

Barn owl survey and Mitigation
Nutts Lane, Hinckley



Client:



Consultant

Dr. Stefan Bodnar (MCIEEM)
Wallbrook Farm
Allensmore
HR2 9BE

Tel: 07429 209549
Email: stefan.bodnar01@googlemail.com
Date: 1st November 2022

Contents

1.0 Introduction	3
1.1 Background	4
1.2 Site Location	5
1.3 Barn Owl Ecology (a Summary)	8
1.4 Previous survey	9
2.0 Methodology	10
2.1 Personnel	10
2.2 Field Survey	10
3.0 Results	13
3.1 Field Survey Findings	13
4.0 Conclusion and Recommendations/Mitigation/Compensation	14

Appendices

Appendix A *Photographs*

1.0 Introduction

An area of land located at Cornerfields, Nutts Lane Hinckley LE10 3EG was subject to survey in relation to the presence/ use by barn owls *Tyto alba*.

The brief of the survey was as follows;

- An inspection, as far as health and safety considerations/ access permits of the development site.
- Recording and evaluation of badger setts with regard to location and level of use.
- Recording and evaluation of badger activity in the general area.
- To make recommendations for the development work to take place including any license application and any mitigation/ compensation required.

The survey is to discharge a reserved matter in relation to re-development of the site. Evidence of barn owl activity and use in connection with the site was established via a Preliminary Ecological Appraisal undertaken by Dr. Stefan Bodnar MCIEEM in August 2021.

Reserved matter:

11. No development shall commence until a Barn Owl strategy and mitigation plan which avoids disturbance to this species has been submitted to and approved in writing by the Local Planning Authority. No development shall be undertaken except in strict accordance with the approved scheme of mitigation.

Reason: In order to protect the protected wildlife species and their habitats that are known to exist on site in accordance with Policy DM6 of the adopted Site Allocations and Development Management Policies Development Plan Document (2016).

Plan having gained Planning Approval:



The barn owl is a relatively scarce breeding species for which there is conservation concern in the UK, the population having declined by about 70% between 1932 and 1985, from an estimated 12,000 to 3,800 breeding pairs in England and Wales, 600 in Scotland and 40 in the Channel Isles (Shawyer 1987). The most recent survey of the UK, which was completed in 1997, recorded a similar breeding population of about 4,000 pairs (Toms *et al.* 2001). Similar levels of decline have occurred across Europe and elsewhere in the world (Colvin 1985, BirdLife International 2004). The barn owl qualified under international criteria as a Species of European Conservation Concern, SPEC Category 3 (Tucker and Heath 1994, Hagemeyer *et al.* 1997) because of its ‘moderate decline’ in Europe. Since 2002, it has been included on the *Amber List* of Birds of Conservation Concern in the UK (BoCC) because of its ‘declining breeding range of between 25 and 49%’ and its listing as a species with ‘unfavourable conservation status in Europe’ (Eaton *et al.* 2009a).

A UK Species Action Plan (SAP) for the barn owl was developed by the Joint Nature Conservation Committee (JNCC) and the RSPB (Williams and Galbraith 1992). Most of the detail of this action plan is included within the Barn Owl SAPs that have since been produced by Government bodies, such as the Highways Agency, the Crown Estates, water companies and internal drainage boards, through the Association of Drainage Authorities (Wynne *et al.* 1995, Highways Agency 2002, Shawyer 2009). In addition, a large number of local Biodiversity Action Plans (LBAPs) such as those for the counties of Warwickshire, Sussex, Devon and Norfolk, have been produced for this bird under Agenda 21 of the International Convention on Biodiversity.

The conservation importance of the barn owl can also be judged by its inclusion on the UK Government Farmland Bird Index of Sustainable Development, its Public Service Agreement target to reverse the decline in the index by 2020 and its appearance in the annual publication *The State of the UK's Birds* (Eaton *et al.* 2009b).

By 2009, the barn owl population in the UK, with the exception of Northern Ireland, is believed to have increased to over 6,000 pairs, most of the major increases having occurred in those areas where concerted efforts have been made to conserve this bird (¹Shawyer 2009). A demonstrable increase in population since 1997 is also consistent with the preliminary findings of the BTO/JNCC/RSPB Breeding Bird Survey (Dadam *et al.* 2011). Aside from concern about its conservation status, the barn owl is specially protected in law from intentional or reckless actions that may cause disturbance in the breeding season. It is also one of a number of protected species in the UK and the Republic of Ireland whose presence must be given high priority when a potential development is being considered (see: Appendix I - Wildlife Law and Planning Guidance).

Impacts of Development

Development projects which often involve the loss and fragmentation of habitats and can include the demolition or improvement of old buildings and felling of hollow trees, are recognised as having the most significant impacts on barn owls in the UK.

A survey is required if there is any possibility that barn owls may be resident at a site where development is under consideration before any site clearance or other works are undertaken. The Government recognises, however, that because of the ‘*delay and cost that may be involved, developers should not be required to undertake (commission) surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development*’ (ODPM Circular 06/2005 - see Appendix I).

The purpose of the survey is to determine the barn owl’s:

- i. distribution, abundance and breeding status in the area of interest;
- ii. extent that it may be affected by a proposed development;

and where the presence of this bird has been confirmed,

- iii. to enable an appropriate mitigation strategy to be designed and

implemented. In particular the survey is necessary for the purposes of:

- i. ensuring legal compliance;
- ii. determining planning applications; and
- iii. avoiding the need for enforced cessation of development work should an active breeding site be discovered that would be damaged or disturbed through continuance of the work.

The survey methods described focus on those most appropriate for the purposes of planning and development. Accurate information is required by both the developer and the local authority to determine an application lawfully, in a timely fashion and enable informed decisions to be made about the potential impact of the proposed development or constraints to it (Shawyer and Johnson 1990, Dewar 1996).

Survey Requirements

Developers and their agents are advised to approach the planning authority before the planning application stage to seek advice on the information required for an application, which will often include a barn owl survey. If insufficient information is provided by the applicant this may render the application invalid or lead to deferral or refusal of planning permission.

Failure to consider the risk to this protected bird before land clearance, demolition, development or redevelopment of a site begins, through for example, an appropriate survey, could be deemed ‘reckless’ in law. This could lead to criminal prosecution should the risk be taken or ignored and the actions result in subsequent damage to barn owls, or disturbance, whilst they are breeding. If barn owls are harmed or disturbed whilst they are breeding this offence can be punishable by fines of up to £5,000 for each nest, egg or chick and/or result in a six-month custodial sentence for those committing the offence. Barn owl surveys should always be given high priority at those sites where a development or change in use is being considered because this species is widely distributed across many rural areas of Britain.

1.2. Site Location

The development zone comprises a large garden area of mown grassland with a number of derelict outbuildings. It is flanked by a wooded railway embankment to the north and a native hedgerow to the south. The site location is described on the map in figure 1a below. A satellite image (figure 1b) and Phase One diagram (see Appendices) also show the areas concerned.

Site Location Plan

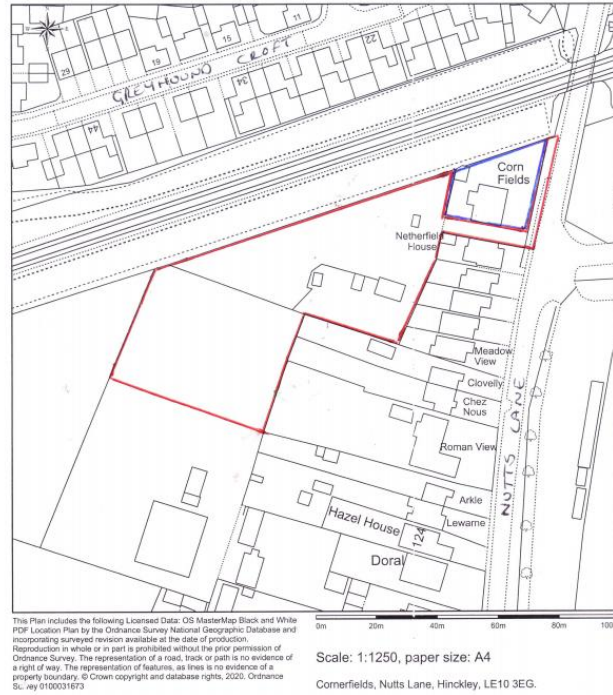


Figure 1a. Showing site location



Figure 1b. Showing site location

Map data 2021 © Google

Site Description

The development site is an area of amenity grass, dominated by perennial ryegrass *Lolium perenne*, with other species such as Daisy *Bellis perennis*, Creeping buttercup *Ranunculus repens* and Stinging nettle *Urtica dioica* also present. Around the edges of the site are a small number of planted landscape trees, and self set young trees, and groups of trees on the southern boundary which is an outgrown hedge. Along the northern boundary of the site is a railway embankment dominated by bramble and trees such as aspen. The main house (Cornfields) is excluded from the proposed development as is the immediate garden of the property. Within the site are a series of small sheds which are to be removed. To the south is an area of rough improved grassland dominated by cocksfoot and false oatgrass.

The surrounding land use is mainly residential, with remnant agricultural areas to the West and south of the A5 corridor. (See Appendix 1b).



1.3. Barn Owl Ecology (a Summary)

The barn owl is widely distributed throughout the UK (with the exception of the north west Highlands of Scotland, Outer Hebrides, Orkney and Shetland) occupying about 50% of the 10 km National Grid squares. There is a high probability that it will be present within the area of many proposed development schemes in the UK (Shawyer 1987, Gibbons *et al.* 1993). A desk study is a pre-requisite during the baseline assessment and this should be conducted within a wide geographical area of the site in question. The purpose of this initial study is not only to assess the probability of occurrence on the site itself, but to provide an estimate of its population size and relative abundance at the local, regional and national levels. This enables the significance of any adverse effect from a proposed development to be determined not only on the site itself but in the context of the wider area and provides important guidance for any future mitigation strategy.

Altitude, latitude, climate, habitat availability and the concentration of human habitation largely govern whether or not barn owls are likely to be found within a given area. This species, which is at the northern limit of its world range in the UK, also avoids places where winters are harsh. This means that it is most commonly found in low-lying regions where snow cover is least prolonged. In the 1982-1985 Barn Owl Survey for example, only 8% of the UK population was found to breed above 150 m above sea level, a probable consequence of the harsh, snowy winters that had occurred during the 40 year period prior to the survey (Shawyer 1987). During the period from the mid 1980s until 2008, winters were relatively mild resulting in a higher proportion of barn owls being found breeding above 150 m above sea level and at more northerly latitudes.

Less than 1% of barn owls in the UK are recorded breeding within conurbations such as towns and cities (Shawyer 1987). Their requirement for open grassland habitats and sensitivity to intensive human activity, causes them to avoid such areas. The major constraints imposed on this species by climate, altitude, latitude and urbanisation is demonstrated in the barn owl distribution and abundance maps, which have been published (*Figure 1*).

Barn owls show a high fidelity to their breeding sites and maintain similar home ranges from year to year and through successive generations of owls resulting in many sites of great antiquity. Therefore, historic data can provide a valuable contribution to any desk study and when combined with up to date information, can offer a more complete picture of the population status of barn owls in the area of study.

Where the initial desk study has revealed a reasonable likelihood that barn owls may be present in the general area of interest (and in many rural areas of Britain this will be a high probability) or where a *barn owl recovery programme* is suspected or has been identified, a field survey must then be undertaken to investigate the full status of the species there.

Field surveys, however, are essential for assessing the potential effect of a development and the mitigation, compensation or enhancement measures to be applied. They should aim to locate and confirm the distribution, abundance and breeding status of barn owls as well as the relative importance of the habitats they utilise within the survey area.

1.4 Previous survey:

The PEA in August 2021 concluded the following:

Although off site it is noted that the building indicated has a nesting barn owl *Tyto alba* present. Consideration should be given to this, in that although off-site, the rough grassland to the south of the site (north of this barn) is suitable for barn owl foraging and construction noise could create disturbance during the nesting season.



Images below:



In respect of the barn owl presence, a barn owl strategy and mitigation plan should be produced in relation to the development of the rough meadow (improved grassland) section north of this barn, to avoid disturbance to this species.

2.0. Methodology: SURVEY PROTOCOL

The barn owl survey is divided into four parts. The methodology for each of these is described alongside details of the knowledge, skills and experience required to undertake this work.

The four parts to the survey are as follows:

- Desk Study: to assess the likely status of barn owls in the area of interest.

This is followed by:

- Stage 1: On-site Scoping Survey - to identify and record those features of the landscape which are broadly suited to barn owls.
- Stage 2: Investigative Field Survey - to determine which of the features identified in the Stage 1 survey offer potential nest sites, roost sites and habitats for foraging and movement.
- Stage 3: Nest site Verification Survey - to confirm which of the potential nest sites identified in the Stage 2 survey are actively used by barn owls for breeding.

Desk Study

The desk study has two main aims:

- to determine if the proposed development is within the geographical range of barn owls (thereby helping to inform the need for a future field survey)
- to determine the *significance of effect* of the development on the species at the local, regional and national levels.

Data can be very patchy with pairs often going unrecorded in an area of study because of the elusive nature of barn owls. A lack of records should not be taken to mean that the species is not present. Research has shown that unless specific barn owl surveys have been conducted, the records held by Local Recording Centres (LRCs), CBCs and other local groups rarely account for a significant proportion of the actual number of breeding pairs in a region or county (Shawyer 1987, Cayford 1992). Therefore, desk studies although valuable are insufficient on their own to fully and reliably inform an environmental impact assessment.

Barn owl data (both current and historic) should be sought within 5 km of the boundary of the proposed development scheme, or for small sites, 5 km from its mid-point. This will allow for what is considered the maximum extent of winter movement (Cayford 1992) and represents the area within which breeding barn owls are most likely to be affected.

If the data provided for the Desk Study includes sightings of barn owls between the months of September and January it must be borne in mind that these birds may not necessarily be those that are resident and breeding in the area under investigation. Young barn owls, which normally fledge between July and September, begin moving away from their natal areas at this time, with the median natal dispersal distance being 12 km. Dispersal is not usually over until February the following year (Wernham *et al.* 2002) and it is not until March that the young owls have normally chosen the place where they wish to settle and pair up. After this they usually maintain a strong and intimate association to the area and their partner for the rest of their lives.

The Wildlife Conservation Partnership (WCP) can advise on where to obtain barn owl breeding records for use in desk studies especially in those areas of Britain where Species Recovery Areas (SRAs) exist and the Barn Owl Conservation Network is operating. LRCs, CBCs and local wildlife groups may also hold some data. Other sources of information can include local farmers, landowners, foresters and reserve wardens, although consideration must always be given to the possible misidentification of barn owls, which is not uncommon in this group of birds.

Barn owl records, a significant proportion of which are usually of sightings rather than known nest sites, are often provided to county recorders at the 1 km-square level. However, because of the protected status of this species (Schedule 1: WCA 1981) and in some cases, the requirement for data suppliers to obtain agreement from the original collector to release site-specific information, records may only be available at the wider tetrad (2 km-square) or 10 km-square level. In any case, data confidentiality and ownership restrictions must always be respected.

Large development schemes may have wider effects by disrupting the integrity of existing barn owl habitat networks which are today, largely responsible for the increasing numbers of this species in the UK. Where sections of these networks fall within the study area they should be identified and reported as part of the Desk Study.

Evidence of breeding

Although the records provided for desk study will often be delivered in a range of formats, evidence of breeding can be defined in the following way (adapted for barn owls from Sharrock 1976):

Confirmed Breeding: breeding can be described as *confirmed* when a pair of owls is recorded occupying a *potential nest site* during the breeding season or when eggs, egg shells, chicks and/or juvenile down are identified at or near to a *potential nest site*.

Probable Breeding: breeding can be described as *probable* at a potential nest site when a barn owl is observed carrying prey into a site, a pair of owls is seen or heard calling during the breeding season or when a collection of *active roost sites*, food cache and/or female moulted wing feathers are identified at or near to the *site*.

Possible Breeding: breeding can be described as *possible* when an occasionally-used spring or summer roost has been identified in an area containing one or more *potential nest sites*, but where there is no other evidence of breeding.

Defining and recording an Active Roost Site (ARS)

Active Roost Sites (ARS), containing any signs of barn owls, should also be identified during the Stage 2 Investigative Survey.

An ARS is defined as a place at which breeding does not occur, but where the bird is seen or heard regularly or its current or recent presence (last 12 months) can be recognised by signs of thick, chalky-white, streaky droppings (commonly referred to as ‘splashing’, ‘whitewash’, ‘mutes’ or ‘liming’) which is usually accompanied by regurgitated pellets and moulted feathers. Pellets and feathers are diagnostic and provide evidence that the roost site is that of a barn owl rather than another bird of prey such as a kestrel *Falco tinnunculus*, little owl *Athene noctua* or tawny owl *Strix aluco* which also excrete, projectile chalky-white droppings but whose feathers and pellets differ in appearance (see: Shawyer 1994 for pellet illustrations).

Like nest sites, roost sites can be found in old buildings, bale-ricks, trees or rock faces. Unlike nest sites however, they can occur more commonly at low elevation and in open spaces that are not necessarily dark, such as an overhead beam, length of upright timber leaning against an interior wall, fence post, exposed tree branch, in a dense conifer or ivy-clad tree or inside a 'witches broom' (usually associated with mature lime *Tiliaceae* sp). Occasionally, evidence of a roost site can be found inside open woodland, particularly in those areas where more typical roosting opportunities in open buildings or isolated trees are in short supply.

An ARS should be recorded as one which is *occasionally-used* or *regularly-used*, depending on the amount of pellets, droppings and feathers that are revealed at the site. An ARS should also be recorded as a *winter, spring, autumn* or *summer roost*. This can often be determined by the age of pellets and moulted wing and tail feathers which can be found at most roost sites. It is also possible to tell from these signs together with pellet debris and droppings, if the site has been used in the recent past (between 12 and 36 months) or historically (3 years ago or more). A service has been provided by the BOCN since 1990 to assist those ecologists engaged in the planning process, in the identification and ageing of owl pellets (Shawyer and Johnson 1990).

When moulted primary or secondary wing feathers are found it is often possible to determine if individual roost sites are those of an adult male or female by the intensity of marking (Shawyer 1996) and by measuring the length of the individual feathers, the probable age of the bird (Shawyer in prep). Although this information can be useful, this level of detail is rarely necessary for barn owl surveys of the type being described here.

Defining and recording a Temporary Rest Site (TRS)

Small spots of chalky droppings that can sometimes be seen underneath a tree, in a building or on a fence post, sometimes accompanied by an occasional pellet or body feather, can indicate a temporary night-time stopping-off place of a barn owl. Although this information is not an essential requirement of a barn owl survey, when these signs are identified they are best described as a *Temporary Rest Site* (TRS) rather than an ARS.

Defining and recording Potential Feeding and Dispersal Habitat (PFH)

Specific surveys are required within the study area to interpret the importance of the feeding and dispersal habitat to barn owls and these are also assessed and recorded during the Stage 2 Survey. Barn owls can utilise a variety of different habitat types but the majority of prime foraging habitat in mainland Britain, is provided by fields of rough-grassland and young plantations, and in particular by rough-grassland corridors along watercourses, roadsides, arable field margins, woodland edge and occasionally along wide woodland rides (Shawyer 1987).

In Britain, a pair of owls will typically occupy a home range of 3-7 km² during the breeding season. Within this they normally require 30-50 ha of rough-grassland when comprised largely of whole fields (Shawyer, 1996, Askew 2006). For barn owls which occupy arable areas where grass fields are largely absent, 15-25 km* of rough-grassland margin (i.e. 7.5-12.5 km of twin margin when associated with watercourses and hedgerow) a minimum of 3 m wide (4.5-7.5 ha) is normally required within the home range, for successful breeding to occur (Shawyer 1987). In parts of south-west Scotland where rough grassland habitat is largely confined to woodland edge, 9-11 km* of grass margin is considered necessary for maintaining a stable population (Taylor 1989, 1994).

During the Stage 2 Investigative Survey, grassland habitats within the study area, as defined by their structural composition (Shawyer and Dixon 1999) should be systematically identified in terms of their suitability as a feeding resource.

The survey was undertaken on 12th October 2022 in good weather. This is a reasonable period for conducting badger surveys and two visits were made to ensure the validity of the results.

3.0. Results

3.1 Data search: barn owls are recorded within 5 km of the site and evidence of presence was recorded on the Preliminary Ecological appraisal (2021)

3.2. Field Survey Findings

Aspect	Findings	Implication of development
Habitat suitability	Most of the developed site is of low suitability as mown or grazed, loss of habitat noted	Loss of habitat will need compensation. Roost and nesting site unaffected but recommend barn owl loft installed in one building on site as enhancement. Retention of remainder of rough grassland will be important.
Nesting and roosting site	Confirmed as within barn to south (off-site)	Retain and protect.

Habitat suitability:



4.0 Conclusion and Recommendations

Guidance from Shawyer (2011), Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment *Developing Best Practice in Survey and Reporting* confirms that recommendations should attempt to ensure that the project delivers conservation gain. They should include details for mitigating against or compensating for the impact of the development. This may involve the creation or enhancement of habitat and the installation of nest boxes.

Mitigation plan:

- 4.1 Retention of the remaining rough grassland habitat to the south west of the site is important. Retention of existing off site barn and protection during site works. It is proposed that this is undertaken by installation of site fencing (Heras) along the development edge and to create a Construction Exclusion Zone:



The protected area is to be regarded as sacrosanct, and, once installed, barriers and ground protection is not to be removed or altered without prior recommendation by the project ecologist and, where necessary, approval from the Local Planning Authority.

All weather tree protection posters (an example is detailed in Figure 4 below) are to be securely fixed to the tree protection fencing in plain view.

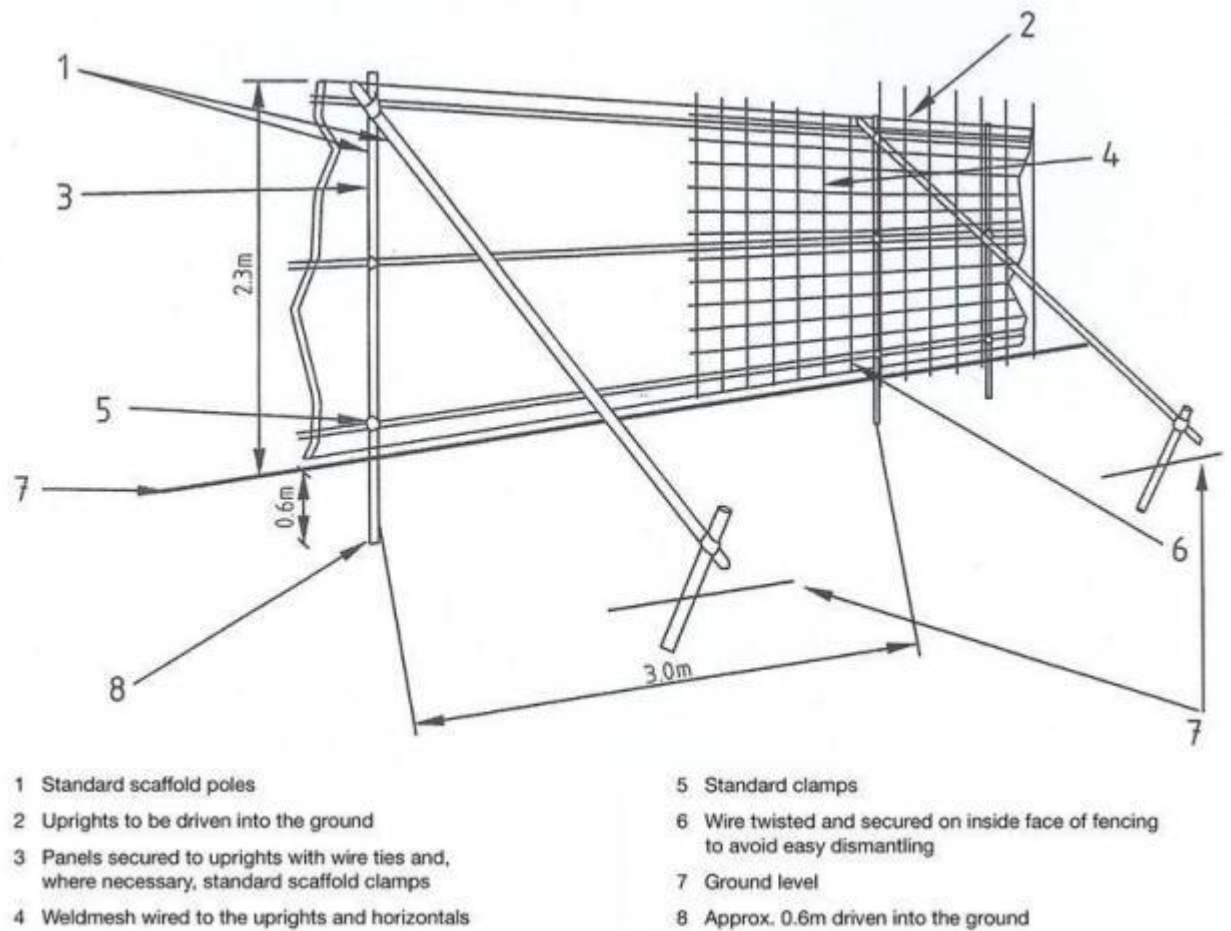


Figure 3. Example of protective fencing required for Construction Exclusion Zone.



Figure 4. Example of poster.

All site staff should be made aware of the nearby presence of barn owls and the need to observe the safeguarding area via a Toolkit talk, see below:

Toolbox talk 4: protected species

Birds

Toolbox talk 4: Birds

What are they and how are they recognised?

More than 400 bird species are regularly recorded in the UK. These consist of resident breeding species and migrants. Birds occur in both rural and urban areas, with many species adapted to living in bridges, buildings, houses and gardens. Used and unused nests made of twigs, grass and moss, droppings and food pellets or food remains may also be found.

Where are their nests found?

Species show different preferences as to where they nest. Most are more likely to nest in scrub or hedgerows than in trees, but some build nests in or on buildings, ledges, cliffs and on the ground.

When are they found?

Birds in the UK typically build their nests and lay their eggs between March and August. The peak months for breeding are May and June. Exceptions include the barn owl, which may breed for a longer period, and the collared dove and wood pigeon, which nest all year round. However, birds may be found breeding on a construction site at unexpected times of the year.

What should be done if nesting birds are found?

All wild birds are protected by law throughout the UK and in particular when they are nesting. It is illegal to kill, injure or take any wild bird, or damage or destroy the nest while that nest is in use or being built, or eggs of breeding birds. This includes commonly seen species, such as blackbirds and robins.

Certain birds receive additional protection whereby it is illegal to disturb them when they are nesting (eg barn owl, peregrine falcon, kingfisher, black redstart etc).



If nesting birds are found on site, all works in that area will have to stop until the birds have completed breeding. Nesting sites should be inspected only by experienced ecologists. Works must not damage the nests of breeding birds or be conducted near the nests of those species receiving additional protection.

Birds may nest on machinery or scaffolding and other temporary site structures. If this happens the equipment cannot be used until the birds have finished nesting, and areas may need to be sealed off to prevent disturbance.

Where possible avoid clearance works during the nesting season.

Penalties

Breaking the law can lead to fines of up to £5000 per offence and, potentially, prison sentences of up to six months. Any vehicle used to commit the offence may be forfeited. Both the company and/or individuals can be held liable.

4.2 Construction of barn owl loft in one building:

The proposed location of the barn owl loft (in gable end of most southern building) is shown below:



The following guidance on the dimensions and construction is from The Barn Owl Trust web site and should be used by the site architect to design a suitable feature within the building:

Building regulations compliance

- Owl spaces should be constructed inside the building but outside of the 'U-value envelope'. Thus, the envelope/membrane may have to be slightly diverted.
- Consult the book by Dr. Carol Williams (2010), *Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build*, (RIBA Publishing) for details.
- The second edition also deals with conversions; Kelly Gunnell, Brian Murphy and Carol Williams (2013), *Designing for Biodiversity: a Technical Guide for New and Existing Buildings*, (RIBA Publishing).

Design requirements – owl hole dimensions and ledge (exercise platform)

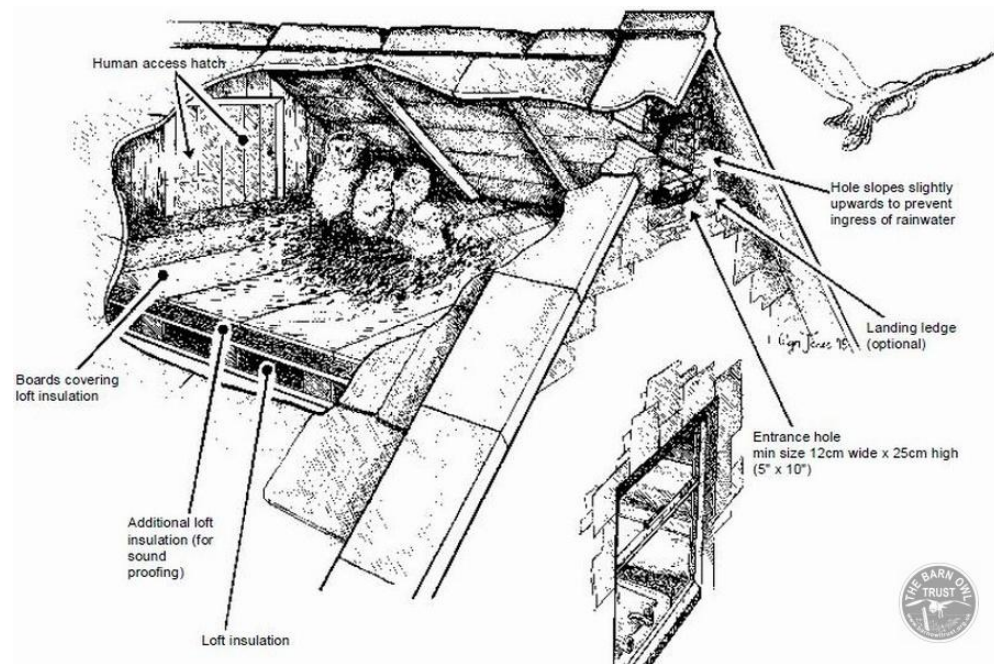
- Owl hole minimum size: 100mm wide x 200mm high, optimum size 130mm x 250mm, maximum size 200mm x 300mm.

- The bottom of the hole must not have any sharp edges or narrow gaps in which a toe or talon could get caught.
- Where necessary there can be a 'tunnel', minimum 150mm wide x 200mm high, between the hole and the nest space.
- A grippable ledge (e.g. stone or slatted timber) below the owl hole provides an exercise platform for emerging owlets.
- *In cases where the owl hole goes directly into a nest space less than 700mm deep, an exercise platform is considered essential; the bigger the better, but not less than 250mm x 500mm wide with a grippable raised edge.*



Design requirements – nest space & dimensions

- Floor area of nest chamber: absolute minimum 0.4m² (e.g. 500mm x 800mm or 400mm x 1m), ideal size is 1m² (1 metre x 1 metre). These dimensions are bigger than those for nestboxes because built-in provision usually lacks an external exercise platform that would permit maximum wing stretching prior to fledging.
- Where there is no external exercise platform the internal box depth from bottom of entrance hole to floor of nesting area must be not less than 700mm. Note: the ideal depth for Barn Owls is at least 1 metre which should be achieved wherever space permits.
- Depth from bottom of entrance hole to floor of nesting area must be not less than 450mm provided that there will definitely be an easy-to-grip external exercise platform for fledglings to stand on outside the owl hole.
- In a large loft simply partition off a section behind the owls' entrance hole. See images of **the construction of an owl partition in a loft.**
- Stone, brick and timber are all suitable materials. Although owls are not destructive and seem unharmed by soft insulation materials, these are usually best avoided.
- In an unheated building, no insulation is required. See images of **the construction of a built-in nest space in an unheated outbuilding.**
- Lining the space is not essential although some owl workers think that a thin layer of wood flakes encourages occupation.
- An internal perch positioned *as high or higher* than the access hole may be beneficial as long as the space is big enough to accommodate one without resulting in one perched bird defecating on another underneath.



Design requirements – insulation

- From the owls' point of view, insulation is not required.
- However, there should be some form of moisture insulation between the owl space and the building interior.
- Where space is at a premium, use a highly efficient heat insulation board (e.g. 50mm Celotex polyurethane foam).
- Where space allows, use a more environmentally sustainable (and thicker) heat insulation board (e.g. a wood fibre board like Pavatex) to which a sound insulation board can be added (e.g. 60mm Pavatherm) if required.

Design requirements – human access and cleaning out



Human access is essential. Here is the interior part of an owl nest-space with its insulated inspection panel removed.

Human access is essential as the nest space will need to be cleared out very occasionally.

- A generous removable inspection hatch or door in the back of the owl space (accessible from the building interior) is usually the preferred option but in some cases an external arrangement may be a practical option.
- In the case of a loft partition, create an integral crawl-through doorway.
- The access should permit all or most of the nest space floor to be reached by hand.

Appendix A: *Photographs*









Highly suitable habitat



Highly suitable habitat





Barn owl Nesting box and pellets