

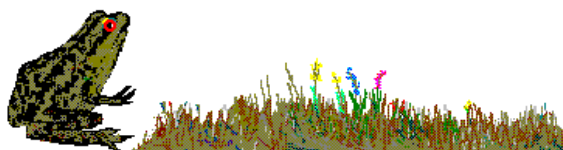


**Detached Dwelling,
Plot 2, Collier's Row,
Heol Gerrig, Merthyr Tydfil**

LANDSCAPE and ECOLOGY MANAGEMENT PLAN

Document issued: 1st July 2021

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REVISION RECORD	DATE	STAFF
Plot 2 LEMP completed	1/7/21	RDP
Proof read	1/7/21	KAP
LEMP issued to client	1/7/21	RDP
MTCBC Requested Amendments (Planning Ref)	30/7/21	RDP

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1. INTRODUCTION

- 1.1. Pryce Consultant Ecologists was commissioned in July 2019 to carry out a Preliminary Ecological Appraisal (PEA) of land at Colliers Row, Heol Gerrig, Merthyr Tydfil, on which Maxiom Ltd, as developer, was seeking planning permission to carry out a small residential development comprising of eight detached dwellings (application no. P/19/0228).

Subsequent to the submission of the Preliminary Ecological Appraisal in support of the application to Merthyr Tydfil County Borough Council acting in its role as Local Planning Authority (LPA) and the subsequent granting of outline planning permission for the scheme, the developer now wishes to bring forward the development of Plot 2, the location of which is shown on figure 1.

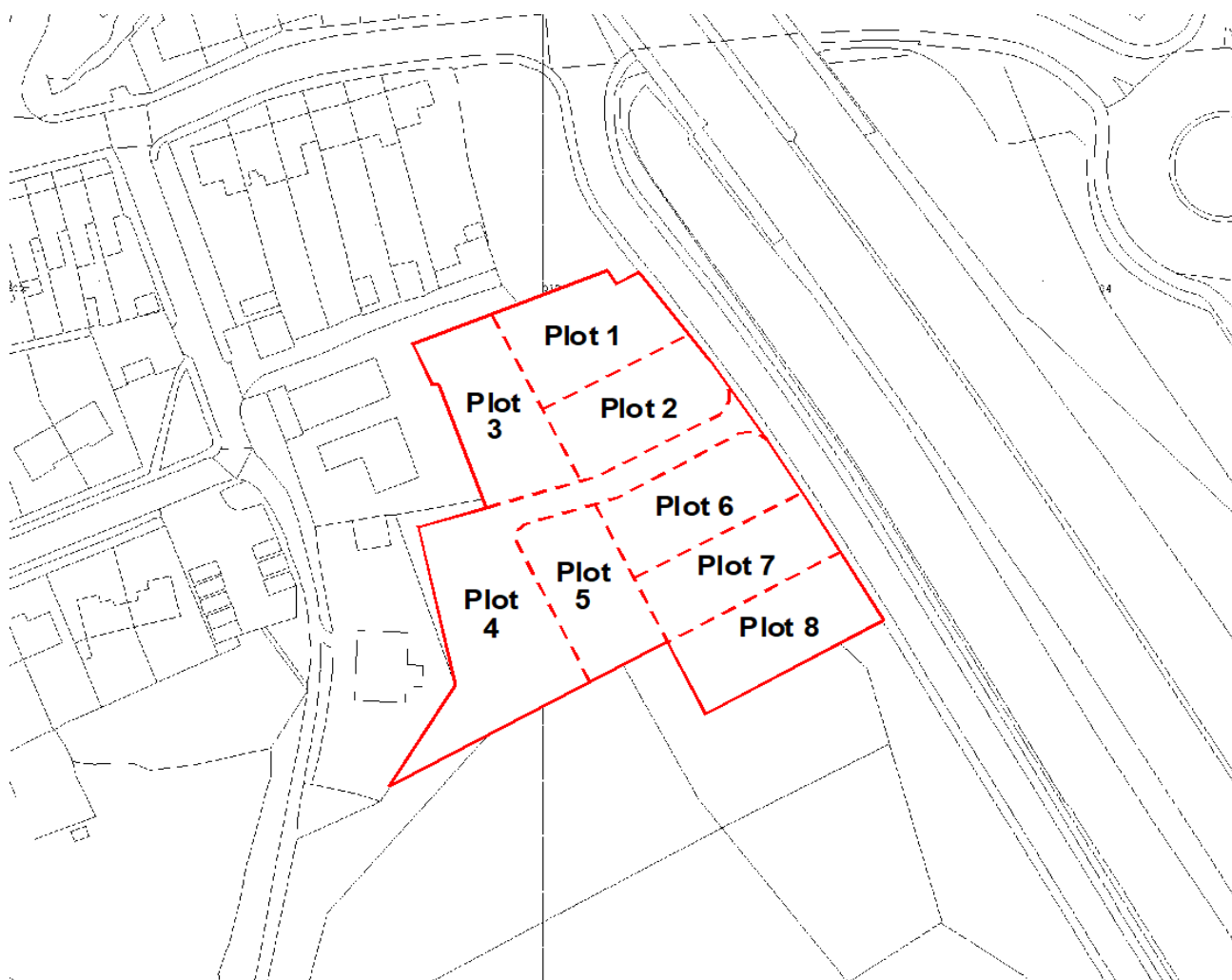


Figure 1

Extent and layout of housing plots.

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During Pre-Application consultations the LPA has advised that a Landscape and Ecological Management Plan (LEMP) is required in support of the detailed application for the plot which should be read in conjunction with the Landscape Master Plan applicable to the whole development site (Pryce Consultant Ecologists, 2020).

The present document addresses the request for the production of a Landscape and Ecological Management Plan covering Plot 2 only but reference should also be made to the Landscape Master Plan in order to put the plot in context with the remainder of the site.

- 1.2. The summary of the *Preliminary Ecological Appraisal* (Pryce Consultant Ecologists, 2019) which relates to the whole site is reproduced at paragraph 1.2 of the *Landscape Master Plan*. The ecological recommendations listed at Section 5 of the *Preliminary Ecological Appraisal* provided the basis of the *Landscape Master Plan* and are reproduced at paragraph 1.4 of that document.
- 1.3 The recommendations made in the *Preliminary Ecological Appraisal* are also the basis of this Landscape and Ecology Management Plan but it should be noted that this LEMP relates to Plot 2 only. The LEMP has been prepared in close consultation with the developer who undertakes to implement its recommendations during the enabling and construction phases of the project and to carry out any reasonable remedial actions should the need arise during the period that he remains active on site.

2. LANDSCAPE AND ECOLOGY MANAGEMENT PLAN RATIONALE

- 2.1 The LEMP includes strategies, methodologies and prescriptions to successfully implement the recommendations set out in the *Preliminary Ecological Appraisal* and the aims of the *Landscape Master Plan* insofar as they are applicable to Plot 2, which are as follows.
 - species protection and management,
 - habitat retention, protection and disturbance limitation,
 - habitat enhancements and creation
 - habitat specifications to assist landscape practitioners,
 - species composition specification for landscape plantings,
 - seasonal timings,
 - planting-stock nativeness and provenance,
 - habitat management,
 - species management,
 - duration of landscape implementation, maintenance and management
- 2.2 This LEMP, together with the *Landscape Master Plan*, will form part of the site Environmental Management System and has been drafted by the site ecologist who will ensure its satisfactory implementation in order to make certain that landscaping and ecological mitigation targets are successfully achieved.
- 2.3 All works will be carried out bearing due regard to the protection of retained habitats, flora and fauna and, where possible, appropriate new features will be designed into the scheme to provide, for example, foraging and roosting, nesting and refuge sites for faunal species. Retained, enhanced or newly created habitats will be protected by appropriate temporary fencing to ensure that they are not damaged during construction site operations.

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- 2.4 Careful planning and supervision of site personnel will seek to ensure that disturbance to all ecological features is kept to an absolute minimum.
- 2.5 Prescribed works will only be carried out during the appropriate seasons, in order to comply with current legislation and best practice as outlined at appendix 3.
- 2.6 This LEMP only covers ecological issues which need to be addressed during the pre-construction period and the construction phase. It must be understood that future management will be at the discretion of the purchaser of the new house. It is anticipated, however, that the garden, once established, is likely to provide a range of habitats providing, for instance, faunal cover, foraging, refuge and nesting sites.

3. LANDSCAPE AND ECOLOGY MANAGEMENT PLAN OVERVIEW

- 3.1 This LEMP has been prepared at the request of the Local Planning Authority and provides the plan by which the developer will be able to implement the provision of the ecological recommendations made in the PEA and whole-site LMP during the pre-construction and construction phases of the scheme whilst minimizing disturbance to existing ecological receptors. This LEMP is applicable to Plot 2 only.
- 3.2 The scope of landscaping is limited by the close juxtaposition of the housing plots and the fact that the future maintenance of the gardens will ultimately be the responsibility of the plot owners. Features that will need regular attention within the whole site have therefore been limited to simple hedgerows and a small woodland area that will only require an acceptable level of domestic maintenance. None of these features impinge upon Plot 2 and none of these habitat features will be provided as part of the development of the plot.
- 3.3 The principal landscape features within the whole development site are shown on the Landscape Master Plan at figure 2. These include the provision of
- hedgelines at least 1.5m wide around the southern, western and northern site boundaries including a small area of woodland at the south-western corner
 - a central hedgeline 1.5m wide that divides the site into two parts on an approximate north-northwest – south-southeast alignment which will contribute habitat connectivity between scrub habitats outside the site including the gardens and scrub to the north and the existing woodland to the south.

Of these features, only a short section of the central dividing hedgeline is located within Plot 2. Where these features are provided during the construction phase, they will be protected from potential damage from nearby site works by the erection of temporary high-visibility fencing which will be maintained for the whole duration of construction operations.

New, 2m high, solid, close-boarded, wooden fencing will be constructed along the boundaries of the plot as indicated on the Plot 2 detailed planning application *Existing and Proposed Site Layout and Sections* plan (dwg. No. 22/12/0). Close-boarded boundary fencing will provide shelter i) within the plot, ii) to the plantings of the adjacent section of the central hedgerow and also iii) to fauna using the hedgerow corridor.

- 3.4 These features will be provided as described at section 5, below.

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All trees, scrub and other vegetation growing within the whole development site were cleared during 2020 in compliance with the advice given at section 4 of the whole site Landscape Master Plan rev. 4 issued on 5th December 2020. No bats, reptiles or other protected species or their refuges were disturbed during the clearance operation.

All nests occupied or being built by breeding birds are protected against disturbance by the Wildlife and Countryside Act 1981. The nesting season is generally taken to be March to August inclusive but it should be borne in mind that some species nest outside this period. Whenever possible, site clearance should be undertaken between September and February inclusive and preferably mid-September to the end of October to avoid disturbance to hibernating animals such as bats, dormice, reptiles and amphibians. If it is necessary to disturb or remove any potential bird nesting habitat during the nesting season, an experienced ornithologist must assess the site immediately prior to the commencement of clearance operations in order to confirm that no active nests will be disturbed. If any active nests are found, work must cease in that area until the ornithologist certifies that no active nests are present.

All new buildings will accommodate bat-roost and bird-nest features as detailed in the text, including bat bricks, Swift cavities and bird boxes on east, north and west-facing aspects.

All new habitat plantings to be of locally-native species of local provenance as detailed in the text

To minimize potential harm to reptiles, amphibians, Hedgehogs and other fauna, a visual "finger-tip" search of edge and other habitat with potential to conceal these species was undertaken during initial clearance of vegetation and was carried using hand-tools prior to the use of mechanical plant.

130mm x 130mm apertures will be provided at approximately 10m intervals at the bases of all closed boundary fencing to minimize impeding the free passage of Hedgehogs between plots and into the wider area.

LEGEND

- Boundary of development site
- - - Individual house plot boundaries
-  1.5m wide habitat belt of existing woodland to be retained along site boundary, enhanced where necessary
-  1.5m wide new hedgerow along site boundary planted on existing open grass-dominated area
-  1.5m wide new central hedgerow dividing plots
-  0.5m grass verges between kerb and wooden close-boarded fence
-  Indicative locations of 130mm x130mm apertures in bases of new fences to allow Hedgehog passage

Maxiom Ltd Land at Colliers Row, Merthyr Tydfil Figure 2 LANDSCAPE & ECOLOGY MANAGEMENT PLAN

SCALE
0 10 50
METRES



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- 3.5 The section of the central dividing hedgeline within the plot will be established in ameliorated soil using new planting stock of locally native species of local provenance, as described at paragraph 5.3.
- 3.6 130mm x 130mm apertures will be cut at intervals of approximately 10m in the base of new wooden fencing along the boundaries of the Plot in order to facilitate the passage of Hedgehogs.
- 3.7 0.5m wide flower-rich grass verges, totalling in all, 61m², will be provided along each side of the internal access road which will be constructed between the kerb-line and the close-boarded fencing along the boundaries of plots 2 and 6.
- 3.8 Artificial bat roosting with no direct illumination and bird nesting features will be built into the fabric of the new house as described at sections 6 and 8.
- 3.9 Careful planning and supervision of site personnel will seek to ensure that disturbance to all ecological features is kept to an absolute minimum. All site personnel will receive induction and tool-box talks which will provide details of all flora and fauna, particularly protected species and Section 7 *Species of Principal Importance*¹ that may be present within the plot. Personnel will be reminded of their legal obligations to respect and, as far as possible, leave undisturbed, all wildlife that may be encountered.
- 3.10 Prescribed works will only be carried out during the appropriate times of year, in order to comply with current legislation and best practice as outlined at appendix 3. A suitable timetable for works will be drawn-up to comply with all ecological constraints and requirements.
- 3.11 Once construction has been completed and the new dwelling has been sold to the end-user, future management and maintenance of the ecological features provided within the plot during the construction phase will become the responsibility of the new owner.

4 CLEARANCE OF VEGETATION

- 4.1 The whole of the development site was cleared of vegetation in 2020 prior to the commencement of the development with the construction works on Plot 4. Plot 2 is the second plot on the site to have been brought forward for development.
- 4.2 Site clearance was carried out in compliance with the recommendations made in section 5 of the whole site Landscape Master Plan and the Plot 4 Landscape and Ecology Management Plan.

¹ *Species of Principal Importance for Conservation of Biological Diversity* listed under section 7 of the Environment (Wales) Act 2016.

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5 LANDSCAPING

5.1 Proposed boundary's and hedgelines

The permanent boundary fencing will be of a wooden close-boarded type, 2m high, constructed to the specification stated in the planning permission. Following the completion of fence construction, the introduction of new plantings of species selected from the list at paragraph 5.3 will take place along the new dividing central hedgeline as indicated on figure 2.

5.2 Provenance of planting stock

Specified plantings will be of species appropriate to preserve the character of the local area and will be principally of locally native species of local origin (Herbert, *et al*, 1999). In order to ensure that plantings are compatible with the local gene pool, all woody plant species will be of local provenance as outlined in Forest Practice Note No. 8 '*Using Local Seed Sources for Planting Native Trees and Shrubs*' (Forestry Commission, 1999).

Feeding opportunities for birds and other fauna will be enhanced by planting native nectar-producing and berry- and seed-bearing trees, shrubs and herbaceous plants. Native species of trees and shrubs (including non berry-bearing species) generally have higher invertebrate productivity than alien species, thus resulting in a richer foraging environment for birds and other fauna. However, some non-native species such as Berberis, Pyracantha, Cotoneaster, etc may be included within the garden area if required by the purchaser, which will provide additional ornament as well as having potential for faunal foraging, cover and nesting birds.

5.3 Species composition of small-woodland and boundary hedgeline planting enhancements

The hedgelines will include existing trees and shrubs selected for retention and cut-back at the time of fence construction. Gaps that require planting will be identified by the site ecologist and will be filled using 1+1 whips (except for pot-grown Holly) selected by the site ecologist from the following species. The final mix of species planted will depend upon the species composition and abundance of retained woodland plants but will be selected by the site ecologist from the following species.

<i>Corylus avellana</i>	Hazel (native form, not cultivar or selected garden types),
<i>Crataegus monogyna</i>	Hawthorn (native form, not cultivar or selected garden types),
<i>Sambucus nigra</i>	Elder (native form, not cultivar or selected garden types)
<i>Rosa canina</i>	Dog Rose (native form, not cultivar or selected garden types),
<i>Viburnum opulus</i>	Guelder Rose (native form, not cultivar or garden types),
<i>Sorbus aucuparia</i>	Rowan (native form, not cultivar or selected forms),
<i>Frangula alnus</i>	Alder Buckthorn,
<i>Lonicera periclymenum</i>	Honeysuckle (native form, not cultivar or selected garden types),
<i>Hedera helix</i>	Ivy (native form, not cultivar or selected garden types)
<i>Ilex aquilinum</i>	Holly (native form) to be introduced as 15cm pot-grown plants.

Planting will be undertaken when suitable soil and weather conditions prevail, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

Prior to planting, the soil will be ameliorated with suitable soil or compost worked in to the gaps to be planted and, if required, a controlled slow-release fertilizer such as Enmag and soil improver such as Alginure will be incorporated into the soil. All new plantings will be provided with tree shelters. Chipped arisings derived from woody vegetation clearance may be used as a mulch following planting. On completion of planting, the planted areas will be

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provided with temporary fencing as described at paragraph 5.1

Once established, the hedgelines will be trimmed to provide healthy, bushy growth, 3m high and 1.5m wide at the base in order to ensure they attain and maintain a dense and uniform structure and to provide wildlife habitat. The developer will arrange to do this whilst the site is still being developed but maintenance beyond then will become the responsibility of the new householders. Pruning will be carried out no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. No vegetation which has potential to harbour birds' nests will be pruned or cut in the bird breeding season which is generally taken to be March – August inclusive but may extend beyond this period.

All plants which fail or are vandalized during the period that the developers remain active on site will be replaced with equivalent planting stock.

5.4 Grass verges of internal access road

The 0.5m wide grass verges to the access road (shown on figure 2) will be created using *Emorsgate EM4 Wild Meadow grassland seed mix*. Once established, the verges will provide narrow areas of species-rich grassland suitable to support a diversity of wild plants, invertebrates and other fauna, in particular, pollinators, and facilitate their movement along the corridors so formed and between the gardens that will be created during the development of the remainder of the site. The species included in this mix are as follows.

<i>Achillea millefolium</i>	Yarrow
<i>Betonica officinalis</i> (<i>Stachys officinalis</i>)	Betony
<i>Centaurea nigra</i>	Common Knapweed
<i>Galium verum</i>	Lady's Bedstraw
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lotus corniculatus</i>	Bird's-foot Trefoil
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Rhinanthus minor</i>	Yellow Rattle
<i>Rumex acetosa</i>	Common Sorrel
<i>Silene flos-cuculi</i> (<i>Lychnis flos-cuculi</i>)	Ragged Robin
<i>Trifolium pratense</i>	Wild Red Clover
<i>Vicia cracca</i>	Tufted Vetch
<i>Agrostis capillaris</i>	Common Bent (cultivar)
<i>Alopecurus pratensis</i>	Meadow Foxtail (wild)
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (wild)
<i>Briza media</i>	Quaking Grass (wild)
<i>Cynosurus cristatus</i>	Crested Dog's-tail (cultivar)
<i>Festuca rubra</i>	Slender-creeping Red-fescue (cultivar)
<i>Phleum bertolonii</i>	Smaller Cat's-tail (wild)

Sowing will be carried out when soil and weather conditions are suitable, most probably in late autumn or late winter/early spring. Planting stock will be planted in compliance with BS4428:1989 and BS8545:2014.

From a biodiversity point of view, the grass verges, once established, will be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

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As the habitat becomes established and matures, maintenance may be varied and species composition diversified but arisings must always be removed off site if a flower-rich sward is to be maintained.

5.5 Management of habitat areas and ecological features

Once the new dwelling is sold the maintenance of the habitat areas will become the responsibility of the new owner. It will be recommended to the new owner that existing vegetation and new plantings should not be over-managed and, where possible, limited amounts of wild incoming species such as ivy and bramble should be allowed to grow, as these provide good food sources and cover for birds and other fauna especially in winter. Hedgelines should be cut no more frequently than once per year in late winter, thus ensuring that autumn-produced berries and fruits are available for winter faunal feeding. The new owner will also be given advice on the benefits of attracting wildlife to the new garden and the means by which this can be achieved and maintained. Much advice is available on the internet such as at [Gardening For Wildlife - The RSPB](#)

Grass verges, once established, should be maintained by infrequent mowing or strimming, ideally just once per year in late summer to a minimum height of 150mm, although in mild winters, an additional cut in late winter to a minimum height of 150mm may also be desirable. All arisings must be removed for off-site disposal.

Future site maintenance should be planned to minimise habitat and faunal disturbance and to maintain and enhance ecological features. If contractors are used for grass verge maintenance, their ground crews must be briefed and reminded of the management aims and prescriptions set out in this LEMP and should, if necessary, seek further guidance from MTCBC biodiversity staff.

6 BATS

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- 6.1 There is potential to achieve conservation enhancement by providing suitable bat roost opportunities within the fabric of the new house. Recommended locations for the provision of roost features are shown in red on figure 3, below. Care should be taken to select locations free from direct illumination of integrated bat boxes



Figure 3

Recommended locations for the installation of bat roost features (red), Swift nest crevices (blue), Sparrow terrace (green) and tit boxes (purple)

It is recommended that purpose-built cavities are provided at the apices of the south-east, north-west and north-east elevation pine ends of the new house. These will be lined with suitable mineral roofing felt material to allow bats to grip the internal vertical surfaces. Each cavity will be accessed by a 15mm x 45mm horizontally-aligned slot through the masonry located near the base of the box. Alternatively, prefabricated roost boxes such as the Schwegler 1FR or 1FQ or Ibstock models shown at appendix 4 should be fixed to the vertical wall surfaces at their apices.

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In addition, it is recommended that internal sections of the soffits at each of the four corners of the new house are provided with roost boxes to the design marketed by Wildcare Nationwide Ecology Supplies <https://www.wildcare.co.uk/soffit-bat-box.html> as shown at figure 4. The boxes will be constructed from 12-18mm FSC hardwood exterior plywood and their dimensions are as follows: Entrance slot 20mm, Box length 330mm, Height of box at its highest point 250mm and at lowest 140mm. The angles of the various components will be made to match the roof pitch of the new house.

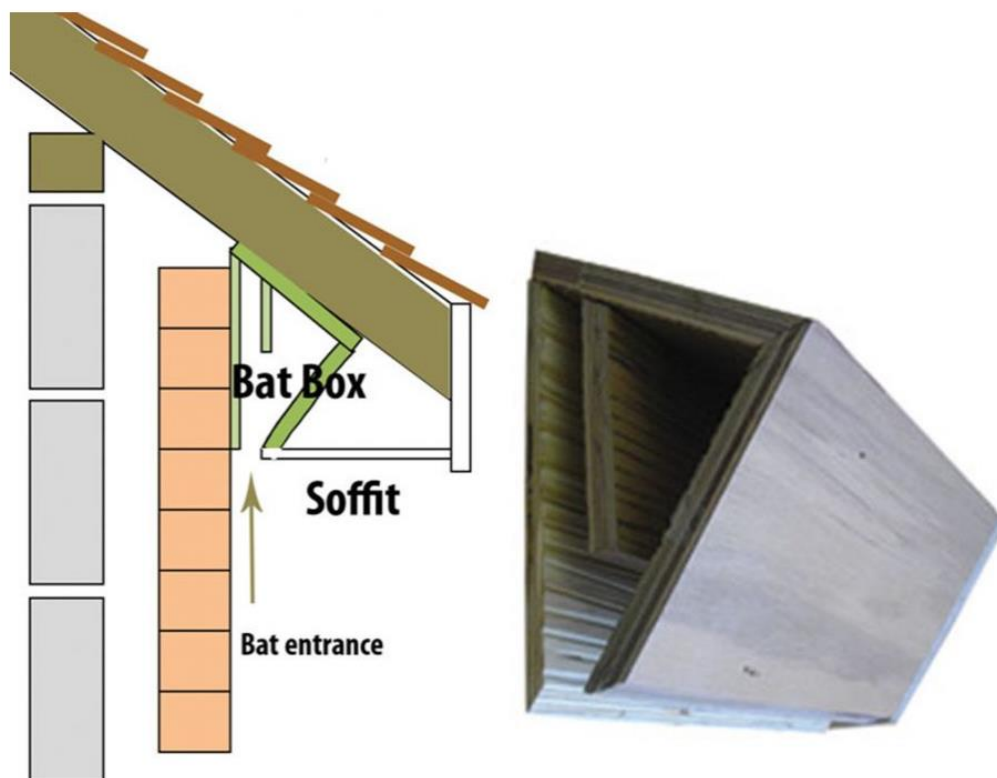


Figure 4

**Bat roost soffit-boxes to be provided at each of the four corners of the new house.
This box is marketed by Wildcare Nationwide Ecology Supplies**

- 6.2 All site operations will avoid unnecessary disturbance to bat habitat.
- 6.3 Pipistrelles, the most frequent species in the urban environment, can thrive where there is outside or flood-lighting where they feed on moths and other insects attracted to the light (in contrast to many other bat species). However, outside lighting must be directed away from roost entrances and potential bat habitat. The site ecologist will advise as regards outside lighting where bats might be impacted
- 6.4 Landscape plantings will be limited to the provision of strong hedgelines along the northern, western and southern boundaries of the Plot but they will provide edge habitats attractive to foraging bats as well as habitat connections between existing scrub to the north, gardens to the west and the woodland to the south. Landscape plantings will be of locally native species as described at section 5, and will be suitable to support insects and other invertebrates which will contribute to the diet of the local bat population.

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7 REPTILES AND AMPHIBIANS**7.1 Reptile habitat within the site**

It is an offence under the Wildlife and Countryside Act to kill individual reptiles and the developer ensured that vegetation clearance work was carried out with due care, at an appropriate time when animals were active and in compliance with the recommendations made in the PEA and whole site LMP. No reptiles were encountered during the site clearance operation.

7.2 Obligations of site personnel

Site personnel will be made aware of their obligations to these protected species and, at all times, will ensure that all reasonable steps are taken to ensure that no harm comes to individual animals.

7.3 Reptile and amphibian habitat provision

The internal access-road verges offer the only potential for habitat replacement within the development site but these are of very limited extent and their suitability to support reptiles and amphibians will depend on the maintenance of a minimal mowing regime.

All drain pots will be fitted with escape ladders to ensure that any animals falling-in have a means of escape.

In addition to the provision of a habitat pile and hibernaculum within the south-western part of Plot 4, the new garden of Plot 2, once established, may also offer potential habitat but the creation and maintenance of such habitat will be at the discretion of the new owner.

7.4 Reptile and amphibian habitat connectivity

There are limited opportunities within the plot to provide reptile habitat connectivity although the proposed central dividing hedgeline may offer some potential for animals to travel between adjacent habitats. Once vegetation is established along its base, the new fencing along the boundaries of the plots will potentially provide habitat connections within the development site and out into the wider area. Access under new fencing, through which reptiles and amphibians can easily pass, will be provided. See section 9, below, on Hedgehogs regarding the provision of such access.

7.5 Habitat piles and hibernacula

Suitable wood, brash and wood-chip produced by on-site vegetation clearance will, under the direction of the site ecologist, be made into habitat piles to provide habitat and cover for reptiles, amphibians and Hedgehogs. One pile will be located within the nib of land in the south-western extremity of Plot 4 and another within the translocation receptor area shown on figure MP3 of the Landscape Master Plan issued on 10th November 2020.

Reptile and amphibian hibernacula will be created from rubble and masonry as well as wood and brash derived from on-site operations and will be located in the south-western nib of land in Plot 4 and in the translocation receptor area.

The approximate planned locations of habitat piles and hibernacula are shown at figure MP3 of the Landscape Master Plan but their exact positions will be decided on site in consultation with the site ecologist.

Further details are given in sections 7.6, and 7.8 of the Landscape Master Plan but the site ecologist will be on-hand to further advise the developer as necessary.

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8 NESTING BIRDS**8.1 Precautions to protect nests during site clearance**

The whole of the development site was cleared of vegetation in 2020 before the start of the bird nesting season. No woodland, scrub, dense vegetation and other potential nesting habitat was disturbed or removed during this operation.

8.2 New provision for nesting birds

The new house presents the opportunity for the installation of nest boxes to attract several species of breeding birds. In general, such features should avoid placement in south-facing situations, preference being given to west- and north-facing aspects and may be of varying types including those located in internal cavities formed in walls and/or soffits, as well as suitably designed boxes attached to walls.

House Sparrow and Starling are section 7 Species of Importance for Conservation of Biological Diversity and frequently nest in association with human habitation in the urban and suburban environment. Other species that are often also associated with the urban environment include Blue Tit, Great Tit, Robin, Pied Wagtail, Swift and House Martin. All of these species can be attracted to nest in or around houses and gardens and there are many different designs of artificial nest box available to attract the various species.

It is recommended that one sparrow terrace and three tit boxes are attached to the north-west and south-west elevations of the house as shown on figure 3. Examples of suitable boxes are shown at figure 5.



Figure 5

Left to right, tit box, robin box and sparrow terrace: examples of types to be fixed on the elevations of the new house (as shown on figure LEMP3) as well as the garage

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Swifts have declined in numbers considerably in recent years resulting from the loss of traditional nest sites in old buildings due to their demolition or renovation. It is recommended that two banks, each of three artificial Swift cavity boxes are affixed on the north-west-facing elevation of the new house where the required 5m minimum clear drop is available below them. An example Swift box is shown at figure 6. These boxes do not need maintenance as Swifts do not make a mess.

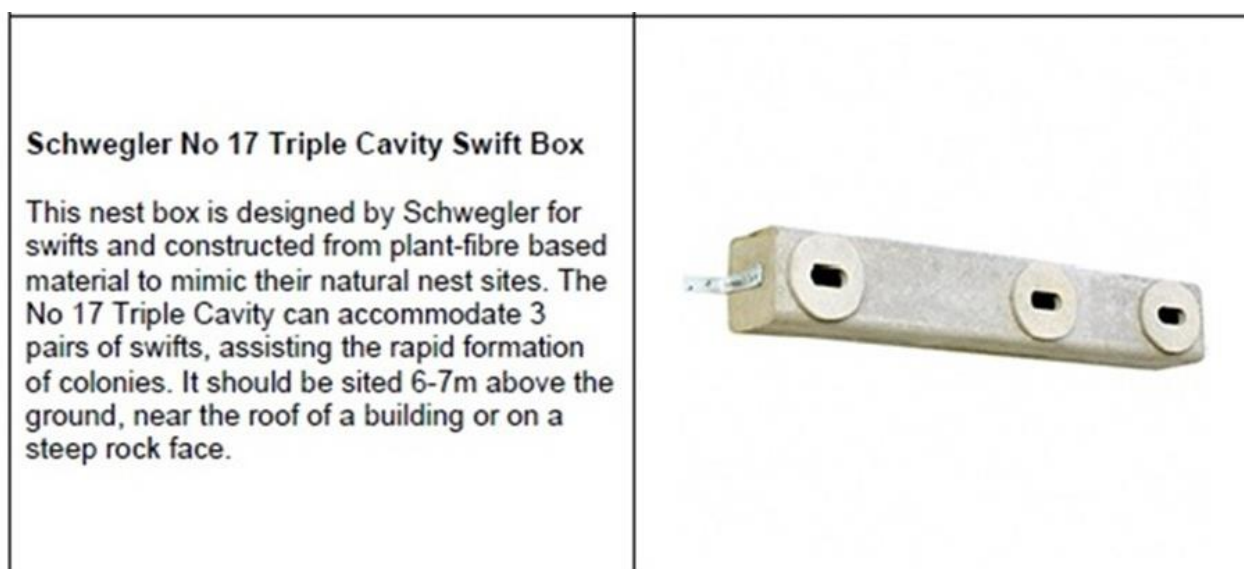


Figure 6

An example of a prefabricated Swift box suitable for fixing to the north-west-facing elevation of the new house.

The provision of bird nesting features will result in an ecological gain which, in combination with the new boundary hedgelines and potential of new gardens, will, to some degree, mitigate the loss of woodland habitat. The site ecologist will be retained by the developer and will advise on the designs, details, locations and numbers of boxes appropriate to attract different species.

Where accessible, the bird nesting features provided should be cleaned-out and repaired as necessary.

8.3 Provision of habitats suitable to attract birds

At section 5, the plantings specified along the new boundary hedgelines include locally native species of local origin as these generally are more productive of insects which, in turn, support foraging birds. Native berry-producing plants such as Ivy, Rowan, Crab Apple and Hawthorn, as well as non-natives such as Cotoneaster and Pyracantha, also provide food for birds in autumn and winter. Many of these species are suitable for planting in gardens and it is recommended that the species specified are planted and managed for the benefit of birds and wildlife although what is planted and maintained, is at the discretion of the new house owner.

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9 HEDGEHOG

Hedgehog is a *Species of Principal Importance for Conservation of Biological Diversity* under section 7 of the Environment (Wales) Act 2016. It is possible that Hedgehogs frequent areas of dense vegetation, wall-bottoms and other potential refuges within and around the margins of the development site and animals may retreat to these situations during daylight hours and over the winter period.

In order to avoid possible killing or injury to Hedgehogs, initial disturbance of any habitats which could potentially be concealing individual animals was undertaken with great care, using hand tools only. Clearance was undertaken in early 2020 before the start of the bird nesting season, but when Hedgehogs would have been active and out of hibernation. Site staff carried out a visual "finger-tip" search of the habitat prior to, and during clearance work but no animals were encountered.

Movement of individual animals into the site and between gardens will be facilitated by ensuring that boundary fencing allows space below panelling or by the provision of 130mm x 130mm holes at ground level about every 10m. Similarly, new boundary walls will be constructed with 130mm diameter pipes through their bases about every 10m to allow Hedgehog passage. Consideration will also be given to drilling 130mm diameter holes in the bases of existing walls at appropriate locations as advised by the site ecologist.

10 BADGER

No signs of Badgers were seen during the PEA and it is considered unlikely that animals visit the site. Nevertheless, attention is drawn to best practice designed to minimise impact on Badgers during development works which is reproduced at appendix 1.

In particular, all excavations left overnight during construction works will be provided with a means of escape to prevent any animals becoming trapped, such as a fixed, sloping plank or a sloping side to part of the excavation.

11 INVASIVE NON-NATIVE PLANT SPECIES (INNS)

A small bush of Cherry Laurel was recorded about 50m north of the proposed access road and a single possible Hollyberry Cotoneaster was recorded on the woodland edge some 15m south-east of the south-eastern corner of Plot 4. No INNS were recorded within the development site but it should be noted that bird-sown seedlings may have been present. All such plants that would have been present were destroyed during site clearance works.

No Japanese Knotweed is present within the site. However, site staff should be aware of its possible presence and be vigilant in its detection. Construction works must ensure that knotweed stands are not disturbed in a way that would cause the spread or export of propagules from the site and site operations must comply with approved containment practices. Japanese Knotweed must be treated using approved methods prior to the commencement of any work which might cause its disturbance or spread in compliance with the *Knotweed Code of Practice* (Environment Agency, 2013).

No Himalayan Balsam has been recorded within the site but site personnel should be aware of its possible presence, be vigilant in its detection and comply with standard approved containment practices if any was to be found.

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12 IMPLEMENTATION AND SUPERVISION**12.1 Design and Construction Stages**

There will be input from the site ecologist during the design and construction stages of the project. All the actions prescribed in this Landscape and Ecology Management Plan will be included in appropriate clauses in works contracts and be specified in appropriate method statements. Where appropriate, the site ecologist will approve documents and plans.

An appropriately implemented Environmental Management System (EMS) will be produced and provide guidance to site personnel. A Landscape Management Plan has been produced covering the whole development site that forms an essential part of the EMS and the present LEMP has been drafted to inform the development of Plot 2. The site ecologist will ensure their satisfactory implementation in order to make certain that ecological management and mitigation targets are successfully achieved.

The site ecologist will be retained to ensure that the appointed personnel are familiar with the ecological conditions and requirements of the site and that such requirements are being satisfactorily implemented.

Site works will be supervised by an appropriately qualified member of staff performing the duties of an Ecological Clerk of Works to ensure that the ecological requirements of the works progress to completion satisfactorily.

12.2 Site inductions and tool-box talks

All site personnel will be made familiar with the ecological requirements of the site and made aware of their obligations to protected species and other relevant wildlife legislation at induction courses and tool-box talks.

13. ONGOING HABITAT MANAGEMENT AND MONITORING

Future management of the habitats and other ecological features provided within the plot during the construction phase will become the responsibility of the owner of the new house once it has been completed and the developer has left the site. Therefore, although appropriate recommendations will be made, the ongoing maintenance and management of biodiversity within the plot will not be subject to any controls and will be at the discretion of the householder.

The maintenance of the access road verges and peripheral habitats will be the responsibility of the developer until the time that construction work on all the plots within the development site has been completed. Maintenance after that time will be achieved by the developer setting-up a management and maintenance company to be paid-for by regular contributions agreed with each of the householders within the site. The company will be responsible for the ongoing management of the verges and other communal features as well as the reptile translocation receptor area and other habitats within the site but outside the plots for a period of five years. The company's maintenance staff will be precisely briefed on the desired objectives and the means by which they may be achieved as described in each section of this Landscape and Ecology Management Plan and the whole site Landscape Master Plan Revision 3 issued on 27th November 2020.

It is not proposed that any formal ecological monitoring will be carried out but the management and maintenance company's staff will be briefed to become sufficiently knowledgeable to be able to vary the maintenance regime should it become necessary.

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APPENDIX 1**BEST PRACTICE PROTOCOL PROVIDING FOR THE WELL-BEING OF BADGERS**

If evidence of Badger activity is identified during site surveys or construction works, in order to comply with the Protection of Badgers Act, 1992, it will be necessary to protect all existing setts against disturbance and interference during site works. In general, any disturbance is prohibited within 30m of any active sett unless licensed by Natural Resources Wales or the Welsh Government and then only between the months of July to November inclusive (September is the least damaging month as most birds will have finished nesting by then and animals such as Hedgehog, amphibians and reptiles will still be active and have a better chance of escape). Significant destruction of foraging grounds may also be judged as an infringement of the law on animal welfare grounds and, in extreme cases, prosecutions have been brought by the RSPCA.

Best practice principles advise that:

- All site personnel are made aware of the presence of setts and foraging grounds
- All site personnel are aware of the implications of the law
- If any setts are found during site works, a substantial fence will be erected, consisting of posts with three plain wires and with clearly visible bunting strung along the top, or Herras fencing, around each sett, a minimum distance of 30m from any entrance in order to prevent accidental access by any vehicle. A line of bunting supported on road pins is inadequate.
- Fragmentation of Badger territories is minimised during construction works.
- Existing Badger paths will not be obstructed during site works.
- All trenches dug on site will be provided with escape ramps, sloping boards or battered sides to allow any trapped animals to escape. As few trenches as possible will remain open on site over night.
- Fires will not be built near any sett.
- Any chemicals or other noxious substances stored on site will be in an area which is proofed against Badgers.
- If necessary, replacement foraging resources will be provided for the duration of the works.
- Landscaping proposals will bear due regard to the needs of foraging Badgers by the provision of infrequently cut grass verges and native species fruiting trees and shrubs.

APPENDIX 2

BEST PRACTICE PROTOCOL FOR TREE FELLING WHERE TREES HAVE THE POTENTIAL FOR SUPPORTING ROOSTING OR HIBERNATING BATS

Mature trees with trunk/branch cavities and/or a covering of ivy are particularly valuable bird nesting and bat roost sites, and will be retained wherever possible; compensatory planting with appropriate species will be undertaken where felling is inevitable.

Where tree felling or lopping is planned, such work will only be carried out between August and February to avoid the bird-breeding season.

All bats are protected by the Wildlife and Countryside Act 1981. Bat tree-roosts are extremely difficult to identify, and it should be assumed that any mature native-species tree is an actual roost. Every effort should be made to avoid disturbance or damage to these trees during construction work. It is an offence under the Wildlife and Countryside Act to knowingly disturb bat roosts or hibernacula. To minimise disturbance to bat populations by the removal of trees the following protocol will be followed.

- As far as possible all trees having bat roost potential should be preserved. If it is necessary for trees to be removed, all felling operations will bear due regard to this protocol.
- If bats are found during tree work, then all work will stop and Natural Resources Wales must be informed immediately.
- If the tree trunk is smaller than 200mm diameter and if it has no dense ivy, suitable holes, loose bark, and no holes associated with the root system, then work can be carried out on the tree between September and February (ie avoiding the bird breeding season).
- To avoid disturbing nursery roosts, work must never be carried out between June and August inclusive.
- If the tree does have any of the above or has a trunk size greater than 200mm, it must be cut only in September and October when bats, including young of the year, are still mobile and able to fly-out. If cutting must take place at other times, summer is probably best as bats can be more easily seen, can fly away and may take young with them, thus enabling a better chance of survival. But due regard must also be taken of nesting birds and the presence of other breeding fauna.
- If felling were to take place during hibernation (November to March) the bats will be torpid, difficult to see and the whole roost may be lost as they will be unable to escape.
- Any timber cut will be left lying for at least 24 hours to allow bats the opportunity to escape.
- It is also important to consider to what extent the habitat that is being removed is available elsewhere locally. For example, if only one tree in twenty of similar age or structure is to be felled, then it is likely that the impact of the loss will be less important. If the tree to be felled is solitary and in an area with few or no mature trees, then the impact may be significant.

Where the loss of mature trees is unavoidable, compensatory planting with appropriate locally native species of local provenance should be undertaken.

APPENDIX 3 PROTECTED and OTHER SIGNIFICANT SPECIES and HABITATS: Recommended Times of Work to avoid undue disturbance

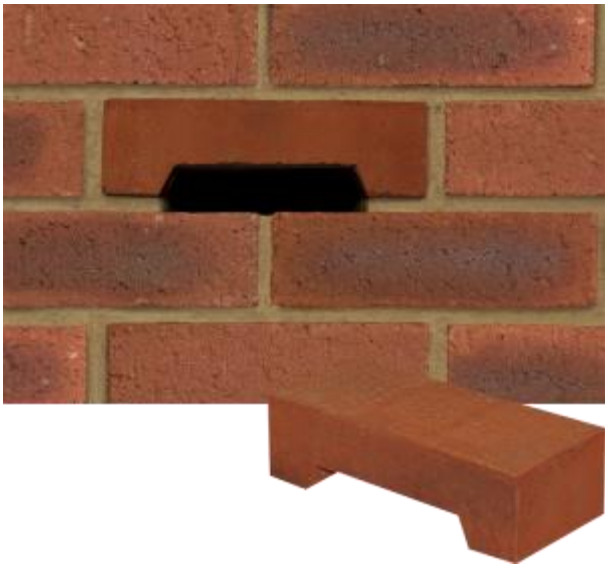
Feature	January	February	March	April	May	June	July	August	September	October	November	December
Bats and their breeding and resting sites (European Protected Species, WCA,1981, sch.5, E(W)A sect 7)				Limited disturbance to roosts permitted under licence but preferable in September & October					Felling under licence best done now. Felled trees of >20cm diameter must be left to lie on the ground for 24hrs to allow any bats to escape			
Otter and its breeding and resting sites (European Protected Species, WCA,1981, sch.5, E(W)A sect 7)									Disturbance to Otter sites limited to between Sept and Jan and is subject to licence from NRW			
Dormouse and its habitat (European Protected Species, WCA,1981, sch.5, E(W)A sect 7)			Disturbance subject to licence from NRW						Disturbance subject to licence from NRW			
Water vole habitat and places of shelter (WCA,1981, sch.5, E(W)A sect 7)			Disturbance subject to NRW approval						Disturbance subject to NRW approval			
Badger (Protection of Badgers Act 1992)								Work within 30m of a sett or annex permitted and sett closure permitted: all subject to NRW licence				
Hedgehog, Harvest Mouse, Brown Hare, Water Shrew (E(W)A sect 7)	Consult a qualified ecologist before carrying out any works in areas identified as supporting these species											
Red Kite and some other protected bird's nests (WCA,1981, sch.1)	No disturbance at any time											
All other Breeding Birds: nest sites (WCA,1981)	Vegetation clearance permissible		Avoid disturbance to potential nesting habitat during this period unless, immediately prior to commencement of works a qualified ornithologist certifies that no active bird's nests will be disturbed.						Vegetation clearance permissible			
Great Crested Newt and its breeding & hibernation sites (European Protected Species, WCA,1981, sch.5)									Disturbance of breeding or terrestrial habitat should only be carried out between September and January and is subject to licence from NRW			
Other newts frogs & toads (except Natterjack) (WCA,1981, sch.5, E(W)A sect 7) Breeding ponds								Disturbance of amphibian breeding ponds should only be carried out during August to January inclusive				
Other newts frogs & toads (except Natterjack) (WCA,1981, sch.5, E(W)A sect 7) Terrestrial habitat			Disturbance to potential terrestrial habitat should be preceded by a capture and translocate operation or 'destructive search'									
Reptiles (except Smooth Snake) (WCA,1981, sch.5, E(W)A sect 7)			Disturbance to potential terrestrial habitat should be preceded by a capture and translocate operation or 'destructive search'									
Marsh Fritillary butterfly (WCA,1981, sch.5, E(W)A sect 7)	Areas supporting Marsh Fritillaries must not be disturbed except after consultation and advice from NRW											
Other Protected & Significant Invertebrates (WCA, 1981, E(W)A sect 7)	Consult a qualified ecologist before carrying out any works in areas identified as supporting these species											
Habitats of Principal Importance for Conservation of Biological Diversity in Wales (E(W)A sect 7)	Habitats of Principal Importance should not be disturbed at any time of year without prior consultation with a qualified ecologist											
Important Hedgerows as defined in the Hedgerow Regulations, 1997	Important hedgerows may only be removed following the issue of a <i>Hedgerow Removal Order</i> or a valid planning consent issued by the local planning authority											
Uncultivated or semi-natural habitats subject to the Environmental Impact Assessment (EIA) (Agriculture) (Wales) Regulations 2007	Changes to qualifying habitats may only be undertaken after a favourable Screening Decision is given by the Welsh Government or an application for change of use has been approved											
KEY TO COLOURS												
Avoid disturbance at any time												
Best time to carry out site work subject to advice and/or licence												
Most suitable times for works to take place												

APPENDIX 4

Examples of prefabricated bat boxes for installing into new buildings.

Ibstock Ecoproducts
<http://www.ibstock.com/eco-products/>

In the UK there are 17 species of bats, all of which are protected by law. Our range of bat boxes helps to encourage safe habitats for these remarkable mammals, allowing them to live in harmony with people.



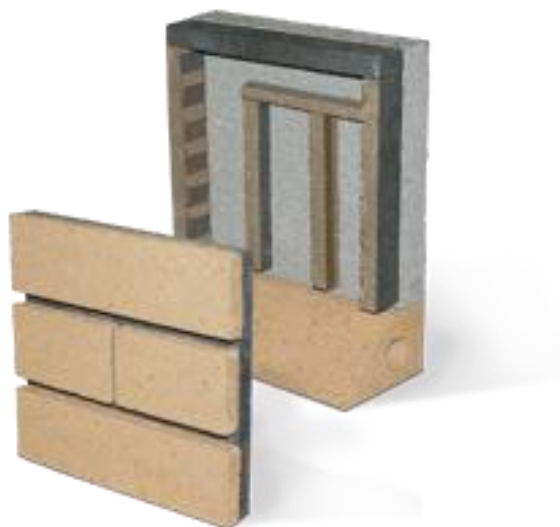
Free Access Bat Box A

- Available in all brick types
- Discrete single bat brick
- Easy to install
- Allows bats to create a natural home habitat within the cavity of the building

	Size (mm)	Durability
Bat Box Type A	215 x 65	F2 S2 – Fully Frost Resistant

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Bat Box B



Bat Box C

Enclosed Bat Box (B and C)

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work

	Size (mm)	Durability
Bat Box Type B	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant
Bat Box Type C	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant

For more information, please contact the Istock [Design Advisor Team](#)

Former Draka UK Site, Copperworks Road, Llanelli: Ecological Assessment

Schwegler 1FR Bat Tube

This bat brick is designed for buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. It is particularly useful for siting in new buildings or bridges to attract bats.

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. This box is maintenance-free as the entrance slit is at the bottom.

**Schwegler 1FQ Bat Roost**

The latest model from Schwegler is designed specifically to be fitted on the external wall of a house, barn or other building. Equally appealing to bats as a roost or a nursery, it features a special porous coating to help maintain the ideal temperature inside as well as a roughened front panel to enable the bats to land securely. Access into the box is via a step-like recess.

