



## APPENDIX 5-2

### **BIODIVERSITY MANAGEMENT PLAN**



# **Biodiversity Management Plan**

Strategic Housing  
Development,  
Knocknacarra District  
Centre, Gort na Bró,  
Rahoon, Galway





## DOCUMENT DETAILS

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# Table of Contents

1.	<b>INTRODUCTION.....</b>	<b>2</b>
1.1	Background .....	2
1.2	Site Location.....	2
1.3	Characteristics of Proposed Works.....	2
1.3.1	General Project Description .....	2
1.4	Characteristics of the Receiving Environment.....	3
1.5	Statement of Authority .....	4
2.	<b>MANAGEMENT AND ENHANCEMENT MEASURES .....</b>	<b>5</b>
2.1	Landscape Report .....	5
2.1.1	Planting and Management Measures for Biodiversity Enhancement.....	6
2.1.1.1	Seed specifications.....	6
2.1.1.2	Shrub planting.....	7
2.1.2	Treeline and hedgerow enhancement .....	7
2.2	Faunal Habitat Enhancement Measures .....	7
2.2.1	Bat boxes.....	7
2.2.2	Bird boxes .....	8
	<b>APPENDICES</b>	
Appendix 1	..... Bat Box Installation Methods	
Appendix 2	..... Swift Nest Box Design And Installation Specifications	

# 1. INTRODUCTION

## 1.1 Background

McCarthy Keville O’Sullivan (MKO) was commissioned to prepare a Biodiversity Management Plan (BMP) for the proposed green spaces within the proposed strategic housing development at Gort na Bró, Rahoon, Galway. This BMP focuses on green spaces that form part of the proposed project and the landscaping measures and species proposed within the detailed landscaping plan, see Drawing 18GY03-DR-200. The measures outlined in this report identify the areas where biodiversity enhancement can be incorporated into the proposed development thereby contributing to local biodiversity.

## 1.2 Site Location

The proposed site is located on Gort na Bró, Rahoon, Galway approximately 3.1km west of Galway City Centre (Grid Reference: M 26809 25134). The surrounding area is characterised by the established residential suburb of Knocknacarra. The lands adjoining the site to the west are the location of the Gateway Retail Park.

The application site is bounded by Gort na Bró to the east and the retail park link road to the west. The Western Distributor Road, an arterial route serving the city, is located to the south. The proposed site has an area of approximately 1.9 ha.

## 1.3 Characteristics of Proposed Works

### 1.3.1 General Project Description

The proposed development will consist of the following:

1. Construction of 332 no. residential units:
  - 93 no. 1 bed apartments
  - 219 no. 2 bed apartments
  - 20 no. 3 bed apartments
2. Provision of 2,667 sq.m of commercial floorspace
3. Provision of 93 sq.m of community use facilities
4. Provision of 470 sq.m of tenant amenity accommodation including shared workspaces, shared dining and lounge facilities
5. Provision of 174sq.m creche facility including an external secure play area.
6. Provision of 85 no. car parking spaces and provision of realigned road between Gort na Bró and Gateway Retail Park Road.
7. Change of use of underground void to 181 bay underground car park.
8. Provision of shared communal and private open space, car parking, bicycle parking, bin storage, public lighting, site landscaping, services, signage, substation and all associated site development works.





## 1.4

## Characteristics of the Receiving Environment

The northern half of the site currently comprises (pre-development) primarily *Scrub (WS1)* habitat, dominated by gorse, dense bramble and nettle (Plate 2.1). A stand of *Dense bracken (HD1)* occurs to the north west of the site. The southern half of the site is dominated by an area of *Spoil and bare ground (ED2)* which is currently used as a construction compound (Plate 2.2). The site is bisected by a public access road into the Gateway Retail Park. The road and surrounding footpaths are categorised as *Buildings and artificial surfaces (BL3)*.

Either side of the public road are small areas of *Amenity Grassland (GA2)* and *Scattered trees and parkland (WD5)* (Plate 2.3). The *Scattered trees and parkland (WD5)* habitat has been planted for landscaping sometime within the past twenty years and consisted of clusters of semi-mature and immature trees which included beech, ash, maple, birch and hawthorn.

A narrow strip of *Dry Meadows and Grassy Verges (GS2)/recolonising bare ground (ED3)* fringes the scrub habitats to the north and west of the site. The site is immediately bordered by roads and other buildings which are all categorised as *Buildings and artificial surfaces (BL3)*. No watercourses were recorded within or adjacent to the proposed development site.

An existing built structure, located to the northwest of the proposed development site, has been incorporated into the proposed development boundary as the application includes this premises as a ‘change of use of underground void to 181 bay underground car park’. This existing building has been identified as *Buildings and artificial surfaces (BL3)*.

No invasive species were recorded within or adjacent to the development site. None of the habitats within the development site correspond to those listed on Annex I of the EU Habitats Directive.



Plate 2.1: Scrub (WS1) habitat to the north of the site



Plate 2.2: Spoil and Bare Ground (ED2)



Plate 2.3: Scattered Trees and Parkland (WD5) fringing the road that bisects the site.

## 1.5

### Statement of Authority

Field surveys were undertaken on the 22<sup>nd</sup> March 2019 and 23<sup>rd</sup> September 2019 by James Owens (B.Sc., M.Sc). James is an experienced ecologist with over 4 years professional ecological consultancy experience. Additional ecological surveys were undertaken by David McNicholas (B.Sc., M.Sc., MCIEEM) on the 29<sup>th</sup> of April 2019. David is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and has over 9 years professional ecological consultancy experience. This report has been prepared by David McNicholas. This report has been reviewed by Pat Roberts (B.Sc. Environmental Science, MCIEEM) who has over 14 years' experience in management and ecological assessment.



2.

## MANAGEMENT AND ENHANCEMENT MEASURES

The following subsections describe the habitat management measures that will be undertaken at the proposed development lands at Gort na Bró, Rahoon, Galway. The measures are practical and easy to maintain for the future. This is important in achieving cost effective and relevant management actions. Given low biodiversity value of the habitat recorded within the land ownership boundary, management options are focused on the management and enhancement of areas of open green space, shrub and tree planting.

2.1

### Landscape Report

A detailed Landscape Report has been prepared by Alt Urbanism and Landscape and has been submitted as part of the planning application documentation. This provides a detailed description of the proposed amenity grassland composition, tree and shrub planting for the proposed development and describes the planting, establishment and maintenance measures required.

The proposed planting strategy has been designed to closely reference the character of the local rural and coastal landscapes in the wider area by using a mix of ornamental grasses combined with flowering herbaceous perennials that will provide benefits for local invertebrates and pollinators. The proposed planting regime will also provide cover, foraging and commuting habitat for a variety of local bird species through the establishment of herbaceous planting, tightly grouped trees, hedges and treelines. An example of the proposed ornamental grass mix, as described and shown in the Landscape Report is provided in Plate 2.1 (Alt Urbanism and Landscape, 2019).



Plate 2.1 Example of proposed ornamental grass mix

It is proposed to plant ‘formal treelines’ around much of the site boundary as shown in Drawing No. 18GY03-DR-200. Mature tree planting proposed along the northern boundary with the existing pedestrian link/ gael scoil will provide connectivity with the wider area. These treelines will comprise of a mix of native and ornamental species. Species such as *Prunus avium* will provide berries during the

autumn/winter months. Such berries are an important food source for wintering bird species. Other species such as *Pyrus calleryana* will produce flowers during the summer providing nectar for a wide variety of invertebrate species. The network of treelines surrounding the site will help maintain connectivity to the wider landscape for a variety of commuting faunal species.

## 2.1.1 Planting and Management Measures for Biodiversity Enhancement

As described in the Landscape Report and illustrated in the Landscape Plan, see drawing No. 18GY03-DR-200, the green spaces within the site will be managed through a formal mowing regime and management of treelines and shrubbery.

If additional seeding is required for revegetation of grassland habitats within the site, the recommended species mix to be sown is “*Native Origin Irish Wildflower Seed Mixture: Range: Meadow Mixtures (Code MM)*” (Wildflowers, 2018). This will ensure higher biodiversity value of the semi-natural and amenity grasslands within the site.

As described in the Landscape Report (Alt Urbanism and Landscape, 2019), consideration has been given to the use of pollinator friendly plant species within the proposed site landscaping plan. As described in the Landscaping Report, in order for bees to have a healthy balanced diet and to survive throughout their life cycle, they need to be able to feed on pollen and nectar from a range of different flowers from early spring to autumn. Perennial plants provide good sources of nectar and pollen for bees and can have a strong visual impact with colourful and attractive displays over a long period of time. In addition, they also provide habitats and nesting material for birds and insects. Many of the suggested species incorporated into the proposed project, see Section 6 of the Landscape Report, have been chosen from the plant lists recommended in the *Pollinator Friendly Planting Code*<sup>1</sup>. It is recommended to also include grass species within the planting mix in order to provide structure and colour throughout the autumn and winter months (Alt Urbanism and Landscape, 2019).

### 2.1.1.1 Seed specifications

As described in page 40 of the Landscape Report, the recommended grass species mix is a wildflower mix (EC 10<sup>2</sup>) and comprises of a wildflower/ grass seed mix with grass species comprising of 20/80 *Bent/Fescue*. This seed mix will provide a diverse range of pollinator friendly flowers that will also provide flowering species across the spring, summer and late summer periods.

Where required, all turf used on site will comply with British Standard BS 3969, with no perennial ryegrass and will be laid in single rows, end to end and trimmed to a line.

#### Herbicide Application

The proposed landscaping has been designed to encourage the growth of low growing shrubs that will prevent the growth of weeds through ongoing ground cover. Herbicide usage will be minimised or largely avoided during the operational phase of the proposed project. However, during the establishment of the site landscaping, some herbicide usage may be necessary in the short term. Therefore, it is proposed that a herbicide be used that is suitable for suppressing perennial weeds and existing grass. This should be used as per the manufacturer’s recommendation

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<sup>1</sup> NBDC, Pollinator friendly planting code - professional planting recommendations, Online, Available at: <http://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf>, Accessed, 30/10/2019

<sup>2</sup> Wildflowers, 2019, Native Origin Irish Wildflower Seed Mixtures, Online, Available at: <http://www.wildflowers.ie/mixes/ec/ec10.htm>, Accessed, 30/10/2019

Lawn grass areas shall be treated using an approved selective herbicide according to manufacturer's instructions. Areas of invasive and noxious species in the lawn or areas, shall be spot sprayed. Weed infestations shall be reviewed in the context of the aesthetic and amenity functioning of the grass and if necessary controlled or eradicated.

### 2.1.1.2 Shrub planting

Healthy growth shall be maintained to cover as much as possible of the planting area and allowing the individual plants to achieve as near as possible their natural form. This will ensure the suppression of unwanted weed species and also provide biodiversity benefit for a variety of foraging and resting species including birds and invertebrates. Proposed planting bed areas have been designed to plant tight groups to reduce/ eliminate the requirement for herbicide use in weed control. Tight groupings of plants and organic bark mulching are designed to prevent weeds establishing. The reduction in the use of pesticides coupled with dense planting of shrubs will also promote invertebrates and pollinators.

### 2.1.2 Treeline and hedgerow enhancement

Additional planting will be undertaken to enhance connectivity with the wider landscape and provide foraging habitat for a variety of faunal species. Planting will use native species where possible. Section 6.2 of the Landscape Report provide a summary of the species to be used on site for planting. The planting of native species will benefit local wildlife by providing additional feeding and breeding habitat. Specimen Scots pine trees (*Pinus sylvestris*) will provide year-round green foliage providing some cover and roosting potential for bird species. Species such as rose, oak or hawthorn will provide winter berries/ fruit that will support a wide variety of wintering birds and small mammals.

New planting will be checked annually for damage and dead branches will be removed and weeds cleared. No cutting of hedgerows for maintenance within the land management area will occur during the bird breeding season 1<sup>st</sup> March – 31<sup>st</sup> August in any year, to prevent impacts on nesting bird species. All wild birds, their eggs, young and nests are protected under the Wildlife Act 1976-2017.

## 2.2 Faunal Habitat Enhancement Measures

In order to enhance the habitat within the land ownership boundary for wildlife, the installation of both bat and swift nest boxes are proposed for biodiversity enhancement. As described in the preceding sections, the plant species incorporated into the proposed landscaping will provide feeding, commuting and refuge locations for a variety of invertebrates and other final species. The below sections outline specific measures incorporated into the proposed development that focus specifically on the provision of additional roosting and breeding structures for both bats and bird species.

### 2.2.1 Bat boxes

Although no bat roost was recorded within the site during pre-construction surveys of the site, a number common bat species were recorded in the wider area. For this reason, it is proposed to install bat boxes to be used by the local bat population. Bat boxes will be provided within the tree line habitats. This will provide greater potential for the establishment of roosting bats in the area. Bat boxes will be similar to the general purpose Schwegler 2F type and placed at a minimum height of 3m on mature trees with a variety of different aspects. This will increase the likelihood of bat boxes being used at different times of the year. An appropriately qualified ecologist should advise on the locations at which bat boxes should be erected. An example of a suitable Schwegler 2F type bat box is provided in Plate 2.2. Additional information on the correct installation methods and other specifications for the successful occupancy of bat boxes is provided in Appendix 1 of this report (Bat Conservation Trust, 2014).





Plate 2.2 Example of Schwegler 2F type bat box suitable for roosting bat species within woodland habitat

## 2.2.2 Bird boxes

Although no suitable swift nesting habitat was recorded within the site, i.e. no existing built structures, this biodiversity management plan has incorporated the installation of swift boxes into the proposed project to provide suitable nesting cavities for the species. Due to the decline in swift populations over recent decades, as a result in the loss of old buildings with suitable cavities in which to nest, the incorporation of built in swift boxes into new developments can provide suitable and cost-effective nesting locations for the species. It is proposed to incorporate swift boxes within the building structure during the construction phase of the proposal. The recommended swift box type is Schwegler 17A, or similar, and can be built into a walls, replacing blocks. These boxes have proven success at numerous locations around Ireland (Swift Conservation Ireland, 2019) and do not require regular maintenance. Detailed installation measures are described in Appendix 2 of this report which are based on recent studies and projects in Co. Mayo. In order to attract swifts to newly installed swift boxes, a call system should be installed in close proximity to the nest boxes. The call system can be set up in a waterproof box on the flat roof just above the nest boxes, see Appendix 2 of this Biodiversity Management Plan.

It is important that the correct nest structures are used in order to ensure that the nest boxes are used by swifts and no other species such as starlings, which can produce droppings. The correct nest entrance size must be used (29mm x 65mm maximum). This will restrict species such as starlings. As the swift boxes are sealed, they do not need to be cleaned out. Swift boxes can be installed at any aspect. However, they should be located in excess of 3 metres above the ground, not be obscured by trees or neighbouring walls and away from external lighting fixtures (Swift Conservation Ireland, 2019).

In addition to swift boxes, it is proposed to install suitably designed nest boxes for garden bird species such as blue tits. Blue tit nest boxes are best placed within areas of tree clusters or dense planting within a suitable tree or other structure. Obvious sun traps, such as south-facing walls, should be avoided to reduce overheating. It is preferable to face the entrance hole in a north-easterly direction. The box does not need to be positioned within cover, as blue tits like to scan for predators before leaving the box, thereby avoiding predators. Bird boxes should be positioned approximately two metres, or greater, above the ground.





## **APPENDIX 1**

### **BAT BOX INSTALLATION METHODS**





# Bat Box Information Pack

Bats are amazing animals that are important to ecosystems in the UK and worldwide. We have 18 species of bat in the UK, all of which are protected under European law. Bat populations in the UK have declined dramatically over the past century due to persecution and habitat loss. However, some UK bat species have recently shown some signs of increasing so there is hope.

Bat boxes are artificial roosts designed to provide bats with alternative resting places or to encourage bats into areas where there are few existing suitable roost sites. There are various designs of bat box; wooden boxes that you can make yourself, ready-assembled external boxes for buildings and trees, and even integrated bat boxes that can be built into walls.

Providing bat boxes can increase opportunities for roosting bats but it can take a while for bat boxes to be used regularly, particularly where a number of suitable alternative roost sites exist. Bat boxes can have an important additional function in encouraging interest and educating members of the public about bat conservation. The correct design and placement of boxes will help increase the likelihood of their uptake by bats.



## Bat roost preferences

Bat boxes are now available from many outlets, and in a range of shapes and sizes, so some knowledge of what bat species are in your local area and their preferences will help you choose the best possible box. Some species such as horseshoe bats and grey long-eared bats do not use bat boxes.

Microclimate within a new roost is a very important factor in terms of increasing the chance of successful uptake by bats. In general, they prefer warm spaces in the summer for rearing young and cooler spaces in the winter for hibernation. The box should be draught proof and made from a thermally stable material such as untreated wood, ecostyrocete, woodcrete, brick or stone. If possible, it's better to provide several internal chambers so that the bats can move around.





## Orientation and location

Structures for summer roosting should be positioned where they are sheltered from the wind but unshaded for most of the day. Summer maternity roosts (in the northern hemisphere) should be on a south-easterly to south-westerly aspect. It is always best to provide a number of different options for bats so that they can choose the most appropriate temperature based on their needs. This can be achieved by grouping a number of bat boxes each with a different aspect; two or three boxes is preferable to one, although a single box still has a chance of being used depending on the bat species that use the local area. Three boxes can be arranged around the trunk of larger trees – see below for details about putting up bat boxes.



© Fern Alder

Bat boxes are more likely to succeed in areas where there is a good mixture of foraging habitat, including trees, and a source of water (most maternity roosts are located within a short distance of permanent fresh water such as a stream, pond, river or lake). Bat boxes in areas with few other roosting opportunities are also likely to be more successful.

Bat boxes should also be located close to unlit linear features, such as lines of trees or hedgerows. Bat species use these features for navigation between their roosting sites and feeding grounds and to avoid flying in open and exposed areas. Ensure the bats approach to the box is not impeded, for example by branches – clear away underneath the box so the bats can land easily before crawling up into the box.

## Size of the bat box

The most frequently used bat boxes are small and only suitable for crevice-dwelling bat species.

## Access

Crevice dwelling bats crawl into their roosts via small gaps around 15-20mm high. Roughened vertical surfaces or landing areas allow better access (by landing and crawling), although horizontal landing perches should be avoided as these are not necessary, may even deter bats and encourage birds to nest within the bat box.

## Other considerations

Bats are nocturnal and adapted to low light conditions. Artificial light sources should not be directed onto bat boxes or flight paths as most bat species find artificial lighting very disturbing.



© John Altringham

If possible, make or purchase bat boxes with an entrance slit along the bottom so that accumulated bat waste can drop out of the box or be pushed out as bats emerge. This will also help stop birds nesting in the box and blocking the entrance, which can happen with bat boxes that have entrance holes in the middle.

Boxes that may accumulate bat droppings will also need to be cleaned regularly by a licensed bat worker. It is important to remember that bat boxes must not be opened by anyone except a licensed bat worker (see ‘monitoring bat boxes’ below for more details on licences). In addition, nesting birds must not be disturbed so leave the area immediately upon finding an active nest in a box, and there is the potential for dormice to be found in some woodland boxes, in which case the box must only be checked by a licensed ecologist

## Types of bat boxes

Bat boxes come in many forms depending on their materials, function and location. Simple bat boxes are available commercially or can even be home-made. Bat boxes can be divided into the following categories: self-made external bat boxes, ready-made external bat boxes, integrated bat boxes and free standing bat boxes. Advanced forms of artificial roost creation include bat houses, bat barns and internal bat lofts (if you are interested in these please refer to the websites and publications listed at the end of this document).

### Self-made external bat boxes

Self-made wooden bat boxes are usually located on trees or the outside walls of buildings. These boxes are usually cubic or rectangular, with a grooved ‘bat ladder’ and a narrow entrance slit at the bottom. These will last for approximately ten years and can either be bought in kit form, or you can make your own from scratch (there are instructions for the ‘The Kent bat box’ pictured below in the Appendix at the end of this document – these boxes are also available commercially).

They come in a variety of shapes but key requirements are:



- The wood should be rough sawn for grip and untreated.
- Bats do not like draughts; the entrance slit should be no more than 15-20mm wide and there should be no gaps where the sides and top join - the box should be well put together.
- A box that cannot be opened is best - it will lessen the chances of the bats being harmed through becoming trapped under the opened lid, or disturbed by people opening the top.
- To increase longevity of the box, use screws rather than nails.
- Any screws, hardware or staples used must be exterior grade (galvanized, coated, stainless, etc).

### Ready-made external bat boxes

There are a number of ready made external bat boxes suitable for buildings and trees that can be purchased. These boxes can be made from wood, however there are an increasing number of more durable options, such as eostyrocrete (pictured right). These types of boxes can come in a range of finishes to blend into the buildings façade or indeed to highlight their presence!



### Integrated bat boxes



Integral or integrated bat boxes can be built into the walls or masonry of houses and other buildings. The boxes can be embedded such that they do not impair the air-tightness of the building. Many designs are available including some that have bespoke coverings that can match the building façade and / or highlight the boxes presence (see boxes left and below from [Habibat](#)). The same principles for size, location and access apply.



### Ready-made free standing boxes

American style bat houses (larger, multi-chambered boxes) have been successfully used for bat conservation in North America and elsewhere. These large multi-chambered boxes are increasingly being used in the UK for sites where there are few suitable features (such as trees or buildings) for boxes to be attached to, as they can be put up on poles:

<http://www.batcon.org/files/RocketBoxPlans.pdf>

Commercial designs are now available, such as the 'rocket box' from Habibat (pictured right).





## Habibat

Habibat is a partnership between the Bat Conservation Trust, Ecosurv, their partnership bat box companies and Habibats customers. Their aim is to provide bat boxes that work for bats and buildings. A portion of the profits from each Habibat partner company bat box sold is reinvested into the Habibat scheme to improve accommodation for bats in the long run with an aim to implement monitoring and research. The scheme aims to improve knowledge of integrated bat box use and design, and give customers guidance on installation.



If you would like further information on the products and partnership companies, visit the Habibat website: [www.habibat.co.uk](http://www.habibat.co.uk).

## Putting up bat boxes

Most bat species will use higher positioned boxes (around 4m up); assess the risk of working at height when undertaking the installation, then place the box as high as it is safe to do so. This will also help protect bats from vandalism and falling prey to cats. If working in the public realm, try to locate boxes so they are not above public walkways.

Ensure the boxes are appropriately fitted, to avoid the risk of them falling off. The boxes should be checked at least annually and after high winds to ensure they are still securely in place.



© Sue Burchett

### On buildings

Place the boxes high up by the eaves on a building, which can also help shelter the box from the weather. As detailed above, the aspect of the box should capture sun for part of the day if the intention is to attract maternity colonies.

Gazebos, garden walls and sheds have been suggested as sites for bat boxes. However, the main danger is that the boxes are not high enough above the ground, the structures may not be robust enough to support the box in high winds and the boxes are too visible to predators or vandals.

### On trees

Consideration should be given to tree growth and boxes may need rehangng over time, regularly check boxes to assess this. Use headless or domed nails not fully hammered home to allow the tree growth, again regular checks will ensure that this allowance can be made while still being securely fitted. Iron nails can be used on trees with no commercial value. Copper nails can be used on conifers, but aluminium alloy nails are less likely to damage saws and chipping machinery.

## Monitoring bat boxes

Making and putting up bat boxes is a great conservation action but what is even more useful is to know whether they are being used, when and by which species.

## How long before bats will use the box?

Sometimes it can take several years for bats to find a new box. Be patient! Slow (or no) uptake may be due to the availability of other roosts locally. Sometimes, however, bats move in within months or even weeks!



© Daniel Fellman

## How will I know if the box has been successful?

To check if the box is being used, look out for droppings and urine-staining on the vertical 'bat ladder' below the box and listen for 'chattering' during the day, especially during the summer months. You can also watch the box for an hour either side of sunset to observe any bats leaving to feed, or around dawn to see any bats returning to their roost. Bats may be observed by looking up into the box from below, however no light should be used as this may disturb any bats that are present.

## Licensing and the law

You can undertake the non-invasive checks above without needing a licence. However, if the box needs to be opened to check it then there must be a suitably licensed bat worker present. Anyone wishing to undertake bat box checks should obtain training in bat handling and identification before applying for a licence. You can find out more about licensing and bats on the Bat Conservation Trust website at: [www.bats.org.uk/pages/licensing.html](http://www.bats.org.uk/pages/licensing.html)



©Liz Greenwood

All bats and their roosts are protected by law and it is an offence to deliberately disturb, handle or kill bats. The relevant legislation in England & Wales is the Wildlife and Countryside Act 1981 and Conservation of Habitats & Species Regulations 2010 (as amended). In Scotland it is the Conservation (Natural Habitats, etc.) Regulations 1994 and in Northern Ireland the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995.

## A bed without breakfast?

Bats often use features such as hedgerows, tree lines and watercourses as commuting pathways between roosts and foraging areas. This type of habitat also provides shelter, allowing insects to gather and therefore supports foraging bats. The highest densities of bats occur where insects are most plentiful.

Make sure you maintain or create good foraging habitats for bats by planting a wide range of plants such as flowers that vary not only in colour and fragrance, but also in shape. See BCT's 'Encouraging Bats' leaflet for more information ([www.bats.org.uk/publications](http://www.bats.org.uk/publications)).



## Other useful websites

### **Bat Conservation Trust**

[www.bats.org.uk](http://www.bats.org.uk)

The Bat Conservation Trust (BCT) is working towards a world where bats and people thrive in harmony, to ensure they are around for future generations to enjoy. BCT is the only organisation solely devoted to bat conservation in the UK.

### **Bat Conservation International**

[www.batcon.org](http://www.batcon.org)

Bat Conservation International's mission is to conserve the world's bats and their ecosystems to ensure a healthy planet. Based in Austin, Texas, BCI is devoted to conservation, education and research initiatives involving bats and the ecosystems they serve.

### **Roost**

[roost.bats.org.uk](http://roost.bats.org.uk)

Roost is a resource developed by the Bat Conservation Trust (BCT) to aid in the gathering of information on bat roost mitigation, compensation and enhancement techniques. The aim is for this site to provide accessible information to support everyone involved in bat conservation and development.

### **Vincent Wildlife Trust**

[www.vwt.org.uk](http://www.vwt.org.uk)

The Vincent Wildlife Trust (VWT) is an independent charitable body founded by Vincent Weir in 1975 and has been supporting wildlife conservation ever since. They conserve a range of endangered mammals through management of their own reserves, undertake pioneering research and provide expert advice to others through practical demonstration.

## Publications

Gunnell, K., Murphy, B. and Williams, C. (2013) Designing for biodiversity: a technical guide for new and existing buildings (2<sup>nd</sup> ed.)

Gunnell, K., Grant, G. and Williams C. (2012) Landscape and urban design for bats and biodiversity

Mitchell-Jones, A.J (2004) Bat mitigation guidelines

Mitchell-Jones, A.J. and McLeish, A.P. (2004) Bat workers' manual (3<sup>rd</sup> edition)

Tuttle, M.D., Kiser M. and Kiser S (2004) The Bat House Builder's Handbook

# Appendix: The Kent bat box (D.I.Y. instructions)

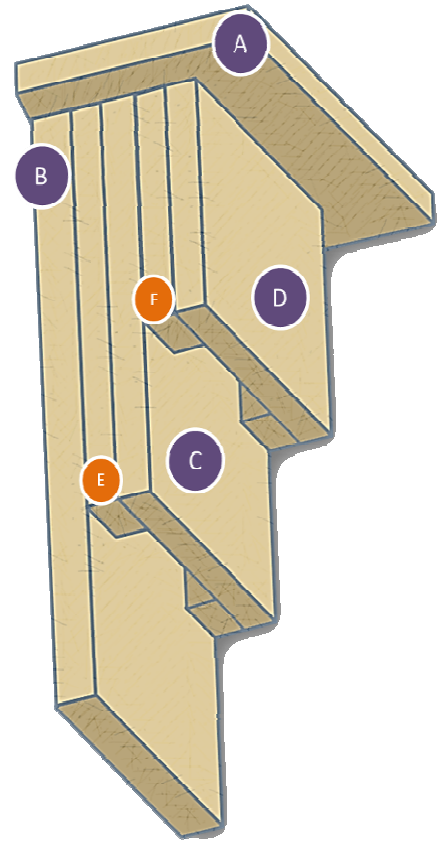
## Design and measurements

Simple to construct, self-cleaning and low maintenance, the Kent bat box (designed by the Kent Bat Group) is a great way to encourage bats in your garden or your green space. The box should be rainproof and draught-free.

The only critical measurement is the width of the crevices: between 15-25mm. Other measurements are approximate. Timber should be approximately 20mm thick.

Measurements for one Kent bat box kit would be as follows:

Part	Quantity	Size (mm)
Roof (A)	1	250 x 160 x 20
Back (B)	1	450 x 200 x 20
Centre (C)	1	330 x 200 x 20
Front (D)	1	210 x 200 x 20
Centre Rails (E)	2	330 x 20 x 20
Front Rails (F)	2	210 x 15 x 15
Stand-offs (optional)	2	200 x 20 x 20



## Material and Tools

This kit requires approximately 1.6m of rough wood and 25 screws (8 x 1 ½ inches) to assemble. You can rough it up by scraping with a suitable tool – possibly a saw blade or even a screwdriver but make sure you use untreated wood as some preservative chemicals can kill bats.

Pre-drill the holes to prevent the wood splitting. Alternatively you can assemble your bat box kit with nails although they tend to be less robust than boxes made with screws.

The hanging screws may either be at the edges of the front panel or in the side centre block (not in the rails!). Fixing may be by use of brackets, durable nylon cord or wires.

When installing the box, assess the risks of working at height, use the appropriate fittings and assess where the box will be located, in relation to any public access. Regular checks should be made to ensure the box remains securely fitted, especially after high winds.

*Photos and illustrations in this document by the Bat Conservation Trust unless otherwise stated.*

The Bat Conservation Trust (known as BCT) is a registered charity in England and Wales (1012361) and in Scotland (SC040116).

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## APPENDIX 2

### SWIFT NEST BOX DESIGN AND INSTALLATION SPECIFICATIONS







## **HOW TO BUILD-IN SWIFT NEST BOXES** **INTO CEMENT BLOCK WALLS**

**January 2019**

### **Why incorporate nest boxes in the wall of a building?**

There are several reasons:

- a) to help recover the declining swift population**
- b) built-in nest boxes are the closest thing to the natural nest sites**
- c) built-in nest boxes will be there for the life of the building which very important as the Swift is a long-lived bird and 100% faithful to its nest site**

### **Are there any good examples of new buildings with built-in nest boxes?**

Three projects in County Mayo :

- 1) Town Hall in Westport where 4 triple cavity boxes were installed in 2014 giving 12 nest boxes. By 2018 all 12 nest boxes were occupied by Swifts.
- 2) New Swimming pool in Castlebar where 8 triple cavity boxes have been installed in the winter of 2017. Within 5 weeks of switching on the attraction calls in May 2018, Swifts were seen entering 7 of the 24 nest boxes. This is an extremely quick take up and seems to indicate that Swifts like built-in nest boxes.
- 3) Sancta Maria College, Louisburgh where 2 triple cavity boxes were installed.

### **How will the Swifts find the nest boxes?**

It is essential to play attraction calls. The set-up of the call system can be tailored to suit the building e.g. in the Westport Town Hall the call system is set up in a waterproof box on the flat roof just above the nest boxes. For the Swimming Pool project waterproof speakers have been installed under the overhang of the roof with cabling running through to a maintenance room where the mini amplifier is powered. SEE ANNEX 1 for further information.

### **Will the birds leave any mess?**

It is important to note that these are not messy birds and so **there will be no mess below the nest boxes**. However, the correct nest entrance size must be used so that it is too small for a starling to enter (i.e. 29mm x 65mm maximum). Also, the nest boxes are sealed units that do not need to be cleaned out.

Below is a photo of the nest boxes at the Town Hall in Westport with no mess under the boxes. All 8 of these nest boxes have been occupied by Swifts since 2017.

*Picture 1. Town Hall build-in boxes in June 2018 showing no marks of bird droppings on the wall.*



*Picture 1.*



Picture 2. Westport Town Hall – Swifts looking into two of the nest box entrances (June 2018)



Picture 2.

#### **Which nest box model should be used ?**

Model of box used in these projects : Schwegler 17A which can be built into a wall replacing blocks. The nest boxes are capped with a lintel to provide additional strength but the Schwegler has been designed to be built into a wall.

#### **Where do I buy the Schwegler nest boxes?**

You can buy them directly from the European supplier in England <https://www.nhbs.com/no-17a-schwegler-swift-nest-box-triple-cavity>

**NOTE: You must request a special order for the smaller nest entrance hole (29mm height) as per those ordered by Swift Conservation Ireland**

OR you can buy from Swift Conservation Ireland, who usually hold some in stock of these nest boxes, by emailing [swiftconservationireland@gmail.com](mailto:swiftconservationireland@gmail.com). This option may work out easier and more economical if you are buying less than 4, because the boxes have to be delivered by pallet which has a minimum charge.

#### **What is the ideal location for nest boxes being build in to a wall?**

- any aspect N, S, E or W.
- **Minimum** 3 metres above ground level. Open aspect in front i.e. no trees or other walls so that birds can get a direct flight in and out (these birds do not perch so must have direct flight path in and out).
- Not directly under or close to spotlights **and** not a wall where floodlights will shine directly at the nest box entrances.

#### **Can the nest boxes be placed one above the other?**

**NO** - they must either be placed side by side or staggered (see photos below). This is so that the birds do not collide when approaching their nest boxes at speed – the usual approach speed is 30 miles per hour.

Picture 3. The nest boxes can easily be incorporated into a block wall



Picture 3.

Picture 4. A Lintel is placed above the nest box



Picture 4.

*Picture 5. At Westport Town Hall the nest boxes are staggered.*



Picture 5.

*Picture 6. At the Castlebar Swimming Pool the nest boxes are all placed at the same height in a row.*



Picture 6.



*Picture 7. Close up of boxes being installed at Sancta Maria College in Louisburgh, Co. Mayo*



Picture 7.

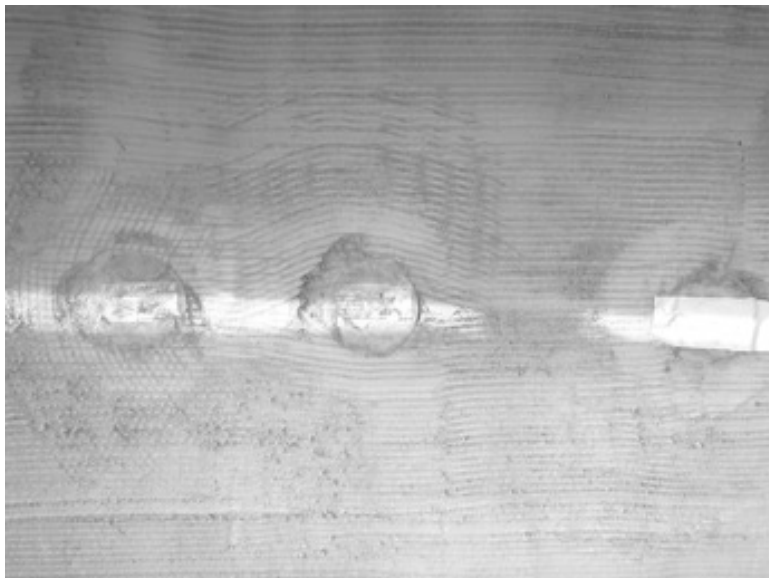
*Pictures 8, 9 and 10. The nest hole entrances are covered with tape after installation so that the inside of the boxes are protected when scudding of the wall is taking place.*



Picture 8.



Picture 9.



Picture 10.

*Picture 11. When the wall is rendered you must ensure the entrance holes are horizontal. This picture is of Westport Town Hall rendered and ready for painting.*



Picture 11.

**Picture 12.** Castlebar swimming pool wall finished with nest box entrance holes clearly visible in a horizontal row.



Picture 12.

## **ANNEX 1. ATTRACTION CALLS**

*An attraction call system must be used to help the Swifts locate the nest boxes and to ensure that the project is a success. However, calls only need to be played for a few seasons until Swifts have started nesting in the boxes.*

*Where to locate the speaker and amplifier is particular to every project depending on the design of the building.*

**Picture 13.** -At Westport Town Hall the call system was installed on the flat roof just above the nest boxes. A special waterproof electric box was used for this purpose to house the plugs and amplifier.



**Picture 14.** At the Swimming Pool building water proof speakers have been installed on the exterior wall just above the nest boxes with cabling running to the amplifier located indoors next to a plug socket.



Call systems and advice on how and where to locate them can be obtained from Swift Conservation Ireland by emailing [swiftconservationireland@gmail.com](mailto:swiftconservationireland@gmail.com)

NOTE : This document will be updated on a regular basis so check [www.swiftconservation.ie](http://www.swiftconservation.ie) for the latest version.