: Timber Treatment.....	28
5.1.10	Measure 10: Insecticides	29
5.1.11	Measure 11: Water Tanks	29
5.1.12	Measure 12: Lighting.....	29
5.1.13	Measure 13: Potential Roosts in Trees	30
5.1.14	Measure 14: Health and Safety Issues	30
6.	CONCLUSIONS	30
7.	REFERENCES	31

Dingle House, Ballycorus Road, Kiltarnan, Dublin 18

Bat Survey

1. INTRODUCTION

1.1 Background

This report has been prepared by Faith Wilson (an independent ecological consultant and licensed bat specialist) who was appointed by Philip Russell to prepare a bat survey of buildings proposed for development at Dingle House, Ballycorus Road, Kiltarnan, Co. Dublin as located within the red line boundary on **Figure 1.1.1** below.

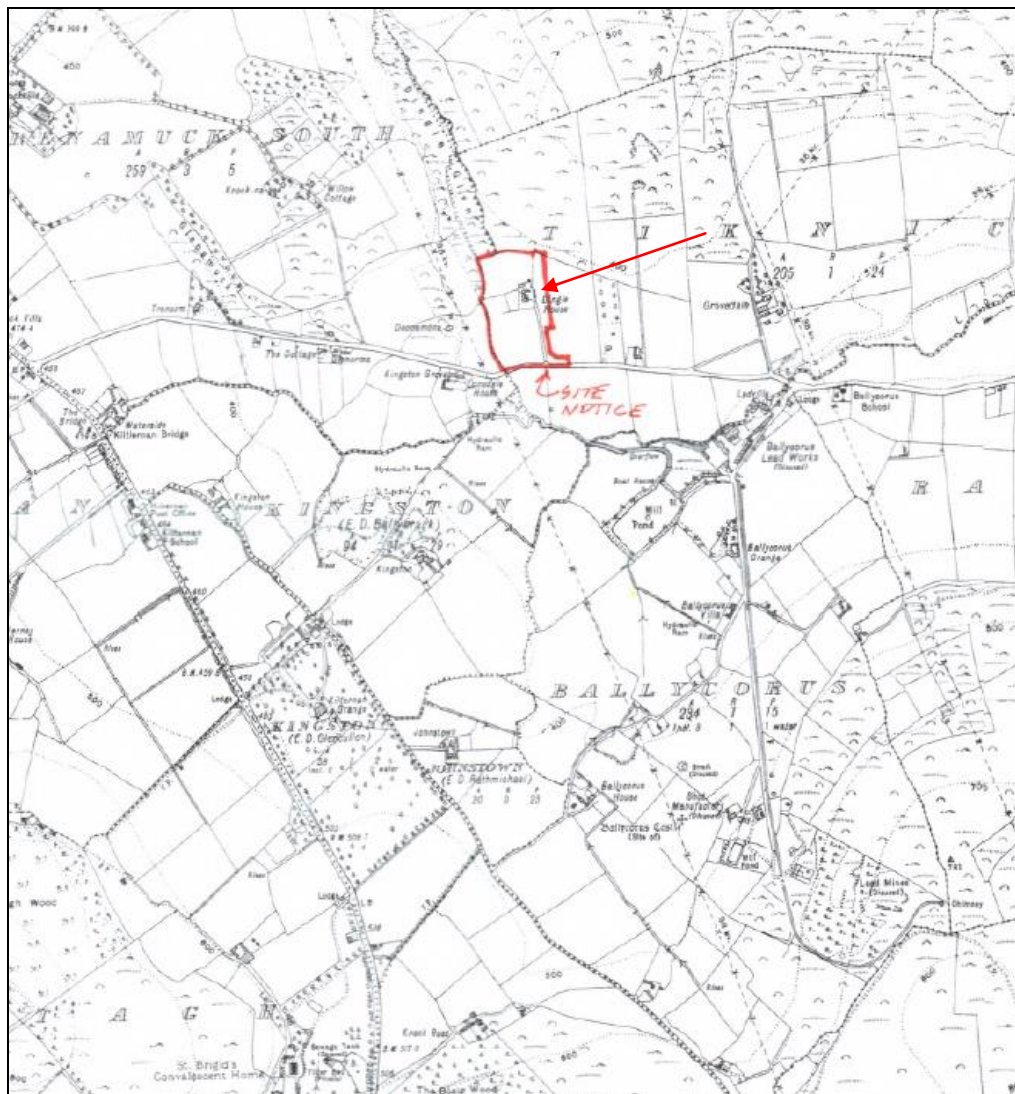


Figure 1.1.1 Lands at Dingle House as indicated by the red line boundary.

Planning permission has been sought for demolitions and modifications to existing structures at Dingle House (Planning Ref. D23A/0818). The proposed modifications to Dingle House comprise of the following:

‘Demolition of front porch (sunroom) and previous extensions to rear and west side of farmhouse (126sqm). Construction of extensions comprising replacement front porch (sunroom) and single and two storey extensions to rear and west side (212sqm). Conversion of sheds on north side of yard to habitable accommodation (58sqm). Ground floor windows to east and west main gable elevations, external and internal alterations and renovations to fabric and finishes and associated site works including surface water soakaway and replacement waste water treatment system with pressurised percolation area in accordance with EPA Code of Practice 2021’.

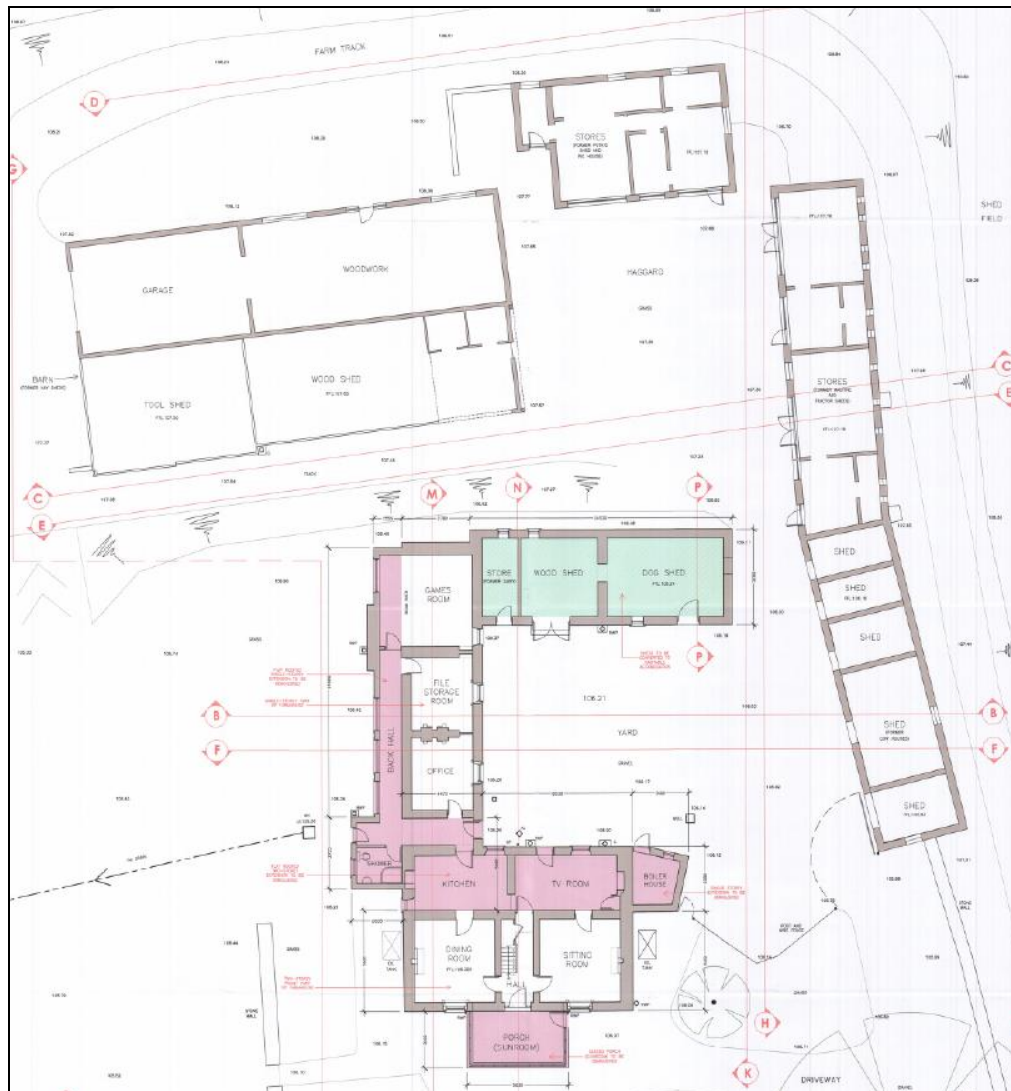


Figure 1.1.2 Existing site layout of Dingle House.

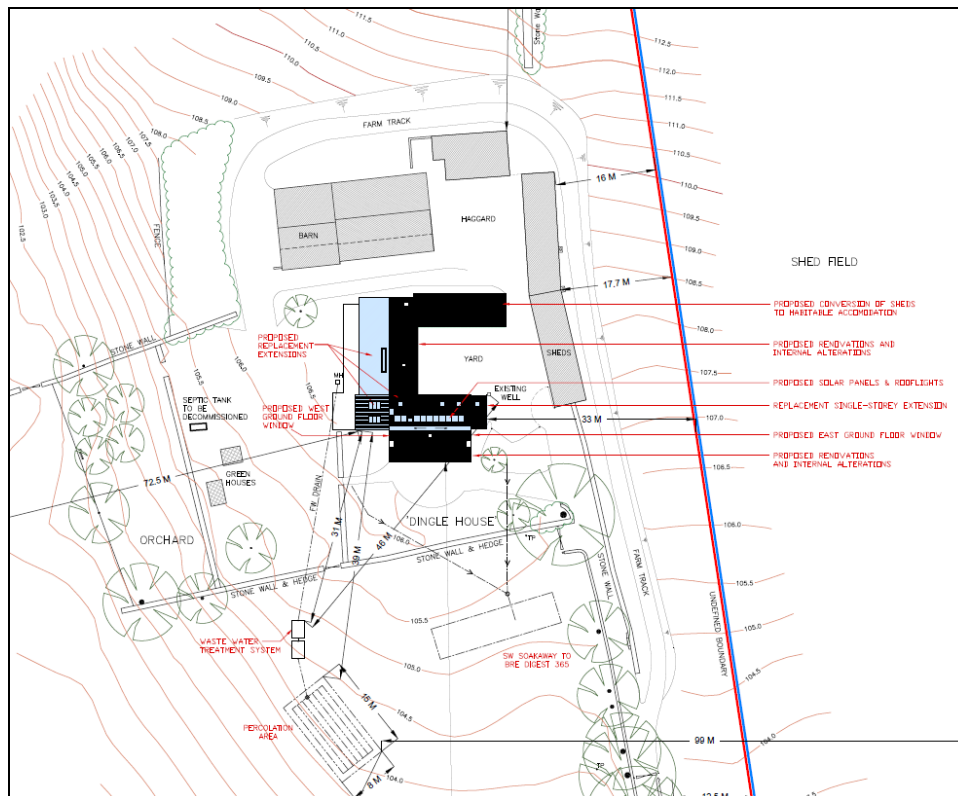


Figure 1.1.3. Proposed modifications to Dingle House.

In a request for further information a bat survey was requested from Dun Laoghaire Rathdown County Council as follows:

‘The applicant is requested to submit bat survey undertaken by a suitably qualified bat ecologist of the main house and outbuildings where works will be carried out. This should assess these structures [main house and outbuildings] potential to be used as bat roosts and specify mitigation measures as appropriate’.

This report aims to;

- Identify species of bats using the site.
- Examine buildings within and surrounding the site for roosting potential.
- Examine feeding and commuting routes.
- Assess the potential impacts on bats by the proposed development.
- Recommend mitigation measures to ensure the safeguarding of bats during the works.
- Determine if a bat derogation licence is required for the project.

The bat surveys were undertaken by Faith Wilson BSc CEnv MCIEEM. Faith is a highly experienced ecologist specialising in flora and faunal surveys (including bats), ecological impact assessment, and impact mitigation. Faith is an active member of Bat Conservation Ireland (BCI) and previously served on the board of BCI. Faith attended and helped to deliver the BCI Bat Detector and Bat Handling Workshops which are the standard training for the carrying out of bat surveys in Ireland and also authored the guidance for surveying bats in wind farms in Ireland.

1.2 Relevant Legislation

1.2.1 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.

2. METHODOLOGY

2.1 Desk Study & Field Surveys

Dingle House and grounds were first visited on the 7th May 2024 by Faith Wilson, when the buildings were inspected, the receiving habitats were surveyed and a bat activity survey was completed. The property was resurveyed on the 29th May 2024 when Faith was joined by Dr Hannah O'Kelly.

Bat Survey

The bat survey consisted of several elements – a desktop review and consultation with Bat Conservation Ireland, an inspection of trees near the house for their potential to support roosting bats, an inspection of the buildings due for both retention and conversion and a bat detector activity survey of the property, which was conducted on the 7th May 2024 and the 29th May 2024.

The aims of the surveys were to:

- a) To identify if any bats are present on the site.
- b) Identify if any bat roosting sites are present in buildings or adjoining trees.
- c) To ensure the protection of any bats that are/may be present during the proposed works.
- d) To determine the use of the lands and adjoining habitats as feeding and commuting areas.

The bat surveys were carried out by Faith Wilson, a licensed bat specialist and consisted of an external and internal inspection of the house and associated outbuildings, barns and sheds. The attic within the main house was entered (in as much as it was possible to do so) and examined internally.

Bat activity is usually detected by the following signs (though direct observations are also occasionally made):

- bat droppings (these will accumulate under an established roost or under access points);
- insect remains (under feeding perches);
- oil (from fur) and urine stains;
- scratch marks; and
- bat corpses.

Bat activity is governed by the activity of their insect prey and insect abundance is in turn governed by weather conditions and climate. Insects, and therefore bats, are unlikely to be present at temperatures below 7°C or during periods of strong winds or heavy rainfall so surveying in such conditions is not possible. All field surveys were undertaken within the active bat season and during good weather conditions (dry conditions and temperature at 8°C and greater).

Bats were identified by their ultrasonic calls coupled with behavioural and flight observations and on computer by sound analysis of recorded echolocation and social calls with dedicated software (Wildlife Acoustic's Kaleidoscope Pro; version 5.6.0).

The nature and type of habitats present are also indicative of the species likely to be present.

Trees adjoining the house 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:

- 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.

In accordance with best practice as described in the 'Guidelines for the Treatment of Bats During the Construction of National Road Schemes' (NRA 2006), Bat Surveys for Professional Ecologists: Good Practice Guidelines - 3rd edition (Collins, 2016) and 'Bat Mitigation Guidelines for Ireland' (Marnell, *et al.* 2022), a bat activity survey of the general environs of the site was conducted during the active bat season. This survey assisted in determining if any bat roosts are present in any of the buildings, what bat species occur

within the site and how bats are using the site for foraging or commuting purposes. The surveys also used the guidance from 'Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals' (BTHK, 2018) when assessing the trees.

A bat detector survey was carried out at dusk on the 7th May 2024 and the 29th May 2024 using several types of bat detectors – these included an Echometer Touch Pro 2, two Batbox Duet Heterodyne/Frequency Division detectors and a Pettersson D100 Heterodyne detector. The emergence of bats from the buildings at dusk was monitored on both occasions and a walkover survey of the lands was conducted. The survey on the 29th May 2024 also included the use of two thermal imaging scopes which afforded additional visual detectability of bats as darkness fell. These were located at the north western and south eastern corners of the property to afford a comprehensive view of the buildings.

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. RESULTS

3.1 Desktop Survey

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

The database does not hold any records of either roosts, ad hoc observations or the results of surveys such as the BATLAS 2010 and 2020 projects and the All Ireland Daubenton's Monitoring Project from Dingle House but several bat species are known from the 10km square in which Dingle House is located. These include:

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

A number of other development led bat surveys have been completed in recent years in the general environs of Kiltarnan Village and the Glenamuck Road. They include the following:

Rockville House

There is a confirmed bat roost at Rockville House on the Glenamuck Road. This roost is located c. 1km to the north west of the Dingle Glen pNHA and the lands associated with Dingle House. Rockville House contains a confirmed roost of c.40 – 70 soprano pipistrelle bats, with small numbers of common pipistrelle (c.5) also recorded. A single brown long eared bat was also recorded at Rockville House (Wilson, 2018).

Shaldon Grange Strategic Housing Development

Bat surveys completed at Shaldon Grange as part of a Strategic Housing Development (SHD) application recorded five bat species within the masterplan area (NM Ecology (2020)). These were: Leisler's bat, Common pipistrelle, Soprano pipistrelle, Natterer's bat and Daubenton's bat. A small roost of Common Pipistrelles was recorded in the main house at Shaldon Grange. These lands are located to the north of the Glenamuck Road c.1.5km from Dingle House.

Kiltarnan Village Strategic Housing Development

Bat surveys were completed by Scott Cawley on behalf of Enviroguide in July and August 2021 as part of a Strategic Housing Development (SHD) application on lands at Wayside, Enniskerry Road and Glenamuck Road, in Kiltarnan, Dublin 18 (Enviroguide, 2022). This survey recorded four bat species during the dedicated bat activity surveys; Common Pipistrelle, Soprano Pipistrelle, unknown bat species of the genus *Myotis* and Leisler's bat.

Kerimaki

Bat surveys completed by this author (Wilson, 2024) of lands at the rear of Kerimaki', which is located on the Enniskerry Road in Kiltarnan. This property is c. 1.3km west of Dingle House. The survey here recorded five species of bats from the property (but no confirmed bat roost) – these were Common pipistrelle, Soprano pipistrelle, Leisler's bat, possible Brown long-eared bat and a *Myotis* sp. which may have been a Whiskered bat.

Sutton Fields

The lands to the rear of 'Kerimaki' which are currently under development (known as Sutton Fields) were the subject of previous bat surveys conducted by Dr Tina Aughney of Bat Eco Services in June 2018 as part of the surveys completed by Dr Mary Tubridy and Associates (2020) for that planning application. The lands here are c. 1.4km west of Dingle House. These surveys recorded four species of bats using the lands there, but no confirmed roosts. These were: Common pipistrelle, Soprano pipistrelle, Leisler's bat and Natterer's bat (*Myotis* species).

3.2 Field Surveys

3.2.1 Receiving Environment

The buildings at Dingle House and the surrounding lands were surveyed on the 7th May 2024. Dingle House is set back from the Ballycorus Road as can be seen on **Figure 3.1.1** below and is surrounded by fields which are used for agricultural purposes. A series of treelines and hedgerows link the Dingle Glen pNHA to the Loughlinstown River, which flows to the south of the Ballycorus Road – these, the Dingle Glen, adjoining scrub hillside and the river corridor all offer important feeding and commuting routes for bats through the landscape.

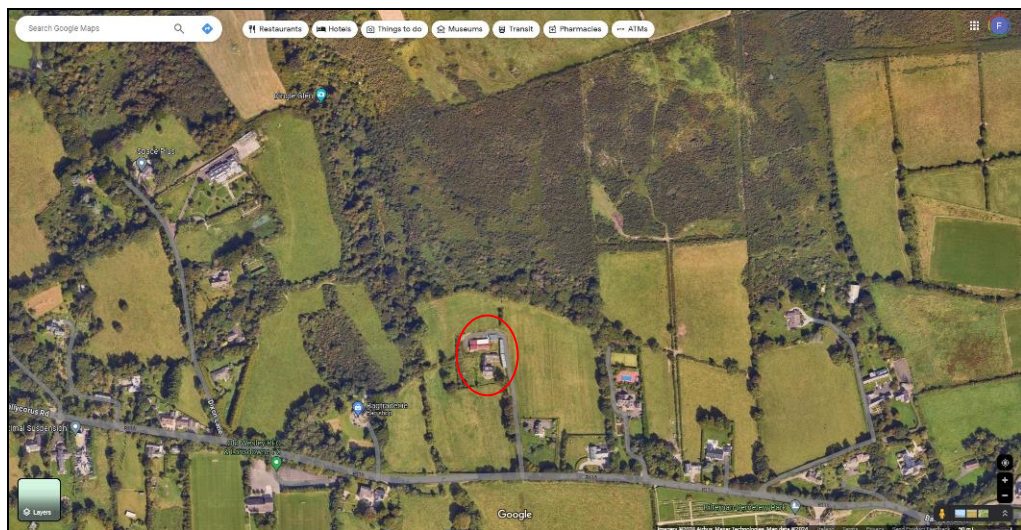


Figure 3.1.1. The rural nature of Dingle House – circled in red.

There is a large area of gorse scrub to the north of the property which also includes the Dingle Glen pNHA as shown on **Figure 3.1.2**.

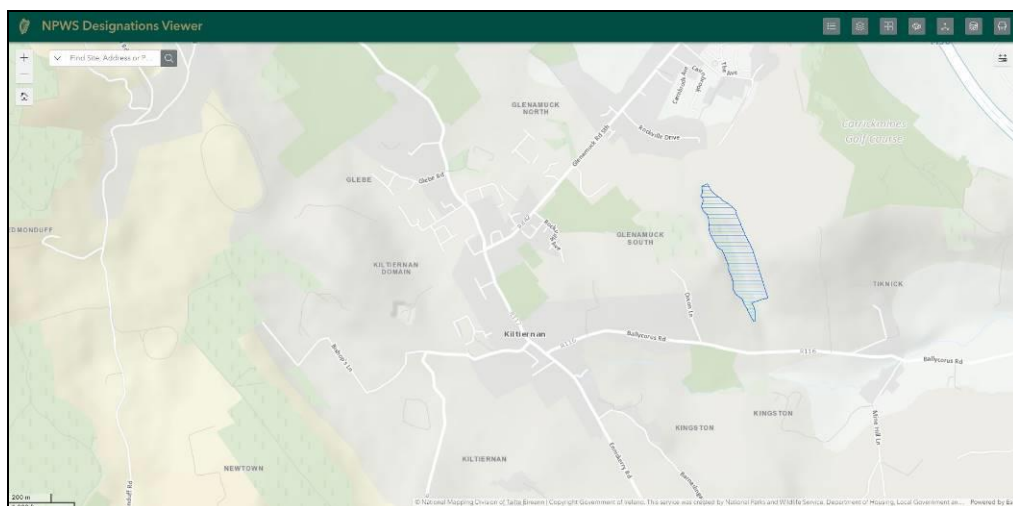


Figure 3.1.2. Dingle Glen pNHA.

The Dingle Glen pNHA (Site Code: 001207) was proposed for designation as a proposed natural heritage area on the basis of the woodland and scrub vegetation present. The Site Synopsis for the site is as follows:

SITE NAME: DINGLE GLEN

SITE CODE: 001207

Dingle Glen is situated approximately 5 km west of Killiney. It is a dry valley formed as a glacial lake overflow channel.

Formerly cleared of vegetation, a woodland cover is now regenerating, with pioneer species of Holly (*Ilex aquifolium*), Blackthorn (*Prunus spinosa*), and Willows (*Salix* spp.). Individual trees of Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Oak (*Quercus petraea*) and Spindle (*Euonymus europaeus*) occur. The woodland ground flora is represented by Foxglove (*Digitalis purpurea*), Wood Avens (*Geum urbanum*), Wood Melic (*Melica uniflora*) and Bugle (*Ajuga reptans*).

Trees and shrubs are mostly restricted to the valley bottom. On the slopes above a heathy vegetation is dominated by Gorse (*Ulex europaeus*) and Bracken (*Pteridium aquilinum*). Other species include Wood Sage (*Teucrium scorodonia*), Bell Heather (*Erica cinerea*), Navelwort (*Umbilicus rupestris*), English Stonecrop (*Sedum anglicum*), Heath Bedstraw (*Galium saxatile*), Heath-grass (*Danthonia decumbens*), Wood-rush (*Luzula sylvatica*) and the Climbing Corydalis (*Corydalis claviculata*).

The importance in this site lies in the variety of habitats within a relatively small area. The site is secluded and not subject to much disturbance.

3.2.2 Building Inspection - 7th May 2024

The attic of the main house, and all other buildings within the environs of the yard were inspected for signs of roosting bats.

The buildings were examined internally, where possible, by Faith Wilson. The attic of the main house is insulated with a natural wool type of insulation but is very small and could not be fully accessed. A small number of pipistrelle bat droppings were recorded on the cover of the attic hatch indicating that this building had been used in the past, very rarely, by a bat for roosting purposes. The attic is festooned with several cobwebs and the house is roofed with traditional slates on battens with traditional lime parging. A slipped slate offers access to this attic but there was no evidence of any significant use by bats for roosting purposes.

On the northern side of the yard there are three buildings running from east to west. These are the 'Dog Shed', the 'Wood Shed' and the former dairy 'Store'. These buildings are all roofed with traditional slates on battens with traditional lime parging.

The 'Dog Shed' is a two storey shed with a loft of rotten timbers rendering the area unsuitable for safe survey. This area was very bright on account of a large window in the eastern gable wall, rendering it less favourable to roosting bats.



Plate 1. The attic of the main house.



Plate 2. Bat droppings on the attic hatch in the main house.

Adjoining this is the 'Wood Shed', which is darker, but is linked by an open door at loft height to the 'Dog Shed'. A number of slates are missing off the roof affording bats access to the space. Many discarded Small Tortoiseshell butterfly wings were recorded in the 'Wood Shed' - these are typical signs of

roosting Brown long-eared bats (*Plecotus auritus*), which perch to eat their foraged Small Tortoiseshell butterfly prey.



Plate 3. The 'Dog Shed', the 'Wood Shed' and the former dairy 'Store'.



Plate 4. The interior of the 'Dog Shed'.



Plate 5. Discarded Small Tortoiseshell butterfly wings in the 'Wood Shed'.



Plate 6. TG and V ceiling in 'The Store'.

Small Tortoiseshell butterfly wings and bat droppings were also recorded in the loft of 'The Former Cow Houses' building which is roofed with modern insulated metal sheeting.



Plate 7. The loft of 'The Former Cow Houses'.



Plate 8. Discarded Small Tortoiseshell butterfly wings and bat droppings in 'The Former Cow Houses'.



Plate 9. The 'Sunroom'.



Plate 10. Looking south over the flat roof extension adjoining The 'Games Room', 'File Storage Room' and 'Office'.

The roof above the Office/File Storage/Games Room is also traditional slate on battens with lime parging. A flat roof extension is found to the west of this as can be seen above.



Plate 11. The northern side of the 'Wood Shed' and the former dairy 'Store'.



Plate 12. The water tank in the attic above the Office/File Storage/Games Room.

The original stone extension which contains the Office/File Storage/Games Room has a very cobweb festooned attic with a water tank which was accessed from the small hallway between the Kitchen and the Office. Here

too is roofed with traditional slates with parging on battens, whilst the underside of the attic has traditional lathes with plaster.

A torch on felt flat roof extension is found to the north of the main house and west of the original L shaped link. This area could not be inspected beyond an examination of the exterior.



Plate 13. Traditional lathes with plaster on the ceiling of the 'File Storage Room'.

3.2.3 Potential Bat Roosts in Trees – 7th May 2024

A mature Ash with large cavities offers bats roosting potential on the drive. This and other Ash trees in the area are suffering from Ash die-back disease.



Plate 14. Ash tree with large cavities offering bats roosting potential on the drive.

3.2.4 Detector Survey – 7th May 2024

Sunset was at 21.03, with temperatures of 14.5 degrees, in calm, overcast, 7/8 cloud, dry conditions. The bat observations were as follows:

21.18 Leisler's bat flew west to east across yard, high in sky

2128 Common pipistrelle bat emerged from the house and flew west
2129 Leisler's bat flew west to east
2131 Leisler's bat ditto
2136 Leisler's bat ditto
2138 Leisler's bat foraging in front of house and over drive
2142 Leisler's bat over house
2144 Leisler's bat foraging over drive
2146 Brown long-eared bat at west side of house
2147 Common pipistrelle bat at west side of house
2148 Common pipistrelle bat at west side of house
2158 Common pipistrelle bat over drive and east over fields
2204 Common pipistrelle bat west side of house foraging
2226 Common pipistrelle bat west side of house foraging
2256 Leisler's at west end of house
2309 Common pipistrelle bat at west side of house, twice
23.26 Unidentified Pipistrelle social calls at eastern end of the house
23.29 Common pipistrelle bat on drive
23.30 Unidentified Pipistrelle hunting around streetlights on the main road
23.30 Survey concluded. Temperature had decreased to 12.5 degrees

3.2.5 Lighting

There are a number of flood lights, which are motion activated, surrounding the house and these render large parts of the buildings and the adjoining land less favourable to bats that are light sensitive.



Plate 15. Lighting at the front of the house.



Plate 16. Lighting in the inner yard at the rear of the house.

3.2.6 Detector Survey - 29th May 2024

A second survey was completed on the 29th May 2024. Two surveyors (Faith Wilson and Hannah O' Kelly) both availing of the use of thermal imaging equipment surveyed the buildings from the south eastern side of the property (FW) which afforded a view of the main house, and yard buildings and from the north western corner of the property (HO'K) which gave a clear overview of the rear of the buildings and the flat roof extension. The weather was quite breezy and cool despite temperatures of 13°C and 7/8 cloud cover. No bats were recorded emerging from any of the structures on this occasion.

The survey recorded Leisler's bat, Common pipistrelle, and Soprano pipistrelle in the general vicinity of the house.

4. ASSESSMENT OF SIGNIFICANCE

The house and outbuildings show evidence of having been used in a minor way as bat roost. Dingle House and outbuildings are therefore to be regarded as a confirmed bat roost under the Wildlife Acts 1976 and 2000 and the Birds and Natural Habitats Regulations 2011.

Any works to these buildings will require a bat derogation licence from National Parks and Wildlife Service.

The potential impacts on bats arising from the proposed construction works at Dingle House include:

- Injury/death to bats during building renovations/conversion works.
- Loss of roosting potential within the structures.
- Potential barrier to bat activity on the site from increased inappropriate lighting emitting from the buildings and adjoining areas.

There is also a potential loss of suitable roosting habitat in adjoining trees in the long term as these are affected by Ash die back disease.

5. MITIGATION MEASURES

A bat derogation license is required for the proposed works to Dingle House and an application for same has been issued to NPWS.

Consideration of Alternatives

The buildings at Dingle House are utilised by a small roost of Brown long-eared bats and a mixed roost of Soprano pipistrelle, and Common pipistrelle and potentially Leisler's bat.

The potential to retain roosting spaces for the bats within the main house and renovated buildings was discussed with the owner Philip Russel, but a new member of the family has a phobia of bats and this was not a preferred option. In addition the building design prepared by the project architect could not facilitate the construction of a suitably large flying space for Brown long-eared bats. It was therefore agreed that one of the many other suitable buildings on the property including one currently used by bats could be modified to accommodate any bats displaced by the proposed works. Measures to ensure the protection of these bats and modifications to existing structures are detailed below.

The species of bats for which the bat derogation licence applies (*Pipistrellus pipistrellus*, *Pipistrellus pygmaeus*, *Nyctalus leisleri* and *Plecotus auritus*) are all listed as species of Least Conservation Concern (Marnell, F., Looney, D. & Lawton, C. (2019) Ireland Red List No. 12: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.)

The mitigation measures will ensure the long term conservation of bats on the property and it is expected that they will continue to utilise the other buildings on the property for roosting purposes and remain in the area. The proposed works will not affect the long term conservation status of the species in Ireland.

A series of mitigation measures to ensure that the bats are protected during the works are outlined below. The works will ensure the long term conservation of the bat roosts in the buildings in the environs of Dingle House and will ensure that a choice of roosting locations remain available within the other buildings on site for a variety of species of bats to utilise.

5.1.1 Measure 1: Confirmed Roosts - Main House - Timing of Works

Should the roof of the main house need to be stripped and/or fully replaced this must be done under the supervision of a licensed bat specialist and ideally conducted when bats are active and can escape out of harm's way. Ideally these works would be done during the autumn months when bat numbers are known to be lower in buildings and they are not yet in hibernation.

Any minor repairs to existing roof should be done carefully with the expectation that individual bats may be found. If discovered, the animals should be retained in a box until dusk and released on site. Please inform a bat specialist and ask for further advice.

5.1.2 Measure 2: Site Meeting Before Works Commence

The contractor, architect and conservation consultant should meet with the bat specialist on site before commencing works to be appraised of bat ecology and shown what to look for or be aware of during the works.

5.1.3 Measure 3: Resurvey

If a long period of time (greater than 6 months) has lapsed between when this survey was completed and the project commences construction the buildings will need to be rechecked for roosting bats to determine their current status.

5.1.4 Measure 4: Roof Stripping/Repairs to the L shaped extension

Should the roof of the original stone extension which contains the Office/File Storage/Games Room need to be stripped and/or fully replaced this must be done under the supervision of a licensed bat specialist.

Any minor repairs to existing roof should be done carefully with the expectation that individual bats may be found. If discovered, the animals should be retained in a box until dusk and released on site. Please inform a bat specialist and ask for further advice.

5.1.5 Measure 5: Avoidance of Impact

Ideally all bat roosts would be retained in the buildings in which they were recorded as a review of mitigation success shows highest success in retention / or modification of an existing roost (Lintott, 2018). However the owner is not keen on accommodating bats in the refurbished Dingle House and given that there are many other buildings on site that offer bats roosting potential these can be made more favourable to bats with minor modifications.

5.1.6 Measure 6: Provision of an Alternative Roost

The main species that needs to be considered in terms of an alternative roost is the Brown long-eared bat which has shown usage of the 'Dog Shed' and the 'Wood Shed' as well as the loft above the 'Former Cow Houses'.

The other species recorded (Pipistrelles and Leisler's bat) are crevice dwelling species which would readily avail of bat boxes provided in the various barns and outbuildings at Dingle House if they were provided for them. They would also roost in the doubled up purloins created as roosting spaces for Brown Long eared bats – see below.

Different species of bats have different roosting preferences as shown on **Figure 5.1**. At Dingle House we have species of bat that favour crevices for roosting purposes (Common pipistrelle, Soprano pipistrelle and Leisler's bats) and bats that also roost in crevices but need a flight space in their roost (Brown long eared).

Table 1.2: The roosting preferences of UK bat species

Category	Bat species
Crevice-dwelling bats (that tend to be hidden from view) and roof-void dwelling bats (that may be visible on roof timbers)	Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Brandt's, whiskered Noctule, serotine, Leisler's, Daubenton's, greater mouse-eared, barbastelle and Bechstein's
Bats that need flight space in certain types of roost	Natterer's, and brown and grey long-eared
Bats that need flight space and flying access	Greater horseshoe, lesser horseshoe

Figure 5.1. Roosting requirements for bats.

The development or enhancement of roosting spaces to accommodate these species in other buildings in the property have been developed following the best practice guidance for crevice dwelling species and for species such as brown long eared bats.

Creation of a dedicated bat roosting area for crevice dwelling bats (Common Pipistrelle, Soprano Pipistrelle and Leisler's bat)

There are a number of buildings in the general environs of Dingle House, which, with minor modification or the provision of bat boxes internally, would provide a suitable space for crevice dwelling bats. These include the agricultural barns to the north of the house and the loft above the 'Former Cow Houses'. It is recommended that four Kent bat boxes or similar design are provided. It is not necessary to use the longer lasting boxes made by Schwegler and other companies as they will be sited indoors out of the weather.

Enhancement of a dedicated bat roosting area within other buildings on the property for bats requiring a flying area (Brown long eared bats)

Brown long-eared bats can, in the same way as crevice-dwelling bats, gain access to their roost spaces by crawling through a small gap, but they need a roost in which they can fly especially when females are roosting during the summer.

This fact will necessitate the use of a cold roof space in most instances as their need to gain access to a flight area would breach the U value envelope and airtightness of that part of a structure. Inside a roof space, bats will roost within crevices (see **Figures 5.2, 5.3 and 5.4**), but they require the additional space for flying and dimensions of 2.8 m (h) x 5 m (w) x 5 m (l) are optimal. It is also important that this space does not have framed or trussed rafters to ensure sufficient flight space.

Brown long eared bats are currently using the upper part of the 'Former Cow Houses' building as evidenced by their droppings and prey items there (see **Plates 7 and 8**). Buildings such as this and some of the other barns and sheds on the property could accommodate these bats (and the crevice dwelling bats) if a suitable roosting space was created or enhanced within same. This will be done

by doubling up the existing timber roof purloins to create an 18mm gap between them and the roof, particularly near the wall areas.

Table 3.1: General outline of roosting and nesting requirements

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 5.2. General outline of bat roosting requirements –Brown long eared bats.

Aspect of roost	Temperature °C		Materials and other comments
Summer nursery roosts on most southerly or westerly aspect for solar heating	Summer 30–40 (daytime)	Winter 0–6	Rough (for grip) Non-toxic or corrosive
Male roosts and winter hibernation roosts on northerly aspect			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 5.3. General outline of bat roosting requirements – Brown long eared bats.

Consideration	Solution
Where in a development	Anywhere where the access is not illuminated by artificial lighting
Where in a building	The crevice roosting provision within the roost is to be located on the south or west side for solar heating. The flight area is not as important
Height	Over 2 m
Roost dimensions	2–2.8 m (h) x 5 m (w) x 5 m (l), not trussed. Ideally 2.8 m height, but a height of 2 m may be acceptable in some circumstances To incorporate roost crevices with dimensions of any size as long as some components of the area are crevices in the region of 20–30 mm x width of gap Greater total areas of something like 1 sq m would be useful for nursery (summer) roosts
Access dimensions	15–20 mm (h) x 20–50 mm (w)
Other considerations	Rough (for grip) Non-toxic and non-corrosive No risk of entanglement Suitable thermal properties (reducing 24-hour fluctuations), but allowing maximum thermal gain Access not lit by artificial lighting

Figure 5.4. Considerations and key requirements for bats needing flying space – Brown long eared bats.

5.1.7 Measure 7: Extension Demolition

The flat roofed extension at the rear of the house, 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.

A precautionary approach to the demolition of this part of the building can then be prepared whereby the felt roof will be stripped manually with the expectation that bats may be present underneath it. One half of the roof will be removed and then the building left overnight before the other side is removed. This work should 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.

5.1.8 Measure 8: Swallow Nests in the ‘Dog Shed’, the ‘Wood Shed’ and the former dairy ‘Store’

Swallows currently use these buildings for nesting purposes and these traditional nest sites will be lost as they are developed. However there are also Swallows breeding in the old ‘Cow Sheds’ so they can avail of this building.

5.1.9 Measure 9: Timber Treatment

If any timber treatment operations are necessary within the roof space of the buildings, they will be carried out during the winter months - November to March. Bat safe poisons will be used throughout and any bats discovered during spraying operations will not be sprayed directly. Should bats be discovered during spraying operations, then the work will cease immediately. An experienced bat specialist will then be consulted. The owner and building contractor will ensure that only bat safe, pre-treated timbers are used where necessary during renovations to the roof space. The bat specialist will advise on same.

5.1.10 Measure 10: Insecticides

Should any of the timbers within the roof space in the building require the use of insecticides only bat safe insecticides will be used. The bat specialist will advise on same.

5.1.11 Measure 11: Water Tanks

Any water tanks which are to be located within the roof space/attic of buildings should remain permanently covered to prevent future accidental drowning of and contamination by bats. This is also good practice for people.

5.1.12 Measure 12: Lighting

Many species of bats are sensitive to lighting and it has been shown that artificial lighting at night (ALAN) can deter bats from using an area for foraging and can cause desertion of a roost.

Given the importance of the property at Dingle House with confirmed bat roosts of several species present and the recorded presence of four species of foraging bats it is important that Dingle House and outbuildings, the adjoining grounds and mature trees remain not overly illuminated and retain a dark and suitable habitat for foraging bats.

If any additional lighting is required around the property for security or safety it should be designed to reduce the illumination of trees and other foraging habitats and ensure these areas remain dark for bats to forage in.

It is also important that the yards and buildings should only be lit to allow safe access and egress for users, security for the property and that the lighting should be wildlife friendly.

Guidelines on bat friendly lighting have been developed by both EUROBATS and the Bat Conservation Trust (BCT). These are presented below for information.

The EUROBATS (2018) guidelines recommend the following:

Artificial Lighting At Night (ALAN) should be strictly avoided, and artificial lighting should be installed only where and when necessary coupled with the following:

- The use, where possible, of dynamic lighting schemes.
- The use of a minimal number of lighting points and luminaires. These should be erected on low positions in relation to the ground in order to minimise light trespass to adjacent bat habitats or into the sky.
- The use of focused light, e.g. by using LED or shielded luminaires which limit the light flux only to those areas requiring lighting and prevent light trespass into adjacent bat habitats.
- The creation of screens - this can be done by erecting walls or by planting hedgerows or trees, to prevent light trespass, e.g. from illuminated roads, to surrounding bat habitats.

- The protection of exits of bat roosts from direct or indirect lighting to preserve the natural circadian rhythm of bats and the protection of a buffer zone around them free from light.

The BCT (2018) guidelines are similar to those listed above and provide a list of recommendations in relation to luminaire design. This is based on extensive research on the potential impact of lighting on bats. These recommendations are as follows:

- All luminaires used should lack UV/IR elements to reduce impact.
- A warm white spectrum (<2700 Kelvins should be used to reduce the blue light component of the LED spectrum).
- Luminaires should have a peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used.
- Luminaires should be mounted on the horizontal, i.e. no upward tilt.
- Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.
- Bollard lighting should be considered for pedestrian, parks and greenway areas, if deemed necessary.

5.1.13 Measure 13: Potential Roosts in Trees

It is likely that the Ash trees on the avenue will succumb to Ash die back disease in the future. If possible, and where safe to do, they could be reduced in size to standing snags as opposed to being completely felled and removed, thereby retaining the cavities in the trunk, which have a high wildlife value and offer a roosting space for bats.

5.1.14 Measure 14: Health and Safety Issues

Workers on the project will be informed that bats are a protected species under both Irish and European legislation. Ideally bats should only be handled by a licensed bat specialist. If a grounded bat is encountered (typically a young bat) it should only be handled wearing gloves and lifted up in a piece of cloth (such as a tea towel) before being placed in a ventilated closed cardboard box. A bat specialist should be called and can then attend site and advise on what to do. As with all wild animals bats can carry diseases and hence protective measures to ensure that one is not bitten by a bat when handling them should be taken.

6. CONCLUSIONS

Provided the mitigation measures detailed above are applied to ensure that bats are protected during the works and have continued access to the various buildings at Dingle House which will be enhanced for roosting purposes they should continue to use Dingle House and remain in the area.

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